

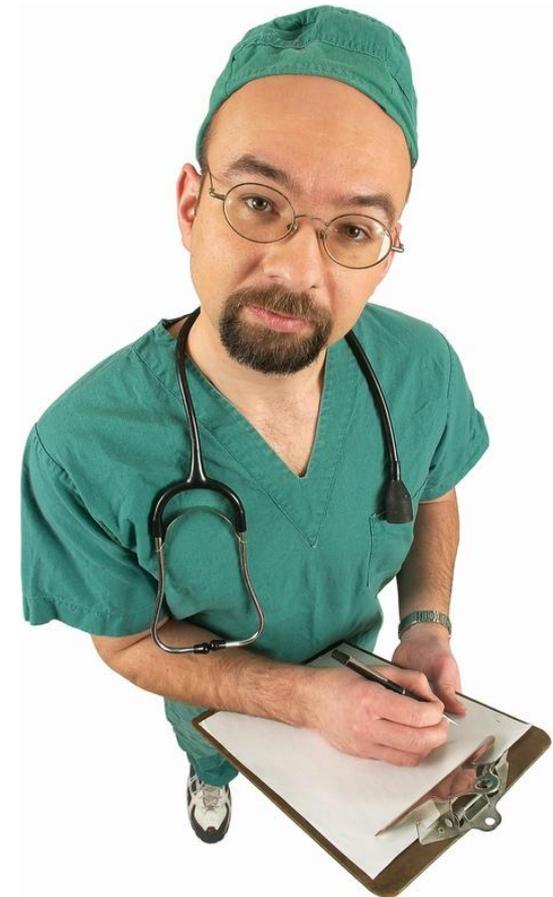


Proven Methodology for Performing an SAP BusinessObjects BI System “Health Check”

Alan Mayer
Solid Ground Technologies

In This Session ...

- **Learn how power users and report developers can power the need for a system health check**
- **Choose the health check that's right for you based on time and resources**
- **Discover server-based and software metrics that reveal a poorly performing system**
- **Spot configuration errors and correct them**
- **Find under-utilized technologies that could make a huge impact**
- **Accelerate universe-based queries and reports**
- **Audit your system for better historical insight**



What We'll Cover ...

- **Health Check Basics**
- **Level 1: Precheck**
- **Level 2: Office Check**
- **Level 3: Exploratory Check**
- **Wrap-up**

One Disclaimer

- **These checks were derived from SAP BusinessObjects 3.1 and earlier**
- **Many of the same tests are valid for SAP BusinessObjects 4.0**
 - ◆ Differences where known will be pointed out
 - ◆ 4.0 was recently released (September 16th, 2011)
 - ◆ Techniques for this version are still evolving



Why a Health Check?

- You see a doctor when you're ill
- What about systems that aren't performing their best?
 - ◆ Possible solutions
 - ▶ Grin and bear it
 - ▶ Hire a consultant
(then see previous solution)
 - ▶ Scrap it and start with another
- What if you had the knowledge of a doctor?
 - ◆ Armed with techniques to jump-start your Business Objects system
 - ◆ That's what this session is all about!

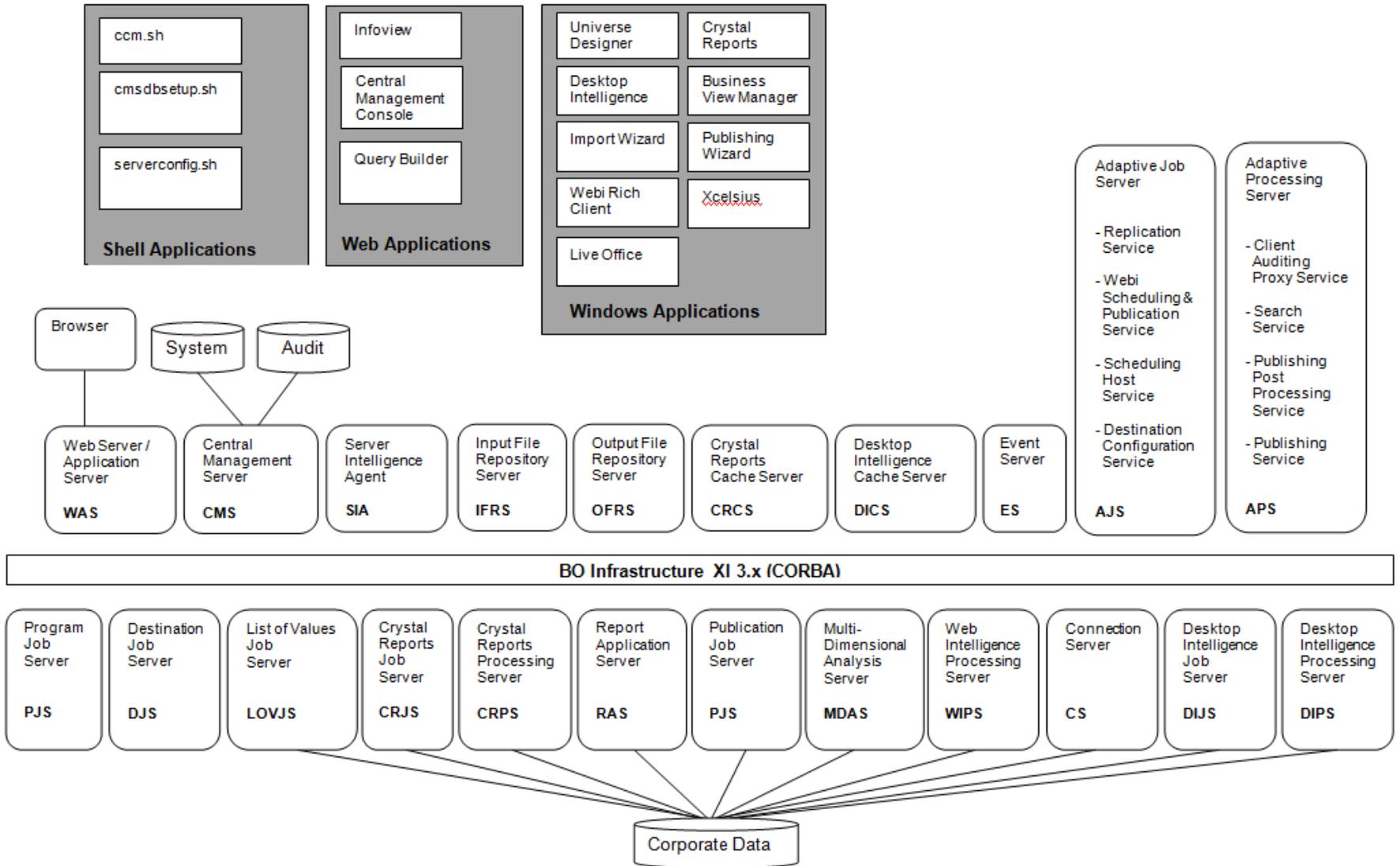


Promoting the Health Check

- **Frequent users of your system will be your biggest advocates**
- **Use their war stories to your advantage**
- **Power users are usually core business employees – not IT**
 - ◆ **Rapid improvements in performance get their attention**
 - ◆ **Funding for most IT improvements is business-sponsored**
- **Win over report developers by making their lives easier**
 - ◆ **Express improvements in their terms**
 - ▶ **Faster to develop**
 - ▶ **More control**
 - ▶ **More safety**
 - ▶ **Correct answers**

Your Patient

BusinessObjects XI 3.x Architecture



The Tools

- **Doctors use specialized tools for check-ups**
- **You will need special tools as well**
 - ◆ **Tools may differ based on operating system**
 - ◆ **Both Windows and UNIX will be considered**
- **Some tools will take a little time to master**
 - ◆ **That's OK**
 - ◆ **This session will gently introduce each and show the most common uses**



What We'll Cover ...

- **Health Check Basics**
- **Level 1: Precheck**
- **Level 2: Office Check**
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- **Wrap-up**

The Precheck

- **This check is designed to record your system’s “vital signs”**
- **It also involves little interaction**
- **Among the items to be covered**
 - ♦ **Operating system metrics (CPU, memory, disk, network)**
 - ♦ **Architecture**
 - ♦ **Server configuration**
 - ♦ **Current server metrics**
 - ♦ **Schedule failures**
 - ♦ **Processing errors and warnings**

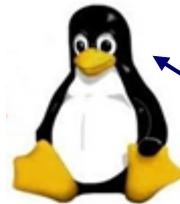


The Precheck — What You'll Need

- **Only a few things are needed to perform the check**
 - ◆ **Access to the servers running Business Objects**
 - ◆ **Operating system accounts currently running the software**
 - ◆ **The Business Objects Administrator account**

Operating System (OS) Metrics

- **OS vital signs include:**
 - ♦ CPU usage
 - ♦ Memory consumption
 - ♦ Disk I/O contention
 - ♦ Network conflicts
- **Advice will be given for both Windows and UNIX systems**
 - ♦ Look for the following symbols for guidance



Using the Linux penguin to symbolize all UNIX variants.



- Use the `vmstat` command to monitor your memory usage:

```
vmstat <delay> <number of iterations>
```

```
Example: vmstat 5 10
```

- Look for high pageouts (po or so depending on version)

procs			memory					
R	b	w	swpd	free	buff	cache	si	so
1	0	0	13344	1444	1308	19692	0	168
1	0	0	13856	1640	1308	18524	64	516
3	0	0	13856	1084	1308	18316	56	64
.								
.								

Linux

High paging
(> 100/sec)





- Use `iostat` to measure disk usage:

```
iostat <interval>
```

```
Example: iostat 5 (Sample every 5 seconds)
```

- Look for utilization $> 60 - 80\%$, response times > 35 msec, uneven I/O distribution

Device	r/s	w/s	kr/s	kw/s	wait	actv	svc_t	%w	%b
sd1	84.7	0.0	10615.1	0.0	0.0	1.6	19.0	1	100
sd4	27.6	6.8	220.5	51.6	0.0	2.9	83.0	0	98 s
sd6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0

Solaris



Tool

Average service
time (response)

Utilization (% busy)



- Use the netstat command to monitor network traffic:

```
netstat -i -I <network> <sample interval>  
Example: netstat -i -I en0 5
```

- Look for collisions > 10% output packets

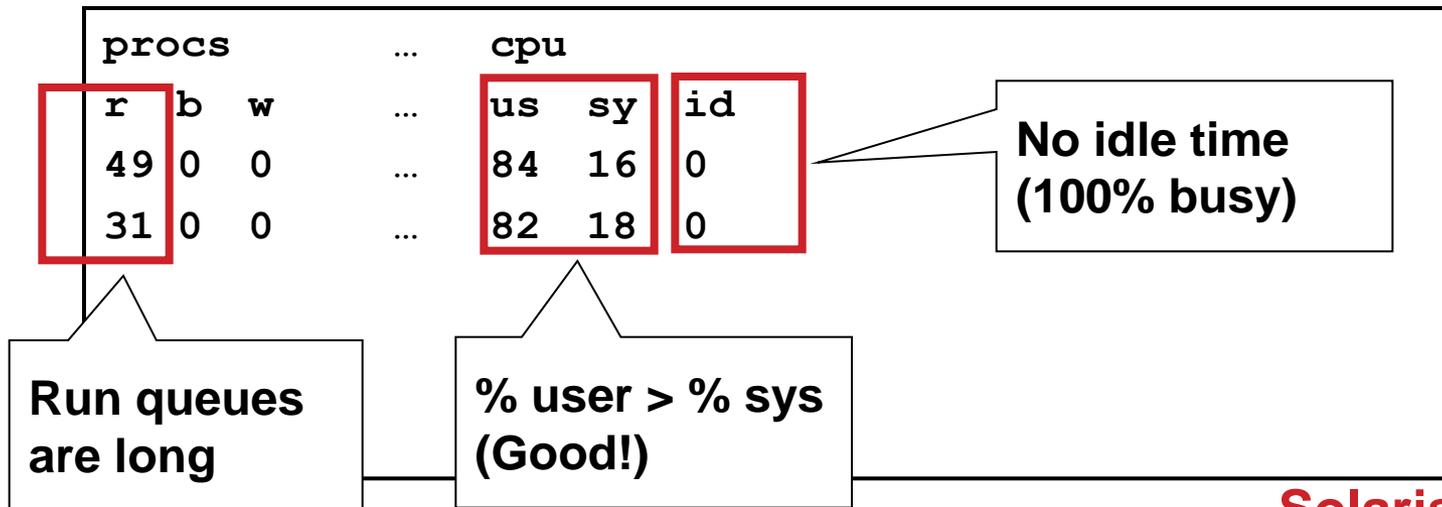
Name	Mtu	Network	Address	Ipkts	Ierrs	Opkts	Oerrs	Coll
en0	1500	<Link>		96	0	67	0	0
en0	1500	192.100.61	nullarbor	96	0	67	0	0

AIX





- Use the `vmstat` command to check system utilization
- Look for % CPU utilization, large run queues, % sys > % user
- Don't automatically assume that 100% utilization is bad!
 - ♦ 100% utilization over extended periods is bad
 - ♦ Aim for 70 – 80% utilization



Solaris



Interactive Metric Dashboards



- Many UNIX-related statistics can be interactively refreshed using the `top` or `topas` command

```
top - 19:14:15 up 6 min, 1 user, load average: 1.60, 2.66, 1.26
Tasks: 112 total, 1 running, 111 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.0% us, 0.0% sy, 0.0% ni, 100.0% id, 0.0% wa, 0.0% hi, 0.0% si
Mem: 2074860k total, 848780k used, 1226080k free, 32388k buffers
Swap: 2064376k total, 0k used, 2064376k free, 487352k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
5276	root	16	0	6092	2696	1308	S	0.3	0.1	0:01.38	hald
8143	root	16	0	8156	2300	1832	S	0.3	0.1	0:00.12	sshd
1	root	16	0	2240	544	464	S	0.0	0.0	0:00.83	init
2	root	RT	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
3	root	34	19	0	0	0	S	0.0	0.0	0:00.00	ksoftirqd/0
4	root	5	-10	0	0	0	S	0.0	0.0	0:00.00	events/0
5	root	5	-10	0	0	0	S	0.0	0.0	0:00.04	khelper
6	root	6	-10	0	0	0	S	0.0	0.0	0:00.00	kthread
7	root	15	-10	0	0	0	S	0.0	0.0	0:00.00	kacpid
87	root	5	-10	0	0	0	S	0.0	0.0	0:00.12	kblockd/0
88	root	15	0	0	0	0	S	0.0	0.0	0:00.00	khubd
105	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pdflush
106	root	15	0	0	0	0	S	0.0	0.0	0:00.08	pdflush
107	root	25	0	0	0	0	S	0.0	0.0	0:00.00	kswapd0
108	root	6	-10	0	0	0	S	0.0	0.0	0:00.00	aio/0
254	root	25	0	0	0	0	S	0.0	0.0	0:00.00	kseriod
492	root	24	0	0	0	0	S	0.0	0.0	0:00.00	scsi eh 0

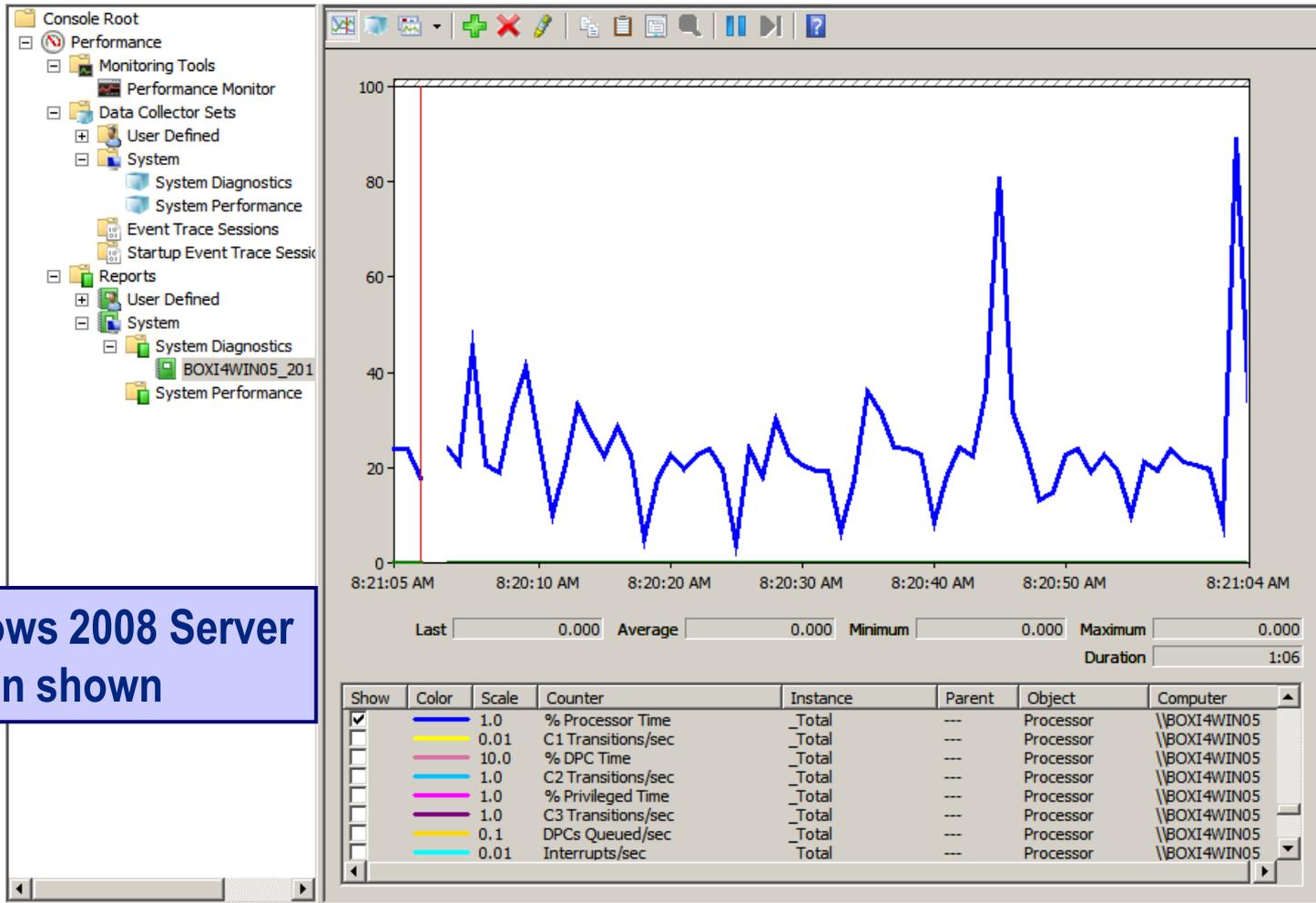
AIX



Windows OS Metrics



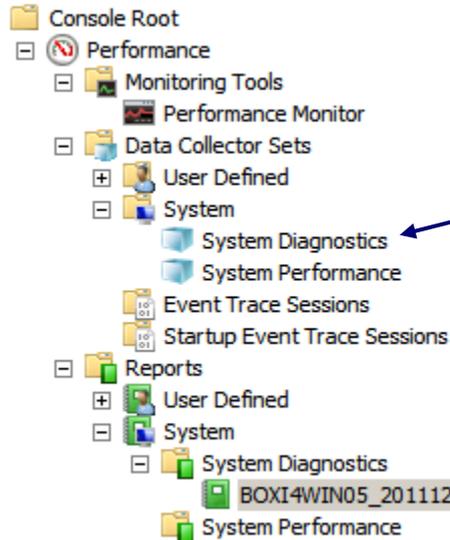
- Use Performance Monitor for CPU, memory, disk, and network



Windows 2008 Server version shown



- Hints on using Performance Monitor



1 Choose the System Diagnostics Data Set and run it for 5 – 10 minutes

2 View the report that is created

3 That report will highlight the most relevant metrics

4 Details also available

Performance

Resource Overview

Component	Status	Utilization	Details
CPU	Normal	33 %	Normal CPU load.
Network	Idle	0 %	Busiest network adapter is less than 15%.
Disk	Idle	60 /sec	Disk I/O is less than 100 (read/write) per second on disk 0.
Memory	Busy	98 %	46 MB Available.

Software Configuration

Hardware Configuration

CPU

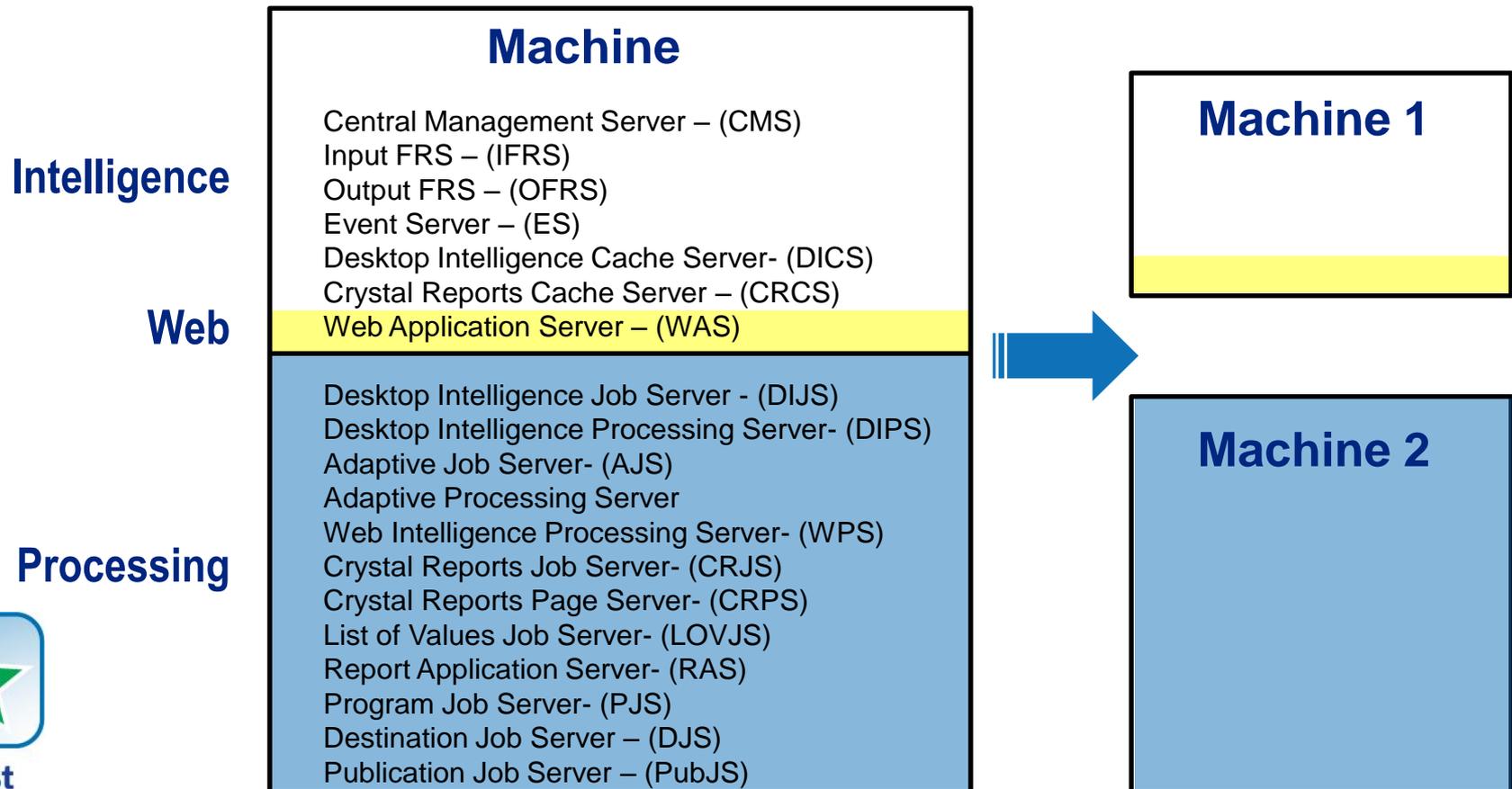
Network

Disk

Memory

Architecture

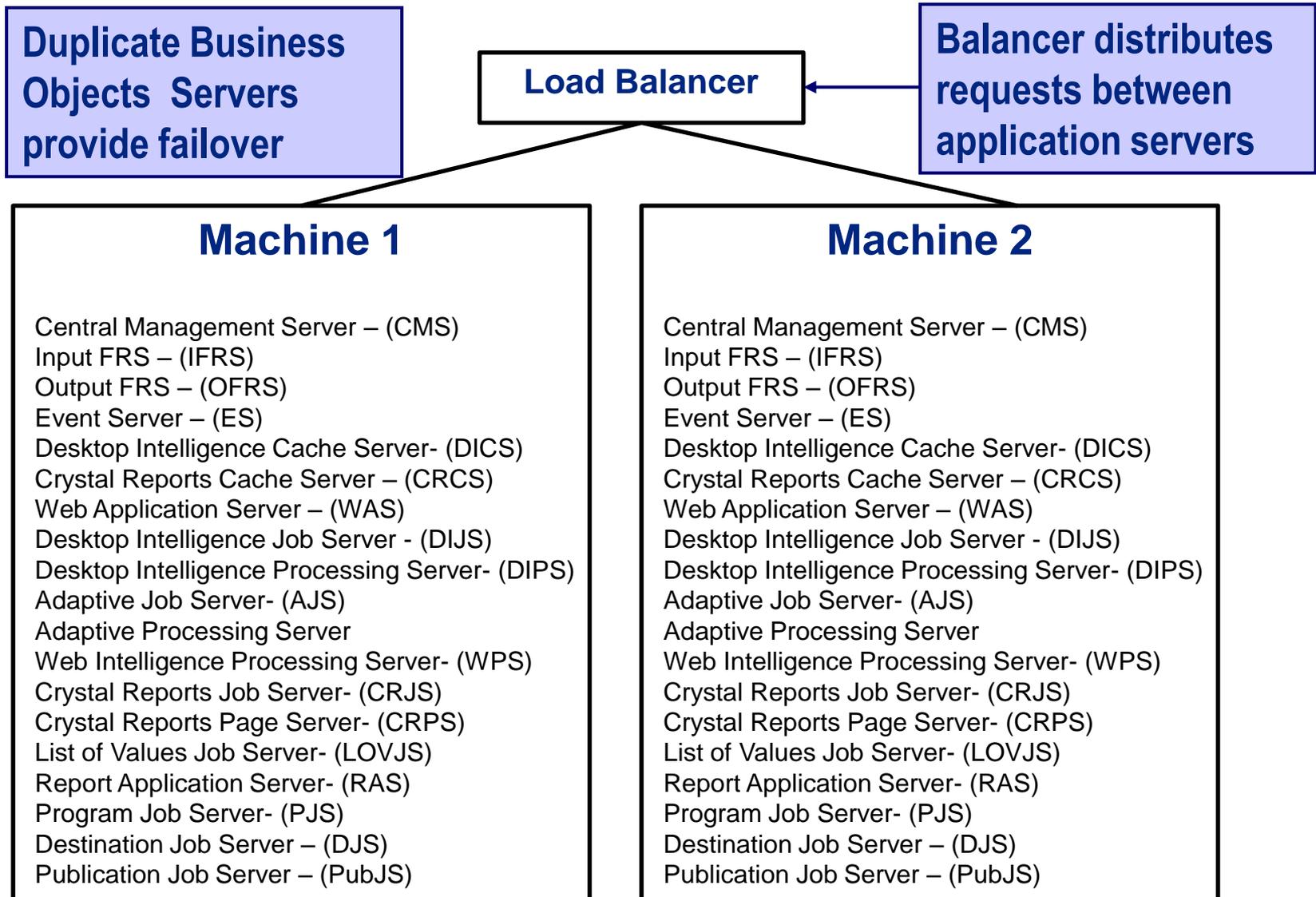
- Look at how **Business Objects servers** are spread across machines
 - ◆ **Separate Intelligence Tier and Web from Processing Tiers**



Best Practice

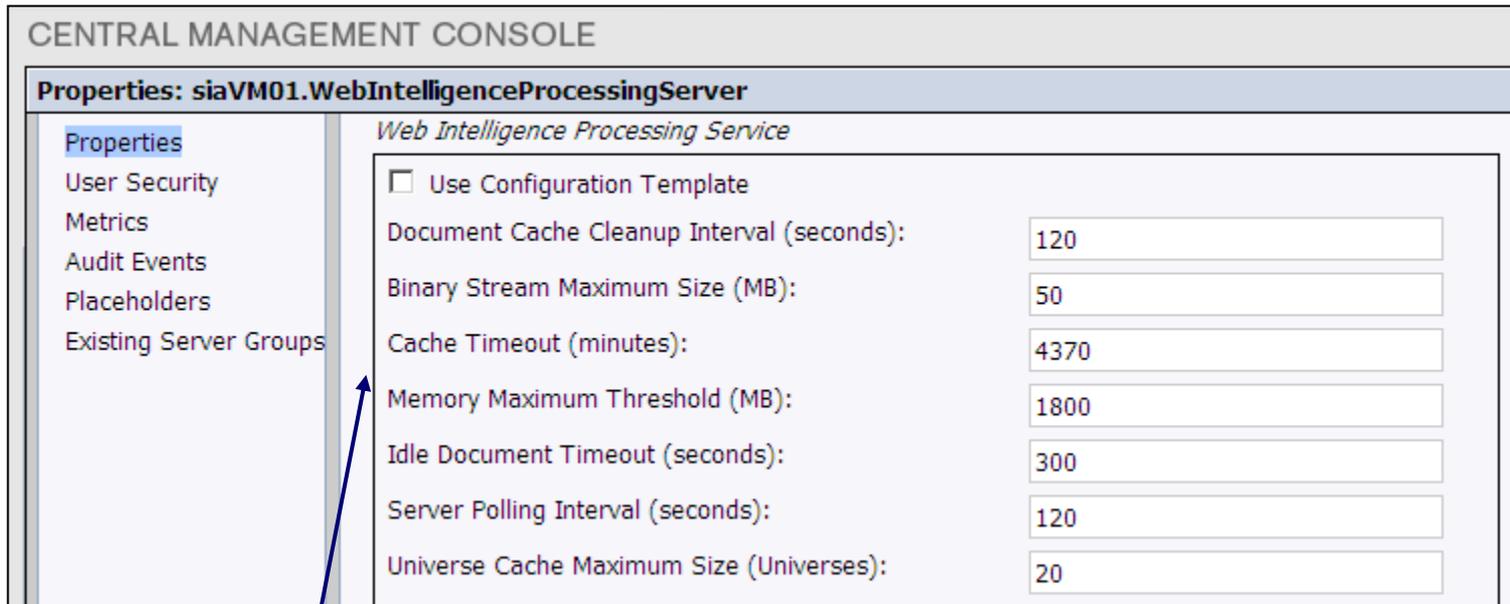
Architecture (cont.)

- Is the system built for high availability and fault tolerance?



Server Configuration

- Retrieve ALL configuration settings per server
 - ◆ Values should be identical per server type



CENTRAL MANAGEMENT CONSOLE

Properties: siaVM01.WebIntelligenceProcessingServer

Web Intelligence Processing Service

<input type="checkbox"/> Use Configuration Template	
Document Cache Cleanup Interval (seconds):	120
Binary Stream Maximum Size (MB):	50
Cache Timeout (minutes):	4370
Memory Maximum Threshold (MB):	1800
Idle Document Timeout (seconds):	300
Server Polling Interval (seconds):	120
Universe Cache Maximum Size (Universes):	20

The Central Management Console could be used to retrieve the values but NOT the best method



Server Configuration, cont'd

- **Better – Use Query Builder to retrieve all configuration values**
 - ♦ **http://<your host>:8080/AdminTools/querybuilder**

```
select si_name,  
       si_hosted_services  
from   ci_systemobjects  
where  si_kind = 'Server'
```

SI_NAME	WebiParamMaxConnections		
SI_ML_DESCRIPTION	EN	Maximum concurrent connections on a server	
SI_GROUP	0		
SI_VALID_RANGES	1	SI_MIN	5
		SI_MAX	65535
	SI_TOTAL	1	
SI_FINAL	false		
SI_ORDER	0		
SI_DEFAULTABLE	true		
SI_ML_DISPLAY_NAME	EN	Maximum Connections	
SI_DEFAULT_VALUE	50		
SI_VALUE	50		



Results returned in XML.
Have to search for values but ALL values returned in one document.



Tool

Current Server Metrics

- Use the same technique to gather current metric values

CENTRAL MANAGEMENT CONSOLE		
Metrics: siaVM01.CentralManagementServer		
Properties	Machine Name	server-vm01:6400
User Security	Name Server	server-vm01:6400
Metrics	Registered Name	com.seagatesoftware.img.osca.aps.server-vm01:6400 vm01:6400"-siaVM01.cms
Audit Events	Operating System	Windows .NET 5.2
Placeholders	CPU Type	Pentium (II/Pro)
Existing Server Groups	CPUs	1
	RAM (MB)	2,047.406
	Local Time	Friday, December 16, 2011 1:33:23 AM CST
	Disk Size (GB)	59.988
	Used Disk Space (GB)	16.857
	Version	12.3.0.601
	Start Time	Friday, December 16, 2011 12:24:09 AM CST
	PID	2128
	Host Name	server-vm01
	Host IP Address	192.168.216.130
	Request Port	1033
	Clustered CMS Servers	server-vm01:6400
	Failed Jobs	0
	Pending Jobs	1
	Running Jobs	0
	Completed Jobs	16
	Waiting Jobs	0



Current Server Metrics (cont.)

- Gathering server metrics using QueryBuilder

```
select si_name,  
       si_metrics  
from   ci_systemobjects  
where  si_kind = 'Server'
```

SI_METRICS		SI_NAME	SI_VALUE
	15	Monitor.StaticAPS.DatabaseUserName	sa
	8	Monitor.Licenses.Designers	0
	23	Monitor.SystemDB.NumObjectsInCache	1018
	16	Monitor.StaticAPS.DataSourceName	boxi_system
	7	Monitor.Licenses.Concurrent	2147483647



Schedule Failures

- Find the number of schedules that have failed
 - ◆ Use Instance Manager to examine failed schedules

1 The status is a hyperlink that can be selected to reveal the reason for the failure

Title	Type	Status	Folder Path	Owner	Completion Time	Next Run Time
Quarterly Report	Web Intelligence	Failed	Folders/Webi Sa	Administrator	Dec 19, 2011 10:20 AM	

2 The number of failures vs. successful schedules is important

Total: 1 objects

3 Status can be changed (Failed, Success, Paused, Recurring, Pending)

Find instances meeting the following criteria

Parent Folder: [Browse] [Clear]

Owner

Status: Failed

Object Type: Web Intelligence Report

Completion Time

Start: 12:00 AM 19/12/2011

Stop: []

Next Run Time

Start: 12:00 AM 19/12/2011

Stop: []

[Find]



Best Practice

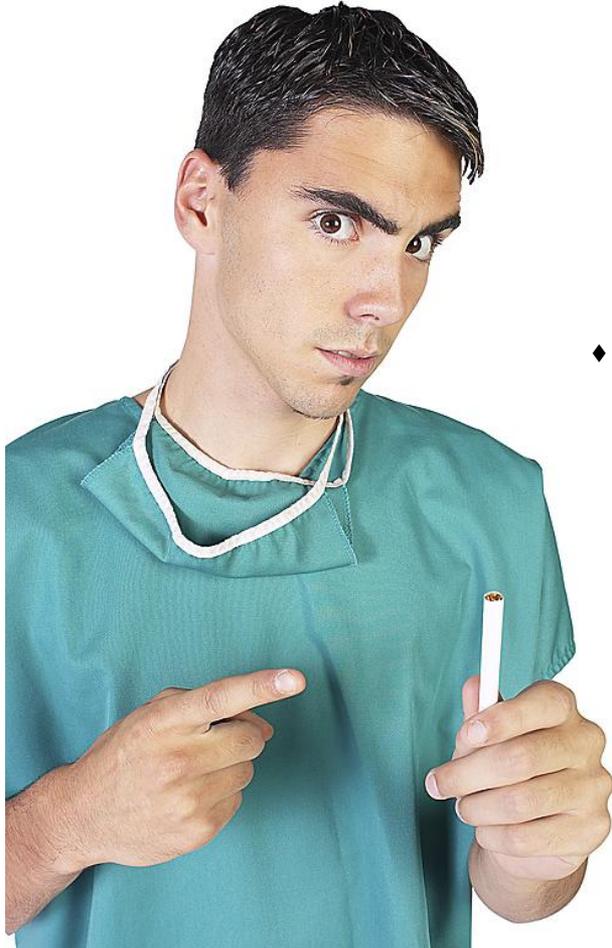
Other Schedule Information to Gather

- **Other information to gather on schedules**
 - ◆ The number of failures to successful refreshes
 - ◆ The number of recurring schedules
 - ▶ **Considered the schedule “payload”**
 - ◆ The number of paused schedules
 - ▶ **Paused schedules still consume CPU to skip over**
 - ◆ The number of failures by reason



Errors and Warnings

- **Log files can be analyzed to gauge overall system health**
 - ◆ **Three types of logs to consider:**
 - ▶ **Assert logs**
 - ▶ **Application Events (Event Viewer)**
 - ▶ **Tomcat logs**
 - ◆ **Tracing can be added on a per-process basis**
 - ▶ **Much more detail**
 - ▶ **Used to troubleshoot individual problems**
 - ▶ **Can adversely impact system performance**



Assert Logs and Events — Windows



- **UNIX systems only produce assert logs**
 - Created as part of normal processing
 - In Windows, examine the **Event Viewer** and logging directory

The screenshot displays two windows from a Windows operating system. The top window is the **Event Viewer**, showing the **Application** log. The log contains several entries, all of type **Information**, dated **9/27/2011** at **12:56:42 AM**, with the source **Server Intelligence Agent** and category **(20001)**.

Type	Date	Time	Source	Category
Information	9/27/2011	12:56:42 AM	Server Intelligence Agent	(20001)
Information	9/27/2011	12:56:42 AM	Server Intelligence Agent	(20001)
Information	9/27/2011	12:56:42 AM	Server Intelligence Agent	(20001)
Information	9/27/2011			

The bottom window is a **File Explorer** window showing the directory **C:\Program Files\Business Objects\BusinessObjects Enterprise 12.0\logging**. The directory contains several log files, including:

- APS_siaVM01.MultiDimensionalAnalysisServicesServer_20110927_055649_4260_stdout.log
- AADMining_5576_2011_09_27_05_57_52_924_trace.log
- AAProfiler_5556_2011_09_27_05_57_50_878_trace.log
- AARules_5640_2011_09_27_05_57_40_753_trace.log
- AAAnalytics_5636_2011_09_27_05_57_38_706_trace.log
- AAMetrics_5584_2011_09_27_05_57_36_659_trace.log
- AADashboard_4296_2011_09_27_05_57_34_440_trace.log
- AARepoMgt_5588_2011_09_27_05_57_29_956_trace.log



Tool



- Examine server assert logs
 - ◆ In UNIX / Linux, locate the logging directory
 - ▶ **<BO Install>/bobje/logging**

```
-rw-rw-r-- 1 boadmin boadmin      0 Sep 25 19:05 wca_20110926_010520.log
-rw-rw-r-- 1 boadmin boadmin      0 Sep 25 19:05 SearchServer_20110925_190518.log
-rwxrwxr-x 1 boadmin boadmin 2030 Sep 25 19:05 ccm_20110925_1316999065152.log
-rwxr-xr-x 1 boadmin boadmin   227 Sep 25 19:04 tomcatstartup.log
-rwxr-xr-x 1 boadmin boadmin   227 Sep 15 10:51 tomcatshutdown.log
-rwxrwxr-x 1 boadmin boadmin   191 Sep 15 10:51 ConnectionServer_20110915_121126_6211.log
-rwxrwxr-x 1 boadmin boadmin 3351 Sep 15 10:51 ccm_20110915_1316105486906.log
-rwxrwxr-x 1 boadmin boadmin   447 Sep 15 06:38 wca_20110915_121150_5654.log
-rw-rw-r-- 1 boadmin boadmin      0 Sep 15 06:11 wca_20110915_121149.log
-rw-rw-r-- 1 boadmin boadmin      0 Sep 15 06:11 SearchServer_20110915_061145.log
-rwxrwxr-x 1 boadmin boadmin 2030 Sep 15 06:11 ccm_20110915_1316088651146.log
```



- Look at `stderr.log` and `stdout.log`
 - ♦ Windows: `<BO Install>\Tomcat55\logs`

```
SEVERE: IOException while loading persisted sessions:  
com.crystaldecisions.sdk.exception.SDKException$Serialization:  
Unable to find servers in CMS server-vm01:6400 and cluster @server-vm01:6400  
with kind cms and service null.  
All such servers could be down or disabled by the administrator. (FWM 01014)
```

Tomcat Logs — UNIX



- Look at catalina.out for processing information
 - <BO Install>/bobje/tomcat/logs

```
2011-08-15 10:45:46,150 [main] ERROR com.businessobjects.gaaws.internal.ServiceProvider ()
8445 - initInstance()
com.crystaldecisions.sdk.exception.SDKException$OCAFramework: Server mcksample not found or
server may be down
cause:com.crystaldecisions.enterprise.ocaframework.OCAFrameworkException$NotFoundInDirectory
: Server mcksample not found or server may be down
cause:java.net.ConnectException: Connection refused
detail:Server mcksample not found or server may be down
The exception originally thrown was java.net.ConnectException: Connection refused
detail:Server mcksample not found or server may be down
The exception originally thrown was
com.crystaldecisions.enterprise.ocaframework.OCAFrameworkException$NotFoundInDirectory:
Server mcksample not found or server may be down
cause:java.net.ConnectException: Connection refused
detail:Server mcksample not found or server may be down
The exception originally thrown was java.net.ConnectException: Connection refused and had
the following message: Server mcksample not found or server may be down
The exception originally thrown was java.net.ConnectException: Connection refused
    at com.crystaldecisions.sdk.exception.SDKException.map(Unknown Source)
    at com.crystaldecisions.sdk.occa.security.internal.t.a(Unknown Source)
    at com.crystaldecisions.sdk.occa.security.internal.t.a(Unknown Source)
```

What We'll Cover ...

- **Health Check Basics**
- **Level 1: Precheck**
- **Level 2: Office Check**
- **Level 3: Exploratory Check**
- **Wrap-up**

The Office Check

- **This checkup involves tests that may be easier to run on-site**
- **Among the items to be covered**
 - ◆ **Profile usage**
 - ◆ **System load**
 - ◆ **Auditing**
 - ◆ **Report grading**
 - ◆ **Java configuration**
 - ◆ **Tomcat management**
 - ◆ **Backup**
 - ◆ **Lifecycle management**



Profile System Usage

- **Schedule interviews with all stakeholders:**
 - ◆ **Business Objects administrators**
 - ◆ **Development team leads**
 - ◆ **Functional team leads**
 - ◆ **Power users**
- **Profile how they use the system**
 - ◆ **Technologies used (Deski, Webl, Crystal, Xcelsius[®], ...)**
 - ◆ **Number and types of users (analyst, user, developer, ...)**
 - ◆ **Key reports and dashboards content**
 - ◆ **Current refresh cycle for the content above if known**
 - ◆ **Problems and complaints**



Listen to the Complaints

- **That last bullet point is one of the most important**
 - ◆ **Current complaints should influence the health check**
 - ◆ **Imagine going to a doctor's office ...**
 - ▶ **... and not be asked what is wrong**
 - ◆ **Verbal testimony IS evidence that can be linked to more quantitative findings**



System Load

- **Find the number of people by category**

Definition	Description
Current population	Total number of possible users
Future population	Expected number of possible users
Concurrent	Users logged into the system
Concurrent active	Users logged in and actually doing something

- **The first two categories are much easier to discover**
- **The last two may require a few approximations**
 - **Concurrent usage may be 10 – 40% of total population**
 - **Concurrent active usage is usually 50% concurrent usage as a maximum**

Auditing

- **Use the audit capability built within SAP BusinessObjects Enterprise to validate several of those assumptions**
- **Find how the system is ACTUALLY being used**
 - ♦ **How many users have logged into the system**
 - ♦ **Peak number of users logged in at any one time**
 - ♦ **Number of schedules that have run historically**
 - ♦ **Number of ad-hoc reports that have been run**
 - ♦ **Details on those reports (size, rows, duration)**

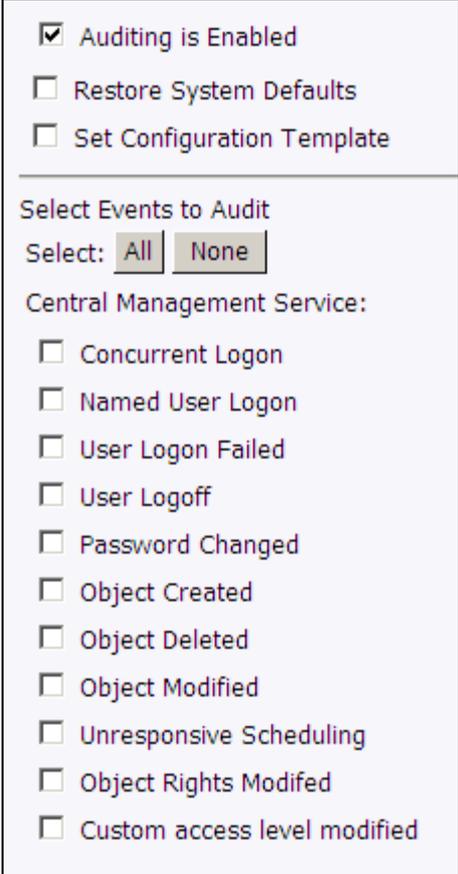


**Best
Practice**



Auditing (cont.)

- **Auditing must be initialized before using it**
 - ♦ An audit database must be registered
 - ▶ **Windows: Central Configuration Manager**
 - ▶ **UNIX: cmsdbsetup.sh**
- **Most Business Objects servers can be audited**
 - ♦ Audit must be enabled per server
 - ♦ **WHAT to audit must be selected**



Auditing is Enabled

Restore System Defaults

Set Configuration Template

Select Events to Audit

Select:

Central Management Service:

Concurrent Logon

Named User Logon

User Logon Failed

User Logoff

Password Changed

Object Created

Object Deleted

Object Modified

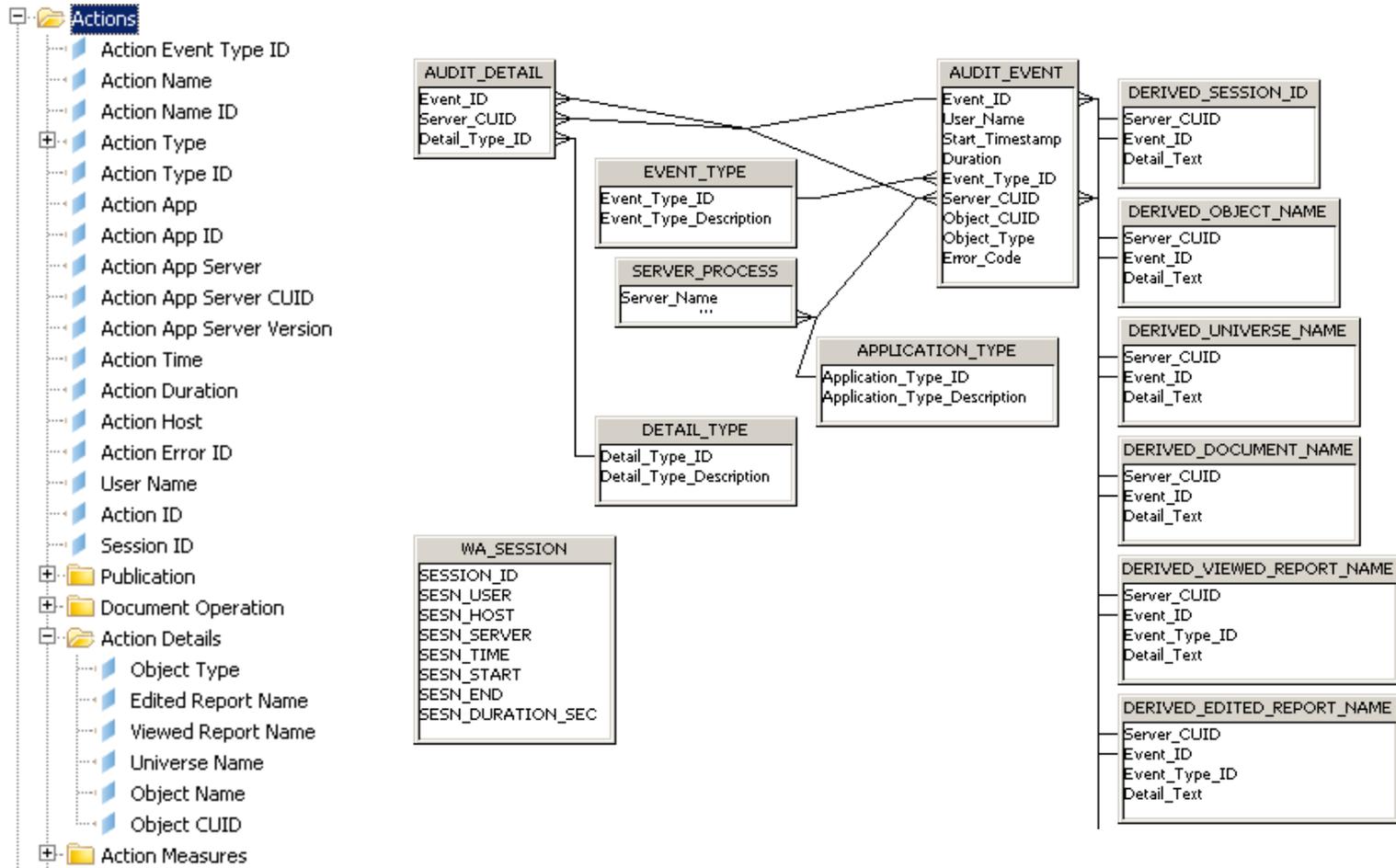
Unresponsive Scheduling

Object Rights Modified

Custom access level modified

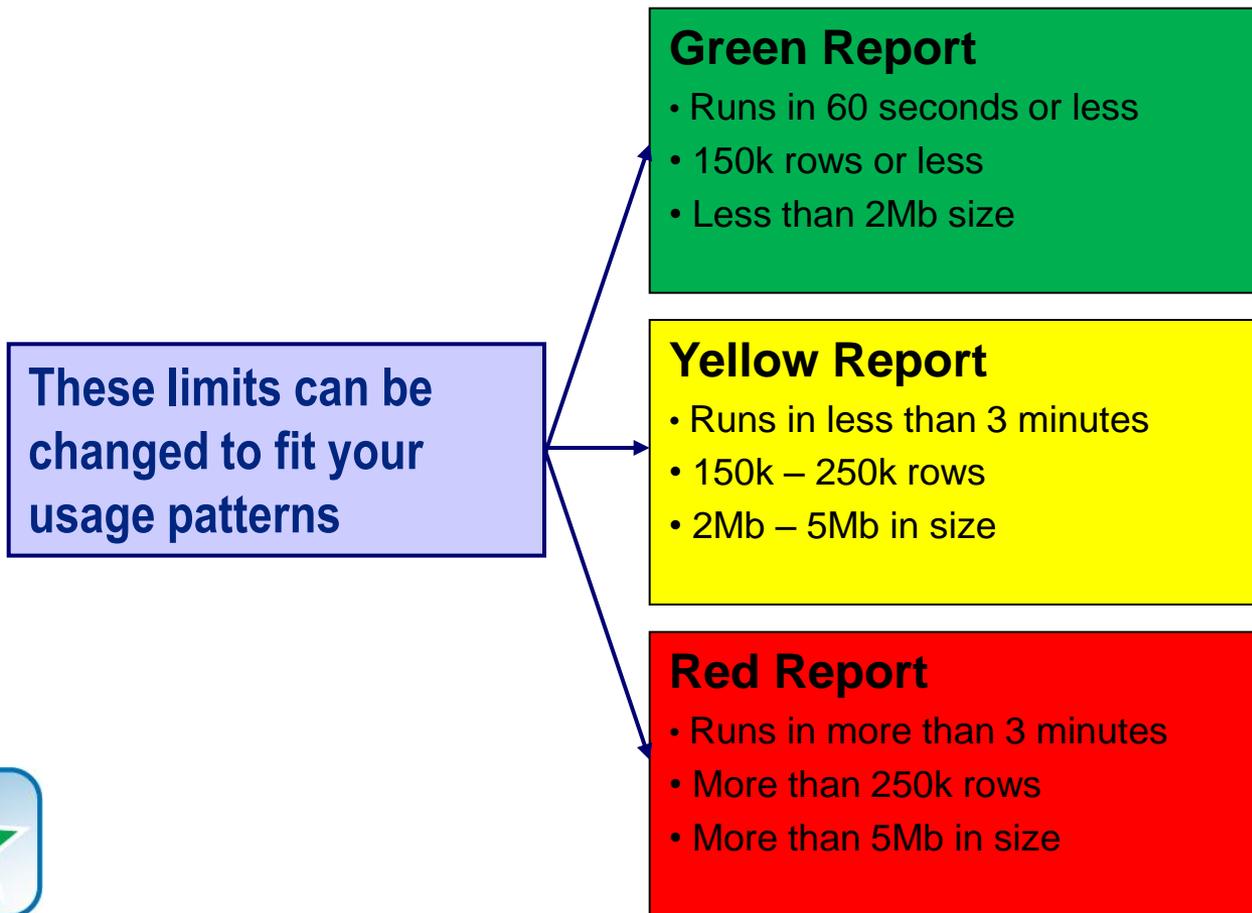
Auditing (cont.)

- The Activity universe is used to query audited information



Report Grading

- Using Audit information, reports can be graded based on resources consumed



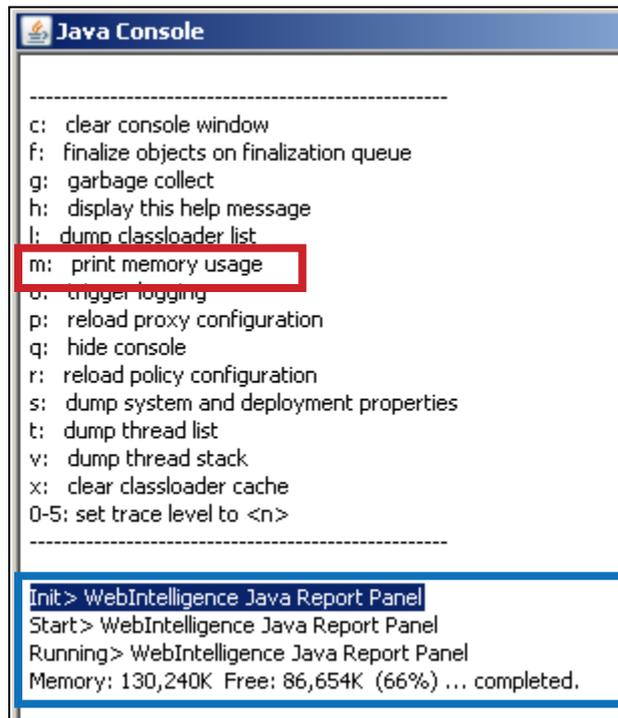
Best
Practice

Report Grading and Self-Tuning

- **Power users benefit directly from graded reports**
 - ◆ They can see which reports/queries are performing poorly
 - ◆ Red reports become the target for tuning
- **Developers also benefit**
 - ◆ Get an idea of which reports are more frequently used
 - ◆ Also, which universe objects are used most often
 - ◆ Redirect development efforts based on usage
- **Administrators are also rewarded**
 - ◆ Poorly-running reports are targeted and minimized
 - ◆ Chances of bad reports crashing a system are reduced

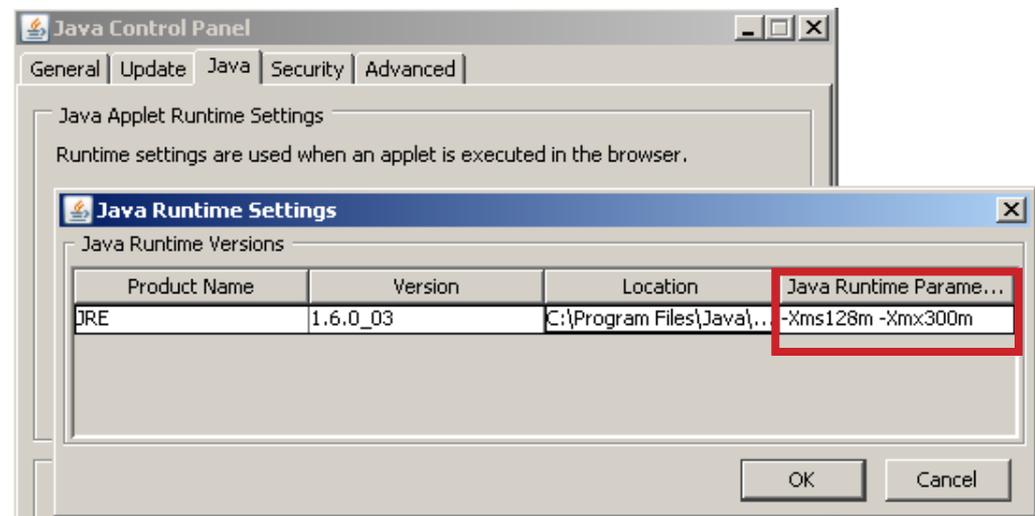
Java Configuration — Client

- Find the amount of browser memory reserved for Java
- This can be viewed from the Java Console or Java Control Panel



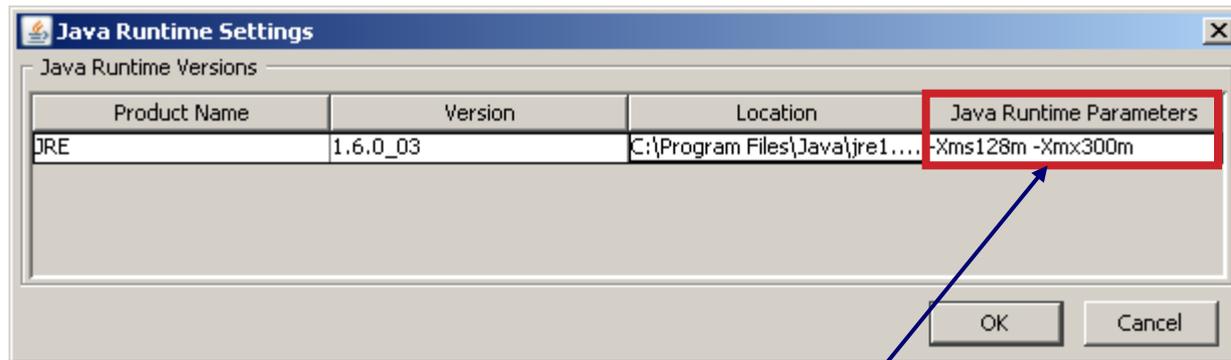
```
c: clear console window
f: finalize objects on finalization queue
g: garbage collect
h: display this help message
l: dump classloader list
m: print memory usage
o: trigger logging
p: reload proxy configuration
q: hide console
r: reload policy configuration
s: dump system and deployment properties
t: dump thread list
v: dump thread stack
x: clear classloader cache
0-5: set trace level to <n>
```

```
Init> WebIntelligence Java Report Panel
Start> WebIntelligence Java Report Panel
Running> WebIntelligence Java Report Panel
Memory: 130,240K Free: 86,654K (66%) ... completed.
```



Java Configuration — Client (cont.)

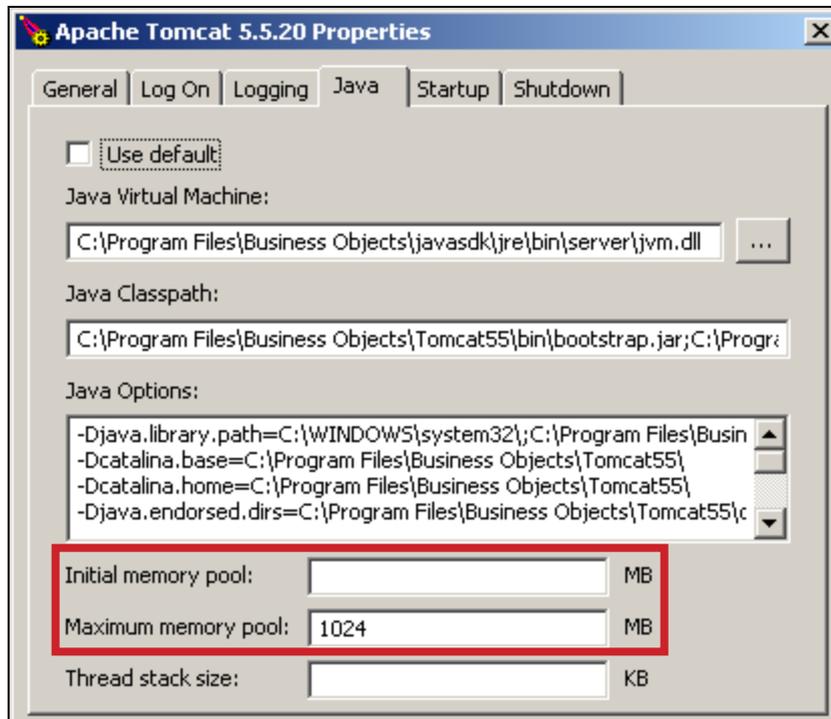
- **Java memory can be increased when needed**
 - ◆ Large universes / reports may require more memory
 - ◆ Default memory is 64Mb
 - ◆ Add the following arguments to the Java Applet Runtime Settings



This reserves a minimum of 128Mb and a maximum of 300Mb

Java Configuration — Tomcat Server

- Memory can also be increased for Tomcat the same way
- Find the amount of memory now reserved
 - ◆ Program Files > Tomcat > Tomcat Configuration





- Edit the catalina.sh script for UNIX-based system to increase Tomcat memory
 - ◆ <BO Install>/bobje/tomcat/bin

```
# ----- Execute The Requested Command -----  
export JAVA_OPTS="-Xms256m -Xmx1536m"
```

Note:

Much more memory can be allocated for 64-bit versions of Tomcat. Version 4.0 of Business Objects runs natively in 64-bit.

Backup

- **Many Business Objects systems are not backed up**
 - ◆ **System database and filestores must be synchronized**
 - ◆ **This means that they should be backed up at the same time**
- **No backup utility is provided by Business Objects**
- **This task is left up to you**
- **Various methods can be used:**
 - ◆ **Cold Backup: System is down**
 - ◆ **Hot Backup: System is up**
 - ▶ **System DB backed up before filestores**



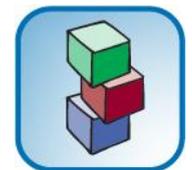
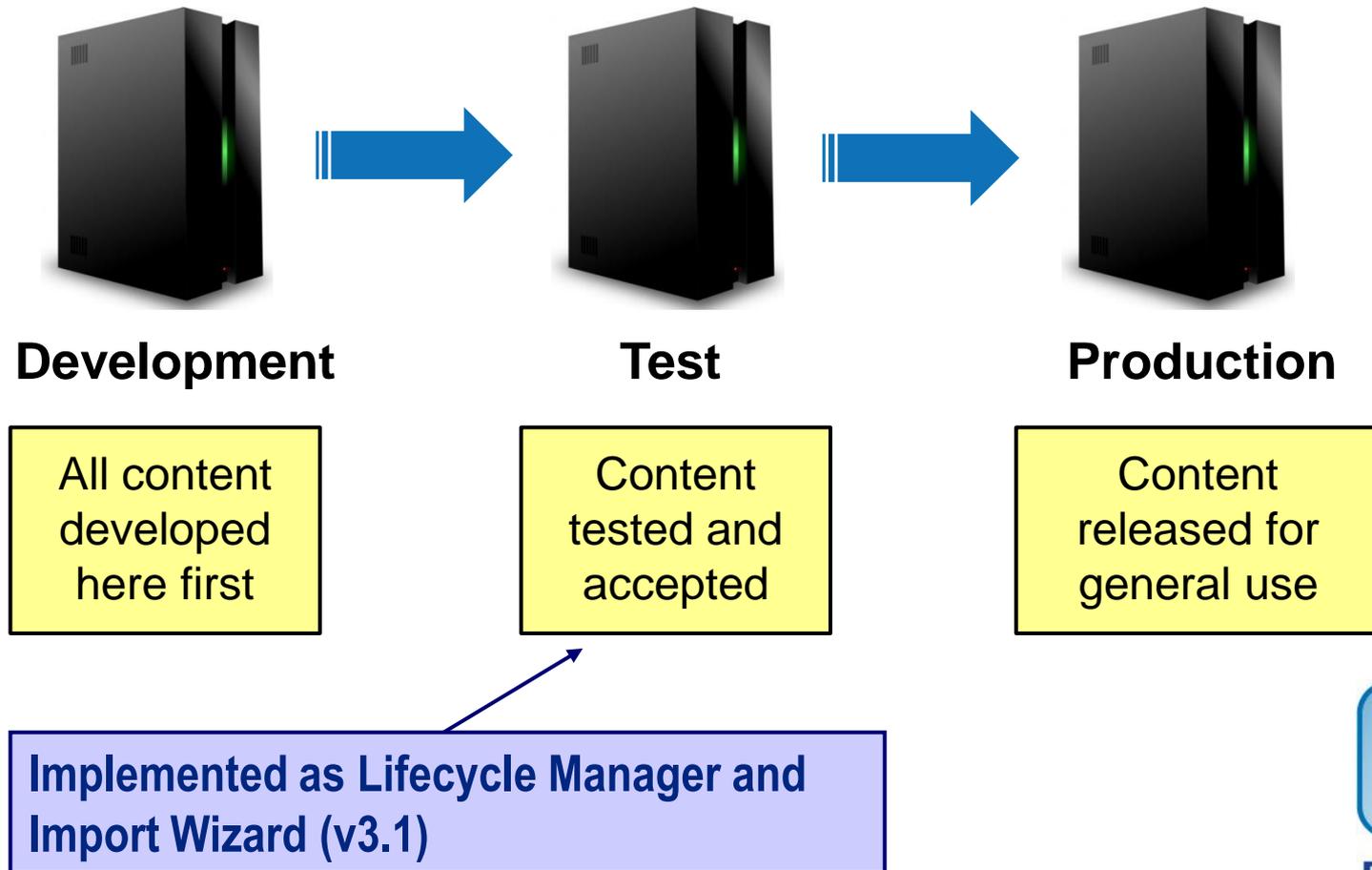
**Best
Practice**

Backup (cont.)

- **Other backup candidates:**
 - ♦ **Audit database**
 - ♦ **Subversion (Lifecycle Manager / Lifecycle Console)**
- **Any customized files / code**

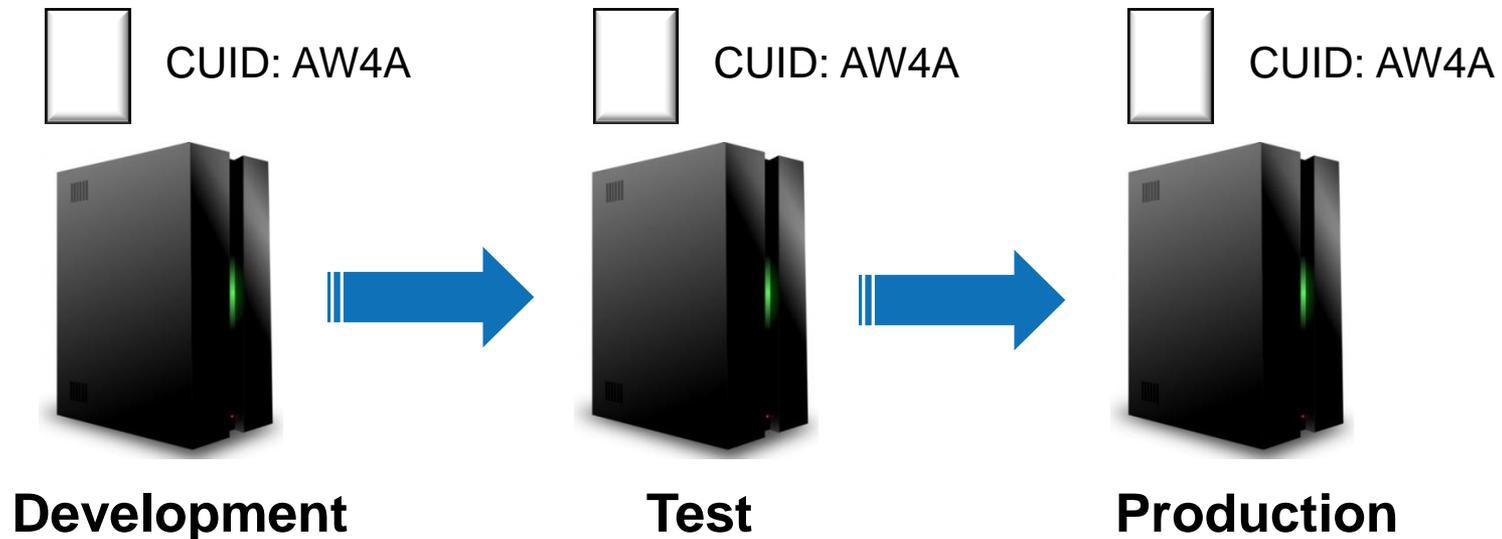
Lifecycle Management

- The preferred method to PROMOTE content between platforms
- Same software version per platform



Lifecycle Requirements

- **Always start all object development in one environment**
 - Most IT-developed content will start in Development
 - Objects will be migrated using Lifecycle Manager to Test and Prod



What We'll Cover ...

- **Health Check Basics**
- **Level 1: Precheck**
- **Level 2: Office Check**
- **Level 3: Exploratory Check**
- **Wrap-up**

Exploratory Check

- This checkup involves deeper testing which may require more time
- Among the items to be covered
 - ◆ Known problems by version
 - ◆ Universe analysis
 - ◆ Security



Version Issues

- **Software should be stable**
 - ♦ This is not always the case ...
- **Part of a health check involves identifying the latest service packs and fixes**
 - ♦ Current problems may have already been fixed
 - ♦ If the issue is software-related, workarounds are your only option until the software is patched

Version Issues (cont.)

- These tools help identify your software version:
 - Windows: Software Inventory Tool
 - UNIX: AddorRemoveProducts.sh
- Examine the latest set of fixed issues beyond your version

SAP SOFTWARE DOWNLOAD CENTER

SAP BusinessObjects Enterprise XI 3.1 ServicePack 5 (Server) on UNIX.

SAP BusinessObjects Enterprise XI 3.1 ServicePack 5 (Server + Client) on Windows.

For complete information, please see:

- XI 3.1 ServicePack 5 Fixed Issues list, note [1650644](#)
- XI 3.1 ServicePack 5 Release Notes, note [1651101](#)
- XI 3.1 ServicePack 5 Upgrade Installation Guide, note [1651102](#)
- XI 3.1 ServicePack 5 What's New, note [1651100](#)

Available as an 'Info' link under Business Objects Software downloads (service.sap.com)



Best Practice

Number of Universes

- Find the number of universes published on your system
- Use the Central Management Console or Query Builder

CENTRAL MANAGEMENT CONSOLE

Universes

Welcome: **Administrator** | Help | Preferences | About | Log Out

Manage ▾ Actions ▾ Organize ▾ | Search title ▾

Universes List

Title	Type	Description	Path	Date Mo
Acti	Universe		Universes	Sep 29,
ASU	Universe	eFashion universe p	Universes/ASUG	Oct 1, 2
ASU	Universe	Version 1.0 Sample	Universes/ASUG	Oct 4, 2
ASU	Universe	Flat file universe de	Universes/ASUG	Sep 30,
ASU	Universe	Adventure Works	Universes/ASUG	Oct 4, 2
ASU	Universe	Adventure Works	Universes/ASUG	Oct 4, 2
ASU	Universe		Universes/ASUG	Oct 4, 2

Total: 14 objects

Query Builder

```
select count(si_id)
from ci_appobjects
where si_kind = 'Universe'
```

Number of Reports per Universe

- Universes should be used to create many reports
 - Avoid one universe per report
- Check this using Query Builder

```
select *  
from ci_appobjects  
where si_kind = 'Universe'
```



5/14

[top](#)

Properties

SI_USERGROUPS_ORDER	SI_TOTAL	0
SI_HIDDEN_OBJECT		false
SI_CREATION_TIME		9/29/10 11:40:00 PM
SI_LOCKER_ID		0
SI_GUID		ATRaRqzh_sBAvXi9Sid.Ezk
SI_COREUNIVERSE	SI_TOTAL	0
SI_APPLICATION_OBJECT		true
SI_READ_ONLY		false
SI_KIND		Universe
SI_SYSTEM_OBJECT		false
SI_RUNNABLE_OBJECT		false
SI_WEBI	2	1091
	4	1093
	1	1090
	3	1092
	5	4239
	SI_TOTAL	5



Secret

Universe Dynamic Parameters

- Certain universe dynamic parameters should be set carefully
 - ◆ Databases like Teradata can perform badly with the wrong choice

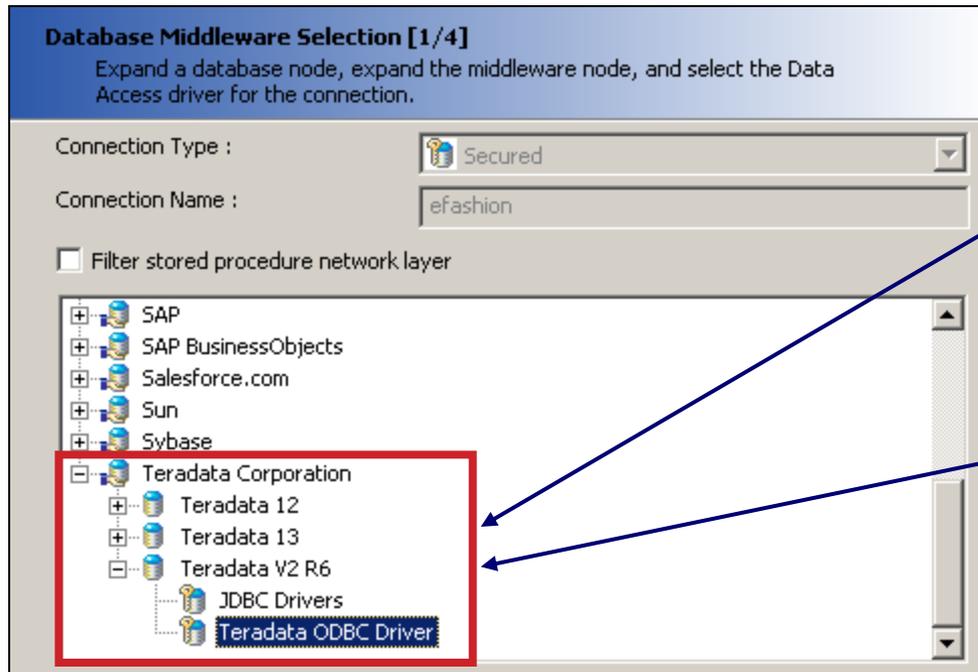
Name	Value
ANSI92	No
AUTO_UPDATE_QUERY	No
BLOB_COMPARISON	No
BOUNDARY_WEIGHT_TABLE	-1
COLUMNS_SORT	No
COMBINED_WITH_SYNCHRO	No
COMBINE_WITHOUT_PARENTHESES	No
CORE_ORDER_PRIORITY	No
CORRECT_AGGREGATED_CONDITIONS_I...	No
CUMULATIVE_OBJECT_WHERE	No
DECIMAL_COMMA	No
DISTINCT_VALUES	DISTINCT
END_SQL	
EVAL_WITHOUT_PARENTHESES	No
FILTER_IN_FROM	No
FIRST_LOCAL_CLASS_PRIORITY	No
FORCE_SORTED_LOV	No
MAX_INLIST_VALUES	999
PATH_FINDER_4X	N
REPLACE_COMMA_BY_CONCAT	No
SHORTCUT_BEHAVIOR	Successive
THOROUGH_PARSE	No
UNICODE_STRINGS	No

GROUPBY would perform much better for Teradata 12

END_SQL may be truncated when used to audit queries

Universe Connections

- Found in Universe Designer
 - Tools > Connections
- Make sure that the middleware layer reflects the version of the database



Don't use Teradata V2 R6 to connect to a Teradata 12 database

This may work FUNCTIONALLY but may not be the best performing solution



Universe Connections

- Found in Universe Designer
 - Tools > Connections
- Check this using Query Builder

Connection Pool Mode: Keep the connection active during the whole session (local mode or...)

Pool timeout:

Array fetch size: 10

Array bind size: 5

Login timeout: 600 Minutes:

Connections should never be set to stay active for the entire session

Array fetch sizes should be set as large as possible

Universe Joins and Objects

- **Joins between tables should be optimized**
 - ♦ **Stick with equi-joins when possible**
 - ♦ **Use fields that are indexed**
 - ▶ **Table1.<Primary Key> = Table2.<Foreign Key>**
 - ♦ **Avoid outer joins if possible**
 - ▶ **This should be easier in a data warehouse/mart**
 - ♦ **Best to apply functions on any side of the join that resolves to a constant**
 - ▶ **Function only executed once rather than for every row**
- **Avoid concatenated objects**



Security

- **Keep the security scheme simple and maintainable**
 - ◆ **Assign security at a folder and group level**
 - ▶ **As high as possible to take advantage of inheritance**
 - ◆ **Avoid Denials (like the plague)**
 - ◆ **Never leave security set at Advanced**
 - ▶ **Custom access levels make this avoidable**

User Security: Webi Samples

Properties
User Security
Limits

Add Principals Remove View Security Assign Security

	Name	Full Name	Type	Access
	Administrators		User Group	Full Control (Inherited)
	Everyone		User Group	Advanced



**Best
Practice**

What We'll Cover ...

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- **Wrap-up**

Additional Resources

- **Alan Mayer, “Tips, tricks, and gotchas of running your Business Objects enterprise platform on the UNIX operating system,” (BI 2012 Event, February 2012)**
- **Alan Mayer, “Strategies and tools to ensure a seamless migration of Business Objects content from development to production environments,” (BI 2012 Event, February 2012)**
- **BusinessObjects Enterprise Administrator's Guide (XI 3.1)**
 - ♦ **http://help.sap.com/businessobject/product_guides**

7 Key Points to Take Home

- **Health checks can be performed for almost any situation**
- **Server-based metrics can quickly reveal a poorly performing system**
- **Server comparisons can highlight systems that aren't properly configured or tuned**
- **Auditing retrieves historical facts that current metrics cannot display**
- **Report grading allows users to tune their own queries and reports**
- **Universes can be tuned to accelerate database queries**
- **Listen to your users! Their responses can focus the health check on the most needed areas**

Your Turn!



Questions?

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