



IBM Software Group

Tivoli Systems Management update

- rundt i Tivoli på 60 minutter

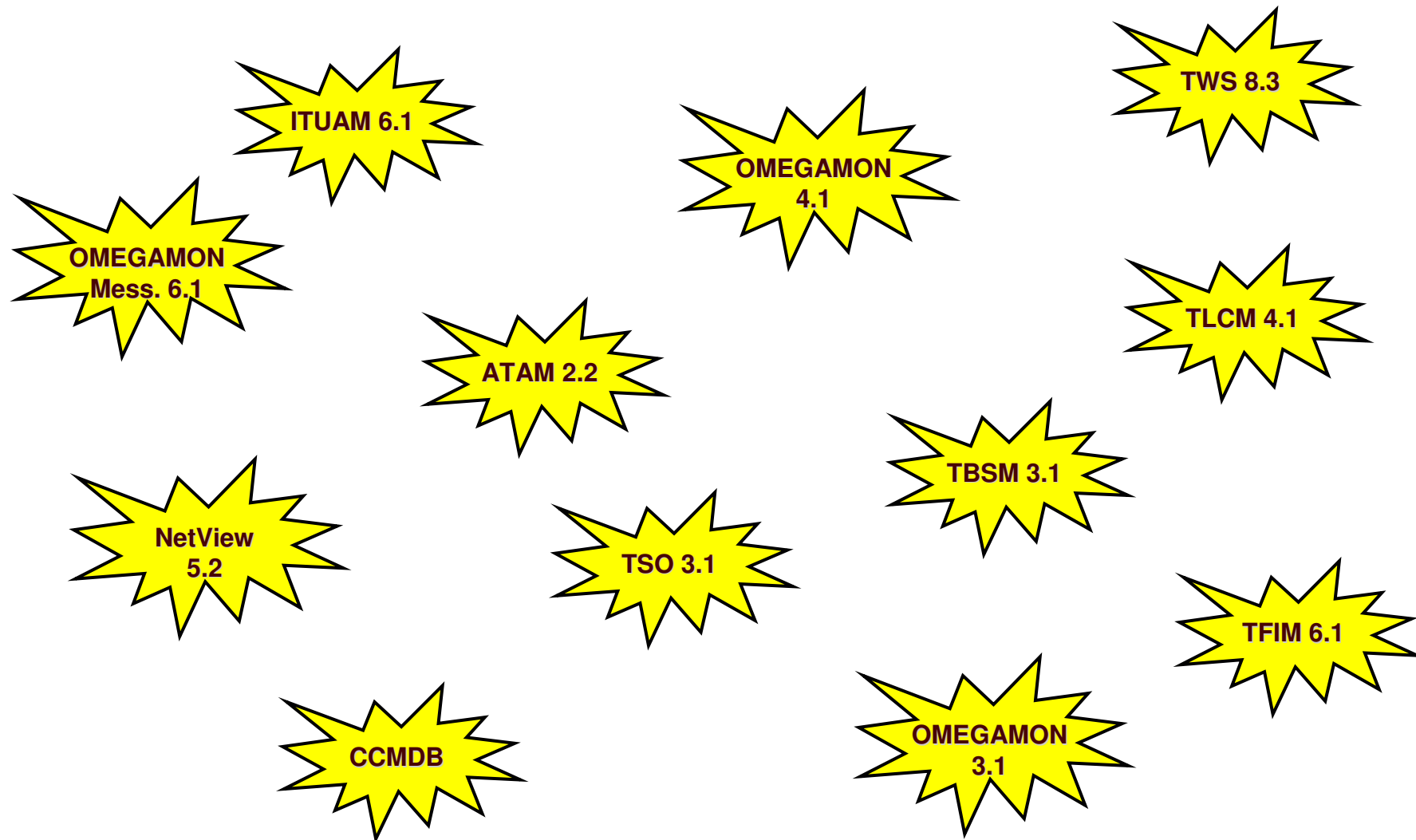
Tivoli software

Hans Peder Thomsen

Consultant IT Specialist, IBM Tivoli Danmark

@business on demand software

Væsentlige Tivoli zSeries nyheder siden LSU 2005



Agenda

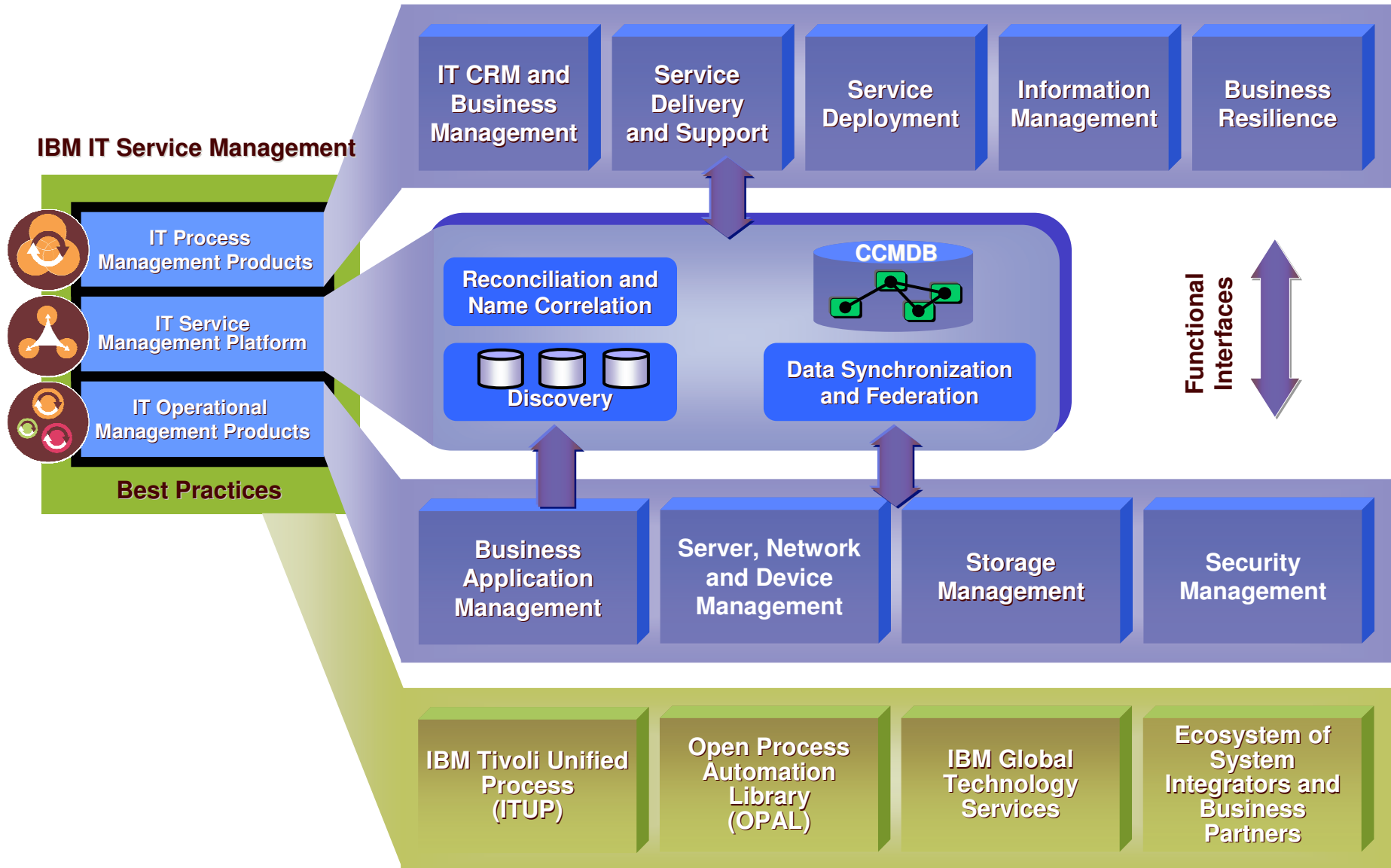
- **IT Service Management**
 - ▶ CCMDB
 - ▶ Process Managers

- **IBM Usage and Accounting Manager**

- **Tivoli OMEGAMON**
 - ▶ OMEGAMON z/OS Management Console
 - ▶ OMEGAMON XE for z/VM and Linux



A Comprehensive Approach to IT Service Management



A CMDB is More Than a Data Store

Data integration

- Integrates and shares data across complex organizational silos
- Proactively manages data currency and accuracy
- Is the true, authoritative source of record

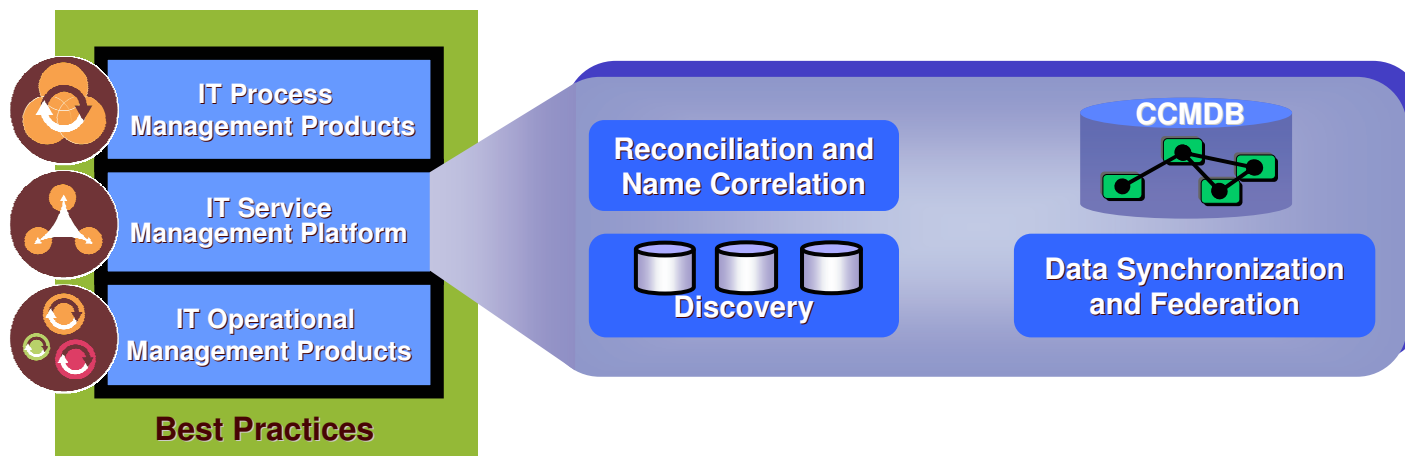
Workflow integration

- Is coupled with an automated change management process to ensure integrity and consistency of configuration items
- Increases coordination and data sharing

Policy integration

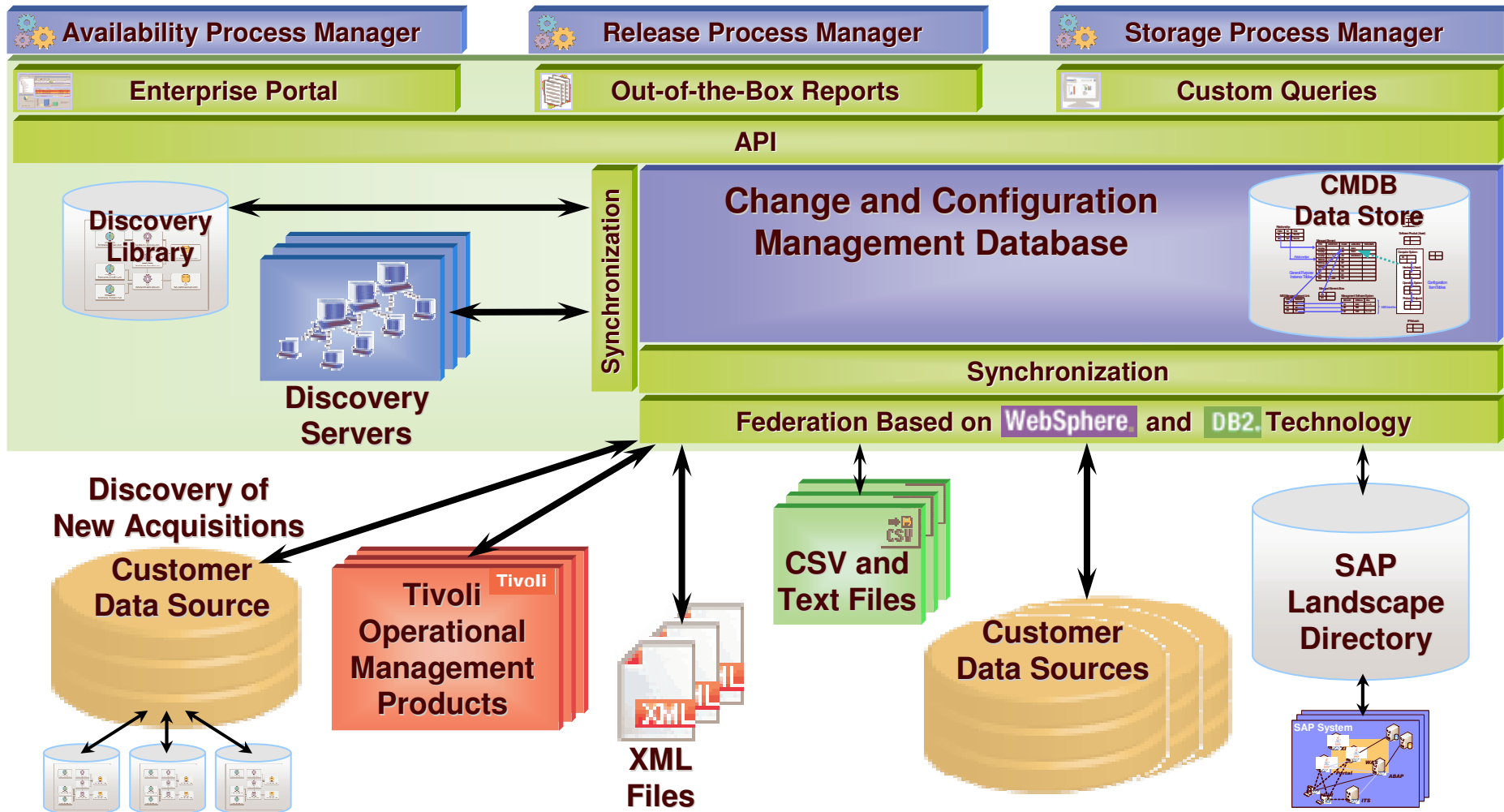
- Enforces policies to ensure compliance with internal and regulatory requirements

IBM IT Service Management



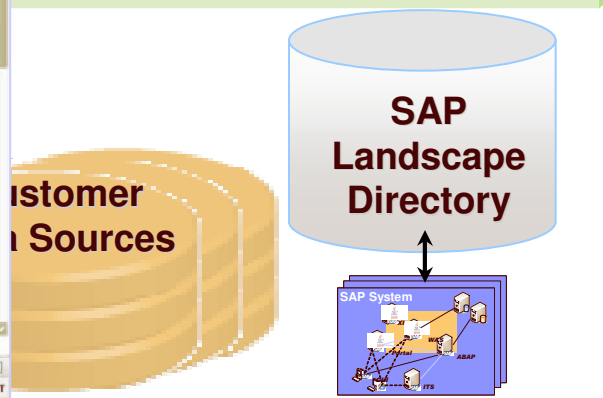
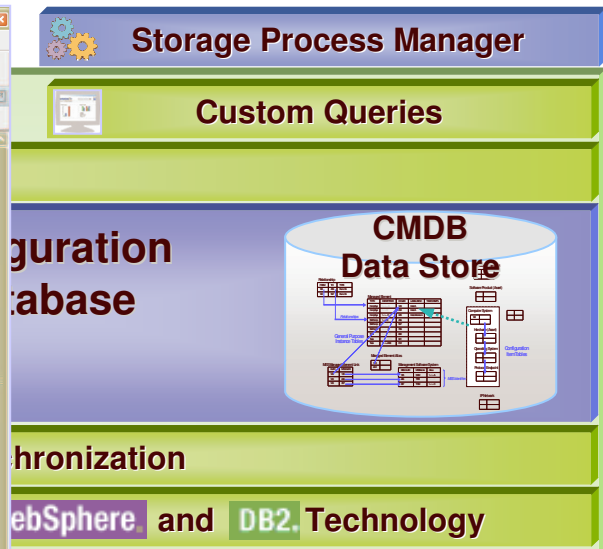
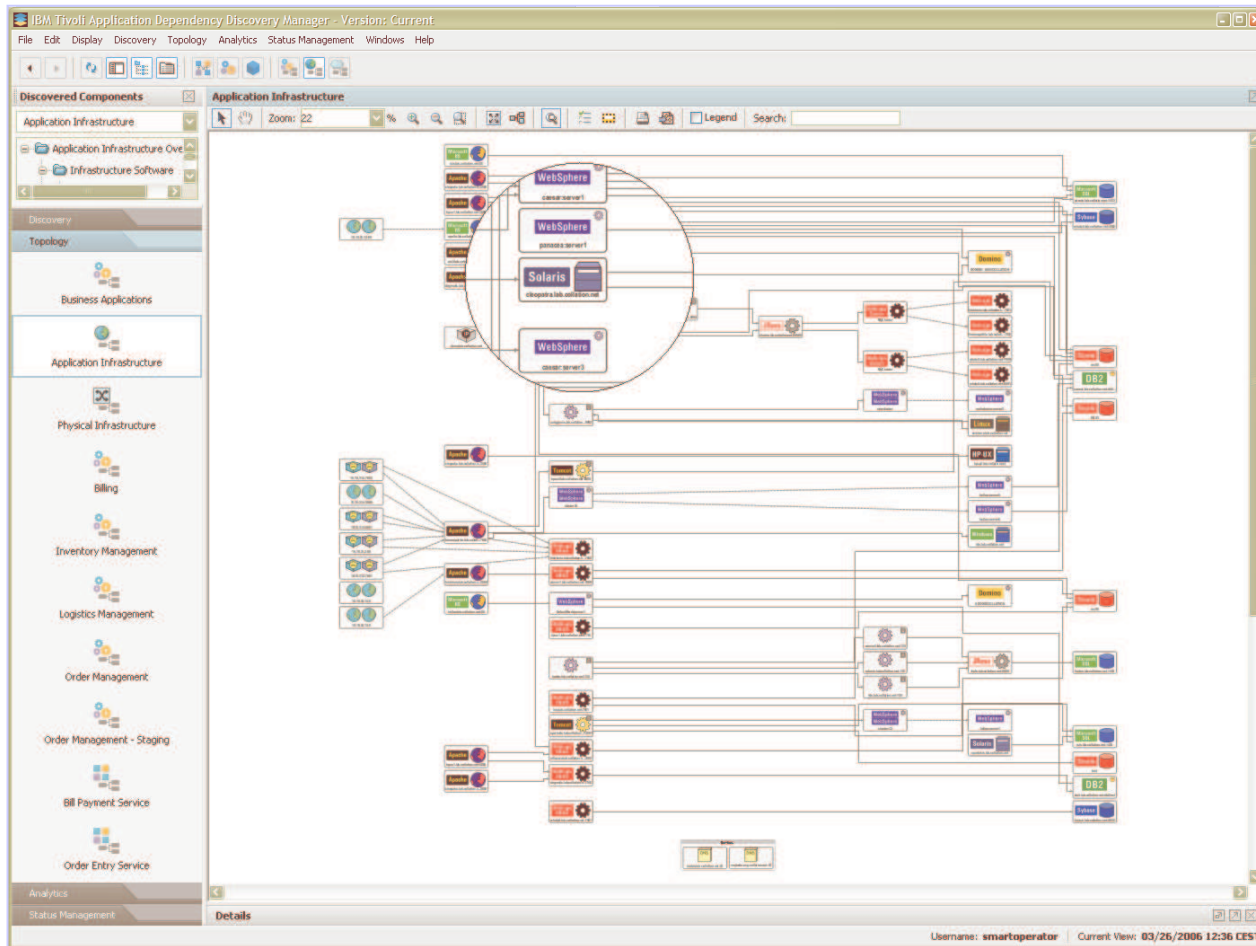
Synchronization

Synchronization will ensure the same version of the truth across integrated systems



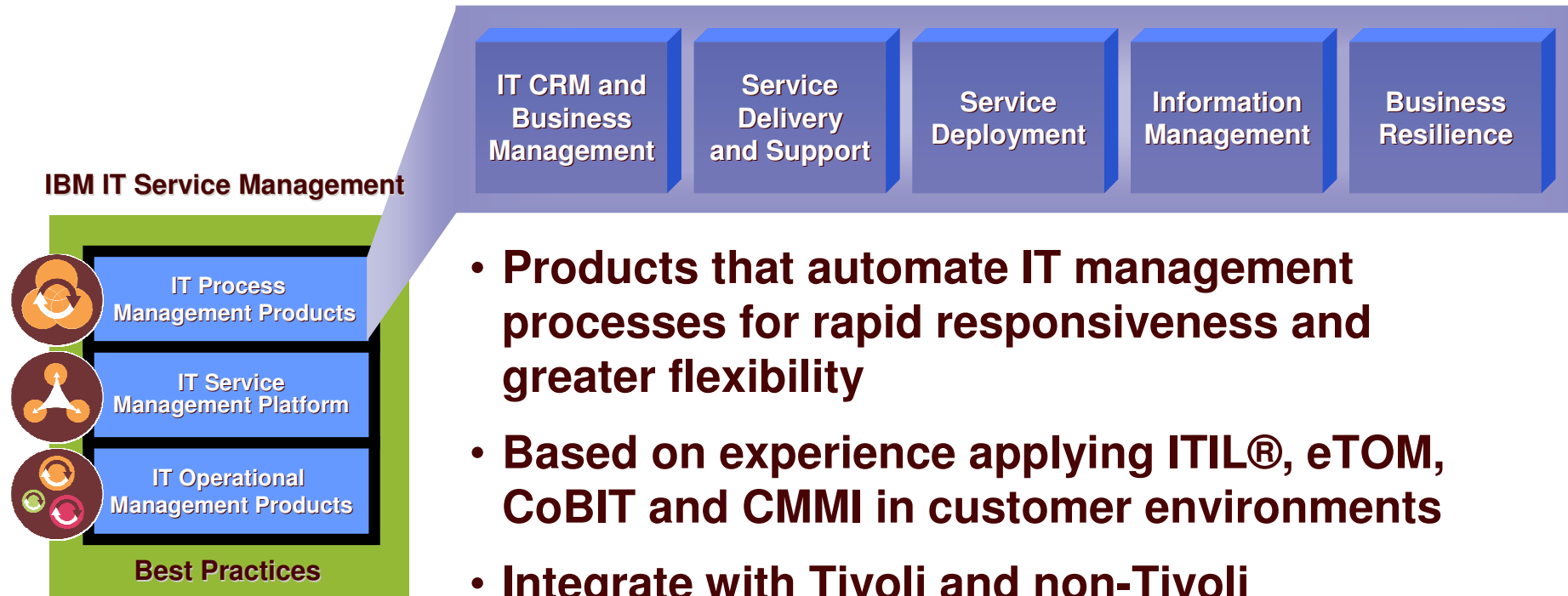
Mapping and Visualization

Mapping and visualization will enable a peer-to-peer and hierarchical view of the CIs



IT Infrastructure – Servers, Networks, Mainframes, Middleware, Applications, Business Services

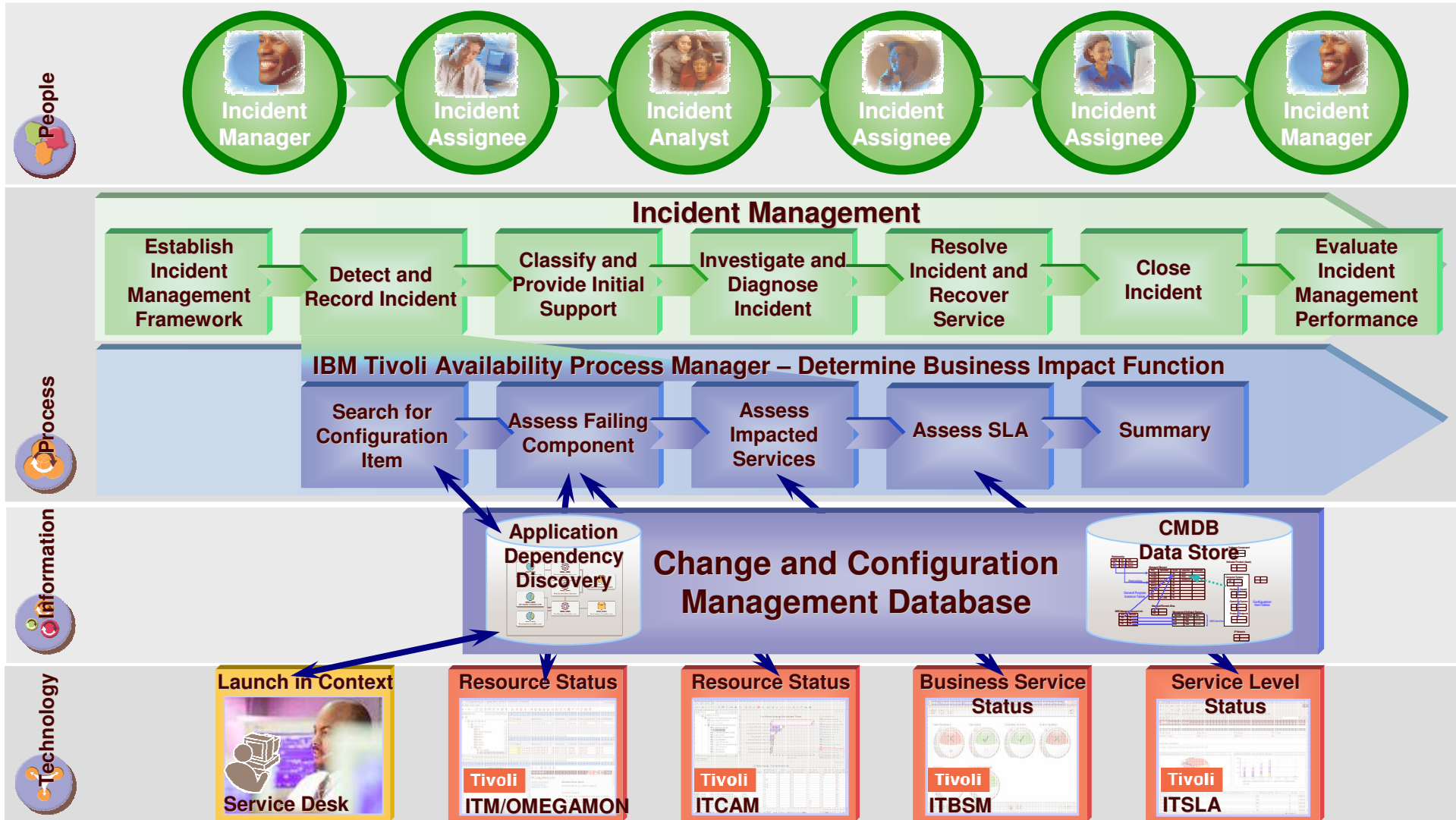
What are Process Managers?



- **Products that automate IT management processes for rapid responsiveness and greater flexibility**
- **Based on experience applying ITIL®, eTOM, CoBIT and CMMI in customer environments**
- **Integrate with Tivoli and non-Tivoli management products**
- **Customization tools allow customers to:**
 - **Customize the processes**
 - **Integrate additional products into the processes including in-house and third party applications**

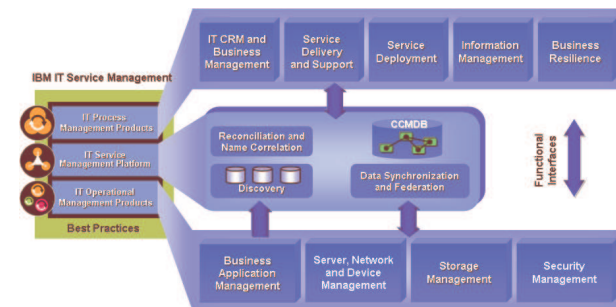
Maintaining Application Service Levels

IT Service Management in action – isolate, diagnose and resolve incidents



Benefits of Maintaining Application Service Levels

- **Improved time to resolution**
 - Automates incident correlation for fast problem identification
 - Improve first call resolution rate
 - Controls problems proactively by analyzing historical management data and identifying trends
- **Improved performance against SLAs**
 - Reduced financial impacts
 - Higher business satisfaction with IT services
- **Increased availability of critical business services**
 - Accurate classification and prioritization of problems
 - Higher customer satisfaction
- **Improved IT cost efficiencies**
 - Improved staff productivity and efficiency
 - Reduced overall incident and problem volumes



Agenda

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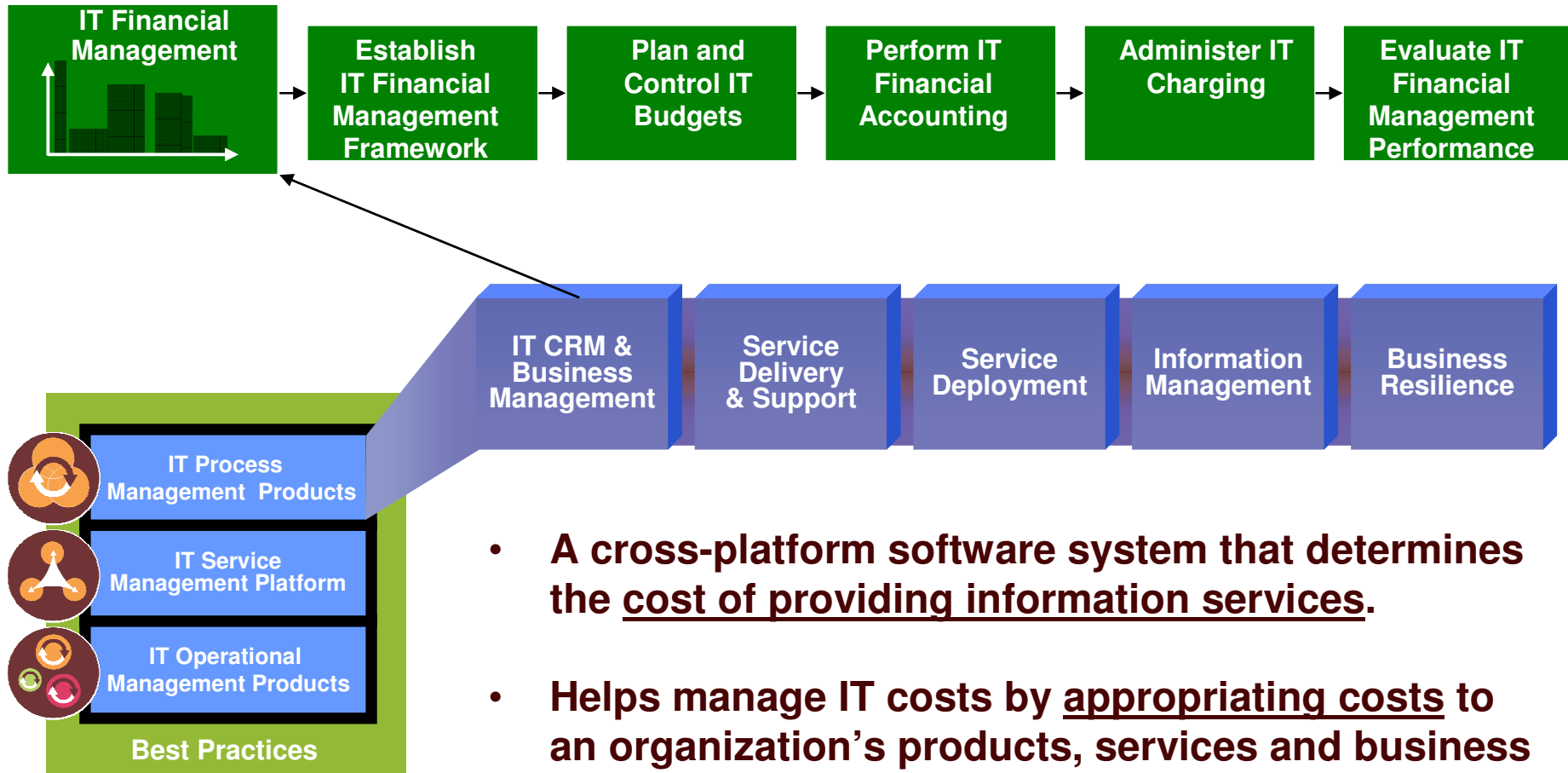
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IBM IT Financial Management

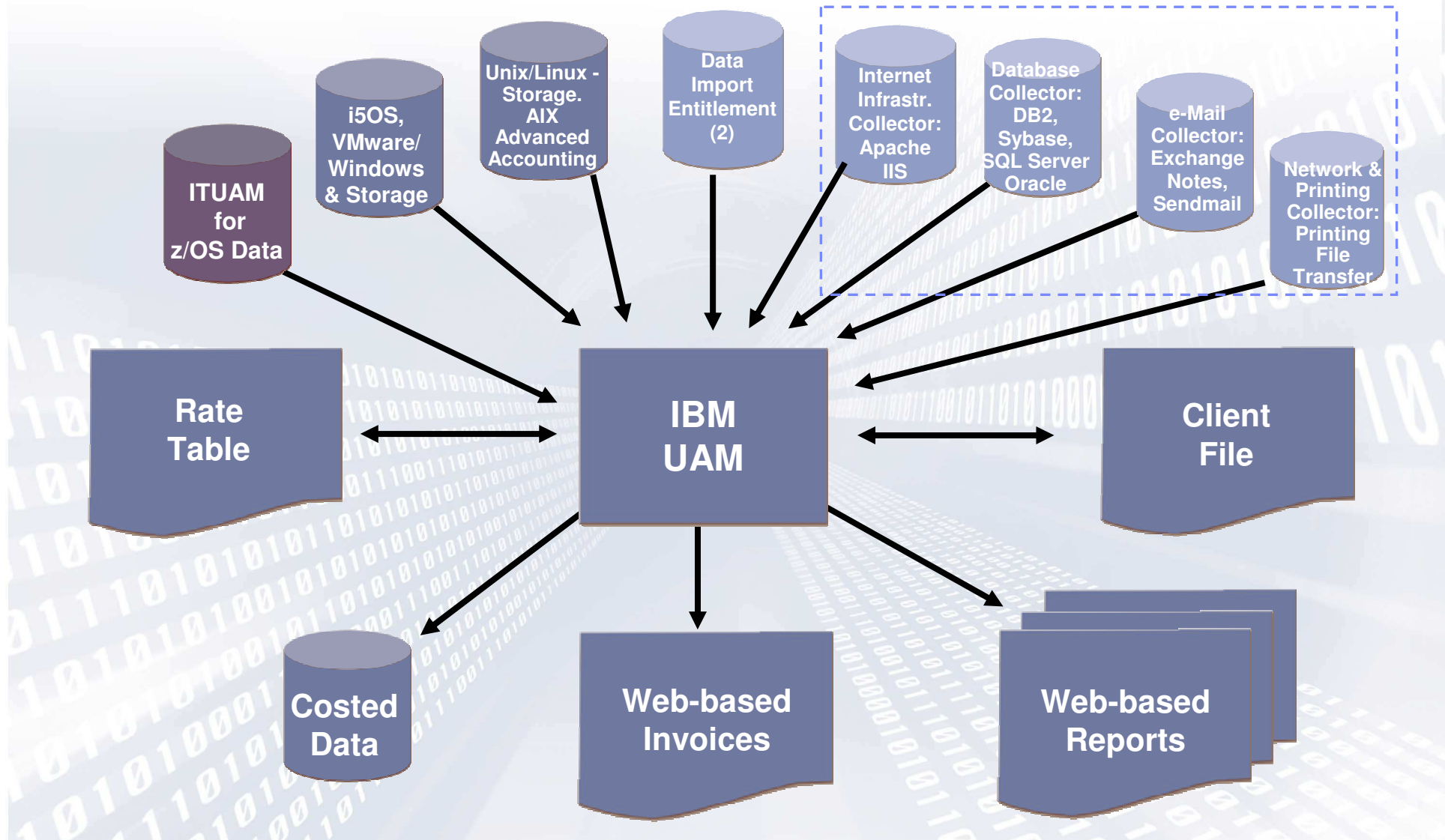
A Differentiated, Flexible Approach



- **A cross-platform software system that determines the cost of providing information services.**
- **Helps manage IT costs by appropriating costs to an organization's products, services and business functions.**



IBM Usage and Accounting Manager V6.1



ITUAM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.cmsserver.com/ActiveXViewer.asp?InvoiceLevel=1&ConfigOrgName=Big+Time+Bank&ConfigAddressLine1=Any+Town%2c+USA&ConfigAddressLine2=&ConfigAddressLine3=&ConfigAddressLine4=&InvoiceNumber=1&Se> Go

Invoice by Account Level Publish Return Help

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Preview 100% 1 of 41

Preview

- [-] ATM Transactions
 - [+] Equipment/Shared Services
 - [+] Unix Process Charges
 - [+] Unix Filesystem
 - [+] Unix Oracle Charges
 - [+] MS Windows Storage Charges
 - [+] MS Windows SQL Server
 - [+] MS IIS
 - [+] MS Exchange Sent and Receive
 - [+] MS Windows Processes
 - [+] MS Windows Print
 - [+] Mainframe Printer/Reader Char
 - [+] Mainframe Storage Charges
 - [+] Mainframe Print Charges
 - [+] Mainframe CICS Charges
 - [+] Mainframe DB2 Charges
- [-] Credit Card
 - [+] Equipment/Shared Services
 - [+] Unix DB2 Charges
 - [+] Unix Process Charges
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 - [+] MS Windows SQL Server
 - [+] MS IIS
 - [+] MS Exchange Mailbox
 - [+] MS Windows Processes
 - [+] Mainframe Batch Charges
 - [+] Mainframe TSO Charges
 - [+] Mainframe Input/Output Charge
 - [+] Mainframe Printer/Reader Char
 - [+] Mainframe Storage Charges
 - [+] Mainframe Print Charges
 - [+] Mainframe CICS Charges
 - [+] Mainframe DB2 Charges
- [-] Commercial Loans
 - [+] Drafts and Collections
 - [+] Electronic Deposits
 - [+] Mortgages
 - [+] Online Electronic Payments
 - [+] Retirement
 - [+] Secure Sales - Internet Commerce
 - [+] Telephone Transactions

Usage and Accounting Manager

IT Expenses by Account

Account Category	Expense (K)
ATM Transactions	20
Credit Card	230
Commercial Loans	40
Drafts and Collections	35
Electronic Deposits	45
Mortgages	60
Online Electronic Payments	25
Retirement	210
Secure Sales - Internet Commerce	25
Telephone Transactions	70
Wire transfers	55

Done Internet

ITUAM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Home Search Favorites

Address http://www.cimserver.com/ActiveXViewer.asp?InvoiceLevel=1&ConfigOrgName=Big+Time+Bank&ConfigAddressLine1=Any+Town%2c+USA&ConfigAddressLine2=&ConfigAddressLine3=&ConfigAddressLine4=&InvoiceNumber=1&ServerNode=www.cimserver.com

Publish Return Help

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Preview

- ATM Transactions
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 - MS Windows SQL Server
 - MS IIS

Usage and Accounting Manager

Invoice

Billing Period: 04/01/2006 to 04/30/2006

Invoice No. 1

Big Time Bank
Any Town, USA

[ATM - ATM Transactions](#)

	Units	Rate	Charge
Laptops	6	45.0000	270.00
Desktops	8	49.0000	392.00
Pagers	1	28.0000	28.00
Blackberries	2	85.0000	170.00
Equipment/Shared Services			860.00
Unix Process Character I/O (100,000s)	62,951	0.0020 /M	0.13
Unix Process Image Time (Hours)	587.91	0.0000	0.00
Unix Process User CPU (Minutes)	71.43	0.0100	0.71
Unix Process System CPU (Minutes)	17.26	0.0104	0.19
Unix Process Total CPU (Minutes)	88.69	0.0300	2.65
Unix Process Memory (MB Days)	174,395.16	0.0006 /M	0.13
Unix Process Image Count	10,176	0.0200 /M	0.17
Unix Process Charges			3.98
Unix Filesystem Size (512-Byte Blocks)	1,154,592,204.00	0.0005 /M	577.28
Unix Filesystem Blocks Used (512-Byte Blocks)	623,901,364.00	0.0000 /M	6.49
Unix Filesystem Number of Files	3,665,119	0.0000	0.00
Unix Filesystem Size (GB Days)	551	0.0000	0.00
Unix Filesystem Used (GB Days)	298	0.0000	0.00
Unix Filesystem			583.77
Unix Oracle Blocks	220,140.00	0.0000	0.00
Unix Oracle Mbytes	1,719.85	0.0001	0.17
Unix Oracle Extents	27,531.00	0.0000	0.00

Done

Internet

ITUAM - Microsoft Internet Explorer

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<ul style="list-style-type: none"> [-] Mainframe Print Charges [-] Mainframe CICS Charges [-] Mainframe DB2 Charges [-] Secure Sales - Internet Commerce <ul style="list-style-type: none"> [-] Unix Process Charges [-] Unix Filesystem [-] Unix Oracle Charges [-] MS Windows Storage Charges [-] MS Windows SQL Server [-] MS IIS [-] MS Exchange Sent and Received [-] MS Exchange Mailbox [-] MS Windows Processes [-] MS Windows Print [-] Mainframe Printer/Reader Charges [-] Mainframe Storage Charges [-] Mainframe Print Charges [-] Mainframe CICS Charges [-] Mainframe DB2 Charges [-] Telephone Transactions <ul style="list-style-type: none"> [-] Unix DB2 Charges [-] Unix Process Charges [-] Unix Filesystem [-] Unix Oracle Charges [-] MS Windows Storage Charges [-] MS IIS [-] MS Exchange Mailbox [-] MS Windows Processes [-] Mainframe Printer/Reader Charges [-] Mainframe Storage Charges [-] Mainframe Print Charges [-] Mainframe CICS Charges [-] Mainframe DB2 Charges [-] Wire transfers <ul 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Done

Internet

- [-] ATM
 - ⊕ ATM Database
 - ⊕ ATM Email
 - ⊕ ATM Equipment
 - ⊕ ATM Print
 - ⊕ ATM Servers
 - ⊕ ATM Storage
 - ⊕ ATM Web
- [-] CCX
 - ⊕ CCX Database
 - ⊕ CCX Email
 - ⊕ CCX Equipment
 - ⊕ CCX Print
 - ⊕ CCX Servers
 - ⊕ CCX Storage
 - ⊕ CCX Web
- [-] COM
 - ⊕ COM Database
 - ⊕ COM Email
 - ⊕ COM Equipment
 - ⊕ COM Print
 - ⊕ COM Servers
 - ⊕ COM Storage
 - ⊕ COM Web
- [-] DAC
 - ⊕ DAC Database
 - ⊕ DAC Equipment
 - ⊕ DAC Print
 - ⊕ DAC Servers
 - ⊕ DAC Storage
 - ⊕ DAC Web
- [-] DEP
- [-] MTG
- [-] ONE
- [-] RTM
- [-] SSI

Application View

Application	Charges
ATM - ATM Transactions	18,851.48
CCX - Credit Card	230,738.81
COM - Commercial Loans	35,078.06
DAC - Drafts and Collections	29,164.41
DEP - Electronic Deposits	41,420.42
MTG - Mortgages	55,540.65
ONE - Online Electronic Payments	13,637.31
RTM - Retirement	212,260.46
SSI - Secure Sales - Internet Commerce	17,449.17
TEL - Telephone Transactions	64,925.96
WTX - Wire transfers	51,639.48
Total	770,706.13

Application View

Application	Resource Group	Charges
COM - Commercial Loans		
COM Database		8,306.59
COM Email		2,318.80
COM Equipment		399.00
COM Print		0.30
COM Servers		1,534.31
COM Storage		22,185.45
COM Web		333.61
COM - Commercial Loans		35,078.06

Application View

Resource Group	Platform	Charges
COM Database		
COM Database	Mainframe	3,639.90
COM Database	Unix	1,395.66
COM Database	Windows	3,270.03
COM Database		8,306.59

ITUAM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Home Search Favorites

Address http://www.cmsserver.com/ActiveXViewer.asp?AccountLength1=4&AccountLength2=20&AccountLength3=36&AccountLength4=56&AccountLength5=0&AccountName1=Application&AccountName2=Resource+Group&AccountName3

Application Cost Publish Return Help

150% 1 of 1

powered by crystal

Preview COM COM Database

Usage and Accounting Manager

Application View

Resource Group	Platform	Charges
COM Database		
COM Database	Mainframe	3,639.90
COM Database	Unix	1,395.66
COM Database	windows	3,271.03
COM Database		8,306.59

Done Internet

ITUAM - Microsoft Internet Explorer

Address: http://www.cmsserver.com/ActiveXViewer.asp?AccountLength1=4&AccountLength2=20&AccountLength3=36&AccountLength4=56&AccountLength5=0&AccountName1=Application&AccountName2=Resource+Group&AccountName3

Application Cost Publish Return Help

powered by crystal

Preview COM COM Database COM Database Unix

COM Database Unix edc
 COM Database Unix edc
 COM Database Unix edc
 COM Database Unix gar
 COM Database Unix rox

Usage and Accounting Manager

Application View

Platform	Server	Charges
COM Database	Unix	
COM Database	Unix	eddie
COM Database	Unix	eddie EDDIE10
COM Database	Unix	eddie EDDIE920
COM Database	Unix	garfield
COM Database	Unix	roxie
COM Database	Unix	1,395.66

COM Database Unix eddie EDDIE920

Unix Oracle Charges 840.70

COM Database Unix eddie EDDIE920 840.70

Usage and Accounting Manager

Application View

Rate Group	Rate	Units	Charges
COM Database	Unix	eddie EDDIE920	
Unix Oracle Charges			
Unix Oracle Logins		23	0.04
Unix Oracle Session CPU (Minutes)		411.36	40.81
Unix Oracle Connct (Hours)		3,562.49	160.31
Unix Oracle UGA Memory (MB Days)		9,266.99	0.00
Unix Oracle PGA Memory (MB Days)		86,747.06	0.19
Unix Oracle Rec CPU (Minutes)		0.02	0.02
Unix Oracle User Commits		1	0.00
Unix Oracle Physical Reads		273,677	41.04
Unix Oracle Physical Writes		52,944	18.51
Unix Oracle DB Block Gets		8,321,411	416.05
Unix Oracle Messages Sent		327,441	147.36
Unix Oracle Messages Received		327,707	16.37
Unix Oracle Charges			840.70

Done Internet

ITUAM - Reports - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Home Search Favorites Media Messenger Bookmarks My Yahoo! Yahoo! Finance Mail News Shopping Entertainment Travel

Address http://www.cimserver.com/TRReports.asp?select=1

Usage and Accounting Manager

Login Reports Spreadsheets Favorites Admin Help Logout Home

Reports

Invoices

- Invoice by Account Level
- Application Cost
- Account Total Invoice
- Alternate Invoice
- Invoice with Budget
- Invoice with Shifts
- Run Total Invoice with Shifts
- Run Total Invoice
- Run Total Percent
- Run Total Rate Group Percent
- Zero Cost Center Invoice
- Invoice by Account Level V2

Account Reports

- Account Budget for Period YTD
- Account Summary YTD
- Account Summary by Week
- Account Summary YTD - Wide
- Account Summary by Week - Wide
- Account Summary Daily
- Account Summary Daily 2
- Summary Crosstab - Charges
- Summary Crosstab 2 - Charges
- Summary Crosstab - Usage
- Summary Crosstab 2 - Usage
- Daily Crosstab - Charges
- Daily Crosstab - Usage
- Weekly Crosstab - Charges
- Weekly Crosstab - Usage

- Monthly Crosstab - Charges
- Monthly Crosstab - Usage

Top Usage Reports

- Top 10 Cost
- Top 10 Bar Graph
- Top 10 Pie Chart
- Top 10 By Rate Code

Variance Reports

- Cost Variance
- Cost Variance Drilldown
- Resource Variance

Trend

- Cost Trend
- Resource Usage Trend
- Cost Trend Graph
- Cost Trend Graph 2
- Usage Trend Graph
- Cost Trend by Rate

Resource Detail

- Detail By Multiple Identifiers
- Detail By Multiple Identifiers with Acct
- Detail by Rate Group
- Detail by Rate Group/Identifier
- Batch Report
- CICS Transaction ID Report
- DB2 Summary
- Exchange 2000
- SQL Server 2000

Windows Disk

Audit

- Client Audit Report
- Rate Audit Report
- Transaction Audit Report

Other

- Job Cost
- Percentage
- Transaction Report
- Line Item Budget
- Zero Cost Factor
- Rate
- Client
- Configuration
- Custom
- HBReport
- Storage Usage
- CIO Usage
- test

Expand All

Collapse All

Agenda

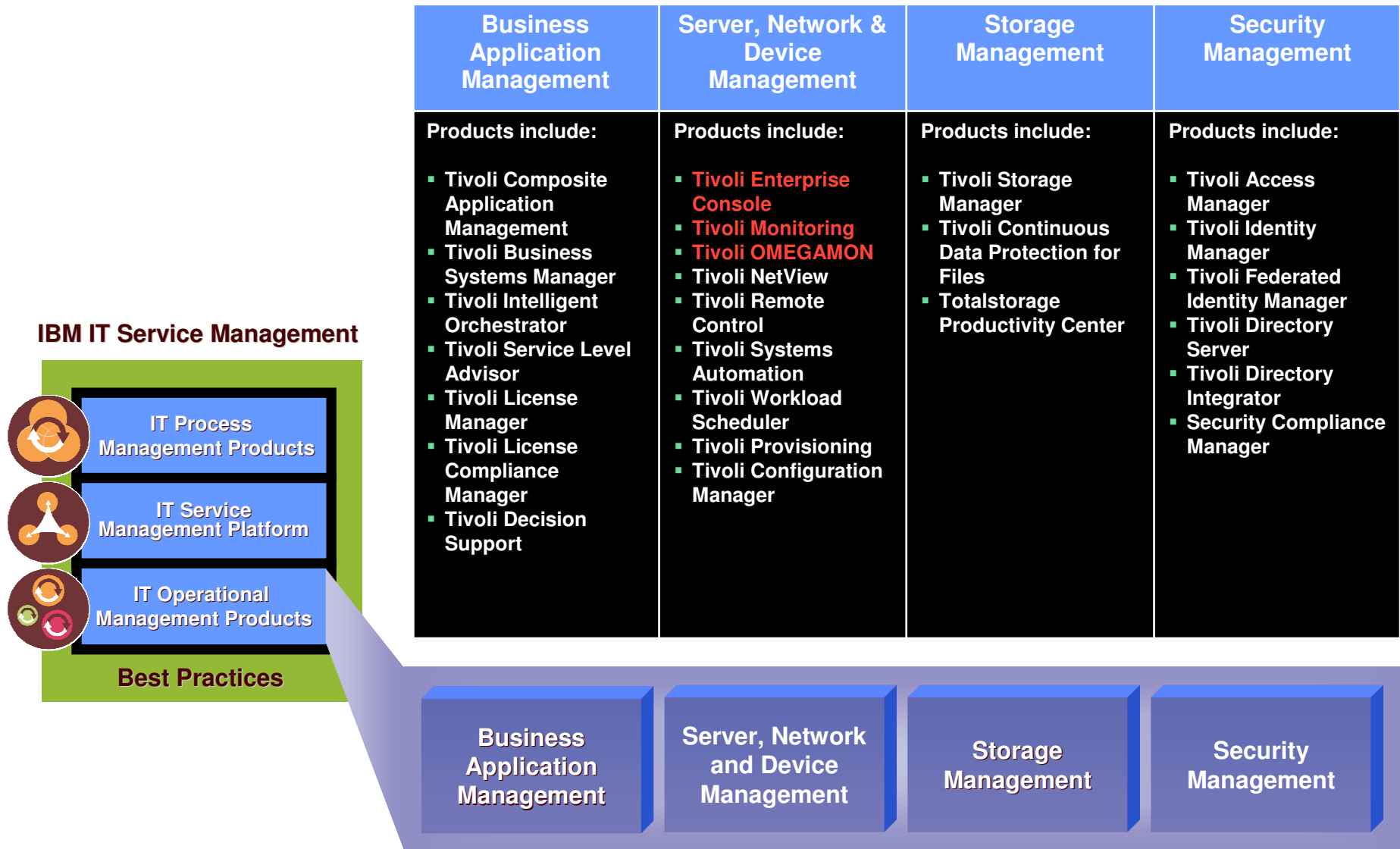
- **IT Service Management**
 - ▶ CCMDB
 - ▶ Process Managers

- **IBM Usage and Accounting Manager**

- **Tivoli OMEGAMON**
 - ▶ OMEGAMON z/OS Management Console
 - ▶ OMEGAMON XE for z/VM and Linux

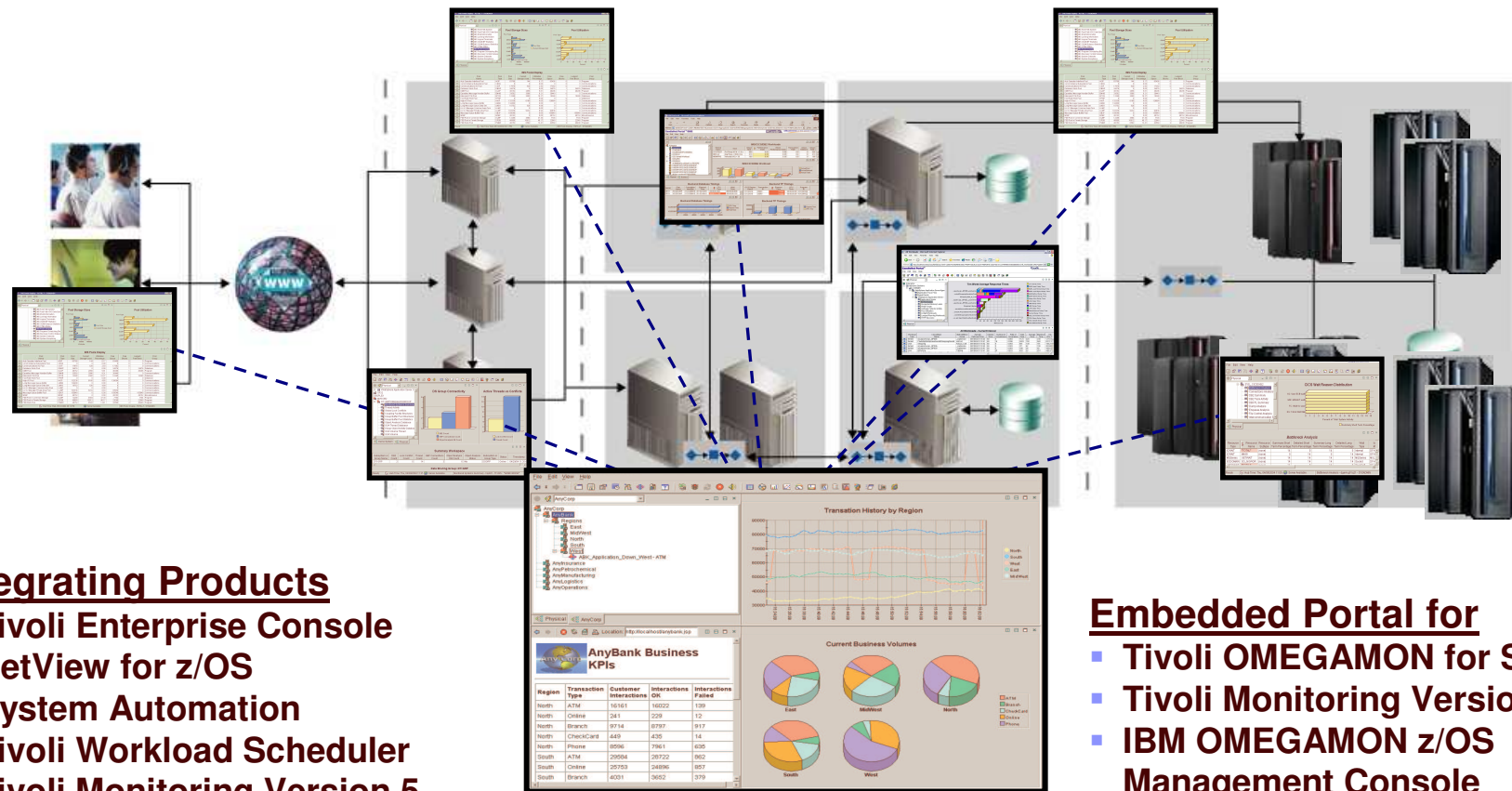


A Comprehensive Approach to IT Service Management



Complete View Of Application Performance

A Dynamic Role-based Policy Workspace for Integrating IT Operations Silos



Integrating Products

- Tivoli Enterprise Console
- NetView for z/OS
- System Automation
- Tivoli Workload Scheduler
- Tivoli Monitoring Version 5
- Tivoli Service Level Advisor
- Tivoli Business Systems Manager
- *Netcool OMNibus Active Event List*

Tivoli Enterprise Portal (TEP)

Embedded Portal for

- Tivoli OMEGAMON for System z
- Tivoli Monitoring Version 6
- IBM OMEGAMON z/OS Management Console
- Tivoli Composite Application Manager Family

Simplifying z/OS Operations Using OMEGAMON and Tivoli Enterprise Portal Technology - New management console

Value

- Simplify z/OS management for the new generation of IT professionals
- Automating, eliminating, and streamlining tasks
- Easily upgradeable to full OMEGAMON solutions

Planned Capabilities

- Task oriented approach with GUI front end
- z/OS Health Checker data plus Tivoli Monitoring Services base capabilities
 - Expert Advice
 - Take Action
- Configuration status metrics for z/OS resources displayed using Tivoli Enterprise Portal
 - Improved ease-of-use of z/OS management
 - Value-add upgrades to comprehensive Tivoli Monitoring Services products



Intended to be available for no charge to z/OS customers

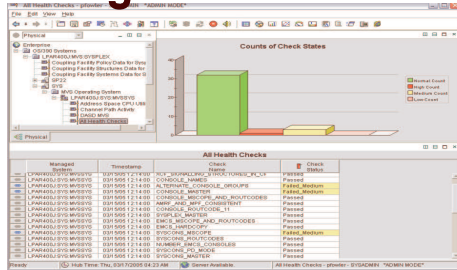
New z/OS Management Console

The screenshot displays the 'Health Monitor Checks - RGATSKI - SYSADMIN' application window. It features a tree view on the left showing the system hierarchy, including 'z/OS Management Console' and 'TESTPLEX: z/OS: ManagementConsole'. The main area is divided into two panels: 'Exception Check Counts' and 'Run Counts', both showing a list of system parameters with vertical bar indicators representing their values. Below these panels is a 'Health Checker Checks' table.

Check Owner	Check Name	Check State	Check Status	Result	Diag1
IBMXCF	XCF_CDS_SEPARATION	ACTIVE(ENABLED)	EXCEPTION-HIGH	12	00000000
IBMRACF	RACF_SENSITIVE_RESOURCES	ACTIVE(ENABLED)	EXCEPTION-HIGH	12	00000000
IBMCNZ	CNZ_SYSCONS_MSCOPE	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMUSS	USS_AUTOMOUNT_DELAY	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMUSS	USS_FILESYS_CONFIG	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMXCF	XCF_SFM_ACTIVE	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMXCF	XCF_SIG_STR_SIZE	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMXCF	XCF_CF_STR_PREFLIST	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000
IBMXCF	XCF_FDI	ACTIVE(ENABLED)	EXCEPTION-MEDIUM	8	00000000

The status bar at the bottom shows 'Ready', 'Hub Time: Thu, 09/29/2005 12:04 PM', 'Server Available', and the application title 'Health Monitor Checks - RGATSKI - SYSADMIN'.

IBM OMEGAMON z/OS Management Console



Common Functions

- Take action
- Expert advice
- Situations
- Thresholds
- Alerts
- Custom workspaces

Health Checker

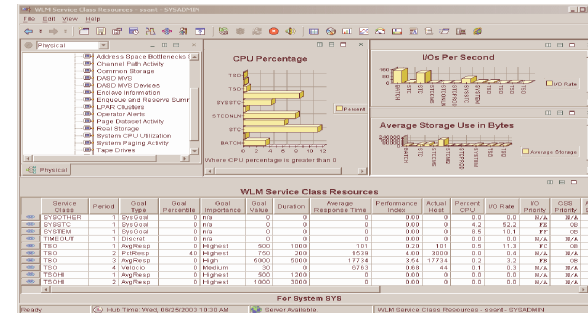
- Health monitor status
- Health monitor checks
- Health monitor messages

Configuration Status

- Address space CPU utilization
- Operator alerts
- Paging dataset activity
- CF systems, structures, paths
- XCF systems & paths

**Upgrade
Purchase
XE**

IBM Tivoli OMEGAMON XE for z/OS



IBM OMEGAMON z/OS Management Console data plus:

- 100s of additional z/OS attributes
- Sysplex, IRD & WLM resources
- User response times
- Real time and historical performance information
- Policies
- Custom queries
- Bottleneck Analysis
- Impact analysis
- OMEGAMON DE integration & policies

Availability = 52 attributes

Performance = 490 attributes

Tivoli OMEGAMON XE on z/VM and Linux

Release Timeline

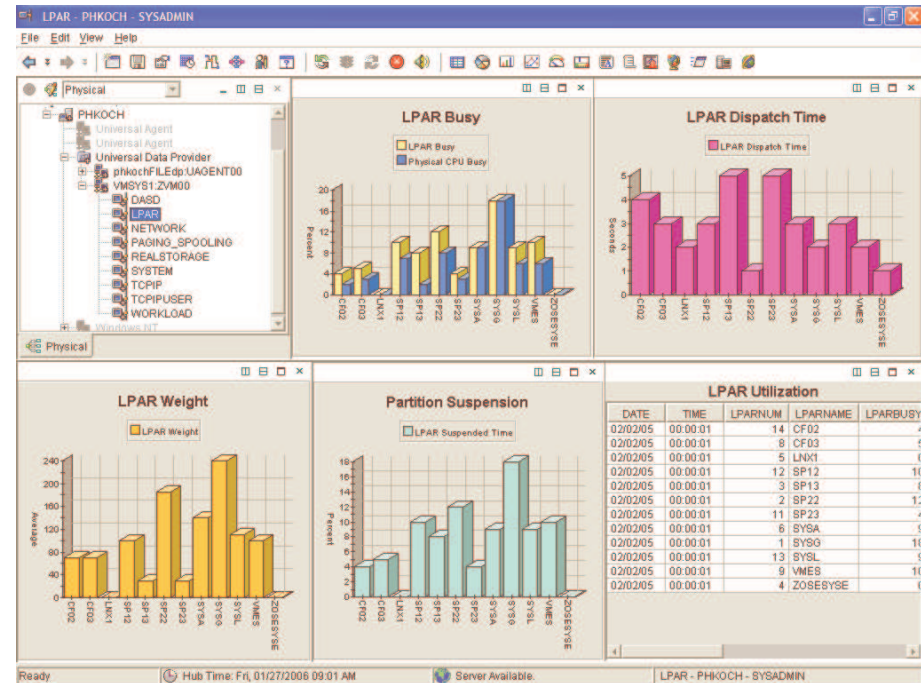
- OMEGAMON for VM v630 released 1Q04
- OMEGAMON XE for z/VM and Linux v4.1 released October 2006

Platform Support

- Old product: z/VM Versions 3.1.0, 4.3.0, 4.4.0 (in either 31-bit or 64-bit images), 5.1.0 or 5.2.0
- New release: z/VM v5.2, SLES 9 for S/390 and zSeries initially. Others as function is available.

New Features in Last Major Release

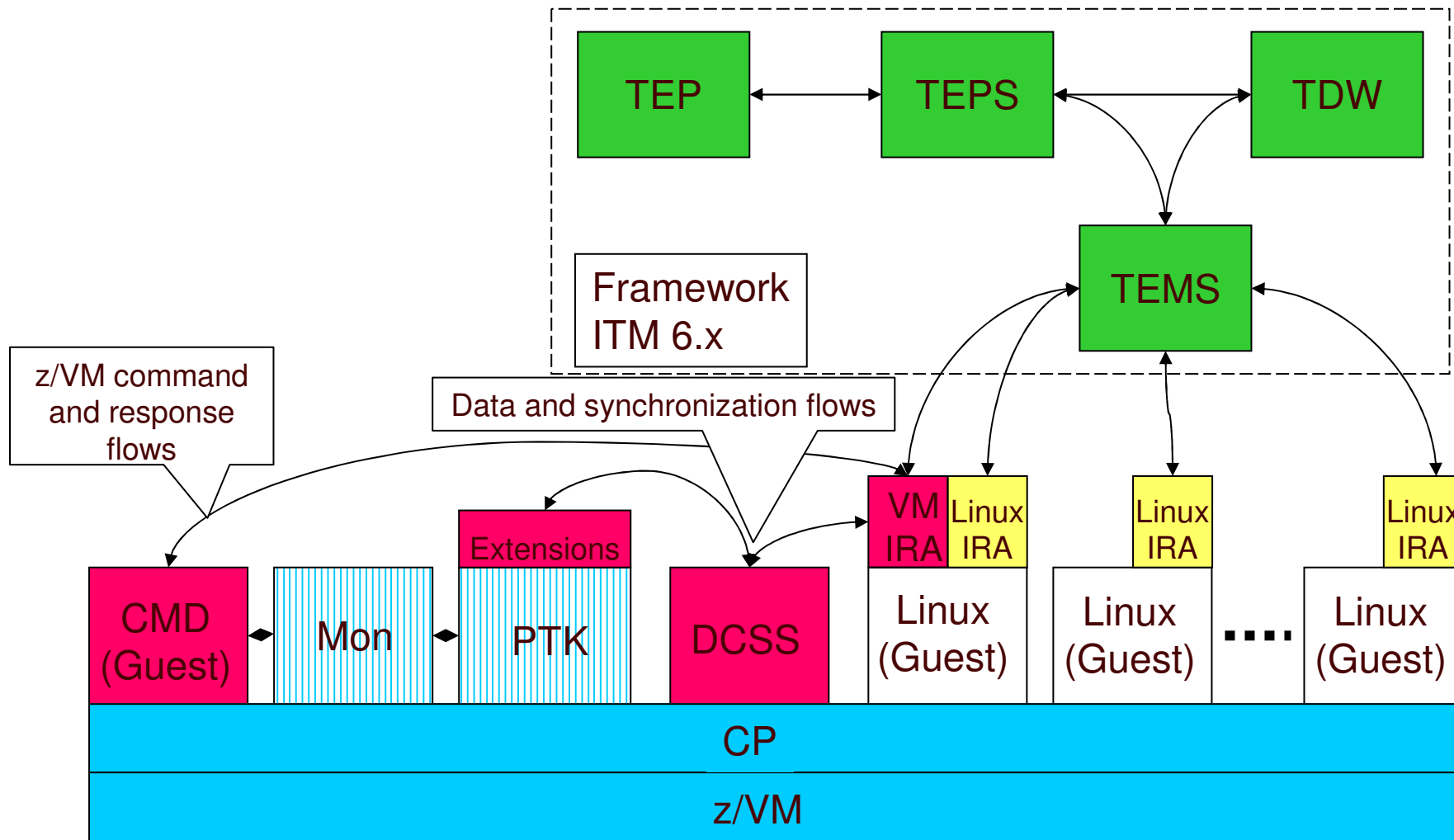
- Scan key metrics and compare results with baseline thresholds
- View workloads for virtual machines, groups, response times and LPAR reporting
- Historical reporting and trending analysis
- Bottleneck Analysis



Key Features in New Release

- Single product offering for z/VM and zLinux
- Integrated OMEGAMON XE operations console for z/VM and zLinux
- Impact of zLinux instances running on z/VM

Basic Architecture



Tivoli OMEGAMON for z/VM – a Scenario

Problem

- Uneven Linux Guest CPU consumption

Solution

- Use Linux Guest Workload workspace to identify problem Linux guest
- Link to Linux workload/process workspace to identify problem app/process
- Notify app owner of app performance problem

Potential Benefits

- Quicker identification of base problem
- Can manage z/VM and Linux from a single point of control

The screenshot displays the Tivoli OMEGAMON for z/VM interface. The top section shows the 'Linux Guest Workload' workspace with various performance charts and a table of Linux systems. A callout points to the 'Identify problem Linux Guest' step. Below this, a 'Process CPU Percent usage' workspace is shown, with a callout pointing to the 'Link to Linux process workspace' step. A final callout points to the 'Identify problem app/process on Linux' step. The interface includes a navigation tree on the left and a detailed table of process information at the bottom.

Process	Command name (Classid)	Process ID	Process Parent ID	Process State	Process System CPU (Percent)	Process User CPU (Percent)	Current Alloc. Pct. (Percent)	System CPU (Percent)
libzstd	0004	1	0	Sleeping	0.12	0.37	0.00	0.00
python	12	4	1	Sleeping	0.00	0.00	0.00	0.00
inetd	19	1	0	Sleeping	0.02	0.00	0.00	0.00
rsync	2029	1	0	Sleeping	0.02	0.01	0.00	0.00
cpuset	2100	1	0	Sleeping	0.01	0.00	0.00	0.00
psftp	8756	2100	1	Sleeping	0.00	0.01	0.00	0.00
eventd	4	1	0	Sleeping	0.00	0.00	0.00	0.00
istatene	8	4	1	Sleeping	0.00	0.00	0.00	0.00
net	1	0	0	Sleeping	0.00	0.00	1.15	0.00
con	8	4	1	Sleeping	0.00	0.00	0.00	0.00
con_notify	7	4	1	Sleeping	0.00	0.00	0.00	0.00
snpd	14	4	1	Sleeping	0.00	0.00	0.00	0.00
snmcrsfs	5	4	1	Sleeping	0.00	0.00	0.00	0.00
lsmcrsfs	43	1	0	Sleeping	0.00	0.00	0.00	0.00

Tivoli OMEGAMON for z/VM – a Scenario

Problem

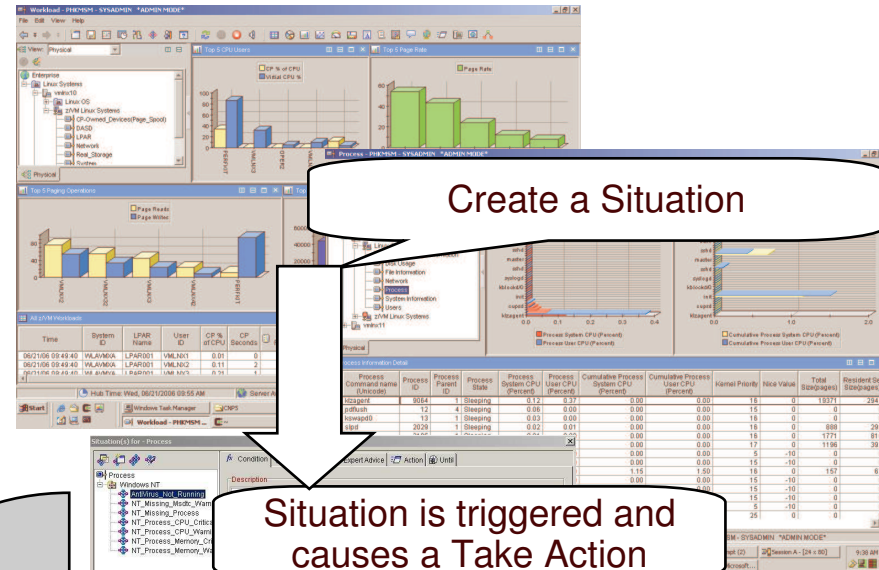
- High Linux Guest CPU consumption

Solution

- Use situation to recognize high swapping with high CPU and working set size
- Send message to Operations Manager
- Operations Manager invokes a rule to execute a CP tuning command to allocate more resource to the Linux Guest

Potential Benefits

- Automated problem resolution
- Integrated solution



Create a Situation

Situation is triggered and causes a Take Action

Response to problem is automatic

Message is sent and triggers z/VM automation

Main Server (GOMMAIN)

Action Processing Server (GOMSVMnn)

OMEGAMON XE for z/VM Workspaces

- **z/VM Linux Default Workspace**
- **PAGING and SPOOLING Utilization**
- **DASD**
- **LPAR Utilization**
- **NETWORK Utilization (Hiper Socket and Virtual Switch)**
- **REAL STORAGE Utilization**
- **TCPIP Utilization – Server**
- **TCPIP Utilization - Users**
- **SYSTEM Utilization**
- **System Terminal Workspace**
- **Workload (z/VM User ID) Activity**
- **Linux Workload Workspace**
- **AppIData Workspace**



OMEGAMON XE for z/VM Linux Default Workspace

The screenshot displays the OMEGAMON XE for z/VM Linux Default Workspace interface. The main window is titled "z/VM Linux Systems - PHKMSM - SYSADMIN *ADMIN MODE*".

z/VM PTK Collector Status Table:

Time	Collector Name	Status
06/21/06 09:49:40	Performance Toolkit Collector	ACTIV
06/21/06 09:49:40	LPAR	ACTIV
06/21/06 09:49:40	System	ACTIV
06/21/06 09:49:40	Storage	ACTIV
06/21/06 09:49:40	CP Owned	ACTIV
06/21/06 09:49:40	DASD	ACTIV
06/21/06 09:49:40	Workload	ACTIV
06/21/06 09:49:40	Hipersocket	ACTIV
06/21/06 09:49:40	Virtual Switch	ACTIV
06/21/06 09:49:40	TCPIP	ACTIV
06/21/06 09:49:40	TCPIP User	ACTIV
06/21/06 09:49:40	Linux Application	INACT

Situation Event Console Table:

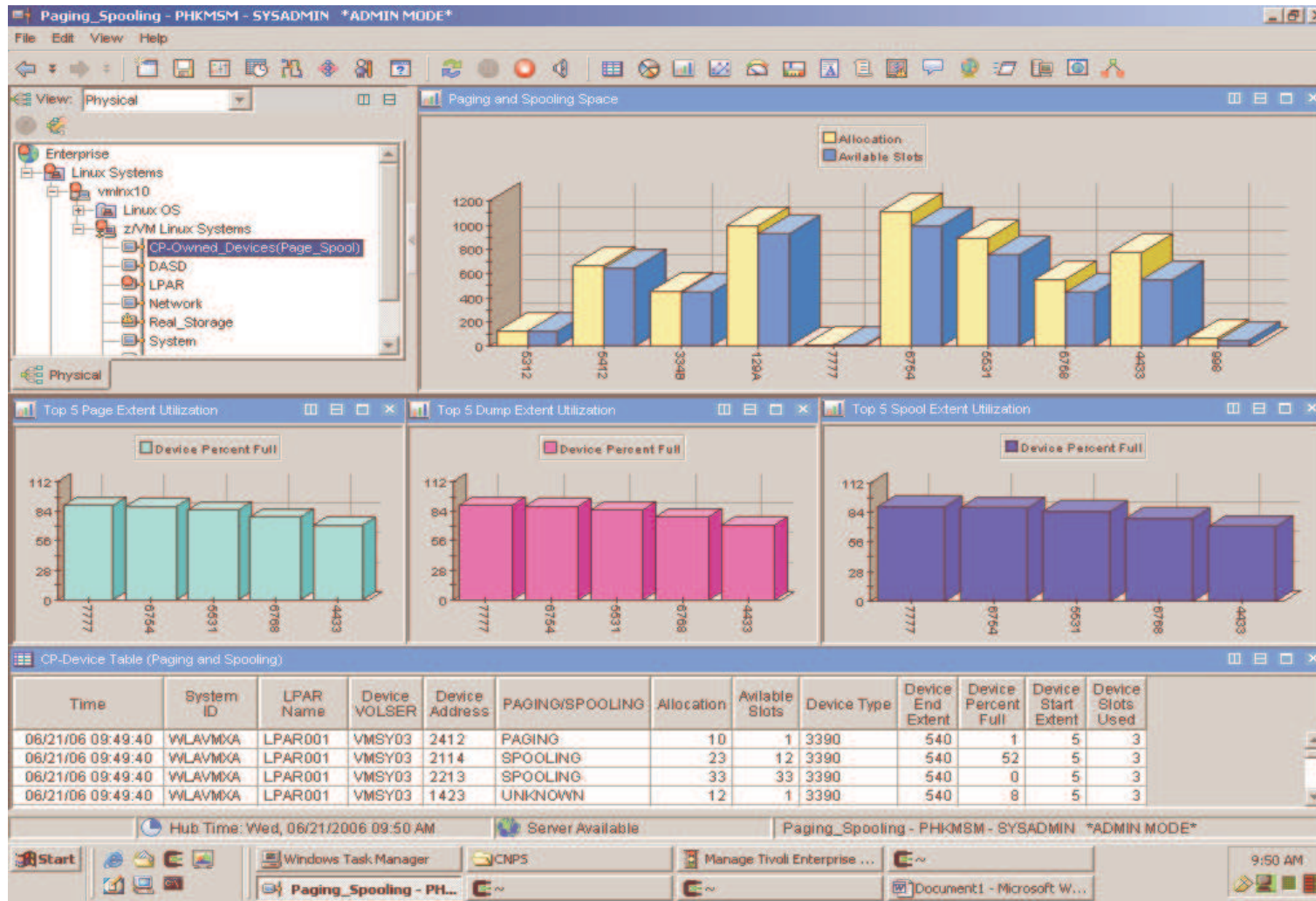
Status	Situation Name	Display Item	Source
Open	ZVM_Avail_Mean2G_Low		vmInx10.tivlab.raleigf
Open	ZVM_LPAR_Busy_Critical		vmInx10.tivlab.raleigf

Performance Charts:

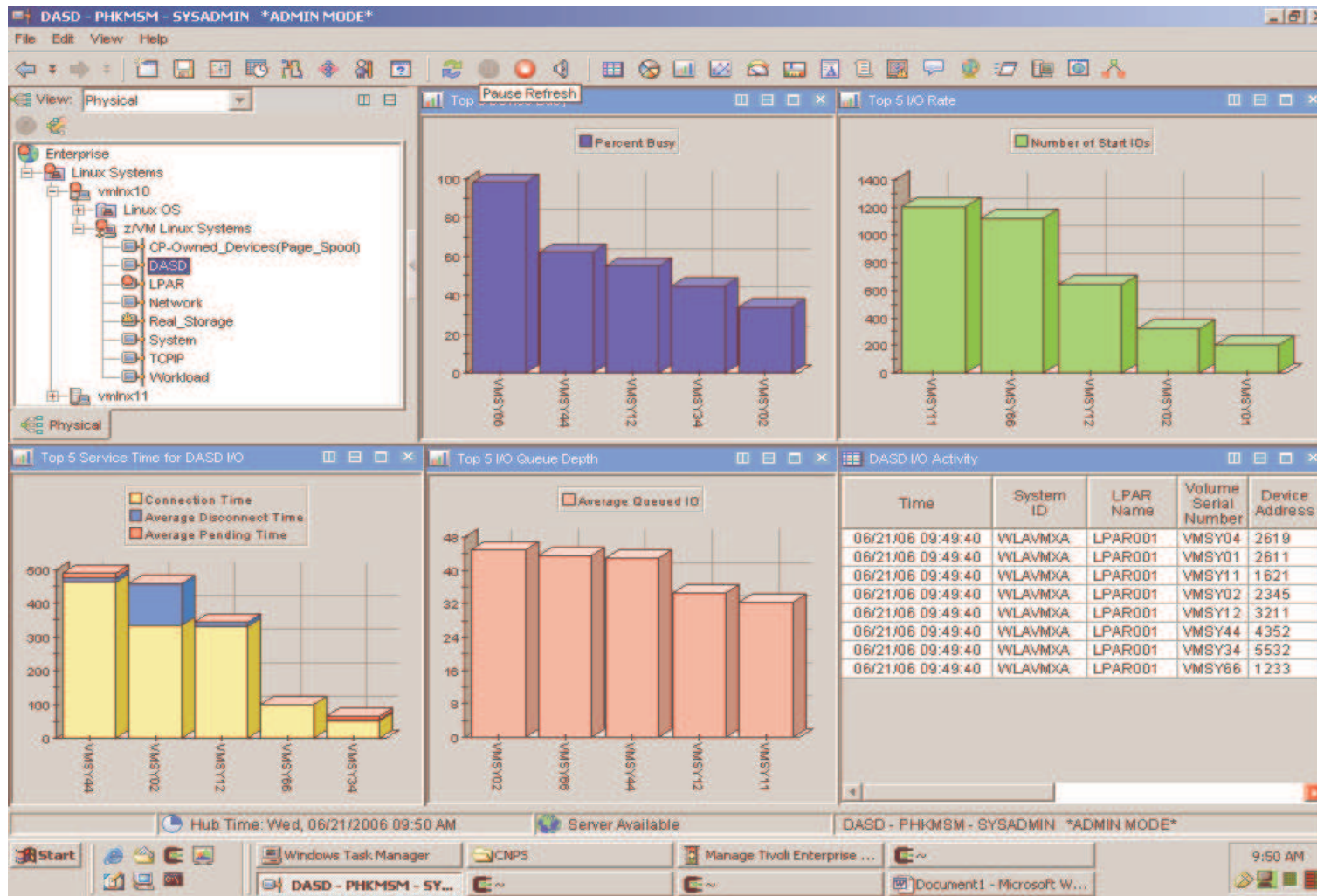
- DASD Activity:** A horizontal bar chart showing "Percent Busy" for various DASD devices (e.g., 5632, 3211, 1621, 2618).
- z/VM User CPU Utilization:** A horizontal bar chart comparing "CP % of CPU", "CPU Percent", and "Virtual CPU %" for users PERFIT and VMILX3.
- z/VM User Working Set and Storage:** A horizontal bar chart showing "Resident Pages", "Resident Pages 2G", and "Working Set Size" for users OPEN1, VMILX4, and VMILX3.

The status bar at the bottom indicates: Hub Time: Wed, 06/21/2006 09:47 AM, Server Available, and the current workspace title.

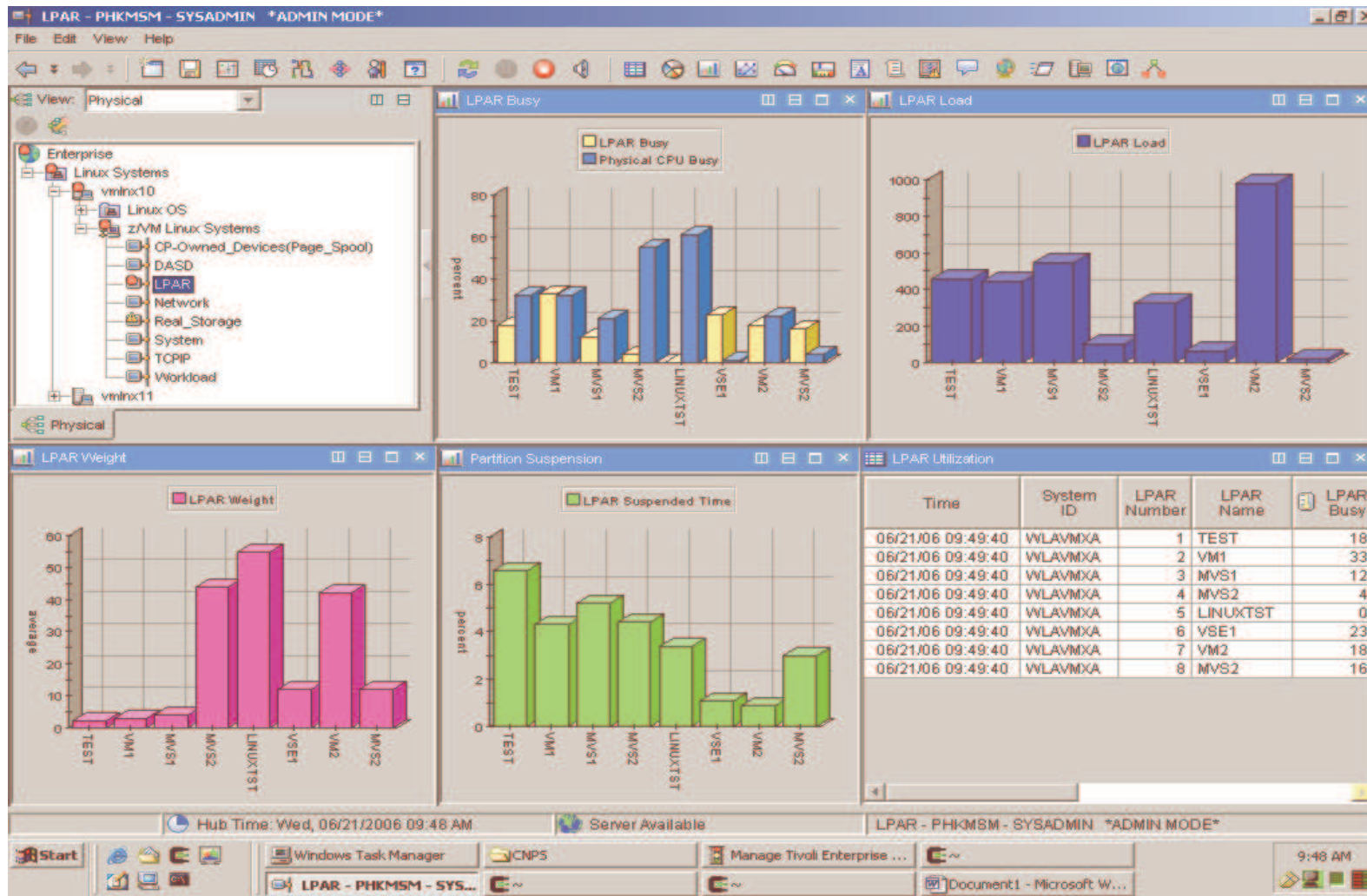
PAGING and SPOOLING Utilization



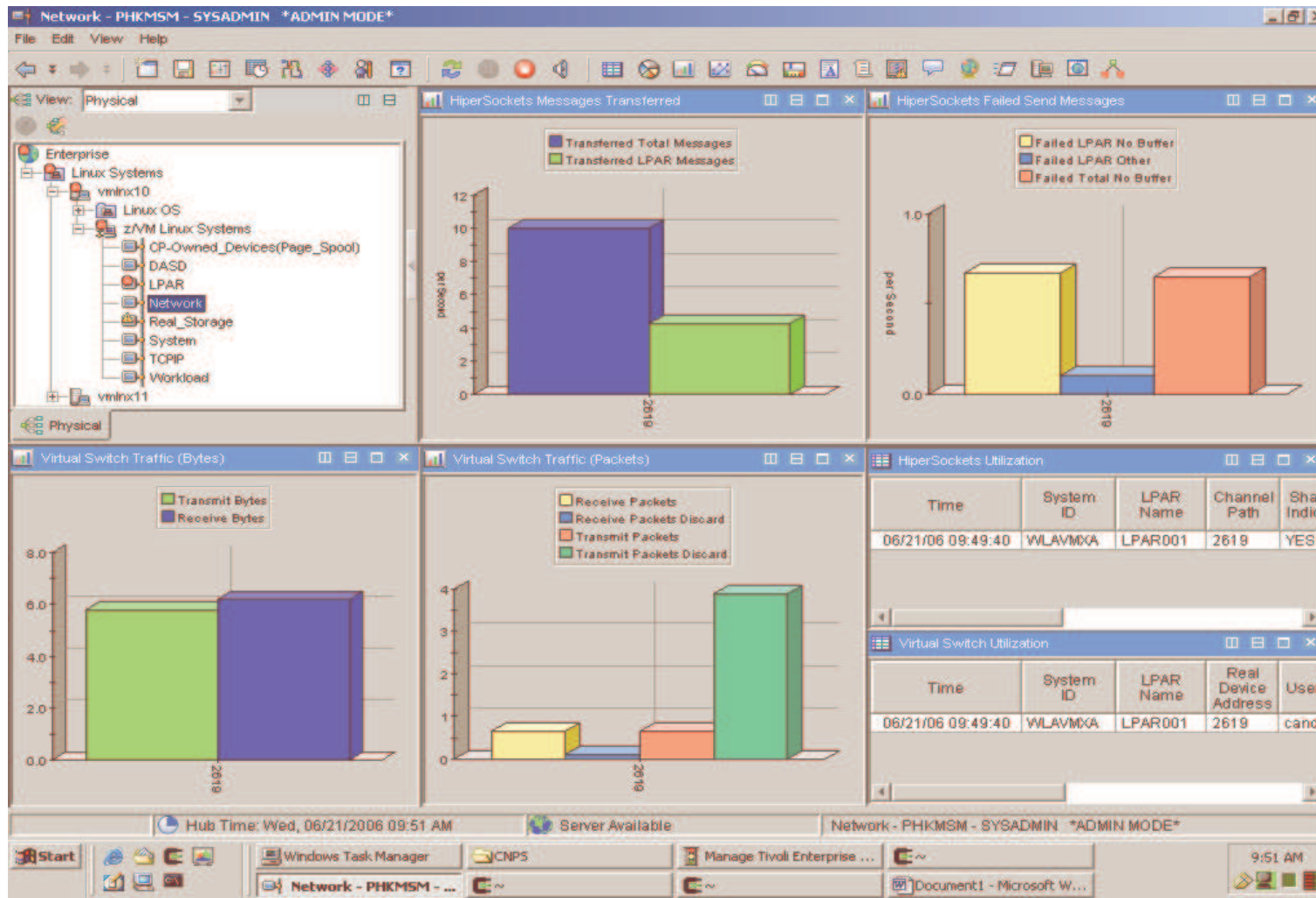
DASD Workspace



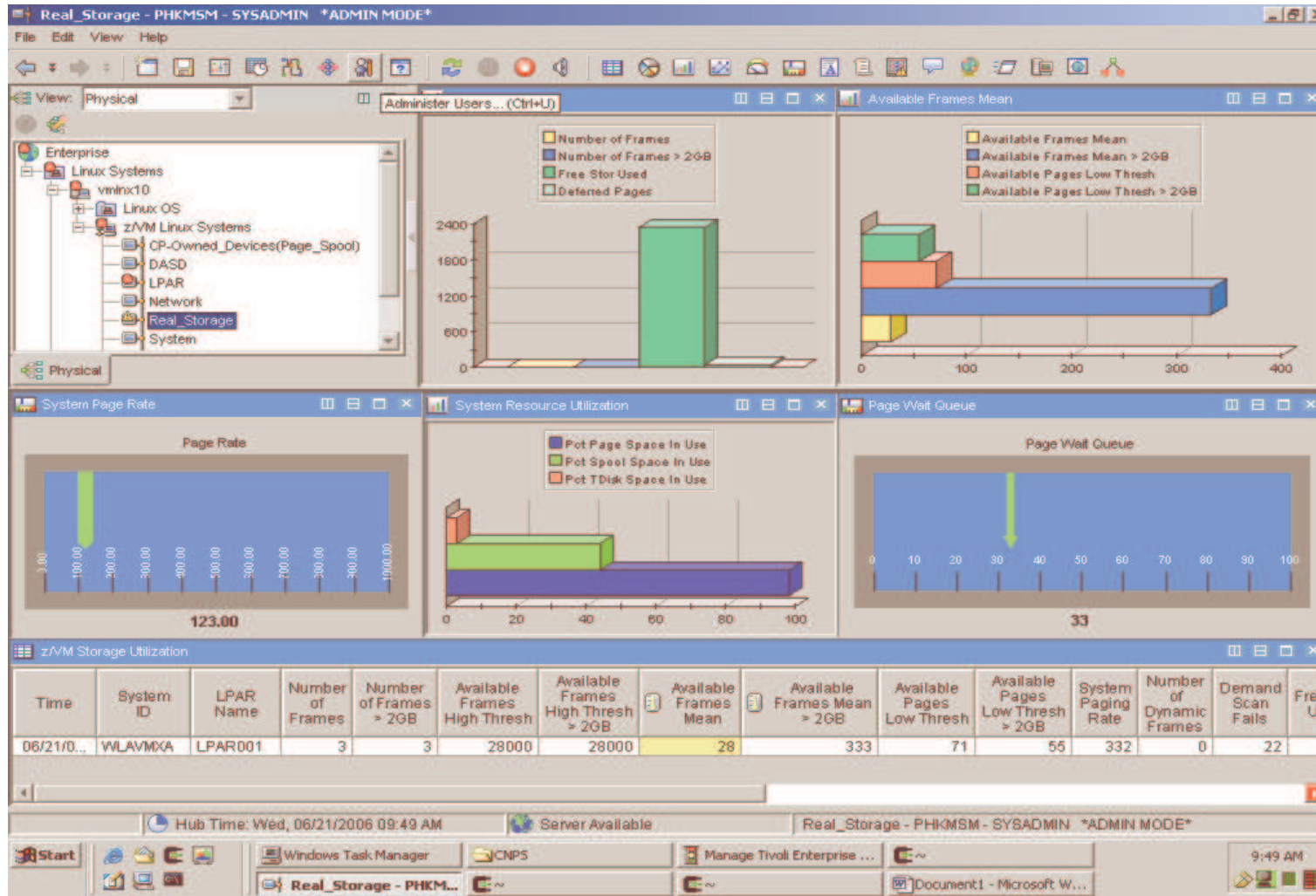
LPAR Utilization Workspace



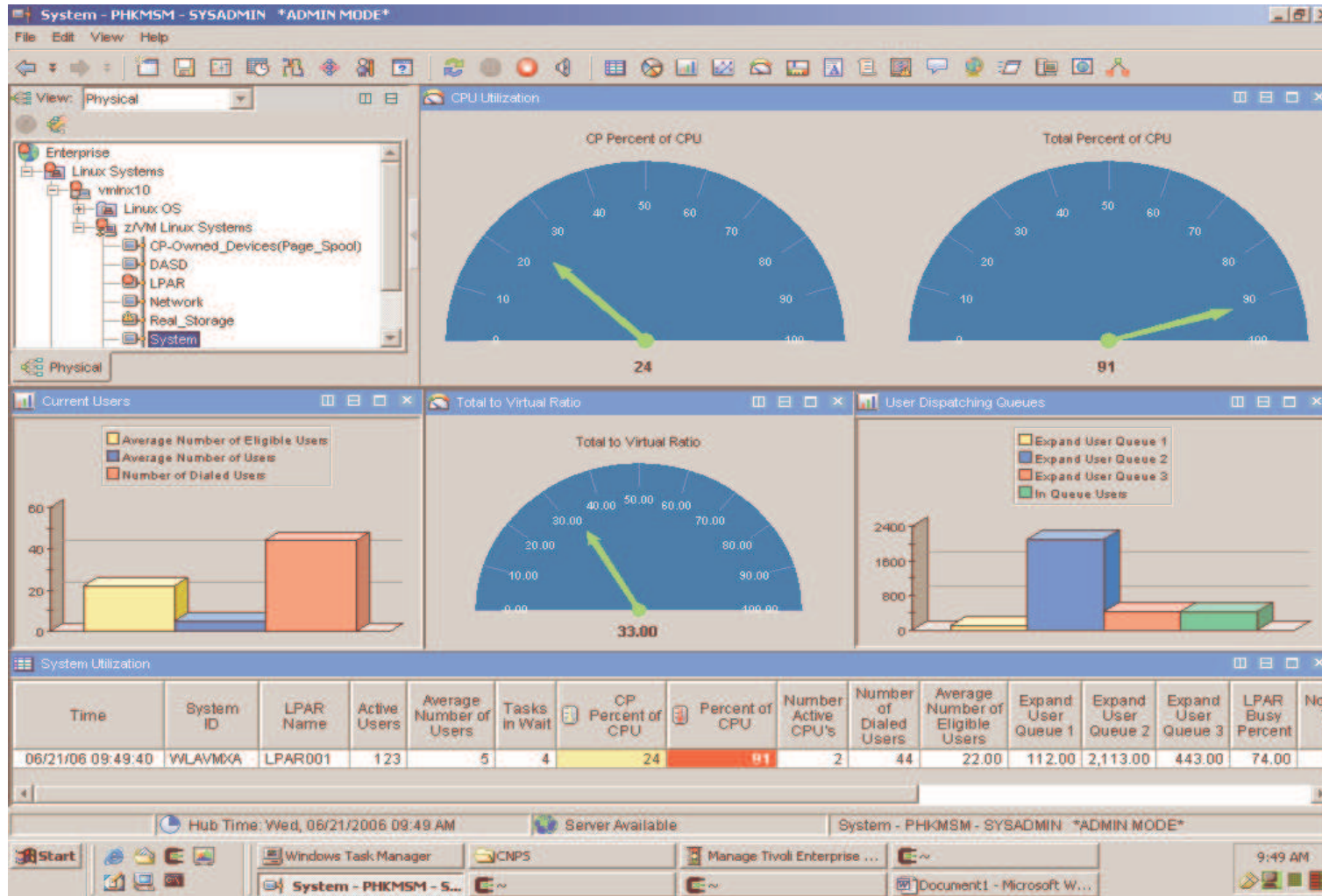
NETWORK Utilization (Hiper Socket and Virtual Switch)



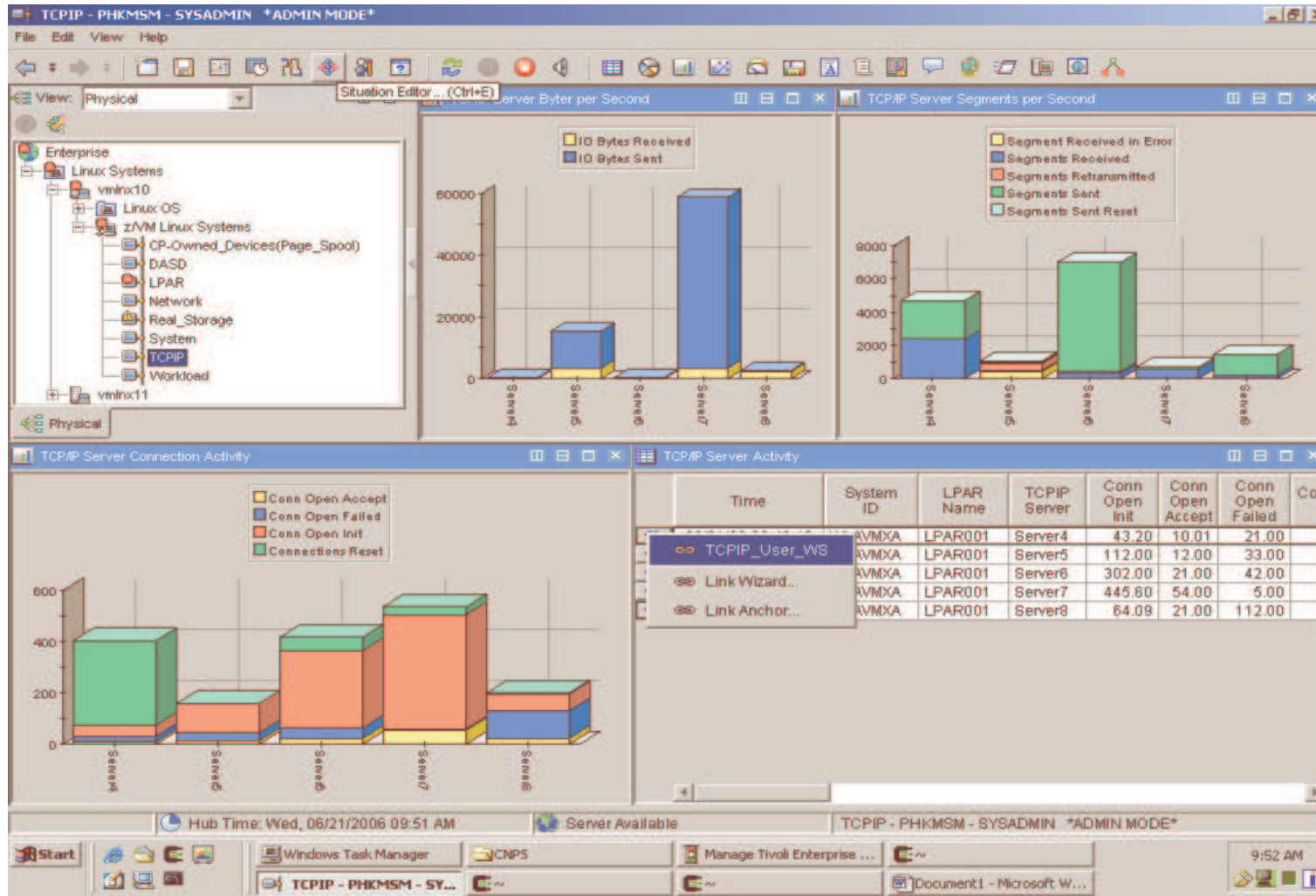
REAL STORAGE Utilization Workspace



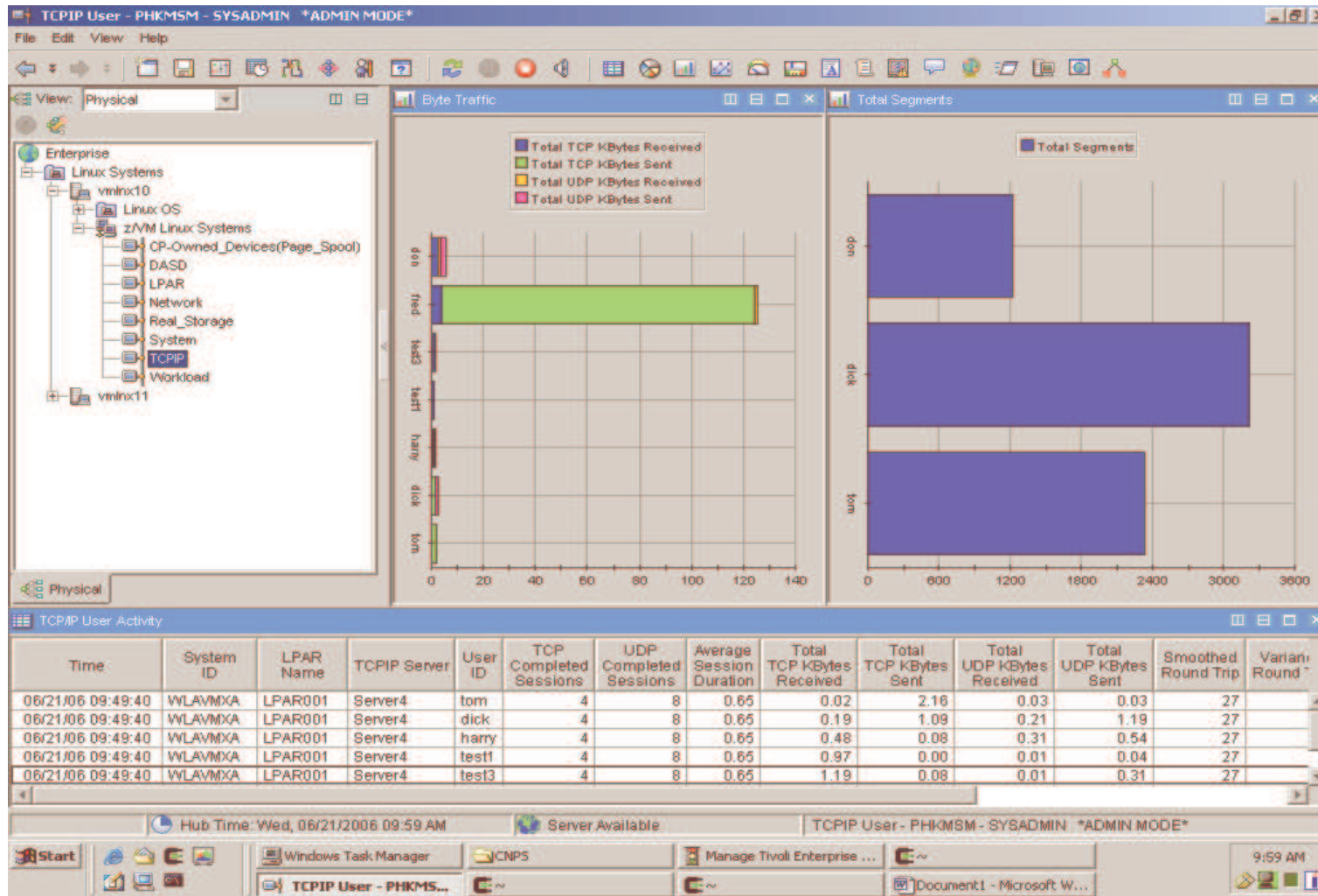
SYSTEM Utilization Workspace



TCPIP Utilization – Server Workspace



TCPIP Utilization – Users Workspace



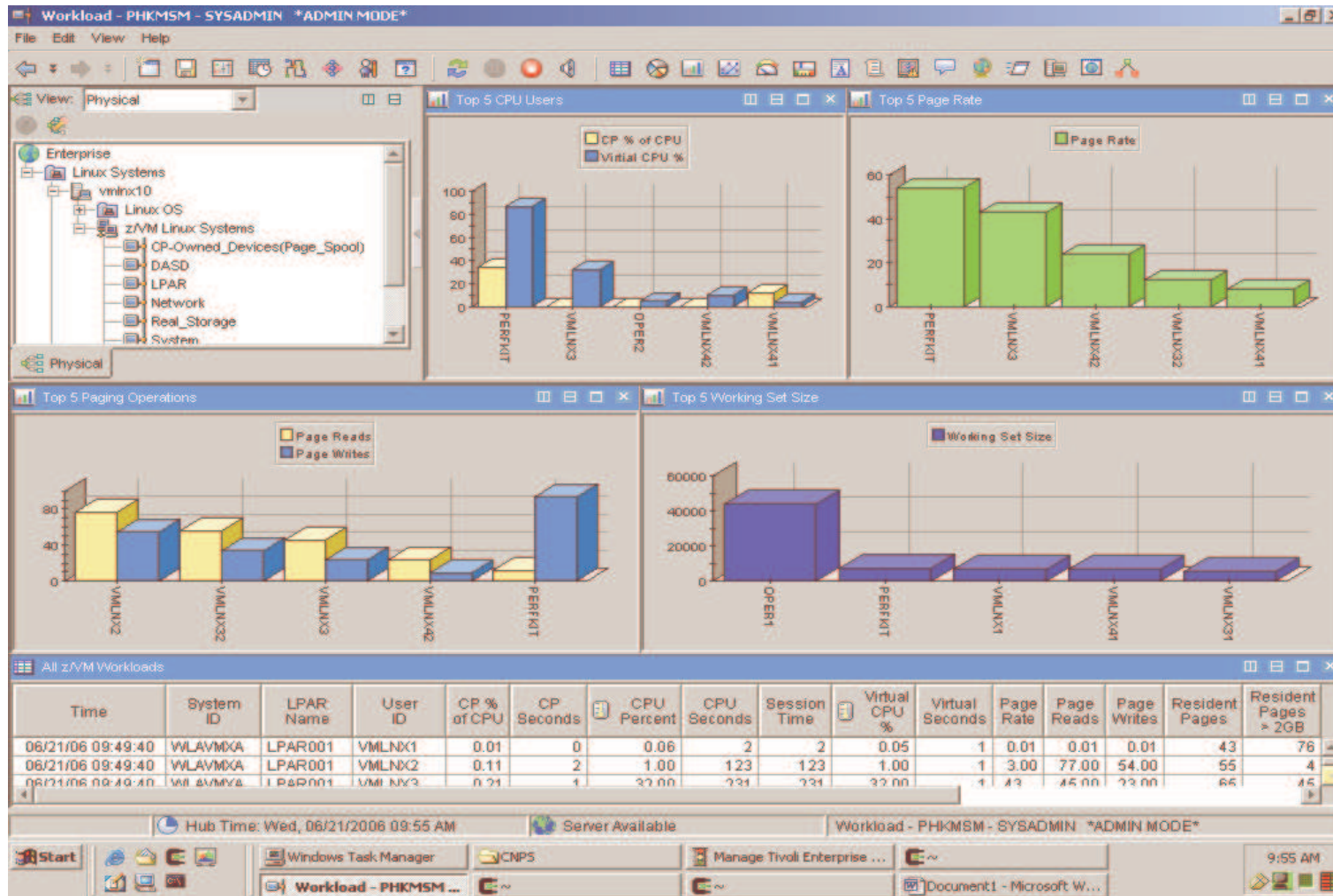
System Terminal Workspace

The screenshot displays the 'System Terminal - PHKOCH - SYSADMIN' window. The interface is divided into several sections:

- Terminal Window:** Shows a command prompt with the text 'a/VM ONLINE' and a large ASCII art logo for 'VM'. Below the logo, it says 'built on IBM Virtualization Technology' and 'Networking Systems Customer Service: 254-4438 T/L 444-4438'. A warning message reads 'USE OF THIS SYSTEM IS FOR IBM MANAGEMENT APPROVED PURPOSES ONLY'. The prompt asks for a 'USERID' and 'PASSWORD'.
- Tree View:** Located on the left, it shows a hierarchy of systems under 'Enterprise'. The 'SYSTEM' folder is selected.
- Take Action Panel:** Below the terminal, there is a 'Take Action' section with a dropdown menu for 'Name' (currently set to '=Select Action='), a text field for 'Command', and a 'Run' button.
- Status Bar:** At the bottom, it shows 'Ready', 'Hub Time: Wed, 08/24/2005 11:05 AM', 'Server Available.', and the window title 'System_Terminal - PHKOCH - SYSADMIN'.



WORKLOAD (z/VM User ID) Activity Workspace



Linux Workload Workspace

The screenshot displays the Linux Workload Workspace application interface. The main window is titled "Linux_Workload - PHKMSM - SYSADMIN *ADMIN MODE*". It features a tree view on the left showing the system hierarchy, including Linux OS, z/VM Linux Systems, and various devices like DASD, LPAR, Network, Real_Storage, System, TCP/IP, and Workload. A context menu is open over the "Workload" node, listing actions such as "Take Action...", "Link To...", "Launch...", "Situations...", "Print Preview...", "Print...", and "Properties...".

Four performance charts are visible:

- Top 5 CPU Linux Guest Systems:** A bar chart showing CP % of CPU (yellow) and Virtual CPU % (blue) for five systems (VMLNX1 to VMLNX5).
- Top 5 Linux Guest System Page Rate:** A bar chart showing Page Rate (green) for five systems (VMLNX1 to VMLNX5).
- Top 5 Linux Guest System Working Set Size:** A bar chart showing Working Set Size (purple) for five systems (VMLNX1 to VMLNX5).
- Top 5 Linux Guest System:** A bar chart showing CP % of CPU (yellow) and Virtual CPU % (blue) for five systems (VMLNX1 to VMLNX5).

At the bottom, a table titled "Linux Guest System Workloads" provides detailed data for three systems:

Workload Group	Time	System ID	LPAR Name	User ID	CP % of CPU	CP Seconds	CPU Percent	CPU Seconds	Session Time	Virtual CPU %	Virtual Seconds	Page Rate	Page Reads	Page Writes	Res Pa
LINUX	06/21/06 09:49:40	WLAVMXA	LPAR001	VMLNX1	0.01	0	0.06	2	2	0.05	1	0.01	0.01	0.01	
LINUX	06/21/06 09:49:40	WLAVMXA	LPAR001	VMLNX2	0.11	2	1.00	123	123	1.00	1	3.00	77.00	54.00	
LINUX	06/21/06 09:49:40	WLAVMXA	LPAR001	VMLNX3	0.21	1	32.00	231	231	32.00	1	43	45.00	23.00	

The bottom status bar shows "Hub Time: Wed, 06/21/2006 09:56 AM", "Server Available", and the application title "Linux_Workload - PHKMSM - SYSADMIN *ADMIN MODE*". The taskbar at the very bottom includes the Start button, Windows Task Manager, CNPS, and other running applications.

Application Data Workspace

ApplData - PHKMSM - SYSADMIN *ADMIN MODE*

File Edit View Help

View: Physical

Enterprise

- Linux Systems
 - vmlnx10
 - Linux OS
 - z/VM Linux Systems
 - vmlnx11

Physical

Linux Guest Workload Data

Time	System ID	LPAR Name	User ID	CP % of CPU	CP Seconds	CPU Percent	CPU Seconds	Session Time	Virtual CPU %	Vir Sec
06/21/06 09:39:58	WLAVMXA	CANVM1	VMLNX10	0.13	0	0.62	1	1	0.48	
06/21/06 09:39:58	WLAVMXA	CANVM1	VMLNX11	0.12	0	0.60	1	1	0.47	

Link To...

- Link Wizard...
- ApplData to Linux Process Workspace
- ApplData to Linux System Information Workspace
- ApplData to Linux Virtual Memory Workspace
- ApplData to Linux Disk IO Rate Workspace
- ApplData to Linux Network Workspace
- ApplData to Linux Sockets Workspace
- ApplData to Linux Capacity Usage Workspace
- ApplData to Linux CPU Averages Workspace
- ApplData to Linux Virtual Memory Trend W/S

Linux Guest App...

Time	Percent Soft IRQs	Percent I/O Wait	Percent CPU Idle	Runnable Processes	Processes Waiting for I/O	Total Processes	Avg La
06/21/06 09:39:58	3.00	0.50	0.00	0	0	145	
06/21/06 09:39:58	0.00	0.00	0.00	3	0	100	

Hub Time: Wed, 06/21/2006 09:41 AM Server Available ApplData - PHKMSM - SYSADMIN *ADMIN MODE*

Start Windows Task Manager CNPS Manage Tivoli Enterprise ... 9:41 AM

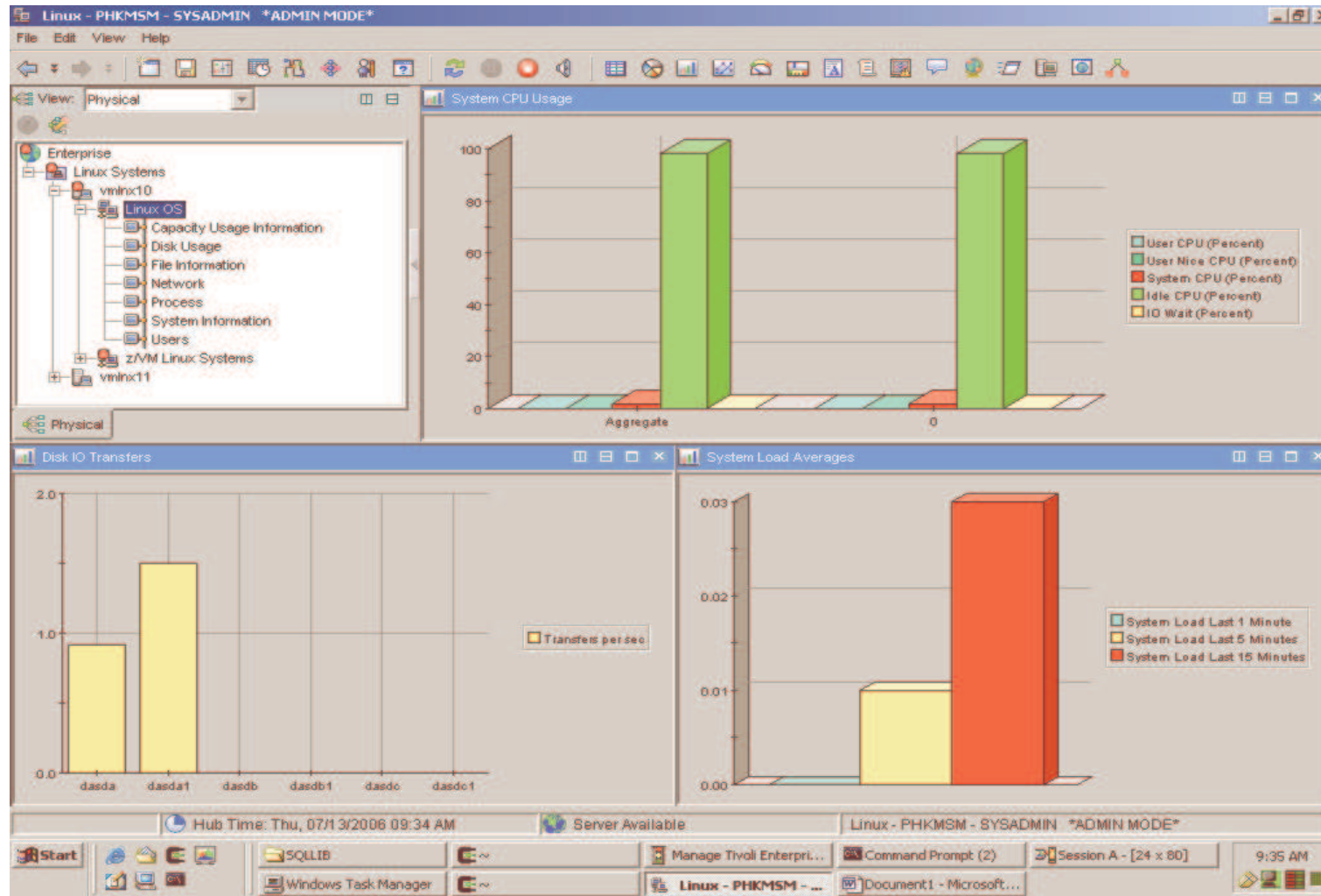
ApplData - PHKMSM - ... Document1 - Microsoft W...

Linux on zSeries Primary Workspaces

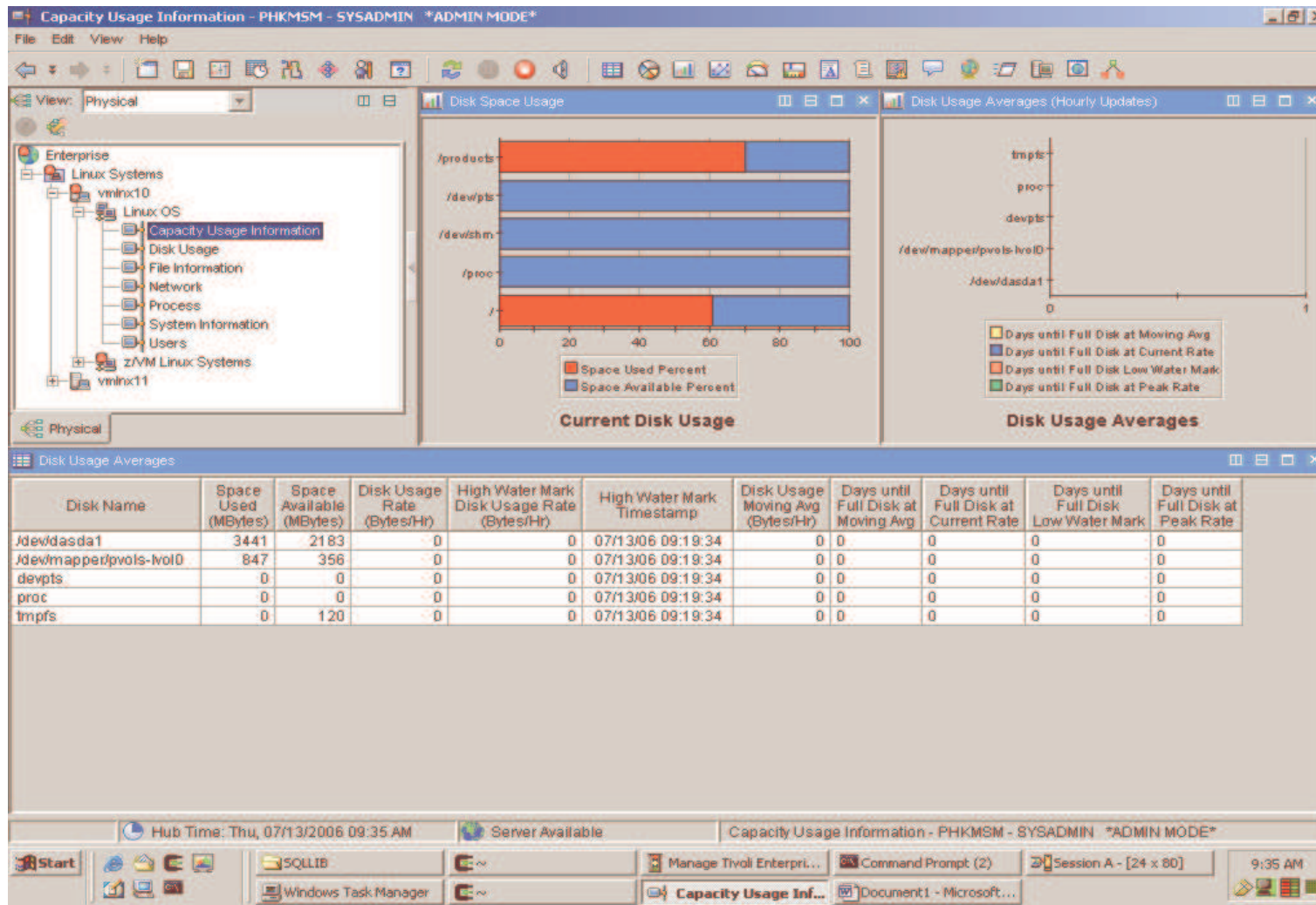
- **Linux OS**
- **Capacity Usage**
- **Disk Usage**
- **File Information**
- **Network**
- **Process**
- **System Information**
- **Users**



Linux OS Workspace



Capacity Usage Workspace



Disk Usage Workspace

The screenshot displays the 'Disk Usage' workspace in 'ADMIN MODE'. It features a navigation tree on the left, two summary bar charts at the top, a data table, and a detailed bar chart at the bottom.

Space Used Percent Chart: Shows usage for /dev/mapper/pvols-lvol0 (approx. 65%) and /dev/dasda1 (approx. 60%).

Inodes Used Percent Chart: Shows usage for /dev/mapper/pvols-lvol0 (approx. 0.5%) and /dev/dasda1 (approx. 0.1%).

Disk Usage Table:

Mount Point (Unicode)	Disk Name	Size (MBytes)	Space Used (MBytes)	Space Available (MBytes)	Total Inodes	Inode Use
/	/dev/dasda1	5624	3441	2182	0	0
/proc	proc	0	0	0	0	0
/dev/shm	tmpfs	120	0	120	30928	0
/dev/pts	devpts	0	0	0	0	0
/products	/dev/mapper/pvo...	1203	847	356	0	0

Detailed Bar Chart: Shows 'Space Used (MBytes)' in orange and 'Space Available (MBytes)' in green for /products, /dev/pts, /dev/shm, /proc, and /. The root '/' shows the highest usage, with approximately 3441 MBytes used and 2182 MBytes available.

File Information Workspace

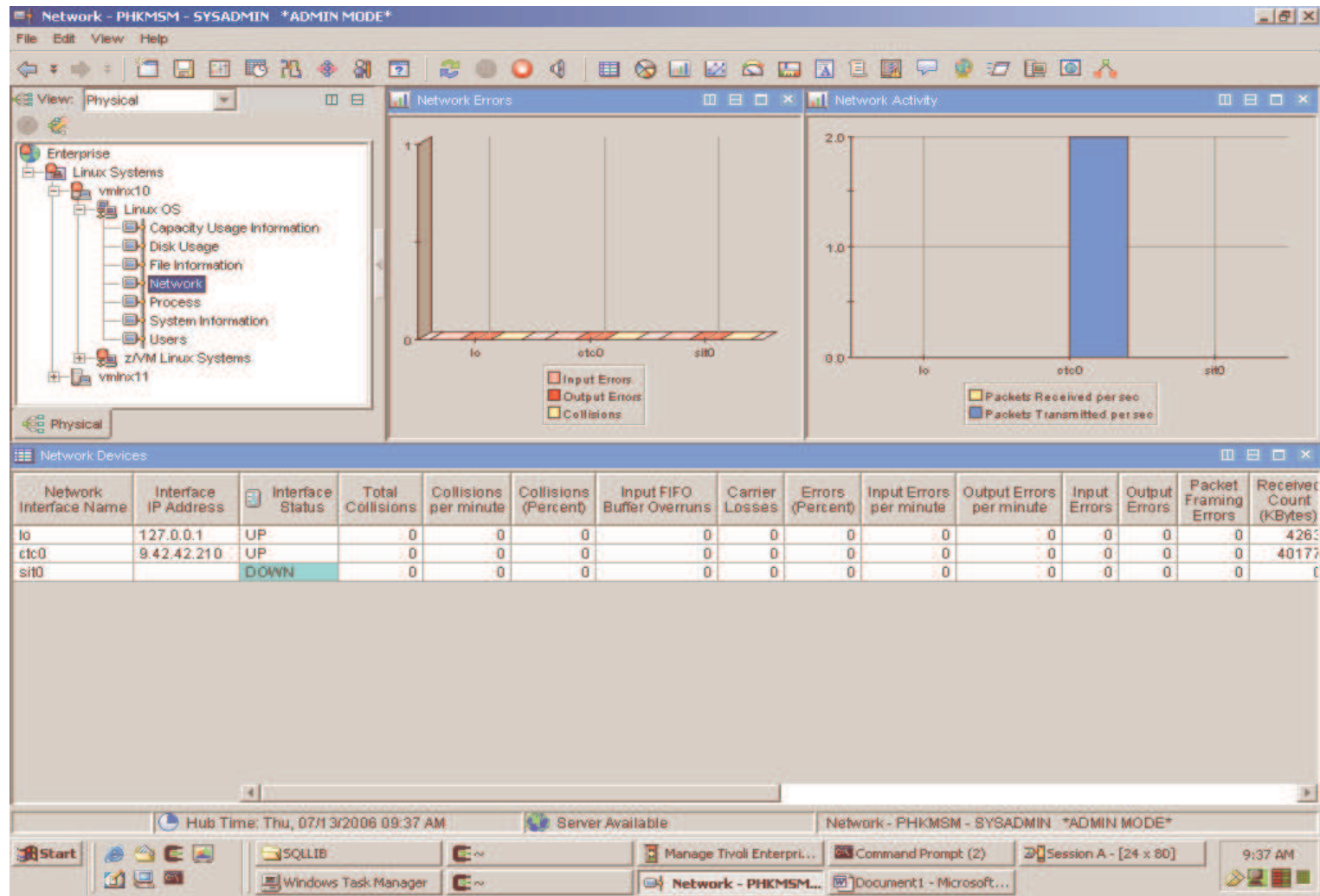
The screenshot displays the 'File Information' workspace in 'ADMIN MODE'. The interface includes a navigation tree on the left, a 'File Size - Top Ten' bar chart, and a detailed table of file information.

File Size - Top Ten

Path (Unicode)	File (Unicode)	Size MB	Owner (Unicode)	Group (Unicode)	Last Changed Time	Last Accessed Time	Links	Access	Type	Link Name (Unicode)
/	dev	0.116	root	root	06/26/06 10:28:05	07/13/06 04:25:44	12	1363	Dir	
/	sbin	0.010	root	root	08/18/05 09:48:42	07/13/06 04:30:27	3	1363	Dir	
/	etc	0.008	root	root	06/30/06 14:04:27	07/13/06 04:25:49	90	1363	Dir	
/	lib	0.003	root	root	08/18/05 09:32:30	07/13/06 04:25:55	12	1363	Dir	
/	bin	0.002	root	root	11/04/05 15:57:34	07/13/06 04:25:44	2	1363	Dir	
/	..	0.000	root	root	06/26/06 10:26:10	07/13/06 09:40:00	23	1363	Dir	
/	mnt	0.000	root	root	06/26/06 14:19:11	07/10/06 01:48:30	6	1363	Dir	
/	opt	0.000	root	root	11/04/05 16:05:42	07/13/06 04:25:56	7	1363	Dir	
/	.	0.000	root	root	06/26/06 10:26:10	07/13/06 09:40:00	23	1363	Dir	
/	tmp	0.000	root	root	07/13/06 09:30:01	07/10/06 01:48:52	15	3361	Dir	

Hub Time: Thu, 07/13/2006 09:37 AM | Server Available | File Information - PHKMSM - SYSADMIN *ADMIN MODE*

Network Workspace

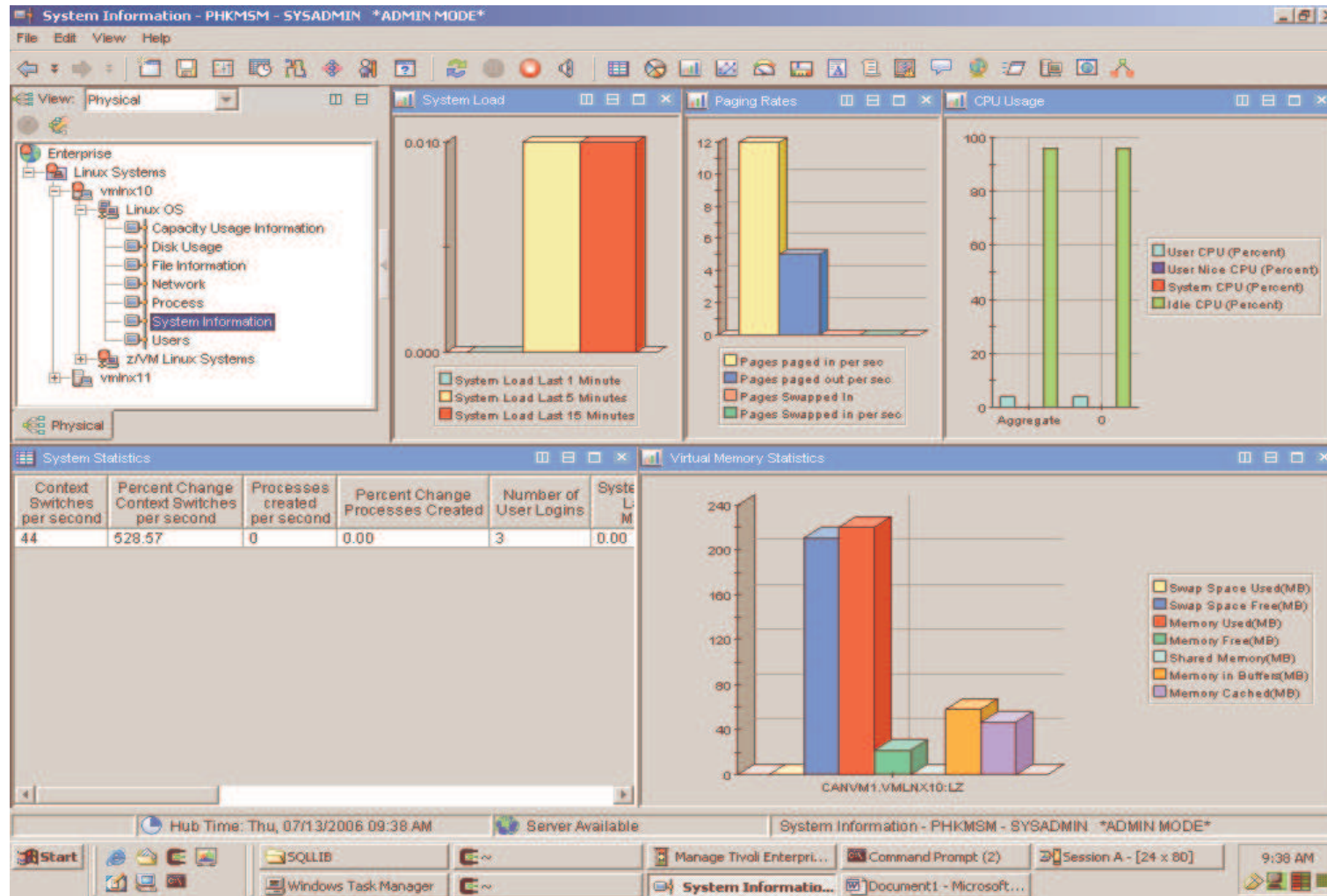


Process Workspace

The screenshot displays the 'Process - PHKMSM - SYSADMIN *ADMIN MODE*' window. On the left is a tree view of the system hierarchy. The main area is split into two bar charts: 'Process CPU Percent Usage' and 'Process + Child CPU Percent Usage'. Below these is a 'Process Information Detail' table.

Process Command name (Unicode)	Process ID	Process Parent ID	Process State	Process System CPU (Percent)	Process User CPU (Percent)	Cumulative Process System CPU (Percent)	Cumulative Process User CPU (Percent)	Kernel Priority	Nice Value	Total Size(pages)	Resident Se Size(pages)
klzagent	9064	1	Sleeping	0.12	0.37	0.00	0.00	16	0	19371	294
pdflush	12	4	Sleeping	0.06	0.00	0.00	0.00	15	0	0	0
kswapd0	13	1	Sleeping	0.03	0.00	0.00	0.00	16	0	0	0
slpd	2029	1	Sleeping	0.02	0.01	0.00	0.00	16	0	888	291
cupsd	2105	1	Sleeping	0.01	0.00	0.00	0.00	16	0	1771	81
pickup	8756	2190	Sleeping	0.00	0.01	0.00	0.00	17	0	1196	39
events/0	4	1	Sleeping	0.00	0.00	0.00	0.00	5	-10	0	0
kslowcrw	8	4	Sleeping	0.00	0.00	0.00	0.00	15	-10	0	0
init	1	0	Sleeping	0.00	0.00	-1.15	1.50	16	0	157	6
cio	6	4	Sleeping	0.00	0.00	0.00	0.00	15	-10	0	0
cio_notify	7	4	Sleeping	0.00	0.00	0.00	0.00	15	-10	0	0
aio/0	14	4	Sleeping	0.00	0.00	0.00	0.00	15	-10	0	0
kblockd/0	5	4	Sleeping	0.00	0.00	0.00	0.00	5	-10	0	0
kmcheck	43	1	Sleeping	0.00	0.00	0.00	0.00	25	0	0	0

System Information Workspace



Users Workspace

The screenshot displays the 'Users - PHKMSM - SYSADMIN *ADMIN MODE*' application window. The interface is divided into several panes:

- Left Pane:** A tree view showing the system hierarchy: Enterprise > Linux Systems > vmlinx10 > Linux OS > Users.
- Process User Information Table:** A table listing system processes with columns for Process ID, Effective User ID, Saved User ID, File System User ID, Real Group ID, Effective Group ID, Saved Group ID, File System Group ID, Real User name (Unicode), Effective User name (Unicode), and Saved User name (Unicode). All listed processes are running as root.
- User Login Information Table:** A table showing active user logins with columns for User Name (Unicode), User Login PID, Line, Login Time, Idle Time, and Hostname(From).

User Name (Unicode)	User Login PID	Line	Login Time	Idle Time	Hostname(From)
bmadd	2946	pts/0	06/26/06 10:33:36	06:23:54	linux3.raleigh.ibm.com
candle	5828	pts/1	07/12/06 10:18:42	00:19:11	phkmsm.raleigh.ibm.com
candle	29332	pts/2	06/30/06 11:10:14	00:00:24	phkmsm.raleigh.ibm.com
- Total User Logins Chart:** A bar chart showing the number of logins per user. The x-axis represents the number of logins (0 to 100), and the y-axis represents the number of users. A bar for 3 users is shown in yellow, with a green arrow pointing to it.

The status bar at the bottom indicates the Hub Time as Thu, 07/13/2006 09:39 AM and the server as Available. The taskbar shows the Start button, SQLLIB, Windows Task Manager, and several open applications including 'Manage Tivoli Enterpri...', 'Command Prompt (2)', and 'Session A - [24 x 80]'.

Så er min tid gået for i dag !



**Tak fordi du var med på
turen rundt i Tivoli**

