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# IBM Tivoli Monitoring Troubleshooting: mySAP Version 6.x

**Tivoli** software

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# Topics

- Overview
- Concepts and Architecture
- Agent Configuration
- Serviceability Improvements
- Agent Performance
- Diagnostics
- Common Agent Problems

# Pre-requisites / Assumptions

- Pre-requisites
  - ▶ Knowledge of/training in ITM 6.1.0 mySAP Agent and functions
  - ▶ ITM 6.2.0 Agent Overview
  - ▶ Knowledge of/training in ITM 6.2.0 Framework functions
  - ▶ Knowledge of SAP systems



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# Overview

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# Supported platforms

Requirement	Windows	UNIX
<b>Operating system versions</b>	<ul style="list-style-type: none"> <li>Windows 2000 Server (32-bit)</li> <li>Windows 2000 Advanced Server (32-bit)</li> <li>Windows Server 2003 Data Center Edition (32-bit)</li> <li>Windows Server 2003 Enterprise Edition (32-bit)</li> <li>Windows Server 2003 Standard Edition (32-bit)</li> </ul>	<ul style="list-style-type: none"> <li>AIX® 5.2, 5.3 (32-bit and 64-bit)</li> <li>HP-UX 11i V1, V2, V3 for PA-RISC (32-bit and 64-bit) <sup>1</sup></li> <li>HP-UX 11i V2, V3 for Integrity (64-bit) <sup>1</sup></li> <li>Red Hat Enterprise Linux 2.1, 3.0, 4.0, 5.0 <sup>2</sup> for x86-32 (32-bit)</li> <li>Solaris 8, 9, 10 for SPARC (32-bit and 64-bit)</li> <li>Solaris 10 for x86-64 (64-bit)</li> <li>SUSE Linux Enterprise Server 8, 9, 10 for x86-32 (32-bit)</li> <li>SUSE Linux Enterprise Server 8, 9, 10 for System z<sup>TM</sup> (64-bit )</li> </ul>

## Supported products

Requirement	Windows	UNIX
<b>SAP Basis and Web Application Server (WAS) levels supported</b>	<ul style="list-style-type: none"> <li>• 4.6C</li> <li>• 4.6D</li> <li>• 6.10</li> <li>• 6.20</li> <li>• 6.30</li> <li>• 6.40</li> <li>• 7.0</li> </ul> <p><b>Note:</b> Every SAP application server to be monitored must have at least 1 (preferably 2) dialog work processes. Application servers with no work processes cannot be discovered or monitored.</p>	
<b>Applications and components supported</b>	<ul style="list-style-type: none"> <li>• Advanced Planning and Optimizer (APO), Supply Chain Management (SCM)</li> <li>• Customer Relationship Management (CRM), Enterprise Buyer &amp; Procurement (EBP), Business to Business Procurement (BBP), Supplier Relationship Management (SRM)</li> <li>• R/3, R/3 Enterprise, mySAP ERP, Enterprise Core Components</li> <li>• Exchange Infrastructure (XI), Process Integration</li> <li>• NetWeaver (NW04), NetWeaver (NW04s)</li> <li>• Business Information Warehouse (BW)</li> <li>• Strategic Enterprise Management (SEM)</li> <li>• Business Intelligence (BI)</li> <li>• Solution Manager (SM)</li> <li>• Product Life Cycle Management (PLM)</li> </ul>	

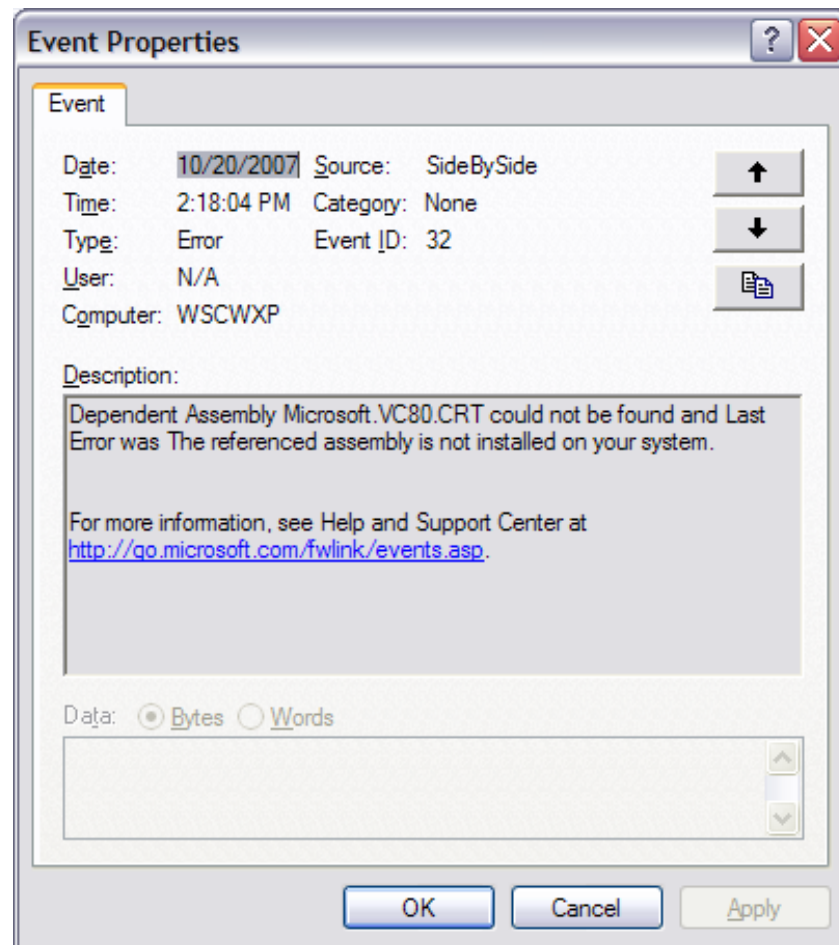
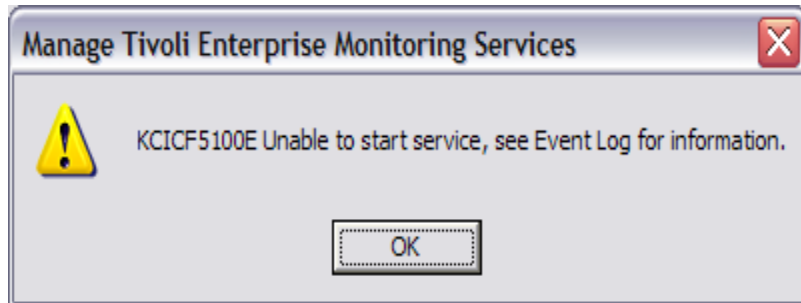
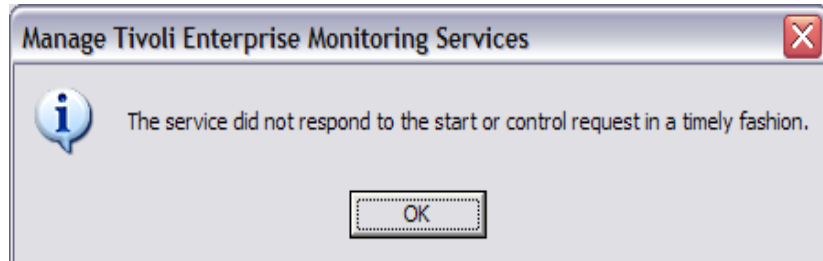
## Runtime Requirements – Windows (1)

Windows requires the following pre-requisites:

- ▶ MS 8.0 C/C++ runtime (Microsoft Visual C++ 2005 Redistributable Version 8.0)
- ▶ SAP 7.10 RFC library requirement
- ▶ See SAP note 684106

## Runtime Requirements – Windows (2)

### Windows Runtime Errors





## Runtime Requirements - Linux

Linux RHEL 4 and SuSE 9 require the following pre-requisite:

- The C++ Runtime 6.0 (libstdc++.so.6) is required
  - ▶ SAP 7.10 RFC library requirement
  - ▶ See SAP Note 1021236 for instructions

All Linux platforms require the following pre-requisite:

- The latest versions of the following libraries available on the Linux operating system installation media and Service Packs
  - ▶ libstdc++
  - ▶ libgcc
  - ▶ compat-libstdc++
  - ▶ libXp
  - ▶ Each library can have multiple packages, and each must be installed

## Runtime Requirements – HP/UX

HP/UX 11.11i requires the following pre-reqs:

- Fixes for enabling the getaddrinfo() API:
  - ▶ latest version - (minimal version) - description
  - ▶ PHCO\_35743 - (PHCO\_24400) - libc cumulative fix
  - ▶ PHCO\_31923 - (PHCO\_24402) - libc cumulative header file fix
  - ▶ PHCO\_32544 - (PHCO\_23251) - libc manpage cumulative fix
- Fixes for IPv6 environments:
  - ▶ PHCO\_28605 - (PHCO\_24401) - libnss\_files cumulative fix
  - ▶ PHNE\_29445 - (PHNE\_24129) - libnss\_dns DNS backend fix

## Run As Root requirement

- The Monitoring Agent for mySAP is **NOT** sensitive to running with root or Administrator permissions
- Authorizations are handled in SAP system via the user ID configured to connect to the SAP system
- Note: If you do specify a different “run as” user ID during remote deploy, it will not be honored in following cases:
  - ▶ Remote start/restart/config/update functions will start the agent as root
  - ▶ Restart on reboot will start the agent as root

## Fix pack / refresh activity

- There are no mySAP agent Fix Packs for ITM 6.1
- There are several 6.1.0-TIV-ITM\_SAP-LA's
  - ▶ All function added via LA has been added to ITM 6.2 agent



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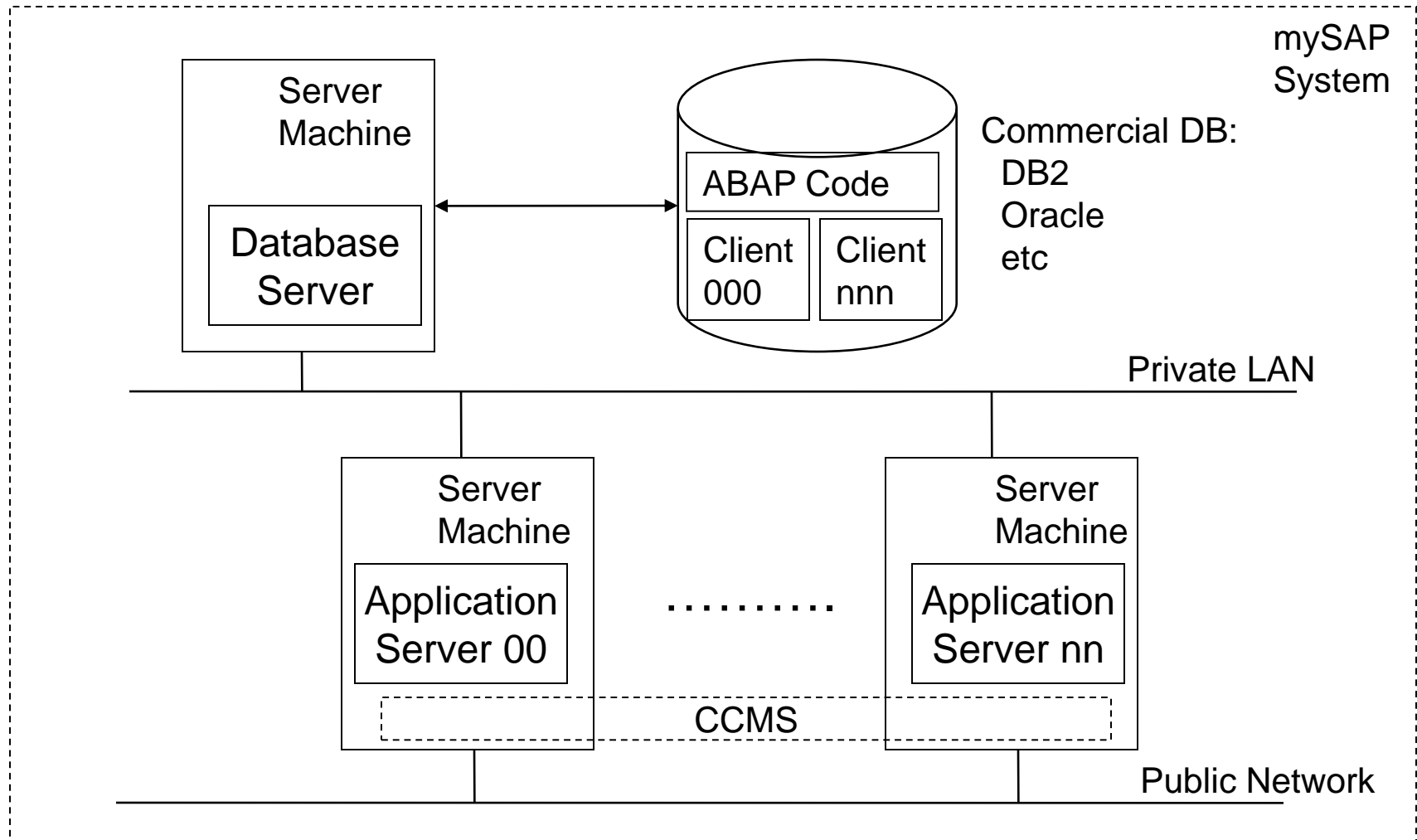
# Concepts and Architecture

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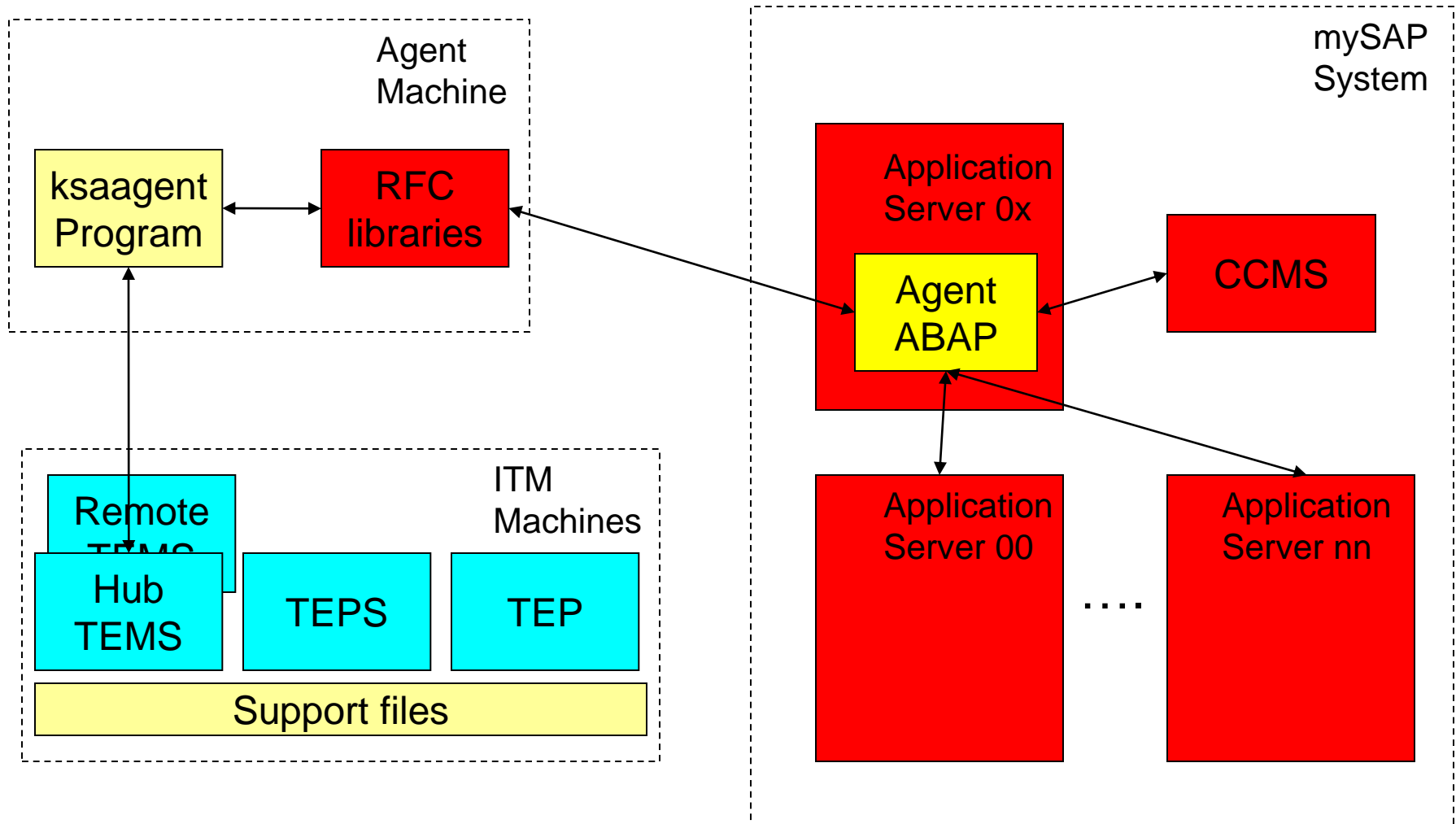
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# mySAP system architecture refresher



# Agent architecture 1: Major components



# What got installed with agent

## Windows

### Files

- ksaagent.exe – agent executable program
- KSAENV – file with starting set of environment variables
- KSA.INI – file with starting set of registry variables

### Managed Tivoli Enterprise Monitoring Services window

- Template for Monitoring Agent for mySAP Agent

## UNIX

### Files

- ksaagent – agent executable program
- ksa.ini – file with starting set of startup variables
- ksa.cfg – file with starting set of startup variables

More about these files in “Configuration”



# mySAP system setup - transports

## Install transports

### What is installed

- ABAP code
- Default user ID: IBMMON\_AGENT
- Minimum authorization profile: ZITM\_610AUTH

### Unicode version

- Installs all code and Unicode support (for all languages)
- Name: IBMMON\_XXXXU
- Files: K620\_XXXXU.ITM and R620\_XXXXXU.ITM

### Non-Unicode version

- Installs all code and non-Unicode support for Latin languages
- Name: IBMMON\_XXXXX
- Files: K620\_XXXXX.ITM and R620\_XXXXX.ITM
- Additional steps required to install non-Unicode double-byte languages

## Delete transports

Removes ABAP from mySAP system

Does not remove user ID and authorization profile

## Other requirements – mySAP setup

### COLLECTOR\_FOR\_PERFORMANCE batch job

- Refer to SAP note 16083
- Function needed to support Workload Performance workspaces and related situations

### Oracle data collection

Refer to SAP notes 591801 and 713211

OSS notes clean up Oracle database statistics

- With notes: agent reports about 40,000 rows for Oracle
- Without notes: agent can report 2.5 million rows for Oracle

### OS collect

Uses the saposcol SAP program to collect OS metrics

- Most SAP Administrators familiar with setting this up
- Must be running on each application server instance
- Function needed to support Operating System and File Systems workspaces

# Remote Function Call (RFC)

Programs communicate with mySAP using APIs provided by SAP

APIs connect to a mySAP system based on a host name and a port

Program can reside anywhere as long as it has network connectivity to the mySAP servers

RFC calls are secure

Requires user ID and password to logon

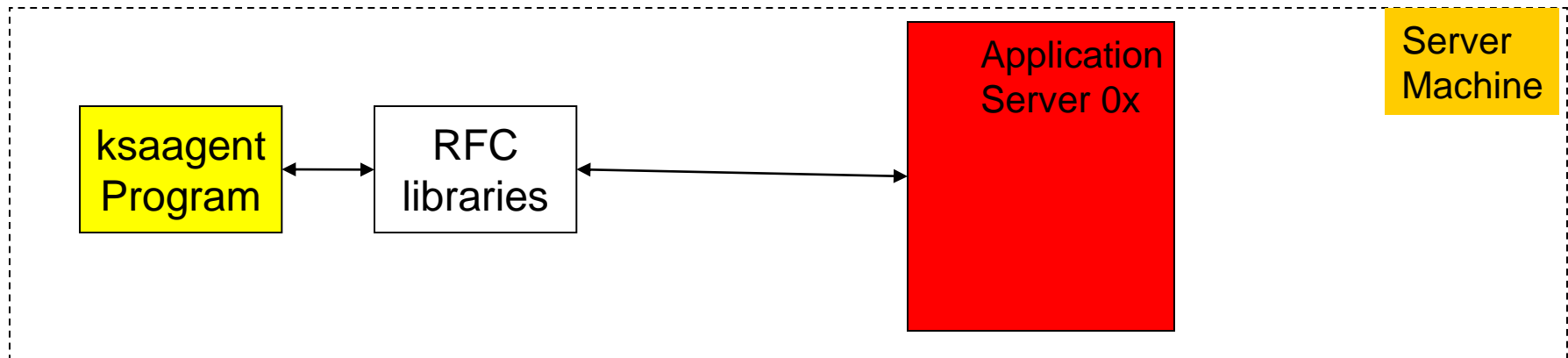
Requires a mySAP “client” number

Supports login with different languages

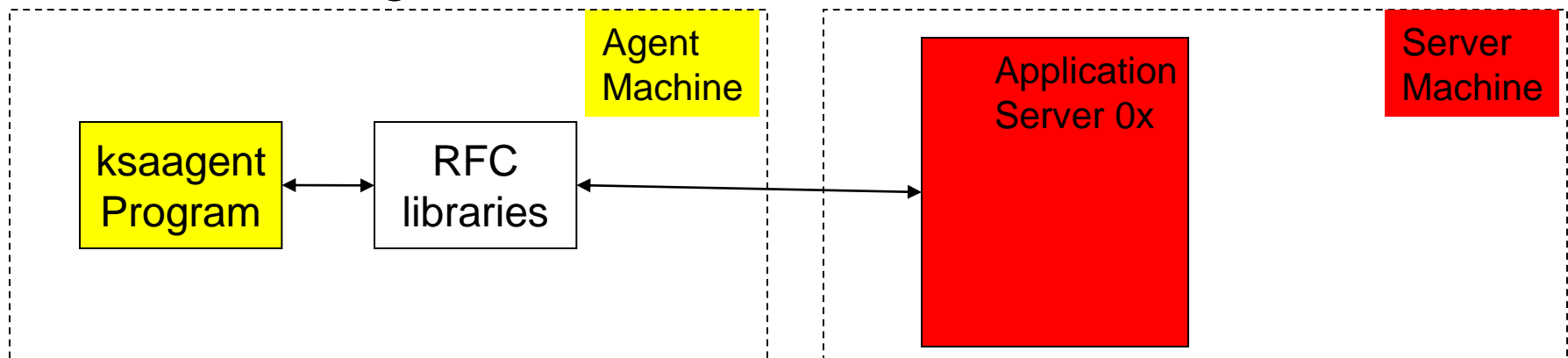
Most configuration steps for the mySAP agent are focused on getting the RFC logon information

# Local/Remote management

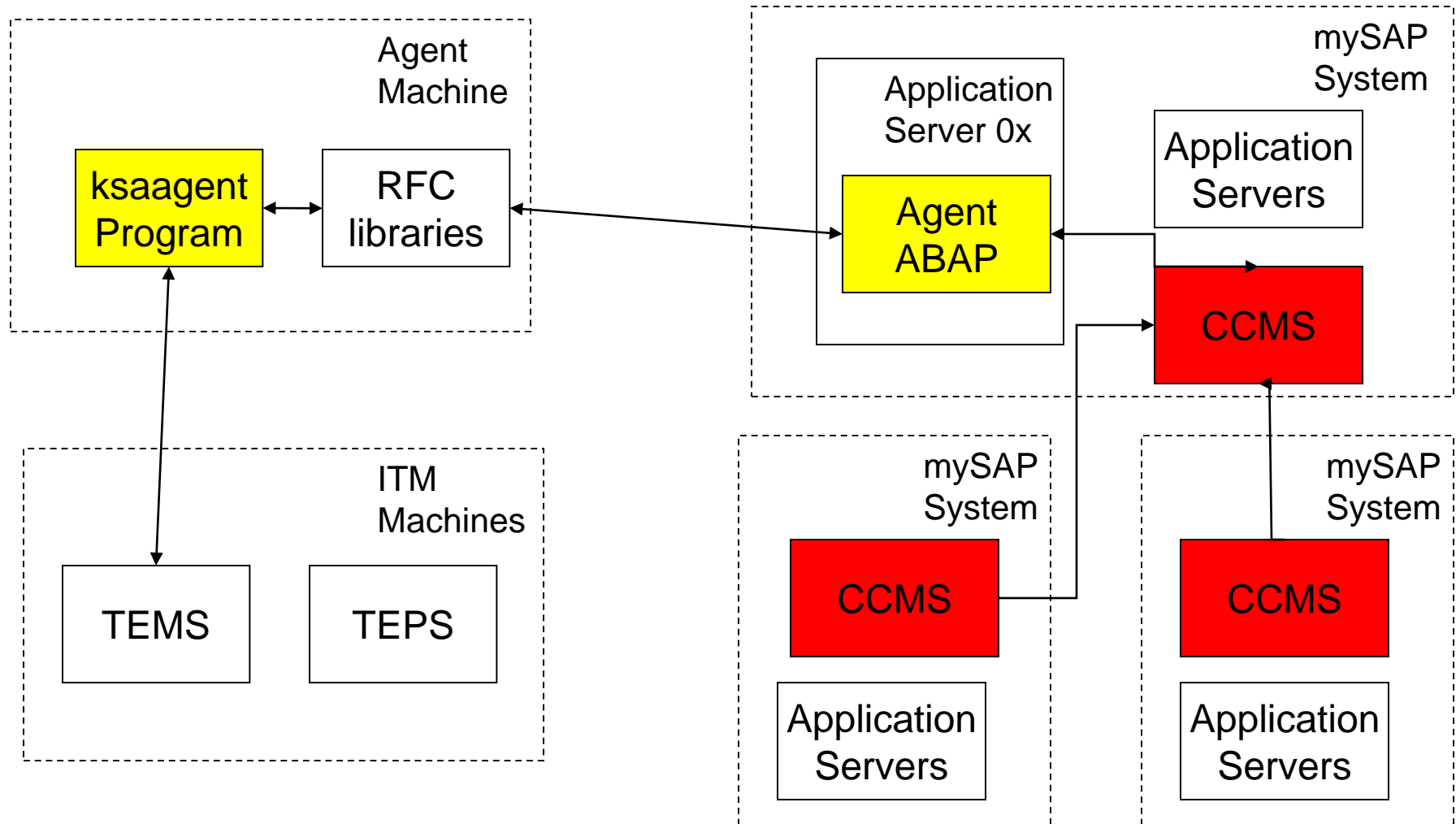
## Local Management



## Remote Management



# Centralized CCMS



# Centralized CCMS

Leverage SAP capability of CCMS's across mySAP systems reporting to one CCMS

Optional setup in CCMS

Applies only to alerts in CCMS MTE tree

mySAP Agent supports Centralized CCMS

Special Groups in the ABAP

Special :Grp Navigator nodes

- <Local\_SID>-All\_CCMS\_alerts:Grp
- <Local\_SID>-<Remote\_SID>\_CCMS\_alerts:Grp

Possible to see alerts in two Navigator nodes

Agent monitoring remote system

Centralized system

Can edit group definitions in mySAP system to remove one set

- Refer to Users Guide

# V6 Agent Features

## ITM V6 Agent

- ▶ One agent per SAP system
- ▶ Agent discovers all the mySAP application servers by querying the mySAP system
- ▶ Agent creates managed systems (sub-nodes) for each mySAP application server found
  - Created when agent starts
  - Updated while agent is running when new application servers started or go offline

# Capabilities

Agent does not have to run on same computer as the mySAP server

Agent communicates via RFC calls

Operationally, remote management behaves exactly like local management

Agent has no knowledge that it is remote

Agent does not do special processing because it is remote

Differences are in the installation/configuration steps

Install the agent on a computer that is not a mySAP server

When configuring the agent, give it a mySAP server name that is not the name of the local installed computer

Differences are in problem determination

Network problems are much more obvious with remote management

- Firewalls can prevent RFC logon
- Network device failures can cause agent to lose RFC connection

Differences in TEP view when not connecting

Agent reports name as local host, not the host of the target mySAP system





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# Agent Configuration

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# Agent Configuration

- Parameters added to support 'fail over' between various application servers in a system, such as
  - ▶ Application servers on different hosts, with the same gateway port
  - ▶ Application servers on the same host with different gateway ports
  
- ITM 6.2 configuration provides Primary, Alternate1, Alternate2 parameters for the following
  - ▶ host name
  - ▶ system number
  - ▶ gateway name
  - ▶ gateway service

# Agent Configuration

- Alternate 1/Alternate 2
  - Backup connections for instance and gateway
- Service/port numbers are one-one with corresponding host
- Primary values for Host name, Gateway, etc. show the 1<sup>st</sup> connection choice
- Alternate1 values will be used if agent cannot connect with the Primary setting

The screenshot shows the 'mySAP System Information' and 'mySAP Logon Information' sections of the configuration window. The 'mySAP System Information' section has three columns: Primary, Alternate 1, and Alternate 2. The 'mySAP Logon Information' section includes fields for Client number, User ID, Password, Password File, and Language. There are also checkboxes for RFC Trace and a button to View RFC Trace.

	Primary	Alternate 1	Alternate 2
Identifier:	QA1		
Host name:	saptst01	saptst02	saptst02
System number:	00	00	01
Gateway name:	saptst01	saptst02	saptst02
Gateway Service:	3300	3300	3301

mySAP Logon Information

Client number: 000

User ID: IBMMON\_AGENT

☒ Password:  ☐ Password File:

Language: EN

☐ RFC Trace

OK Cancel



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# Serviceability Improvements

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## ABAP / Agent Compatibility

- mySAP agent consists of two main components
  - ▶ ITM agent – installed on any supported OS
  - ▶ Agent transport (ABAP) – imported into SAP system
- Agent and transport share structure knowledge for each attribute group
  - ▶ Two main components must match in regards to attribute group structures

### In ITM 6.1

- Agent died due to memory alignment issues with NO error to RAS1 log

### ITM 6.2 Improvements

- ▶ At startup, agent verifies its structure sizes with the ABAP structure sizes
- ▶ A mismatch is flagged in:
  - RAS1 log
  - New Agent Log workspace
- ▶ Agent continues to run, no data returned for affected attribute groups only
  - ABAP Version Mismatch line in workspace views

# ABAP Version Check RAS1 output

- 0:itm\_data.cpp,630,"itm\_data") ABAP version information: required: ITMK620\_00035, found: ITMK620\_00032
- (47135546.0014-C90:itm\_data.cpp,794,"itm\_data") itm\_data: ABAP Check: FUNCTION-NAME                      Size-C   Size-A   Status
- (47135546.0015-C90:itm\_data.cpp,795,"itm\_data") itm\_data: ABAP Check: -----
- (47135546.0016-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_ALERTS                      2326   2326   0
- (47135546.0017-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_CONFIG                      1397   1397   0
- (47135546.0018-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_MAP                      681   681   0
- (47135546.0019-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_OS\_PERF                      608   608   0
- (47135546.001A-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_RESP\_TIME                      554   554   0
- (47135546.001B-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_TRAN\_PERF                      1036   1036   0
- (47135546.001C-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_JOBS                      916   916   0
- (47135546.001D-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_JOB\_LOG                      1128   1128   0
- (47135546.001E-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_CTS                      858   858   0
- (47135546.001F-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_CTS\_OBJECTS                      591   591   0
- (47135546.0020-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_CTS\_STEPS                      526   526   0
- (47135546.0021-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_CTS\_LOG                      910   910   0
- (47135546.0022-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_SYS\_LOG                      999   999   0
- (47135546.0023-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_SYS\_DETAIL                      1021   1021   0
- (47135546.0024-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_SPOOL                      758   758   0
- (47135546.0025-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_OUTPUT                      985   985   0
- (47135546.0026-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_FILE\_SYSTEM                      840   840   0
- (47135546.0027-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_BUFFER\_PERF                      641   641   0
- (47135546.0028-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_BDC                      649   649   0
- (47135546.0029-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_BDC\_LOG                      1618   1618   0
- (47135546.002A-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_ORA\_SUMMARY                      529   529   0
- (47135546.002B-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_ORA\_DETAIL                      541   541   0
- (47135546.002C-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_R3\_ACTION                      936   936   0
- (47135546.002D-C90:itm\_data.cpp,803,"itm\_data") itm\_data: ABAP Check: /IBMMON/ITM\_SET\_PERIOD                      378   378   0

# New Agent Log Workspace

- Located at the agent level (:mySAP) navigator node
- Not the default workspace for that node
- Provides information about the monitoring agent connection to the mySAP system
  - ▶ Previously only provided in RAS1 logs
  - ▶ Or not provided at all
- Shows the following types of conditions:
  - ▶ Agent connected and fully operational
  - ▶ Connection established, but incompatible versions between the agent code and the installed mySAP agent transport
  - ▶ Failure to connect to the mySAP system, with detailed messages describing the connection failure
    - Incorrect agent configuration for hostname, instance number, user ID, or client number
    - Network connection problems or firewall problems between systems, if using remote management
    - Locked or undefined user ID
    - Incorrect password

# New Agent Log Workspace - Example 1

The screenshot shows the 'Agent Log - WSCCandle - SYSADMIN' window. The 'Navigator' pane on the left displays a tree structure of managed systems. A red circle highlights the window title. A red arrow points from a text box to the 'TV1-amsaix11:mySAP' node in the tree, with the text 'Workspace off of top-level agent node'. The 'Agent Log' pane at the bottom shows a table with columns: Global Timestamp, Message Number, and Managed System Type. The second row contains an error message: 'amsaix11.tivlab.raleigh.ibm.com\_TV1\_00: Name or password is incorrect. Please re-enter', with the message number 'KSA5000E' highlighted in red.

Agent Log - WSCCandle - SYSADMIN

File Edit View Help

Navigator

View: Physical

- UNIX Systems
  - aquarius
    - mySAP Agent
      - wsc-amsaix11:mySAP
        - mySAP
          - TV1-amsaix11\_TV1\_00:Ins
          - TV1-amsaix11\_TV1\_01:Ins
          - TV1-amsaix11:Sys
- Windows Systems
  - WSCCANDLE
    - mySAP Agent
      - TV1-amsaix11:mySAP
      - TV3-amsaix26:mySAP
  - Windows OS

Physical

Agent Log

Global Timestamp	Message Number	Managed System Type
10/10/07 15:32:42	KSA5200I	Agent started.
10/10/07 15:32:42	KSA5000E	amsaix11.tivlab.raleigh.ibm.com_TV1_00: Name or password is incorrect. Please re-enter

Hub Time: Wed, 10/10/2007 03:59 PM Server Available Agent Log - WSCCandle - SYSADMIN



## Agent Log Workspace - Example 2

Agent Log - WSCCandle - SYSADMIN

File Edit View Help

Navigator

View: Physical

- TV1-amsaix11\_TV1\_00:Ins
- TV1-amsaix11\_TV1\_01:Ins
- TV1-amsaix11:Sys
- Windows Systems
- WSCCANDLE
  - mySAP Agent
    - TV1-amsaix11:mySAP
    - TV3-amsaix26:mySAP
- Windows OS

Physical

Agent Log

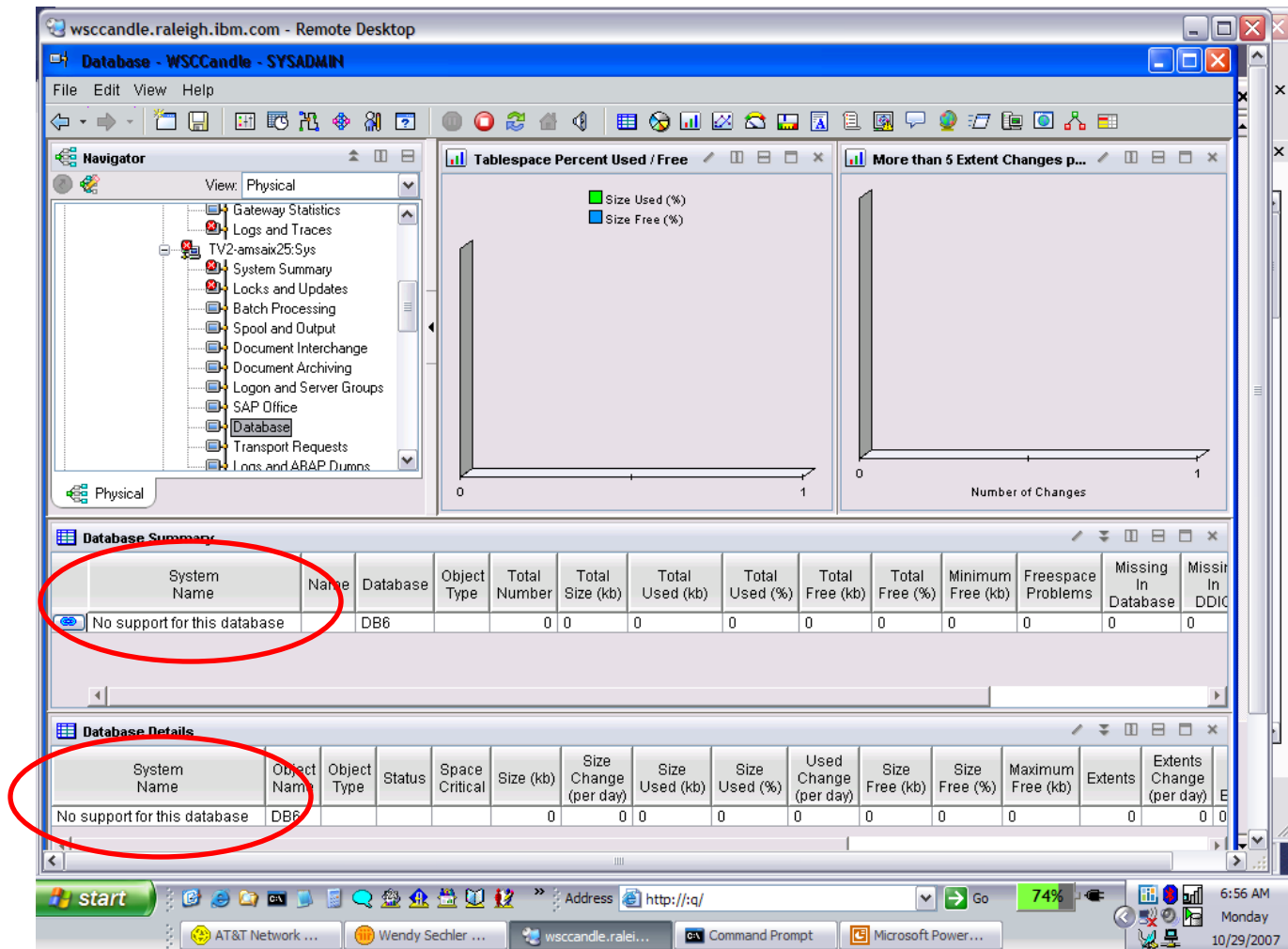
Global Timestamp	Message Number	Managed System Type
10/08/07 13:24:03	<b>KSA5002E</b>	ABAP structure mismatch: required: ITMK620_00034, found: unsupported version
10/08/07 13:24:03	KSA5200I	Agent started

Hub Time: Wed, 10/10/2007 04:08 PM Server Available Agent Log - WSCCandle - SYSADMIN

## Status Messages in Workspace Views

- System Name (SID) attribute exists in all attribute group
- System Name exposed in all agent defined queries/workspaces
- Agent uses it to display one information row in workspace views via ENUM capability
  - ▶ No\_applicable\_data
  - ▶ SAP\_OS\_collector\_not\_running
  - ▶ Instance\_not\_running
  - ▶ Data\_collection\_disabled
  - ▶ Instance\_or\_Group\_does\_not\_exist
  - ▶ RFC\_Error\_Check\_Agent\_Log
  - ▶ ABAP\_Version\_Mismatch
- Include System Name when creating custom queries and workspaces to benefit from this error reporting mechanism

# Status Messages in Workspace Views (2)



## Status Messages in Workspace Views (3)

The screenshot displays the 'Transactional RFC - WSCandle - SYSADMIN' workspace. The 'Navigator' pane on the left shows a tree view with 'Physical' selected. The 'Transaction Count by Transacti...' and 'Transaction Count by Target' charts are empty. The 'Transactional RFC Information' table is shown below, with the first row containing 'No applicable data'. A red circle highlights the 'System Name' and 'Send Receive' columns.

System Name	Send Receive	Userid	Function Module (Unicode)	Target Name (Unicode)	Time	Status (Unicode)	Transaction Id	Hostname	Transaction Code (Unicode)
No applicable data									

# SAP System Info in RAS1

- The following sysinfo lines are now printed to the \*-01.log files
- When collecting RAS1 logs, always get the \*-01 log for this reason

```
0:itm_data.cpp,202,"log_rfc_ip_address") RFC Statistic: RFC-RC          = '0'
(47135546.0001-C90:itm_data.cpp,206,"log_rfc_ip_address") RFC Statistic: statistic      = '0'
(47135546.0002-C90:itm_data.cpp,208,"log_rfc_ip_address") RFC Statistic: ip address     = '9.27.170.156'
(47135546.0003-C90:itm_data.cpp,209,"log_rfc_ip_address") RFC Statistic: remote ip address = '9.42.20.42'
(47135546.0004-C90:itm_data.cpp,210,"log_rfc_ip_address") RFC Statistic: destination    = 'WSCCandle'
(47135546.0005-C90:itm_data.cpp,211,"log_rfc_ip_address") RFC Statistic: remote destination = "
(47135546.0006-C90:itm_data.cpp,581,"itm_data") itm_data: SAP system info: Sap_version   = 620
(47135546.0007-C90:itm_data.cpp,585,"itm_data") itm_data: SAP system info: Sap_patchlevel = SAPKB62049
(47135546.0008-C90:itm_data.cpp,589,"itm_data") itm_data: SAP system info: Sap_kernel    = 620
(47135546.0009-C90:itm_data.cpp,593,"itm_data") itm_data: SAP system info: Sap_kernel_level = 1509
(47135546.000A-C90:itm_data.cpp,597,"itm_data") itm_data: SAP system info: Os_type       = AIX
(47135546.000B-C90:itm_data.cpp,601,"itm_data") itm_data: SAP system info: Os_level      = 5.2
(47135546.000C-C90:itm_data.cpp,605,"itm_data") itm_data: SAP system info: DB_type       = ORACLE
(47135546.000D-C90:itm_data.cpp,609,"itm_data") itm_data: SAP system info: ITM_version    = 06
(47135546.000E-C90:itm_data.cpp,613,"itm_data") itm_data: SAP system info: ITM_release   = 02
(47135546.000F-C90:itm_data.cpp,617,"itm_data") itm_data: SAP system info: ITM_fixpack   = 00
(47135546.0010-C90:itm_data.cpp,621,"itm_data") itm_data: SAP system info: ITM_lafix     = 00
(47135546.0011-C90:itm_data.cpp,625,"itm_data") itm_data: SAP system info: ITM_transport = ITMK620_00032
(47135546.0012-C90:itm_data.cpp,628,"itm_data") itm_data: SAP system info: ITM_transp. req. = ITMK620_00035
```



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# Agent Performance

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## Performance – Workspace Display Times (1)

- Current **agent design** results in the TEP workspace queries being processed from the same same FIFO queue as situation and Historical Data Collection (HDC) queries
- This can sometimes result in slower display times for TEP workspace views

### Background Information on ITM agent design

- The ITM mySAP agent receives data collection requests from 3 different sources:
  - ▶ **mySAP agent situation** Data collection requests come into the agent at the Situation Sampling Interval specified in the situation editor
  - ▶ **Historical data collection (HDC)** for a particular mySAP attribute group. Data collection requests come into the agent at the "Collection Interval" specified in the History Collection Configuration dialog (5 minutes, 15 minutes, 30 minutes, or 1 hour)
  - ▶ **Workspace query** Customer opens a mySAP agent workspace on the TEP
- The agent receives and processes each data collection request **serially**
  - ▶ If a customer opens a workspace, the data collection request to populate that workspace's tables and charts may have to wait behind other data collection requests that came in from a situation or HDC
  - ▶ A delay on collecting say CCMS alerts could affect the display of another, seemingly unrelated workspace

## Performance – Workspace Display Times (2)

- Workspace performance is affected by the number of instances in the SAP system being monitored

### Background Information on ITM agent designs

- When situations and HDC data collection requests come in for instance specific attribute groups (:Ins), the amount of work (and time) required to collect the data is **directly related to the number of instances**
  - ▶ Example: Work Processes, File Systems, Alerts, Service Response Time
- For example, if HDC is turned on for an instance specific attribute group, such as R/3 Transaction Performance, the agent must collect data for each instance in the mySAP system. On an SAP system with 10 instances, this is 10 times the amount of work than on an SAP system with only 1 instance.



## Performance – Workspace Display Times (3)

### Possible Action

- Customer can open Enhancement Request asking that this design point be changed
  - ▶ Dependent on ITM Infrastructure changes
- Turn on HDC and situations for “expensive” attributes groups on an “as needed” basis to fine tune performance
  - ▶ R/3 Transaction Performance
  - ▶ R/3 Service Response Time
  - ▶ R/3 Alerts



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# Diagnostics

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A horizontal decorative bar spanning the width of the slide, composed of various colored squares and patterns, including a white asterisk on a red background, a woman's face, and a grid of dots.

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## mySAP Programs – sampling/data collection

Program Name	Function
ksaagent	service – main agent program
ksar3exe.exe / ksar3exe	utility – run a function in the mySAP system
ksar3nfy.exe / ksar3nfy	utility – send mail to a mySAP user ID
ksar3pwd.exe / ksar3pwd	utility – create encrypted password
ksar3.bat / ksar3.sh	wrapper for ksar3exe
ksanfy.bat / ksanfy.sh	wrapper for ksar3nfy
ksapwd.bat / ksapwd.sh	wrapper for ksar3pwd
sa_xa	utility - remote deploy and configuration

/IBMMON/ITM\_xxx

ABAP programs and function modules

# Data to collect for problems

Always collect the following customer's SAP environment information

- Type of mySAP system (R/3, BW, CRM, APO etc)
- Basis release of mySAP system
- Database of mySAP system
- Operating system of mySAP system
- Operating system of ksaagent
- Product transport request number

Collect the following information for import errors

- When ITMK620\_nnnnn import errors are reported obtain all the import log files.
- When a missing or incomplete ZITM\_610AUTH profile is reported obtain all the import logs and screen prints of the ZITM\_610AUTH profile contents

Collect the following for ABAP short dumps

- When a short dump is reported obtain the full dump and the associated syslog messages.
- When syntax errors are reported obtain the syslog messages and full short dump (if one was created)

Collect the following for syslog and RFC connection problems

- When syslog messages are reported obtain a screen print or download of the

- When RFC or connection failures are reported obtain the agent log and the SAP syslog

# Where to find data in mySAP system

Summary of SAP obtainable trouble shooting information.

- Syslog (SM21)
- Short dumps (ST22)
- ITMK620\_nnnnn transport import logs (from /usr/sap/trans file system)
- Developer trace files (from SAP work directory file system.
- Oracle trace files (from Oracle saptrace subdirectories file systems)

## Log file information (1)

- Agent framework log
  - ▶ <instance>\_<hostname>\_mySAP.LG0
- Agent RAS1 log:
  - ▶ <hostname>\_sa\_<instance>\_ksaagent\_<time>-01.log
  - ▶ KBB\_RAS1 options
    - mySAP agent RAS1 tracing: (UNIT:KSA ALL)
    - Agent framework RAS1 tracing (UNIT:KRA ALL)
    - Remote deploy RAS1 tracing: (UNIT:KDY ALL)
- Installation/upgrade call point logs
  - ▶ <install\_dir>\InstallITM\plugin\executionEvents\logs\<time>\install\scratch\sa
  - ▶ <install\_dir>\InstallITM\plugin\executionEvents\logs\<time>\install\postconfig\sa
- OTEA logs (for event mapping problems)
  - ▶ (UNIT:kfaot all) trace
  - ▶ TEMS log: <tems\_hostname>\_ms\_<time>\_01.log

## Log file information (2)

- KSATRACE

- ▶ Controls information printed to the RAS1 logs
- ▶ On MS Windows set in the Registry
- ▶ On Unix Systems in the configuration file, sa\_<SID>.config
- ▶ *Bitmap*
  - 1=call to each function module
  - 2=clear text password printed to RAS1 log
  - 0=disables logging (default)
- May aid in debugging invalid user ID/password problems
- Not documented for customers, only for support use

# ABAP Transport Log Files

If agent provided transport fails to import into SAP system get the transport logs

- Files always in the transport log directory on SAP application server machine
  - ▶ /usr/sap/trans/log
  - ▶ \\server\sapmnt\trans\log
- File name format is **ITM?620\_000nn.sss** where
  - ▶ sss is the target system name
  - ▶ nn in the transport number
  - ▶ ? is one of the following single characters:
    - H - for data dictionary import
    - A - for data dictionary activation
    - I - for main import
    - V - for versioning
    - R - for XPRA (execute program after import)
    - G - for program/dynpro generation.
- Get all 6 complete logs (no excerpts)



# ABAP short dump files

Collecting ABAP dumps from the mySAP system

- Transaction ST22
- Select the dump to export
- Push the "Export" button
- Select the method and format for export
- Select the path into which to export the file
- Push the "Generate" button
- Retrieve the file from the path where it was saved

## RFC connection diagnostic techniques

- Refer to Notes with this slide for detailed approaches
- Check agent log workspace and RAS1 log for RFC connection problems
- Check for connection problems
  - ▶ Check hostname and application server instance number (port number)
  - ▶ Try fully qualified host names or IP addresses
  - ▶ Check for fire wall problems
  - ▶ If using remote management, try local management as debugging technique
- Check for logon problems
  - ▶ Locked user ID
  - ▶ Correct user ID, password, and client specified
  - ▶ Supported language specified
- For intermittent problems, check if server(s) restarted, or check with SAP Administrator for mySAP system problems

# RFC trace logs

RFC logs are created by SAP RFC libraries

## Contents

- Detailed control and data transfer between agent programs and the mySAP system
- Analysis assumes knowledge of mySAP and RFC
- Logs of last resort

## Locations

Located in directory ksaagent program starts

- Windows: %windir%\system32
- UNIX: < Candle\_home >/bin

## File names:

- Windows: dev\_rfc.trc
- UNIX: dev\_rfc.trc
- Or: rfc<pid>\_<threadid>.trc

## RFC trace – enable/disable

### Enabling

Via Windows GUI: Configure/Reconfigure => click “RFC Trace”

Via UNIX GUI: Configure => set “RFC Trace” to “1”

Via UNIX text edit:

- Open < Candle Home >/config/sa\_<SID>.config
- Set SAPTRACE=1
- Restart agent

### Disabling

Reverse of Enable steps

**NOTE:** Be sure to disable RFC tracing when not needed. RFC tracing can generate large files.

# ABAP is not viewable

ABAP code is not viewable

ABAP code is considered proprietary

- Gathering and reporting techniques are intellectual property
- Code is prevented from being displayed in customer systems

Repairs to code must come from IBM

Under extreme conditions, privileges may be extended to customers to view the ABAP code.

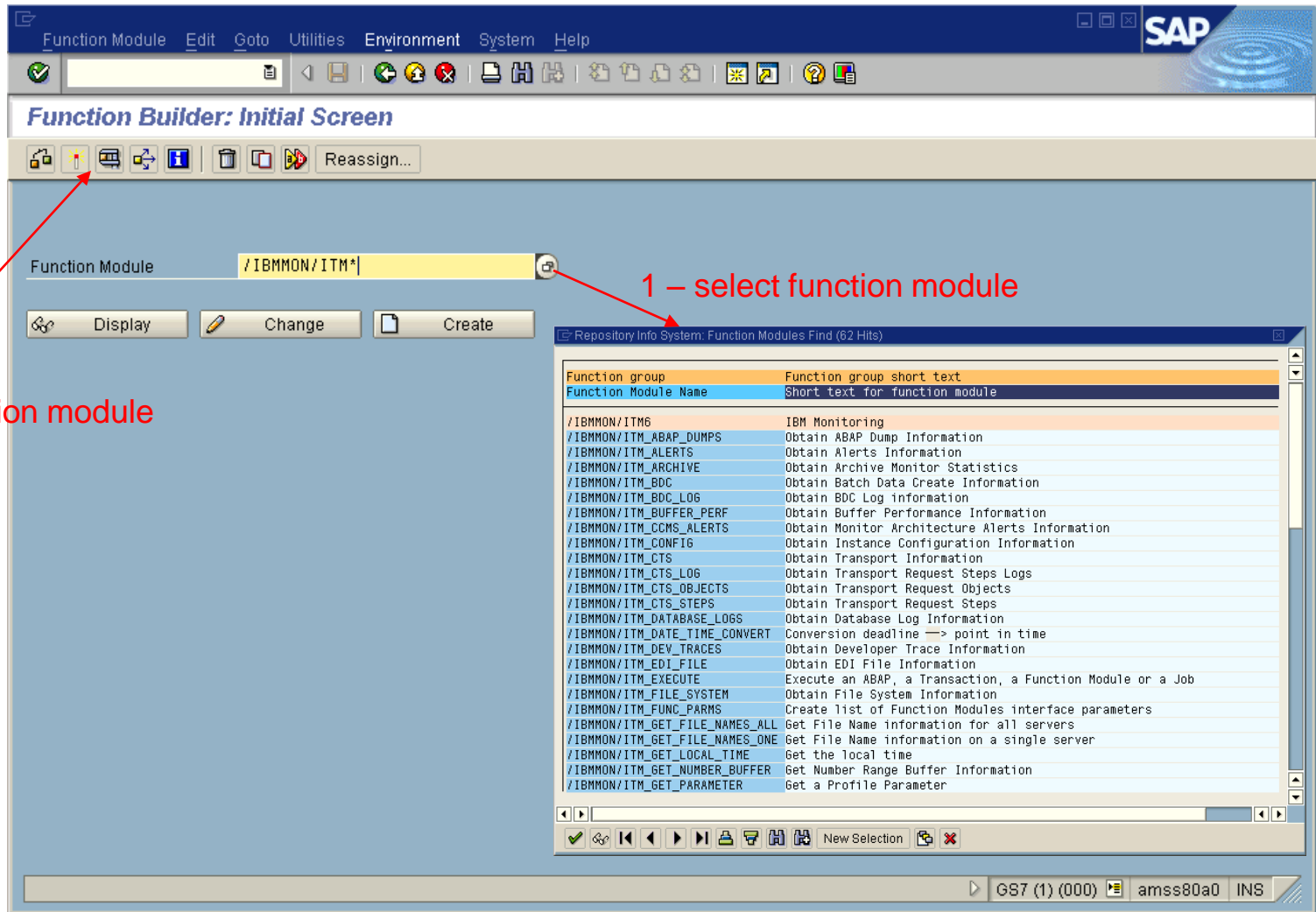
# ABAP diagnostic techniques

Refer to Notes with this slide for detailed approaches

When invoking /IBMMON/ITM\_CONFIG transaction, be sure to preface transaction with /n or /o

Run function modules directly in mySAP system

# Use transaction SE37



# Attribute Group Name Mapping

Attribute Group Name	Table Name	Function Module Name	Time Span
R/3_ABAP_Dumps	KSADUMPS	/IBMMON/ITM_ABAP_DUMPS	Yes
R/3_Active_Users	KSAUSERS	/IBMMON/ITM_USERS	No
R/3_Alerts	KSAALERTS	/IBMMON/ITM_ALERTS	Yes
R/3_Archive_Monitor	KSAARCHIVE	/IBMMON/ITM_ARCHIVE	No
R/3_Batch_Data_Create	KSABDC	/IBMMON/ITM_BDC	Yes
R/3_Batch_Data_Create_Log	KSABDCLOG	/IBMMON/ITM_BDC_LOG	No
R/3_Batch_Job_Logs	KSAJOBLOG	/IBMMON/ITM_JOB_LOG	No
R/3_Batch_Jobs	KSAJOBS	/IBMMON/ITM_JOBS	Yes
R/3_Buffer_Performance	KSABUFFER	/IBMMON/ITM_BUFFER_PERF	No
R/3_Data_Base_Detail	KSAORADTL	/IBMMON/ITM_ORA_DETAIL	No
R/3_Data_Base_Summary	KSAORASUM	/IBMMON/ITM_ORA_SUMMARY	No
R/3_Database_Logs	KSADBALOGS	/IBMMON/ITM_DATABASE_LOGS	Yes



# Attribute Group Name Mapping

Attribute Group Name	Table Name	Function Module Name	Time Span
R/3_Gateway_Connections	KSAGWYCONN	/IBMMON/ITM_GWY_CONNECTIONS	No
R/3_Gateway_Statistics	KSAGWYSTAT	/IBMMON/ITM_GWY_STATISTICS	No
R/3_Instance_Configuration	KSASYS	/IBMMON/ITM_CONFIG	No
R/3_Intermediate_Documents	KSAIDOCs	/IBMMON/ITM_IDOCs	Yes
R/3_Lock_Entries	KSALOCKS	/IBMMON/ITM_LOCKS	No
R/3_Logon_Groups	KSALOGNGRP	/IBMMON/ITM_LOGON_GROUPS	No
R/3_Logon_Information	KSALOGNINF	/IBMMON/ITM_LOGON_INFORMATION	Yes
R/3_Number_Range_Buffer_Details	KSANUMDTL	/IBMMON/ITM_NUM_DETAIL	No
R/3_Number_Range_Buffer_Summary	KSANUMSUMM	/IBMMON/ITM_NUM_SUMMARY	No
R/3_Operating_System_Performance	KSAOSP	/IBMMON/ITM_OS_PERF	No
R/3_Output_Requests	KSAOUTPUT	/IBMMON/ITM_OUTPUT	Yes
R/3_Perform_Requested_Action	KSAR3ACTN	/IBMMON/ITM_R3_ACTION	No

# Attribute Group Name Mapping

Attribute Group Name	Table Name	Function Module Name	Time Span
R/3_Set_Default_Sample_Period	KSAPERIOD	/IBMMON/ITM_SET_PERIOD	No
R/3_Spool_Requests	KSASPOOL	/IBMMON/ITM_SPOOL	Yes
R/3_System_Log	KSASLOG	/IBMMON/ITM_SYS_LOG	Yes
R/3_System_Log_details	KSASDETAIL	/IBMMON/ITM_SYS_DETAIL	No
R/3_Topology_Information	KSAMAP	/IBMMON/ITM_MAP	No
R/3_Transaction_Performance	KSATRANS	/IBMMON/ITM_TRAN_PERF	Yes
R/3_Transactional_RFC	KSATRANRFC	/IBMMON/ITM_TRAN_RFC	Yes
R/3_Transport_Logs	KSACTSLOG	/IBMMON/ITM_CTS_LOG	No
R/3_Transport_Objects	KSACTSOBJ	/IBMMON/ITM_CTS_OBJECTS	No
R/3_Transport_Requests	KSACTS	/IBMMON/ITM_CTS	Yes
R/3_Transport_Steps	KSACTSSTEP	/IBMMON/ITM_CTS_STEPS	No



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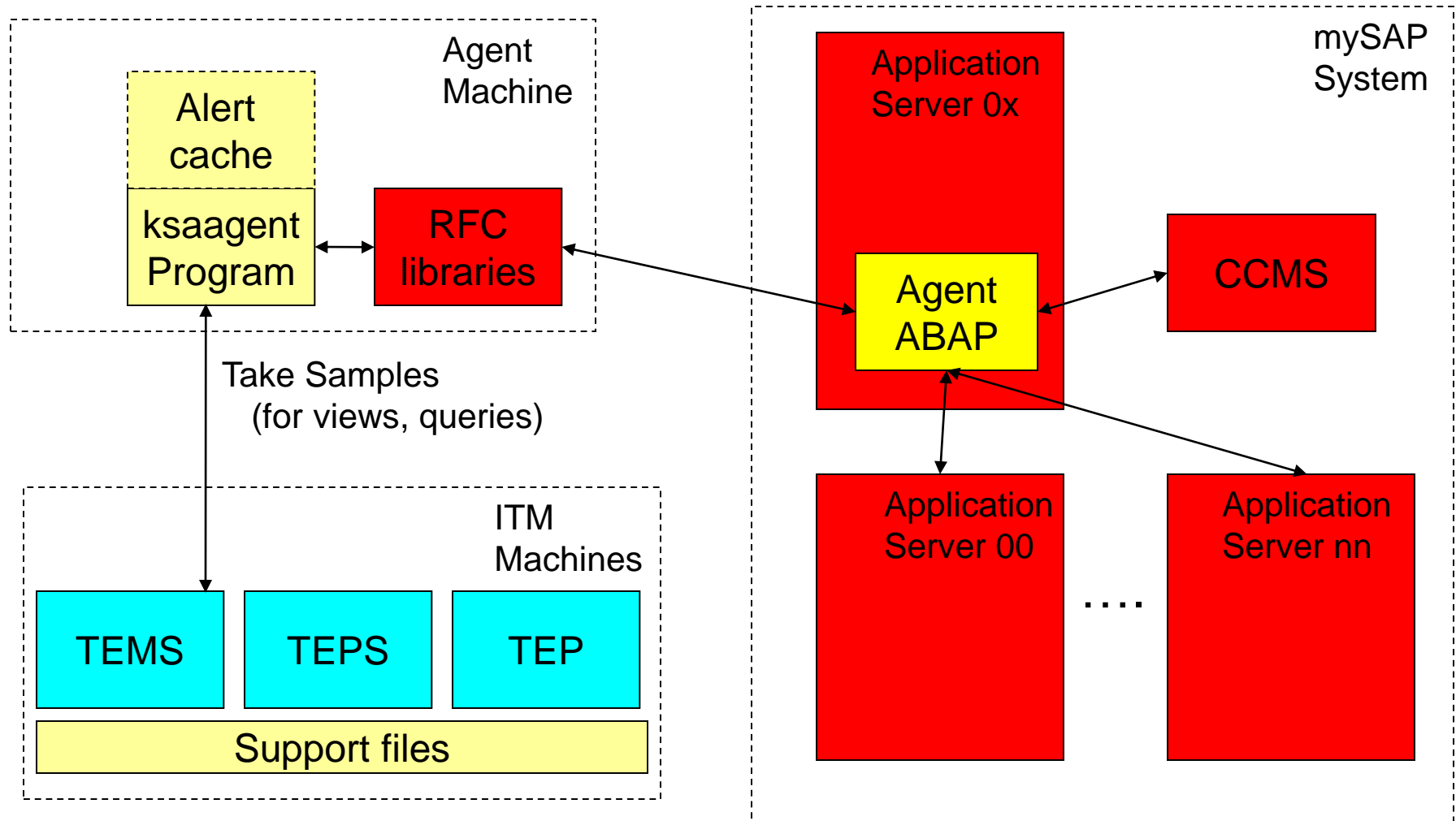
# Common mySAP Agent Problems

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## Agent architecture 2: View and queries



# Workspace diagnostic techniques

Refer to Notes with this slide for detailed approaches

Ensure the agent is running

Ensure the agent successfully connected to the mySAP system

Check for new Navigator entries

- Make sure support files installed on all ITM machines

- Check configuration of agent-TEMS connection

Check status of “greyed out” Managed Systems

For missing data, isolate problem

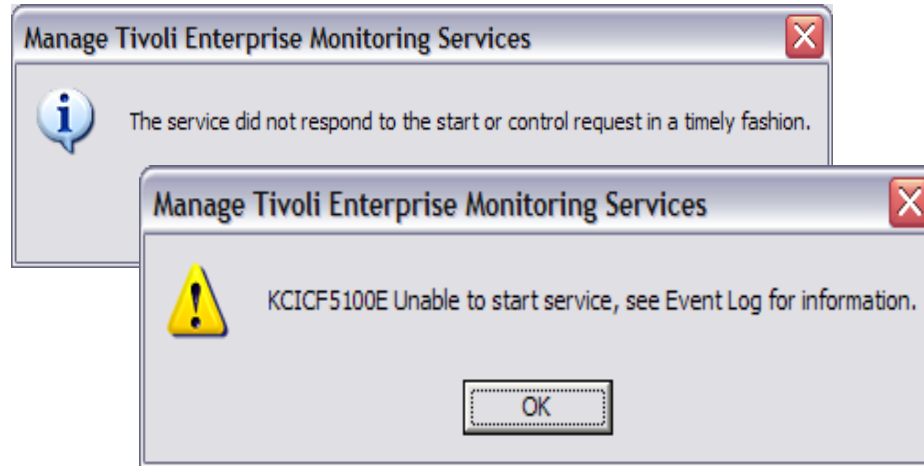
- If one or few workspaces, check mySAP syslog or try running functions via SAPGUI

- If no workspaces returning data, check RFC connection, logon parameters, transport install, mySAP release upgrade

Check if problem isolated to mySAP agent, or other agents having problems

- If all agents, possible TEMS, TEPS, or network problem

## Agent will not start on Windows



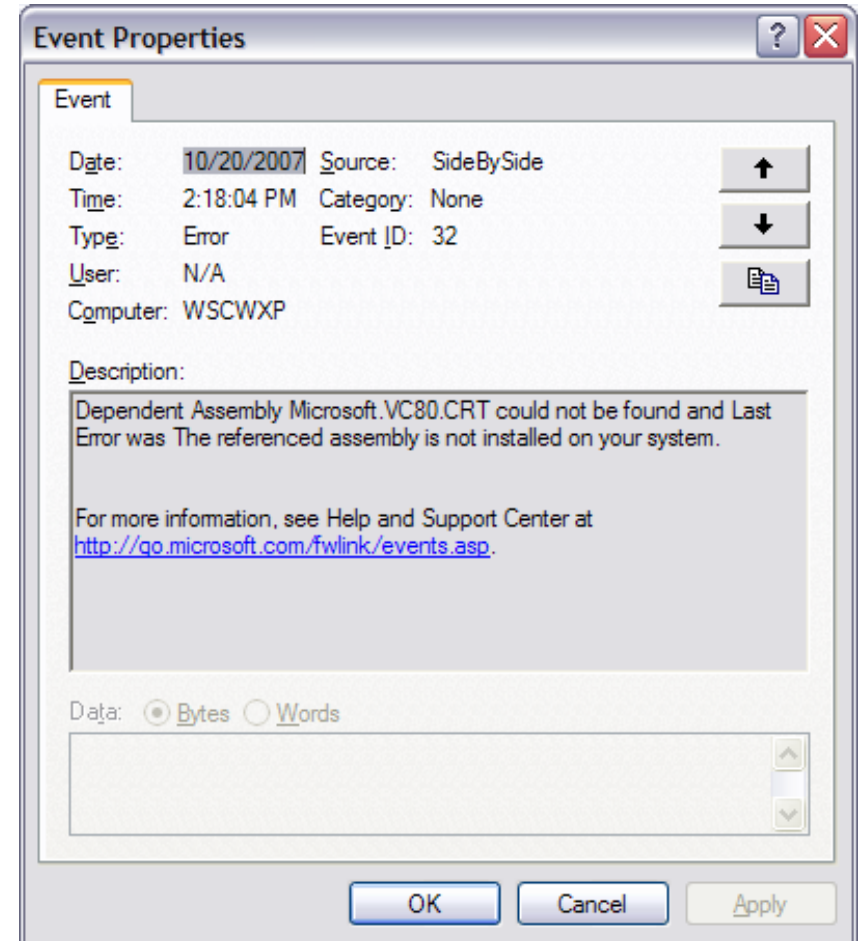
Analysis:

Missing Windows runtime pre-requisite

Resolution:

Install MS 8.0 C/C++ runtime (Microsoft Visual C++ 2005 Redistributable Version 8.0). The SAP RFC libraries used by the monitoring agent require this runtime.

See SAP note 684106.



# Agent will not start on RHEL 4.0 or SUSE 9.0

- Problem/Symptoms
  - ▶ On Linux systems, some instances of the monitoring agent do not start after upgrading
  - ▶ Unable to start agent message
- Analysis
  - ▶ Missing Linux runtime pre-requisites
- Resolution
  - ▶ Install Linux compatibility libraries that provide the libstdc++.so.6 library
  - ▶ The SAP libraries used by the monitoring agent require this compatibility library to be installed for the agent to run
  - ▶ See SAP note 1021236

# No Data in Performance Workspaces

- Resolution

- ▶ Set the SAP system time zone
- ▶ On SAP 7.0 systems, you must set the SAP system time zone to match the time zone for the operating system so that SAP statistics are collected with the correct timestamps. You must make this change for the Monitoring Agent for mySAP to successfully collect data.
- ▶ See SAP Note 926290 for more information about this issue



# Errors Importing Agent Transport (1)

- Problem/Symptoms
  - ▶ Customer attempts to rename transport to a short 10 character name/number
- Resolution
  - ▶ Customer must use transport names as shipped with mySAP agent
  - ▶ Renaming transport is not allowed

## Errors Importing Agent Transport (2)

- Problem/Symptoms

- ▶ Customer imports transport using command line tp command and points to an old tp parameter (aka tp profile) file
- ▶ Customer uses the tp parameter file named TPPARAM which is the old name prior to STMS
- ▶ Example:
  - > tp addtobuffer ITMK620\_00034 q01 pf=/usr/sap/trans/bin/**TPPARAM**  
**ERROR: : parameter ITMK620\_00034 has wrong length**

- Resolution

- ▶ If using tp, specify the tp parameter file in the /usr/sap/trans/bin directory which has name **TP\_DOMAIN\_<SID>.PFL** - where <SID> is the STMS domain controller system name

## Errors Importing Agent Transport (3)

- Problem/Symptoms

- ▶ Return code 8 or even return code 12 occurs on the main import step due to DYNPRO format incompatibility or export/import table (specifically table EUDB) incompatibility

- Analysis

- ▶ These errors occur if the R3trans program is old or Basis support package maintenance is low
- ▶ Get import log to determine R3trans version
- ▶ Ask customer basis support package level

- Resolution

- ▶ Upgrade R3trans program or Basis support level
- ▶ SAP notes describing the minimum R3trans and Basis support packages are documented in the User Guide
  - 330267, 454321, 330267, 743155

# Invalid Userid for RFC Connection

- Problem/Symptoms
  - ▶ Cannot logon to SAP system with default IBMMON\_AGENT user id
- Analysis
  - ▶ User IDs are SAP client specific. The transport must be imported into the same client that the agent is configured to logon to.
- Resolution
  - ▶ Re-import transport into the client to which the agent is configured to logon.
  - ▶ or
  - ▶ Re-configure agent and specify the client into which the transport was imported, and thus where IBMMON\_AGENT was created

# Error Connecting to SAP after upgrade

- Problem/Symptoms

- ▶ RFC Open error connecting to SAP system after upgrade
- ▶ Agent Log workspace / RAS1 logs show error:
- ▶ **"User WSECHLER has no RFC authorization for function group SYST\_"**

- Analysis

- New authorizations required in 6.2 transport

- Resolution

- If using the default role or profile (ITM610\_AUTH), ensure the you imported the 6.20 agent transport into the same client as the 6.10 agent transport so the default role/profile can be upgraded with new authorizations
- If using a custom role, add the needed authorizations, using the 6.20 role/profile as a model

# ABAP Mismatch / No data in some workspaces

- Problem/Symptoms
  - ▶ Some workspace views are blank
  - ▶ Table views report one row: “ABAP Version Mismatch”
  - ▶ Agent Log workspace reports: “ABAP Version Mismatch”
- Resolution
  - ▶ Check Agent Log workspace to determine needed version of ABAP
  - ▶ Import that version of the transport into the SAP system

# Application Servers not reported as offline

- Problem/Symptoms
  - ▶ Expected application server is not reported as being offline in the System Summary and Instance Summary workspaces when application server is down
- Analysis
  - ▶ Offline application servers are only reported by mySAP agent if they are defined in an operation mode.
- Resolution
  - ▶ Place application server in an operation mode within SAP

# Corrupted navigator tree

- Problem/Symptoms
  - ▶ Names of :mySAP MSNs are incorrect
  - ▶ :Ins and :Sys MSNs all appear under the same :mySAP MSN
- Analysis
  - ▶ The mySAP agent is a sub-node agent. It relies on being able to construct and associate its MSNs
  - ▶ When CTIRA\_HOSTNAME is set in the environment, the TEMA overrides the mySAP associations, resulting in the corruption
- Resolution
  - ▶ Do not set CTIRA\_HOSTNAME globally, e.g., in env.config
  - ▶ Do not set CTIRA\_HOSTNAME in the mySAP .ini and .config files
  - ▶ If a non-mySAP agent needs CTIRA\_HOSTNAME set, set it in that agent's configuration file
  - ▶ Restart agents after updating configuration files



# SAP Notes

Here is a list of SAP notes listed in these slides.  
SAP Basis Administrator at customer site should be aware of these.

- ▶ 330267
- ▶ 454321
- ▶ 684106
- ▶ 743155
- ▶ 792850
- ▶ 926290
- ▶ 1021236