Rs 100

www.pcquest.com

PCQUEST

UNDERSTAND CHOOSE IMPLEMENT IT

JUNE 2006

Quota Management with Win 2003 R2

Zenoss to Monitor your Infrastructure

Subscriber copy. Not for sale

A *CYBER MEDIA* publication

Best IT Implementation Awards 2006

137
Enterprise Implementations rated

HDFC Bank, Forest Survey of India, Tata Memor Hospital, CRPF, **SBI**, Sony Entertainment Television, **Sapient** Jindal Power,Cana Bank, Adani Wilmar, Dishnet Wireless Ltd, Eveready, **NTPL**, i2, Shamrao Vithal C operative Bank, SBI Life, Bank of India, Bon Cargos, ,CSIR, **Torre** Pharmaceuti... Bank, MTN Travelguru, Financial Services, Department of Agriculture & Cooperatio Department of Fertilizers, Directo... of M... & Inspection, Tamil Na Electricity Board, SBI, Sakl...r Sankul De...elopment ...nd Trust, **Reliance** Industri Indian Railways, Govt. of K...rala, Max ...w York Li...e, Sree **Chitra Tirunal** Institu For Medical Science, Bajaj Electricals, I...C, Gove...nment of AP, MPSEB, Govt Gujarat, Intimate Fashions, ...nban... Research & Development Center, Cogniza Gujarat Uria Vikas Nigam, United Bank of India, Mahindra & Mahindra, Indi Overseas Bank, F...od Corporation of India, Nordson India, Mahindra Engineeri Services, Tata Tele Services, Nucleus Software, Sterlite Optical Technologies, GSF BPO, Maestro Engineering, Wipro BPO, ...ajaj Allianz Life Insurance, Sahara In Life Insurance , **JP Morgan Chase**, Mahindra & **Mahindra**, Strides Arcolab, Saffr Marketing, Mascon Global,Tarun Tahiliani Design, Shyam Telecom , Empire Ho... Appliances, **Wipro** Technologies, Indian Railways, UB, Dena Bank, **Times** of Ind CNBC-TV18, AC Nielsen, Oriental Insurance, **Satya Paul Designs**, Amity Busine School, **IDBI**, Indian Navy, Alok Industries, Syntel, Bank of Rajasthan, ... Electronics, Cisco Systems, Bangalore Stock exchange, **Maruti** Udyog, Maharash... Knowledge Corporation, **GAIL**, Govt. of Maharashtra, Canara Bank, Tamil Na... State Electricity Board, Reliance InfoComm, **ICICI Bank**, State Bank of Patia Recorders & Medicare Systems, Punjab National Bank, **Crest Animation** Studi... X...Serve, Bombay Stock Exchange, OnMobile, Panacea Biotec, Delhi state industr

Build your own Knowledge Management Solution

TECHNOLOGY

Cluster Monitoring with Ganglia p22

In our next series on high-performance computing, we talk about how to implement Ganglia. It's an Open Source app for monitoring, management, and scheduling of jobs in a high performance cluster. We've implemented it on Linux, but the software can also work on UNIX. It requires an HPC that works on parallel processing.

Cover design: Neha Adlakha

Discussions and Support @
http://forums.pcquest.com

PCQuest Power Pack

PCQ Enterprise CD
Business management software to manage your business better, Help-CORE, Apache Tomcat, Zenoss, Stripes

PCQLive CD
Access your enterprise network from home over VPN, LANDesk Server Suite, taking backups with Vision, inside a tape library, a search engine for your file server

WIPRO *POWERSLIM* CD
Experience the lean, mean machine from Wipro. Look for the free CD with this issue

Western Digital 5000YS

Cyberoam CR 50i

TECHNOLOGY

New Age Display Technologies p12

While the world is busy reading about hot new processor technologies and networking, there's one revolution that's silently brewing in the background. It's display technologies, which is ironic, because it's meant to be 'seen'. Read this story to know about the technological developments in this area.

Ideas whose Time has Come

Krishna Kumar, Editor

In the beginning, there was nothing. And then came an idea. An idea so simple that it was nothing short of brilliant. That in essence is the story behind many of the winners of the Best IT implementation awards year after year.

It has been three years now that we have been tracking Enterprise IT implementations. And we have had all types of implementations. We have seen implementations that are some of the most technically challenging in the world and we have seen implementations that rival the best in the world in terms of sheer scope. We have audited implementations that are as complex as it can get. But the common thread across most, if not all of the eventual winners is the simple idea that has delivered immediate business benefits once technology enabled.

The idea part, I am also seeing some other broad trends from the nominations we receive every year for these awards.

Last year for example saw the emergence of consolidation as a trend, with many large enterprises going in for consolidation of their IT resources. This year, we are seeing ERP and portals emerging as strong trends, including in small and medium enterprises. In fact, small and medium is coming out of the shadows with a strong play in IT implementation.

Another key trend is that the Government and the public sector are implementing IT solutions in a scale that can only be called unprecedented. These projects have now gone beyond the realm of simple e-governance and bill payment solutions and are now addressing other key areas of functioning and management. The public sector is implementing solutions that can

put even the best of private scetor ones in the shade. And I am talking of innovation and business benefits and not just scale.

Another interesting trend I am seeing is the emergence on the vendor side, of smaller players who are being given key projects even by the majors in the user industry. Consider this: In most of the projects where the simple idea is the key, the implementer is almost always an in-house team or a smaller player in the market. Is there something that the bigger players are missing out on the innovation front?

Another significant pointer is the high level of involvement of in-house IT teams in almost all the projects that have come up this year. In this age of outsourcing, it is heartening to see this level of involvement and ownership from the IT teams.

In the previous years, a few projects used to stand out as outstanding, compared to the rest. This year, the quality of most of the projects we got is so good that it is difficult to point out a few as outstanding. We are witnessing a sea change in the quality of IT implementation is Indian enterprises.

India is known for its ability to implement IT solutions in other geographies, while the country itself was supposed to be IT starved. I think that that phase is now over. We are witnessing an explosion of IT implementations by Indian businesses and government, and that can only augur well for our future.

The cover story this month is long by any standards. But may I suggest that you have the patience to read it through. You might just get an idea that could work wonders for your business too. After all, is it not said that well begun is half done? And the idea is it at the very beginning. ☐

SIP or H.323: Which Protocol for Multimedia Communication?

Anil Chopra, Associate Editor

Voice over IP and IP Telephony are two hot topics today, with just about every organization being in the process of seriously deploying them nowadays. One of the names that crops up nowadays in relation to these two terms is SIP or Session Initiation Protocol. It's a protocol meant to address the problem of multimedia communication over IP. Another name also crops up here, called H.323, which is the older and more accepted protocol for the job. It has a wider deployment base than SIP, and is also far more complex. Since SIP has been around since 1999, there's been a constant debate on whether it would prove better than H.323. Let's take a look.

Starting with H.323, the protocol is quite complex, and being an older standard, it was primarily used on ISDN lines for video conferencing. But that's not the only thing that this protocol does. It's currently the main protocol that allows voice, video and data communication, and not to mention Voice over IP as well. It's actually a part of a larger set of recommendations by the ITU, called H.3x, which contains many protocols. These define all aspects of the conference network, such as what all equipment would be used, such as multi-control units, terminals, gatekeepers, etc. It also defines what protocol would be used for call initiation, termination, registration, forwarding, etc. While all this definitely means that H.323 protocol has a proven and well-defined track record, it also means that it carries a heavy baggage of multiple protocols with it. The protocol has predefined methods for everything. So for instance, it specifies the protocol Q.931 has to be used for call setup, H.245 has to

be used for exchanging terminal capabilities, and so on and so forth. SIP, on the other hand, is a far simpler protocol than H.323, and has a broader scope as well. Unlike H.323, which defines all the protocols that must be used, SIP doesn't mandate any such thing. It's only a session initiation protocol and is very modular in nature. It therefore leaves it up to the implementer to decide what can be added to it. While that's an advantage, it can end up being a disadvantage too, as it could lead to interoperability issues. If different vendors develop their own proprietary ways of using the protocol, it could mean a lot of trouble for the customer. For instance, there is no single way of implementing SIP. H.323 on the other hand has a predefined procedure of implementation, which is followed everywhere.

One benefit of SIP is that it's a lightweight protocol, and uses only text messages for all its communication. H.323, on the other hand, uses binary encoding during communication which makes it fairly difficult to troubleshoot. Another key advantage of SIP is that it also has inherent support for communication over a wide area network, whereas H.323 was designed keeping LANs in mind. This makes SIP far more scalable.

Another factor in favor of SIP is its addressing capabilities, wherein it can use URLs, email ids, or even H.323 conventions to identify specific hosts. H.323, on the other hand, supports limited addressing. No wonder then that SIP is being embraced by all key players in the market. For instance, 3GPP has adopted the protocol, and there are various types of SIP based products available from key vendors, like Avaya,

Microsoft, Bea, Cisco, Linksys, Hughes Software Systems, and many others. Avaya has a converged communications server, which does SIP based telephony. Bea has an integrated J2EE-SIP application server. Hughes has a SIP application server that supports proxying, registrar, redirecting of calls, conferencing, and much more. Another company called Active Telecom has developed an IP class Centrex, which provides features like virtual PBX, unified messaging, CTI and many others.

As can be seen, the key benefit of SIP is its extensibility, which allows vendors to take it beyond basic voice and video conferencing, and also includes instant messaging and e-mail. A vendor could come up with a software SIP server supporting just voice, and later provide additional modules for video, and other communications channels. Possibly, this would be the key enabler in making unified messaging a reality.

Unified messaging has been a much talked about buzzword for quite some time now, but still has a long way to go. Possibly, SIP might bring some order to the chaos and make it a reality very soon.

So which protocol standard will prevail in the future? Currently, the ball seems to be in favor of SIP, because of its broader scope, which going far beyond what H.323 offers. But given the fact that H.323 has been more widely deployed, and is fairly robust, it won't go away so soon. SIP's popularity will increase as vendors start using its broad scope to bring out better applications for communication. Already, as per various market research organizations, it's expected to become the biggest VoIP carrier in the near future. □

Cluster Monitoring with Ganglia

You can now monitor those number crunching beasts using this PHP-based graphical tool called Ganglia. We unfold the mysteries behind the installation and use of Ganglia

Anindya Roy

SERIES
HPC
PART VI

From the last few months, we have seen many types of clusters, such as SSI-based like OpenMosix and MPI-based like Oscar and Flash Mob etc. If you search over the Net, you will find there are quite a few different kinds of cluster products available out there. Some have a graphical front end to monitor the nodes and some even don't have one. Lets take my favorite example, OpenMosix. This one does have a graphical monitoring application called OpenMosixView, but have you ever noticed that if the number grows to something around a hundred nodes, then how difficult it becomes to monitor them? Plus it only shows you the current RAM and CPU utilization of the nodes. What about the disk usage? Or if in case, you want to see what was the CPU utilization was in the last one hour or day, then?

These are some things which are very difficult to monitor in case of large Grids or Clusters. To make things even worse, let's say you
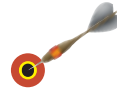
have multiple clusters, one is SSI-based and the other an OSCAR or ROCK with MPI support. And you want to monitor both of them from one place. Then, what will you do?

And that is why this time we realized that it's not just enough to describe different clustering techniques, but it is also important to

and include some applications with which you can actually go forward and manage those huge clusters with ease. So this time, we took one of the most popular Cluster and Grid monitoring tool called Ganglia. To give you an idea, this product is so popular that just about every company that has a Grid or HPC would be using this application in some manner or the other. The application is Nix-based, but to my surprise, they have Microsoft on their user's list. I am not very sure where exactly Microsoft uses it but Ganglia website says they do. For more info on it, go to http://ganglia.sourceforge.net/ and check out the 'Who uses Ganglia' sections. You will see all the big names like NASA, Cray, Sun, Boeing, US Air Force, etc.

What is Ganglia?

According to Ganglia's website, it is a scalable distributed monitoring system for high-performance computing systems such as Clusters and Grids. It is based on a hierarchical design targeted at federations of clusters. It uses widely used technologies such as XML for data representation, XDR for compact and portable data transport, and RRDtool for data storage and visualization. It uses carefully engineered data structures and algorithms to achieve very low per-node overheads and high concurrency. The implementation is robust, has been ported to an extensive set of operating systems and processor architectures, and is currently in use on thousands of clusters around the world. It has been used to link clusters across university campuses and around the world and can scale to handle clusters with 2000 + nodes.

In slightly simpler terms, Ganglia is an application with which you can monitor any kind of Cluster or Grid which runs on any Nix platform. You can even monitor different types of Clusters from one installation of Ganglia and from a single front end.

What can it do?

Broadly, the software is capable of monitoring average and individual CPU, memory, swap, and disk usage by the cluster nodes. So just by looking at the front page of Ganglia, which is essentially a dashboard, you will be able to see how busy or free is your Cluster and what was its performance and utilization in the last one hour. Not only that, you can also see and monitor the job queue for the Grid.

The representation is completely graphical and is really easy to understand and use. It can do many other great things which we will see later on. But if you want to see the thing working before you go forward and deploy it in your cluster, then go to http://ganglia.info/?page_id=47 and select one of the two demo clusters. For instance, the second option is a Ganglia deployed over a Rocks Cluster, which has around 900 nodes. Here you can actually go, and play around and to how it works.

Installation nightmare

Now comes the main part of configuring and installing the software. You will get to know why I am calling its installation a nightmare. But before you start, be sure that it is not going to bother you as much as it bothered me because, I did not have any documentation handy which could have told me about the real cause of the problem while I was installing it. And to solve the issue, I had to search in thousands of forums and help-pages before I figured out the solution.

When I first saw the application and thought of doing an article on it, I just downloaded three RPMs from 'http://sourceforge.net/project/showfiles.php?group_id=43021&package_id=35280' and installed them on top of a full installation of PCQ Linux 2006 and restarted my webserver (Apache). Then, I opened http://localhost/ganglia. and to my surprise, the thing worked without any configuration and showed a single CPU single node cluster. I was so happy that I immediately isolated two nodes from my earlier OpenMosix cluster, which essentially has a full installation of PCQ Linux 2004 having OpenMosix support out of the box. I used PCQLinux 2004 for the OM cluster because we still have a stable release of OM under kernel 2.4 version. And I am sure that most people out there will use 2.4 kernel based clusters only because it's more stable for this purpose.

Then I installed those RPMs on top of the two node OM Cluster. To do so, I first downloaded three of them from the following sites:

Here is a live site, where you can see Ganglia working on over 800 nodes cluster
(Courtesy: rockscluster.org)

http://prdownloads.sourceforge.net/ganglia/ganglia-gmetad-3.0.3-1.fc4.i386.rpm?download;

http://prdownloads.sourceforge.net/ganglia/ganglia-gmond-3.0.3-1.fc4.i386.rpm?download; and

http://prdownloads.sourceforge.net/ganglia/ganglia-web-3.0.3-1.noarch.rpm?download

The first one is Ganglia Meta package, the second one is the main monitoring daemon package and the last one is the web interface. After downloading, run the following in sequence to install them:

```
#rpm –ivh ganglia-gmetad-3.0.3-1.fc4.i386.rpm
#rpm –ivh ganglia-gmond-3.0.3-1.fc4.i386.rpm
#rpm –ivh ganglia-web-3.0.3-1.noarch.rpm
```

Now you have to check whether you have RRDtool's latest version installed on your machine or not. If not, then you have to download it from   http://people.ee.ethz.ch/~oetiker/webtools/rrdtool/pub/ rrdtool.tar.gz and then install it as follows:

```
#gunzip rrdtool.tar.gz
#tar –xvf rrdtool.tar.gz
#cd rrdtool
#./configure
#make
#rpm –e rrdtool (to de-install any older rrdtool if present)
#make install
```

This will install RRDtool on your machine. I didn't install these commands on top of PCQLinux 2006 installation, because it already has the latest version of RRDtool in it. The second thing I did was to install the ganglia-gmond rpm to the second cluster node. This is because Ganglia is an agent based monitoring tool and the gmond daemon should be installed on top of all the nodes, which you want to monitor with Ganglia.

After doing all this, I thought I was ready with Ganglia. I restarted the web server on the first node where I had installed all the RPMs including RRDtool and the ganglia web package. And then fired up

The Ganglia time bug

There is a bug in RHEL3.0 and similar kernels in the 2.4 series relating to Time and the Opteron chipsets. What can happen is the kernel will try to use the TSC timer because the HPET timer fails (reason unknown yet). However, the TSC timer sometimes will not work properly for some reason (also under investigation) and you end up with weird times in your system. The fix was actually quite simple and should probably go in a FAQ or a handbook for Ganglia. If you add 'notsc' to the grub boot line, it forces the kernel to use the PIT timer, which works perfectly. All of our problems vanished into thin air after we did it.

the browser and tried to connect to http://localhos/ganglia. The site opened, but alas! there were no graphs on it. From here on, my nightmare started.

The site and its links were fully working except that there were just two cross marks in place of graphs. Then I went on to hunt for the solution.

And it took me around 4 hours to fix it. It was nothing but the problem with the clock synchronization inside the kernel. For more details on the bug, read the box item 'The Ganglia time bug'. And the solution was as simple as adding 'notsc' just after the 'LABEL=/' in the kernel parameter in the /boot/grub/grub.conf file. Instantly after doing this change and restarting my machine, I opened up the Ganglia web interface. I found everything was in place and working very smoothly.

I was impressed by the software to such an extent that I have decided to make a customized distro for all my cluster OSs with Ganglia built into it. But for that, you will have to wait for the future issues of *PCQuest.* I am also not sure when I would do that, but if you feel such a distro is worthwhile, then write to us, and we may prepone the schedule for that article and make it next month. ▷

Using Ganglia: The sweet dream

1

The is the front page of Ganglia webpage, when you open http://localhost/ganglia. From here, you can see and monitor the average CPU and memory utilization of the Cluster Grid, you can also monitor the job queue

2

Clicking on any of the graphs on the previous slide will take you to this page. It will show you some more details about the cluster, which includes the network and load on the Cluster in the last one hour

3

When you click on the 'Choose Node' drop down menu, you will find the IPs of all the nodes. Selecting one will display all details about that particular node, average load on it, memory and CPU utilization, etc

4

Click on Node View link at the top of the page. You see a box which has detailed view of the node. It includes details about the software such as kernel version, swap space, uptime, etc and hardware such as, disk space, utilization, etc　□

Coming Back to POJOs

The new EJB 3.0 specification has a lot of changes that range from doing away with old complicated EJB architecture to annotations that make life simpler for Java EE developers

Anadi Misra

EJB 2.1 has been in wide use mainly because of the performance and scalability it provides. However, the fact is that it is very cumbersome and complex to write applications using it. For example, when writing a Web component or Web service, we had to line up repeated lines of code for binding the naming and similar procedures. Also, when creating beans, we had to implement a sea of interfaces. These issues lead to the gradual adoption of POJOs (Plain Old Java Objects) when coding beans in enterprise applications.

The EJB 3.0 Specification (or the JSR 220) introduces a simpler architecture for enterprise beans. The new specification, not surprisingly, makes use of POJOs and annotations to do away with implementing remote, local and home interfaces. Another big change from the previous specification is the omission of having to write deployment descriptors that were an integral part of an EJB 2.1 based bean. The new architecture allows developers to simply write source code using annotations and compiling it produces XML documents, the Local/Home/Remote interfaces and other classes. In this article we take a sneak-peak into the new architecture.

The basics

In contrast to earlier EJB specifications, enterprise beans in 3.0 are simple Java objects. This change translates into two major differences as we said earlier—the EJB 2.1 way of using deploy-

Direct Hit!
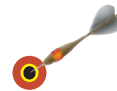
Applies to: Java EE developers

USP: Explore the new ways to develop enterprise applications with Java EE using EJB 3.0

Primary Link: http://java.sun.com/products/ejb/docs.html

Google keywords: ejb 3.0

ment descriptors for defining an application with respect to behavioral aspects can be replaced with annotations. This does not mean that deployment descriptors no longer exist, but that annotations can be put to use in place of these descriptors. Or if required, you can go ahead with descriptors (you will need to figure out why you would do that) like old times.

The second difference is that implementations of remote/local and home/local interfaces are not required. The Entity Bean in the new specification is a non-abstract class containing implementations of the getter/setter methods in comparison to the abstract 'Entity Bean' that was being used earlier. Note that although the EJB 3.0 'Entity Bean' does not require component interfaces, it may implement a business interface. The use of annotations proliferates to more than just doing away with deployment descriptors.

In EJB 3.0, annotations can also be provided for dependencies and JNDI lookups, thus, simplifying the context-lookup coding. Other than this, annotations have also made their way into object-relational mappings in the new specification.

Annotations

Annotations are an integral part of the beans definition in the new specification. Firstly, we have annotations to define whether the bean is an Entity or a Session bean. These are the '@Entity' ▷
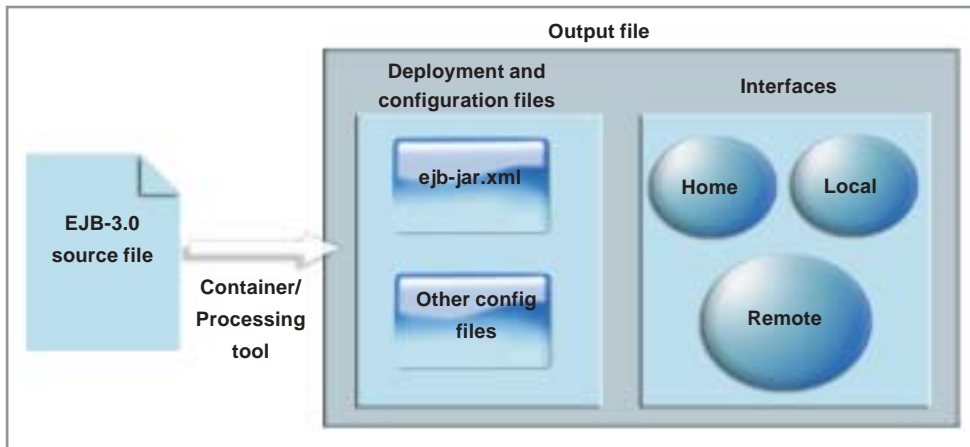
The new architecture allows developers to represent all information in the form of annotations, which are then used to extract descriptors and interfaces by the Container or the Processing Tool

and '@Stateless' or '@Stateful' annotations respectively. For Entity beans, the table name, column name and primary key column properties are also specified as metadata annotations. The '@Table' annotation specifies the table used for the entity bean's persistence.

The name of table is taken to be that of the bean if no name is specified using the name element. The '@Column' annotation specifies a column in the table corresponding to a bean property. The primary key is specified by the '@Id' annotation, whereas '@Transient' defines a non-persistent bean property. Similarly, there are other annotations for Session beans also, such as '@Resource' that specifies the resources to look up to (ie, obtain the EntityManager in runtime and the '@Remote' annotation that specifies the remote interface).

Similarly, the QL (Query Language) queries have also been changed to make use of annotations. They were specified using the '<query/>' tag element in the ejb-jar deployment descriptor in the earlier architecture.

In 3.0, they are specified using '@NamedQuery' and '@NamedQueries'. The former represents a single query where as the latter represents a group of queries. For Container-Managed Relationships that were specified using the <ejb-relation/> tag element in ejb-jar deployment descriptors, the new architecture has introduced four different annotations '@OneToMany', '@OneToOne', '@ManyToOne' and '@ManyToMany' for the four relationships.

Sample beans

A sample Entity bean in EJB 3.0 can be coded as follows.

```
@javax.persistence.Entity
public class NewEntity {
    private Long id;
public NewEntity() {
}
@javax.persistence.Id
@javax.persistence.GeneratedValue(strategy =
javax.persistence.GenerationType.AUTO)
    public Long getId() {return id;}
    public void setId(Long id) {this.id = id;}
…}
```

The '@GeneratedValue' annotation provides for auto-genera-

EJB 3.0 takeaways

The new architecture extends Enterprise JavaBeans to also include the following new functionality and simplifications to the earlier EJB APIs.

■ Developers no longer need to specify common and expected behaviors or requirements when designing EJB containers. You only need to specify what's uncommon
■ The requirements when using checked exceptions are reduced
■ There is no need to implement call-back interfaces
■ There is no need for Home interfaces for Session beans
■ Entity bean persistence is now simplified with support for lightweight domain-modeling, inheritance and polymorphism
■ Session and message driven beans can use interceptors
■ All required interfaces for persistent entities have been eliminated
■ EJB QL has been enhanced to provide more functionality—projection, explicit inner and outer joins, bulk updates and deletes, sub-queries and 'group by'. You can also create dynamic queries as well as use native SQL

Source: JSR-220

tion of a unique ID, which is of type 'long' in our case. }

In conclusion

The new specification has certainly made changes for the better as far as enterprise beans are concerned.

Even the persistence model has been changed from a persistence-schema based abstract model to a more light-weight OR mapping, again using annotations. With each of these not tagged as mandatory in the architecture, we have room for interoperability as well.

Whether or not these changes help in increasing EJB adoption to a greater extent than it's current state is something that would become calculable with time.   □

Java EE Apps with Beehive

Beehive is a new framework capitalizing on 'ease of development' trend in Java EE apps. Our sample application shows how to get started with it

Anadi Misra

In this part, we will take you through some sample code snippets for making a Net-UI and Control based application. We will also look into their integration with other Java EE based specifications and frameworks such as JSF.

Creating a Net-UI enabled App

A Net-UI application has a set of JARs, configuration files and a descriptor, conventionally named as 'web.xml'. Its pre-requisites include 'Apache Ant' and a Java EE App Server/ Servlet Container. Make sure you have Apache Ant's bin directory added to your system's 'PATH' variable. To start-off you can create a new Net-UI app by running the following ant command:

```
ant -f <path to beehive-root>\beehive-imports.xml
new.netui.webapp
```

You will be prompted for a 'fully-qualified' path for your Web app. The Net-UI app directory structure is created with the path you provided, which contains the 'src' and 'web' directories containing the configuration and build files. The 'src' directory contains a 'SharedFlow' class that defines actions, states and exception handlers that will be shared by page flows that reference this SharedFlow class. The directory structure hence created is still raw and needs some editing, typically in the build.properties file in the root directory of the app's folder before we can proceed with coding:

■ Value for beehive.home entry in the file should point to the root directory of Beehive installation.

■ Set a value for 'contextPath' entry. This value is used to determine
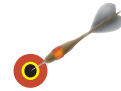
Direct Hit!

Applies to: Java developers

USP: Making JAVA EE application development easier

Primary Link: http://beehive.apache.org

Google keywords: Beehive, net-ui-control

the context-path when the '.war' archive is deployed to an application server.

■ If you are not using Apache Tomcat then the entries 'servlet-api.jar' and 'jsp-api.jar' should also be changed to point to valid path values of your system.

Creating the Controller Class

The 'Controller' class handles page flows along with exceptions-handling and navigation rules in a Net-UI app. We will implement one that only forwards the page flow to 'index.jsp' web page.

```
import org.apache.beehive.netui.pageflow.annotations.Jpf;
import org.apache.beehive.netui.pageflow.PageFlowController;
@Jpf.Controller(
    simpleActions={
        @Jpf.SimpleAction(name="begin", path="index.jsp")
    }
)
public class Controller extends PageFlowController{}
```
▷

The '@Jpf.Controller' annotation is a main class-level annotation whose inclusion is mandatory in a 'Controller' class definition. Here, we define a simple action using the annotation. Save this file to either 'web' or 'src' directory. When saving in web directory, simply overwrite the existing 'Controller' class with this one. Next, define a simple JSP page that displays "Hello World!". Here's the page definition:

```
<%@ page language="java" content-
Type="text/html;charset=UTF-8"%>
<%@ taglib
uri="http://beehive.apache.org/…
…netui/tags-databinding-1.0"
prefix="netui-data"%>
<%@ taglib uri="http://beehive.apache.org/netui/tags-html-
1.0" prefix="netui"%>
<%@ taglib uri="http://beehive.apache.org/netui/tags-tem-
plate-1.0" prefix="netui-template"%>
<netui:html>
  <head>
    <title>Net-UI Sample</title>
    <netui:base/>
  </head>
  <netui:body>
    <h1>
      Hello World!
    </h1>
  </netui:body>
</netui:html>
```

Hello World from NetUI

Once you've saved all files, run 'ant clean build war' from your apps root-directory. This will create a deployable '.war' archive with the name you had specified in the contextPath entry in 'build.properties' file. You can then deploy your web-archive to your application server following the procedure applicable on the basis of the web server you have installed. After deploying the app you can run it by accessing http://localhost:8000/myNet from your browser. Here 'myNet' is the contextPath we provided in the 'build.properties' file.

Creating a Controls App

In our sample Controls app, we will create a controls interface that contains a 'hello()' method, which will then be implemented in a different class. Here, first create a directory structure and then edit 'build.properties' file to ensure a smooth run. Create an empty directory named 'ctrl-new' in your root drive. Next, we need a build.xml and a build.properties file. For this we can use the
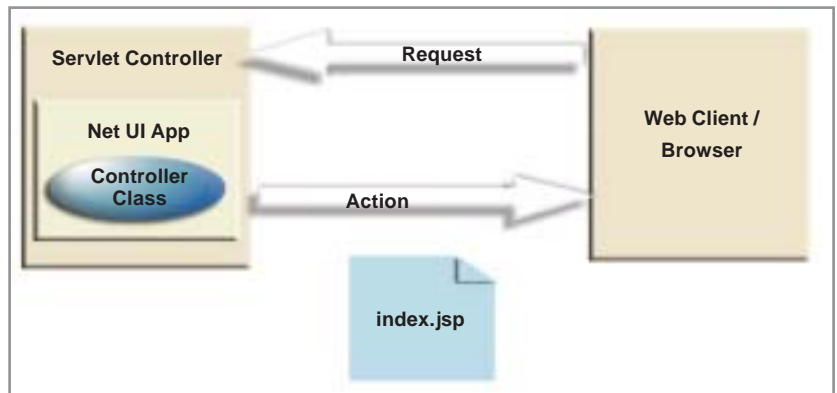
Our sample Net UI App uses the flow that we define in the Controller class to forward the page flow to an 'index.jsp' page

build.xml provided in the samples/controls-blank folder of the Beehive distribution and edit it. Copy this file to the 'ctrl-new' directory and change the name field of project tag to 'Controls Sample'. Next create a 'build.properties' file and add the path to your Beehive installation's root directory in a 'beehive.home' variable. A control in Beehive contains an interface that lists all the methods that can be accessed or invoked by the controls client, i.e. the implementer class. Our 'Controls Interface' is as follows:

```
import org.apache.beehive.controls.api.bean.ControlInterface;
@ControlInterface
public interface Hello { String hello(); }
```

The '@ControlInterface' specifies that this is a 'Controls Interface'. Next implement this simple method in our controls client:

```
import org.apache.beehive.controls.api.bean.ControlImple-
mentation;
@ControlImplementation(isTransient=true)
public class HelloImpl
    implements Hello {
    public String hello() { return "Hello World!";
    }
}
```

Save both files in 'src' directory within the 'ctrl-new' root directory. Next build a sample 'Controls' application using 'ant -f ctrl-new\build.xml build' command. This will create a 'mycontrols.jar' file in 'build' directory within the root-directory. To use the name of your choice, edit the property `<property name="build.jar" value="<full name of JAR file"/>` in build.xml.

Now that we have outlined the basics that govern making Net-UI or Controls apps, we will look into some advanced features such as integrating Net-UI with JSF, and extending Controls to create EJBs in the next part. □

Simplify Web Applications with Stripes

The Stripes Framework looks towards enabling web application development without too much of configuration and can be easily extended. A sample app on how to go about it

Anadi Misra

Stripes is a JDK 1.5 based framework for building web applications. What makes this framework stand apart from the rest of the java based frameworks is the fact that it does not require extensive configuration other than adding entries for a 'Dispatcher Servlet' and filters in the deployment descriptor. The latest release (Stripes 1.3) also provides 'Spring' and 'AJAX' integration. That way it can truly help with building low bandwidth web applications. The good thing about Stripes is that it is simple and hence easy to use. It uses JDK1.5, Servlet 2.4 and JSP 2.0. All you need to run a Stripes based application is a Servlet container that supports these versions. In this article we provide a small sample application that displays a greeting message to describe how to get started with using this framework for your web application.

How it works

Stripes' presentation layer consists of web pages that can be defined using JSP. These JSP pages can import the Stripes tag-library using the following declaration in the JSP file:

```
<%@ taglib prefix="stripes"
uri="http://stripes.sourceforge.net/stripes.tld"%>
```

The action elements in these JSP pages forward the request to 'ActionBean'. This is the heart of all properties of the action element and processing logic in a Stripes application. This is a major difference with other lightweight component based frameworks where the same class or object at runtime handles both these tasks. Moreover you do not need any external configuration for defining the 'Action-Bean' implementation in an application or for binding the JSP page
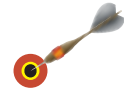
Direct Hit!

Applies to: Java Developers

USP: Build lightweight web applications with minimal efforts

Primary Link: http://stripes.mc4j.org

Google keywords: java software frameworks

request to the 'ActionBean'. This information is defined in the 'ActionBean' itself.

Setting it up

You need to download the Stripes framework package from the URL http://stripes.mc4j.org/confluence/display/stripes/Download and unzip it to a location of your choice on the hard drive. Thereafter you need to add the path for all the 'jars' that you find in the 'lib' directory of your Stripes installation to the 'classpath' variable.

Configuring a Stripes application

Configuration is minimal in Stripes; we first start by configuring the 'web.xml' file to define a 'Stripes Filter' and a 'Stripes Dispatcher' Servlet. These entries will be as follows:

```
<filter>
<filter-name>StripesFilter</filter-name>
<filter-class>
net.sourceforge.stripes.controller.StripesFilter
</filter-class>
```

▷

```
</filter>

<filter-mapping>
    <filter-name>StripesFilter</filter-name>
    <url-pattern>*.jsp</url-pattern>
    <dispatcher>REQUEST</dispatcher>
</filter-mapping>

<filter-mapping>
        <filter-name>StripesFilter</filter-name>
        <servlet-name>StripesDispatcher</servlet-name>
        <dispatcher>REQUEST</dispatcher>
</filter-mapping>


<servlet>
    <description>Stripes Dispatcher Servlet</description>
    <servlet-name>StripesDispatcher</servlet-name>
<servlet-class>
net.sourceforge.stripes.controller.DispatcherServlet
</servlet-class>
    <load-on-startup>1</load-on-startup>
</servlet>

<servlet-mapping>
    <servlet-name>StripesDispatcher</servlet-name>
    <url-pattern>/dispatcher</url-pattern>
</servlet-mapping>
<servlet-mapping>
    <servlet-name>StripesDispatcher</servlet-name>
    <url-pattern>/action/*</url-pattern>
</servlet-mapping>
<servlet-mapping>
        <servlet-name>StripesDispatcher</servlet-name>
        <url-pattern>*.action</url-pattern>
</servlet-mapping>
```

As you can see from the deployment descriptor listed above you do not need to configure any thing else except the Stripes Filter and the Servlet mappings. Next you need to define 'log4j', 'commons-logging' and a 'StripesResources' properties file. The first two contain standard entries for a web application whereas a StripesResources file defines error messages for defined validations and the file has to be available in at the folder specified by CLASSPATH. Also setup a context path entry 'Stripes-PCQ' in 'context.xml'

Building the JSP Page

Our application's JSP page displays a form asking for entering name, age and sex. After that, it prints a display message with the values provided. The JSP page is as follows:

```
<%@ page contentType="text/html;charset=UTF-8"
language="java" %>
<%@ taglib prefix="stripes"
uri="http://stripes.sourceforge.net/stripes.tld"%>
<html>
<head>
            <title>
                        Stripes Demo PCQ
            </title>
</head>
<body>
  <stripes:form action="/stripes-pcq/HelloWorld.action">
    <table>
            <tr>
                    <td>Enter your Name</td>
                    <td><stripes:text name="usrName"/></td>
            </tr>
            <tr>
                    <td>Enter your Name</td>
                    <td><stripes:text name="age"/></td>
            </tr>
            <tr>
                    <td>Enter your Name</td>
                    <td><stripes:text name="sex"/></td>
            </tr>
            <tr>
                    <td><stripes:button name="showGreet"
value="Greet"/></td>
            </tr>
            <tr>
            <td>Srtipes Greets</td>
            <td>${actionBean.greet}</td>
        </tr>
    </table>
  </stripes:form>
</body>
</html>
```

The 'ActionBean' Implementer

The ActionBean we described earlier is an interface that implemented for application specific goals in Stripes. Here we implement this interface overriding two of its methods—'getActionBeanContext()' and 'setActionBeanContext()'. The ActionBean implementation is as follows:

```
package com.pcq.stripes;
import net.sourceforge.stripes.action.DefaultHandler;
import net.sourceforge.stripes.action.Resolution;
import net.sourceforge.stripes.action.ForwardResolution;     ▷
```

```
import net.sourceforge.stripes.action.ActionBean;
import net.sourceforge.stripes.action.ActionBeanContext;

public class HelloWorldBean implements ActionBean {
    private ActionBeanContext context;
    private String usrName;
    private int age;
    private String sex;
    private String greet;

    public ActionBeanContext getContext() { return context; }
    public void setContext(ActionBeanContext context) { this.con-
text = context; }
    public String getusrName() { return usrName; }
    public void setusrName(String usrName) { this.usrName = usr-
Name; }
    public int getAge() { return age; }
    public void setAge(int age) { this.age = age; }

    public String getSex() { return sex; }
    public void setSex(String sex) { this.sex = sex; }

    public String getGreet(){
        return greet;
    }

    public void setGreet(String greet){
        this.greet = greet;
    }

    public void setGreet(String name, String sex){
        if(sex.equals("Male") || sex.equals("male") ||
sex.equals("MALE"))
            greet = "Hello Mr. "+name;
        else if(sex.equals("Female") || sex.equals("female") ||
sex.equals("FEMALE"))
            greet = "Hello Ms. "+name;
    else greet = "Hello "+name;
}

@DefaultHandler
public Resolution showGreet() {
    setGreet(this.getusrName(),this.getSex());
    return new ForwardResolution("/Stripes-PCQ/index.jsp");
}
```

These methods provide the ActionBean with access to the ActionBeanContext, which provides access to the HttpServlet Request and HttpServletResponse, as well as other information about the current request. Most of the code is pretty obvious except for a '@DefaultHandler'.

This annotation describes application behavior if it cannot find out what button the user hit (in case you press enter key!), which in our case is to do the same, i.e. print the message. The Resolution Stripes will identify the showGreet() method as a 'handler' method. When a request comes to the HelloWorldBean, and the user hits a submit button with name (not value) "showGreet", this method will be invoked. Just like with the URL above, the name of the event that a method handles can be overridden using the @HandlesEvent annotation.

With all the files defined you need to build the WAR archive using any tool and simply deploy it to a Servlet container or application server of your choice. The deployment procedure would vary from server to server. Access the following URL to view the JSP page: http://localhost:8080/Stripes-PCQ/index.jsp

In conclusion

The framework is pretty easy to use and setup. It has some good design features such as the 'ActionBean' we described and is extensible to AJAX. It can surely be a one-stop shop for developers looking for resource friendly web applications that can be coded and deployed without much fuss.

Security Realms in Tomcat

Tomcat's built-in security realms can restrict resources based on URL patterns and enable role-based security. Let us seek some details on what they are and what they do

Kunal Jaggi

SERIES
Tomcat
PART I

Security means different things to different people, but everyone agrees that there is a need to control access so that only authorized users can access the resources. Java EE applications consist of components that can contain both protected and unprotected resources. Often, you need to protect resources to ensure that only authorized users have access. On the Web, security boils down to four major issues namely authentication, authorization, confidentiality and integrity. In a series of two articles we'll first explore security realms in Tomcat and then dive into SSL configuration and explore programmatic security.

Security in Java EE Web tier

The Java EE specification follows a declarative mechanism for defining security to constrained resources in a Web application. Declarative security expresses an applications security structure, including security roles, access control and authentication requirements, in a form external to the application. This is often referred to as role-based security configuration.

Servlets use role-based authentication and authorization to manage access. A role is a definition of the way a user will use the system. It's an abstract logical grouping of users who have similar responsibilities. Some roles include user, administrator, manager and so on. The Java EE specification prescribes a model that separates the application developer from the application deployer.

Security in Java EE Web applications adopts this model where developers have very little to worry about security. A major part of se-

When access is restricted to a resource, Tomcat server causes an automatic authentication request to the remote browser
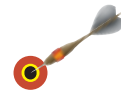
Direct Hit!

Applies to: Java EE developers

USP: Restrict directory access to secure resources in Java EE Web applications

Primary Link: http://java.sun.com/j2ee/1.4/docs/tutorial/doc/Security.html

Google keywords: Java EE security, Web-tier security

curity configuration is carried out at deployment time. Security in Java EE applies to all the tiers of an enterprise application. It is also applicable to JVM and EJB calls, but currently we restrict ourselves to security issues in the Web tier, which is implemented in the servlet container.

Security realms

A security realm is a collection of users and groups that are controlled by an authentication policy. It's a mechanism used for protecting Web application resources. A security realm is merely a place where authentication information (username, password and their groups) is stored. For developers, a security realm is merely a container specific implementation of Realm interface. Tomcat ships with two out-of-the-box security realms, namely memory realm and JDBC realm. Let us now explore these security realms.

Memory realms

A realm is a place where authentication information is stored. In its simplest form, a realm is a list of user names, passwords and roles. In Tomcat, you can use an XML file called 'tomcat-users.xml', located in %CATALINA_HOME%\conf directory, which holds name-password-role sets that the container uses to authenticate app users as shown below.

```
<tomcat-users>
 <role rolename="manager"/>
 <role rolename="admin"/>
 <role rolename="guest"/>
 <user username="kunal" password="secret" roles="admin "/>
 <user username="marshal" password="secret" roles="manager "/>
 <user username="ramesh" password="secret" roles="guest"/>
</tomcat-users>
```
▷

The 'name' attribute has a string representing the username that will be used in the login form. The 'password' attribute contains a string representing the password that will be used to gain access to protected resources. Finally, the 'roles' attribute contains the role/roles assigned to the named user. If a user belongs to more than one role, the value of the role attribute must contain a comma-separated list of roles. That 'tomcat-users.xml' file applies to all applications deployed under Web applications. It's known as the memory realm because Tomcat reads this file into memory at start-up time. The <role> tag is used in defining security roles. This helps in mapping the roles in vendor specific 'users' file to the roles in the DD (Deployment Descriptor) 'web.xml' file (shown later). Please note that any changes made to this file require a restart.

JDBC realms

A JDBC security realm class is much like the memory realm, with the difference of where it stores its collection of users. A JDBC realm stores all of its users in a user-defined, JDBC-compliant database. We'll use MySQL for storing user credentials and group information. We will need three tables—for storing user credentials, for group names and finally, a table which maintains association between a user and roles, as shown in the following code.

```
CREATE TABLE users(
user_name varchar(25) NOT NULL,
password varchar(25) NOT NULL,
PRIMARY KEY(user_name));
CREATE TABLE roles(
role_name varchar(25) NOT NULL PRIMARY KEY
);
CREATE TABLE user_roles(
user_name varchar(25) not null,
role_name varchar(25) not null,
PRIMARY KEY(user_name, role_name)
```

```
);
insert into users values('marshal','secret');
insert into users values('kunal','secret');
insert into users values('james','secret');
insert into users values('ramesh','secret');

insert into roles values('manager');
insert into roles values('admin');
insert into roles values('guest');

insert into user_roles values ('marshal','manager');
insert into user_roles values ('kunal','admin');
insert into user_roles values ('james','guest');
insert into user_roles values ('ramesh','guest');
```

Configuring JDBC realm in Tomcat

Next, we have to fine tune Tomcat to enable JDBC realm. We need to edit the server.xml file, which resides in the conf directory of your Tomcat installation (CATALINA_HOME). But, first the default MemoryRealm needs to be commented out as follows.

```
<!--
    <Realm className="org.apache.catalina.realm.Memo-
ryRealm" />
    -->
<!-- Configuring JDBC Security Realm -->
<Realm className="org.apache.catalina.realm.JDBCRealm" de-
bug="99" driverName="com.mysql.jdbc.Driver"
connectionURL="jdbc:mysql://localhost/secureDB" connection-
Name="kunal"
    connectionPassword="java_facier"
    userTable="users"
    userNameCol="user_name"
    userCredCol="password"
```
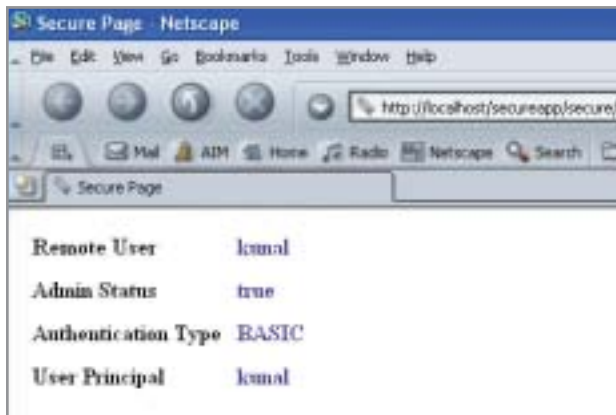

When the authentication is successful, the execution continues and our users will see this page

If the authentication fails because of invalid credentials, this page is sent automatically ▷

Roll your own IPMS

Acquiring and deploying software to manage your intellectual property is a big deal. Not having exactly the right solution can prove counter productive. This series takes you a step at a time into building your own IPMS

Sujay V Sarma

SERIES
IPMS
PART I

Intellectual property in your enterprise exists at many different levels in a variety of forms. Right from traditional document based IP to that on paper and someone's e-mail and address book, it is all IP and you have a need to make it available to those who need it and manage it (including protecting and archiving it). We have previously examined what IP, in its various forms and means, can do for you and what you should do for it (*Document Management*, pg 57, May 2005; *Managing your Intellectual Property*, pg 100, May 2006).

In this multi-part series, we shall zero-in on the specific components of a full-fledged IP management solution—viz its document management, address book, messaging and collaboration, search and retrieval and creating online portals for your users to access the wealth of this information. In each of the parts of this series, we shall examine each section in detail and create that part of the application, slowly building it to the fully operational IPMS. Our minimum platform for this development will be ASP.NET 1.0 using VB.NET and SQL Server 2000.

You can very easily extend functionality and maybe simplify areas like authentication using the ASP.NET 2.0 platform instead, but we leave that to your developer to design and implement. Each of our applications is being designed as independent elements with the ability to work together at the end.

In our DMS

The first part of our IPMS is its DMS (Document Management System). This DMS has three basic facilities: the interface to submit a file into the system, along with attributes about that object; the ability to search these attributes and present the results on query; and a check-in/check-out mechanism to keep track of different versions of a particular file. Our version control module also has the side-effect of making sure there are no duplicate copies of a file in the system.

File insertion

This is a basic file-upload process that needs little explanation to the developer. Our interface consists of a basic form that accepts a file (HTML File Upload component), and presents a few fields to be filled up that provide attributes about the file to our DMS. Our current search engine cannot peek inside documents for now (we shall add that capability in a later part), so these attributes along with the filename will serve as the indexing parameters. If you so

Direct Hit!
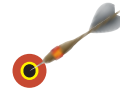
Applies to: CTOs/CIOs

USP: Go behind the scenes on how IP management systems work and get started on rolling your own application for the same

Primary Link: http://dmoz.org/Computers/Software/Document_Management/

Google keywords: IP management software –address

require, you can very easily extend our sample to allow the user to insert customized attributes. The ASP.NET HTML definition is very simple and is what follows:

```
<form id="DMS_Upload" method="POST" runat="server">
<asp:label runat="server" id="Label1">Upload File:</asp:label>
<input type="file" id="filInputFile" runat="server">
<asp:label runat="server" id="Label2">Doc title:</asp:label>
<asp:textbox runat="server" id="txtTitle" MaxLength="80" />
<asp:label runat="server" id="Label3">Author:</asp:label>
<asp:textbox runat="server" id="txtAuthor" MaxLength="80" />
<asp:label runat="server" id="Label4">Keywords:</asp:label>
<asp:textbox runat="server" id="txtKwds" MaxLength="80" />
<asp:button runat="server" id="btnSubmit" Text="Submit" />
</form>
```

Our code for this (the OnClick handler for btnSubmit) does two things: it accepts the uploaded file and saves it safely to disk and stores the attributes for the file into our database. Now, even here, several checks are done—for example, the file must exist, be of an acceptable length and type and so on. Similarly, before writing to the database, the input attributes are validated and encoded to prevent (inadvertent) SQL-injection attacks. The process is atomized with Try-Catch blocks, rolling back previous actions if something is wrong. The file-test code would look something like this:

```
Dim Fil as HttpPostedFile
Dim fName, fExtn, fOrigName, fNewPath As String
Try
        Fil = filInputFile.PostedFile
        If ((Not Fil Is Nothing) AndAlso _
                (Fil.ContentLength > 0)) Then
        fOrigName = Fil.FileName                    ▷
```

```
            fName = IO.GetFileNameWithoutExtension( _
                   fOrigName)
            fExtn = IO.GetFileExtension(fOrigName)
            ' Here you would verify file type is OK, else:
            ' Throw New Exception("Invalid File Type")
            ' Generate a unique filename and store it into fName
            fName = Now.ToString("yyyyMMddHHmmss")
            fNewPath = IO.Path.Combine(FILE_STORE_FOLDER, _
                   (fName & fExtn))
            Fil.SaveAs(fNewPath)
End If
Catch Ex1 As Exception
        Response.Write(Ex1.ToString())
End Try
```

Fields in DMS_Asset table:		
Column name	Type	Size
ID	int	identity
ParentID	int	
DocID	int	
FileUniqueName	varchar	14
CreatedOn	smalldatetime	
LastAccessed	smalldatetime	
LastModified	smalldatetime	
DocTitle	varchar	80
Author	varchar	80
Keywords	varchar	80
SavedByUser	varchar	16
CheckedOutByUser	varchar	16

The database angle

You could probably have more fields to perform other tasks that are not in our scope at the moment. For example, where in the storage (what server, etc) and what status (checked in, archival, etc) is the file in. For efficient indexing, you could setup ID as your primary key and set the table to be indexed on ID, ParentID and FileUniqueName. Except for the ParentID and DocID fields, the rest are self explanatory. ParentID will be used for chaining versions of a document. The first version will have a ParentID of 0, and subsequent versions will contain the ID value of the previous version of that document. The DocID column is used for storing the ID of the first version, with the first version's DocID and ID having the same values. This will make retrieving the entire version chain of that asset easy with a single SQL query that is easily implemented as a stored procedure. The version chain (oldest to newest order) is retrieved by an SQL query as below:

```
SELECT *
FROM [DMS_FileAsset]
WHERE (
        [DocID] = PROVIDED_ID_VALUE
) ORDER BY [ID];
```

Version management

Whenever a file stored using our DMS is accessed by a user and downloaded, it is 'checked out' in that user's name. After changes when the file is re-presented to the system, the old copy is checked back in, but a new database entry is generated for the new file and the file itself is stored with a different unique name on the storage. You could at this point of time, have the original details copied over from the previous version for the database. Some fields (like keywords) may be amended when a new version is created. At this time, our version management system is sufficient. We can extend it later using a much more comprehensive CVS if required, but that is not a part of our current goal.

Adding search

For our purposes, a simplistic search form will suffice. It can simply require inputs of one of the several fields we have captured earlier—with or without asking the user which of them he wishes to search with. Then the data is sent to the database via an SQL query (stored procedure) and the resultant list is processed, transformed into HTML and displayed to the user as a neat list. The very basic form of such an SQL query would be as:

```
SELECT * FROM [DMS_FileAsset]
WHERE (
        ([DocTitle] LIKE '%'+SUPPLIED_SEARCH_PHRASE+'%')
OR
        ([Author] LIKE '%'+SUPPLIED_SEARCH_PHRASE+'%')
OR
        ([Keywords] LIKE
'%'+SUPPLIED_SEARCH_PHRASE+'%')
)
ORDER BY [ID];
```

What we have at this point is the basic DMS. In the next part, we shall look at centralizing address book (contact) management information, along with adding more elements to what is normally stored in an address book to make it more useful to the person searching for information.

That system will also be extensible so that when we make our collaboration application a stage later, we can utilize our own address book there. And, if you have an LDAP server around, keep it ready for some action soon. □

India's Best IT Implementa tions

Adeesh Sharma, Anil Chopra, Anindya Roy, Krishna Kumar, Sanjay Majumder, Sujay V Sarma, Rinku Tyagi

Ten, Sixty six and then… one hundred and thirty seven. No, we am not talking of some arithmetic progression that you need to solve. These are the number of projects that have been covered for the Best IT Implementation Awards these last three years. The number of valid nominations received each year is slightly higher than the numbers covered. And the total number of nominations received is much higher.

Let us explain

The Best IT Implementation Awards have an open nomination process; anyone can nominate any project. But there are some qualification criteria for a nomination to stand valid. Firstly, the benefits of the project should be available in India. And the project or the module being nominated should have come on-stream during the previous year. So, a project could have taken years to implement, but if it became fully operational during the previous year, then it is eligible to be nominated. And frankly, we have not strictly enforced the time clause, but projects that are significantly old do not qualify.

Since the qualifying criteria is that the benefits of the project have to be available in India, projects done by Indian software firms for entities abroad do not qualify.

These previous years, we used to use both paper and online nomination forms. But this year, we eliminated the paper work and restricted the nomination form to the online one only.

Once the nominations are in, there's a preliminary audit for qualification. Every project that qualifies is sent the Awards questionnaire. Once that is done, the *PCQuest* team starts the follow-up audit of the project. This process is very elaborate and often continues till the early hours of the day the jury meets!

During this stage, many projects drop out, due to various reasons—most common of these are confidentiality issues, where the project implementers are not in a position to reveal project details, or the project is not actually complete or is just a pilot. Some of these dropouts are really good projects, and we have tried our best to get over the confidentiality issues.

There are some really good ones in this list, and more than the awards themselves, there are ideas and solutions that the rest of us would find useful in our Enterprises. While these awards are meant to identify and encourage outstanding work in Enterprise IT implementation, their actual value is in creating a bank of ideas for the rest of us. ▷

Overall Best

Freight Operations Information System, Indian Railways

Most Innovative

Mail Attachment Stripping, ICICI Bank

Maximum Business Impact

B2B Petroleum Portal, Reliance Industries

Most Challenging Implementation

SBI Connect, State Bank of India

Maximum Business Impact

Genius I, Shamrao Vithal Cooperative Bank

Maximum Social Impact

Integrated Information System of Foodgrains Management, FCI

Most Innovative

Corporate Personnel Movement, Mahindra & Mahindra

Which are the best IT projects to go on stream in india? What is the idea behind them? What were the challenges? How were they executed?

(Left to Right: Shyam Malhotra, Sunil Kapoor, Satish Naralkar, Pradeep Gupta and Alok Ohrie)

> The jury most likely originated in early Anglo-Norman property proceedings, where a body of 12 knights or freemen who were from the area, and usually familiar with the parties, would take an oath and answer questions in order to determine property rights
>
> *Merriam-Webster's Dictionary of Law*

The Jury

The decision on who are the actual winners each year rests with the jury. The *PCQuest* team audits the nominations, shortlists and researches the shortlisted ones. But finally it is up to the jury to pick out the winners. And there are no set rules for the jury to operate. There is no stipulation even on the number of awards each year. What we do give the jury is a synopsis of what pervious year's juries have done and what yardsticks they have used. Though we request the jury to identify one 'project of the year', even that is not mandatory. The jury sets its own rules and decides on the number of winners to be awarded.

How do we choose the jury? The jury is from three industries—IT users, IT industry and media. We take special care to ensure that those who have their projects in the running are not on the jury. And with almost a hundred and fifty projects in the running, that can become a difficult task. The winner of the 'Overall Best' award of the previous year generally chairs the jury. That would have meant Indian Railways this year. But with another Railways project in the running, we had to bid goodbye to that tradition.

The IT industry itself had many projects in the running. Similarly, we had projects from almost all major media houses also in the running. So, we were indeed extremely lucky to get a very experienced jury to judge the projects this year.

Our jury, this year, was chaired by Satish Naralkar, MD and CEO of NSE.IT. NSE.IT was the winner last year for their project on 'Online Risk Management System'. The jury member representing IT users was Sunil Kapoor, CIO of Fortis Healthcare, who again was a winner last year, with their Hospital Information System. Representing the IT industry, we had Alok Ohrie, Director, Systems & Technology Group, India/South Asia of IBM.

Representing media, we had Pradeep Gupta, the CMD of CyberMedia and Shyam Malhotra, Editor in Chief of all CyberMedia Publications, including *PCQuest*.

The jury met in Delhi in end May. For one of the awards, the jury asked for more research to be done; and that award was finalized over e-mail over the next couple of days. ▷

Satish Naralkar, MD and CEO, NSE.IT

Satish Naralkar joined NSE in 1994 and became CEO of NSE.IT in 1999. He is responsible for managing the NSE's large IT infrastructure and electronic trading facility including the world's largest private interactive VSAT network.

Pradeep Gupta, CMD, CyberMedia

Pradeep Gupta founded CyberMedia, South Asia's largest specialty publishing group. With over 27 years of experience, he is also a member on the boards of many institutions and government think tanks.

Alok Ohrie, Director, Systems & Technology Group, India/South Asia, IBM

Alok has spent over 18 years in the IT industry, with ESPL, Wipro and IBM. He is a senior member of the IBM management team for India /South Asia.

Sunil Kapoor, CIO, Fortis Healthcare

Sunil has over 20 years of experience in industries as diverse as Healthcare, Manufacturing and Hospitality. He also has proven expertise in corporate planning and business process restructuring.

Shyam Malhotra, Editor in Chief , CyberMedia

Shyam has over 25 years of experience and heads the publishing operations of CyberMedia as Executive Director and Editor in Chief. He is also the founding editor of *PCQuest*.

The process

The *PCQuest* team (below) presents each project to the Jury as a single slide synopsis. One person in the *PCQuest* team is identified as the 'advocate' for each project. This is the person who researches this project in detail. This research includes the audit form that is filled up, interviews with the project team, and visits to see the project in action. Interviews with beneficiaries and other participants in the project and research of other published material.

This person presents the particular project to the jury. The one slide presentation captures the essence of the project, what is unique about it, and most importantly, how it has been implemented.

Members of the jury may ask the *PCQuest* team further questions on the project. This information is provided from the audit report that the project implementers have filled up or from indepth the discussions that the advocate has had with the implementers.

The *PCQuest* team does not participate in the deliberations of the jury (above).

Overall Best
Indian Railways

FOIS (Freight Operations Information System) is an innovative solution from CRIS that solves the age old puzzle the Indian Railways had about automating and streamlining the processes in an operation that had no schedule. This project is the fruit of nearly two decades of toil and research that started in the 1980s with the study of a mainframe based system that was used then in the US and Canada for controlling their freight traffic. The very first problem the engineers faced was that in the USA, both freight and passenger traffic ran to time tables, while in India there were no time tables for freight trains! Thus, the very demands on what the norms are for data integrity in the Indian environment were so drastically different that trying to adapt the imported solution to work on our systems was just plain impossible. And, freight traffic in India is a big earner for our Railways and revenues from it are consistently used to subsidize passenger fares.

Overall Best

Business problem

The operations and commercial side of the Railways needed computerization due to the huge amount of data and reports generated

IT solution

A 3-tier solution with two modules for rake management (operations) and terminal management (commercial) for real time information

Implemented by

Center for Railway Information System (CRIS), under Ras Behari Das, Group General Manager, FOIS and team

Technology platform

Alpha servers, Oracle, Tuxedo, BEA WebLogic. Application and database servers in separate load balancing clusters

If on a particular day there is no demand to carry anything from point A to point B, there will not be any freight trains starting that day from point A. This also means that any trains that are running between points A and B run without a pre-determined time table, unlike the passenger trains that follow a fixed time table. In addition to this, there is what was known as 'monitoring hell'. Reports are created at different levels about various operational factors—from (freight) train arrivals and departures to what was in them and who

> The moment wagon loading starts at the point of origin, the entire route for the train is planned and the time schedule created. The system can also re-route the train if required

they belonged to and so forth. As the reports move upstream from the station to the Railway Board (through the divisional and zonal offices), collating these reports, verifying their accuracy as well as making sense out of the whole thing becomes increasingly difficult. Even at the divisional levels, the amount of paper work a worker has to process in a day is simply monstrous, given that the Railways operates in shifts and each shift will generate a report. Plus, consider that by the time the reports go up the chain to the Railway Board, the data is already outdated and atleast a day old.

To top it all, there is a lot of resource sharing going on between the passenger and the freight worlds, in the form of crew, locomotives, running tracks, station platforms and so forth. For operational reasons, the tasks of managing train running operations, repair sheds, yards, loading and unloading docks and so forth have been split up into different units. But, the planners at the top require all this information to be consolidated. This is not possible in the manual system. There were 16 modules in the original solution imported from the

Ras Behari Das

Group General Manager, FOIS
Centre for Railway Information System(CRIS)
Indian Railways
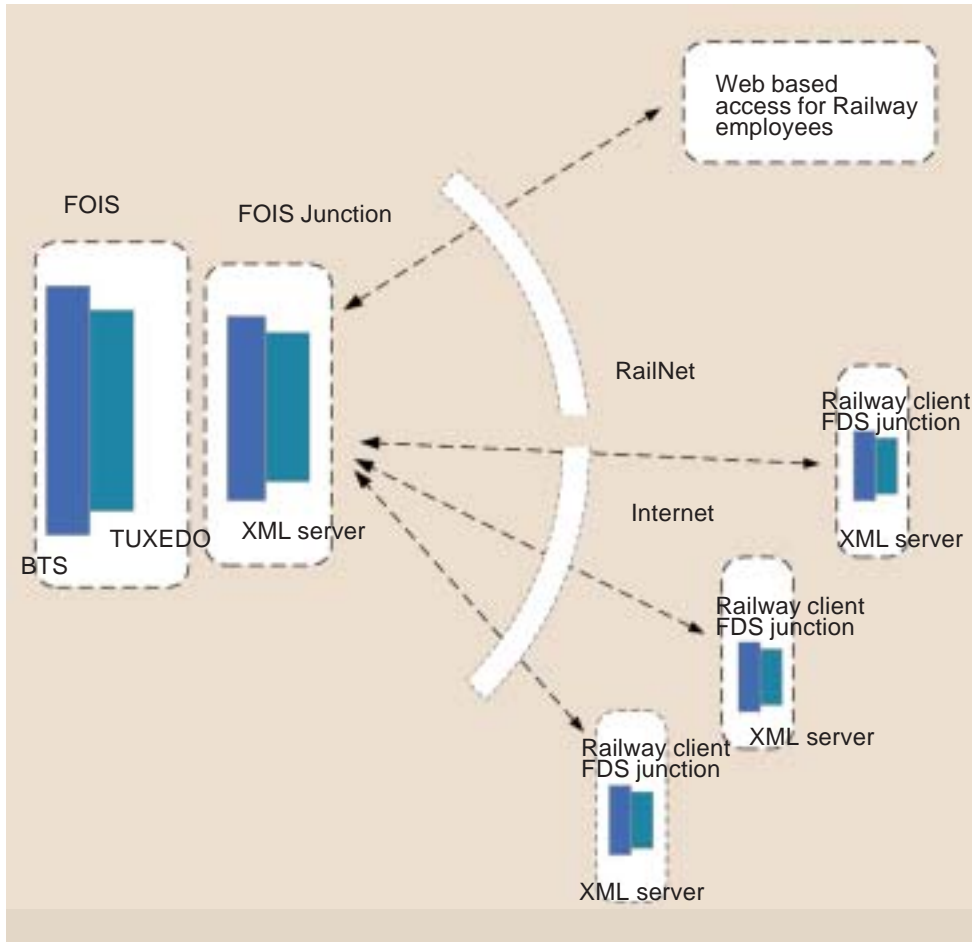
The FOIS system is accessible over the public Internet for remote clients at different stations. Railway employees access the application through the RailNet. A server performs the inward/outbound XML translations

USA. CRIS is now trying to recreate them in the order of criticality while making sure they are designed for the Indian system.

Two of these 16 modules have been implemented under the FOIS. One, the RMS (Rake Management System) is responsible for tracking and managing freight wagons, freight-class locomotives and other operations of the freight system. The other, TMS (Terminal Management System) is the customer facing commercial part, that takes care of presenting the required information to the customer at the freight terminal counter, demanding to know where is train is, when it is due to arrive and how much he owes the railway. Both modules are currently operational at around 500 locations, while the TMS is yet to be deployed at 200 locations.

Important customers (like the FCI) already get automatic status reports of where their consignments are and when they will reach their destinations by e-mail.

There are already plans underfoot to extend this to other customers.

Using FOIS, the Railways have been able to reduce the turn around time for freight wagons from 8 days to about 5.5 days. And, there has been a 10% jump in wagon-loading in the past three years without needing to add more wagons. Because the information is directly captured digitally and is fed into a relational database (Oracle), report can be generated used by operational and policy planners with whatever pivots they require. Now, CRIS is planning a DR site and a Data Warehousing system for this solution. The final vision is to derive the 'base document' that comes out of the RMS plus the running status of trains plus the crew and fuel used in the system and this base document shall be indicative of how the Indian Railways is doing. This end solution is called the Indian Railways Revenue Management System that will go live with the commissioning of the last of the 16 modules.

Most Innovative
ICICI Bank

Mail attachment stripping—what is so great about it, you might ask, because that's what this project was about? But you would sing a different tune had you been the CIO of an organization that handles about 40 million email messages a month, amounting to 2.2 TB. Even if every message were around 50 kB, the amount of bandwidth required to handle the load is not funny. Any amount of WAN bandwidth optimization would not be enough. That's exactly the problem ICICI Bank faced with its messaging system after they centralized their email system. They were having email with an average size of 45 kB, out of which 25 kB was due to various attachments. The scene became even worse when one mail was CCed to multiple people with the same attachment. So when a mail comes in with a huge attachment, a user has no other choice but to download it, which also led to choking of ICICI's WAN links.

Internet

Local IMAP service

Local user

Mail routing server

E-mail delivery

Remote user

Put html link in the mail

Stripped attachment movement to HTTP download location

Attachement

No

Yes

Attachment stripping

Local domain

Internet domain

Recipient

User agent
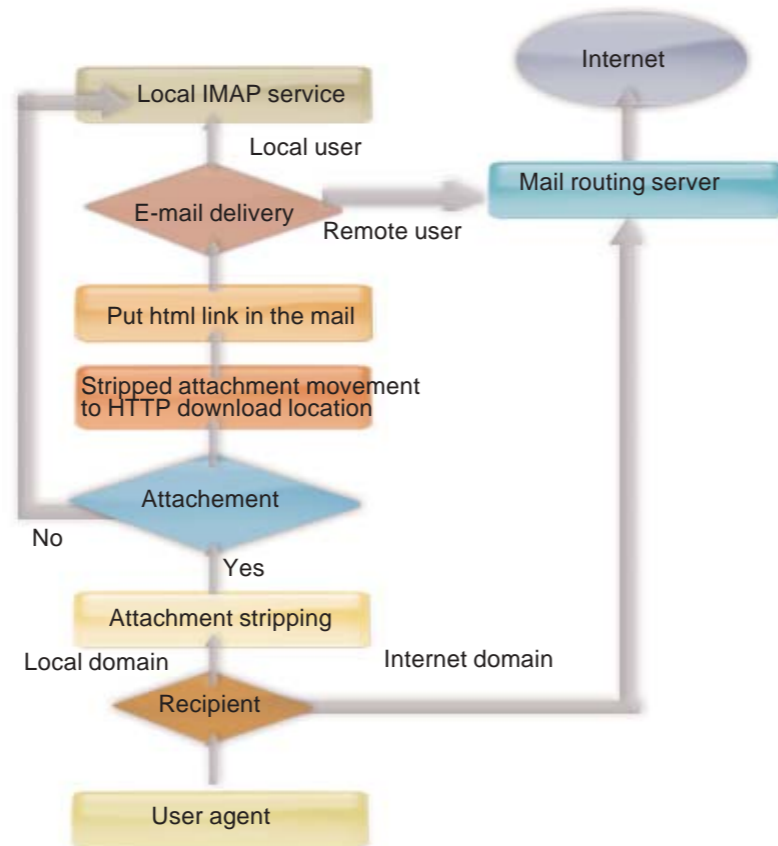
Most Innovative

Business problem

High WAN bandwidth usage, slow mail server access, excessive e-mail attachments

IT Solution

Strip mail attachments and store them centrally; accessed through URL in the original mail

Implemented by

Pravir Vohra, Senior GM, RTG and TMG team along with Gajshield Security Solutions

Technology platform

Linux, Perl, C, Apache, Sendmail

That's when Pravir Vohra, Senior GM of ICICI's technology management team thought of putting in a solution that would strip all mails of their attachments and place them in a separate directory on the mail server itself, and place a URL pointing to its location in the email. So if a user sitting in Delhi sent out an email with an attachment to other users across the country, then its attachment was first stripped by the mail server and placed in a separate directory. All the recipients received the mail with a URL pointing to the attachment. They did face some resistance from the users initially, but it didn't last for long, because mail downloads became faster all of a sudden. Even top management didn't require much convincing because this simple solution saved close to 30% of the WAN bandwidth and an equal amount in storage.

The solution had many other indirect benefits also. For one, as the users' mailboxes stopped becoming as full, the mail servers' performance improved. In fact, even the performance of anti-virus servers improved, because they weren't spending time scanning so many incoming attachments. Likewise, it also reduced the

time to do mail server backups. So in all, a simple solution like this managed to make the whole system more effective. Users can now download their attachments at their own convenience, possibly during off-peak hours so that the network bandwidth doesn't get choked. Truly innovative!

The best part about the solution is that it's only been implemented for ICICI's internal users. Mails to or from external users are not stripped. This places another condition on the system that internal users can access their attachments only if they're connected to ICICI's enterprise network.

Pravir has worked out the solution to this as well. The mail servers and the attachments directory are accessible to users over a VPN connection as well. The mail-stripping program has been implemented on Linux and can work with both Sendmail and MS Exchange. In Linux mail servers, the program strips the attachments of all outgoing mail, while in Exchange, it does it for incoming ones.

ICICI has done it on a Gajshield Linux mail server and integrated the attachment stripping program with Sendmail using a Sendmail API called milter. The way it works is fairly simple. The program checks the domain name of the recipients. The attachments are stripped only if it's going to the local domain. Mails marked to Internet domains are allowed to pass as is. The program has been developed in C. The program affixes a date, time and process ID to each attachment so that it can easily be identified.

The good thing here is that other than the cost for development of this code, there was no cost for the rest of the software. In fact, the overall cost of implementing this solution was peanuts, as it was deployed on top of the existing messaging hardware. There was no additional manpower cost either, as there's hardly any management required for the system. The existing IT administration team can handle it.

The project only took three months for development, testing, and final deployment. Currently, it's serving 35,000 users at ICICI.

WAN bandwidth usage and mail storage utilization came down by around 30%

Pravir Vohra,
Sr General Manager
ICICI Bank

Maximum Business Impact
Reliance Industries

The B2B portal created by the IT team of Reliance is meant to cater to the increasing customer demands. Reliance Industries is well known for its petro-chemical products business. For this, the company has an ecosystem of agents and channel partners through which it gets all its orders. Recently, Reliance also ventured into the petrol retail business. Orders for this business come through regional hubs, depots, and retail outlets. The company faced issues servicing customers as the volume of business grew, resulting in delays in servicing orders leading to customer dissatisfaction and an increase in the cost of order fulfillment due to rework. An order management system was, therefore, the need of the hour to eliminate manual processes and minimize delays in order execution.

The B2B portal was created to allow customers to place orders online for any product from Reliance's various business divisions—be it petroleum, polymer, or polyster. This was tightly integrated with the back-end ERP system running on SAP, so that orders would directly get updated after checking, and be moved

Max Business Impact

Business problem

Delays in customer servicing due to the growing volume of business

IT solution

An online e-commerce portal for customer order management

Implemented by

Paresh Pujara, VP; Project Head, Ashish Chauhan, CIO and team

Technology platform

3-Tier architecture with ASP front end and MS-SQL and SAP database at the back-end

Paresh Pujara,
Vice President,
Reliance Industries

online to various Reliance plants. Customers would also get updates on their order status through the ERP system itself. The portal has been integrated with Reliance's GPS tracking system implemented on its fleet of trucks.

This helps customers track their orders. Currently, the GPS system is in a pilot stage, and has been deployed across a few thousand trucks. It will be scaled up as soon as the initial teething troubles get resolved. The portal also provides proof of delivery for the Petrol retail business, order history and MIS. It even has a facility for rate negotiations for export orders.

The portal caters to more than 4000 agents, 800 Petrol retail outlets, and 70,000 medium and large customers. With such a large customer base, the portal gets an order every two seconds at its peak. No wonder then that the portal clocked more than Rs 26,000 crores worth of business in the last financial year. Reliance claims that this is more than what any other e-commerce portal in India has reached.

The technology

It's a standard front end based on ASP, JavaScript and VBScript with a MS SQL Server database at the back end, which stores all the online orders. This, in turn, is connected to the back end ERP database. There are two instances of each application and database server running and are configured for load balancing. Customers can connect to the portal from modems, ISDN, or even VSATs.

The benefit of having a Web-based interface is that there's no management required at the customer end. The project started in 2002 and its implementation was completed last year. The Petrol retail integration was completed in the first quarter of this year. Reliance expects to integrate more lines of business to this portal, and even has plans to do supply side automation and materials management. Reliance is also a buyer as it is a seller, a huge thrust is planned for automating these processes as well.

> The portal clocked more than Rs 26,000 crores worth of business in the last financial year
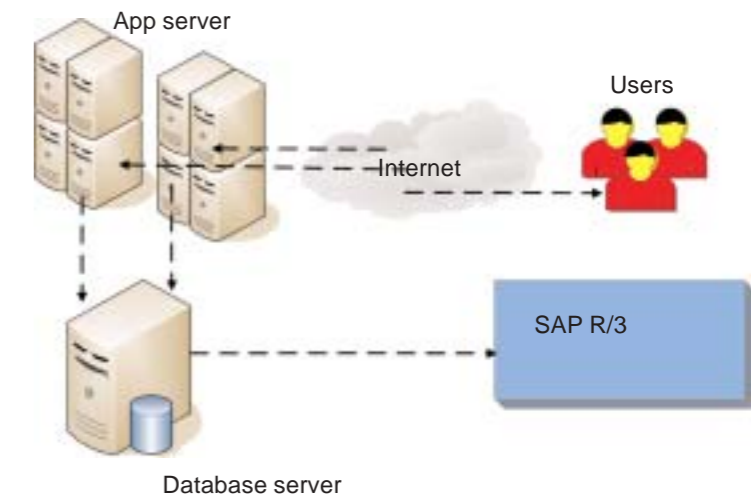
Internet sales B2B architecture

Ashish Chauhan,
CIO, Reliance Industries

Most Challenging Implementation
State Bank of India

The SBI Connect project by the State Bank of India is an ambitious networking project (implemented by Datacraft Ltd) that links their and their associate banks across India. The SBI has 5,600 business critical branches of its own and some 4,900 branches of associate banks (the other banks under the 'State Bank' banner). This project networks the entire infrastructure under one platform. SBI Connect's reach now extends from the farthest ends of the country from Lakshdweep to Andaman and the North East and Jammu and Kashmir in the North.

Business case

SBI saw enormous possibilities for new business models and workflows in the convergence of voice and data. In anticipation of such changes in the environment, they determined to move away from a distributed data base to a centralized data base. This they thought was necessary for bringing in significant improvement in customer service and development of a customer-centric business model. SBI's aim was to be in a position to increase its customer base without compromising on the quality of service. Customers could be migrated to alternate delivery channels like ATMs and Internet bankin. This would bring in convenience banking together with freeing up branch personnel for tasks that required direct interaction and personalized service. The cost reduction resultant from electronic banking was an equally compelling argument for the project 'SBI Connect'.

Implementation challenge

This grand project started back in June 2002 and is still on-going, with more branches being added with every passing month. As of February this year, there were 10,500 branches already connected to the new SBI Connect network.

To reach up to the current levels, the project has been through three roll out phases so far. In the first phase between June 2002 and September 2003, 1,400 branches in 49 cities were covered. Then, 3,400 more branches were brought under SBI Connect, covering an additional 300 cities. The current phase is the largest so far, covering 6,100 branches. In 2005, all the branches of all the associate State Banks (seven of them) were fully brought under SBI Connect—this

Most Challenging

Business problem

Data lying in isolated pools at 10,000+ branches all over India

IT solution

Computerize and network all branches to be able to centrally locate and manage information

Implemented by

State Bank of India and Datacraft India

Technology platform

Leased lines, VSAT, dialup PSTN links, encryption with 3DES and IPSec

alone contributes 4,888 branches and extension counters to this total.

SBI Connect network

The network has been designed in a modular and hierarchical fashion, with a leased line as the backbone. Last mile connectivity to branches is provided over either leased lines or in places of poor connectivity through VSAT or even dial-up PSTN links.

The entire network is also protected using 3DES and IPSec for end to end security. The network carries all three of data, voice and video, making it a triple play network in the BFSI sector. The data part is the regular application data. Each branch location also has SBI's internal VoIP setup and this is the voice component. Video is still in the initial stages and this would probably be used for video conferencing between the branches. There are three layers to this network: the core or backbone part, the distribution part and the last mile access part. The core layer is a set of leased line links between the four metros in full-mesh configuration. The distribution layer contains all the nodal aggregation centers and local head office networks.

P P Pattanayak,
Deputy Managing Director (IT)
State Bank of India
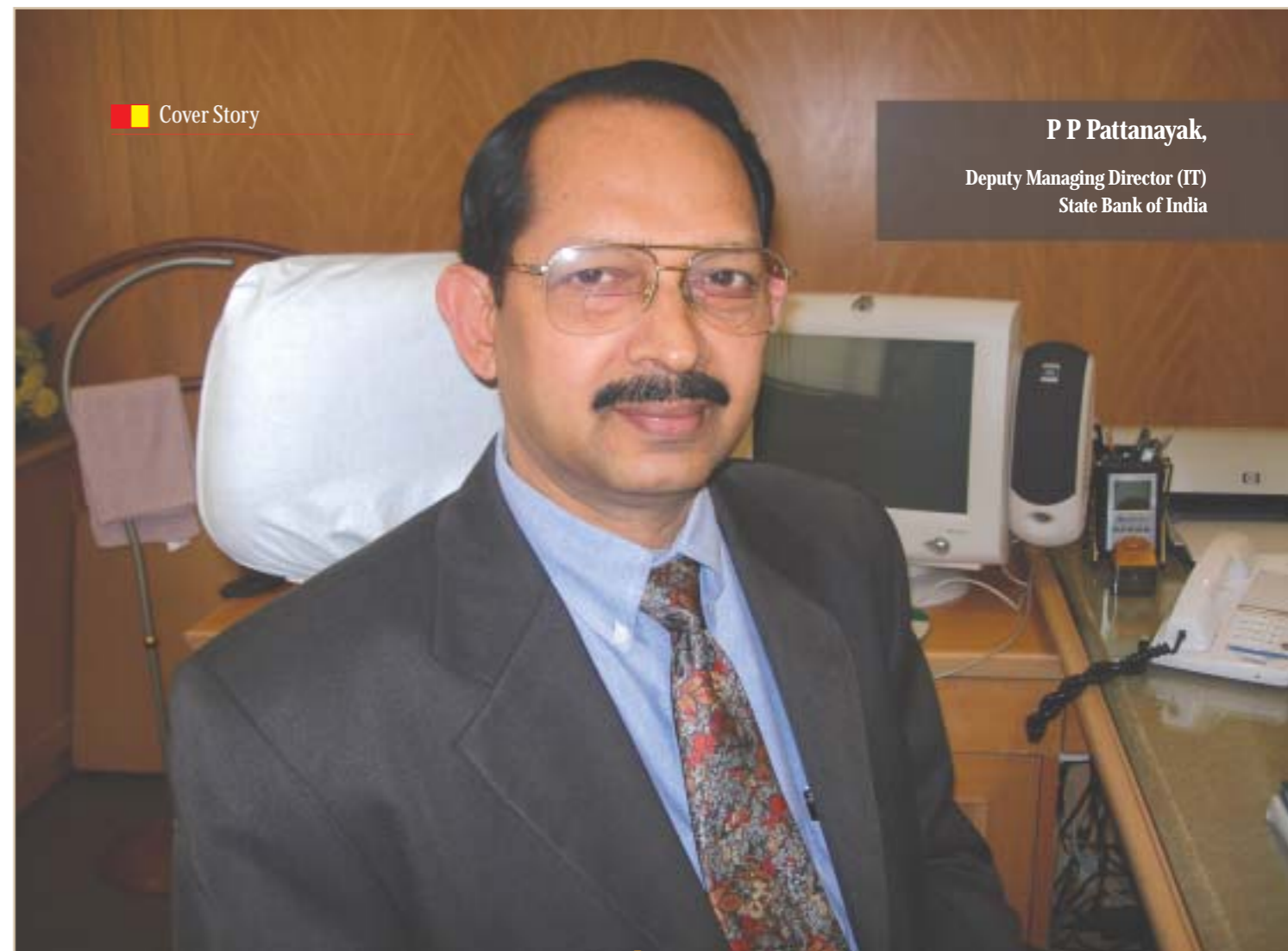
SBI has deployed VoIP at all its networked locations and *the SBI Connect infrastructure carries this traffic*, along with their internal mail

Benefits

SBI Connect now forms the core backbone of the State Bank, carrying all the primary banking applications of the entity whether its their core banking solution, the ATM network, the trade finance applications, treasury solutions, Internet banking or even their internal e-mail and VoIP systems. Because of the increased availability of pooled data across the branches, the State Bank of India has been able to increase its product line of cash management services.

S Shahabuddin,
Chief General Manager (IT)
State Bank of India
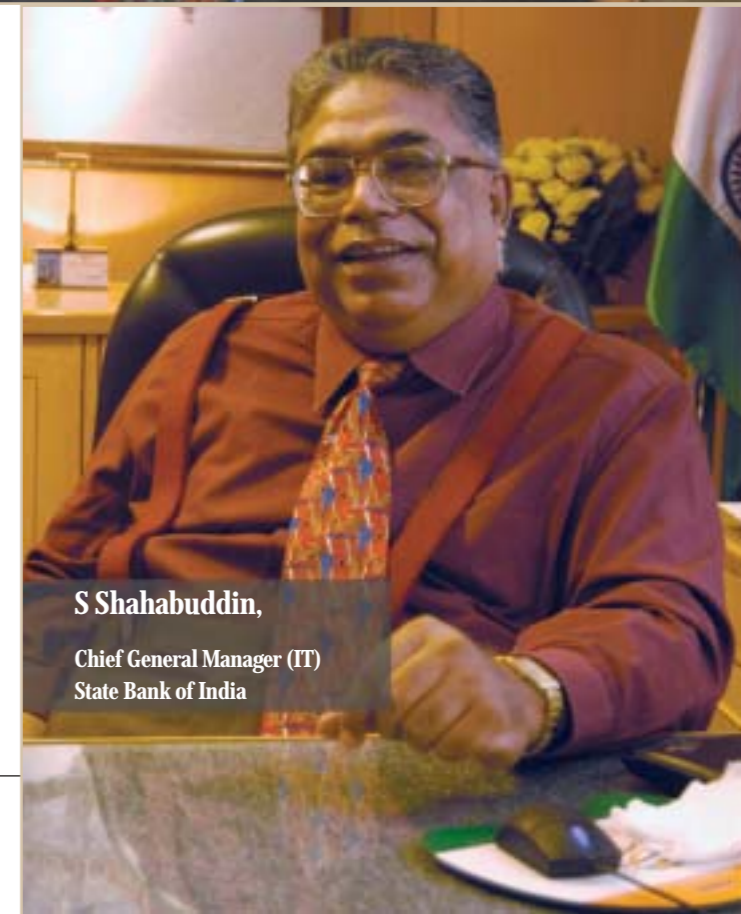
Maximum Social Impact
Food Corporation of India

ISFM (Integrated Information System for Foodgrains Management) is an MIS solution implemented by the NIC for the FCI. It captures the entry and exit information of food-grain stocks as it enters each FCI godown along with the exact means how it came there. It also generates drill-down reports for everyone from top management to the operations executives on the exact positions of stocks in any godown in the country in a couple of clicks. Coupled together, this project can help ensure India's food security for a long time to come. Also, it brings in transparency and help curb mismanagement of food stocks.

When a consignment of food grains enters the FCI system, it is weighed on entry along with the wagon or truck it came in and

IISFM

- Input information
  - DSR/DSI/EBR
  - RR copy
  - Truck/chit/gate pass register
  - Weigh bridge register
  - Stack wise register
  - Shed register
  - Operational loss/gain
- Transaction analysis modules
  - RISP module
  - Stock module
  - movement module
  - Quality control module
  - Report generation
  - Query processing
  - Admin module
- Output information
  - Master ledger
  - Unit wise stock
  - MIS reports
  - RISP reports
  - Movement reports
  - Quality control reports
  - Adhoc reports
  - Others

Max Social Impact

Business problem

Tracking the national food stocks kept at widely dispersed FCI godowns

IT solution

Comprehensive stores and inventory mgmt solution that tracks movement of food grains

Implemented by

NIC team headed by Dr Ranjana Nagpal, Senior Technical Director

Technology platform

ASP.NET, MS SQL Server 2005, MS SQL Reporting Services 2005

stored. Later, the bags maybe shipped to other FCI godowns or sent to state godowns or sold to traders or the PDS and other food-scheme retailers. Bags that are passing between FCI centers are not weighed again for exact measurement, but rated weights along with moisture parameters are treated as sufficient. This leads to different quantization for the same bag of food grain from the time it entered the FCI system to the time it finally left, along with losses due to leakage and so forth. Collecting all the and analyzing the information at nearly 1,200 depots, 166 district offices, 23 regional offices, 5 zonal offices and the central HQ at Delhi is a mammoth task and the case just cries out for computerization. NIC's solution uses a set of data capture screens, customized per role of the FCI user: the unloader, the quality inspector, the receiver, the dispatcher and so on. The actual data entered goes into the same database along with details of the wagon or truck it came in. Consignments that arrived or left on different days in parts are all connected with each other us-

Dr Ranjana Nagpal,
Senior Technical Director,
Natinal Informatics Center

> The FCI has the responsibility to ensure food security of the country against all odds. IT will dramatically improve the productivity and responsiveness of FCI

ing index numbers. All reports are accessible to the FCI staff over the Internet at a specially created portal, hosted and maintained by the NIC. That is, a report on the status of a particular godown in a remote village in Kerala can be seen by another user in Assam—thus, bringing greater transparency to the system. It helps reduce old stocks at different locations and dispose them off early since crop-year wise reports tell you which godown in which location has which year's

stocks. The system uses Microsoft SQL Server Reporting Services 2005 for generating the reports with different user-configurable pivots and filters. This also lets users export and save reports in various formats.

The benefits of this implementation have impressed the FCI and the Indian government to the extent that it is now planned to be extended to the State Warehousing Corporation's godowns as well as those of other stocking agencies.

Maximum Business Impact
Shamrao Vithal Cooperative Bank

Genius I is the banking solution that makes one of the oldest cooperative banks in India tick. But what's so great about a core banking solution that it's been chosen as the best SMB project of the lot? Every other bank is doing it today. The difference lies in the fact that SVC has completely developed it in house, instead of treading the usual path of choosing a commercial banking solution, and then running behind a partner to implement it. This path would have cost the bank five times more than the cost of creating Genius.

The core banking solution automates most of the bank's functions while conforming to RBI's guidelines. In fact the bank has gone many steps ahead of other fellow cooperatives and added a lot of firsts to its credit. It claims to be the first cooperative to have an online data warehouse, first to have a real-time reporting service that's available 24x7, first to have implemented IP Telephony, first to have implemented an e-token based ATM payment solution, and many others. These are all remarkable achievements, given the fact that most cooperative banks today are living under fear of losing market share to the larger players. What Shamrao has

Max Business Impact

Business problem

Improve productivity and service in a cooperative bank

IT solution

Core banking solution with all functionalities built inhouse over the years

Implemented by

Ravikiran Mankikar, DGM IT with 26 strong IT team

Technology platform

Microsoft Windows 2003 Server, Exchange, and SQL Server

Users at the branch connected to branch server

Branch data replicated on a branch database on a central server

MIS server | Staging server | Central data server

Databases

#1
#2
#3

Branches

Backup DR server

Users at the AO connected to the AO server
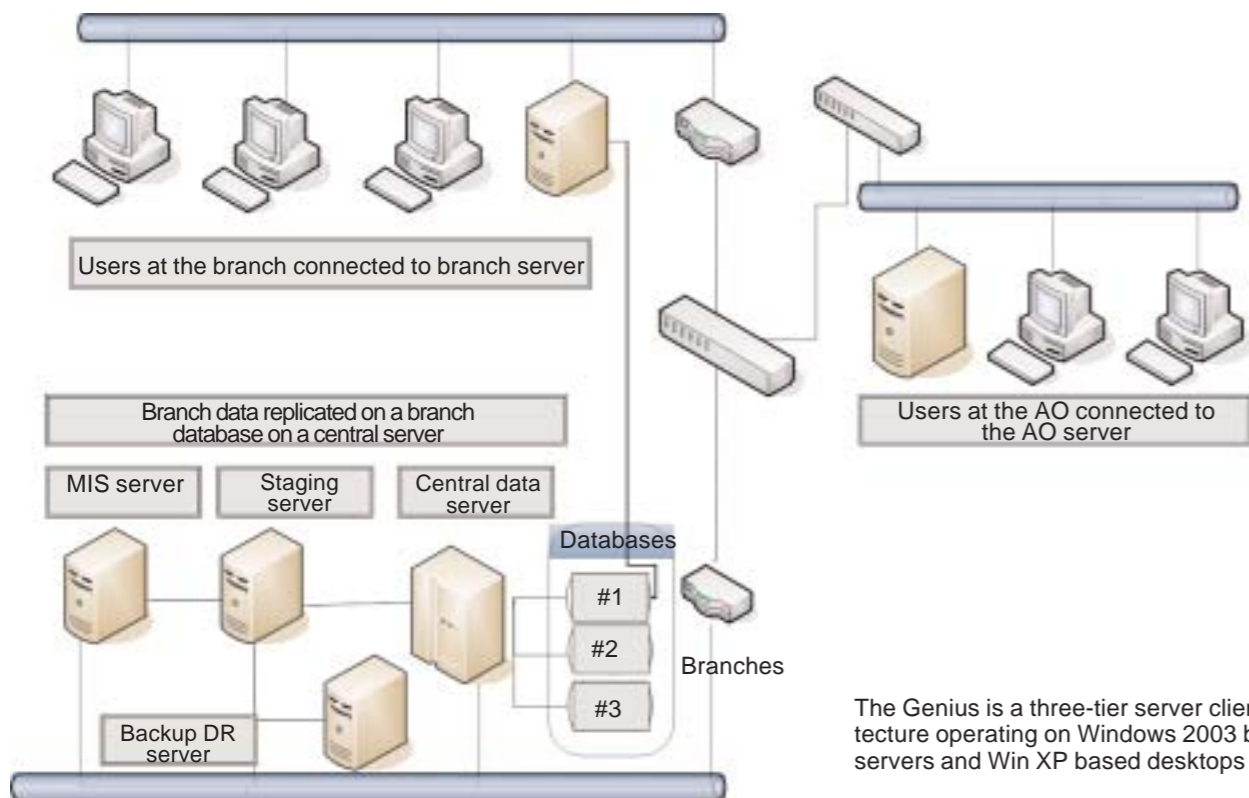
The Genius is a three-tier server client architecture operating on Windows 2003 based servers and Win XP based desktops

Ravikiran Mankikar,
Deputy GM (IT),
SVC Bank

From a total business of around Rs. 800 Crores in 1997, the bank clocked Rs 4,000 Crores this financial year with minimal increase in manpower

done, therefore, is a clear example of how to align IT with business needs and really benefit from it. From having a total business of around Rs 800 Crores in 1997, the bank has clocked more than Rs 4000 Crores worth of business in the last financial year and all this with a marginal increase in staff. Genius I offers an impressive functionality. Genius also offers tele and sms-based banking facilities using modules called Banc@call and Banc@cell. It has even built in capability for Real Time Gross Settlement on a straight through processing mode. RTGS transactions normally take 6–24 hours, but with this solution, this time has come down to 2 to 3 mins. An online liability monitor checks for the direct and indirect liability of borrowers. Plus there are modules for generating online MIS reports, online monitoring for control and reporting, and even an online

data-mining. Also, the bank has deployed modules for anti-money laundering, asset liability management, know your customer, risk management, etc—making the bank more Basel II compliant. Genius has also managed to automate processes like emailing statements of accounts, and real time fund transfers on a 24x7 basis, automated interest payments by credits to customers accounts. Other technologies used by the Bank to manage its IT infrastructure include CA's Unicenter for managing the network, MS Operations Manager and Systems Management Server for optimizing server utilization and automated patch and asset management, BizTalk Server to integrate the banking software with RBI's Real Time Gross Settlement project, and Exchange Server. Genius has been implemented on a three-tier architecture, and is built on MS products. It has a decentralized architecture, and is quite interesting in the way it works. All branches have their own local servers, which replicate data online to the central server. The data at the central server is then used for MIS and data warehousing. Due to this, despite having a decentralized architecture, the bank offers any branch banking capability to its customers.

Most Innovative
Mahindra & Mahindra

TransXS Corporate Personnel Movement System is running in many BPO operations. It is made designed for Mahindra and Mahindra by Visesh Infotecnics. The specific implementation considered was the Morgan Chase BPO. The number of transport units picking up or dropping off employees are very high, and this is done virtually round the clock. Making sure that each transport unit, is on its designated route and running to time is also a tough task.

Business case

Obviously, the transport bill is huge and there can be high levels of inefficiencies in route allocation Even though the vehicles are equipped with a two-way radio set the driver can often hoodwink his supervisor by reporting wrong locations or faking problems when delayed. Also, since such vehicles usually run empty atleast one way and the drivers often pick up illegal passengers making a tidy sum as pocket money.

So, how do you go about streamlining this process and make it more efficient and accountable?
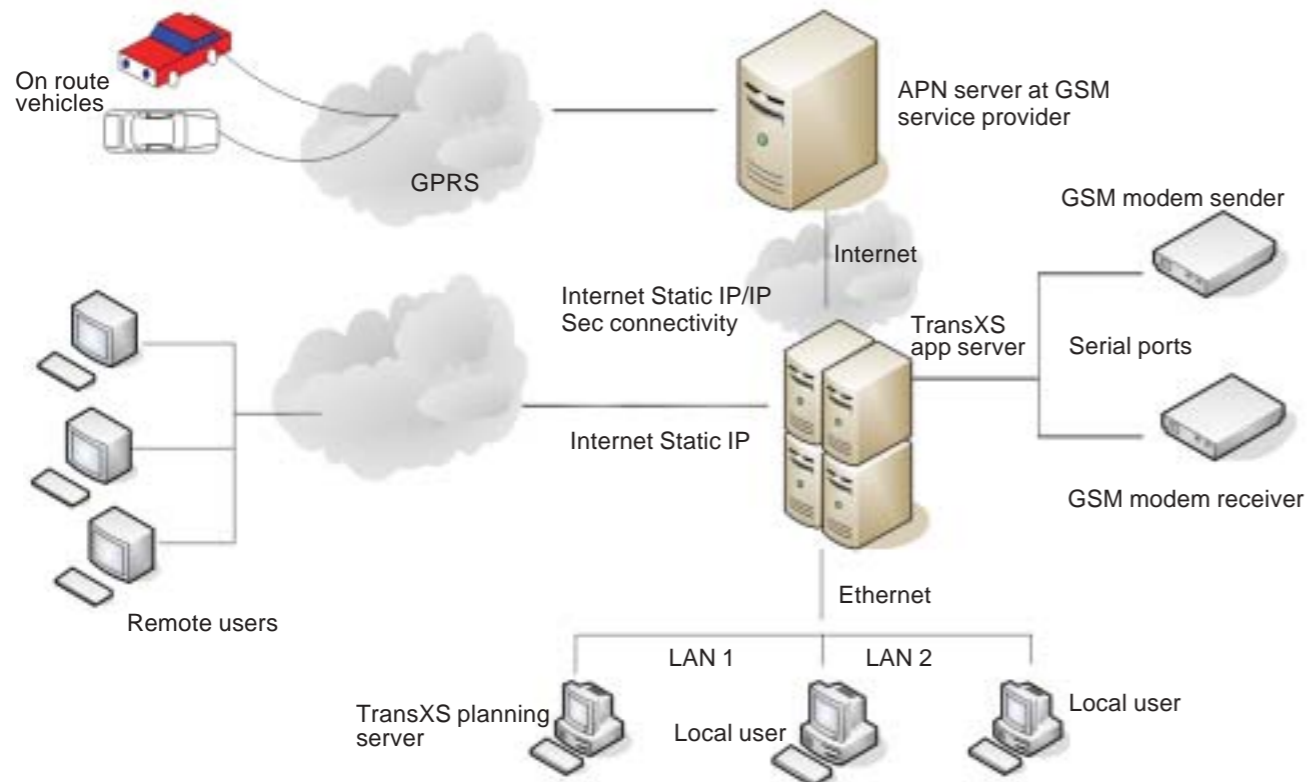
Most Innovative

Business problem

Tracking, managing and optimizing the employee transport fleet

IT Solution

A GIS-based centralized solution that lets operatos plan optimum routes and monitor vehicles

Implemented by

Mahindra & Mahindra.
IS and electronics by Visesh Infotecnics

Technology platform

GIS, GPS, GPRS, GSM

On route vehicles — *GPRS* — *APN server at GSM service provider* — *GSM modem sender* — *Internet* — *Internet Static IP/IP Sec connectivity* — *TransXS app server* — *Serial ports* — *Internet Static IP* — *GSM modem receiver* — *Remote users* — *Ethernet* — *LAN 1* — *LAN 2* — *Local user* — *TransXS planning server* — *Local user* — *Local user*

> The system helps BPOs *reduce their transportation costs by optimised route planning* and also tracks the fleet while on the road
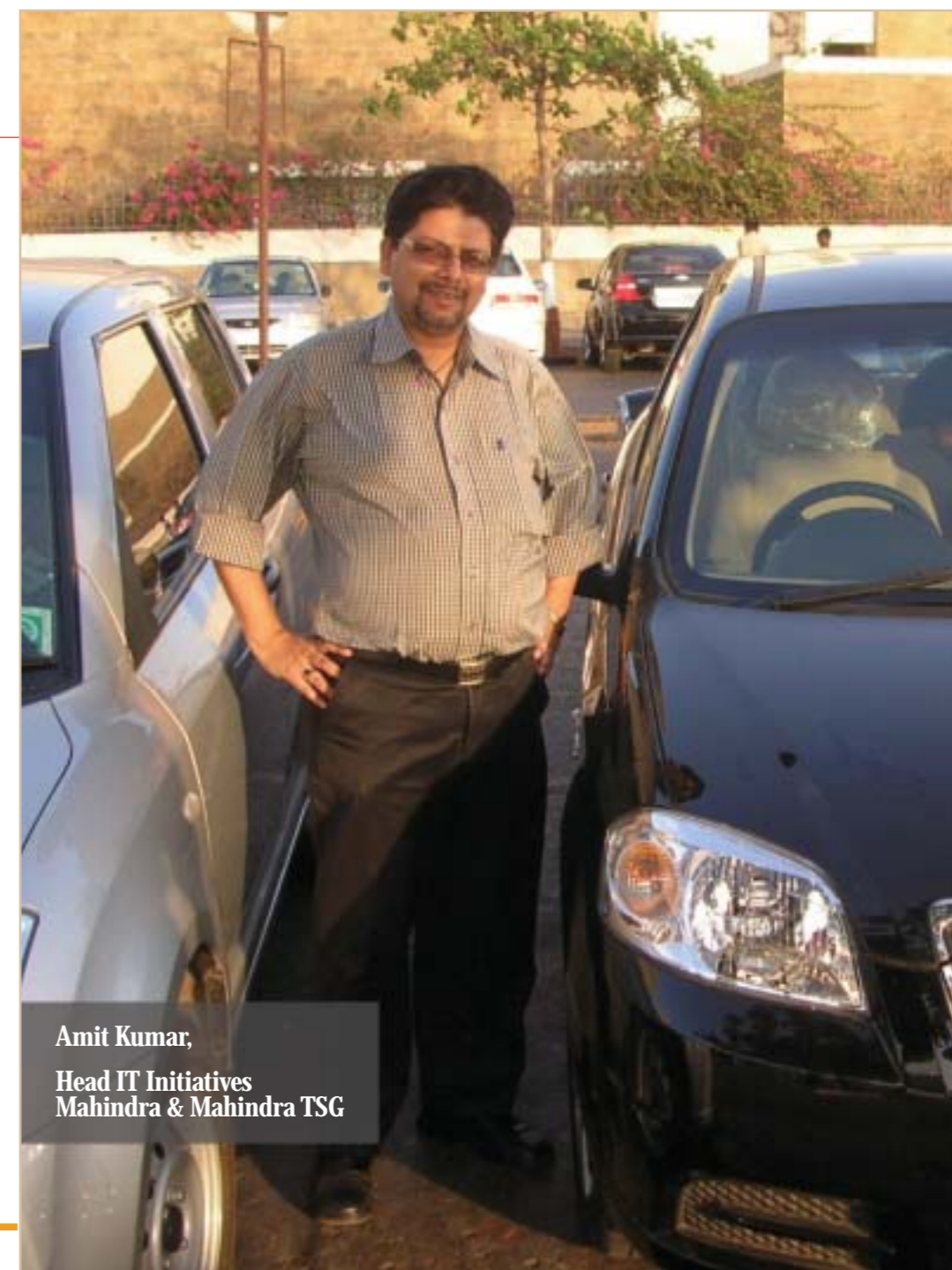
Amit Kumar,

Head IT Initiatives Mahindra & Mahindra TSG

The solution

A GPS fed monitoring system was the solution. Each transport unit is equipped with a GPS transmitter and this feeds information to a centralized monitoring location from where operators can monitor the progress of vehicles. They can do efficient route planning so that employees get from their homes to office and vice versa in the quickest possible way.

When they detect that vehicles are diverging from where they're supposed to be or are running late, they can call up the driver or authorized passengers in the vehicle. The TransXS application server and TransXS planning server are hosted centrally to track information being sent by the GPS unit in the vehicle. These servers use static IP addresses over an IPSec connection over the Internet.

They are connected over a LAN to operators who monitor the progress of the vehicles. A GSM gateway is used to send messages to and from the vehicle. Another advantage of the system is that the operators may be sitting anywhere in the world since they connect to the system through the Internet.

Future plans for the project envisage a system to remotely stop the vehicle if repeated transgressions or violent diversions are noticed.

ACNielsen ORG-MARG

Data Acquisition for Market Research using PDAs is an innovative and large-scale implementation of bringing down the audit cycle time from 18 to12 days. ACNielsen has implemented this practice of automated field data collection in their Retail Measurement Services division that conducts retail audits. Around 700 field auditors are spread across 173 locations that cover as many as 65,000 retail outlets. Before going for this implementation, they used to first send out pre-printed schedules to the field force. These schedules provided information to the field officers on which outlets to visit. The field officers would then note down all relevant figures such as stock, sale/purchase from each shop they visited in these preprinted books, and sent them back to their Baroda processing center. Here, all data from across the country was compiled to create reports for clients. This entire process involved handling enormous volumes of paper work on a daily basis, required significant efforts, and was a costly af-

Business problem

Retail audit cycle time was as high as 18 days

IT Solution

Roll out PDAs to field staff, preloaded with an application for data collection

Implemented by

ACNielsen ORG-MARG

technology platform

HP iPaq 2110 (750 series), Nokia IP 330 with Checkpoint, Embedded VC++

> Though the audit cycle time has been considerably improved, ACNielsen aims to further bring it down to a mere 6 days or lesser

fair in terms of handling logistics and data entry.

While arming the field staff with a notebook each was a good alternative, it was a costlier option. This problem was solved when they rolled out about 700 HP iPaq 2110's to each of their auditors. The PDAs come preloaded with an application that enabled entering relevant data in a standard format. This audit data collection software is developed in-house in Embedded VC++ while the database is encrypted in Binary format. The backend server is running an Oracle database. The auditors, after taking the data from various retail outlets, upload it to a central FTP server. This is done from the Reliance Web World centers the company has tied up with, or from dial-ups/cyber cafes in remote locations. Now, the current scheme allows the organization to audit more than 55,000 shops every month.

Bhushan Akerkar
Executive Director (ICT),
ACNielsen ORG-MARG

Next 7
Central Reserve Police Force

Project SELO, which stands for CRPF's motto of SErvice and LOyalty, was conceptualized way back in 1997 and due to its scale, was finally signed off in November last year. Interestingly, 1997 was also the year when Intranets take off in the country. To think that a govt controlled body like CRPF also conceptualized its own massive Intranet at that time and completely changed the way it functions is quite commendable. The entire approach to computerization in this project is very innovative and systematic, which is only to be expected from the armed forces.

The entire command and control structure of CRPF was covered by SELO, right from the Directorate General, to sector and range headquarters, group centers, and battalion headquarters in the fields. As a first step, they brought the IT culture into the workforce, so that the force would be ready to accept and appreciate the computerization when it happened. For this, CRPF used its Central college of telecommunications at Ranchi to train 1500 officers and men. They even sanc-

Business problem

Managing a large force over manual processes

IT Solution

Complete computerization and Intranet with an integrated application

Implemented by

Brigadier J S Sawhney (Retd); P Valsa Kumar, Additional DIG Police (EDP), CRPF

Technology platform

Microsoft, Oracle, Lotus

> The vision envisaged that adoption of Information Technology should enable all decision makers to access relevant and processed information…

Brigadier J S Sawhney (Retd)
CRPF
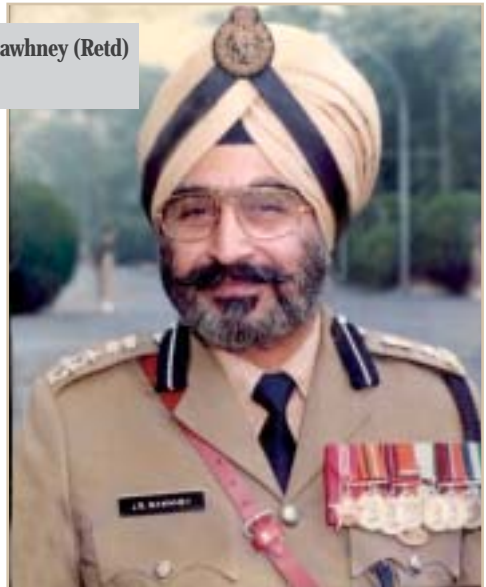
tioned Internet access to everybody to let them explore the power of the Internet and computers on their own.

Next, the software requirements were identified and a tailor made application was created for the work force. This is much better than simply dumping PCs and other hardware across all divisions. This requirement analysis took three months, and everybody from the dealing assistant to the Director General were approached. Based on this, the application was broken up into five different modules. One was to track personnel information, which is extremely essential given CRPF's 2.4 Lakh strong force. An operations module kept track of CRPF deployments; a finance module tracked finances, budgets, auditing, etc. An inventory management mod-

ule ensured that troops were never deprived of any requirements. Lastly, was a workflow and document management system, having an email system and posting of all rules and regulations of the workforce set by the government. Like any other Intranet, the key to a successful Intranet is regular updating of data. CRPF maintains it regularly, with data updations happens 24x7.

Next 7
Department of Agriculture and Cooperation

DACNET follows a very transparent approach in providing a comprehensive resource of agriculture-related information through a website open to all. Though it is operational in both Hindi and English as of now, DAC aims to convert it into other major regional languages so that the benefits can be directly delivered to the end user. This powerful e-governance initiative focuses on increasing value in DAC (Department of Agriculture and Cooperation) and enhancing its relationships with its minimum agenda of e-governance.

It aims at integrating Government functions (G2G), integrating agri-business partners (B2B), connecting farmers (C2C) and empowering employees (A2E).

The first step to bridge these islands of information was to network all Directorates, Regional Directorates and their Field Units with the Central Project Unit.

It is a very exhaustive portal at http://dacnet.nic.in/ that also links the likes of plant quarantine reports,

Business problem

Agricultural information was not directly available to the farming community and planners

IT Solution

A web-based centralized repository of information in the public domain

Implemented by

National Informatics Center, Delhi

technology platform

Database server, ISA, Visio-2000 and Office-XP

> This is a step towards providing agricultural knowledge and technology to the small holders (resource-poor farmers) of the country

weather watch, etc. Once can also get the state-wise, market-wise reports of prices for various agricultural products for a particular time period. This enables decision makers to make quick decisions by making use of that information, thus, reducing the cost and increasing the productivity. It allows for an interactive exchange of information for planning and day-to-day operations by farmers. This is done through the advisory and extension services available at the agriculture information centers (like Krishi Vikas Kendras or KVKs) in each village. There is data lying from as much as 5-6 decades back for the purposes of understanding the agricultural history of a region or drawing area-wise/crop-wise patterns out of it. the impact of the project has been so that the Customer Satisfaction Index is a soaring high of 91.5%.

Dr M V S Sarma

Senior Technical Director
National Informatics Center

Next 7
Crest Animation Studios

Crest animation studio is a decade old and has given some path breaking concepts to the Indian Animation industry, such as Morphing. It does a lot of 3D animation work for international clients. Creating 3D animations requires lots of processing power. As the number of such jobs increased, Crest was under pressure to deliver them on time. Even though they used multiple state-of-the-art, high end servers, the time taken for production was very long, taking anywhere between 8 to 24 hours, leading to lots of unproductive time for the creative workforce.

They deployed a high performance cluster, rather a rendering farm with 35 servers, called Render Units connected together over a 10Gbps network, with an application middleware to convert them in to a single virtual processing unit. They supported 64-bit computing, which could address more than 4 GB of both virtual and physical memory. The servers could be regrouped depending upon the type of animation project. Each clus-

Business problem

To render more minutes of animation in lesser time

IT Solution

High Performance Computing- Render Farm managed by application called RenderMAX

Implemented by

In-house Team

Technology platform

Linux and OpenSource

> There was a time when we used to output no more than 44 minutes of animation episodes a month. Today, we are producing over 200 minutes a month.

ter had a master node for job scheduling and storage node for storing the files required for rendering, as well as the rendered output. To manage the clusters, the team developed their own system called Render-MAX, which is a combination of scripting routines, Open Source grid engines, and striped-off Linux kernels. The work process is easy for the animators. They copy their work files to the storage node from the central SAN storage and schedule the job using the RenderMAX job submission web interface.

The deployment has obviously significantly reduced the rendering time. The team tried ran the linpack benchmark on it, and they got a whopping speed of about 690GFlops.
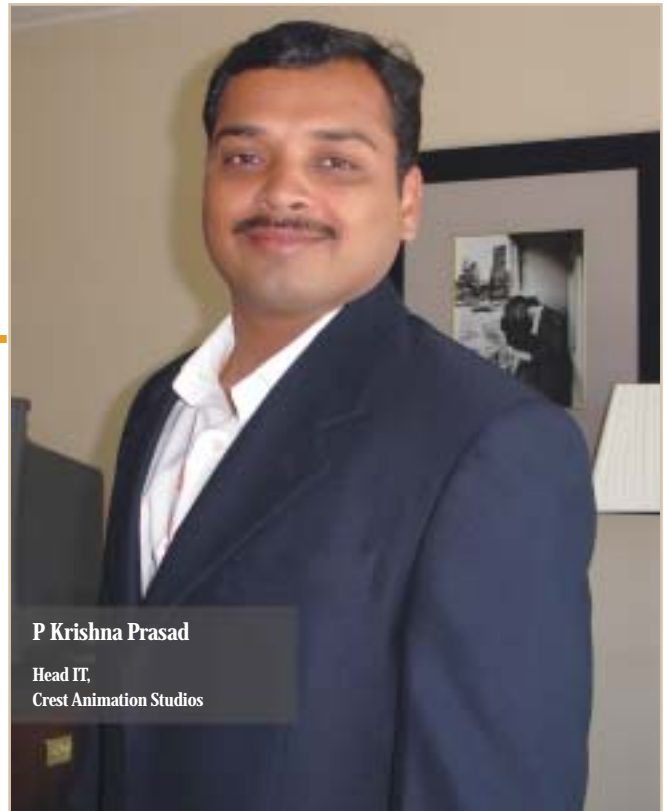
P Krishna Prasad

Head IT,
Crest Animation Studios

Next 7
Government of Andhra Pradesh

Model Town and Village Information System lets the Govt find out if it needs to provide more housing, drinking water supply, health care, sanitation facilities and other welfare measures in any locality. It needs to survey/audit and monitor the existing infrastructure and what's being implemented. The best way to do this is to have an information system that can provide granular level reporting to those in the Government so that best decisions can be framed and executed. A primary goal behind the creation of the MTVIS is that the Government in this case is looking to saturate applicable services (100% subscriptions).

For this, the CGG designed a two part application. One part being 'offline' was used to perform surveys and gather information about ground realities. The other 'online' tool enabled the strategic planning and offered decision support to those in the Govt. The data collected allows decision makers to drill down upto the household level. Requirements by beneficiary can be

Business problem

Finding out exact population and public utility usage information in different localities

IT Solution

Build a centralized database of surveyed and audited data and put it online

Implemented by

Center for Good Governance, AP

Technology platform

VB6, Access, GIS

> Built to satisfy the Govt of AP's saturation model for public utility services and schemes, this helps collate and analyze supply vs. demand

analyzed real time (51,000 beneficiaries can be tracked in under 10 seconds) along with monitoring of KPIs and navigation through the data using GIS. The offline tool was developed in VB 6 with Access as backend. The online part runs on Apache Tomcat and is built using the Struts framework. HP's Xeon servers are used to run the system.
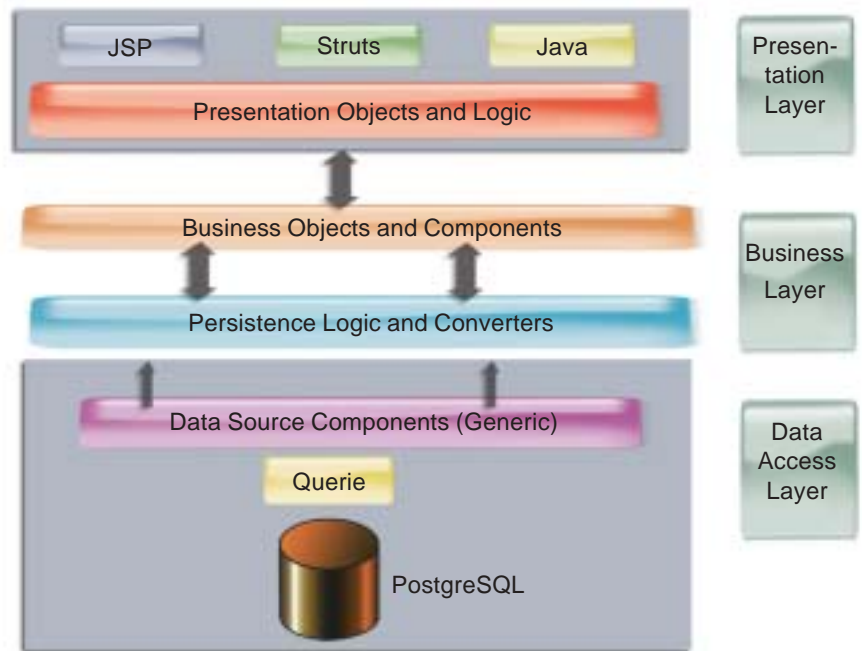
The application architecture

Next 7
Government of Andhra Pradesh

The Online Legal Caseload Management system is a Govt of AP project implemented by the Center for Good Governance. It's meant to help the govt keep track of cases where it is a respondent/petitioner. The process tracks litigation through the system from the subordinate courts right up to the Supreme Court, through each stage and with all the documentation. This lets the Government be better prepared and be more efficient and transparent. With the huge number of cases (63,000 pending cases involving the Govt of AP as of 31st October 2005) that pass through as well as lie dormant in our judicial system, along with backlogs and transfers to different courts and discontinuous timelines, the task of tracing the history of a particular litigation is onerous indeed. Traditionally, this required the Govt functionaries to be in constant touch with the GP's (Government Pleader) office to receive status updates. If the query is on a matter that's not currently 'active', it meant a delay of even several days before the GP's office could locate the information and pass it on.

The web-based Online Legal Case Load system eliminates the need to go through the GP's office, and provides all information on a web browser over the Internet.

The Case Load Management System offers complete tracking of a litigation right from the moment the court's office allocates the matter a number, upto the moment it is disposed of.

At every instance of the case, details of what has transpired so far, along with all submissions and referrals are filed and reported on. Even the number of adjournments is recorded. Details of judgments delivered are also recorded to facilitate appeals in higher courts. When an instance of contempt of court arises, the concerned Secretary is immediately informed via SMS and Web-based alerts.

Business problem

Keep tab of the progress of various cases where the Govt is a party or respondent

IT Solution

A web-based system that can generate alerts to provide a portal for such information

Implemented by

Center for Good Governance, AP

Technology platform

Oracle 9i database on RHEL AS, J2EE, Tomcat

Next 7
Punjab National Bank

K S Bajwa
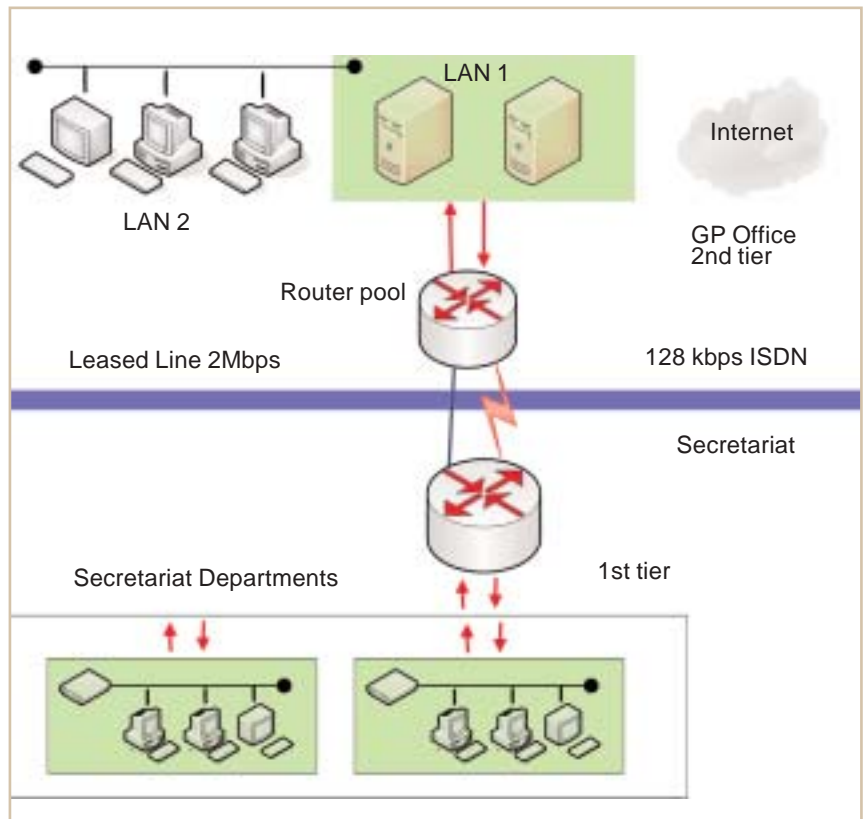
General Manager (IT)
Punjab National Bank

Preventive Monitoring System (PMS)—*Rakshak* is an innovative solution deployed by the bank to monitor the health of its big borrowal accounts. It alerts the officials of any malady before hand so that steps can be taken to prevent an account from becoming a non performing asset (NPA). For this, a number of key financial signals/indicators such as security value of an organization, operational and financial performance, irregularities in current accounts are fed into the tool. It assigns due weightage to each parameter in the form of numerical scores and captures the conduct of an account based on indicators of past one year to generate a single numerical value called PMS Index Score. Based on this score, the bank can identify sick accounts and plan remedial measures.

The tool has been deployed at branch level with data monitoring possible across the entire management hierarchy. This increases transparency thereby reducing scope for manipulation. It is a 3-tier solution built around Oracle 10g as its database and application server. Being web based, it allows easy access through Internet Explorer to users from any branch. It took 16 months for development testing before implementation in live environment. The web enabled version of the software was rolled across the bank branches in December 2005.

> PMS also helps identify creamy clients who can be granted more benefits

PMS server layout

Business problem

To prevent borrowal accounts from becoming NPAs

IT solution

A software that proactively tracks all borrowal accounts thus reducing financial liabilities

Implemented by

KS Bajwa, General Manager, IT

Technology platform

Solaris 9.0 and Oracle 10g

Department of Fertilizers

FERTNET is a close user group on Fertilizers Informatics Network that NIC has developed for the Deptt. of Fertilizers. This is a Web-based information system that provides information relating to fertilizer movement, production, distribution and subsidies paid to different fertilizer producers, equated freight fixation and payment handling for fertilizer imports.

It has become easier to plan the widespread distribution of fertilizers based on the inter-related informatics support on demand and supply positions. This in turn helps in reducing transportation costs and de-mand-supply gap, and optimize the use of stocks. While most reports are available across all concerned departments, there are some (like the subsidy payment system) that are kept confidential.

Timely information about the production capacities and actual production ensures smooth and timely supply of fertilizers in the country including remote areas for sustainable agricultural production. While different modules under the project are already operational, the next step would be to integrate them to make the information available on a single window.

> ■■■■■
> With FERTNET, you can keep track of the availability of fertilizers in remote locations, and ensure timely supply

Business problem

Information exchange for fertilizer mgmt

Technology platform

.NET, SQL Server, Crystal Reports, Win 2000

Government of India

IntraGOV is a Web-based portal that integrates G2G (government to government) and G2E (government to employees) operations. The key issue of G2E services is empowerment of the employee and resulting accountability. The project started in 2002 with the successful implementation of IntraNIC portal—a Sharepoint based Intranet solution.

IntraGOV solution is based on the IntraNIC model. This framework is built on Open Source and based on open standards. The application is built using Zope as the application and Web server, Plone as the content management server and Python as the scripting language. The portal offers services like collaboration and messaging services, document and content management, workflow automation and integration of various intra-departmental applications.

Business problem

Empowerment of employees for e-governance

Technology platform

Zope, Plone, Python

> ■■■■■
> The portal is designed to provide significant personalized and dedicated services

Suchitra Pyarelal,
Technical Director, NIC

HDFC Bank

Business problem

Cumbersome process of signature verification

Technology platform

Delphi 5, Crystal Reports, SQL Srvr 2000, BDE

Eliminates dependency on the core system and covers over 70% of clearing volume

G S V Surya Prasad,
Vice President

Signature Verification System is a rule and image based system that doesn't require any physical handling of instruments while verifying signatures during validating transactions. The system has a Hierarchical System Model with one central server and multiple regional servers. It auto-retrieves signatures and does intelligent processing. The list of authorized signatories has been converted into business logic and the user no longer needs to read through the written instruments. The signature that best qualifies business logic, is displayed to the user for verification. Re-verification option that follows the maker-checker concept, is used for instruments that are of high value or are suspicious in nature. The time taken for signature verification is reduced substantially as the users need not search for the required signature from the list of signatories in the core system for an account.

ICICI Bank

The APIN over IVR system is a very thoughtful project. It's meant to help the bank's existing credit card customers by letting them set/reset their ATM pin (APIN) number over the IVR system. An APIN is required if a customer needs to use the ATM. Credit card customers do not use this very frequently, so there is a tendency to forget it. The typical process followed is to post the APIN by courier when a request comes in, which is costly, and customers can forget it again.

To solve the problem, five different systems have been integrated to achieve this, starting from the IVR system and ending at the credit card system. The system also integrates with the CRM system and sends an SMS alert on the customer's mobile phone for

Business problem

Customers forget APIN number of credit cards

Technology platform

IVR, .NET, Web services, CRM, BizTalk

APIN change confirmation. If there's no mobile phone, then the CRM's APIN tracking system helps the customer identify the history of APIN generation.

Joydeep Dutta,
Jt GM-Technology

Removes the cumbersome process of sending APINs over courier everytime

IIITM - Kerala

The Kerala Education Grid by Prof. KR Srivathsan of the Indian Institute of Information Technology and Management, Kerala aims to create a network of educational institutions across Kerala (and eventually the whole of India). It has already setup a core of four resource centers across Kerala. Each resource center is treated as a repository of information and a mechanism to disburse information. These resource centers are at IIITM-K, CUSAT, College of Engineering (Trivandrum) and NIT (Calicut).

The KEG works in conjunction with the NPTEL (National Program for Technology Enabled Learning and Teaching) and has a sanctioned budget of around 7.5 crore rupees. It leverages the resources of EDUSAT and ERNET to manage its network and infrastructure more efficiently.

A web based portal (edugrid.in) is the front end for this portal and can be accessed by anyone anywhere in the world. The site hosts information about various courses, resources for teachers, self assessment exams and knowledge based documents (like whitepapers and concept notes). It further allows the visitor to post a query to its expert panel using a ticketing system. You can reuse the token number to read the reply any time.

> The future goals of this **project include setting up a** national education grid

Business problem

Creating a resource pool of courseware

Technology platform

UNIX, Servers from Sun Microsystems

ITC - Printing and Packaging

Project Kosh is an in-house project. This division of ITC was using an MRP II system called MANMAN, implemented 15 years ago. Although it has served the core business functions well, the business growth outgrew its capabilities. So, they implemented an integrated infromation system where the machines and systems could directly communicate with the ERP system. As a result of this, the system can make quick estimation of costs of producing a product, as soon as a customer asks for it, and provide the specifications.

This system is useful in a market with rapid changes. The solution consists of SAP ECC 5.0 and IS-Mill with printing and packaging specific templates from Dr. Lauterbach and partners. It also interfaces with Rockwell MES and RF Device based warehouse mgmt.

K V Saravanan,
Divisional IT Head

> It has increased the **productivity and given real-time** estimation of production

Business problem

Quick manufacturing cost estimation

Technology platform

mySAP 2004 ECC 5.0 with IS Mills

ITC

Business problem

IT resources do not match business needs

Technology platform

Leased lines, ISDN lines, VSATs, RF links

When ITC's business expanded, IT needed to be scaled higher to serve it

Project Trident is an in-house ITC project aimed at reconstructing and extending their existing IT infrastructure for future business needs. Today, ITC has approximately 20,000 employees spread across 400+ direct locations throughout the country. This does not include the 5,300+ e-chaupals spread across eight states. ITC has implemented ERP and customers are using Web applications to streamline their operations. Hence, it's completely dependent on 24x7 availability of IT facilities. To support business needs, a WAN was set up to connect the business locations. Each division implemented servers, desktops and LANs across its operating locations; and business specific, best-fit ERP was rolled out and MIS setup was fully strengthened.

Prasad Natu,
Head - IT

IDBI

Business problem

Leveraging existing outlets for new businesses

Technology platform

Modified ATM machines

Use IDBI ATM machines to check for and book air tickets day or night

You can now book your air travel tickets using modified ATM machines being deployed by IDBI across India. The idea is to eliminate the need to locate a travel agent at odd hours, during holidays or when businesses are shut for any reason. The philosophy behind using ATMs for this is that these machines are located at a large number of locations and are usable any time of day or night.

These ATMs allow the customer to check for seat availability and book their tickets through the ATM, while paying for the ticket using their IDBI account.

After a ticket has been reserved, you can also query for ticket status using the PNR number.

Currently, IDBI has tied up with Indian (previously Indian Airlines) only. But efforts are underway to add other airlines to the network. The application for the same has been acquired from Quest2Travel while NCR is the supplier of the modified ATM machines.

This is a relatively new project, having started only a year back and has been completed in about 10 months time, with the pilot taking up most of that period (four months). The pilot is currently in progress in Mumbai and the country-wide rollout will be finished in phases over the next three years.

Oriental Insurance

Business problem

Loss of competitive edge to rivals

Technology platform

Oracle Application Server and servers from Sun

W ith the insurance sector booming, and many global players entering the Indian market, Indian insurance companies must do something to cater to the growing customer base and gain a competitive edge. That's what Oriental Insurance has done by implementing an integrated application for its non-life insurance business, called INLIAS. The solution has been implemented across Oriental's 193 offices and 25 others operating in parallel mode. The project has been handled by 3i Infotech, which is in the process of implementing it across the rest of the offices. Rolling

An insurance application that covers all operations from quotes to underwritng

out a project of this scale is an effort in itself.

The application covers all insurance processes, right from providing quotations to underwriting, claims, processing, re-insurance, and accounting. The solution will allow operational control and all information needed for the day-to-day operations of employees. The clear business benefit from this application is reducing the time taken for various tasks. The project has been implemented on an n-tier architecture, providing a browser front-end to the users.

They access the application over a virtual private network. INLIAS has been built on Oracle Application Server, which has layers for control, operations, and business logic.

Department of Agriculture

Business problem

Lack of testing standards for testing bio-matter

Technology platform

Visual Studio and MS SQL Server

P lant Quarantine Department is a part of the Agriculture Department, that keeps track of all plant commodities including cereals, fruits and vegetables, going out or coming into India. The s/w is designed to help Plant Quarantine Stations and to provide quick and quality service to the exporters and importers. It makes sure that the set of tests defined for a particular kind of commodity are applied as per standards. Instead of manually deciding the number and type of tests, the system automatically gives the list of required tests necessary for a particular commodity. A certificate

PQS has been successful at locations such as Wagah and Nepal borders

can be generated only once. In case duplicates are necessary, the older one is deleted and a new one printed out, keeping track of the deleted copy. This prevents spurious certification.

Dr A K Choubey,
Sr Technical Director, NIC

State Bank of India + IIIT-B

GanaSeva Rural Credit Delivery System uses information and communication technologies to solve the problem of providing financial services in rural India. Funded by Microsoft, and conceptualized by Center for Banking and IT division (C-DIT) of IIIT-B, the project has been successfully deployed in five villages in the backward Honavar block of Karnataka. In the system, PDAs are used to gather information about the rural households. This data is loaded to an Integrated Multi-Service Database System. Finally, ATMs with computer console, called Multi-Service Delivery System are placed in a commonly area, and connected to IMDS over CDMA. Banks connect to the IMDS to view citizen profiles, and provide banking services. All incoming requests come through the MSDS. This project has great potential to transform rural India.

Dr SS Satchidananda,
Research Director, IIIT-B

PDAs to collect citizen profiles, ATMs provide financial services remotely

Business problem

Taking financial services to upbring rural India

Technology platform
Microsoft technologies

Sony Entertainment Television

Business problem

Payment collection losses, poor IRD tracking

Technology platform

Linux, Apache, MySQL, Perl-PHP

Book closures now happen by the 3rd-4th of the month instead of 24th-25th

The WebSMS project is an excellent example of using simple technology for gaining maximum business impact. It is aimed at managing cable operators, the type of customer who has the tendency to understate his subscriber base leading. This poses a challenge for Sony's sales team, as they have to keep coming up with innovative ways to maximize their collections.

The WebSMS project helps Sony get timely collections and receipts from around 7,000 cable operators spread across the country. It improved their collections and reduced invoicing errors, thereby allowing more accurate revenue recognition and collection. As a result, their monthly book closures started happening around the 3rd or 4th of every month, instead of 24th and 25th. They capture around 9,000 transactions per month, most of which used to happen on paper earlier. The next phase of the project helped them track and reconcile the movement of their IRD boxes, which were worth around Rs. 40 crores.

With so many thousands of IRDs lying around with extra units with distributors for replacements, there were often delays or misses in the IRD movement earlier. Now, this is also solved using WebSMS. The project is based on a typical three-tier architecture based on LAMP—Linux, Apache, MySQL, and Perl/PHP.

Borosil Glassworks

AnexGATE, a unified threat management appliance, was implemented at their Internet gateway to add security to their networking infrastructure. This was implemented by Xserve India along with Systronet. The main concern while selecting the solution was the future need to roll out SAP across its two offices at Marol and Bharuch. Borosil wanted to prevent unauthorized access to data transfers happening between its SAP servers and clients between its two offices. In addition, it required that its messaging systems to be secured against attacks.

They could not consider leased lines as an option because of the costs involved. Therefore, they decided to go with a VPN architecture and this needed to be secured and well managed as well. Now, all of Borosil's branches are linked with a secured IP VPN. As a backup, they have also acquired a site-to-site VPN secured with IPSec.

AnexGATE features an SPI firewall, IPS and Internet proxying and local mail server capabilities with anti-spam. In addition, Borosil has implemented a gateway level antivirus, a mail server to streamline their messaging. The requirements were studied, planned and rolled out in one month's time.

Pre-shared keys authenticate users to the VPN server and then to the SAP system

Business problem

No security solution at the company's Internet gateway

Technology platform

Implemented AnexGATE as a one-stop solution to streamline security, messaging and VPN

Tata Tele Services

The electronic bill presentation and payment system or EBPP for short, is more than just a mere billing application deployment across 21 telecom circles of Tata Teleservices. The implementation allowed the company to reach out to its customers in a much better fashion. Bill generation may seem easy, but not when you have to print more than 20 million statement pages every month across 8 bill cycles.

The output application ReportSuite is used for managing the billing process, and provides several interesting functions such as printing bills in regional languages, prioritize on high-value bill printing, multi-mode personalized bill delivery, and much more. It also allows multi-channel billing, wherein a bill can be printed, faxed, or e-mailed.

The business benefit in using such a solution is of course a saving in printing cost, and better response to customers, especially those requiring a duplicate bill. 30% of the company's bills have been migrated to electronic statement delivery.

The solution has been seamlessly integrated with the core billing application as well as Tata Tele Services Multi-Channel Customer Interface, which is a portal for customer interaction.

20 mn bill statements every month... EBPP handles them with ease

Business problem

Managing billing across 40 million customers

Technology platform

ReportSuite Output Management solution

Tahiliani Design

Business problem

Lack of information to support critical decisions

Technology platform

SQL Server, Navision

Using Citrix Metaframe and Navision, TTD now gets real time information centrally

Project Butterfly was initiated as part of Tahiliani Design's initiative in reducing problems related to management of huge workload and production. This is an ERP system, which can integrate and manage all types of business needs. It helps in building bridges between structured and unstructured work.

The project is an integration of business value chain to consolidate information and present it in an actionable, understandable format. The biggest problem faced by the organizationwas that information was not available on time and hence critical decisions couldn't be taken.

With this integrated system in place, the information became readily available and decision-making, much faster. The key features of the project are inventory management, working capital management, debtor outstanding management, on line real time information for trend and demand analysis and back office management

To make this project work, the company went the Microsoft path. The key components used here were MS Dynamic Navision, MS SQL Server 2000 and MS Windows Server 2003 as the back end components. And as the front end consoles they are using Citrix Metaframe & WTS (which is essentially a thin client) for centralized management and low cost.

Eveready Industries

Business problem

Scattered files over individual desktops

Technology platform

Red Hat Advanced Server 3.0 and Cluster Suite

A cluster to centrally manage intellectual property along with biz processes

UNIBIZ is a project that encompasses a system to consolidate information and processes related to all businesses under one application. Previously, all information was scattered, residing in individual desktops in the form of document files, spreadsheets and mail. Now, if the management had to take any decision, they needed to collate all information, which consumed time. This enterprise wide eBusiness solution gives a single window view of business anytime anywhere. It has helped the organization automate all the important

business processes such as manufacturing, purchase finance, HR, order management and marketing.

The application runs on Intel/Linux platform having two servers in an active/active cluster attached to an external SAN storage. One of the servers runs the Application, Discoverer, Forms services while the the other runs the Database and Concurrent Manager Services. They run over Red Hat Advanced Server and Cluster Suite.

The cluster is designed in such a way that if one server goes down, the services running in that server would automatically shift to the other.

Wipro Technologies

InFocus is a business intelligence project that fulfills three key roles. One, it is used for consolidation at the CFO's office for all the financial and business related data that flows in from all of Wipro's 10 vertical interests and 33 service offerings for those verticals, across four geographic divisions. The second purpose of In-Focus is to perform operational planning based on this data and finally to provide appropriate compensation and benefits to their employees. The aims of the project include removing human inefficiencies in manual repetitive process; improve reporting by being able to

It helped reduce human effort in analytics, information and DSS streamlined

now perform analysis among all the data sets gathered. These reports can be made use of for faster customer-facing services, as well as internal reporting.

Umesh Sangurmath,
Project Head

YES Bank

The Market Risk System has been setup by YES Bank keeping in mind the RBI guidelines and Basel II norms. As per the guidelines, banks must manage market risks in their books continuously, at the close of each business day. Likewise, strict control has to be done of intra-day exposures to market risks. The system handles market risk for all securities specified by RBI. Some of these include held for trading, open gold or forex position, available for sale, etc. the challenge for YES Bank while implementing its MRS was to have subject matter clarity, and implement it under RBI and Basel II guidelines for standardized duration method and customized for computation of modified duration.

The system virtually eliminates human error, which was very high earlier as the complete computation of capital charge used to be done on Excel sheets. It automatically does risk calculations, and provides single data source for market risk analysis.

Surendra Shetty,
Vice President-IT

A risk mgmt system that complies with Basel II specs and RBI guidelines

Adani Wilmar

Lakshya is a complete ERP implementation project. It was implemented using ASAP methodology which is recommended by SAP for its ERP. The company went in for a two system landscape, in which SAP development and customization was carried out in one set of servers and live data was hosted on another. The servers were put in clustered fail-over mode using MC ServiceGuard, which provides very high up time by shifting the application to the standby server in case of problems in the main server. The system helped Adani Wilmar to derive ROI (return on investment) on MRP (Manufacturing Requirements Planning), QC (quality control), price control through price masters, credit checks, consumption based planning, internal orders and vendor analysis. The system also helps to streamline all business processes under one roof. HCL Infinet was chosen as the VPN partner for majority of locations and direct point to point leased lines were used for some

Business problem

Automating core business processes

Technology platform

Oracle 9i

Project head

Biplab Pakrashi, DGM (Commercial & IT)

other locations where transaction volume was expected to be high. In some very remote locations, Adani Wilmar also used VSATs. As on date some 80 different locations log into the central server and perform transactions through dialups, broadbands, CDMAs, leased lines, RF links and VSATs.

Alok Industries

SAP ERP was employed by this garment manufacturer due to a rapidly growing business. This was done in order to automate their business processes and improve efficiencies. But, their network was not able to handle the load of SAP and Oracle, resulting in production delays. To get rid of this, they upgraded their existing 100 Mbps network to a Gigabit network with managed switches. This helped the company strengthen its backbone, leading to higher production and faster shipment despatch. The company has even gone one step further and deployed IP cameras for security reasons so as to create a secure working culture in the organization. The company is enjoying steady growth thanks to the wonders of IT.

Business problem

Slow network leading to productivity loss

Technology platform

ERP and upgraded to Gigabit Ethernet

Project head

Manoj Vargese, IT Manager

Bajaj Electricals

This JDEdwards implementation by ACCEL has helped in forcasting supply and demand with greater accuracy, leading to better procurement and inventory management. It had to be implemented in their fan (chakkan) unit, mainly due to rising competition from foreign as well as local brands. Under this, everything from their shop floor to production lines, inventory, procurement, and even accounting was automated and brought online. This has reduced lead times throughout the supply chain, cut costs and improved decision making. The ERP solution uses Oracle 9i and MS SQL 2000 databases on their Web and production-class servers respectively, and IBM WebSphere 5.0 application server is running on Windows Server 2003.

Business problem

Competition from foreign and local brands, cost

Technology platform

JDEdwards 8.9 with Oracle 9i and SQL Server

Project head

Gharge Pratap, Sr. GM and Head IT

BgSE Financials

Business problem

High cost of connectivity for trading

Technology platform

AnexGATE plus Secure VPN

Project head

S.K.Nagaraj, Systems Manager

VPN connectivity over broadband is what this project's all about. It's helped BgSE, a company that's jointly promoted by Bangalore Stock Exchange and its members, to carry out secure and speedy trading at a fraction of the cost they were incurring earlier. Prior to using broadband, BgSE members (over 100) were using dial-up lines, VSATs, and leased lines for connectivity. Broadband has reduced their initial acquisitino cost by half and monthly recurring cost by a fourth. Members can now pass on this benefit to their customers. It's now possible to securely connect to member networks, and get the performance needed for running real time applications.

CNBC-TV18

Business problem

Security of IT infrastructure

Technology platform

Fortinet's Fortigate-400A and 800-A firewalls

Project head

Rajesh Sharma, Sr Manager - Systems

When the number of users going online at CNBC went up, they were also faced with a rise in the security threats. The company chose Fortinet's Forgate 400-A and 800-A firewalls for its offices in Delhi and Mumbai since these appliances could be configured for different Internet service providers with redundant failover links for continuous service to the users.

Fortigate has integrated real-time AV, firewall, VPN, IDS/IPS, content filtering, and traffic shaping services in these boxes. Two of these boxes were used at each location in HA mode. Now, both offices are securely linked and issues such as network congestion have been put to rest.

Cognizant Technology Solutions

Project InSight is truly a remarkable example of using an IT infrastructure monitoring and management solution to manage other offshore IT infrastructures.

That's one of the businesses that Cognizant is in. They've built a solution around HP's OpenView platform that allows them to manage their customers' IT infrastructures remotely, and with ease.

It provides their customers enterprise management tools, an IT helpdesk, and an InSight portal. The

Sean Narayanan
VP & Global Head of IT

Business problem

Monitor and manage customers' IT setups

Technology platform

Solution built on HP OpenView

Project head

Rengarajan Bashyam , Head, GOC

last one let's customers see the health of their IT infrastructure, trends in the past and projected likely behavior. It follows a shared service model, where the customer doesn't pay for the entire management platform.

CSIR-URDIP

Business problem

Bridge the gap between research & industry

Technology platform

J2EE n-tier architecture

Project head

Alok Khode, Scientist

Anusandhan, (www.anusandhan.net), provides information on public and private science & technology infrastructure, expertise and facilities, associated educational, government and private organizations, and their activities and related business dealings. The coverage includes 2500 publicly funded R & D institutions and 1500 privately funded in-house R & D centers of industry classified in 30 sectors. The portal is aimed at all those who benefit from Indian science and technology, from scientists to policy makers and students to professors. The portal has been developed on J2EE technology based on an n-tier Architecture. Right now, the portal is free for the general public.

Indian Overseas Bank

Business problem

Faster customer servicing

Technology platform

SCO OpenServer and Sybase

Project head

Shri S K Misra, General Manager

IOB-CROWN (Centralised Resources Over Wide-area Network) is an in-house core banking software deployed in 1500+ branches. The software is capable of e-banking and inter & intra bank fund transfer. The user can withdraw money (upto Rs. 25,000), transfer funds or clear drafts from any branch under CBS.

This is running on SCO OpenServer 6.0, which runs on a low end Sun RISC server. It supports 3,000 users. There are three application servers, providing load balancing, with another server as a backup. The servers are logged with Sybase log every 5 minutes for recovery. All branches connect to this server over TCP/IP. The Front-End is called APT, which is a Sybase tool.

Ministry of Agriculture, GOI

AGMARKNET is a grand project that has networked 1700 agricultural produce markets for effective interchange of market prices. A portal called agmarknet.nic.in has been created where this information would be uploaded, and be made accessible. It's useful for traders, processors, exporters, researchers, policy makers, and planners alike with information like agricultral census, grade information on products and the like.

The Ministry of Agricul-ter aims to create a national database with AGMARK-NET that will feed into a statistical and analysis report for agriculture decision makers.

P K Suri,
Technical Dir, NIC

Business problem
Provide market prices to farmers

Technology platform

Microsoft MSMQ, BizTalk Server+Lotus Script and Approach on front end

Project head

M. Moni, Deputy Director General, NIC

IFFCO has also deployed around 1000 kiosks in rural areas, which integrate with AGMARKNET. The project based on a disconnected client/server architecture and has huge potential to help growth in the Indian the rural sector.

Government of Maharashtra

Business problem

Land records management

Technology platform

VB.NET, MS SQL Server, Indic Input Method

Project head

D P Bobde, DDG, NIC

Computerized Document & Index Search System or CODISS, developed by NIC, is aimed at providing a computerized search and query facility on all the documents, which need to be retrieved when needed, from the record room of the Land Records Department.

The application allows for the entry of details of the document, while providing a two level search facility to the user. One is at the document level and second, a more detailed level, for search of a key field within a document for which index details have been entered. This multi-user role based & client-server application stores data in UNICODE. The user interface is in Marathi.

Gujarat Urja Vikas Nigam

Business problem

Implementing Business Intelligence

Technology platform

Oracle Collaboration Suite

Project head

M.K. Iyer, Sr CGM-IT, Rajesh Shah, DGM-IT

The ERP project, e-Urja, aims to handle the complexities of the energy sector. GUVNL needed better corporate governance, operational effectiveness and financial sustainability. This is achieved through Enterprise Resource Planning, which aims to integrate the business processes/functions of an organization so that key resources such as man, material, machine, money, etc. are utilized in the best interest of the organization. The current system has reduced the amount invested in inventory, processing costs per business transaction, procurement costs, and the time taken to perform a financial closure and prepare financial statements.

ICICI Bank

The channel integration across CRM project is meant to take care of providing a consistent user experience across various channels from where customer service requests can come in. At the heart of this system is the bank's CRM application. This currently allows ICICI Bank's users to log complaints on behalf of its customers. This project provides integration points to this system from other channels. Currently, a JSP based front-end has been created on a new sub-domain called https://requests. icicibank.com, which

Joydeep Dutta, Joint GM

Business problem
Consistent user experience across channels

Technology platform

CRM, Java+XML for messaging, Pramati Application server

Project head

Joydeep Dutta, Joint GM, Technology

connects to the CRM system through a middleware framework created in Java with XML for messaging, and hosted on the Pramati App server. The IVR system is also being integrated with this system, which is currently in pilot, but complete roll out is expected by the time you read this story.

Intimate Fashions

Intimate fashion is a fashion and garment house and has around 32 manufacturing lines. Garments manmufacturing is something that needs to be monitored properly at various stages of production. So in case of any fault, it can be immediately rectified at least before it goes into packaging. To reduce the time which is used in this process, they have taken help of technology. So 28 of all 32 manufacturing lines have been assigned a supervisor with a WiFi enabled PDA. The supervisor is to check the garments for any kind of faults and feed the details of the unit to the PDA. This data is then sent immediately to a central database over the wireless network. Then the data undergoes certain validity checks. If the validity check crosses a pre-defined threshold, the data is immediately sent to a superior who can then take a decision on weather to stop the manufacturing or continue if it's tolerable.

Business problem

Getting quality control info at every stage

Technology platform

Microsoft SQL Server, HP PDAs over WiFi

Project head

U Swaminathan, IT Head

The complete application is developed by the in-house IT team and uses commodity products like PDAs from HP for front-end and MS SQL as the back end. This has led to faster decision making, an increase in the production speed.

Jindal Power

Microsoft Navision 4.0, an ERP system, was used to streamline the business processes. Setting up power plants is a mammoth exercise. It is too expensive and complicated to be managed with adhoc or manual systems. Only a solution as sophisticated as an ERP can effectively manage the operations. Since the plant is in the construction phase, the core requirement was pertaining to project costing and monitoring of work contracts and purchase orders. The system provides Jindal Power integrated functionality for financial management including Fixed Asset Accounting, Budget Monitoring & Analysis, and Inventory & Stores Management.

Business problem

Automating power plant processes

Technology platform

Microsoft Navision 4.0

Project head

Bhagwan Kodwani, IT Head

LG Electronics

Primary Datacenter was aimed to build a high availability datacenter development for business continuity. It provides benefits such as improvement in business value, application availability, continuity of operations, productivity improvement, total cost reduction and single point management. The total data center architecture was built on APC Racks with APC UPS. It's a very complex environment having heterogenous platform. This includes ERP and mail on IBM, database on Sun, and thin client application on Intel based servers. The data center uses state of the art technologies from different vendors. It took three months to have it up and running.

Business problem

Integrating multiple platforms

Technology platform

IBM, Sun, Intel

Project head

Arindam Bose, GM (IT)

M&M Financial Services

Business problem
Provide faster financial services to rural India

Technology platform
Citrix Presentation Server

Project head
Suresh A Shanmugam, National Head, IS&T

Project MF-Connect 200 helps the company provide better and faster financial services to rural villages and semi-urban towns. In this project, all applications and storage are centrally located, and remote branches access them through a Citrix Presentation Server. This allows better monitoring, mgmt, and maintenance of IT infrastructure without any disruption of services. It has also reduced administration costs.

Suresh A Shanmugam,
National Head, IS&T

MP State Electricity Board

Business problem
Provide better service to customers

Technology platform
Oracle database, app server

Project head
PK Vaishya, Executive Director (CPG) and Secretary, BR Bhatnagar, Project Coordinator Capacity Building Group

The electricity board of MP developed its own revenue management system, as nothing was readily available commercially that would match its requirements. The board expected to achieve quite a few objectives with this, such as minimize energy losses, map consumer billing directly to the sub-transmission network, make field officers more accountable by introducing feeder wise billing, process automation, eliminate duplicate data entries, etc. The developed application provides details of pole lines and sub-stations, cash collection and reconciliation information, billing details, complaints & redressals, installments, security deposits, defaulter management, interest and incentive.

Syntel

The company designed its campus for supporting its global customers and their security requirements. The design provides a layer of segregation at the physical as well as logical. The entire campus was built on a 10 Gigbit backplane, in order to provide Eco Friendly Environment for Syntel's workforce. The business objectives were to enhance and simplify the work culture on the campus, support multiple business verticals, have the capability to segment operational areas, and also have the capability to host customer equipment. The campus supports mobility services, security standards, provides voice and data services and Centralized Management. The network architecture of the infrastructure is built with SMF on the backbone, CAT6 to the desktop and Intelligent Cabling System for the Data Center. All servers in the data center are on Giga/10 Giga and S-flow at each switching port is used to enable

Business problem
Integrating Data and Voice together

Technology platform
Heterogeneous

Project head
Sajid Ahmed, IT Head

traffic analysis and Intrusion detection, segregation of network services, and high availability. For voice, it uses IP PBX, IP Phones and even unified messaging that allows multi-party conferencing, one-number-follow-me personal call director, and much more.

RB Education Foundation

Business problem

Intrusion prevention and B/W optimization

Technology platform

Fortinet gateway solution

Project head

J S Sodhi, Sr Manager-IT, Amity

Implementation of Fortinet at Amity protects the institution's network at the gateway level. This solution

JS Sodhi,
Sr Mgr-IT, Amity

is an all-in-one architecture with scalability, performance, bandwidth management and optimization, in addition to conventional security features such as firewall, anti virus and intrusion prevention. With this, Amity has seen a drop in network intrusions, virus outbreaks and security incidents.

Sanghi Industries

Business problem

Better management of production and SCM

Technology platform

mySAP ERP 2004

Project head

Mr. Jignesh Parekh, Manager (I.T.)

Big Bang is an SAP implementation by Sanghi Industries with Coconut Software as the implementation partner. Sanghi, a cement manufacturer, was looking for a better way to manage their production and supply chain lines. They first considered building their own 'ERP' system, butfinally, mySAP ERP 2004 system was selected. The system is currently operational at their cement and clinker plants, which are linked over VPN links. They also have a distribution management system implemented on .NET. The ERP allows Sanghi and its customers to instantly get information about the status of their orders and fulfillment.

Sterlite

Sterlite Optical Technologies is in to Optical Fiber manufacturing. They have developed an in-house solution to automate their core business process. This MES package correctly analyzes the deficiencies in process resulting in cost reduction and continuous process improvements. They ware able to map the process flow, interface with process and QA machines,

Business problem

Streaming business processes

Technology platform

Oracle 8i

Project head

Nitin Doshi, IT Head

barcode mapping, automatic mailing and alerts of daily production related reports to respective departments, QA Sampling, control machines through process feedback, scrap management, monitoring scrap generated in process and disposal of same. Plus, it also does finished good management.

Sultanpur, State Govt Of UP

Rajasva Vaad Avlokan is an attempt to put all the revenue related cases of the district of Sultanpur on the Internet. Users can get information regarding their cases directly from the place of their living or even from a nearby kiosk. The project will also help presiding officers monitor the cases pending in their courts. It will

Business problem

Bring transparency into the court system

Technology platform

Microsoft (Visual Basic and MS Access)

Project head

Kamini Chauhan Ratan, IAS, DM, Sultanpur

also help advocates in giving the status of their court cases, so that they can plan better. This will reduce the time to decide the case and bring in greater efficiency as well. This will also help limit the malpractices of corrupt mediators. An added feature of the project is that the court cases are available in local language (Hindi).

Shivam Autotech Limited

Formerly Munjal Auto Components, the company that manufactures gear blanks and spline shafts, recently implemented Microsoft Navision for its financial, supply chain, and HR management. Supply chain management covers the entire chain of manufacturing, production planning, and control. The moment a customer places an order, the information flows seamlessly across all departments. The HR module encompasses the entire payroll management and even integrates it with the time machine. Their objective was to have an integrated information system that would provide all information on manufacturing, materials, and financial information. The project has helped improve overall productivity, leading to better customer servicing.

Business problem

Improve customer service and productivity

Technology platform

Microsoft Navision

Project head

Vipin Kumar, IT Head

Torrent Pharmaceuticals

The well-known Indian pharma recently acquired the German based Generics pharma company, Heumann Pharma. The challenge before it was to create an integrated IT network for seamless operation across continents. This posed a challenge because Heumann systems were fragmented. Thus the company zeroed in on and deployed an SAP R/3 ERP solution. Plus, it had to create a multi-lingual, multi-location system that would be well integrated with SAP. The overall solution provided better coordination and interaction between the two companies. This helped both companies meet their base objective of maximizing customer care. The solution was implemented across the entire company in a short span of 95 days.

Business problem

Seamless operation across global offices

Technology platform

SAP R/3

Project head

Jyoti Bandhopadhyay, VP-IT
Vipul Patel, Onsite Project Manager

Travelguru

Travelguru portal provides the capability to provide the cheapest available airline fares with multiple choices to its customers on a real time basis. This scalable and stable technology provides the most comprehensive functionalities that are needed by any online travel company. It gives real time availability and booking mechanism through the Net, hassle free /agent free book-

Gaurav Kohli,
Project Mgr

Business problem

Provide the best airfares to customers

Technology platform

Windows 2003 Server, SQL Server 2000

Project head

Gaurav Kohli, Project Manager

ing access, display of multiple choices in one go, cross sell functionality with options to buy various products from one screen. It's based on a multi-layered .NET architecture, has high-availability data clusters, and connectivity to various mainframes for real time content.

Tamil Nadu Electricity Board

Tamilnadu Electricity Board has recently computerized their entire billing operations, which has reduced the burden on the common man of standing in long queues. It also eliminates human error in billing. Today within a particular region, a person can pay his electricity bills in any of the collection centers. By doing this computerization, TNEB can have information on every single collection center at the end of the day, which was not possible earlier. By this the head of the region and head of TNEB will know the percentage of collections at the end of every day, how many people have paid on time and otherwise. This improves cash flows for and the data will be useful for analyzing the pattern of collections and usage.

Business problem

Change Management

Technology platform

RedHat AS 4.0

Project head

Vilvendan

The Bank of Rajasthan

The data consolidation from different hosts project was started with objective of timely submission of results to the management. The objectives were to bring all the branches on one solution, with all of them networked and a way to ensure validity of data. They also needed to consolidate the data from all the distributed databases. The bank had to ensure connectivity of all branches with the central database as even one failure to connect would have put the entire effort at jeopardy. The migration and data collection process was done using a software called BancMate on all decentralized branches. An ETL tool was used for consolidation. The data from core banking solution was also consolidated side by side.

Business problem

Timely submission of results

Technology platform

Microsoft, apps from Natural Technology

Project head

Anand Bhatnagar, Vice President

TN Rural Development

The software project for the Tamil Nadu Rural Employment Guarantee scheme is to enable easy collection and management of all registration details of family members in villages, along with their photographs. The software also takes care of creating job cards for each of them and printing work details, attendance and payment information. This data is then consolidated at the village block level. It has been currently implemented across 3915 villages across 6 districts in the Tamil Nadu. The entire application and platform chosen for this was Open Source, because they thought it would fit the scale of implementation, and also help them save cost. The software is bi-lingual, supporting English and Tamil. The printed job card is in Tamil. The servers used for data location are located with NIC Chennai. The department has also provided offline software for all the villages, so that day to day data can be entered, and reports can also

Business problem

Collection and management of census data for rural employment purposes

Technology platform
Webcam, printer, PostgreSQL, PHP/PEAR

Project head Dr Santosh Babu, Jt Secy Rural Deptt, Tamil Nadu

be generated. All this data is consolidated and sent to the state level server. From there, it's disseminated to the public. Each village has a PC based on RedHat Desktop Linux 4, with PHP and PEAR, and Open Office 2.0 with Tamil fonts.

UGS

The US based firm that's into the Product Lifecycle Management space has 600+ developers in its Pune based development center. To support these developers, the IT team has setup a world-class data center that even connects to other key centers worldwide over a 12 Mbps link using MPLS. Plus there's 4 Mbps for external FTP servers for customers, site VPN connectivity, browsing, etc. They have a single Active Directory Domain for Windows authentication worldwide. All servers are connected over Gigabit Ethernet, and plans are on to move to 10 Gbps. 15 TB NAS appliances cater to the storage needs. The developers have even been given VPN connectivity from home.

Business problem

To provide 600+ developers with world class IT infrastructure

Technology platform
Multiple vendors

Project head
Manoj Mishra, IT Manager

UTI Bank

UTI Bank wanted to enrich the banking experience for its customers, so it decided to set up a dedicated call centre by deploying Red Hat Enterprise Linux as the platform and Oracle 11i E-business suite for the CRM application. Earlier, the bank was following conventional banking system of customer support through IVR across various branches. Due to this, the personnel spent more time handling complaints than on customer acquisition. The call center currently has 120 agents, offers skill based routing for callers to match their requirement, has an agent performance management tool, is integrated with the IVR, and has tools for product management and reporting.

Business problem

Dissatisfied customers due to busy phone lines

Technology platform

RedHat Enterprise Linux+ Oracle 11i

Project head

V K Ramani, Pritesh Thaker

V Connect

Business problem

Scaling Infrastructure and Data Security

Technology platform

Hetrogenious

Project head

Sanjiv Bhavnani, CEO and MD

VISESH started this project in-house for its Knowledge Process Outsourcing Division to build an Infrastructure with MPLS VPN Solution for multi site corporate locations. The infrastructure supports voice and data transparently across seats (regardless of location) along with advanced security, remote console & back-up mechanisms with built in redundancy across the network. The benefits from this are reliability, security, flexibility and availability. All these benefits have resulted in companies outsourcing their critical business processes to V Connect. The Infrastructure provides world class security like Single Sign-On, Biometric authentication, etc.

YES Bank

Business problem

Draw customers to the Bank

Technology platform

Multiple Solutions

Project head

Raghavendra Joshi, Vice President, IT

Most banks today use multiple channels to reach out to customers. The difference with YES Bank is that it's built these channels in the shortest possible time, by using the latest technologies, and in the most cost effective manner. It received an operating license in Sep 2004, and launched retail and corporate Internet banking, ATM & debit cards, mobile banking and a manual contact center within just 8 months. Now that's quite an achievement. In Net banking, it provides two factor authentication and straight through RTGS. It has global debit card and ATM services with access to 18000+ ATMs in India. It allows balance/transaction enquiries on mobile phone, and much more.

YES Bank

YES @ccess is an Internet banking solution for corporate customers. It has been built from scratch which means there is no burden of legacies involved. Its staggered implementation approach ensures that customer feedback guides the way application will take. The project is targeted at corporate customers that include financial institutions, government and SMEs. It has been implemented in a phased manner starting from allowing customers to make routine enquiries such as account statements, checkbook request and transaction en-

Surendra Shetty,
Vice President, IT

Business problem

Provide Internet banking to corporates

Technology platform

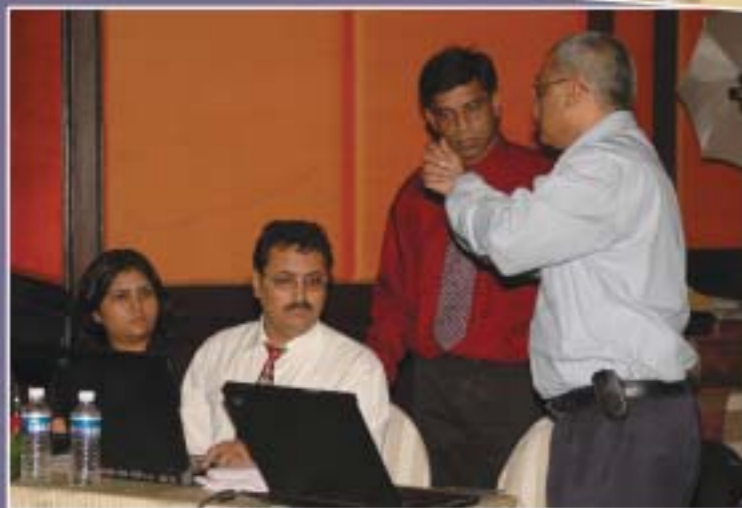Application, database and Web servers

Project head

Surendra Shetty, Vice President, IT

quiry over the Internet and subsequently was scaled up to include enhanced customer interaction in the form of financial transactions over the Internet. The solution is built on Oracle 9i, IBM Websphere 5.1, MS SQL Server 2000, IIS, and IBM HTTP Server.

Best IT Implementations the Year 2006

Jury deliberations in progress
Below: The *PCQuest* audit team

Project name	Location	For	Vendor	IT Head	Description
Project Aspire	Chennai	**Rane Group**	Siemens Information Systems	P R Ravindran, VP-IT	Great amount of planning went into the project. 19 locations using independent legacy systems earlier were brought under SAP with a common data centre
Tata Hospital Information System	Tata Memorial Hospital, Mumbai	**Tata Memorial Hospital**	Electronics Corporation of India	H K V Narayan, Medical Supdt	The only project in India covering the entire range of hospital and medical records processes namely HIS / EMR / PACS and LIS in a completely integrated manner
ERP	New Delhi	**NHB**	SISL	Rahul Pandey, IT Head	Very smooth implementation of SAP in the shortest possible time. This is milestone as in financial sector implementation of a standard product is difficult to pull through
Information Security Management	Mumbai	**State Bank of India**	Paladion	Krishna Kumar, GM (CISO & IT)	Considering the large size of the bank the team has been able to put most of the security controls in place in a very short time
Conversion to Linux	India	**Canara Bank**	RedHat	James Joseph, Manager	Converted more than 500 branches all over India to Linux platform. This is the biggest rollout for RedHat in banking sector global
NTPL SAP	Bangalore	**NTPL**	MindTree Consulting	Vijay, Manager	First implementation for this solution version in India innovative implementation approach for the SMB sector
Project Kunchenjunga	North & Eastern India	**Dishnet Wireless**	Wipro Infotech	Shahab Khan, IT Head	This project used the most sophisticated data & voice communication hardware and software to integrate 10 telecom circles throughout India
IT Infrastructure-Infocity Phase 2	Hyderabad	**Infotech Enterprise**	Infotech-IT team	B L V Rao, VP-IT Network & Systems	It is implemented with state-ofart technology with convergence of network,security and colloboratuve system at recod time and cost-effectively
Sapient Corporation	Gurgaon, Haryana	**Sapient Corporation**	Apee Eskay Enterprises	Chuck Hong, IT Consultant	The Project is spread over 10 Floors having divided in 5 nos Server Rooms on various floors all connected thru FO Cables with total 10,000 Nodes. The lay out of server rooms and floors is "PAR Excellent"
DoPT E-learning Project	30 locations across India	**Transversal e Networks**	Wipro Infotech and IIM-Bangalore	Manjul Sahay, Product Specialist	Project is envisaged to connect more than 45 educational institutes across the country and set up a self sustaining e-learning system and effective in delivering distance education
Bhasha Set	Madhya Pradesh	**Computer users at large**	Software Developer	Jagdeep Dangi, Developer	This project revolutionizes computer usage in rural India by letting people use local languages
Data Centre	Bangalore	**i2 Technologies**	i2 Technologies	Gurumurthy Iyer, Director-IS	The best data centre with state of art SAN, NAS, Networking implemented with Copper 10 Gig copper cabling infrastructure.
Star SHAKTI	Mumbai	**Bank of India**	HP / Nelito	RVS Hayagrivam, DGM (Projects)	The Core Banking Solution (Finacle -Infosys) has been implemented in more than 500 branches, in a record time of 475 days. This implementation can be reckoned as the fastest in Indian Banking industr.
Cargo Management System	Kerala	**Bon Cargos**	Pentacircle Informatics	Vishnu Purushothaman Sr. Software Engg	A distributed application with a web server for centralisation deals with more than 20,000 customers and lacs of their data

Project name	Location	For	Vendor	IT Head	Description
Core Banking Solution & ATM Switch implementation	Pune , India	**Cosmos Co-op. Bank**	Infosys + Bank	Ramesh Jayaraman, AGM	It is the first co-operative bank to implement CBS Finacle and we have done it in style and successfully
MTNL Broadband (Triband)	Mumbai and Delhi	**MTNL**	Ericsson	Sanjeev Rattan, Project Manager	New technology implementation in the least time
CBS	Belapur, NaviMumbai	**SBI Group**	TCS	Deputy Managing Director (IT)	User friendliness to both staff as well as customers, easy access, low profile maintenance
HCL.IN Migration	Noida, UP	**HCL Technologies**	Microsoft Services	Shyamal Bhattarcharya, CIO	HCL has become India's first major enterprise to integrate its domain name & email infrastructure globally under '.IN' domain name & consolidating 30,000 users across 15 countries
Sugar Trading Portal	Pune, Maharashtra	**Chairman, Sakhar Sankul Development Fund Trust**	Kanbay Software	Apurva Chandra, Commissioner of Sugar	Kanbay is developing a sugar portal for Sakhar Sankul to increase transparency in sugar trade, widen the buyer base and improve realization for farmers and sugar factories
Public Application Database with IVRS	Gandhinagar	**Govt of Gujarat**	Self	Anandiben Patel, Education Minister	It helps people know the application status with government sector with the help of web site as well as IVRS
IT Service Management	Pan India	**ITC India**	Wipro	Prasad Natu, GM IT Shared Services	A leading IT service management implementation where an organisation has successfully transitioned from cost center to a service centric model
SBI Life Portal	Mumbai	**SBI Life**	BEA Systems	Dhruv Singhal, Head-Professional Services	With BEA WebLogic Portal, SBI Life streamlines critical product-delivery and support processes with a single contact point on the web
TBA Implementation	Kolkata	**United Bank of India**	SCO & PCS / TCS	P K Mukhopadhaya, Chief Mgr IT	TBA App was implemented in 100 branches for the first time on Intel platform against their standard implemtation on RISC
ITSM	Mumbai	**Mahindra & Mahindra**	Mahindra Tech (Formerly MBT)	Vijay Mahajan, GM (IT)	M&M undertook a major technology infrastructure building project across India. M&M opted for a ITSM Solutions from HP OpenView that provided a unified platform to manage their underlying IT infrastructure
3rd I	Hyderabad	**International Business Division, ITC Limited**	Ramco	VV Rajasekhar, Divsnl MIS Mgr	Personalized ERP Solution with flexible architecture to address a commodity business' unique needs while supporting financial control requirements and distribution dynamics of the e-Choupal channel

Project name	Location	For	Vendor	IT Head	Description
MyFlow	Gurgaon, Haryana, India	**Max New York Life Insurance**	Newgen Software Technologies	Tarun Nandwani, GM	A seamless integrated unified desktop to users to work on Ingenium and OmniFlow. The solution enabled centralizing operations & cutting down on TAT significantly
Implementation Dealer Management System	Mumbai	**Mahindra & Mahindra**	SAP India & Bristlecone Inc.	Krishna Nabar, Head Business Solutions	Mahindra's next-step towards a real-time extended enterprise, DMS is a centrally hosted and integrated system for CRM and biz processes like planning, on-line transactions, financials & analytics for Mahindra dealers
Bill Watch System	All GAIL Locations	**GAIL (India)**	Inhouse	Arun Kumar, Manager (BIS)	Online and transparent system for intimating the bill status to suppliers & contractors and internal monitoring of bill movement
e-Payment System	All GAIL Locations	**GAIL (India)**	Inhouse	D Bera, Manager (BIS)	Online and easy payment method using which 100% payments are made electronically to employees, suppliers, contractors, consultants etc. all across GAIL
e-Investment of Surplus Funds	New Delhi	**GAIL (India)**	Inhouse	D Bera, Manager (BIS)	Automation of short term investment process resulting into increased efficiency, productivity, transparency, cost saving and monitory benefit to the organization
Paperless FAX	All GAIL Locations	**GAIL (India)**	Rincon	Venkata Sudhakar, DM (BIS)	FAX being sent through e-mail resulting into complete elimination of paper work, FAX machines and operator from entire GAIL
Automation of Processes at Estate Office	Chandigarh	**Estate Office, Chandigarh**	Newgen Software Technologies	Tarun Nandwani, GM	Estate office processes implemented on BPM platform
Nordson Navision Implementation	Bangalore	**Nordson India**	Blue Star Infotech	V V M Rao, Group Project Manager	Six weeks implementation using pre-defined processes with RIM.Saves cost & time for customer
Whizible Engineering Implementation	Pune	**Mahindra Engineering Services**	Compulink Systems	Sunil Prabhu, Program Manager	Implemented Whizible Engg to achieve proper management of our engineering design ODC. Timely delivery and execution of operations, including timesheets, invoicing and quality metrics was enabled by this project
Whizible Implementation	NOIDA, UP	**Nucleus Software Exports**	Compulink Sytems	Parag Bhise, CIO	Helps Nucleus deliver better quality projects to its global clients in a cost effective way
Implementation of a DMS	GSFC, Vadodara.	**GSFC, Vadodara**	Newgen Software Technologies	Dushyant Kumar, Sr. General Mgr	Lead-time of processing files manually has been reduced from 4-5 days to 1-2 days, thereby increasing the productivity and efficiency of working environment
MHA	Gurgaon	**Maestro Engineering**	Caritor India	Paul Dueman, IT Manager	SAP IS-AFS functionalities are provided in standard SAP R/3 using OS400 oparating system

Project name	Location	For	Vendor	IT Head	Description
New Business Process	Pune	**Bajaj Allianz Life Insurance**	Newgen Software Technologies	Tarun Nandwani, GM	Deployed on Linux enterprise-wide. As a new centralized processing shop was being created, 200 seas centralized shop
NB, POS & Claims Processes	Lucknow	**Sahara India Life Insurance**	Newgen Software Technologies Lmited	Tarun Nandwani, GM	The solution required to be spanned across 1700 remote locations in India and integration with Life Asia on IBM
Order fulfillment	Delhi	**Wipro BPO**	Newgen Software Technologies	Tarun Nandwani, GM	Can be accessed by Wipro's end client from N. America & UK. Used to do PO & delivery processing
IT Project Deployment at Strides	Bangalore	**Strides Arcolab**	Microsoft	Balakrishnan S, Head-IT	SAP implementation followed by Windows Server, Exchange, Office 2003, Project Server & SharePoint in just 9 months with a team of 4 people
Headstart Business Solutions	New Delhi and 24 client locations	**Headstart Business Solutions**	Headstart Process Consulting	Debabrath Das, Director	Complex project involving ERP, TMS, DMS, Project Management as a single portal with BI for generating actionable information
Network Security	Bangalore	**UB**	FortiGate	S Rama-krishnan, Controller-IT	FortiGate 300 provided the company with firewall, antispam and IDS/IPS. UBL found that FortiGate 300 outclassed the competition on cost-effectiveness, manageability and user-friendliness
TBA Implementation	Mumbai	**Dena Bank**	SCO & HCL / NextStep	B M Nanda, Asst GM	TBA app from Nextstep was implemented first time on SCO platform as against other Intel and RISC based Operating systems.This provided a very cost effective solution & ROI
Application-level Security	Delhi	**Times of India**	FortiGate	Akhil Chandra, GM Systems Modernization	Application-level security from a single box keeps TOI secure. Fortinet could give most of the features TOI wanted in a single appliance as well as provide layer & control. The single box takes care of IPS requirements
Preserving Confidentiality	Bangalore	**Mascon Global**	FortiGate-800	Pushparaj, IT Manager	The FortiGate-800 firewall solution provides us with an all-in-one security with gigabit interfaces, the ability to handle lots of concurrent connections and excellent VPN throughput
ILMS (Air)	Naval Base, Kochi	**Indian Navy**	In-House	Cdr Banergee, Director	A paperless asset management giving visibility across the Naval aviation organisation. Increases efficiency of filed, support and policy making organisations all linked to same database
Internet Banking for Credit Cards	Mumbai	**HDFC Bank**	Kanbay Software	G V Gopalakrishnan, Sr VP	The internet banking inplementation was a path breaking work, it provided the end user to easy to his card data

Project name	Project Location	For	Project vendor	IT Head	Description
Cisco Hallmark	Bangalore	**Cisco Systems**	Cisco IT Infra Team	Ravinder Pal Singh, Project Manager (IT)	Includes the best practices, the technologies and the processes to make this facility a state of the art IT Infra deployment
Bakreswar Thermal Plant	Birbhum District West Bengal	**XServe**	Epitom Networks	S Ghoshal, Sr. Mgr C&I	Remotely located 1050 MW Power project needed firewall, IPS, AV/AS , proxy caching, mail server, content filter, access control & VPN connectivity implemented using the AnexGATE appliance
OnMobile Open SSL VPN Implementation	30 cities across India	**OnMobile Asia Pacific**	Digicom Systems	Amit Murthy, Technical Architect	Needed a VPN solution to manage servers for customers like Bharti, Hutch & BSNL premises without making network changes at customer end using Open SSL VPN through AnexWALL
Panacea Biotec SAP R/3 Implementation	New Delhi	**Panacea Biotec**	Siemens Information Systems	Sandeep Gosain, Head IT	More than 2,000 people, 1,200 products, 4 Mfg Locations, 10 LLMs, 30 C&Fs in 120 days means mission impossible achieved
BOSS i Surveillenace project	Mumbai	**Bombay Stock Exchange**	Wipro Infotech	Kitan Tailor, Project Manager	It is one of its kind and the most granular real time surveillance project implemented in India for he largest stock exchange of the country
Dealer management System	Country wide	**Maruti Udyog**	Wipro Infotech	Satish Chandra, Program Manager	Covers dealers across 600 locations and deals with automation, online integration, standardisation and centralised architecture for rapid deployment for dealer operations
SOLAR Framework	Pune	**Maharashtra Knowledge Corporation**	Inhouse	Suryakant Surve, CTO	Probably the largest implementation of web based framework in Maharshtra which touches deep rural/village level having more than 3,000 business users. May be the only framework having registered more than 16 million learners
TBA Deployment	Bangalore	**Canara Bank**	CCSL, Canara Bank Team and Red Hat	B S Hegde, GM IT	1st time in India that both desktops and server were deployed on RHEL, making it the biggest deployment in a banking scenario
WONDERS	Mumbai	**HDFC Standard Life Insurance**	Siemens Information Systems	Sunil Jain, Dpy GM	It demonstrates innovative & effective use of workflow & imaging technology to bring real business benefits
Enterprise Workflow System	Chandigarh	**Recorders & Medicare Systems**	Internal IT	Dheeraj Kohli, VP	This system has not only increased the productivity but has also brought in a new dimension of doing business with real-time availability of information, organization wide
JKC with CIOs Roll out of Best Practice	Andhra Pradesh	**Government of A.P.**	Industry, Academy and Government	Prof.G.Subba Rao, President, Instt for Electronic Governance	This project involved in structuring HR, setting standards with social dimension and building quality human infrastructure for the state

Setup a VPN on Windows 2003 Server

Here we tell you how to configure a Windows 2003 server to give your mobile workforce access into your corporate network over the Internet

Sanjay Majumder

Think of a scenario where you need to access some important files from your corporate server and you are sitting far away. One way is to set up a remote access server with dial-up links. The other alternative is to set up a remote access server over VPN. This will allow you to access your network resources over the Internet. The links can also be secured so that data is encrypted while being transferred. We'll explain how this can be done using Windows 2003 server. For this, you need a multi-homed server with at least two network cards. The remaining process is as follows.

Server setup

Configure both network cards with

From Routing and Remote Access wizard, you need to select the third option to set up VPN

static IP addresses, one with an internal IP of your LAN, while the other with a public IP. You also need a firewall in between to ensure that your LAN is secure from external access. Then from your Windows 2003 server, go to Start>Programs> Administrative tools>Routing and Remote access. This opens a Routing and Remote Access MMC (Microsoft Management Console). On the left panel, you will find an icon showing the server's status. Right-click on the server icon and from the popup menu, select the 'Configure and Enable Routing and Remote Access' option from the pop-up menu. This will launch a Routing and Remote Access wizard to configure its services. Click on Next, and the wizard will ask you to select the type of routing configuration you would like to set for this machine. Select 'Virtual Private Network (VPN) Server' and click Next. Now, the wizard will show you the Remote client Protocol page, select 'Yes, all required protocols are on this list' option and Next. By default setting is TCP/IP.

Here, the wizard will ask you to config-

ure the network card for VPN setup. Select the network card, which is connected on the public network (203.122.29.x) and click on Next. It will open the IP address assignment page; click on the 'automatic' radio button, if your network has a DHCP server available. If not, click on the 'From a specified range of address' option, and give the range of IPs for clients and click on Next. This screen will allow you to configure the authentication mode for the VPN setup.

Adding security policies

However, you can manage multiple remote access servers centrally with the help of RADIUS or Remote authentication Dial-In User Service.

You can have multiple remote access servers on your network, but you would like to authenticate users from one central server, rather than creating users account for each remote access server. For configuring RADIUS use IAS (Internet Authentication Server), built-in Windows 2000 Server. If you authenticate from the ▷
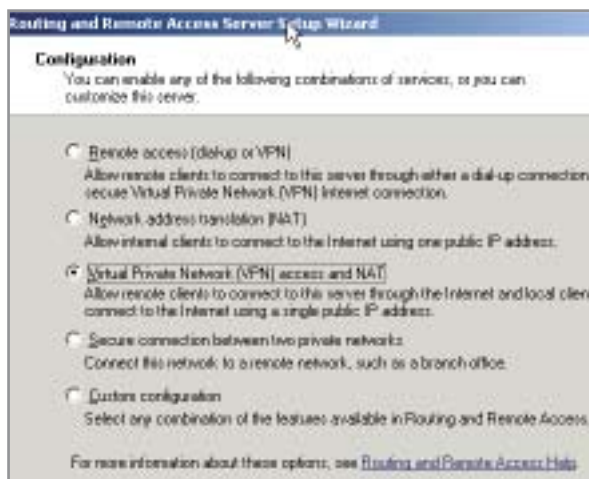
same server, click "No, I don't want to setup this server to use RADIUS now' and click next. Finally click on Finish button to complete the Routing and Remote Assess Server configuration. After this you need to set policy for the users so that the remote user can dial-in. To give access policies to users to connect on the VPN server, you must specify some access permission to the users.

The RRAS wizard lets you choose the configuration you want, so that remote users can connect to the VPN server from their VPN clients. Open Routing and Remote Access from Start>Programs>Administrative tools. Click on 'Remote Access Policies' given on the left panel, and click on plus sign (+) to expand its sub-tree.

On the right panel, you find 'Allow access if dial-in permission enabled' option, right-click it to select its properties. From the property sheet, select 'Grant Remote Access permission' radio button, then click 'Ok' and close the Routing and Remote Access MMC. Next you need to grant permission to the remote users to connect to the VPN server. For this open 'Active Directory User and Computer' from Start>Programs> Administrative Tools, and select the user. Double-click on it to check user properties. From the user property sheet,
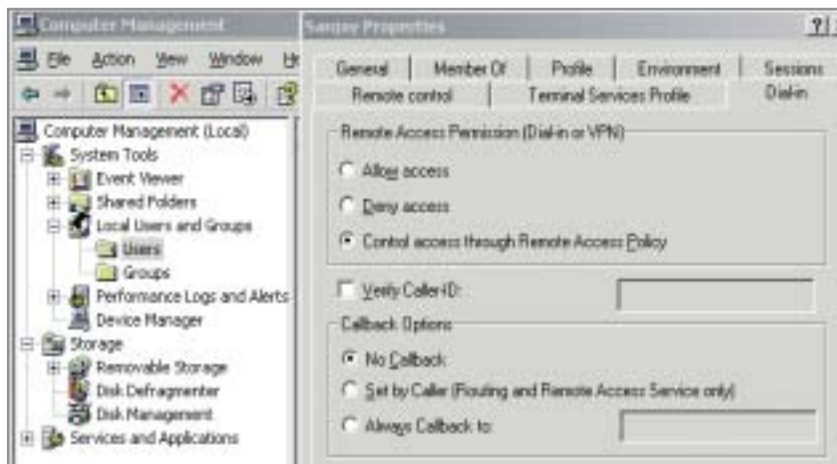
Here from the User Management Console, select the user and set its Dial-In Accessto 'Allow Access"

click on Dial-In tab and select 'Allow access' radio button from Access permission Dial-In or (VPN) option. Click 'Ok' and close the Active Directory User and Computer MMC.

Setup VPN client

Creating VPN clients is simple. We used Win XP Pro as a remote client. Go to Start>Programs> Accessories> Communication, and click on 'New connection Wizard'.

This runs a wizard for creating a VPN connection. Select 'Connect to the network to my workplace' and click on 'Next'. On the Network Connection page, click on 'Virtual Private Network Connection' and click on Next. Next, the wizard will ask you for a connection name. Provide a convenient name to it and click on Next. Now give the IP address or DNS name for the VPN server and click on Next. Click on Finish button to close the wizard. With this, your VPN client is ready. Launch the VPN client with the user name and password to connect to your office VPN server. However, the speed of access depends on the amount of bandwidth available. □

Keep Track of your HTTP Traffic

Charles Web Debugging Proxy is an HTTP proxy and monitoring software, which records all the traffic sent and received in one session

Swapnil Arora

Whenever you try to analyze the data and the pattern of bandwidth usage in your network, you need to configure a data capturing software between the proxy server and users. Sometimes it works as a sniffer, which can make your network slow while running in a promiscuous mode. Charles Web Proxy fixes up the problem by doing the job of a proxy server and a data capturing tool. Charles is an HTTP Proxy and Monitoring

software that sits between the Internet and the users and records all the traffic in every session including requests, responses and the HTTP headers. It shows the traffic in Structure and Sequence formats. It features DNS Spoofing, Reverse Proxy, Port forwarding and automatic updates among other features. It can be configured to provide any TCP/IP or UDP port forwarding. It is shareware and costs US $50 for a single user license. Lets see how it works.

Direct Hit!

Applies to: IT Managers

USP: Monitor and keep track of your HTTP traffic

Primary link: http://xk72.com/charles/

Google keywords: Web proxy

On PCQEnterprise CD: \ITMgmt\Charles
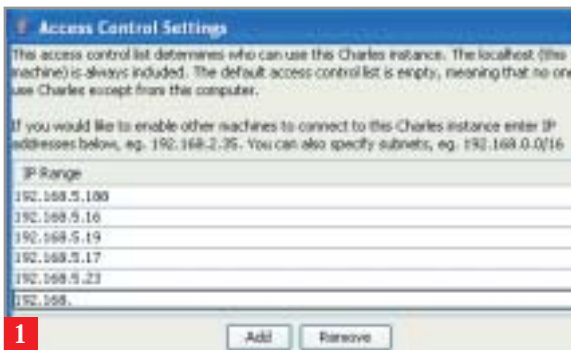
1 To add machines that will access the Internet, click on 'Proxy and Access Control Settings'. Now click on add button to enter the IP addresses or an IP subnet range
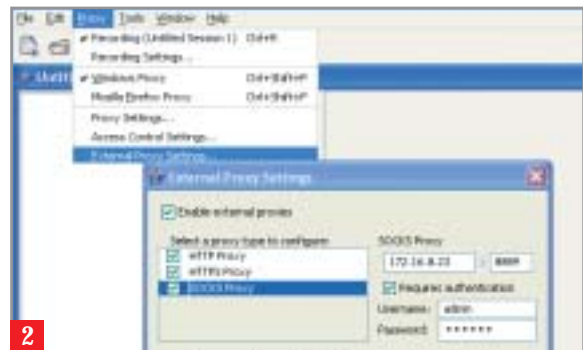

2 If an existing proxy needs to be used, select Proxy>External Proxy Settings, In the pop-up window choose the external proxy type and provide other details as required
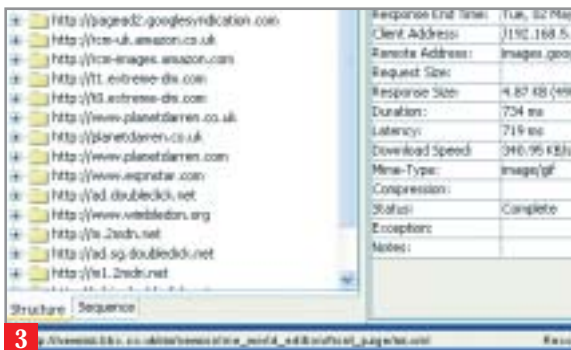
3 To view the traffic in Website Structure format, click on the Structure tab at the bottom of the session window
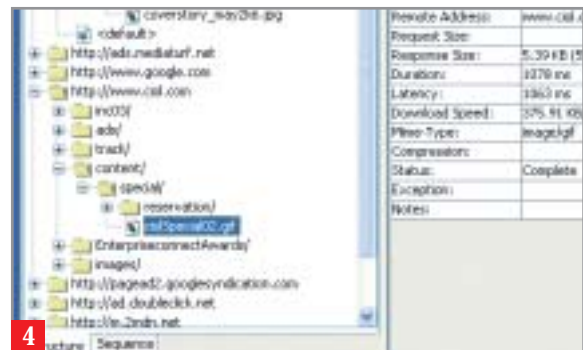

**4** When you open a website under Structure tab, you can see what all files and content has come from that site ▷
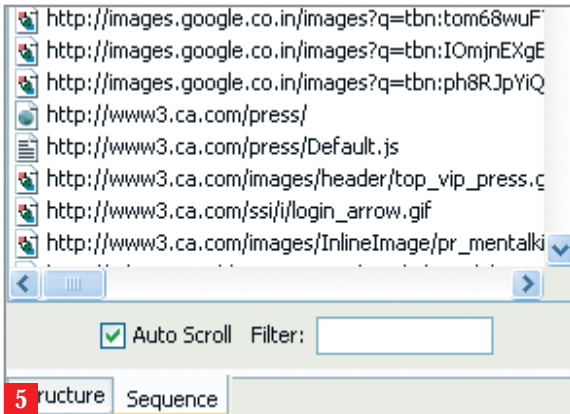
To view the websites/URLs in the sequence users have accessed them, click on the Sequence tab. You can also filter these URLs
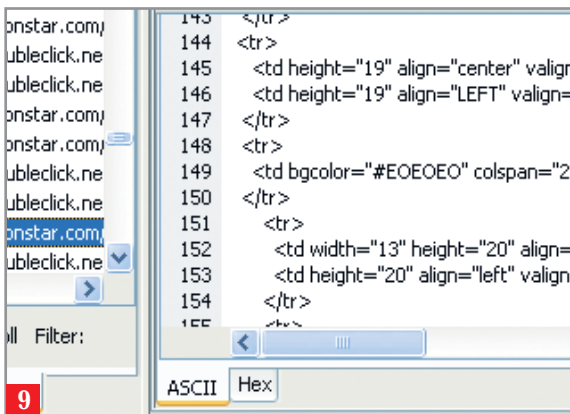

To see the details about any website or URL, select it and click on the General tab. Here you can see the details like page-size, host, download speed and latency
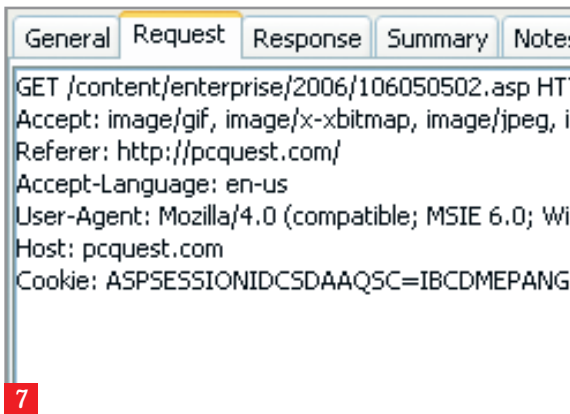
To see the details of the request that your browser sent to the webserver, click on the Request tab
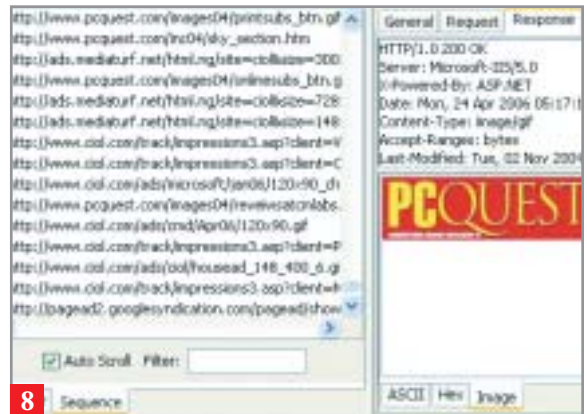
To view the response to a request, click on the Response tab, if it has an image, you click on the Image tab to view it

The ASCII tab displays the content/output in pages (HTML, ASP, JSP, etc) accessed

For spoofing, click DNS spoofing from tools. Then, click Enabled and add the target hostname and address   □

Creating Disk Quotas in Linux

Linux provides a very simple way to create and manage disk quotas. You can do this either on per-user or on per-group basis. We explain how to do this

Swapnil Arora

Quota is the amount of disk space that one is allowed to use. Since in an enterprise environment there are many users and limited space, administrators have to restrict the amount of space that any one user is allowed to use. The quota management system keeps users from carelessly using huge amounts of disk space. In this article we tell you how to create disk quotas in Linux.

First thing we need to do for implementing quotas in Linux is to edit /etc/fstab file. You need to add the usrquota option to fstab, for each mount point you need to enable quotas on. This will alert Linux that quotas on the filesystem are enabled whenever it boots. So in fstab in the /home partition line add usrquota just after defaults. It will look something like

```
LABEL=/home /home ext3 defaults,
usrquota 1 2
```

And if you want to implement group quotas instead of user quotas then instead of usrquota use grpquota. If you want you can use both. Now you need to remount the /home, you can do this by the following command.

```
# mount -o remount /home
```

Else you can reboot. When each quota-enabled file system is remounted, the system becomes capable of working with disk quotas.

Now we have to create the partition quota configuration files and the uppermost directory of the filesystem needs to have an aquota.user file (defines quotas by user) and an aquota.group file (defines

quotas by group), or both. For this run the following commands.

```
# touch /home/aquota.user
# chmod 600 /home/aquota.user
```

Now we need to run Quotacheck. It scans filesystems for usage of files and directories, used either by user or group. The output is the quota file for the will be stored in the files we just created ie 'aquota.user' for a user scan and in 'aquota.group' for a group scans. So now run

```
quotacheck –avug
```

Here '-a' option checks all quota-enabled, locally-mounted file systems, '-v' option displays status information as the quota check proceeds, and '–u' and '–g' option for checking group and user disk quota information respectively. Now to assign quotas we need to run the edquota program which is used to edit a user or group quota. Now you need to edit the user's quota information. The edquota command enables you to selectively edit a portion of the aquota.user file on a per-user basis. Run edquota as:

```
# edquota -u <username>
```

This command will invoke the vi editor, from where you can edit the following disk quota parameters.
Filesystem: /dev/hda3;
blocks: 24;
soft: 5000;
hard: 7000;
inodes: 0
Here, blocks is the amount of space in

1K blocks that the user is currently using. inodes is the number of files that the user is currently using and soft limit is the maximum blocks/inodes a quota user may have on a partition. The role of a soft limit changes if grace periods are used.

When this occurs, the user is only warned that they have exceeded the soft limit. When the grace period expires, the user is barred from using additional disk space or files. When set to zero, limits are disabled. By default all these figures are in kilobytes. Hard limit is the maximum blocks/inodes a quota user may have on a partition when a grace period is set. Users may exceed a soft limit, but they can never exceed their hard limit.

You can also create a report on disk quotas by running 'repquota /home' command. This creates a report of /home partition and how much space is used by each user in /home partition.

Finally, if you want to keep the quotas accurate you can add the commad 'quotacheck -avug'. A very easy way to do this is to add that command to /etc/cron.weekly if you want to run quota checks every week, /etc/cron.monthly if you want to run it once every month, and /etc/cron.daily if you want to run quota checks daily. Similarly, you can put the command inside any other cron directory according to your requirements. ☐

A Powerful Server Manager

LANDesk Server Manager can manage and monitor all servers in your data center and remotely deploy patches, OS, and applications on them

Swapnil Arora

Ensuring maximum server uptime is one of the most challenging tasks for any IT department. The LANDesk Server Manager is an application just for this job. It can constantly monitor all servers in your data center and provide details about their health in real time. It also provides management capabilities such as remote deployment of OSs, patches and applications. It can automatically detect all devices present on your network and sort them into categories like computers, printers, infrastructure etc.

To start monitoring and managing servers, you need to install client agents on each. For deploying patches and custom scripts to the remote servers, LANDesk does this through a push client. The OS deployment (OSD) feature provides PXE-based deployment to deploy OS images to devices on your network. This allows you to deploy images on devices with empty hard drives or unusable OSs. This can be very useful for initial provisioning of new devices or when re-imaging a corrupt device. LANDesk Server Manager comes with an application called Server Manager Dashboard, which does the real time monitoring of all servers. The dashboard runs in a browser window and displays real-time information about each server's current health status through live graphs. While digging deeper into details, it shows you all real time processes and services running on the system, hard disk space available, memory used, logs and some other details.

LANDesk Server Manager also provides real time alerts to administrators if a problem strikes. It can be configured to issue an alert incase of hardware failure/change. It can notify users through e-mail or a web page. It can also be configured to send an SNMP trap or to execute some program on the server, which is showing alerts. Another useful thing in its monitoring capabilities is Software License Monitoring. Server Manager can scan a system for known and unknown applications running with detailed information about the license purchase information.

LANDesk Server Manager also comes with vulnerability scanning and patch management capabilities. It lets you automate the repetitive processes of maintaining current vulnerability information, assessing vulnerabilities for the various operating systems, downloading the appropriate patch executable files, remediation vulnerabilities by deploying and installing the necessary patches on affected devices, and verifying successful patch installation. LANDesk comes with database of vulnera-

bilities which can be automatically updated online from LANDesk's website.

Server Manager provides direct one-to-one patch remediation for every vulnerability discovered on servers. The feature of vulnerability remediation is only available for windows. However, vulnerability scanner can be used for linux servers. LANDesk also has centralized log management. It combines all logs into one for easy analysis. It also maintains a history of old logs for keeping track of server performance and in turn provides predictive failure detection.

It also has an inventory scanner to add devices to the core database and to collect devices' hardware and software data. The inventory scanner runs automatically when the device is initially configured. The scanner collects hardware and software data and enters it into the core database. After that, the hardware scan runs each time the device is booted, but the software scan only runs at a configured interval. Server Manager includes a reporting tool you can use to generate a wide variety of specialized reports that provide critical information about the managed devices ▷
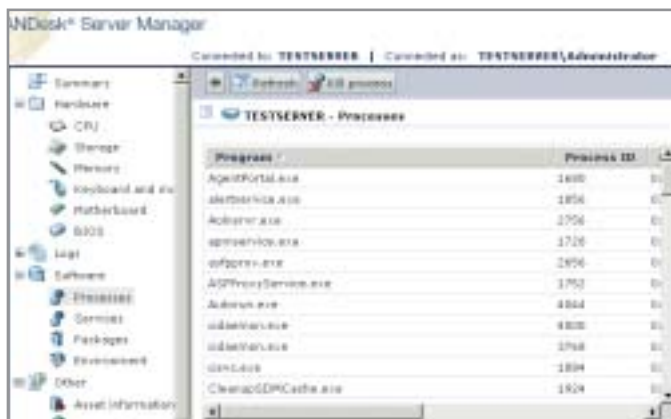
With LANDesk Server Manager, you can view the health of all servers from anywhere on the network

on your network. By default, LAN-Desk has various formats of reports mainly divided into hardware, software and other categories. One drawback you might find in configuring LANDesk is that at some places it won't give you any information or show you an alert.

Using Server Manager

We've carried an evaluation copy of LANDesk Server Manager on this month's PCQ Enterprise CD. Before you start installing LAN-Desk Server Manager make sure that the core server on which you are installing it, is not a domain controller and you have support for ASP.net and a web server installed. After the installation is done, before you start using LAN-Desk Server Manager, you need to activate the core server. For this, either you need to have LANDesk ID and password or else you can activate a 45-day eval. Once the core server has been activated, open the LAN-Desk Server Manager. First thing we need to do is to find the available server and devices in your network. Click on Device discovery tab, and click on new tab under discovery configurations. Here, you can choose how you want to do device discovery and provide the IP address range and subnet mask of the network. To schedule this discovery configuration, right click on it and click on schedule. After the device discovery has finished you can see all discovered devices under unmanaged devices divided in to various categories. From the list, you can choose the devices you want to monitor or manage. To do that, right click on the device and click on Target. Note that, if the device doesn't have a name, you need to provide a name to it before targeting. This name is only meant for LANDesk Manager, and it doesn't actually rename the actual device. To put these devices into manage list, click on the manage tab and choose the option Move targeted devices into my devices list and click on move.

Its vulnerability tool can scan servers on your network for vulnerabilities and automatically patch them

Now you need to install LANDesk Server Agent on the servers you want to monitor. To do this, click on Agent configuration, and then click on New tab to create a new agent configuration. Then provide a name for the configuration. Select the Agent and click on Edit to customize its default properties. You can select which agents should be installed on the remote server, i.e. if you want to perform vulnerability scanning, monitoring, remote control, etc. Choose options as per your needs and click on save changes and click on Save As File option to save this agent as an executable package with the filename same as the configuration name you specified. By default, the package is saved in "C:\ProgramFiles\LANDesk\Management Suite\ldlogon\ConfigPackages" folder on the core server. Now you need to run this executable file on the remote server. Once executed this file will install the agents automatically.

Once the agents are installed, we need to create the monitoring rulesets to monitor these servers. For this, browse to monitoring and create a new ruleset in the same earlier fashion. Once the ruleset is created, click on it to edit the details. Here you can choose what things you want to monitor in the server. For instance, if you want to monitor the free space on your server's hard disk, then click on Drive space, and check Turn on

Monitoring for this item and give the time interval after which you want LANDesk to check for it. You can also configure the Warning and critical threshold for it. Similarly, you can create rulesets for Memory usage, Services, Drive failure prediction, and various other things. Once the ruleset is created, click on update and now to deploy this ruleset to the target devices click on Deploy ruleset tab, choose which Monitoring ruleset you want to use and click on deploy button.

To create a vulnerability scan task, go to the left navigation pane, click Vulnerabilities before scanning update vulnerability definitions. Clicking on the update and it will automatically update its definitions from the Internet. If you wish, you can also schedule the vulnerability and patch content update. Now, click on the scan button to make sure the Scan group contains only those vulnerabilities that you want to scan. If you want to remove any vulnerability from here, just right click on that vulnerability and 'move to do not scan'. Click the Schedule security tasks toolbar button. Provide a unique name for the scan. Next specify whether you want the vulnerability scanner to display a progress dialog on the target device. You can also specify whether you want a Cancel button to appear with the scanner dialog, so that the end user has the option of canceling the scan. Specify how you want the vulnerability scanner dialog to close when it is done running on target devices. You can require end user input, or you can set the dialog to close after a specified timeout period and click OK. Select the task and set targeting and scheduling parameters, and click on Save. Similarly its other functions can be used and configured easily. □

Collaboration with Enlista

Enlista is a permission-based security tool for enterprises that provides a secure and easy way to collaborate with your colleagues over the Internet

Swapnil Arora

With Enlista, you can share and synchronize calendars, address books, notes, send and receive files, and even chat. Sharing and synchronization is done with only the contacts in address book who also have Enlista installed on their nodes. While sharing, you can choose people from your contact list who will have full/partial control over your notes, calendar etc. Any changes to the notes are automatically reflected in other

contacts with whom the sharing or synchronization is enabled. Enlista can also synchronize with PDA devices, for which your PDA needs to have the Enlista PDA version installed. Another great feature of Enlista is that it uses secure SSL for communication amongst people, so that your conversation can't be sniffed by anyone on the network. It costs $49 per user per year and you can buy it from https://store.enlista.com/. Let's see how to use Enlista to

Direct Hit!

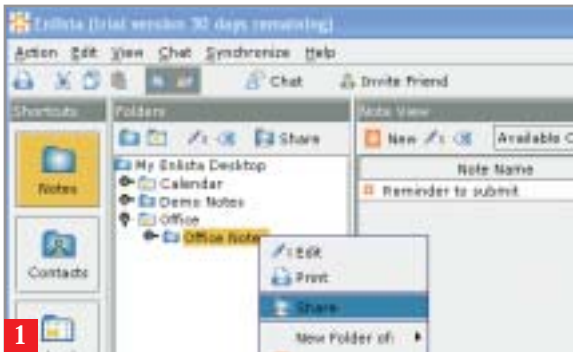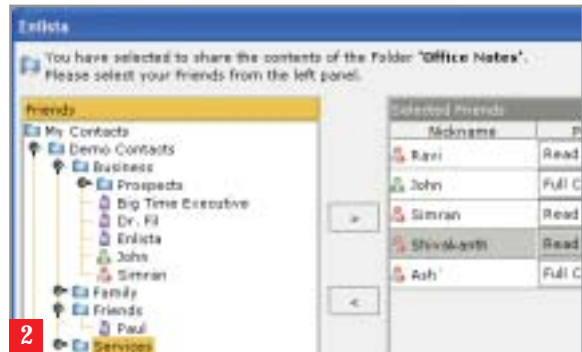| Applies to: Power users |
| --- |
| USP: Share content and thoughts with others in your office |
| Primary link: www.enlista.com |
| Google keywords: collaboration + enlista |

share notes, chat and collaborate with others on the network.


1 Once you have created the Notes, to share the Notes folder with the people in contact list, right click on Notes folder and click on share

2 After clicking on Share, a pop-up window will come up. Here choose the contacts with whom you want to share your notes, and the kind of control you want them to have
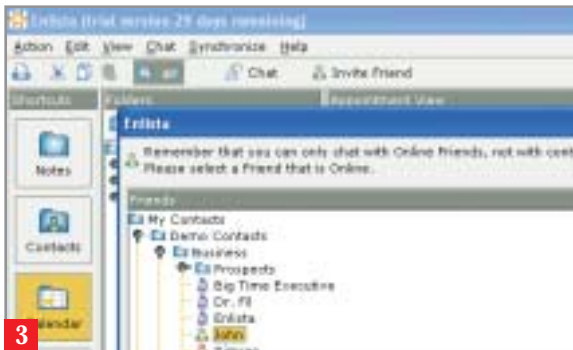
3 For an IM conversation with someone, click on Chat button. From the new window, choose the contact and click on OK
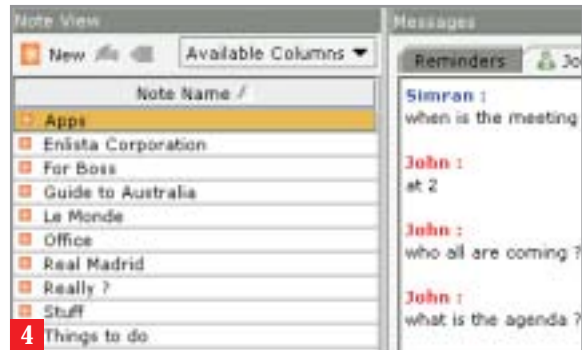
4 In the new IM window at bottom right of Enlista under Messages tab, you can also add people to the conversation   □

Multi-tier Backup with Vision

Vision Backup lets you back up your enterprise mission critical data over the network. It allows nine different types of backup to be taken without much trouble

Sanjay Majumder

Vision Backup is a Windows based lightweight back-up solution for enterprise class backup over a network. It allows you to back up all your corporate nodes and mission critical data at a centralized back-up location. It supports media like CD-R/CD-RW/DVD-R/DVD-RW, FTP/SFTP/FTPS, tape, flash devices and USB hard drives. It reduces both back-up space and time and lets you set back-up schedules using templates. These templates contain set of rules for backing specific sets of files from the source. You can also scheduled and unscheduled backup with or without compression. You get nine types of backup, namely full backup, incremental backup based on dates, incremental backup based on archive bit, differential backup based on dates, differential backup based on archive bit, straight copy (not restorable), hierarchical copy (not restorable), incremental backup based on dates to ZIP and full backup to ZIP. Let's see how to use it. You can buy it from vwsolutions.com.

1 Launch the software to get an interface showing all the back-up options as shown. Here you can either back up or restore. You can also change preferences of the software

2 Before taking backup, you need to create a profile of backup, which includes source and destination of backup, type of backup, compression and 448-bit encryption

3 You can create/use templates according to the file type. This helps you back up the files that are in the templates

4 It keeps comprehensive reports for all backups and restores. Reports are shown on a Web browser   □

Multiple Calendars Online and Shared

Use the Google calendar to manage your schedule and share it with others selectively using RSS and ICAL feeds. This way, you can skip having to synchronize the data with all your PIM databases

Sujay V Sarma

You use a dozen different devices from your workstations to the PDAs, with different schedule managers in each. At work, it's probably your e-mail client that doubles up for the job, and at home or in your PDA, you have other software. The challenge before you is to have identical calendar data in each, without the hassle of manually synching them (which is prone to forgetful memories). Google Calendar is an online centralized way to achieve this, without necessarily sacrificing the existing schedule managers you use. This calendar lets you import (no export as yet) calendars from any PIM in ICAL or CSV format and use the resulting calendar from any device that can read XML off the Internet. To start with, go to http://calendar.google.com and sign in with your Gmail account. On the screen you start off by specifying a name and description for your calendar. Doing so will enable others search and locate your calendar and events easily.
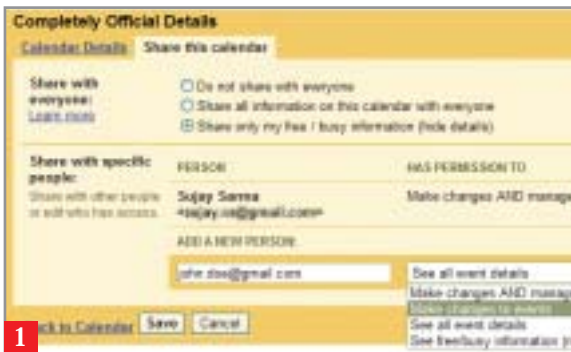
1 Selecting 'Do not share with everyone' makes your calendar private, though you can still give people selective access using the 'Add a new person' section

2 In the 'Manage calendars' screen at the bottom of the 'My calendars' box, you can create a number of calendars as well as add other people's calendars

3 You can set up how you wish to be notified (e-mail/pop-up) about upcoming appointments and schedule events

4 Export the information from your existing PIM and use the 'Select File' field in this screen to upload it to Google ▷
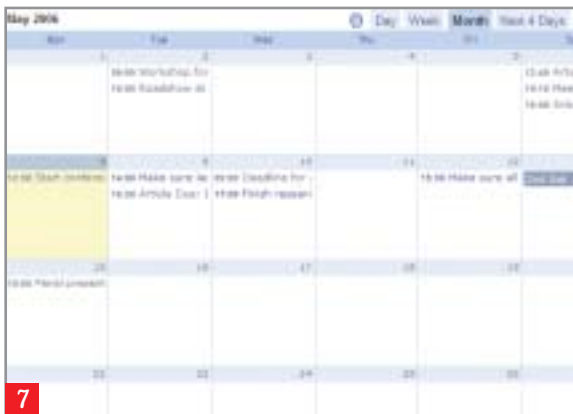
5 Enter information about the calendar event (schedule item). If you enter some names in the Guests box, Google will invite them and manage their accept/reject messages
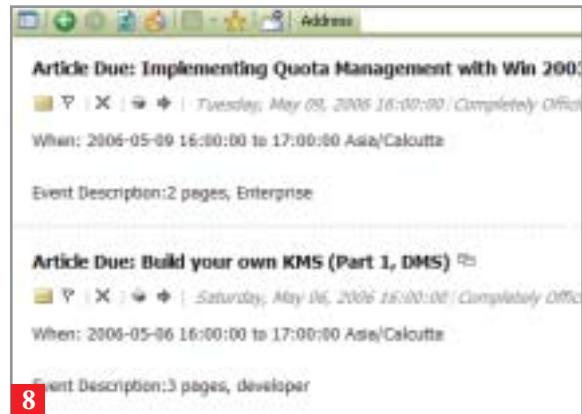

6 Use the Agenda view to see a snapshot of all upcoming events, in a particular calendar or across all of them. Each calendar's events are color-coded
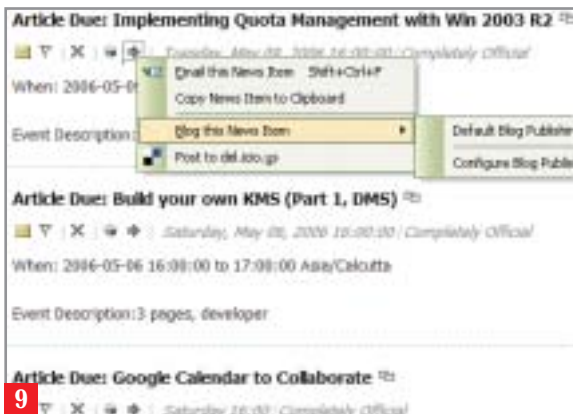

7 The regular calendar view will list each calendar's event in a different color. You can set up your own color scheme too

8 Copy the URL to the RSS feed from the Public/Private feeds on the Settings>General page into RSS feed readers

9 The feed reader can help you do further things with the calendar event, like blogging it to your corporate blog

10 When other invitees to your events accept or reject the invitation, the status becomes visible here immediately □