Excerpts of an EarlyWatch Service Report

EarlyWatch
Service Partner

EarlyWatch Service Report

SAP System	EarlyWatch
Customer	SAP AG
Address	Walldorf Germany
Service Center	Walldorf

Session Info

Timeframe of Analysis		from	02-06-95	to	02-10-95
Date of Session	02-13-95	from	12:10:23	to	12:10:23
Author	SAP				
Date of Report	02-14-95				

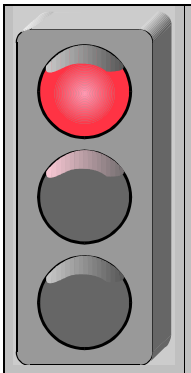
Service Summary

The general condition of your system is shown on a traffic light graphic in the report. Traffic light graphics indicate the following system status:

Red Light: Severe problems exist

Yellow Light: Potential problem areas have been found

Green Light: No problems have been found



The EarlyWatch Service has detected severe problems.

You should take corrective action immediately to overcome system downtime.

The actions are described in detail in the chapter Summary and Recommendations.

If you would like more information on the recommendations, please contact the EarlyWatch Service immediately.

Details:

- „Analysis for each Application Server“ on pages 9-10.
- „EarlyWatch Service Checklist“ on page 13.

Note: All recommendations we give in this report are based on our general experience only. We advise you to test our recommendations before using them in your productive system.

Global Analysis

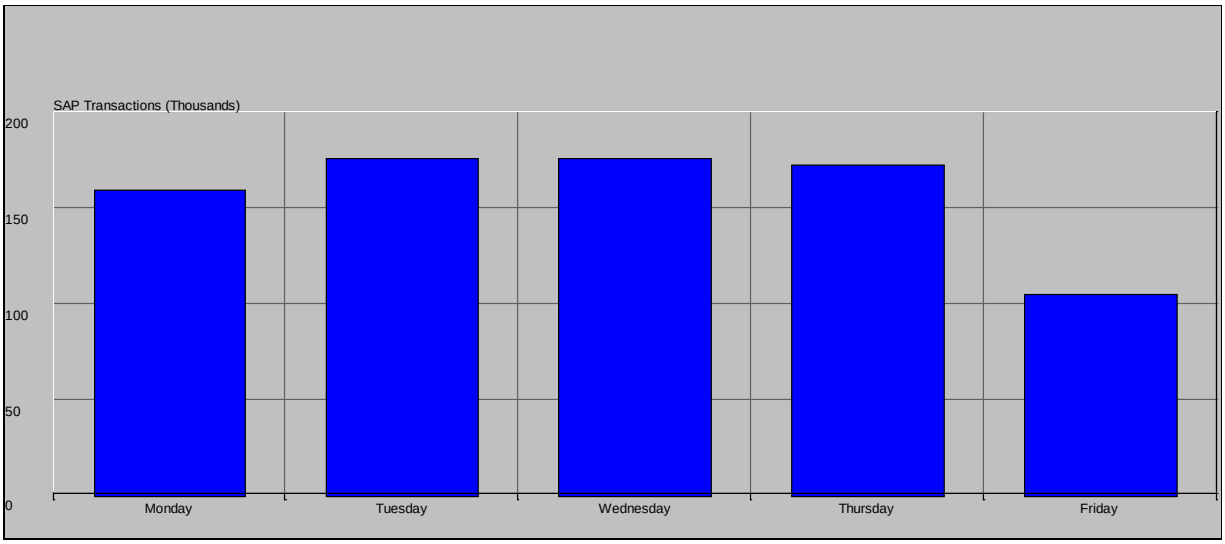
Global analysis of the workload and SAP services from 02-06-95 to 02-10-95

An overview of your R/3 installation and your system's utilization based on information from the previous week.

Focal points:

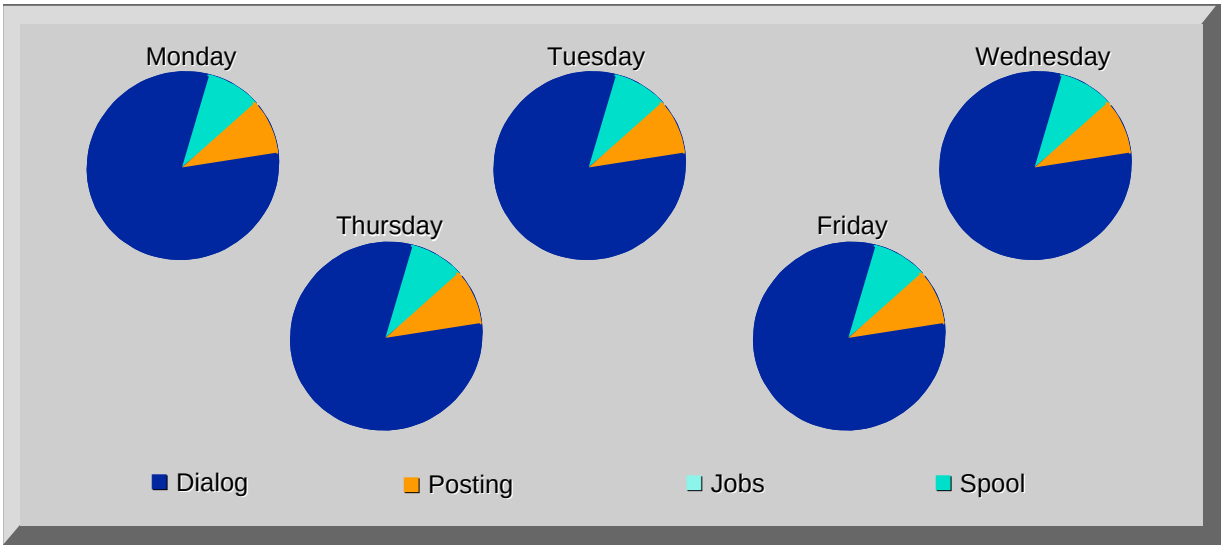
- ❑ Graphics showing resource use and response time for the various SAP services
- ❑ Hitlists showing the ten SAP transactions with the largest usage volume, CPU usage, and number of bytes transferred

Overall workload from 02-06-95 to 02-10-95



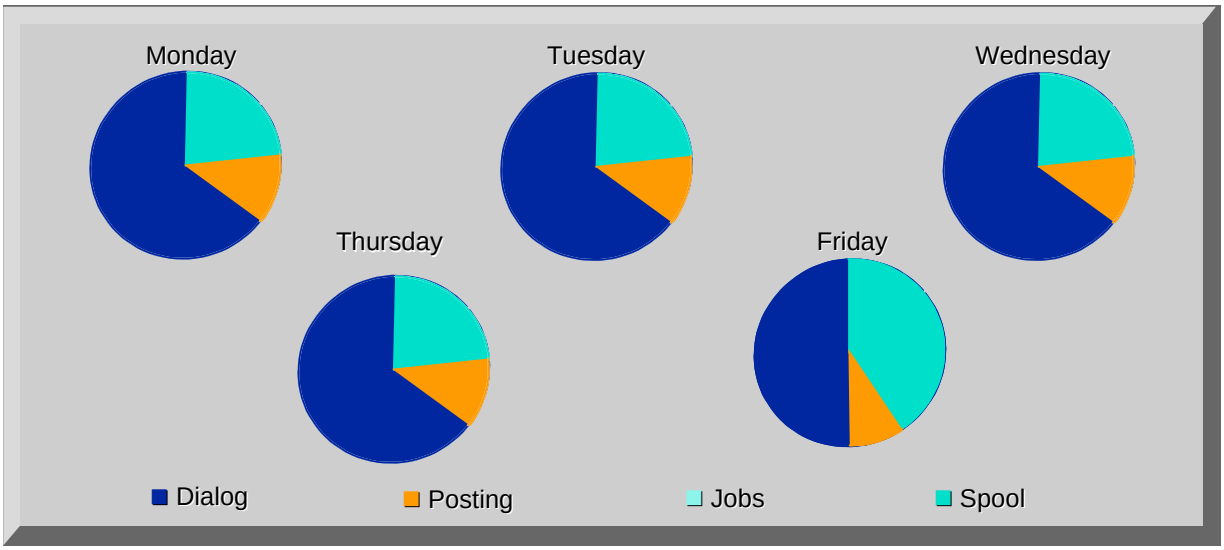
Overall workload describes the number of dialog steps for all servers recorded daily for all task types (dialog, posting, background, and spool).

Distribution of SAP services



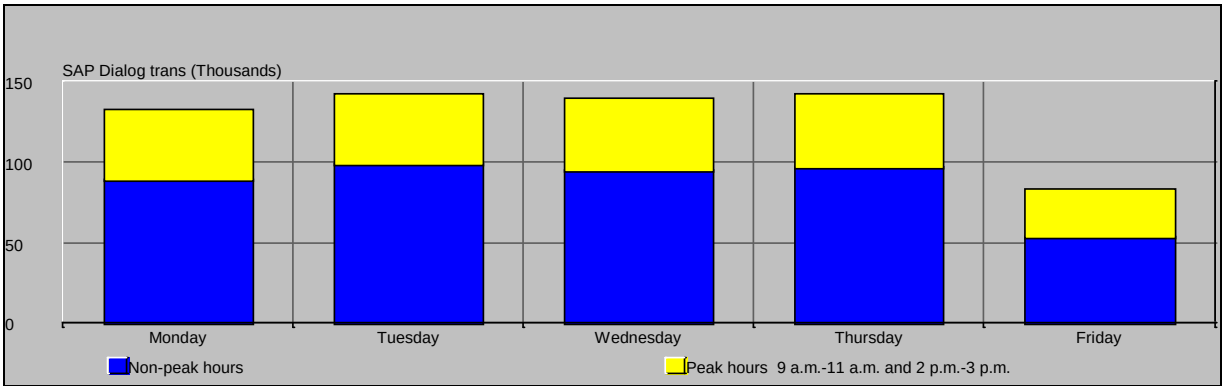
Distribution of dialog steps recorded from the previous week according to each type of task.

CPU consumption by SAP services



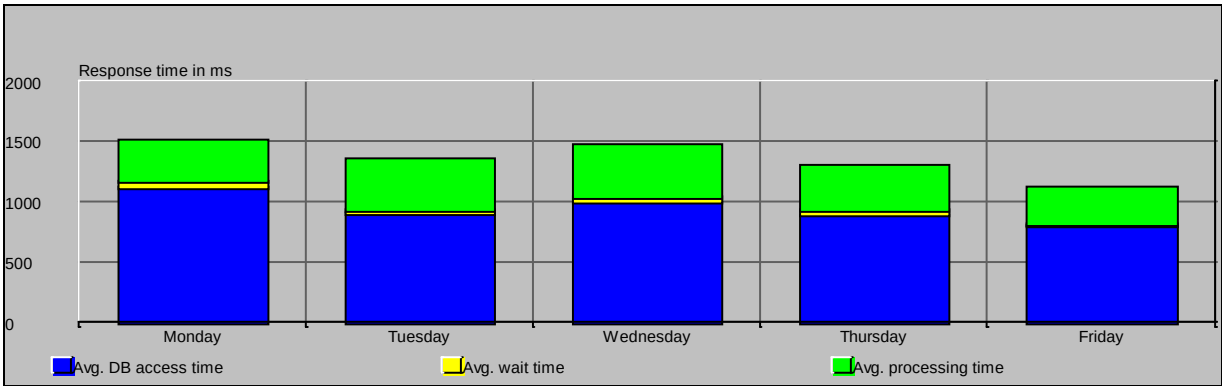
Distribution of CPU usage by SAP services according to each task type.

Response time analysis of SAP's Dialog services



Distribution of dialog steps according to peak and non-peak hours. In the example above, 30 % of all dialog steps occurred during the rush hour between 9-11 a.m. and 2-3 p.m.

Average Response times



Average response time of an application server consists of:

- ❑ Wait Time: Time needed to access a work process
- ❑ Database Access Time: Response time of database to SQL statements
- ❑ Processing Time: Time spent in the work process while waiting for ABAP/4 statements to process

This aids you in identifying the normal response time of your system, any major changes in response times, and if these changes are related to the changes in the workload.

Hitlists: Monday the 02-06-95

Top 10 SAP transactions by volume

Tcode or Program or Job	*Count*	*Average response time (ms)*	*Total CPU usage (sec)*	*Total KBytes transferred*
MainMenu	20,782	169	2,804	108,578
FB01	13,167	1,089	5,266	91,926
VA01	12,810	3,002	20,192	146,160
VA02	6,692	1,701	9,157	70,894
VL02	5,541	4,191	17,681	134,136
MM01	5,007	2,019	4,005	492,743
MMBE	4,710	2,592	11,865	97,313
VL04	4,700	3,150	11,832	161,636
MD04	4,665	1,008	4,550	49,758
System	4,205	152	519	30

Top 10 SAP transactions by CPU usage

Tcode or Program or Job	*Count*	*Total CPU usage (sec)*	*Average CPU usage (ms)*	*CPU usage percentage (%)*
VA01	12,810	20,192	1,576	6.1
VL02	5,541	17,681	3,191	5.3
MMBE	4,710	11,865	2,519	3.6
VL04	4,700	11,832	2,517	3.6
MD03	346	10,646	30,769	3.2
MB1A	1,643	9,849	5,994	3.0
VA02	6,692	9,157	1,368	2.8
CO40	1,130	7,351	6,505	2.2
FB01	13,1677	5,266	399	2.0
MM01	5,007	4,005	799	1.5

Top 10 SAP transactions by Bytes transferred

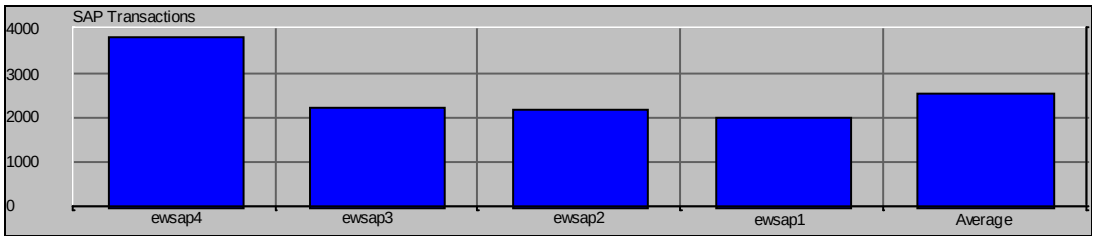
Tcode or Program or Job	*Count*	*Total Kilobytes transferred*	*Average KBytes transferred*	*KBytes transferred percentage (%)*
MM01	5,007	492,743	98	10.5
MCBA	41	419,637	10,235	6.9
VL70	538	302,803	563	4.6
CO41	527	196,554	373	3.4
VL04	4,700	161,636	34	3.2
VA01	12,810	146,160	11	3.0
CO02	1,755	136,922	78	2.8
VL02	5,541	134,136	24	2.7
MB1A	1,643	130,628	80	1.7
MD03	346	130,057	376	1.6

Hitlists for the previous week identify which transactions are most used, which use the most CPU in the SAP system, and which cause the largest percentage of data transfer. If these transactions are running slowly then your entire system will be affected.

Client/Server workload distribution

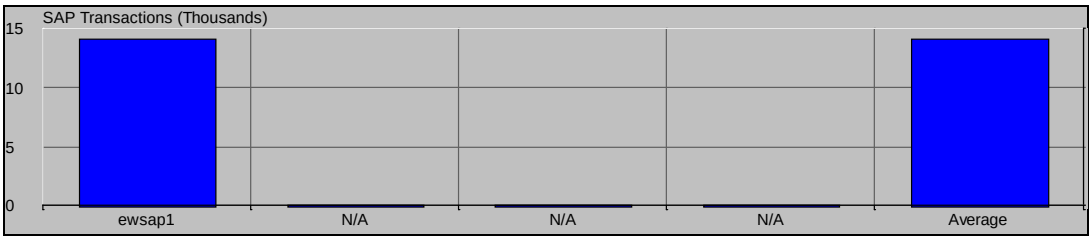
Dialog steps of Dialog Services (Top 4)

Monday the 02-06-95



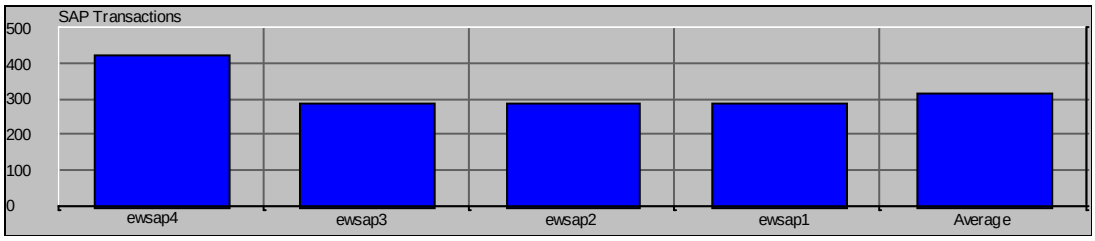
Posting Services (Top 4)

Monday the 02-06-95



Job Services (Top 4)

Monday the 02-06-95



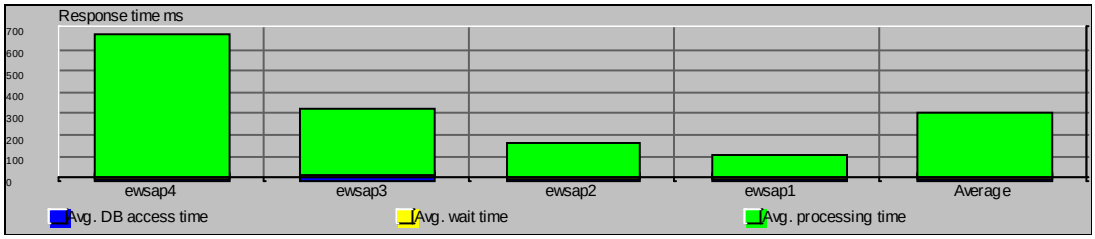
Workload distribution over individual servers for the previous week. The number of dialog steps, postings, dialog response times, and posting times for all participating servers are presented in graphic form.

The goal is to evenly distribute the workload over the application servers, taking into account the hardware capabilities of the different servers.

Servers with the greatest workload, seen in the first column of the above graphics, are analyzed in the Application Server Analysis which follows.

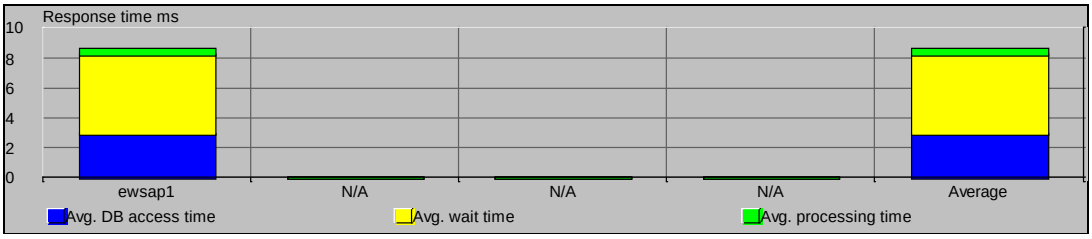
Dialog Response Time (Top 4)

Monday the 02-06-95



Posting Time (Top 4)

Monday the 02-06-95



Identification of which servers have the worst response times and how their response times relate to the average response time.

This aids you in determining whether a relationship between slow response times and high workloads exists.

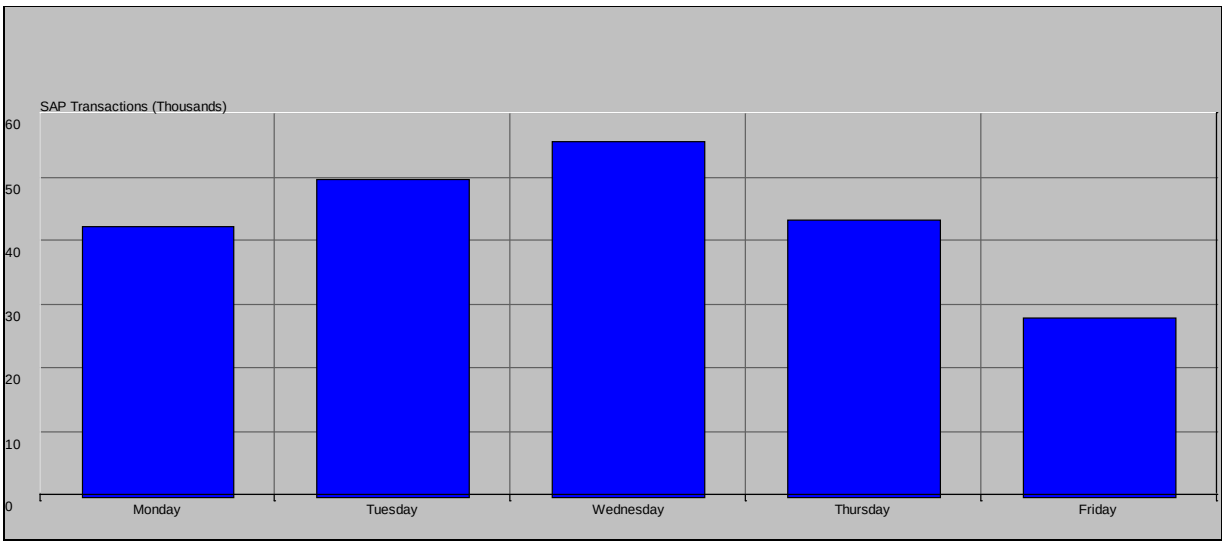
Application Server Analysis

A graphical comparison of analysis results for servers with the highest client/server workload distribution showing the following:

- ❑ server utilization on a daily basis
- ❑ distribution of SAP services
- ❑ CPU usage

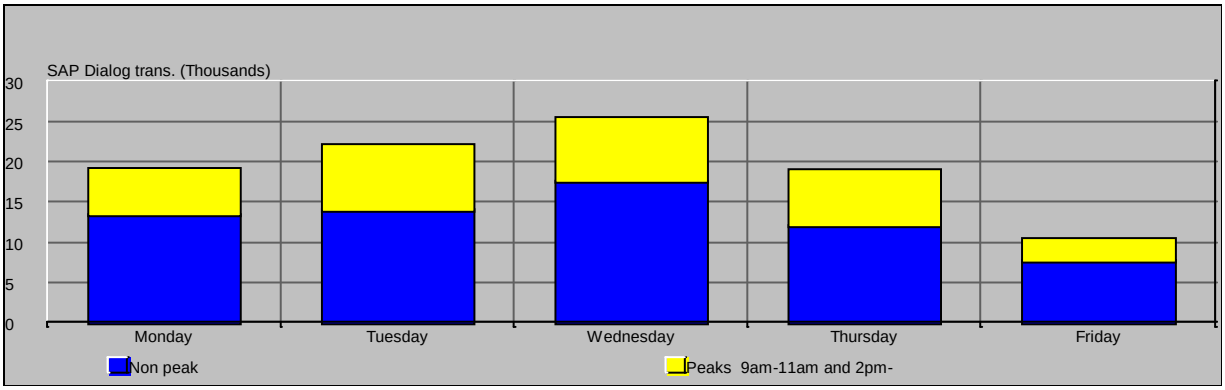
Server ewsap1: Analysis of the workload and SAP services

Overall workload from 02-06-95 to 02-10-95



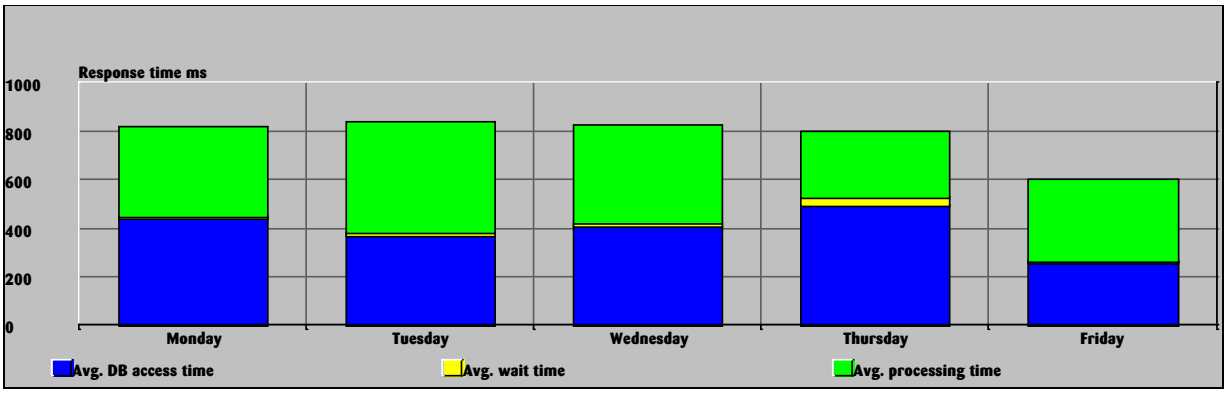
Overall workload, in the above example, describes the number of dialog steps on the ewsap1 server recorded daily for all task types (dialog, posting, background, and spool).

Response time analysis of SAP's Dialog services



Distribution of dialog steps according to peak and non-peak hours.

Average Response times



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This aids you in identifying the normal response time of your system, any major changes in response times, and if these changes are related to the changes in the workload.

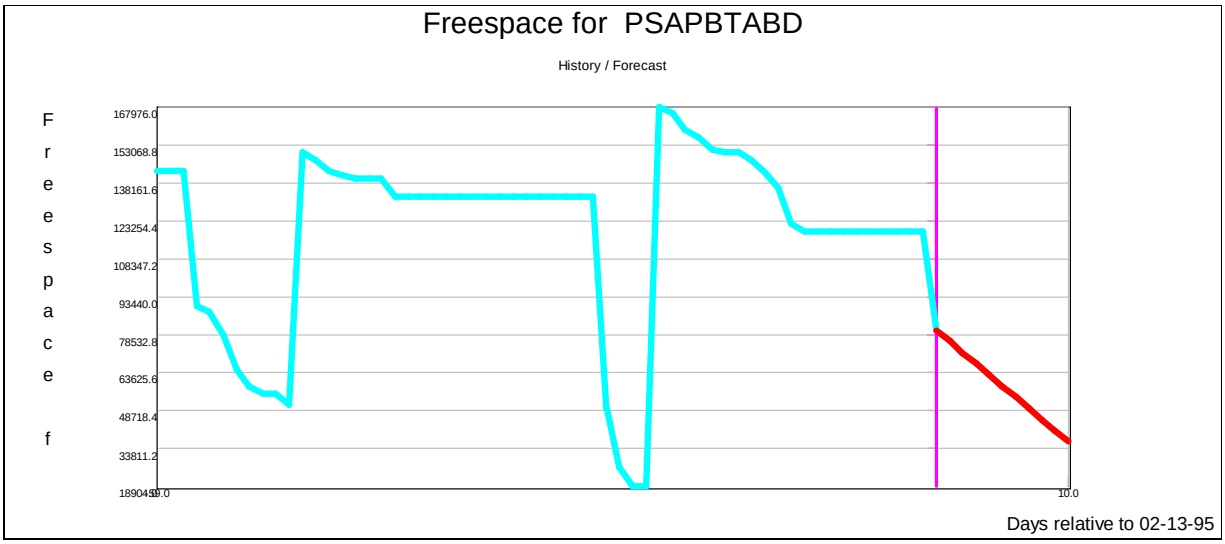
Database Server Analysis

Graphics showing the size and growth of critical table spaces within the database:

- ❑ Red Alerts: Severe problems exist
- ❑ Yellow Alerts: Potential problem areas have been found

Database Checks

Red Alerts:



Summary and Recommendations

The EarlyWatch Team detected severe problems in this SAP R/3 installation.

Several indices are missing in the database.

BSID___0; BSIS___0; BKPF___0.

These indices have to be created immediately, to significantly improve the performance of certain transactions and to avoid severe system failures. All of these indices are primary indices. If they are missing, the insertion of duplicate records is possible.

The tables ATAB and RFBLG have a very high number of extents. To avoid system failures the Maximum Extent number must be set to 500 for ATAB and RFBLG. We strongly recommend the reorganization of ATAB and RFBLG as soon as possible. Additionally, the Next Extent size for ATAB and RFBLG must be increased significantly.

Minor problems were detected on server ewsap1. The generic Key Buffer must be increased. (set zcsa/table_buffer_area = 5000000 in the parameter file). The directory of the Short Nametab buffer must be increased (set rsdb/ntab/entrycount = 4096 in the parameter file.)

- A detailed explanation of problems that occurred and recommendations for solving and preventing these problems in the future.

EarlyWatch Service Checklists

Control check of your complete R/3 System and database.

SAP System check control

☑	**Snap Dumps**
☑	**System Log**
☑	**Kernel Traces**
☑	**Modification Check**
☑	**Aborted Postings**

SnapDumps: Serious errors in ABAP programs

System Log: Error protocol of the R/3 system

Kernel Traces: Error log of the SAP kernel

Modification Check: Check of parameter changes

Aborted Postings: Errors in the booking of transactions

Appendix: Glossary

The SAP R/3 application services

The SAP R/3 system is a 'true' client/server system, which means that a user logged on to the SAP R/3 system will implicitely use services from all the servers in the network.
Which service is available on which server to what extent depends on the configuration of the SAP R/3 system.
The services to be configured are:

Dialog Services:	Interactive transactions of the SAP R/3 system
Posting Services:	All database changes, adding a sales order for example, are done asynchronously to the dialog user in one logical unit of work.
Job Services:	The SAP R/3 system contains a complete Job scheduling system. This service is also used to put long running queries into background and, potentially, on other servers.
Spool Services:	The SAP R/3 system contains a comprehensive spooling system. To print spool orders Spool Services are required.

The service levels with respect to workload and performance of the different SAP R/3 services are the main focus of the EarlyWatch Service Report.

The understanding of the notions **'Response time'** and **'Wait time'** are vital for the interpretation of the charts and hitlists of the EarlyWatch Service Report.

The notion **'Response time'** has the following meaning with respect to the different application services.

In general: 'Response time'= 'Wait time' + 'Dispatched time'.

The **'Dispatched time'** is for

Dialog Services	the processing time for one screen
Posting Services	the processing time for one complete posting procedure
Job Services	the processing time for one job
Spool Services	the transfer time for one spool order into the host system spooler