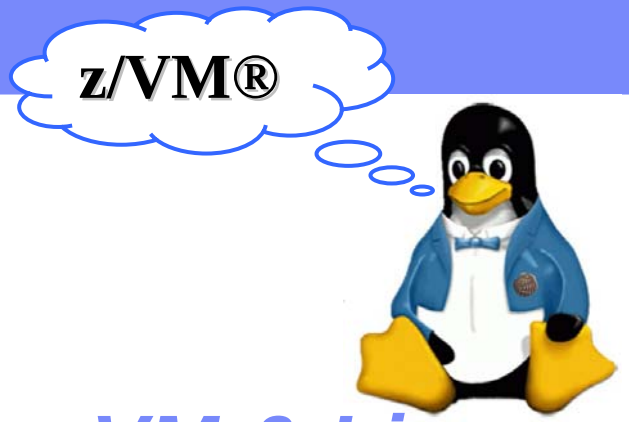
IBM Software Group



IBM Tivoli OMEGAMON XE for zVM & Linux

München, 26th October 2010

Wilfried Jurkowski (Technical Sales for zSeries – OMEGAMON, ITM & System Automation)

wilfried_jurkowski@de.ibm.com

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Tivoli software

Agenda

- System Requirements & Architecture
- Installation Process
- Graphical Userinterface (**T**ivoli **E**nterprise **P**ortal)
  - Workspaces
  - Event Management (Situations & Automation)
  - History Data and Reporting
- Scenarios for Problem Analysis and Problem Solution
- Appendix A: Workspace Screenshots (not Part of the Presentation)
- Appendix B: Configuration Parameters (not Part of the Presentation)

System Requirements

&

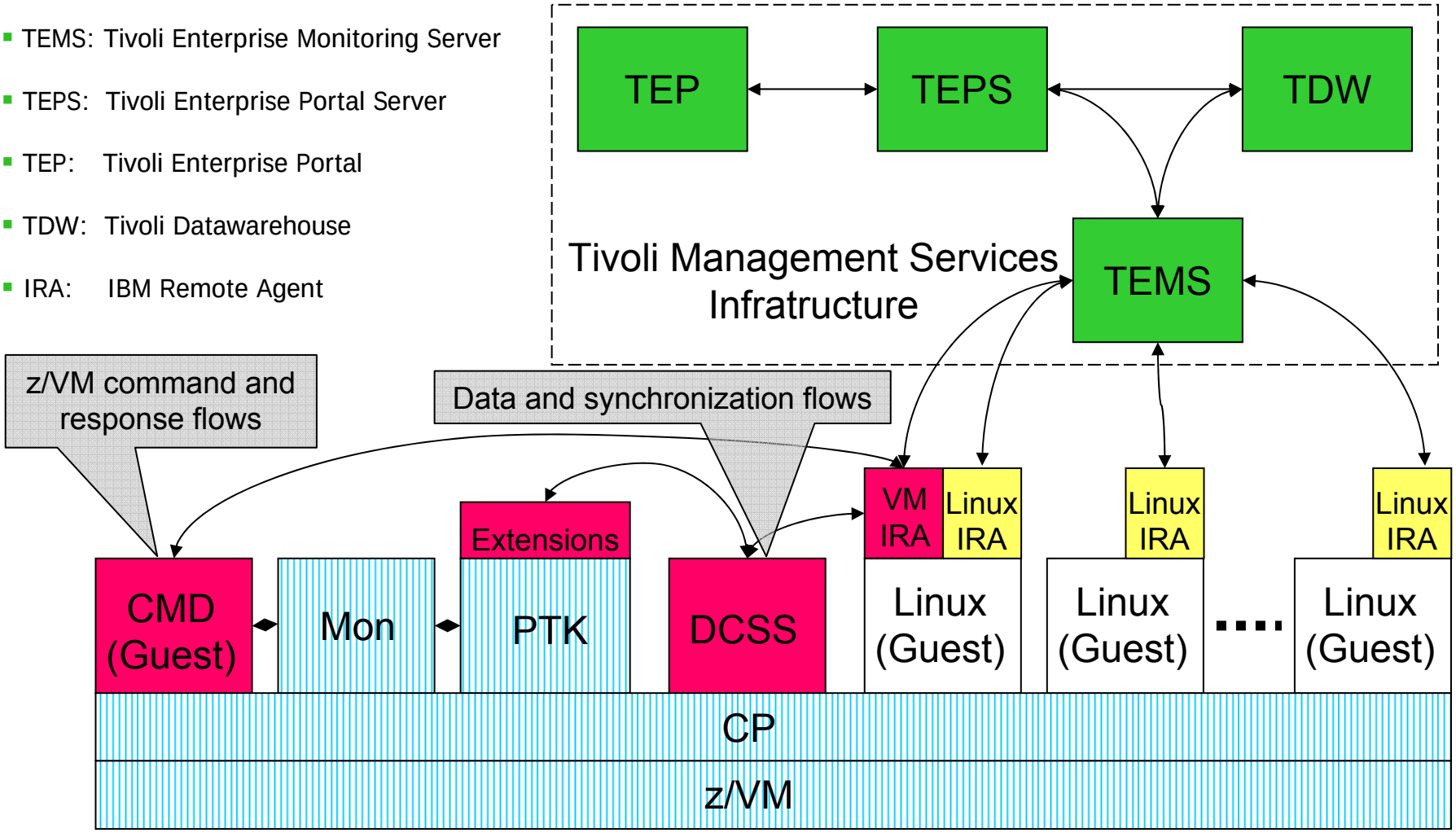
Architecture

System Requirements and Software Package

- **Installation is done on z/VM and on each Linux guest you wish to monitor**
  - Software Requirements
    - z/VM
      - z/VM 5.2 Performance Toolkit, or higher, with appropriate service
      - For OMEGAMON XE for zVM and Linux V4.2.0 you need to be on z/VM 5.3 or higher
    - Linux on z
      - Only one Linux on z guest required per LPAR
      - SLES 9 Service Pack 3 or higher
      - RHEL 4 Update level 5 or higher
      - These have the following support
        - Ability to attach a z/VM DCSS
        - vmcp interface to allow Take Action commands and Reflex Automation
  - Software Package (download from ShopZ or shipped on CD)
    - ITM 6.2.2 FP2 (including TEMS/TEPS/TEP/TDW & DB2 V9.5)
    - OMEGAMON XE for zVM and Linux Agents V4.2.0
    - Application Support for the Linux Agent
    - IBM Product Documentation

Basic Architecture for z/VM and Linux Monitoring

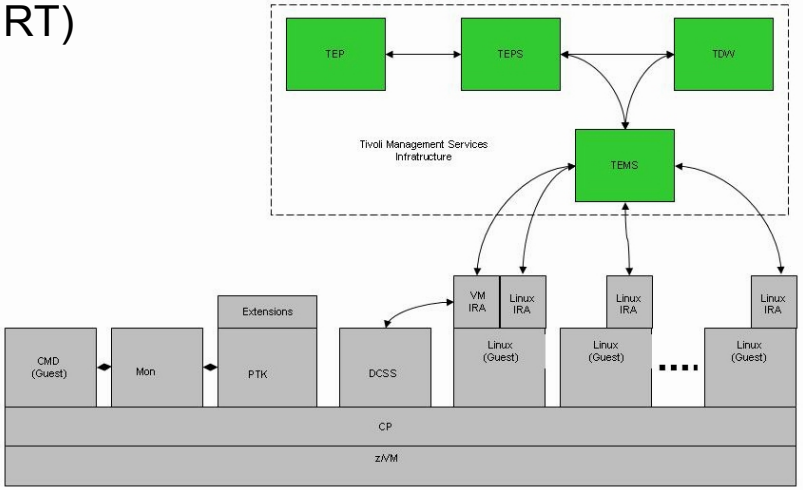
- TEMS: Tivoli Enterprise Monitoring Server
- TEPS: Tivoli Enterprise Portal Server
- TEP: Tivoli Enterprise Portal
- TDW: Tivoli Datawarehouse
- IRA: IBM Remote Agent



Installation Process

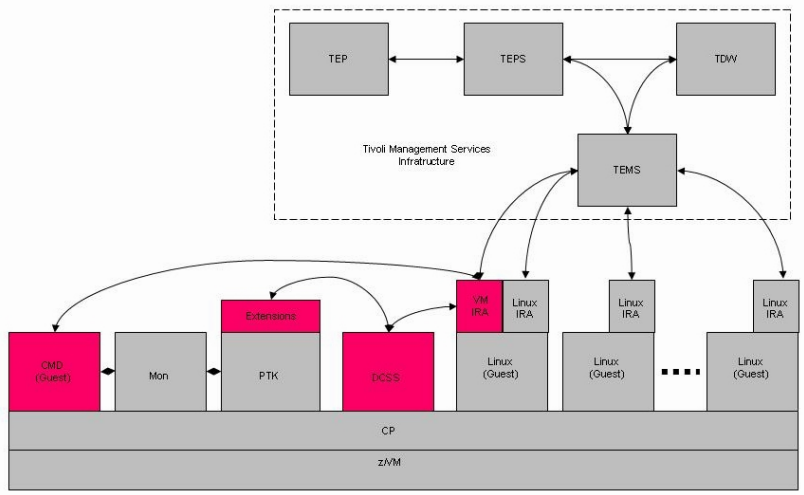
Installing OMEGAMON XE for z/VM and Linux (1)

- **First Step: Installation of the ITM infrastructure**
  - TEMS “HUB”: zLinux - Linux/Unix - AIX - Windows - zOS
  - TEMS “remote”: not necessary (zLinux - Linux/Unix - AIX - Windows – zOS)
  - TEPS: zLinux - Linux/Unix - AIX - Windows
  - TEP: Full Client - Browser (Firefox / Internet Explorer) - Java Web Start
  - Datawarehouse: necessary, if history data (>24 hours)
    also base for reporting (TDS / BIRT)
  - Application Support Files
    - Tivoli OMEGAMON XE for zLinux
    - Tivoli OMEGAMON XE for zVM (part of the product)



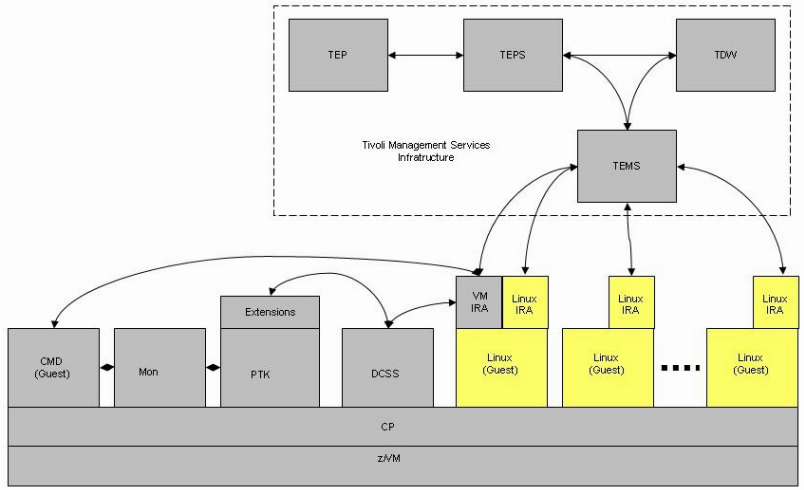
Installing OMEGAMON XE for z/VM and Linux (2)

- **Second Step: Installation of the "zVM" Monitoring Agent**
  - PERFKIT Module is a prerequisite
    - obtain latest service (z/VM 5.4 has 4.2.0 support)
  - Command processor installed with VM/SES
  - zVM Monitoring Agent (need to install only on one zVM)
    - required Steps
      - System changes
      - Create and configure the PERFOUT DCSS
      - Update the FCONX $PROFILE
      - Install the agent on one Linux guest
    - optional Steps for Command Processor
      - Edit KVLCFG file
      - Start KVLCMD EXEC



Installing OMEGAMON XE for z/VM and Linux (3)

- **Third Step: Installation of the “Linux” Monitoring Agents**
  - zLinux Monitoring Agent (need to install on every Linux guest wish to monitor)
    - required Steps
      - Accessing the DCSS
      - Enabling Appldata collecting
      - Enabling Dynamic Workspace Linking
      - Install the agent(s) on every Linux guest
    - optional Steps
      - Enabling the Take Action Command (Command Processor)



Installing OMEGAMON XE for z/VM and Linux (4)

- **Fourth Step: You have “a lot more” Linux guests**

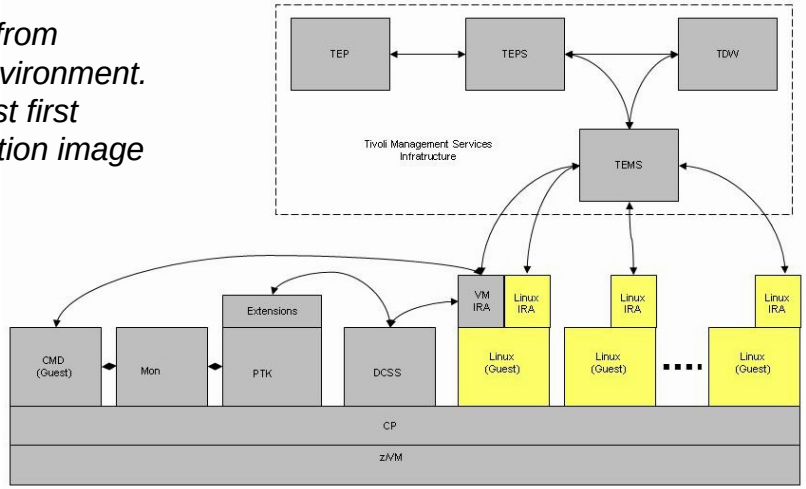
  - Deploying Monitoring Agents across your Environment

    IBM Tivoli Monitoring provides the ability to deploy monitoring agents from a central location, the Tivoli Enterprise Monitoring Server (TEMS-HUB).

    - required Steps

      - Create and populate the agent deploy depot with installable agent images
      - View and change the contents of the agent depot
      - Use one agent depot for all the monitoring servers in your monitoring environment
      - Deploy an OS agent
      - Deploy a non-OS agent

The agent depot is an installation directory on the monitoring server from which you deploy agents and maintenance packages across your environment. Before you can deploy any agents from a monitoring server, you must first populate the agent depot with bundles. A bundle is the agent installation image and any prerequisites.



Checklist for the Installation (1)

- **On the ITM Infrastructure**
  - Installing application support files (this is the most commonly overlooked step)
    - *… for zVM part of the product tape*
    - *… for zLinux on the CD or download from ShopZ*
  - Be sure to install the application support files at:
    - *TEMS*
    - *TEPS*
    - *Each instance of the Desktop Client if you are using it*
  - Check the “LOGON” with the “SYSADMIN” User from your TEP or Browser
    - *Link Example: http://dem17lnx.democentral.ibm.com:1920///cnp/client*

Checklist for the Installation (2)

- **On z/VM**
  - Install the correct level of Performance Toolkit
  - Build and save the DCSS
  - Add OPTION APPLMON to all Linux guests and TCPIP servers
  - Update the PROFILE TCPIP
    - *Add "OPTION APPLMON" statements to the Directory entry for your TCPIP server(s)*
    - *Add "MONITORRECORDS MOSTRECORDS" to the PROFILE TCPIP file*
  - Update the FCONX $PROFILE to collect OMEGAMON data
    - *FC MONCOLL SEGOUT ON PERFOUT*
  - Enable the Monitor Domains for the data you wish to collect
    - *Must have Class E privilege*
  - Configure the command processor for the Take Action command (optional)
    - *Edit the "KVL CONFIG" file …*

Checklist for the Installation (3)

- **On “every monitoring” Linux guest**
  - Ensure you have installed the required packages
  - Configure Linux storage to access the DCSS
    - *Either with a mem= parameter in zipl.conf*
    - *Or “DEF STOR CONFIG” and leaving a memory hole for the DCSS*
  - Do a “modprobe dcssblk” to load DCSS support
  - Do an “echo perfout > /sys/devices/dcssbld/add to link to the DCSS
  - Do modprobe’s for the 3 Linux appldata modules and then enable them
    - *Load the collecting drivers with “modprobe appldata_...”*
    - *Enable collecting with “echo 1 > /proc/sys/appldata/…”*
  - Set the timer interval and enable it by updating the …
    - */sys/proc/appldata/interval*
    - */sys/proc/appldata/timer files*
  - Enable Dynamic Workspace Linking (DWL)
    - *Modify “<ITM_Home>/config directory/lz.ini file”*
  - Enable “sudo” for the Command Processor and Take Action (optional)

Why “OMEGAMON XE for zVM and Linux”

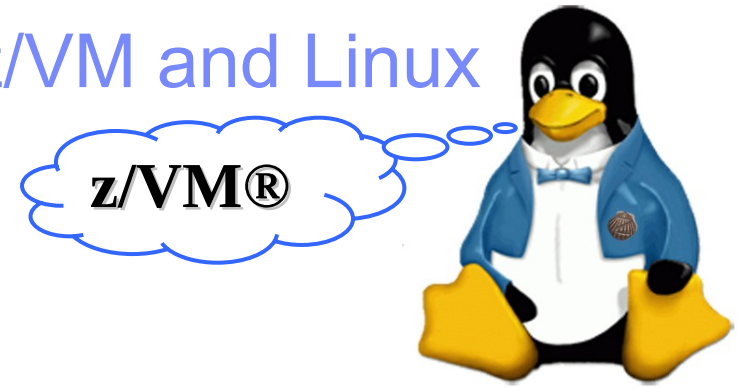
- The PERFKIT Module is a prerequisite but a “single” Monitor
- zVM & Linux data integration with predefined “Workspaces” and “Links”
  - “Real Time” monitoring (predefined Workspaces) on the TEP GUI Userinterface
  - “Event Management” (predefined Situations) & Automation Integration
    - *Event Management Integration with “Tivoli Netcool/ OMNIbus”*
  - “History Data” on the TEP and the “Tivoli Datawarehouse” for Reporting
  - Possibility of own- and individual customized Workspaces
- Integration of several zVM and a lot of Linux guests on the same Userinterface
- The ITM Architecture is the “Base” for both agents with the benefit of …
  - Integration of the zOS monitoring agents
  - Integration of the distributed monitoring agents
  - Same look-and-feel – same administration – same funktionality
- „Day-One-Support“ of the OMEGAMON XE Agents (OS & Subsystems)

Additional Informations

- **Installing OMEGAMON XE on z/VM and Linux Video**
  - http://w3-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS2753
- **Installation of OMEGAMON XE on z/VM and Linux PowerPoint Presentation**
  - http://w3-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS3050
- **OMEGAMON XE on z/VM and Linux Installation Checklist**
  - http://www-01.ibm.com/support/docview.wss?uid=swg21326187
- **Tivoli OMEGAMON XE on z/VM and Linux „Homepage“**
  - http://www-01.ibm.com/software/tivoli/products/omegamon-xe-zvm-linux/
- **Deploying Monitoring Agents across your Environment**
  - http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=/com.ibm.itm.doc/itm_install137.htm

Tivoli Enterprise Portal
the
Graphical Userinterface

IBM Tivoli OMEGAMON XE on z/VM and Linux



IBM Tivoli OMEGAMON XE on z/VM and Linux

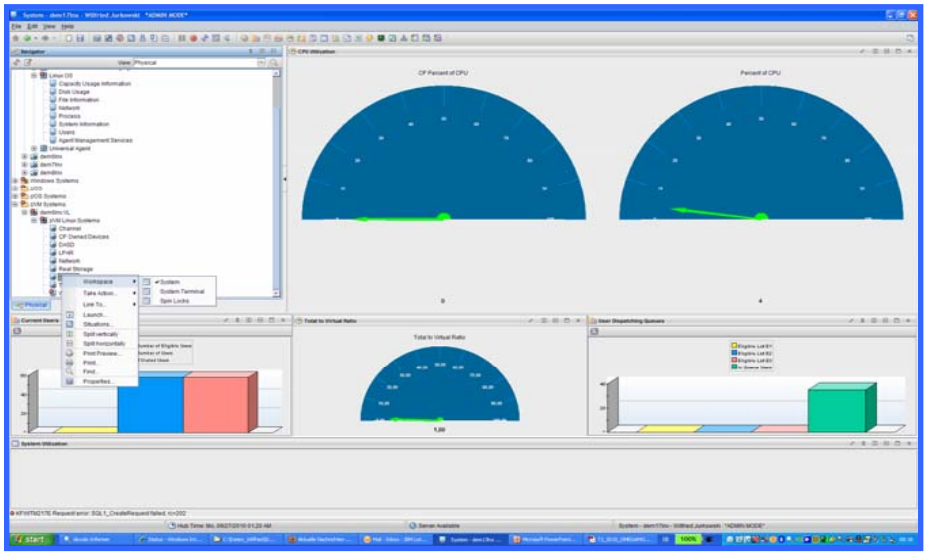
Product at a Glance

- Combined Offering
- Monitors zVM and Linux on System z
- Provides workspaces that display
  - Overall System Health
  - Workload metrics for logged-in users
  - Individual device metrics
  - LPAR Data & Response Times
- Composite views of zLinux running on VM
- Leverages the VM Performance Toolkit
- Bottleneck Analysis
- Historical Reporting and Trending Analysis

Event Monitoring

Pre-defined Situations with

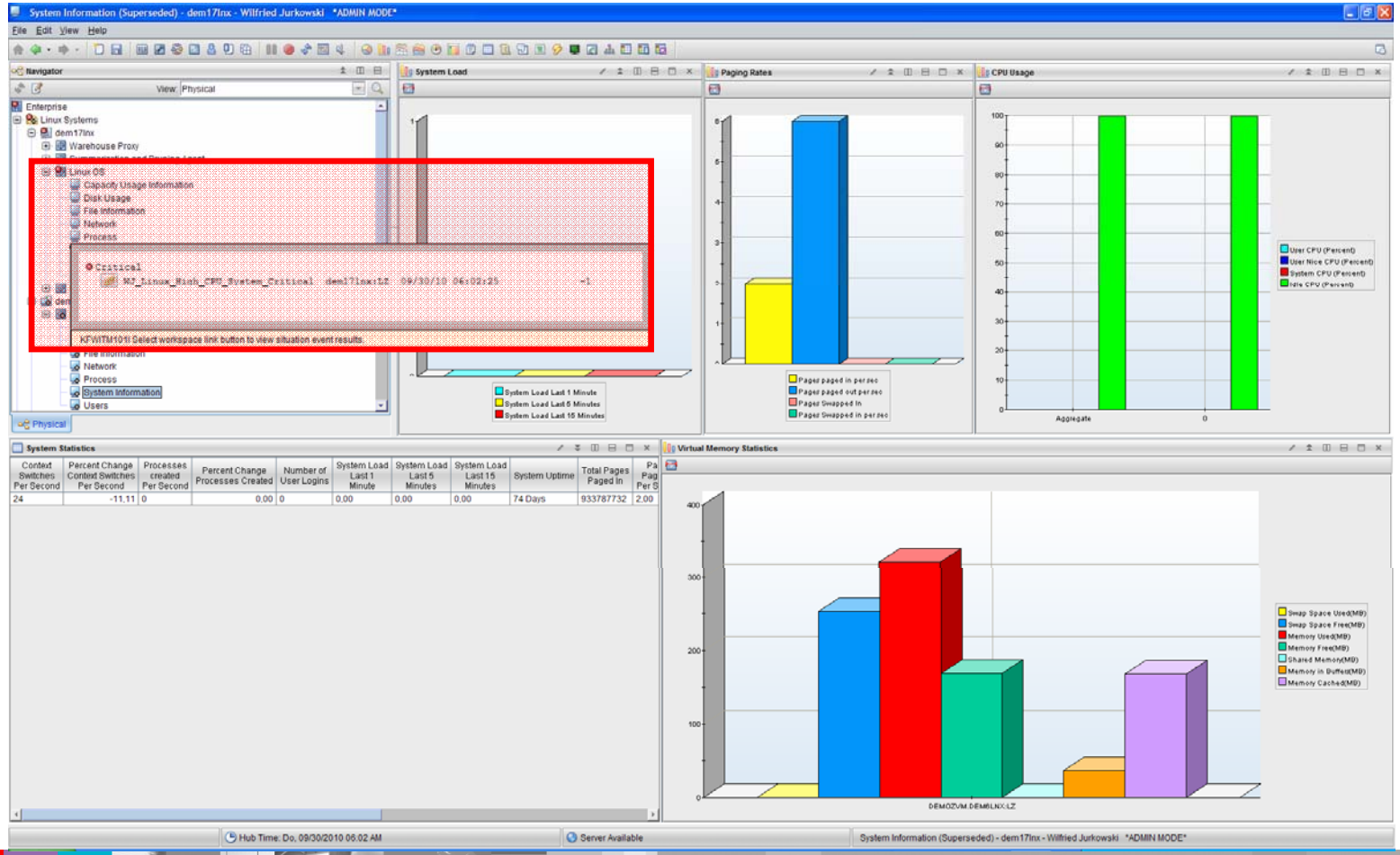
- Thresholds
- Intervall Definitions
- ACTION (Automation) & EXPERT ADVICE and ...



- **Linux CPU monitoring from within Linux guest**
  - Measurements are accurate from the perspective of the guest
- **OMEGAMON XE on z/VM and Linux**
  - Requires VM Performance Toolkit same relationship as OMEGAMON XE for z/OS has with RMF
- **Linux guest required for OMEGAMON XE on z/VM and Linux**
  - Data collection from VM Performance Toolkit is passed through DCSS (SLES 9, SLES 10, and RHEL 5) to OMEGAMON agent running on Linux

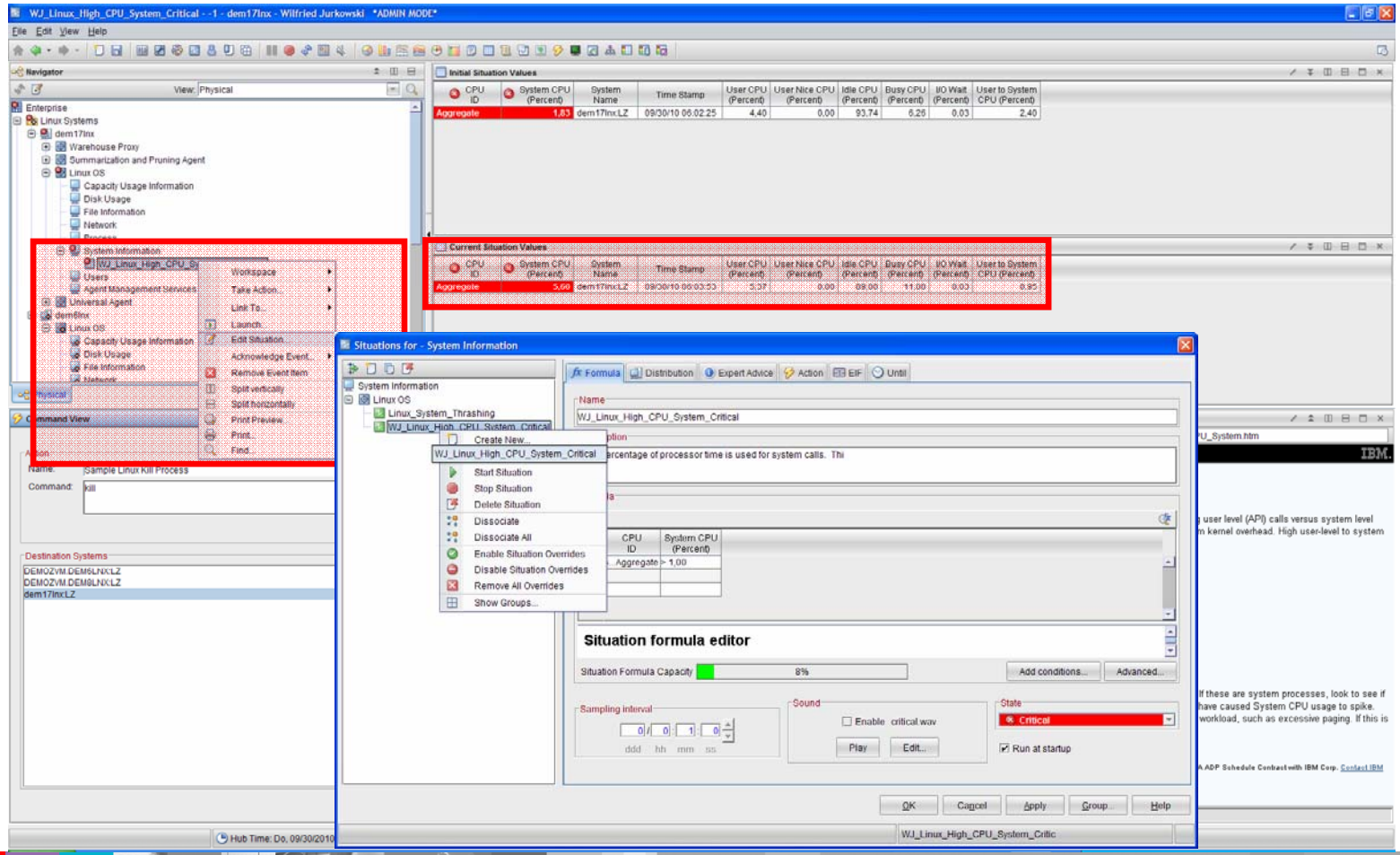
“Situation” Event Management (1)

- **Situation Event is “TRUE”**
  - Yellow Light -> WARNING
  - Red Light -> CRITICAL (more colors available)



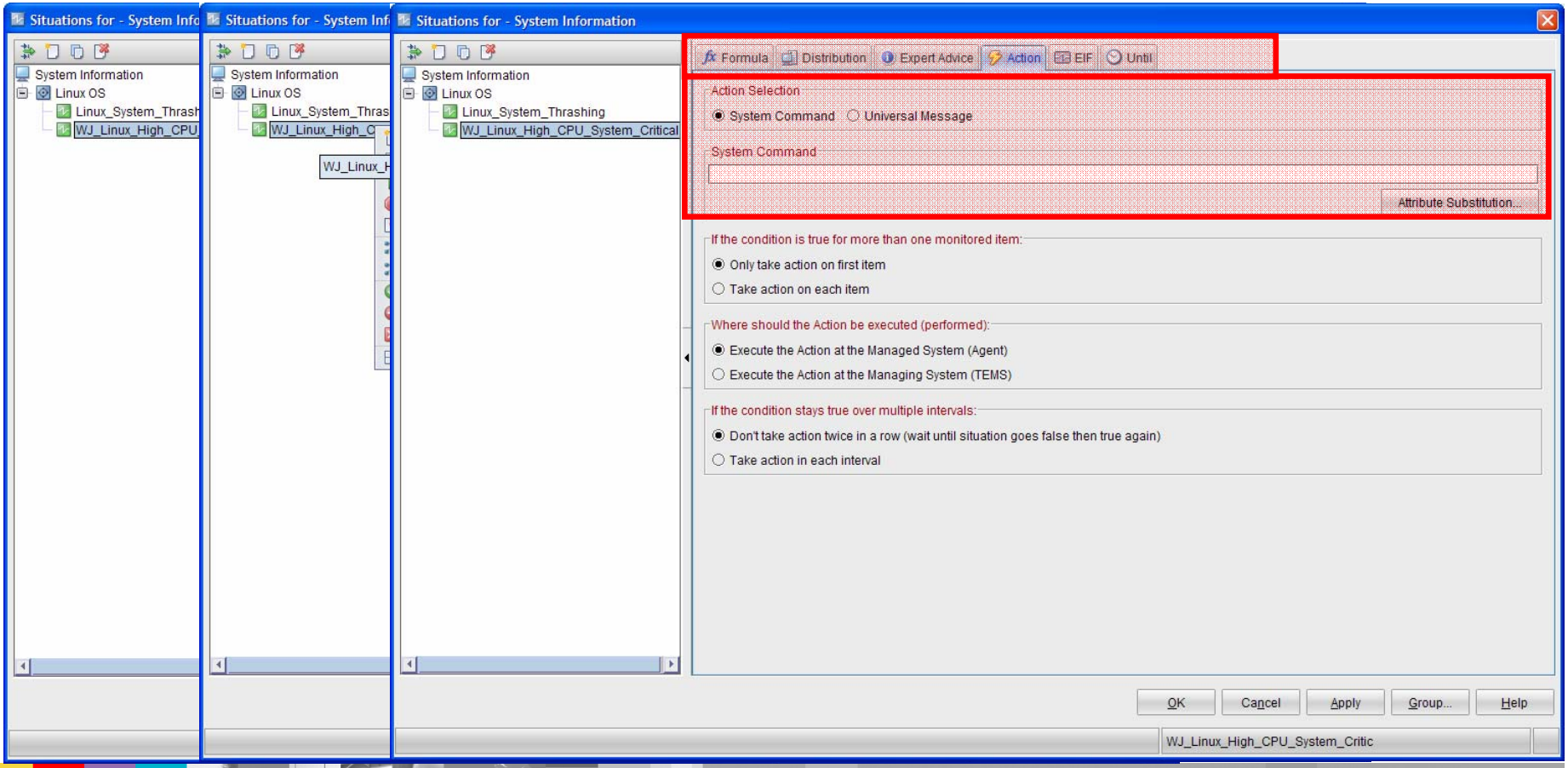
“Situation” Event Management (2)

1. Situation Analysis
2. Situation Editor



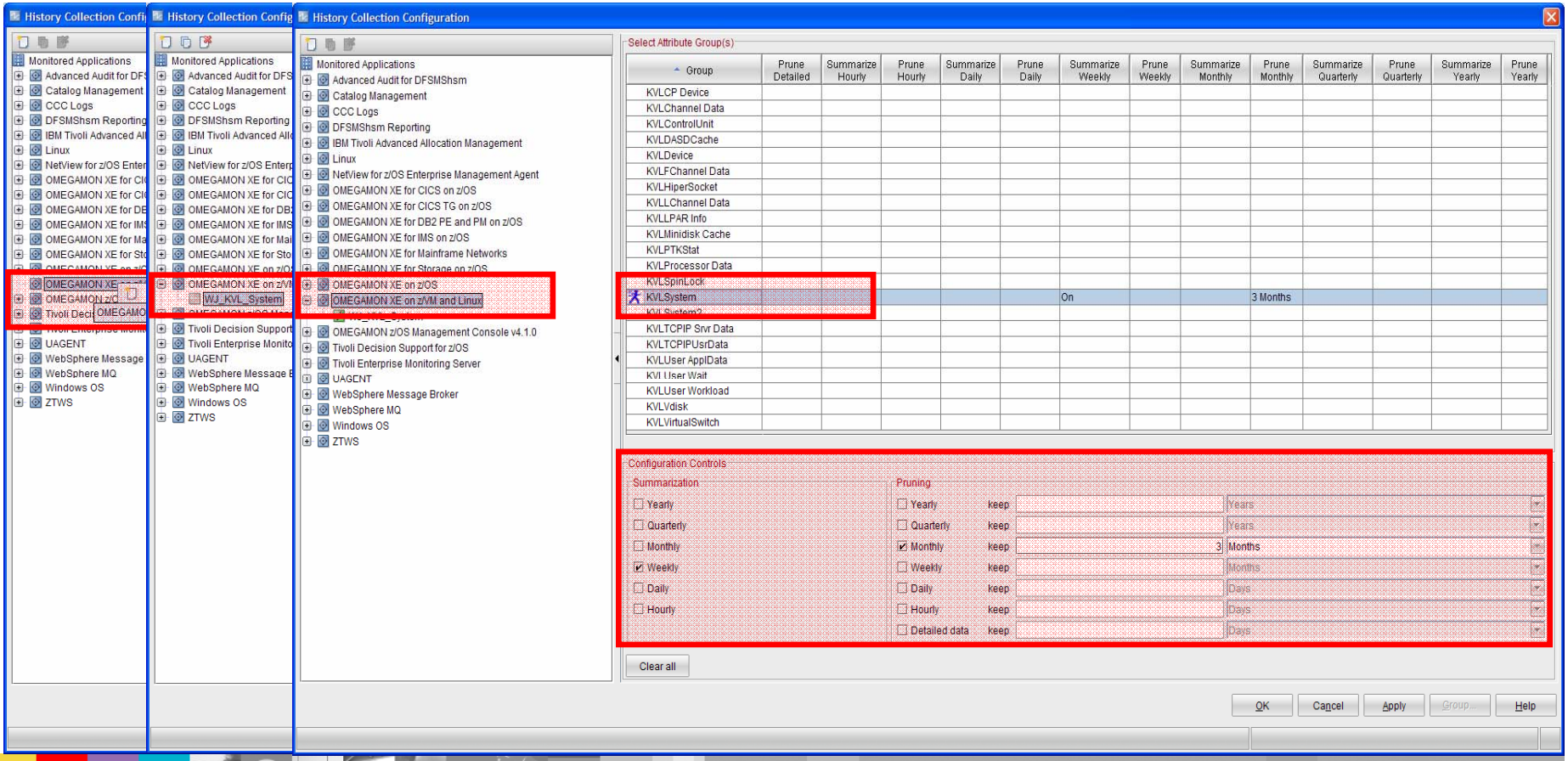
Situation Editor – Main Steps

1. Situation “Formula” Definition
2. Situation “Distribution” Definition
3. Situation “Action” Definition

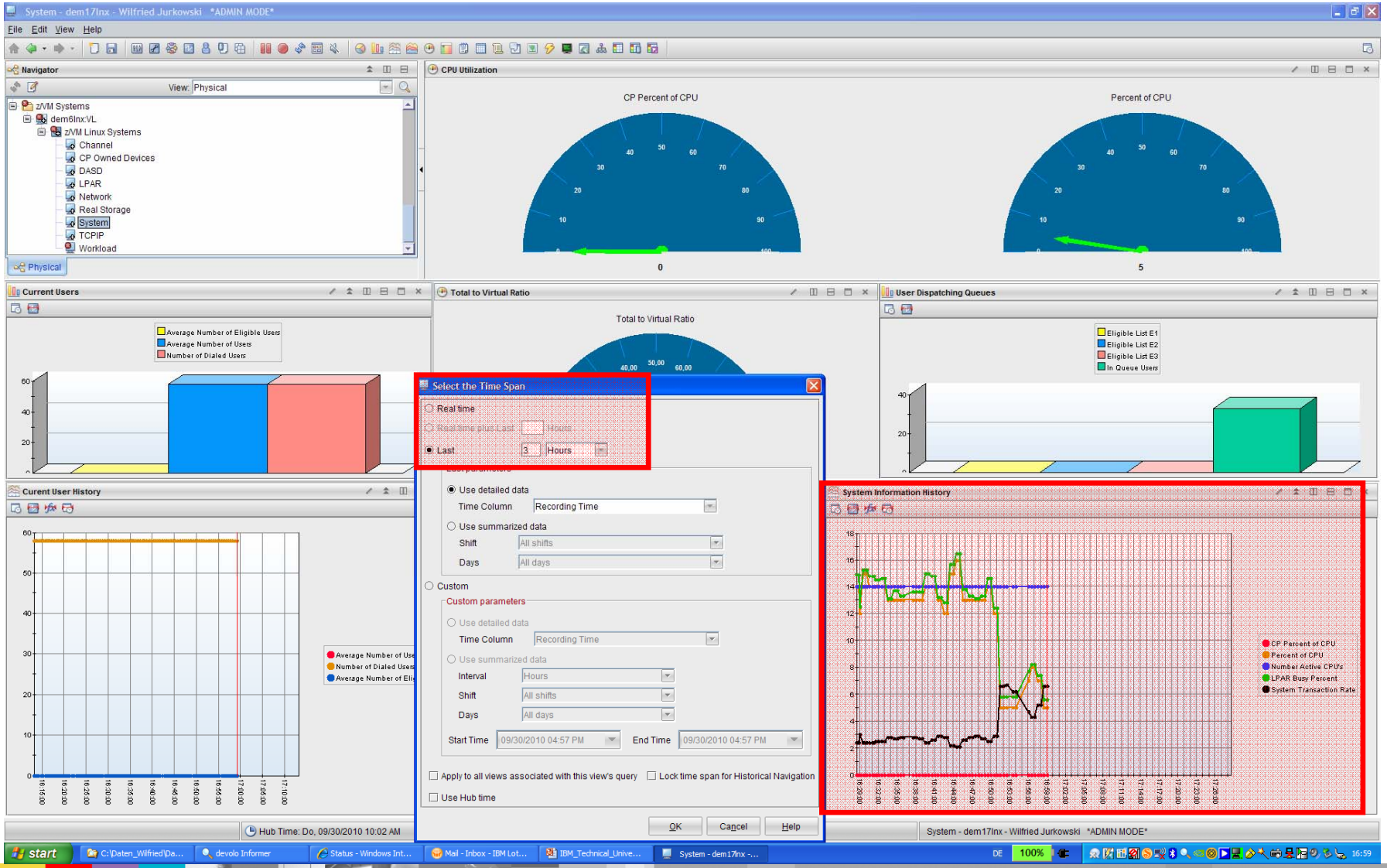


History Data – Definitions and Workspace (1)

1. History “New Collection” Definition
2. History “Base” Definition
3. History “Datawarehouse” Definition



History Data – Definitions and Workspace (2)

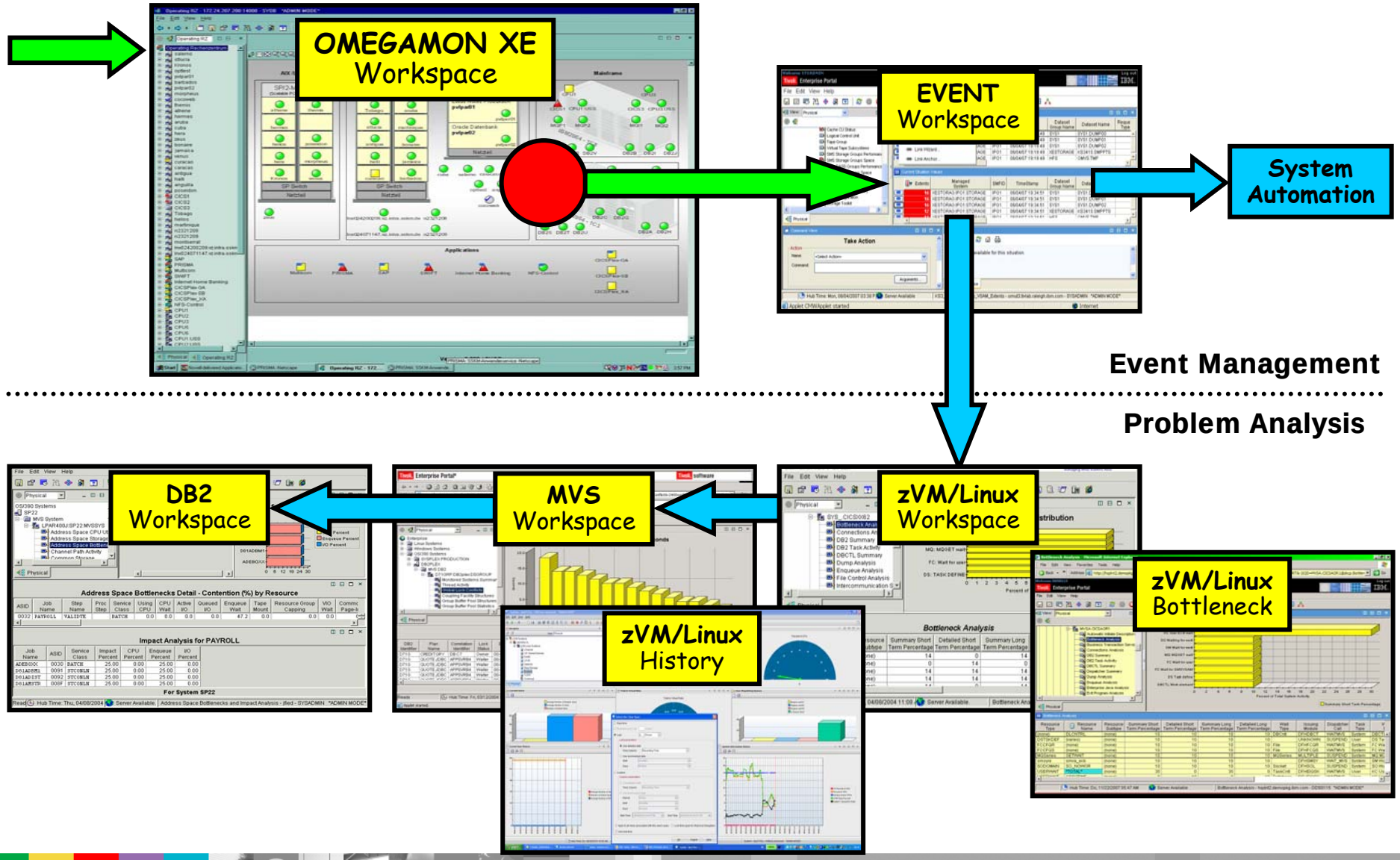


Problem Analysis

&

Problem Solution

Monitoring Scenario - Example



IBM Tivoli OMEGAMON on z/VM and Linux – a Scenario

Problem

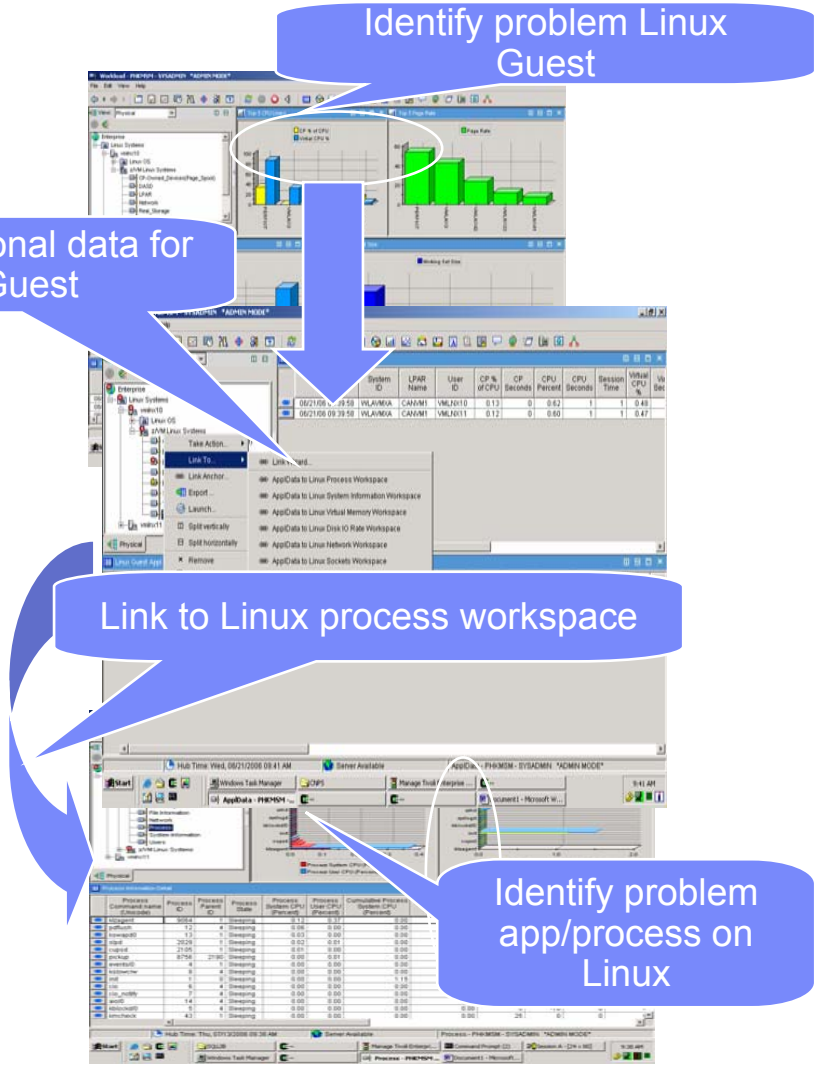
- Uneven Linux Guest CPU consumption

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



IBM Tivoli OMEGAMON on z/VM and Linux – a Scenario

Problem

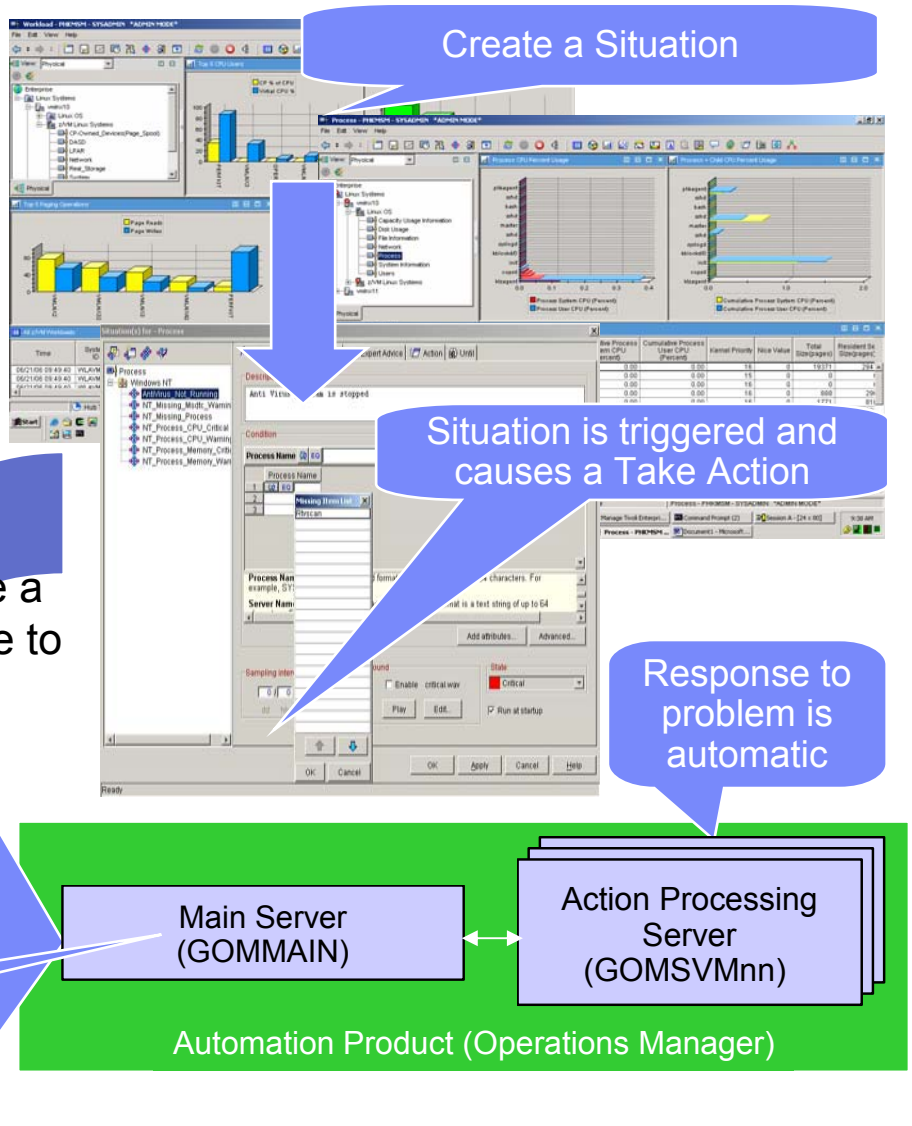
- High Linux Guest CPU consumption

Solution

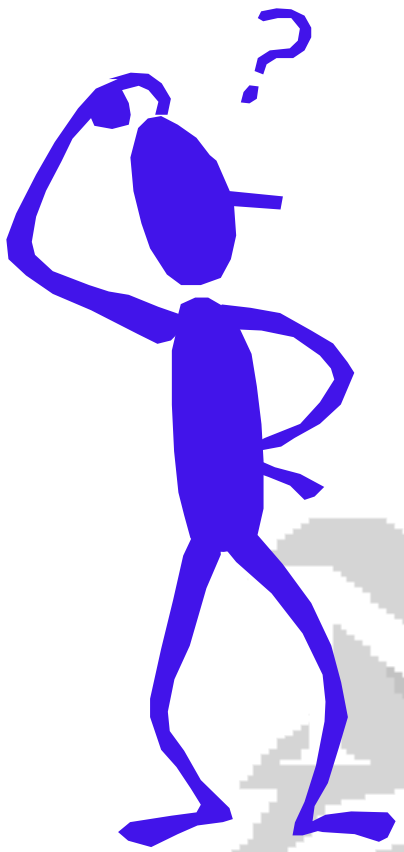
- Use situation to recognize high swapping with high CPU and working set size
- Send message to Operations Manager
- Operations Manager invokes a rule to execute a CP tuning command to allocate more resource to the Linux Guest

Potential Benefits

- Automated problem resolution
- Integrated solution



Questions?



Thank You

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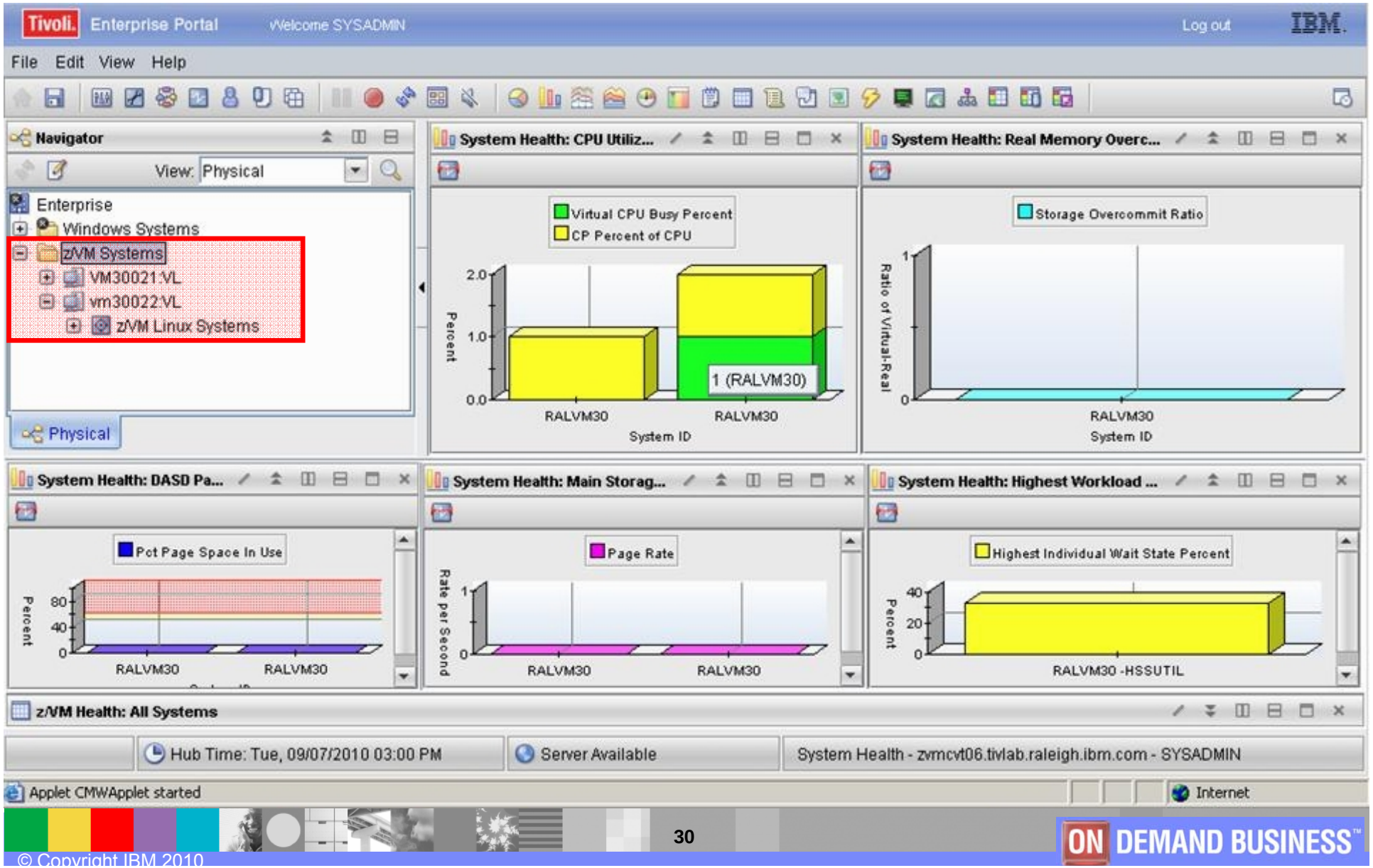
Appendix A:

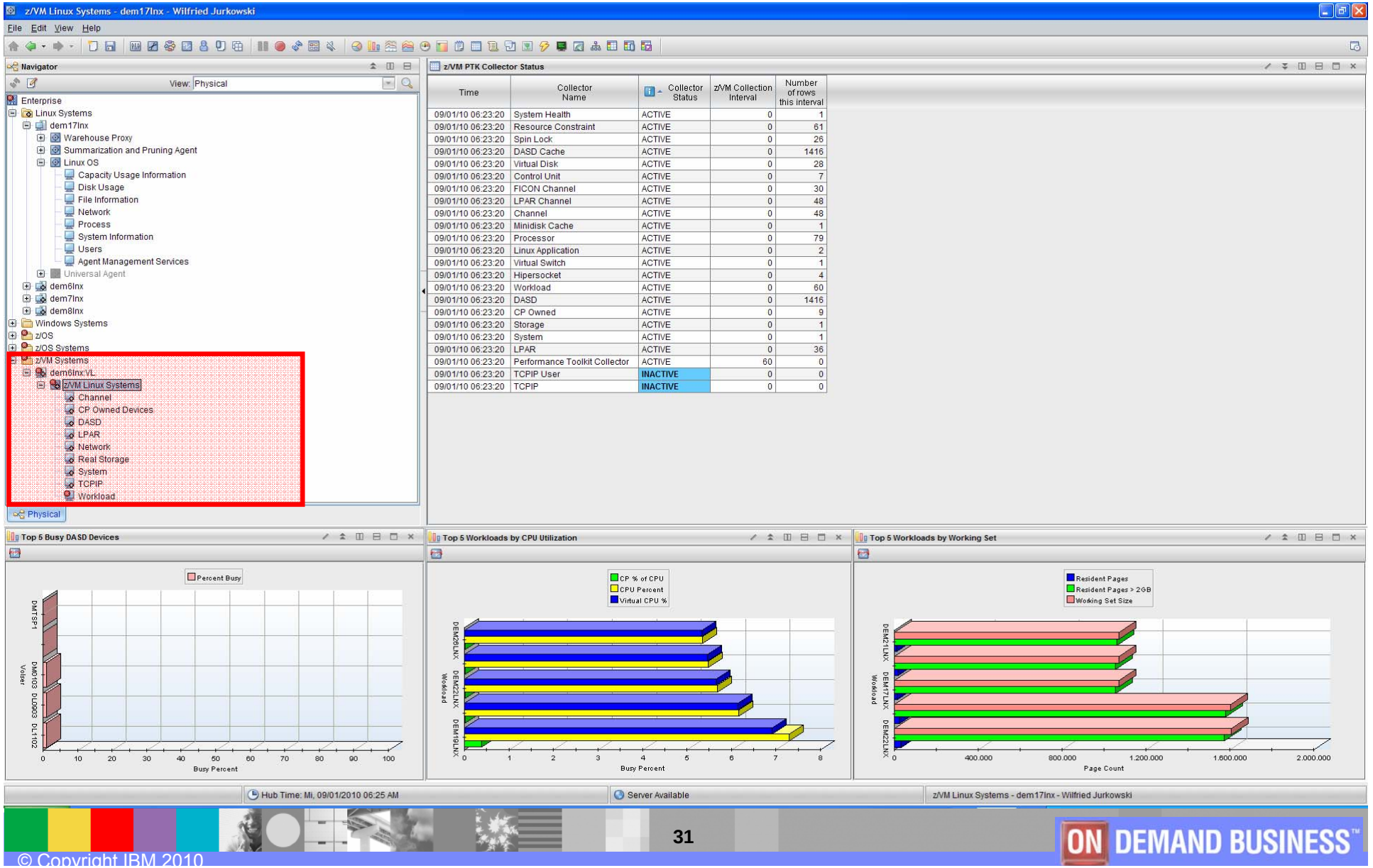
OMEGAMON XE for zVM & Linux

Workspace Screenshots

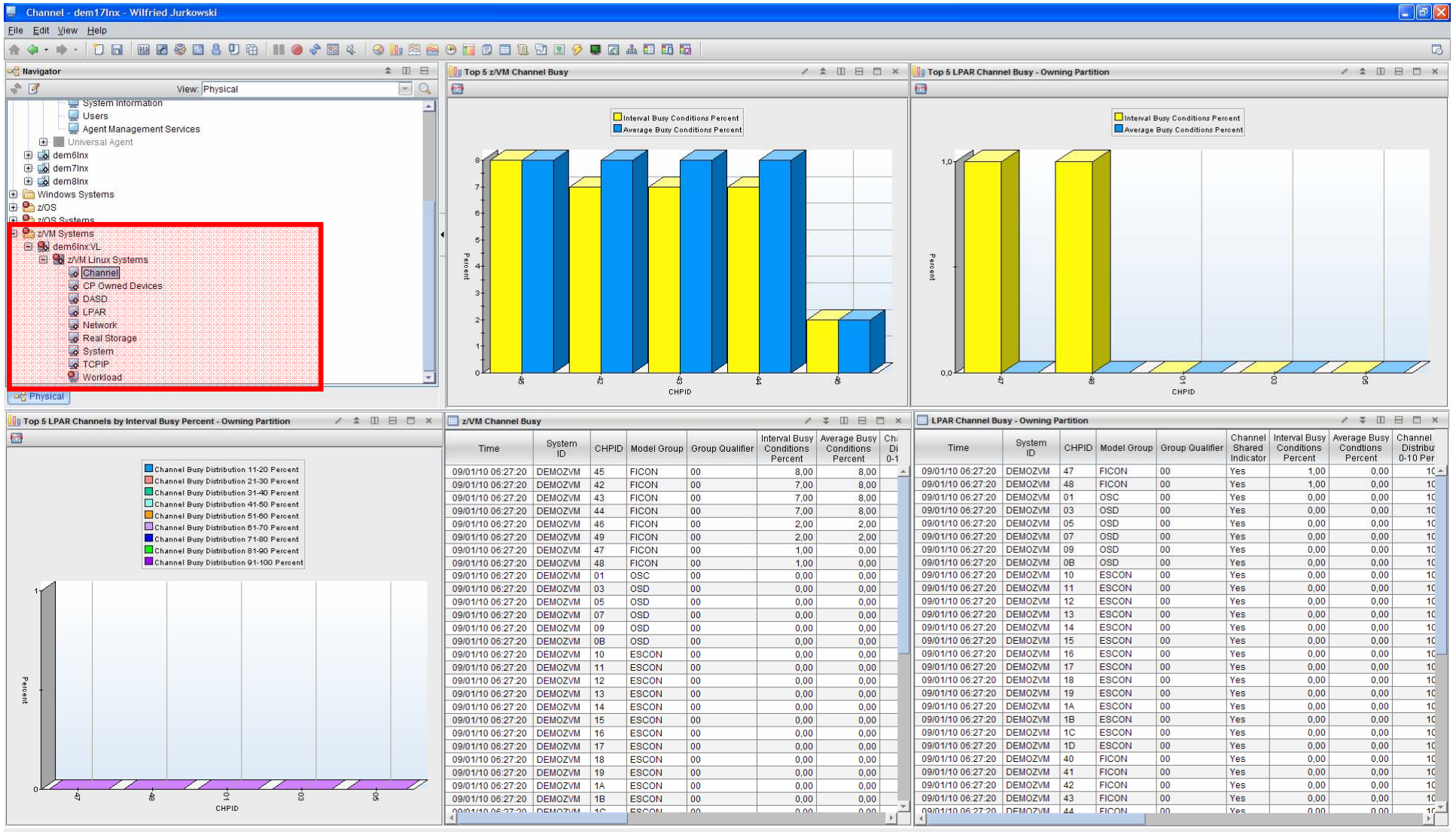
Workspace: zVM Topic View



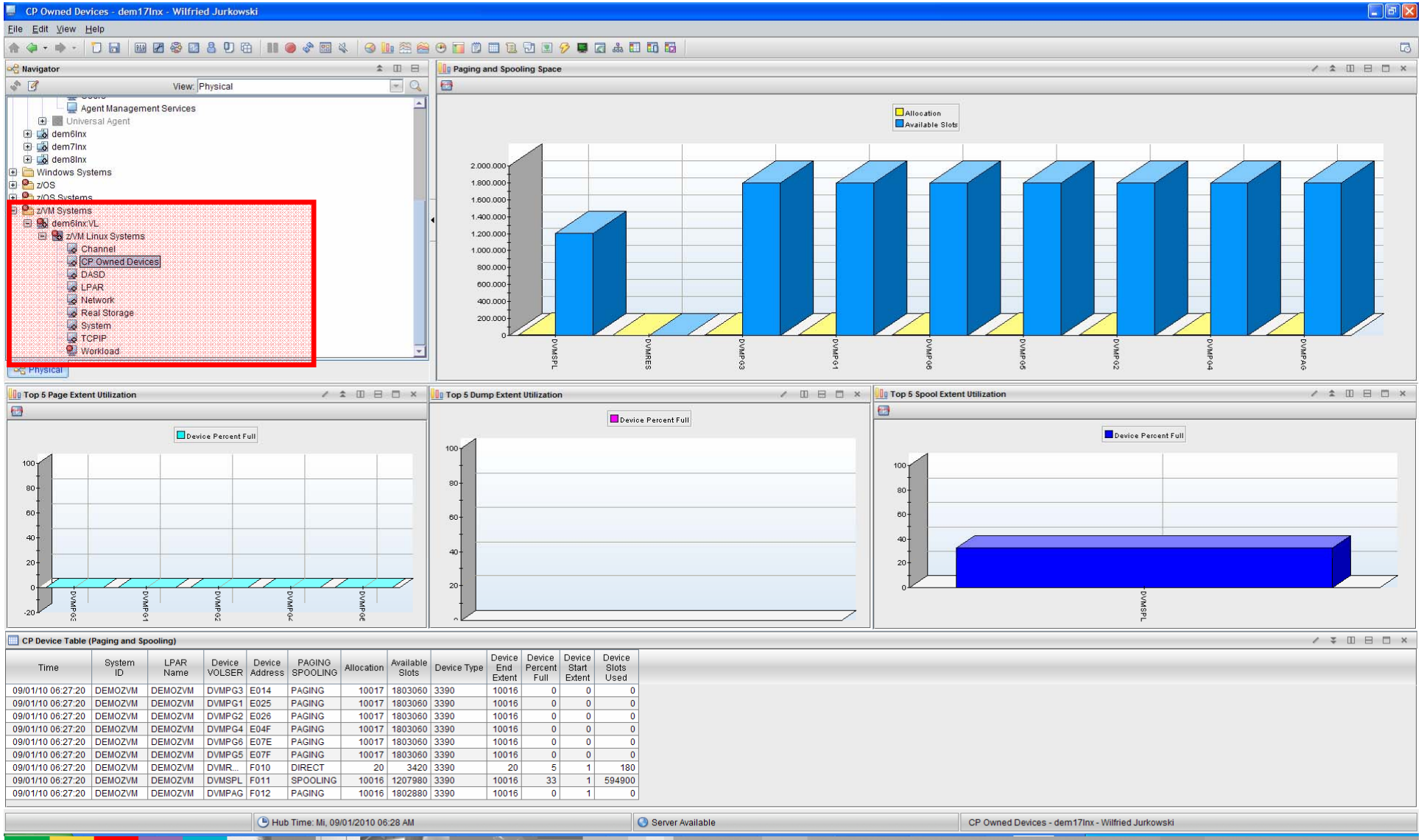
Workspace: zVM “zVM Linux Systems”



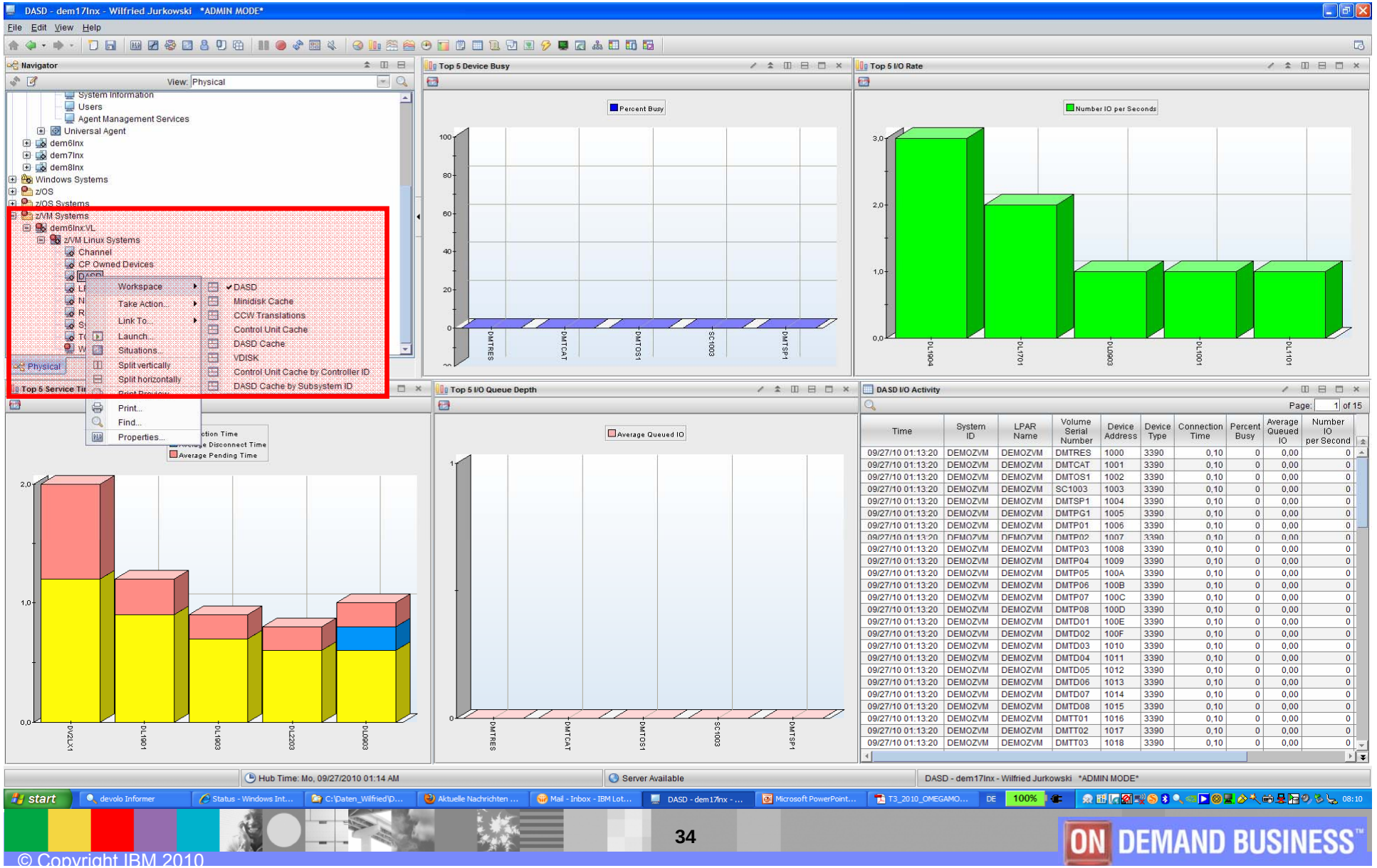
Workspace: zVM “Channel”



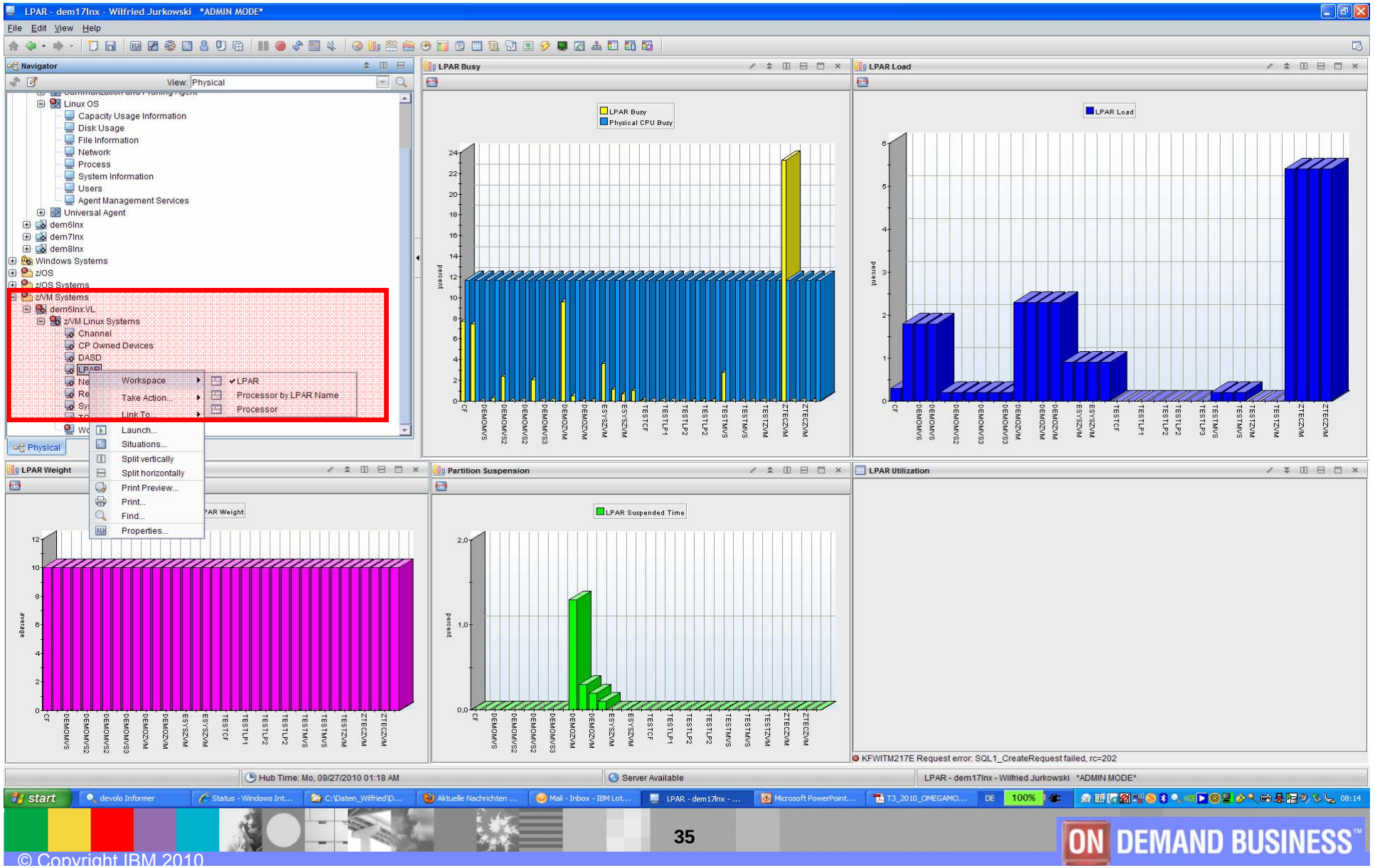
Workspace: zVM “CP Owned Devices”



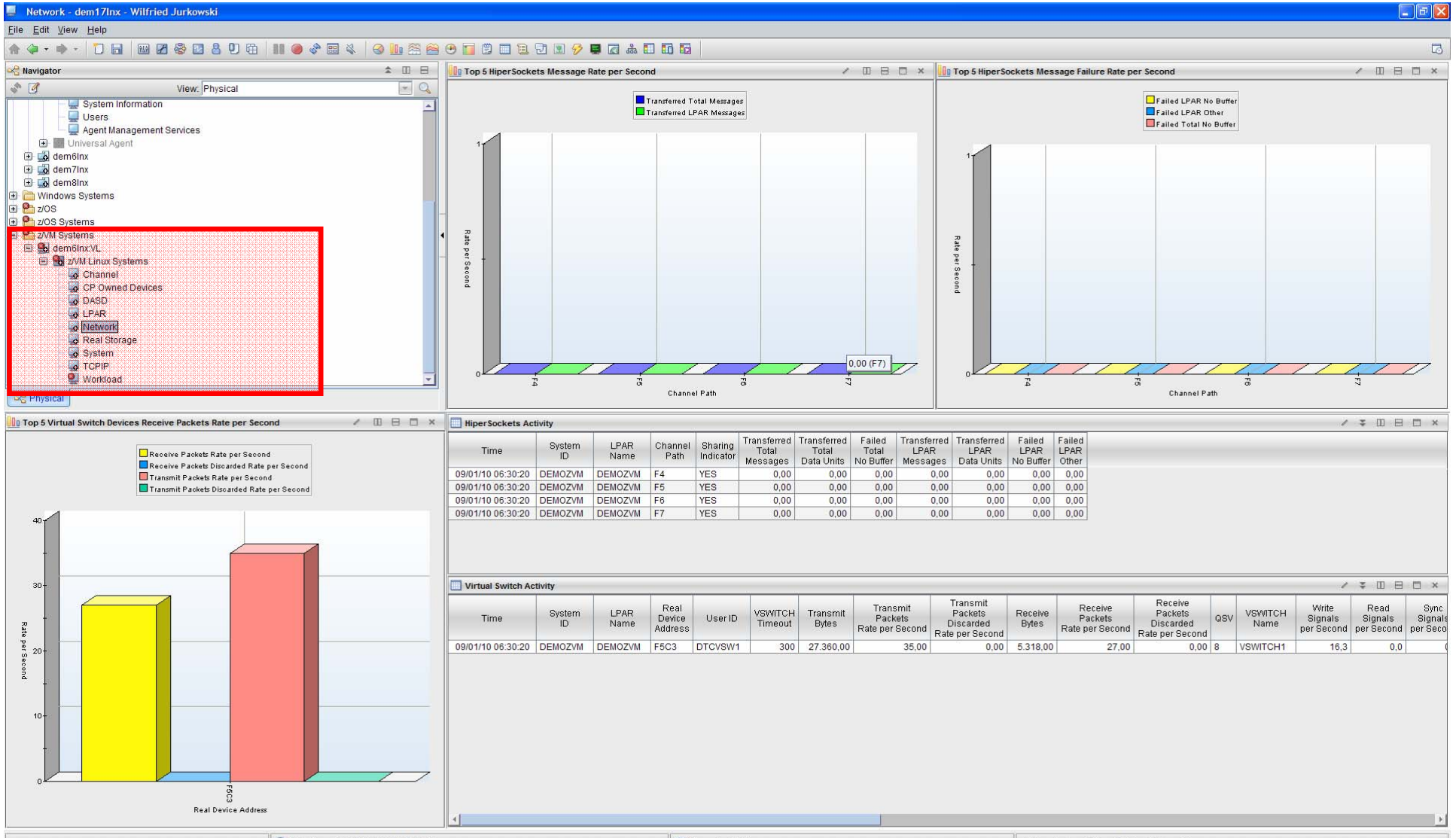
Workspace: zVM “DASD” & “Detailed Links”



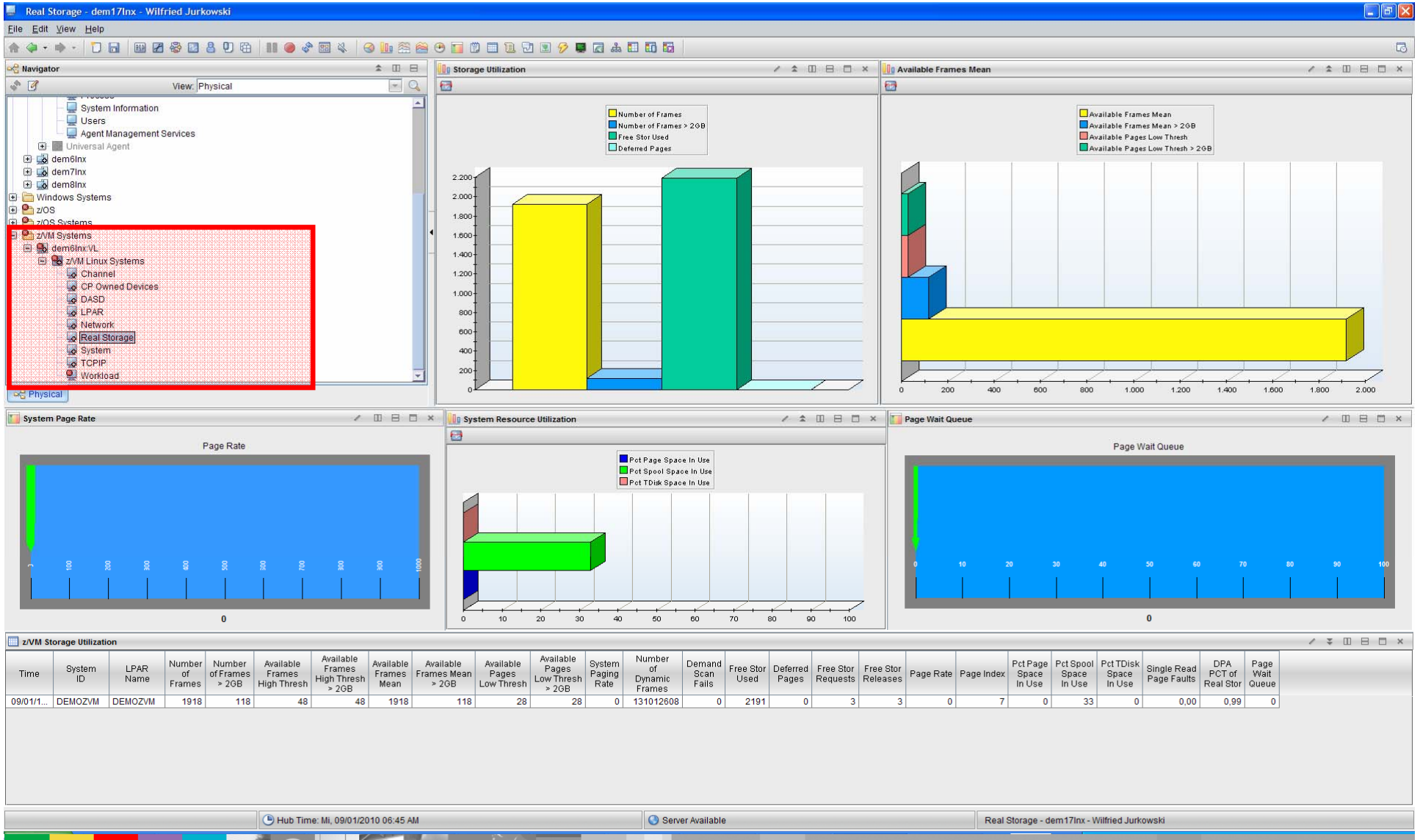
Workspace: zVM “LPAR” & “Detailed Links”



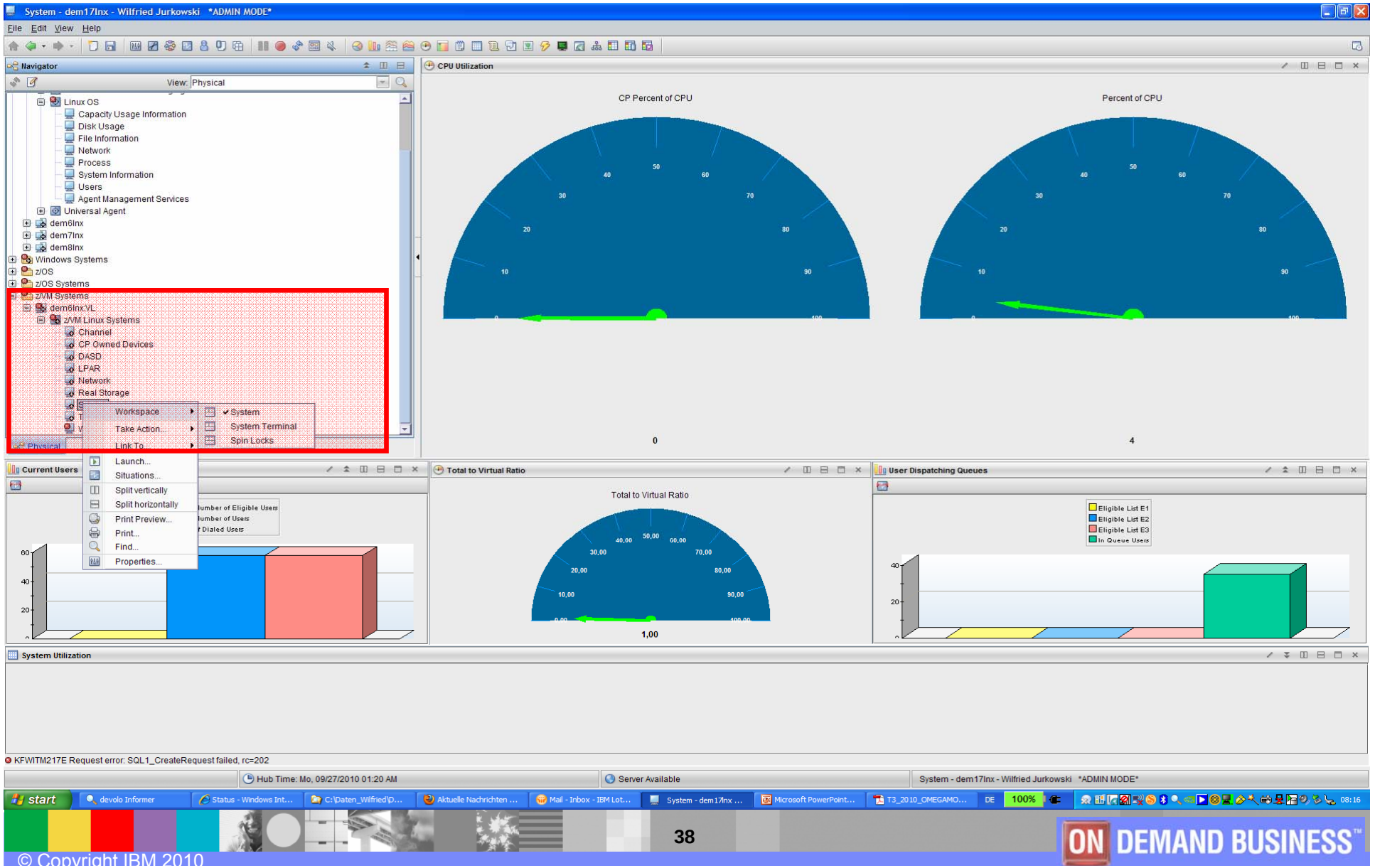
Workspace: zVM “Network”



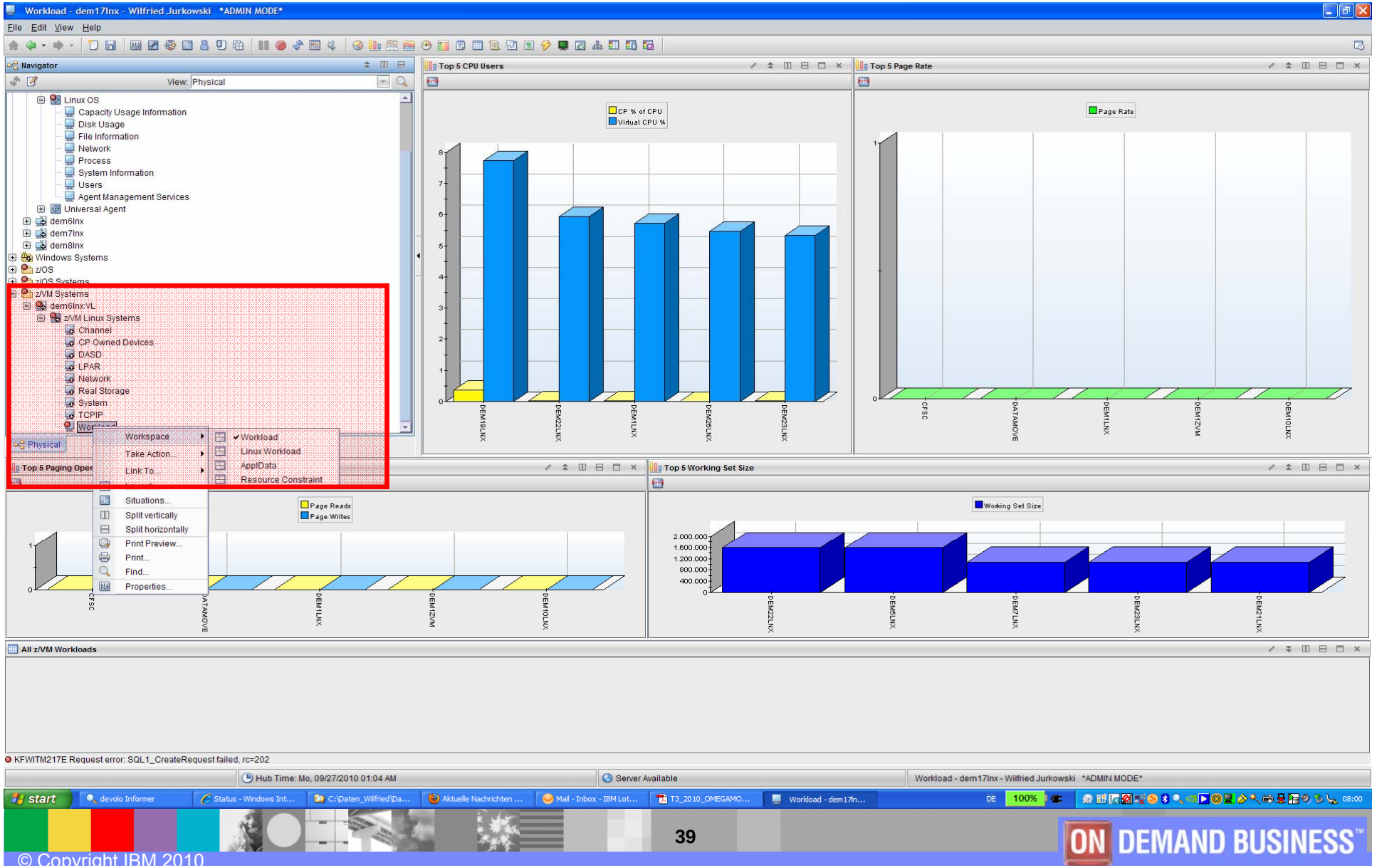
Workspace: zVM “Real Storage”



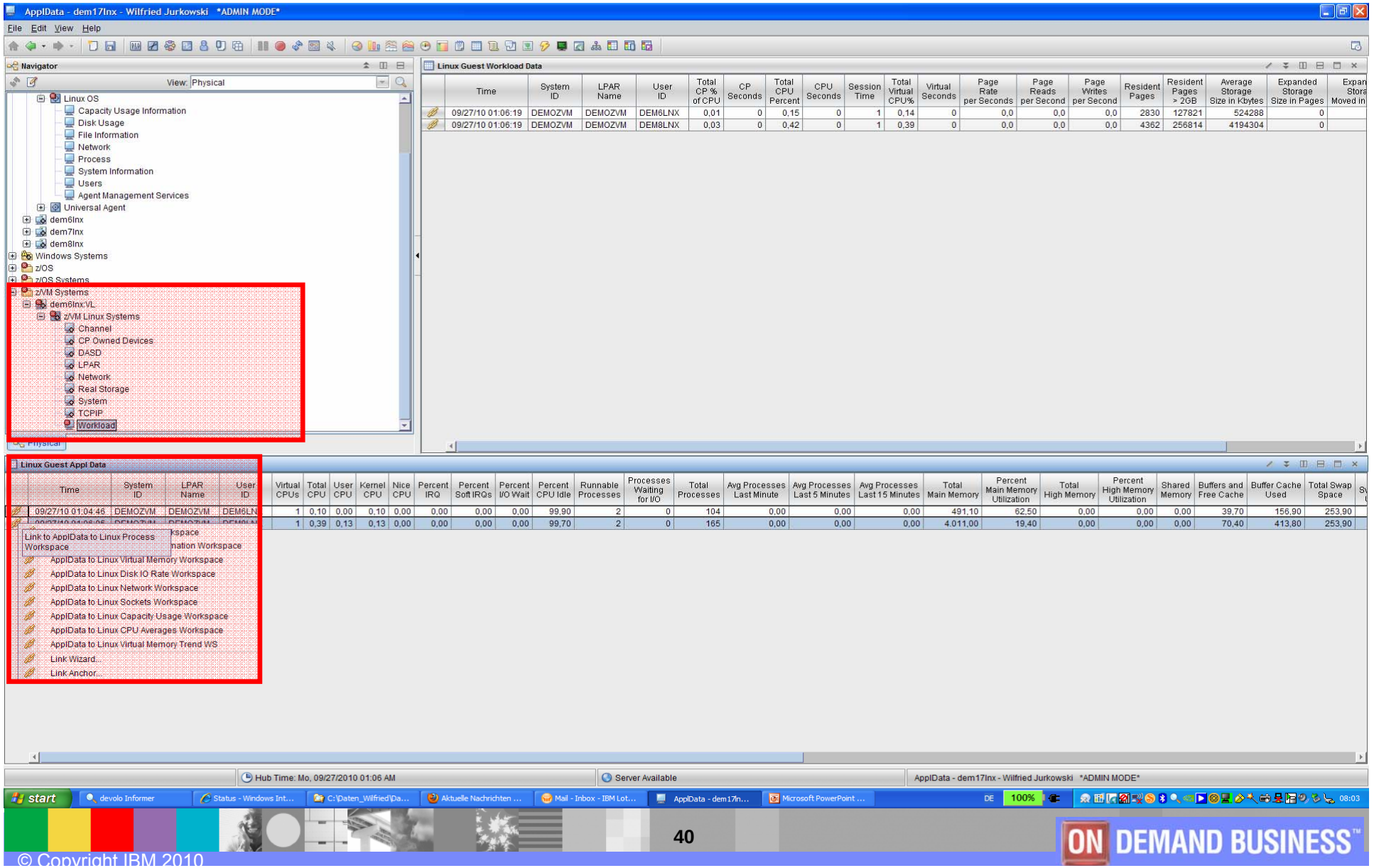
Workspace: zVM “System” & “Detailed Links”



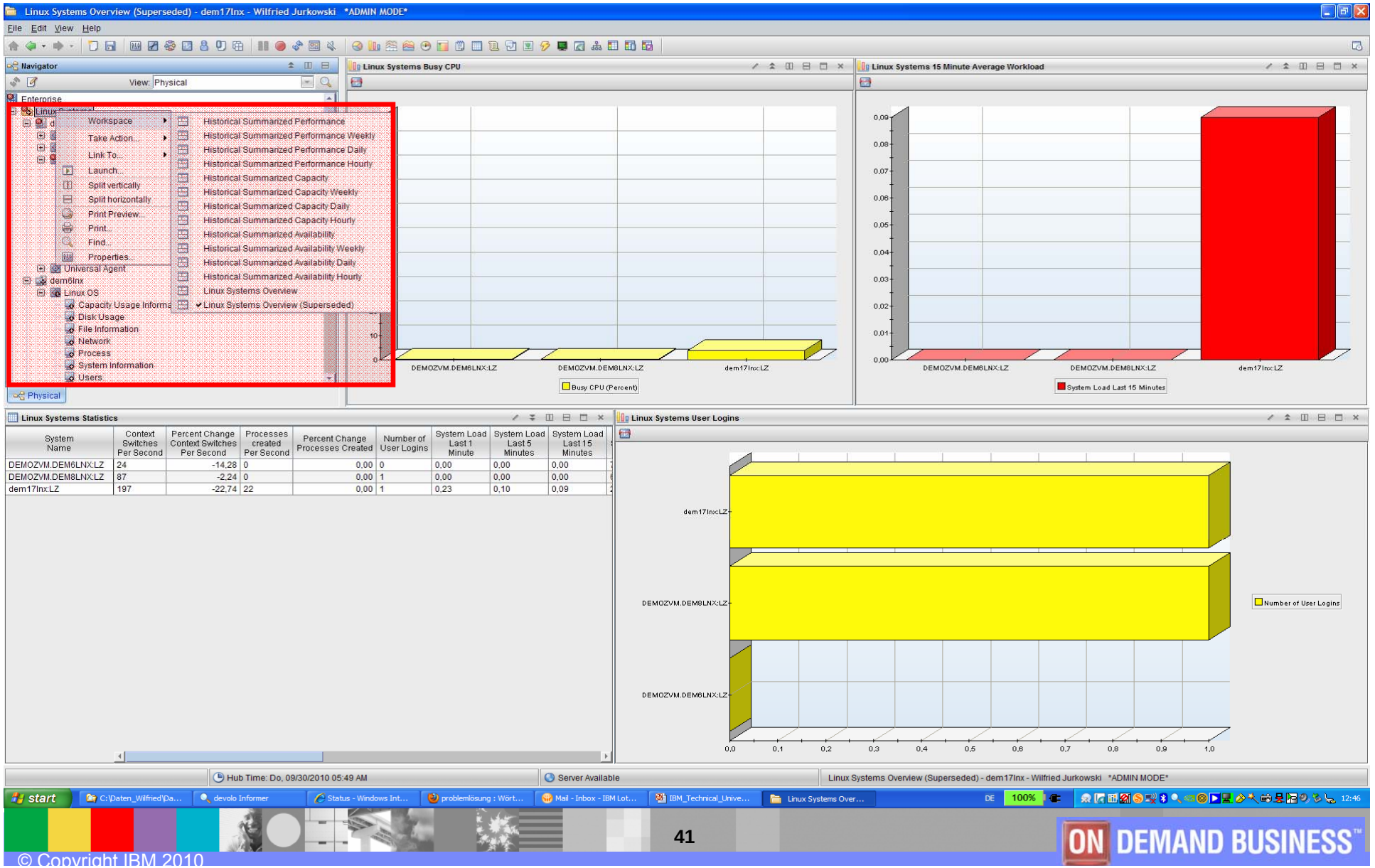
Workspace: zVM “Workload” & “Detailed Links”



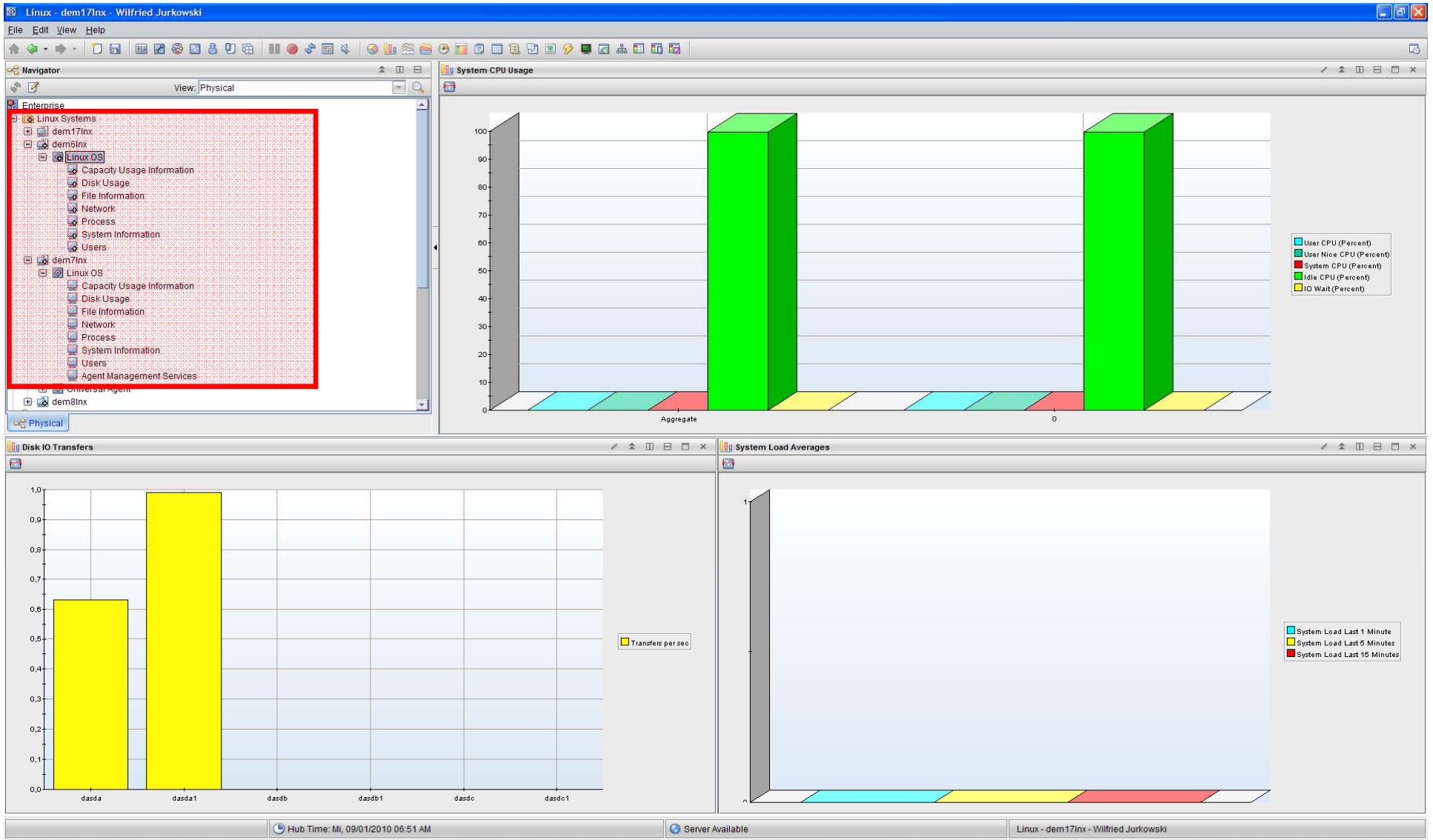
Workspace: zVM “Workload” -> “ApplData” & “Details”



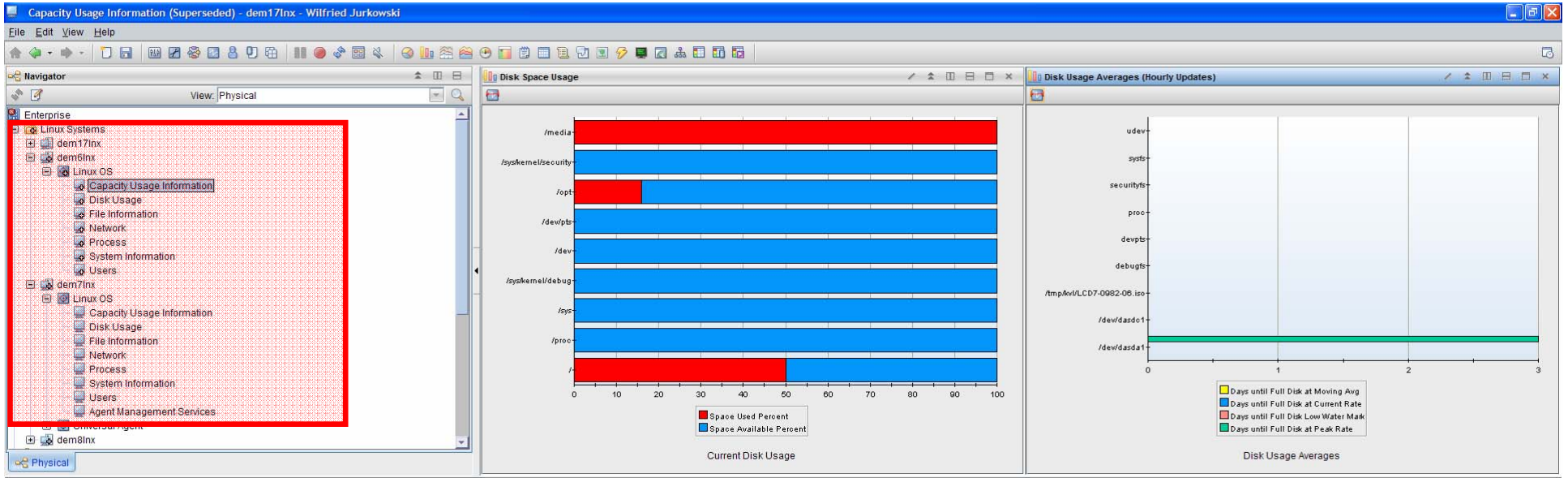
Workspace: zLinux “Systems Overview” & “History Links”



Workspace: zLinux “Linux OS”



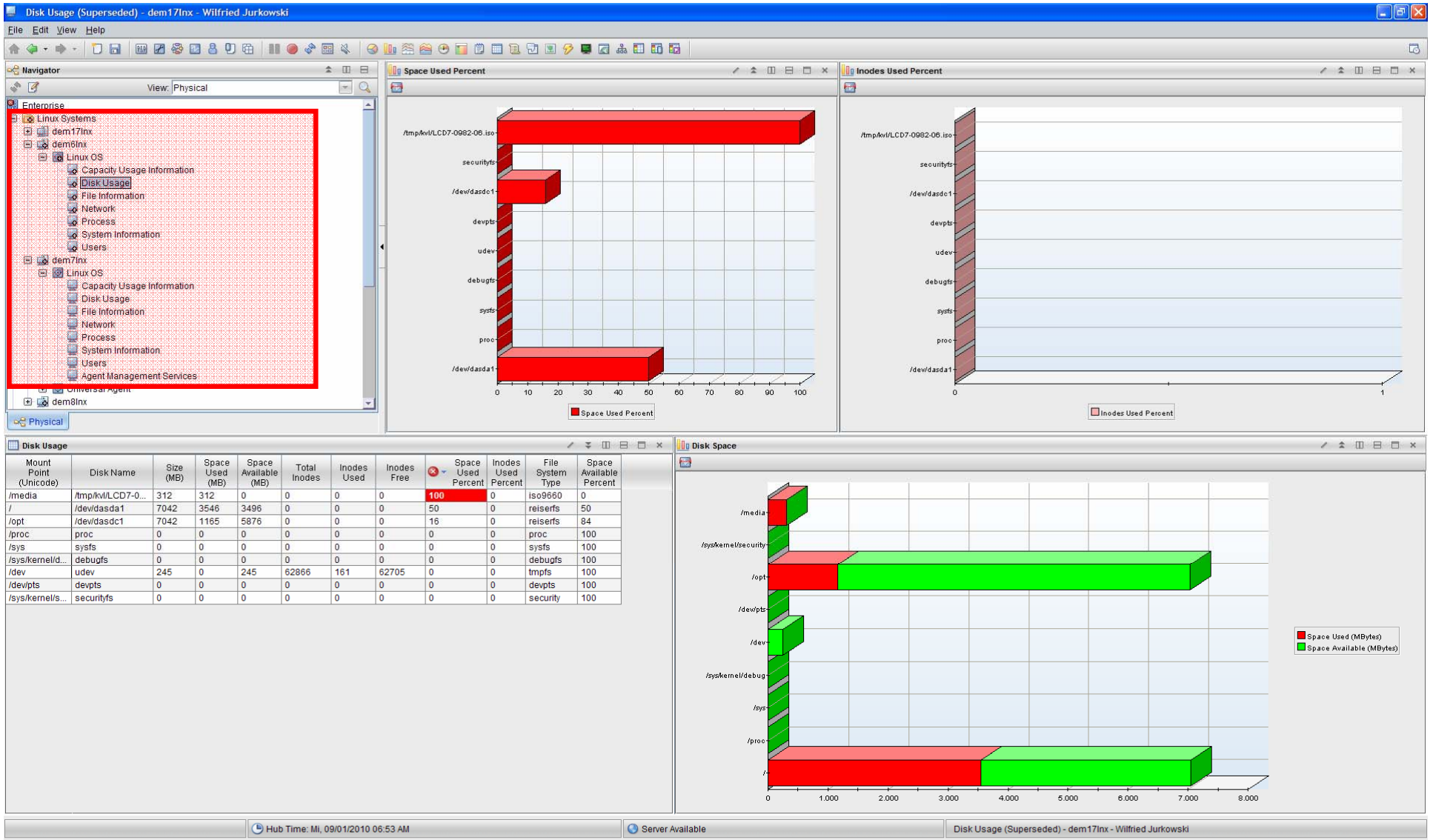
Workspace: zLinux “Capacity Usage Information”



Disk Usage Averages

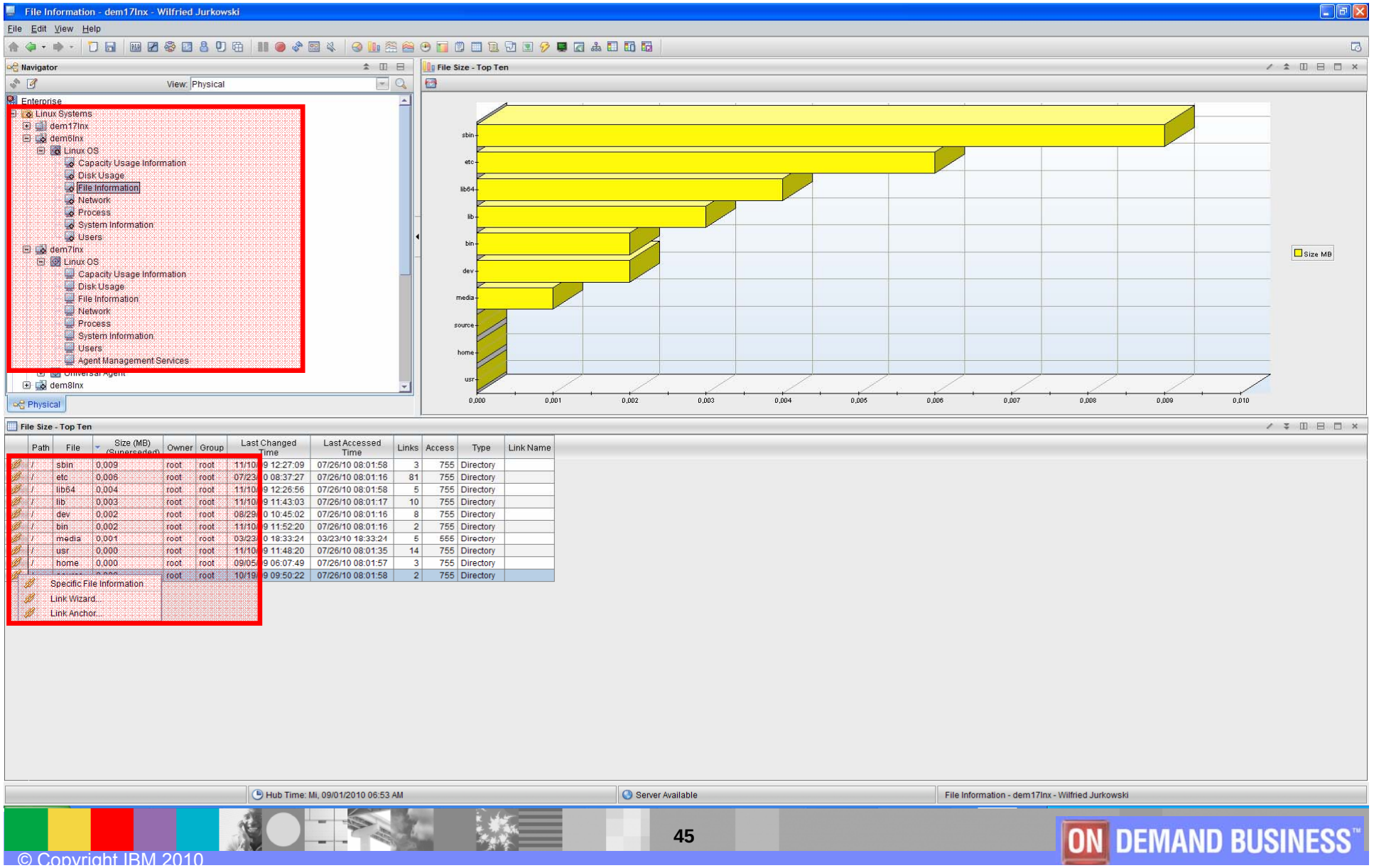
Disk Name	Space Used (MB)	Space Available (MB)	Disk Usage Rate (Bytes/Hr)	High Water Mark Disk Usage Rate (Bytes/Hr)	High Water Mark Time Stamp	Disk Usage Moving Avg (Bytes/Hr)	Days Until Full Disk Moving Avg	Days Until Full Disk Current Rate	Days Until Full Disk Low Water Mark	Days Until Full Disk Peak Rate
/dev/dasda1	3546	3496	0	46137344	07/26/10 08:44:50	0	0	0	0	3
/dev/dasdc1	1165	5876	0	0	09/01/10 06:44:59	0	0	0	0	0
/tmp/kvl/LCD7-0982-06.iso	312	0	0	0	09/01/10 06:44:59	0	0	0	0	0
debugfs	0	0	0	0	09/01/10 06:44:59	0	0	0	0	0
devpts	0	0	0	0	09/01/10 06:44:59	0	0	0	0	0
proc	0	0	0	0	09/01/10 06:44:59	0	0	0	0	0
securityfs	0	0	0	0	09/01/10 06:44:59	0	0	0	0	0
sysfs	0	0	0	0	09/01/10 06:44:59	0	0	0	0	0
udev	0	245	0	0	09/01/10 06:44:59	0	0	0	0	0

Workspace: zLinux “Disk Usage”

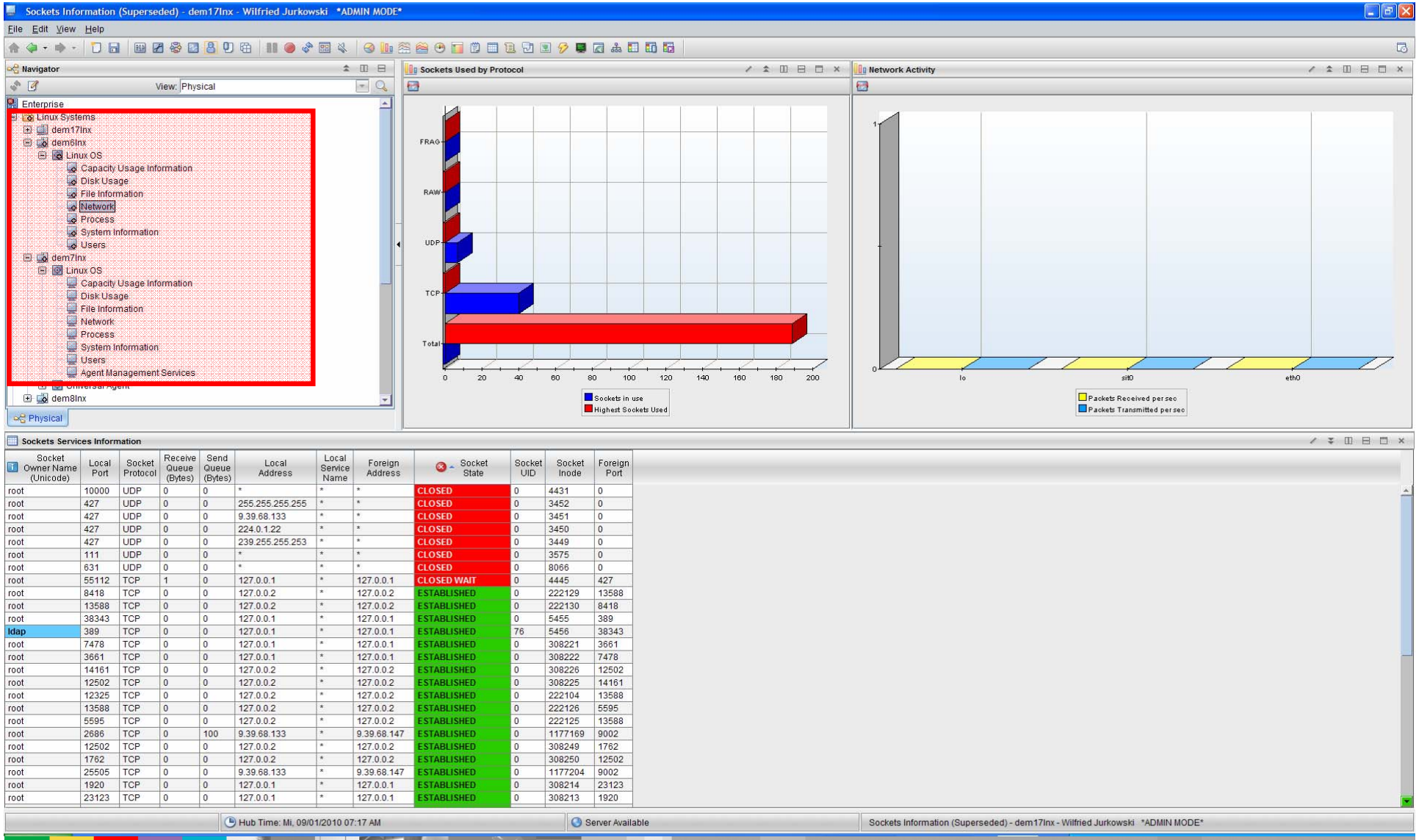


Mount Point (Unicode)	Disk Name	Size (MB)	Space Used (MB)	Space Available (MB)	Total Inodes	Inodes Used	Inodes Free	Space Used Percent	Inodes Used Percent	File System Type	Space Available Percent
/media	/tmp/kvl/LCD7-0...	312	312	0	0	0	0	100	0	iso9660	0
/	/dev/dasda1	7042	3546	3496	0	0	0	50	0	reiserfs	50
/opt	/dev/dasdc1	7042	1165	5876	0	0	0	16	0	reiserfs	84
/proc	proc	0	0	0	0	0	0	0	0	proc	100
/sys	sysfs	0	0	0	0	0	0	0	0	sysfs	100
/sys/kernel/d...	debugfs	0	0	0	0	0	0	0	0	debugfs	100
/dev	udev	245	0	245	62866	161	62705	0	0	tmpfs	100
/dev/pts	devpts	0	0	0	0	0	0	0	0	devpts	100
/sys/kernel/s...	securityfs	0	0	0	0	0	0	0	0	security	100

Workspace: zLinux “File Information” & “Detailed Links”

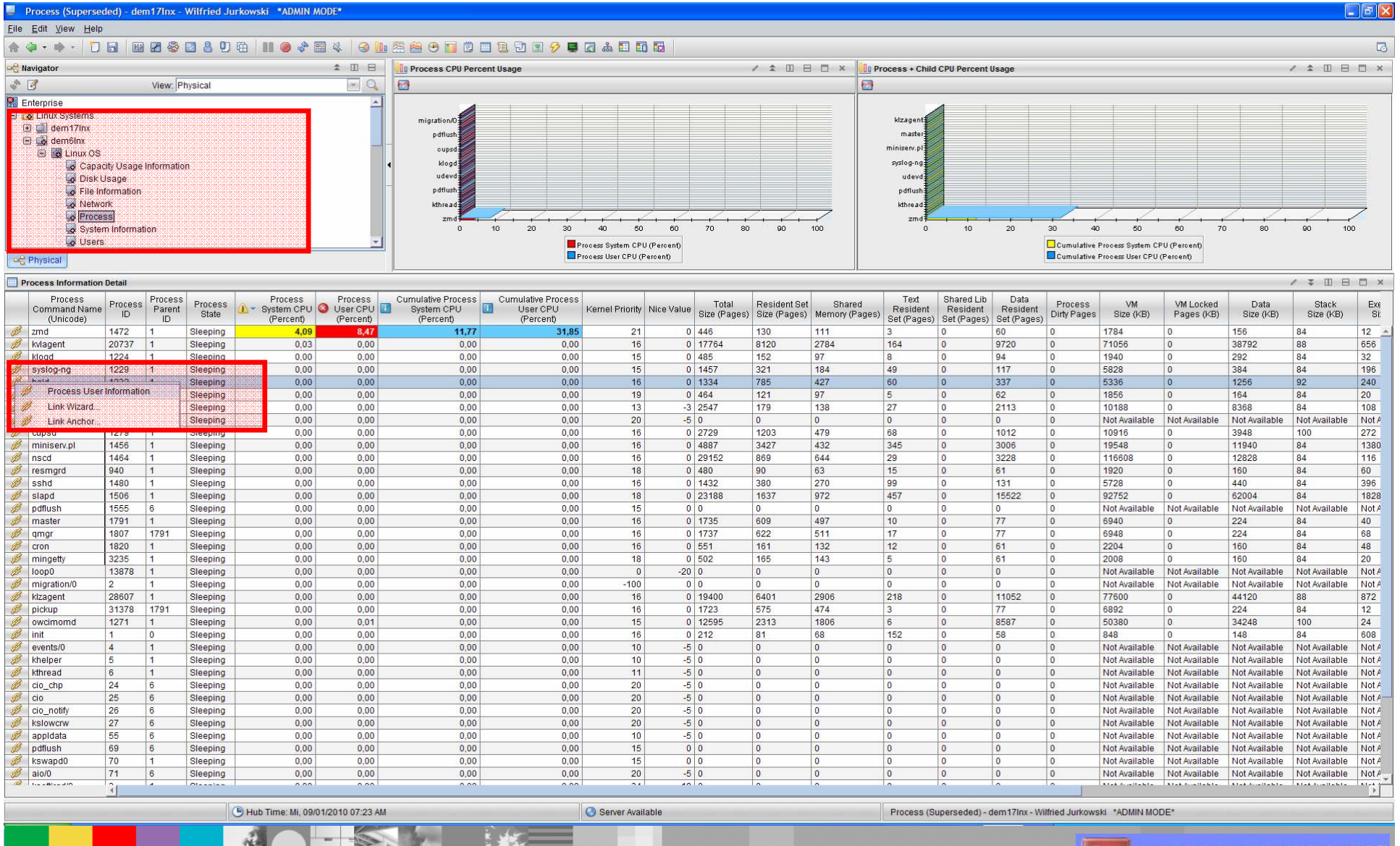


Workspace: zLinux “Networks”



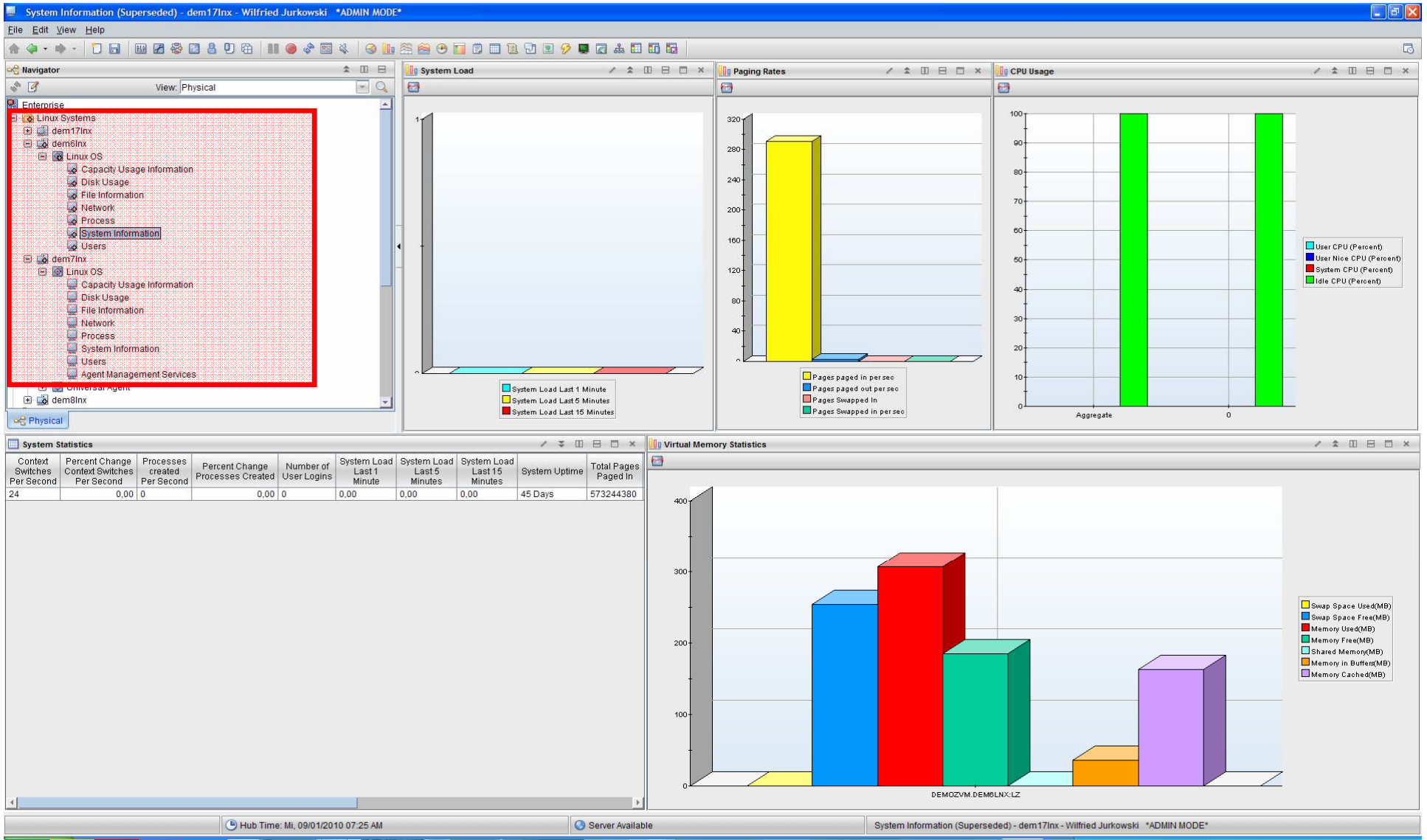
Socket Owner Name (Unicode)	Local Port	Socket Protocol	Receive Queue (Bytes)	Send Queue (Bytes)	Local Address	Local Service Name	Foreign Address	Socket State	Socket UID	Socket Inode	Foreign Port
root	10000	UDP	0	0	*	*	*	CLOSED	0	4431	0
root	427	UDP	0	0	255.255.255.255	*	*	CLOSED	0	3452	0
root	427	UDP	0	0	9.39.68.133	*	*	CLOSED	0	3451	0
root	427	UDP	0	0	224.0.1.22	*	*	CLOSED	0	3450	0
root	427	UDP	0	0	239.255.255.253	*	*	CLOSED	0	3449	0
root	111	UDP	0	0	*	*	*	CLOSED	0	3575	0
root	631	UDP	0	0	*	*	*	CLOSED	0	8066	0
root	55112	TCP	1	0	127.0.0.1	*	127.0.0.1	CLOSED WAIT	0	4445	427
root	8418	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	222129	13588
root	13588	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	222130	8418
root	38343	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	0	5455	389
ldap	389	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	76	5456	38343
root	7478	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	0	308221	3661
root	3661	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	0	308222	7478
root	14161	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	308226	12502
root	12502	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	308225	14161
root	12325	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	222104	13588
root	13588	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	222126	5595
root	5595	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	222125	13588
root	2686	TCP	0	100	9.39.68.133	*	9.39.68.147	ESTABLISHED	0	1177169	9002
root	12502	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	308249	1762
root	1762	TCP	0	0	127.0.0.2	*	127.0.0.2	ESTABLISHED	0	308250	12502
root	25505	TCP	0	0	9.39.68.133	*	9.39.68.147	ESTABLISHED	0	1177204	9002
root	1920	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	0	308214	23123
root	23123	TCP	0	0	127.0.0.1	*	127.0.0.1	ESTABLISHED	0	308213	1920

Workspace: zLinux “Process” & “Detailed Links”

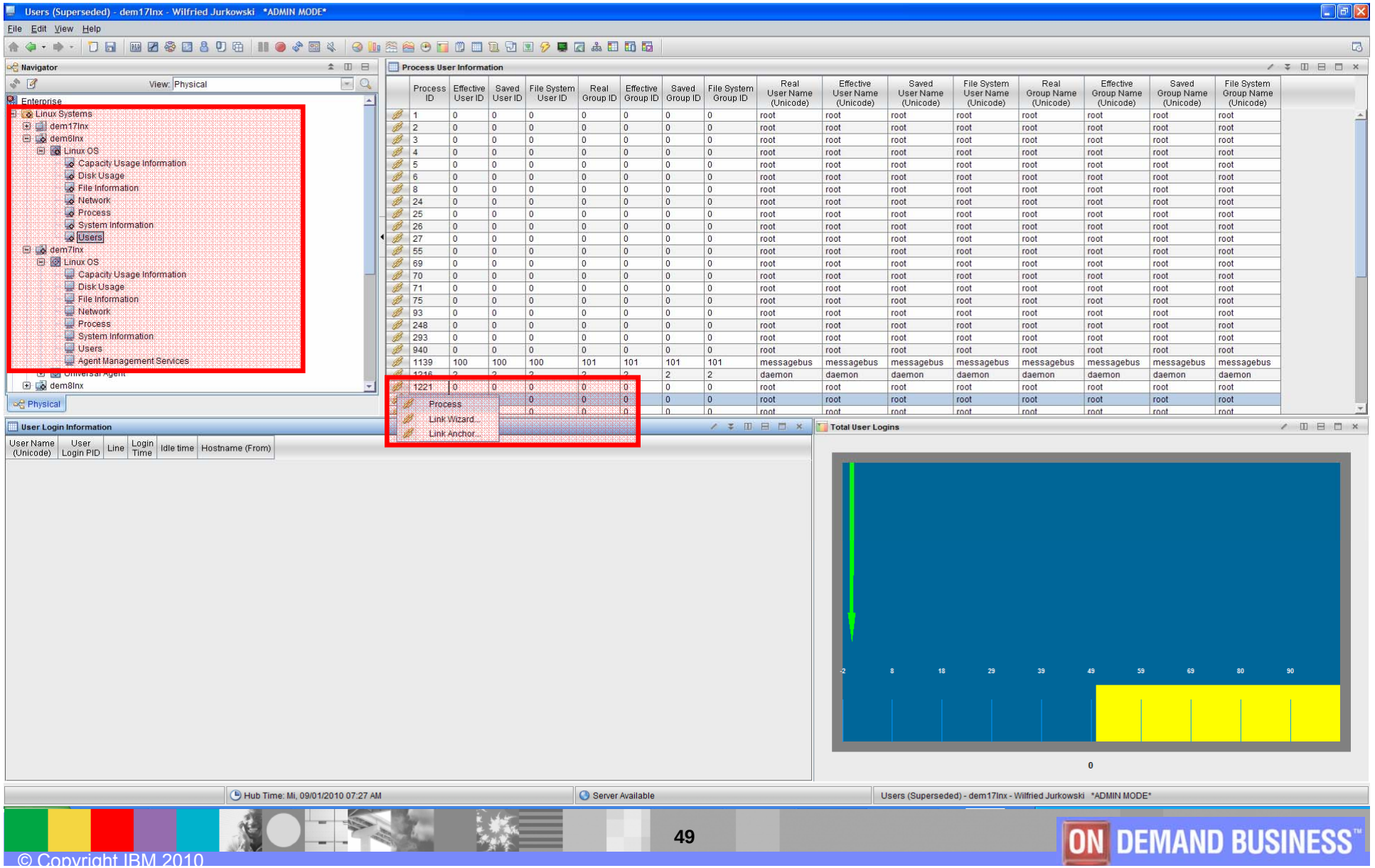


Process Command Name (Unicode)	Process ID	Process Parent ID	Process State	Process System CPU (Percent)	Process User CPU (Percent)	Cumulative Process System CPU (Percent)	Cumulative Process User CPU (Percent)	Kernel Priority	Nice Value	Total Size (Pages)	Resident Set Size (Pages)	Shared Memory (Pages)	Text Resident Set (Pages)	Shared Lib Resident Set (Pages)	Data Resident Set (Pages)	Process Dirty Pages	VM Size (KB)	VM Locked Pages (KB)	Data Size (KB)	Stack Size (KB)	Exe Si
zmd	1472	1	Sleeping	4,09	8,47	11,77	31,85	21	0	446	130	111	3	0	60	0	1784	0	156	84	12
kvlagent	20737	1	Sleeping	0,03	0,00	0,00	0,00	16	0	17764	8120	2784	164	0	9720	0	71056	0	38792	88	656
klogd	1224	1	Sleeping	0,00	0,00	0,00	0,00	15	0	485	152	97	8	0	94	0	1940	0	292	84	32
syslog-ng	1229	1	Sleeping	0,00	0,00	0,00	0,00	15	0	1457	321	184	49	0	117	0	5828	0	384	84	196
[illegible]	[illegible]	[illegible]	Sleeping	0,00	0,00	0,00	0,00	16	0	1334	785	427	60	0	337	0	5336	0	1256	92	240
[illegible]	[illegible]	[illegible]	Sleeping	0,00	0,00	0,00	0,00	19	0	464	121	97	5	0	62	0	1856	0	164	84	20
[illegible]	[illegible]	[illegible]	Sleeping	0,00	0,00	0,00	0,00	13	-3	2547	179	138	27	0	2113	0	10188	0	8368	84	108
[illegible]	[illegible]	[illegible]	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
cupsd	1279	1	Sleeping	0,00	0,00	0,00	0,00	16	0	2729	1203	479	68	0	1012	0	10916	0	3948	100	272
miniserv.pl	1456	1	Sleeping	0,00	0,00	0,00	0,00	16	0	4887	3427	432	345	0	3006	0	19548	0	11940	84	1380
nscd	1464	1	Sleeping	0,00	0,00	0,00	0,00	16	0	29152	869	644	29	0	3228	0	116608	0	12828	84	116
resmgrd	940	1	Sleeping	0,00	0,00	0,00	0,00	18	0	480	90	63	15	0	61	0	1920	0	160	84	60
sshd	1480	1	Sleeping	0,00	0,00	0,00	0,00	16	0	1432	380	270	99	0	131	0	5728	0	440	84	396
slapd	1506	1	Sleeping	0,00	0,00	0,00	0,00	18	0	23188	1637	972	457	0	15522	0	92752	0	62004	84	1828
pdflush	1555	6	Sleeping	0,00	0,00	0,00	0,00	15	0	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
master	1791	1	Sleeping	0,00	0,00	0,00	0,00	16	0	1735	609	497	10	0	77	0	6940	0	224	84	40
qmgr	1807	1791	Sleeping	0,00	0,00	0,00	0,00	16	0	1737	622	511	17	0	77	0	6948	0	224	84	68
cron	1820	1	Sleeping	0,00	0,00	0,00	0,00	16	0	551	161	132	12	0	61	0	2204	0	160	84	48
mingetty	3235	1	Sleeping	0,00	0,00	0,00	0,00	18	0	502	165	143	5	0	61	0	2008	0	160	84	20
loop0	13878	1	Sleeping	0,00	0,00	0,00	0,00	0	-20	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
migration/0	2	1	Sleeping	0,00	0,00	0,00	0,00	-100	0	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
klzagent	28607	1	Sleeping	0,00	0,00	0,00	0,00	16	0	19400	6401	2906	218	0	11052	0	77600	0	44120	88	872
pickup	31378	1791	Sleeping	0,00	0,00	0,00	0,00	16	0	1723	575	474	3	0	77	0	6892	0	224	84	12
owcimomd	1271	1	Sleeping	0,00	0,01	0,00	0,00	15	0	12595	2313	1806	6	0	8587	0	50380	0	34248	100	24
init	1	0	Sleeping	0,00	0,00	0,00	0,00	16	0	212	81	68	152	0	58	0	848	0	148	84	608
events/0	4	1	Sleeping	0,00	0,00	0,00	0,00	10	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
khelper	5	1	Sleeping	0,00	0,00	0,00	0,00	10	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
kthread	6	1	Sleeping	0,00	0,00	0,00	0,00	11	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
cio_chp	24	6	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
cio	25	6	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
cio_notify	26	6	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
kslowcrw	27	6	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
appldata	55	6	Sleeping	0,00	0,00	0,00	0,00	10	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
pdflush	69	6	Sleeping	0,00	0,00	0,00	0,00	15	0	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
kswapd0	70	1	Sleeping	0,00	0,00	0,00	0,00	15	0	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A
aio/0	71	6	Sleeping	0,00	0,00	0,00	0,00	20	-5	0	0	0	0	0	0	0	Not Available	Not Available	Not Available	Not Available	Not A

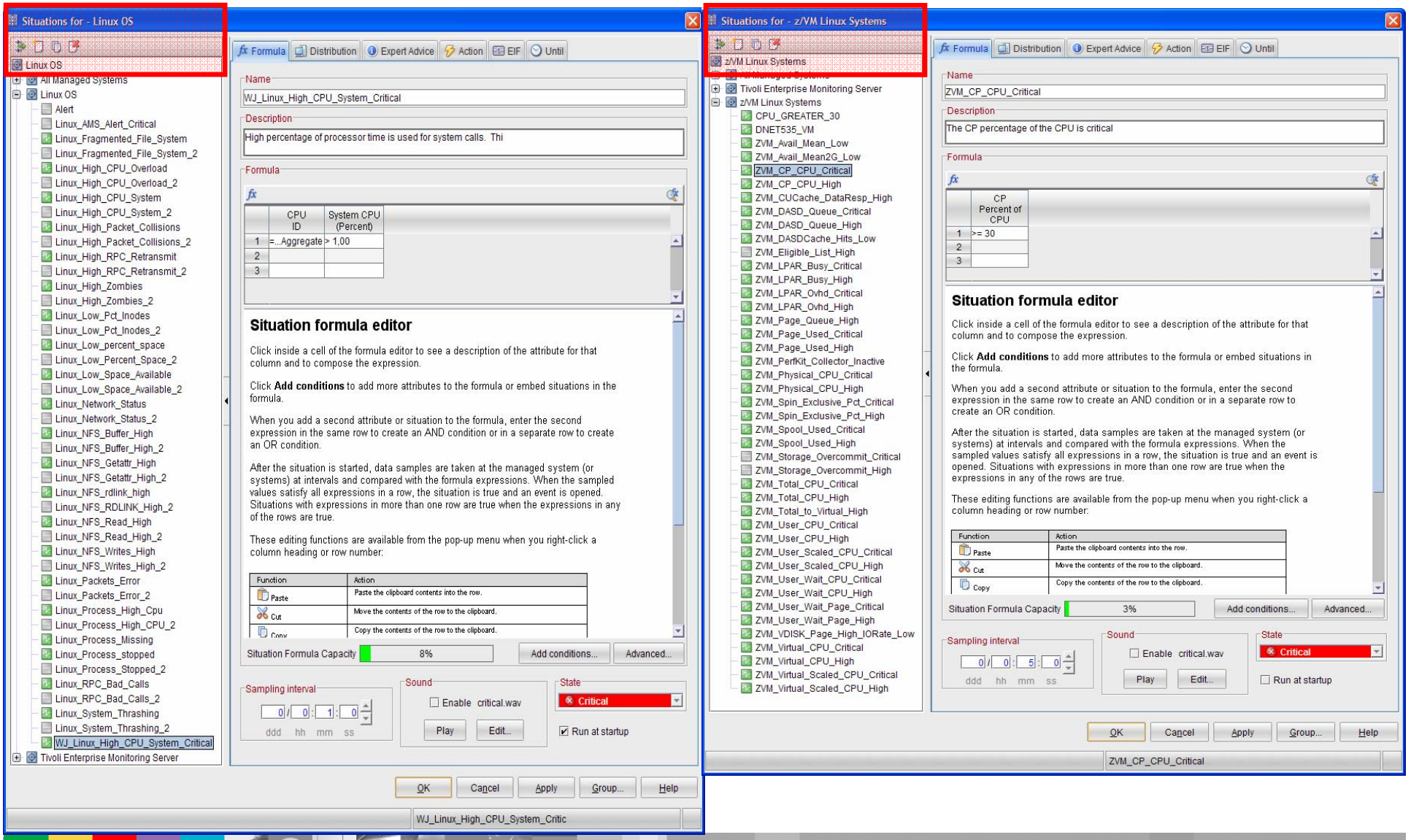
Workspace: zLinux “System Information”



Workspace: zLinux “Users” & “Detailed Links”



Predefined …….. zLinux & zVM …….. Situations



Appendix B:

OMEGAMON XE for zVM & Linux

Configuration Parameters

Configuration of OMEGAMON XE for z/VM (1)

System Changes

- Add “OPTION APPLMON” statements to the Directory entry for all Linux guests where you will collect appldata
- Add “OPTION APPLMON” statements to the Directory entry for your TCPIP server(s)
- Add “MONITORRECORDS MOSTRECORDS” to the PROFILE TCPIP file
- Enable the Monitor Domains for the data you wish to collect
  - Must have Class E privilege
  - Chart on next page shows what domains to enable for the data you wish to collect

Enabling Monitoring Domains

Data record type	Associated CP Monitor domain
LPAR Processors Channels Real Storage Hipersockets Spin Locks Minidisk Cache CCW Translations	SAMPLE: SYSTEM
DASD DASD cache Virtual switches Control Unit cache	SAMPLE: I/O
CP-owned minidisks Virtual disks	SAMPLE: STORAGE
Users	SAMPLE: USER
Network server virtual machines Network users Linux virtual machines	SAMPLE: APPLDATA EVENT: APPLDATA

Configuration of OMEGAMON XE for z/VM (2)

➢ Creating / Configuring the PERFOUT DCSS

- **Estimating the size**
  - Can use the exec that comes with z/VM
    - *FCXSEGSZ EXEC*
    - *Gives bare minimum size*
  - Better to make it larger than you need. 16M is a good safe starting size
    - *If you have 1000's of users or DASD, you may want to increase this*
- **Find a location**
  - Must not conflict with the MONDCSS segment
  - Best location is just above the size of your Linux virtual machine
    - *If your Linux guest is 512M, put segment from 514-530M*
- **Define the DCSS**
  - DEFSEG PERFOUT 20200-211FF SN (Example)
    - *This is 514M-530M in 4K pages*
- **Save the DCSS**
  - SAVESEG PERFOUT
    - *You must do this from a virtual machine that can contain the DCSS. In this case it must have a minimum of 530M of virtual storage*
- **Potential problems**
  - Overlap with MONDCSS - Use Q NSS MAP to check
  - The DCSS is within the virtual storage of the machine that will be running the Performance Toolkit. This will prevent Performance Toolkit from loading the DCSS

Configuration of OMEGAMON XE for z/VM (3)

Updating the FCONX $PROFILE

- **Add the** following statement to the FCONX $PROFILE. This will tell the Performance Toolkit to output data to the DCSS
  - FC MONCOLL SEGOUT ON PERFOUT

Configuring the Command Processor (optional

- **Edit the** KVL CONFIG **file**
  - Add the z/VM userid of your Linux guest to the AGENT_ID= line
    - *AGENTID*=lnxuserid
  - Add any commands that are not to be issued from a Take Action
    - *CMDS=IPL*
    - *CMDS=LOGOFF*
    - *CMDS=DEFINE STORAGE*
    - *CMDS*=YOUR COMMAND HERE
  - Depending on how much logging you wish to have on your command processor you may adjust the Logging parameters
    - *LOG_SIZE=100 (size of each log)*
    - *LOG_COUNT=3 (number of log files to keep)*
    - *LOG_RESP=N (Do/don't log the output of commands that are run)*

Start the KLVCMD EXEC

- **Enter KVLCMD on the command line to start the command processor**
  - Uses the **WAKEUP** command to wait for input from the TEPS via SMSG
  - Any console input will also cause it to wakeup
  - You can use "#CP DISC" to disconnect the userid and avoid unintentional interrupts
- **Although this exec works, it is meant as an example. You may modify it to fit your needs**

Configuration of OMEGAMON XE for Linux (1)

➢ Accessing the DCSS

- **Ensure storage is available for the DCSS**
  - Linux uses all storage that CP provides to it. Need to ensure that the storage location of the DCSS is not used by Linux
  - Two options:
    - *Place DCSS above the Linux guest*
      - Linux guest is 512M
      - Define DCSS to be from 514M-530M
      - Extend the Linux address range
        - Add the following to the [ipl] section of the parameters line in the /etc/zipl.conf file: **mem=530M**
        - Issue the command **zipl**
        - Re-ipl your linux guest
        - **NOTE**: Be VERY careful when editing the zipl.conf file

  Leave a "hole" for the storage with the DEF STOR command. If DCSS is defined from 48-64M you could use the following "DEF STOR CONFIG 0.48M 64M.448M" - you MUST do this if your Linux guest is 2G or larger

- **Load the DCSS device driver**
  - Issue the command **modprobe dcssblk**
- **Add the PERFOUT DCSS to the Linux guest (from root)**
  - Issue **echo perfout > /sys/devices/dcssblk/add**
- **To make permanent when you re-ipl, add the above two lines to your**
  - **/etc/rc.d/boot.local** file on SLES
  - **/etc/rc.d/rc.local** file on RHEL

Configuration of OMEGAMON XE for Linux (2)

Enabling Appldata Collecting

- **Load the collecting drivers**
  - modprobe appldata_os
  - modprobe appldata_mem
  - modprobe appldata_net_sum
- **Enable collecting**
  - echo 1 > /proc/sys/appldata/os
  - echo 1 > /proc/sys/appldata/mem
  - echo 1 > /proc/sys/appldata/net_sum
- **Set the interval timer**
  - echo 10000 > /proc/sys/appldata/interval (time is in ms)
- **Enable the timer**
  - echo 1 > /proc/sys/appldata/timer
- **Add above statements to** /etc/rc.d/boot.local **or** /etc/rc.d/rc.local **to automatically enable collection at startup**

Enabling Dynamic Workspace Linking

- **The following must be done for each Linux guest you wish to link to**
  - Stop the Linux agent
  - Modify the lz.ini file. This is the Linux agent initialization file. It can be found in the <ITM_Home>/config directory
    - *Add **KLZ_SETLPARVMID=Y***
    - *If you are running ITM 6.2.0 or higher, you must comment out the **CTIRA_HOSTNAME** variable.*
  - Restart the Linux agent
- **Allows you to link directly from a workspace in the Linux agent to a workspace in the z/VM agent**

Configuration of OMEGAMON XE for Linux (3)

➢ Enabling the Take Action Command (optional)

- **Allows you to enable reflex automation to handle situations without manual intervention**
  - Load the vmcp driver to allow you to issue VM commands from Linux
    - ***modprobe vmcp***
  - Verify that sudo is available
    - ***sudo vmcp q userid***
  - If installing from a userid other than root you will need to do the following
    - *Add **:/sbin** the **PATH** statement in **vl.ini** file*
    - *Use visudo to update the **/etc/sudoers** file with the command*
      - **userid ALL=NOPASSWD:/sbin/vmcp** userid is the non-root id
      - This allows 'userid' to run as root
- **Test to ensure that it is working**
  - sudo vmcp smsg <userID> <TEP userID> cmd=<name of the command>
    - *userID is where the command processor is running*
    - *TEP userID is the authorized userID used to log onto the portal*
  - Use a simple command like "QUERY USERS" and then look on the console of the VM userid running the Command Processor to see if the command was issued.
- **Allows you to issue commands on your z/VM system directly from the TEP**

Tivoli® OMEGAMON XE on z/VM and Linux Version 4.2.0

Planung und Konfiguration - **SC12-4417-00 or** Planning and Configuration Guide - **SC27-2837-00**

Last Page