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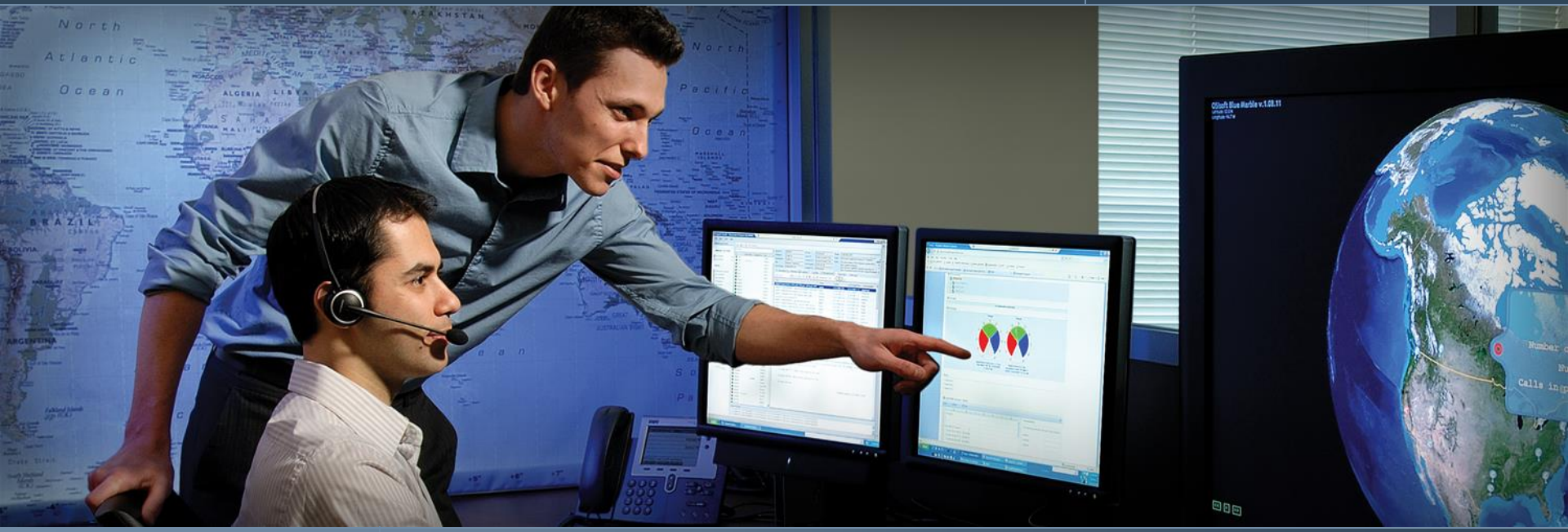
Regional Seminar Series



Data Center & IT Monitoring Use Cases

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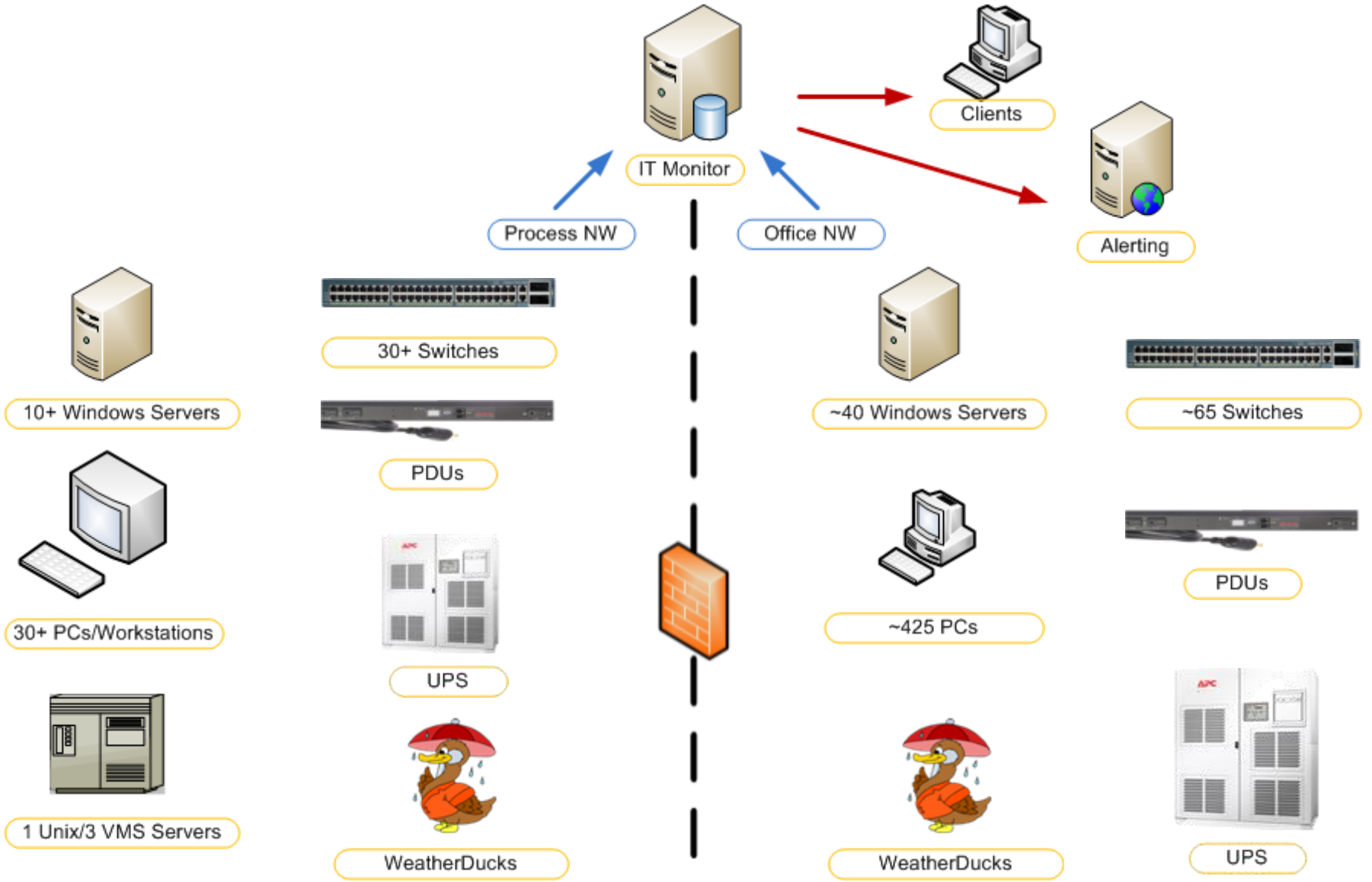
Center of Excellence (CoE) Engineer
OSIsoft

August 11, 2009

Empowering Business in Real Time.

Cytec Fortier IT Assets



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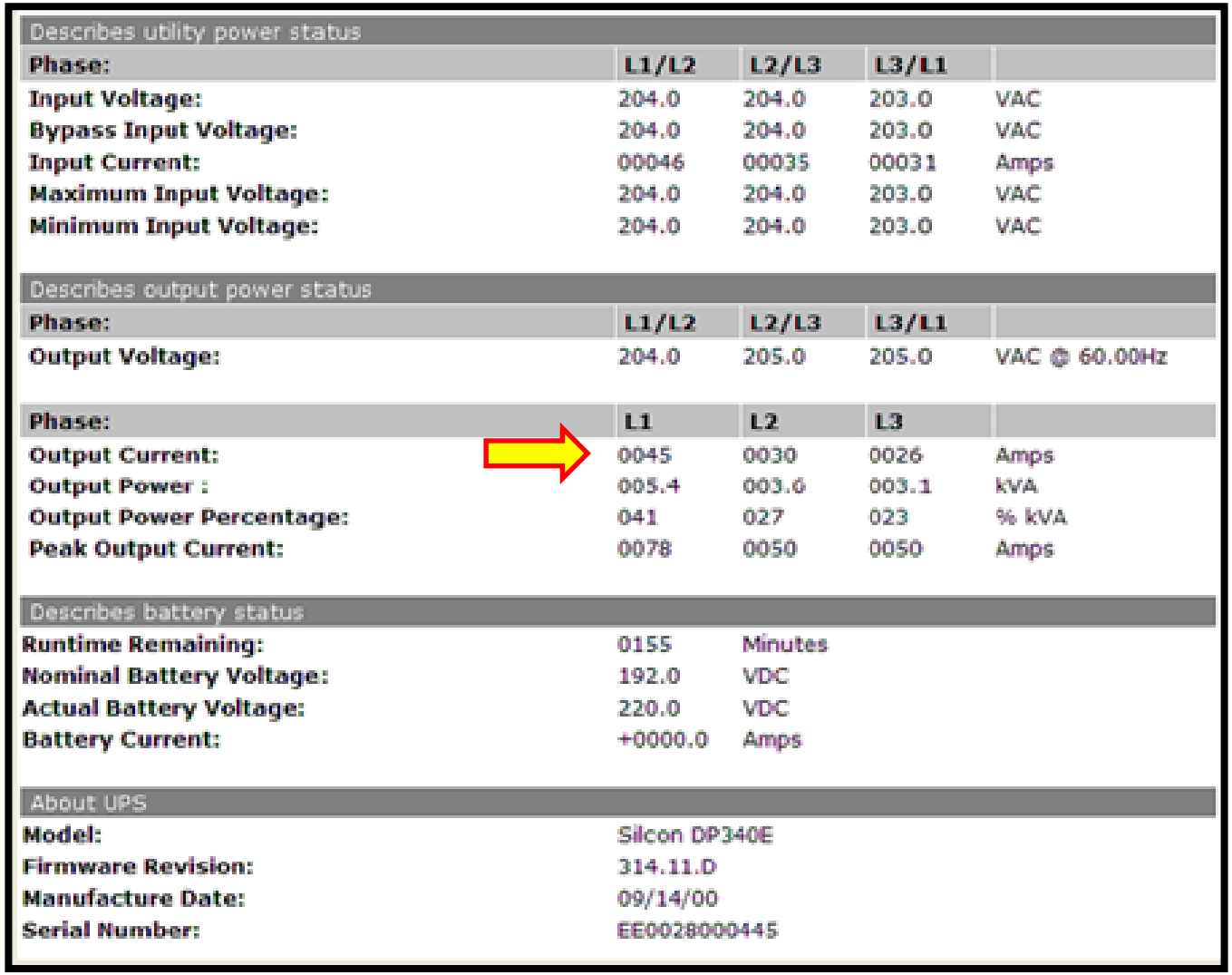
Power Distribution & Monitoring Needs

- Perform load balancing on 3-phase UPS that supplied power to the Admin Data Center
- Power excursion monitoring and alerting along with ability to remotely cycle power on individual components in the event of severe problem
- Understand power consumption for capacity planning and energy costing of Admin Data Center

UPS Phase Load Balancing Needed



Describes utility power status				
Phase:	**L1/L2**	**L2/L3**	**L3/L1**	
Input Voltage:	204.0	204.0	203.0	VAC
Bypass Input Voltage:	204.0	204.0	203.0	VAC
Input Current:	00046	00035	00031	Amps
Maximum Input Voltage:	204.0	204.0	203.0	VAC
Minimum Input Voltage:	204.0	204.0	203.0	VAC

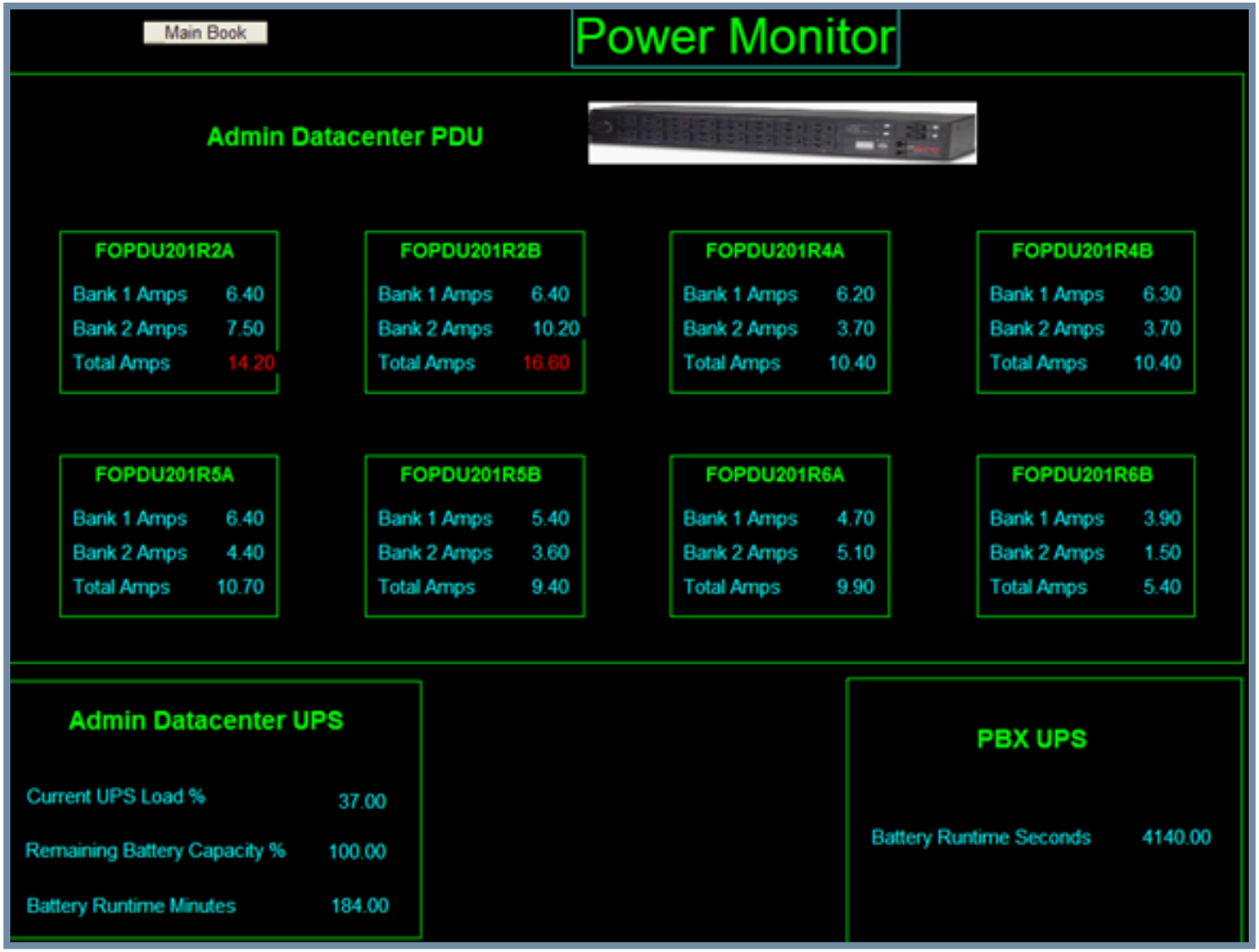
Describes output power status				
Phase:	**L1/L2**	**L2/L3**	**L3/L1**	
Output Voltage:	204.0	205.0	205.0	VAC @ 60.00Hz

Phase:	**L1**	**L2**	**L3**	
Output Current:	0045	0030	0026	Amps
Output Power :	005.4	003.6	003.1	kVA
Output Power Percentage:	041	027	023	% kVA
Peak Output Current:	0078	0050	0050	Amps

Describes battery status		
Runtime Remaining:	0155	Minutes
Nominal Battery Voltage:	192.0	VDC
Actual Battery Voltage:	220.0	VDC
Battery Current:	+0000.0	Amps

About UPS	
Model:	Silcon DP340E
Firmware Revision:	314.11.D
Manufacture Date:	09/14/00
Serial Number:	EE0028000445

Power Distribution & Monitoring



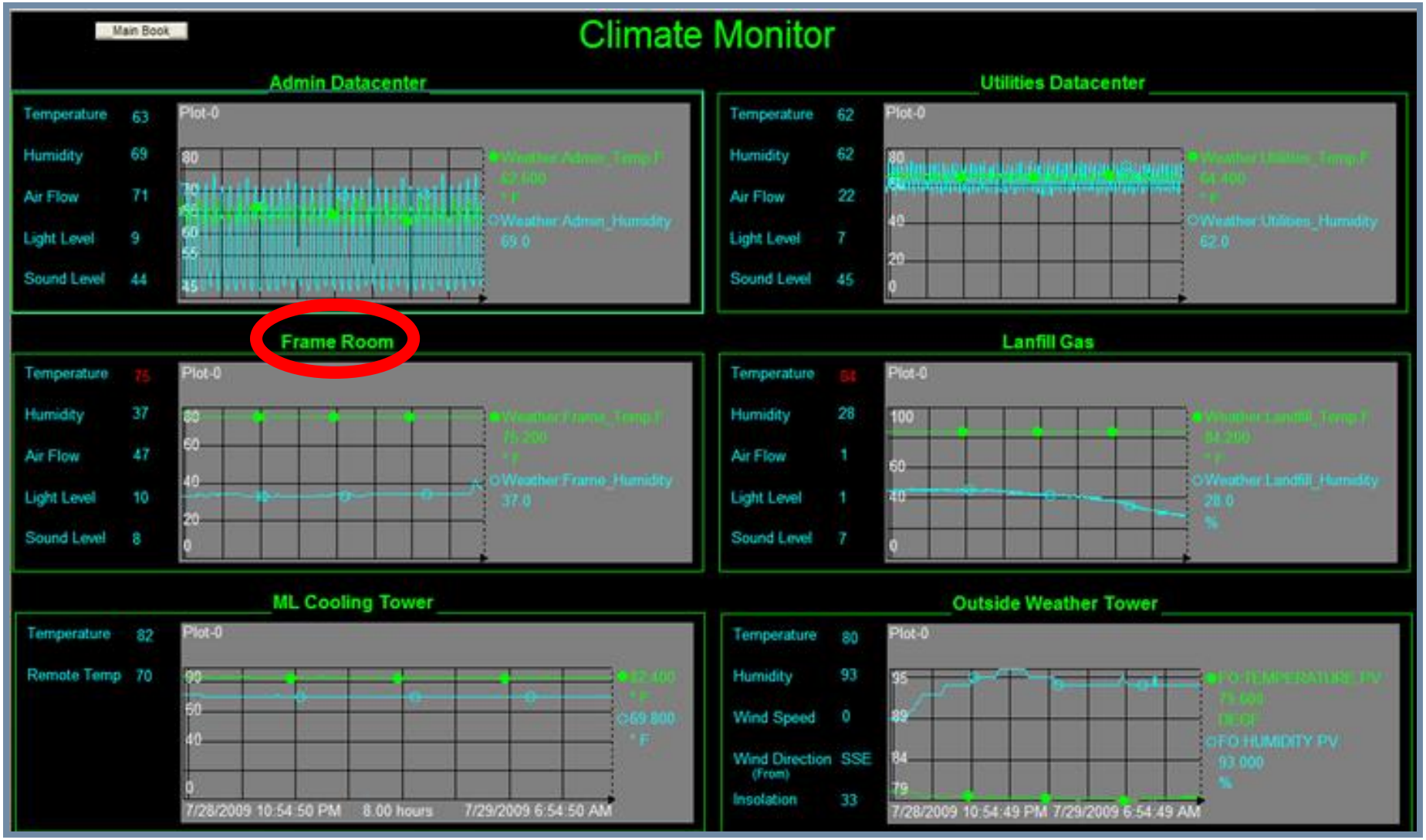
Data Center Monitoring – Temp, Humid, etc.

- Goal : Alert upon dangerous conditions such as high temperature that could damage equipment

- Installed WeatherDucks in data centers, frame room, MCCs and at remote skids.

- WeatherDucks are SNMP enabled devices that can alert directly from the device via Web Service provided with devices

WeatherDuck Monitoring



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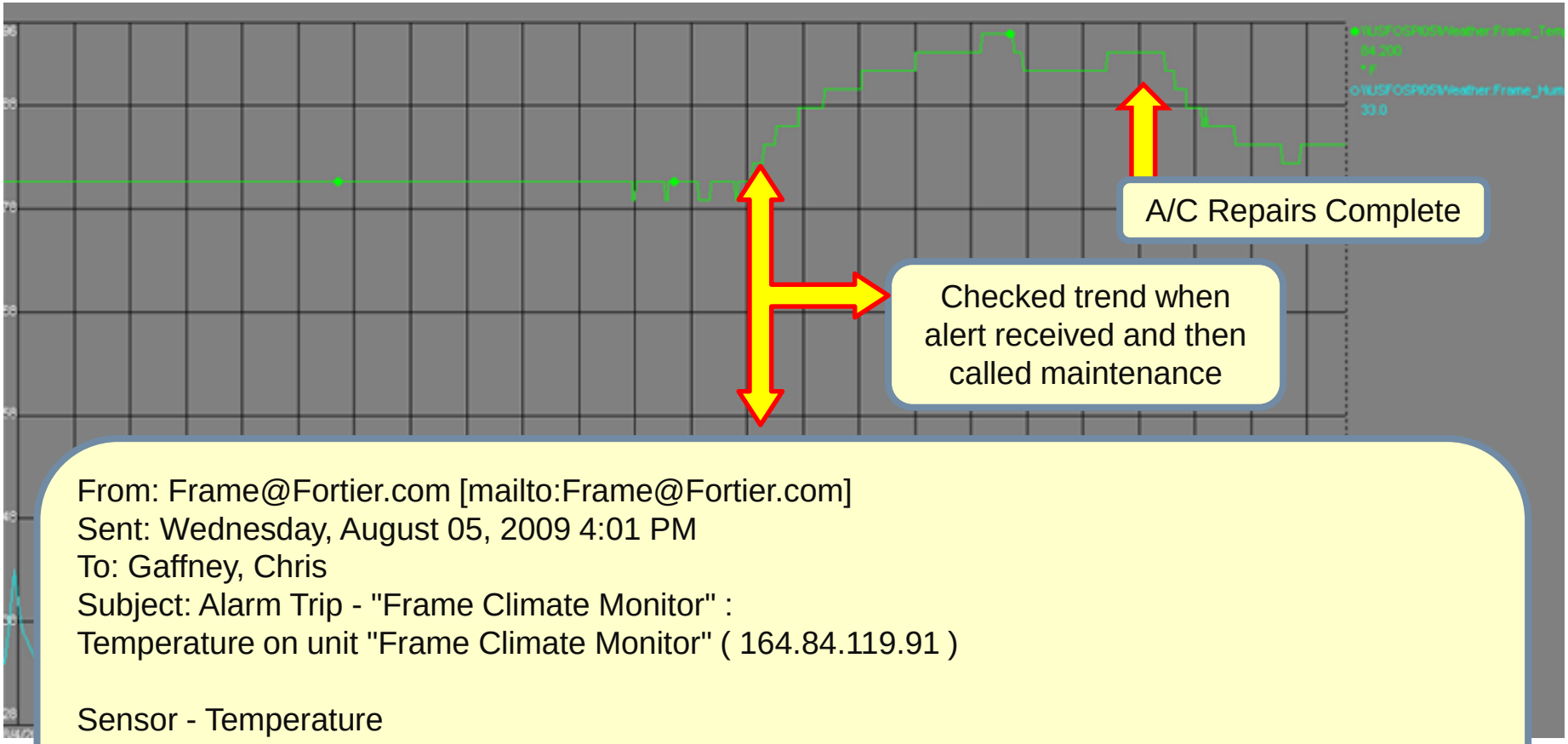
A/C Failure Alert



From: Frame@Fortier.com [mailto:Frame@Fortier.com]
Sent: Wednesday, August 05, 2009 4:01 PM
To: Gaffney, Chris
Subject: Alarm Trip - "Frame Climate Monitor" :
Temperature on unit "Frame Climate Monitor" (164.84.119.91)

Sensor - Temperature
Current value - 84.83F
Alarm thresholds - (0, 80)
Event - High trip alarm
Device - "Frame Climate Monitor" (WxGoos : 2057890400000072)

Display Examples – Servers & Switches

- **Server Dashboard:**

  Performance and connectivity

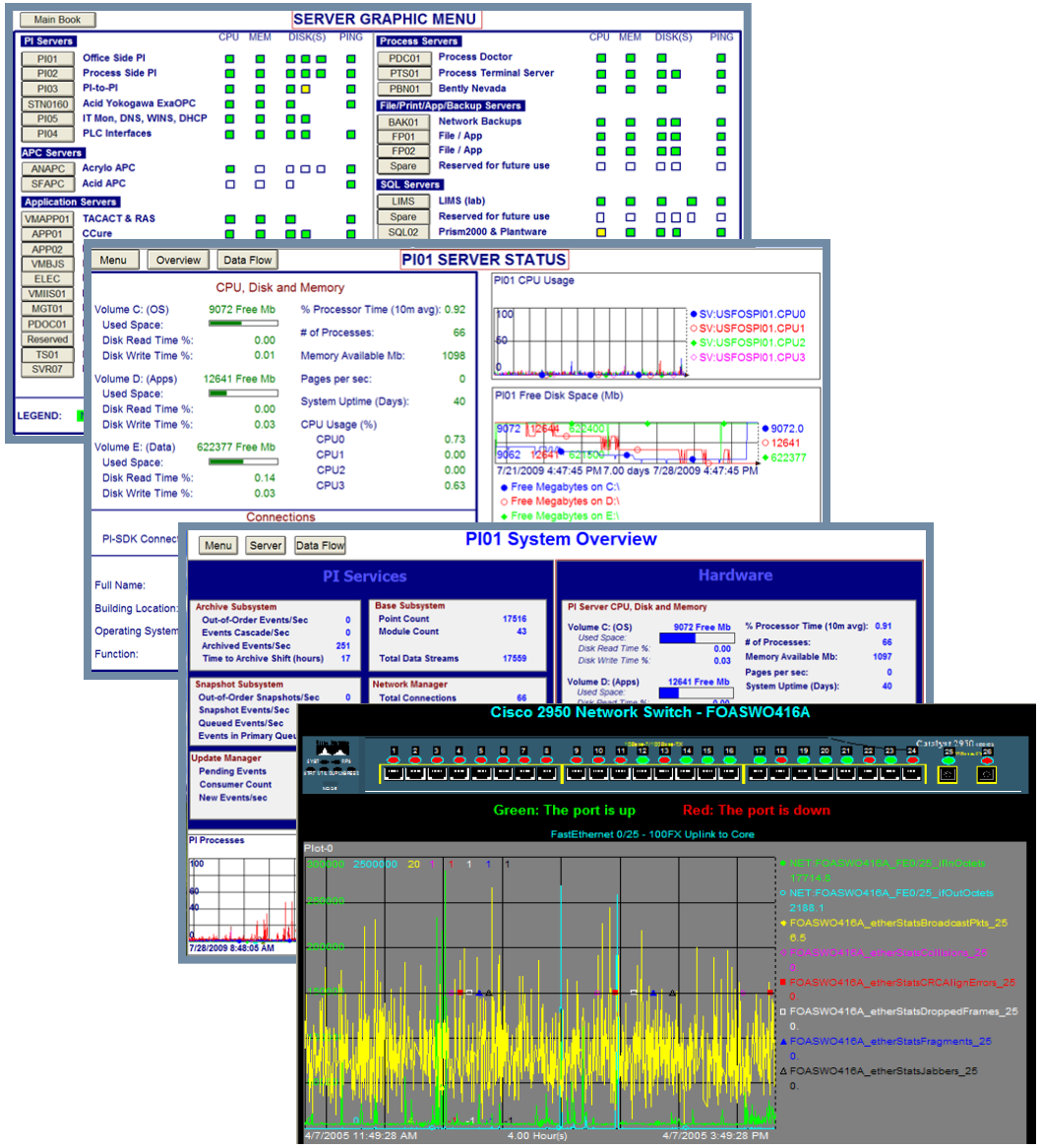
- **Indiv Server Status:**

  Detailed server info

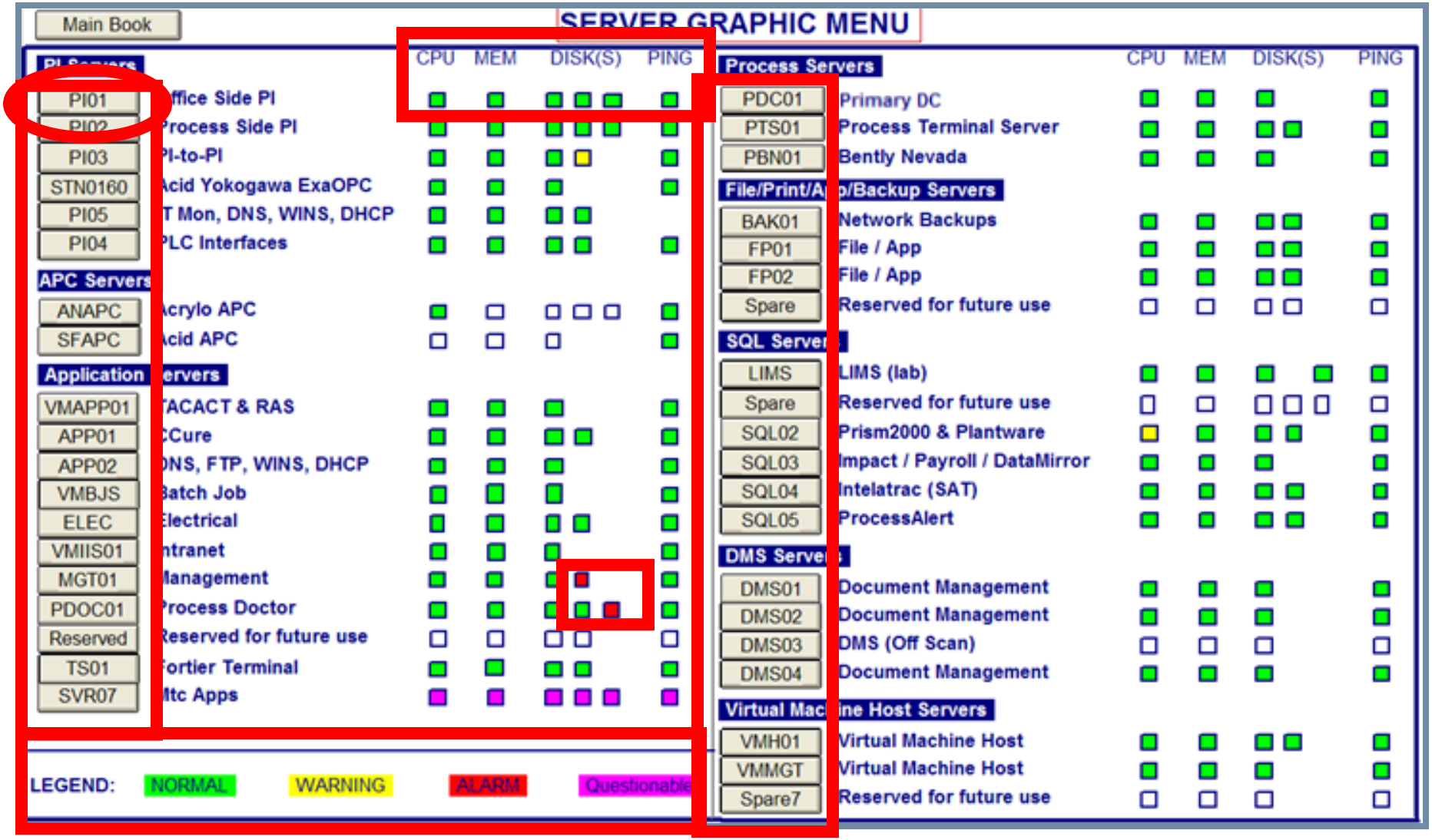
- **PI Servers:**

  Overview of PI Services and hardware performance

- **Network Switches**



Server Dashboard



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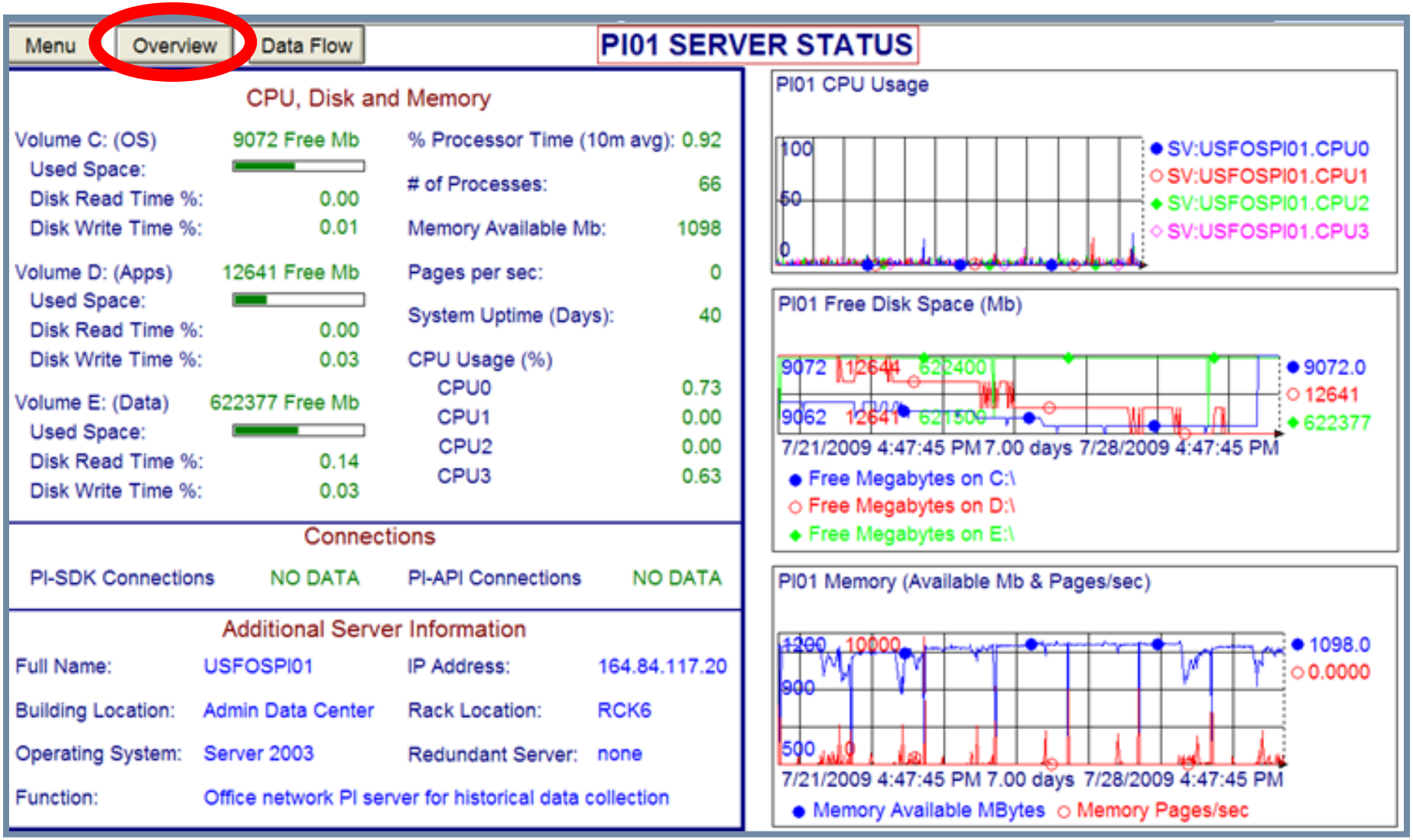
Server Status



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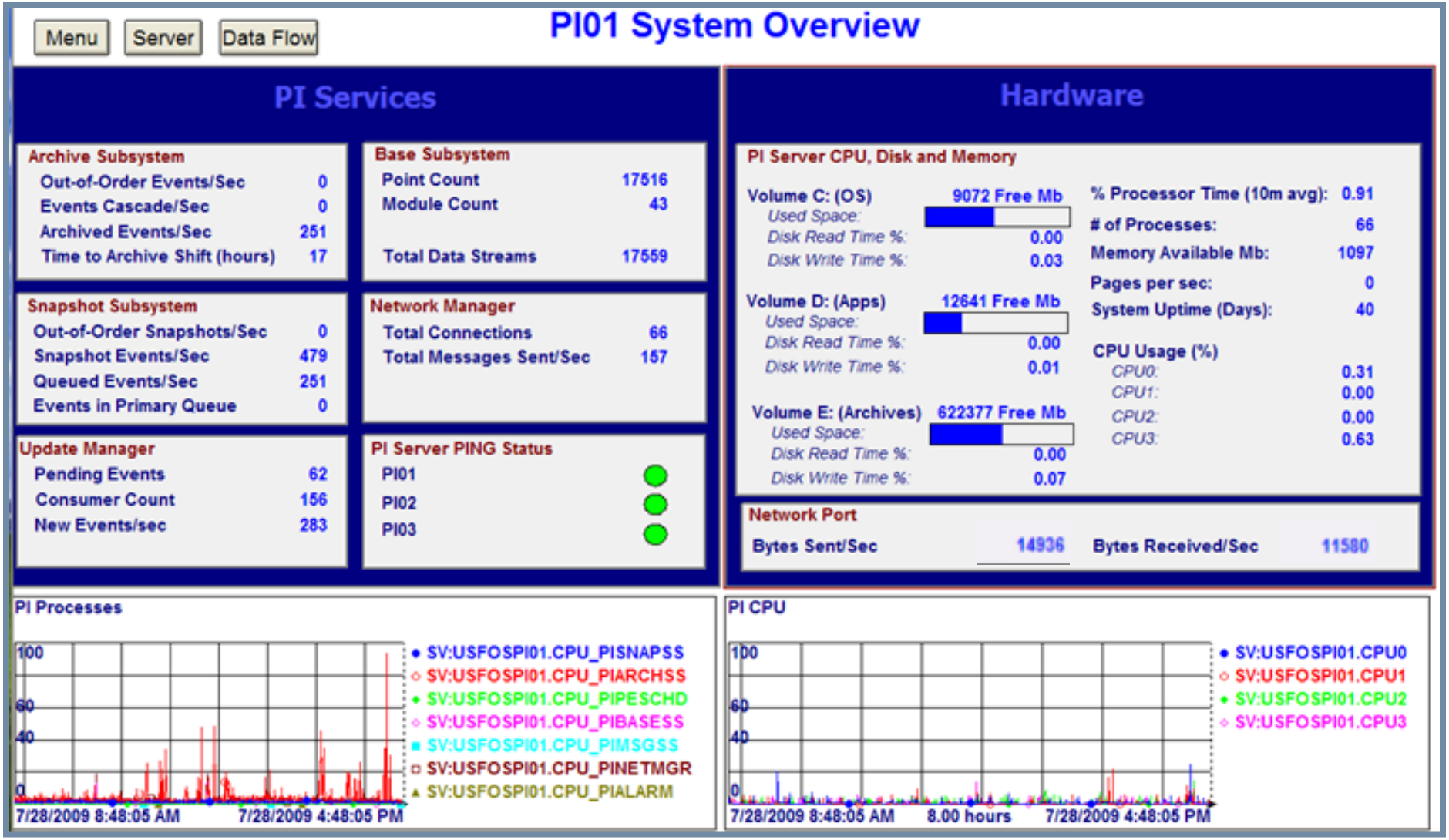
PI Server System Overview



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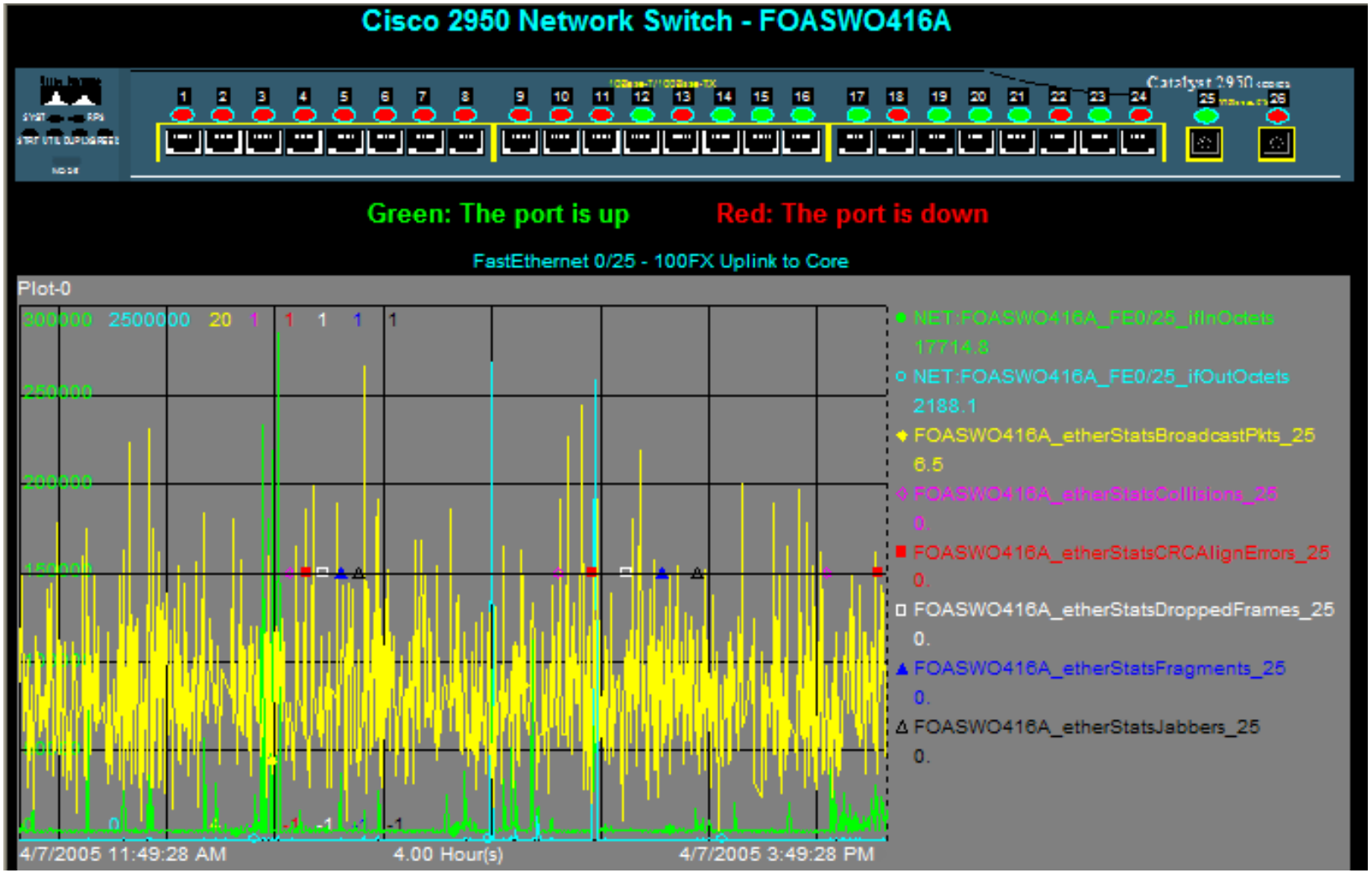
Network Switch Monitoring



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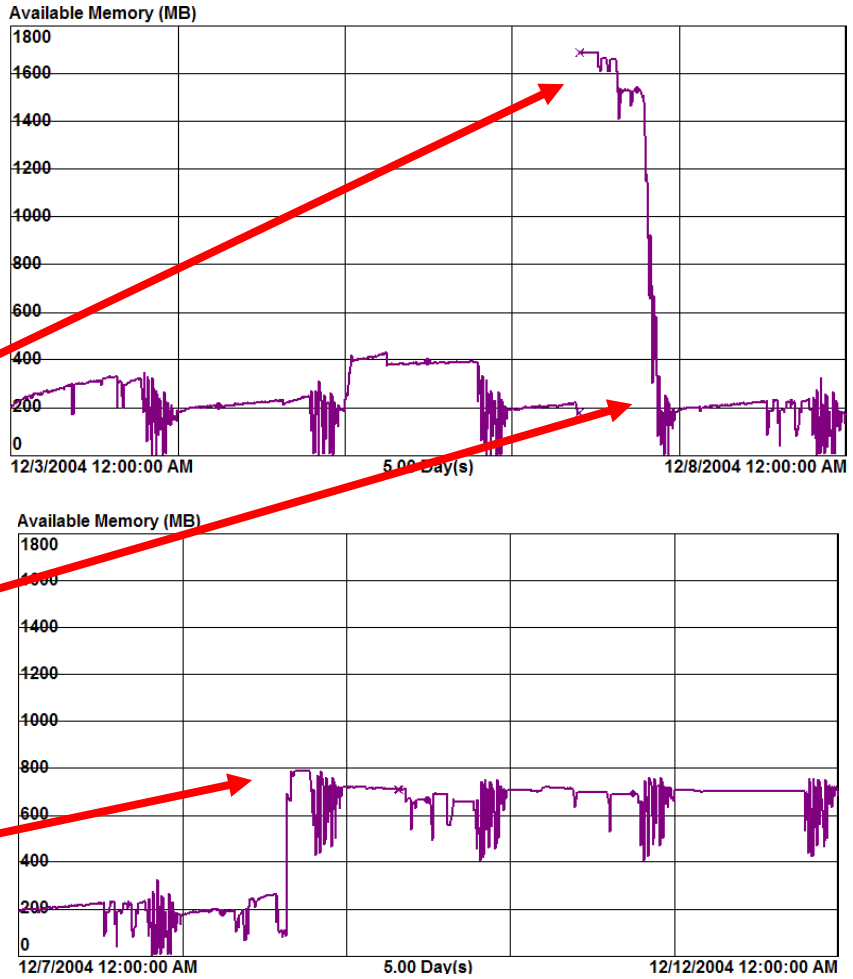
Performance Monitor Use Cases

- SQL Server crashes
- Server 2000 memory leaks
- PI Server upgrade justification
- New Application Server purchase justification

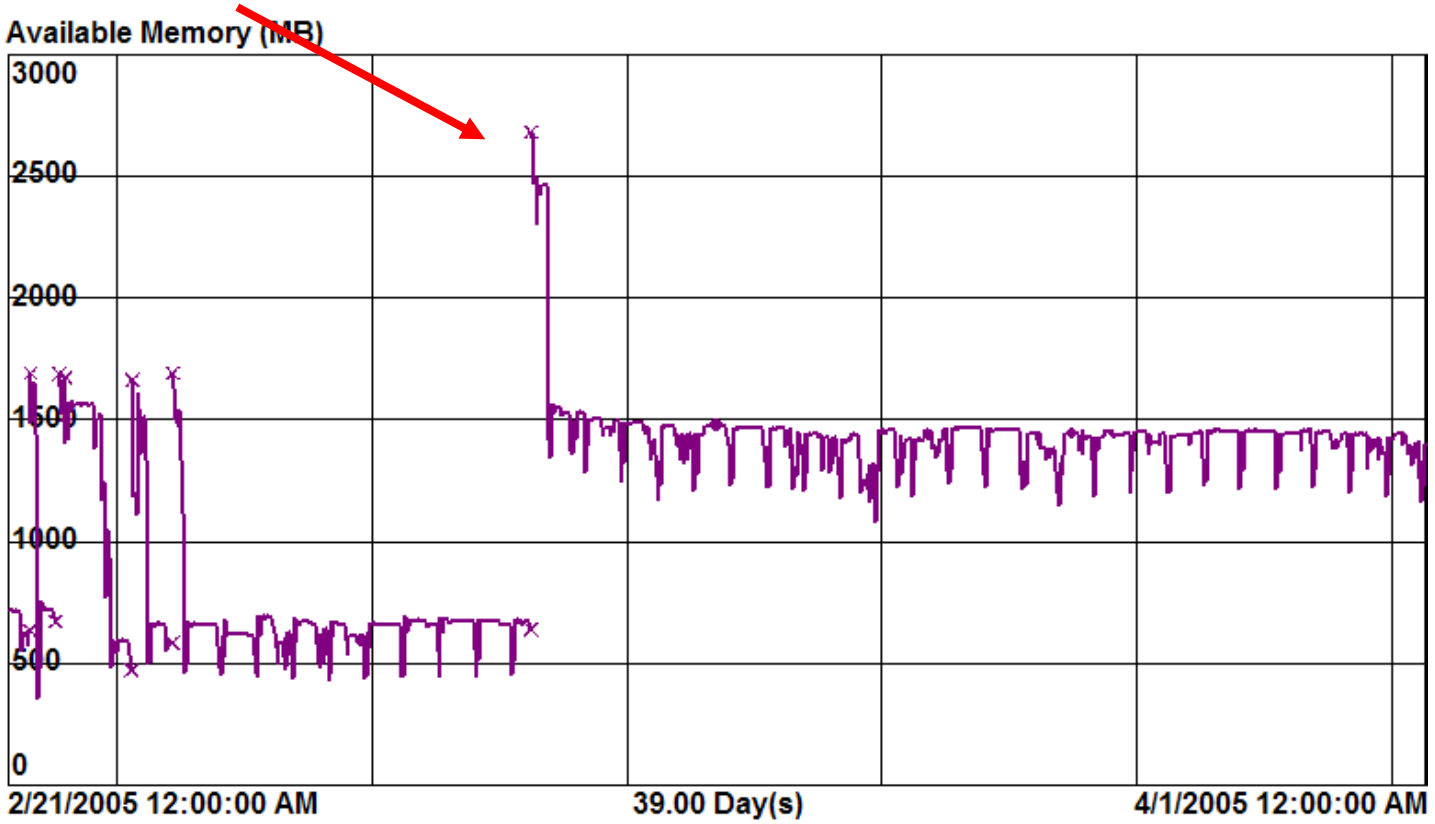
SQL Server Crashes – Part 1

- SQL Server running several apps (Valve tuning, PI-PB, weather data I/F)
- Periodic crashes occurring without clues to why in event log
- Upon reboots, server had plenty of memory until next run of nightly reports
- SQL reports grabbing all available memory and not letting go
- Limited the amount of memory available to SQL so that it would be available for other apps



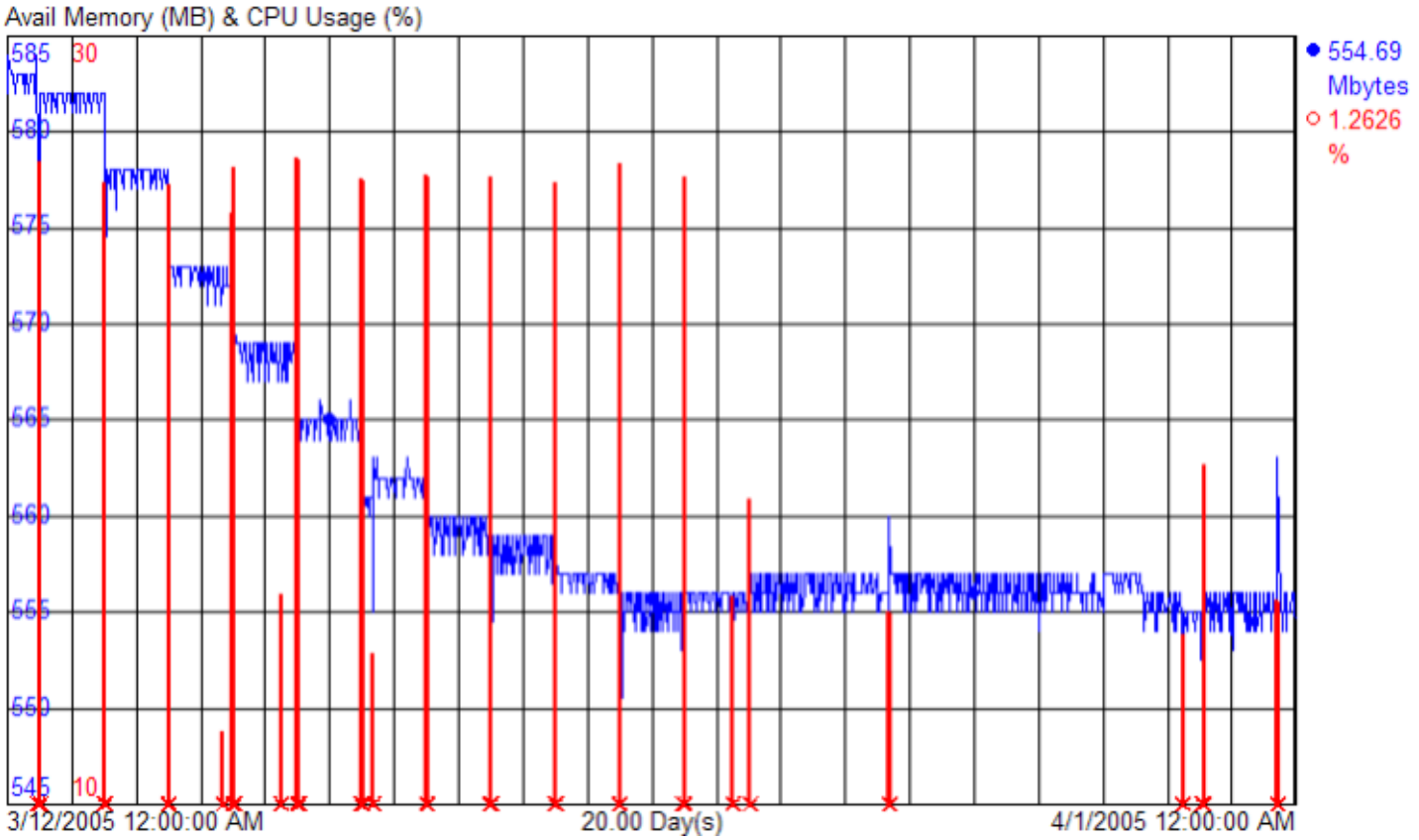
SQL Server Crashes – Part 2

- Still experiencing server crashes after limiting available memory for SQL
- Documented results justified addition of more server memory, even though already had 2 GB
- Added 1GB memory to server; no more problems



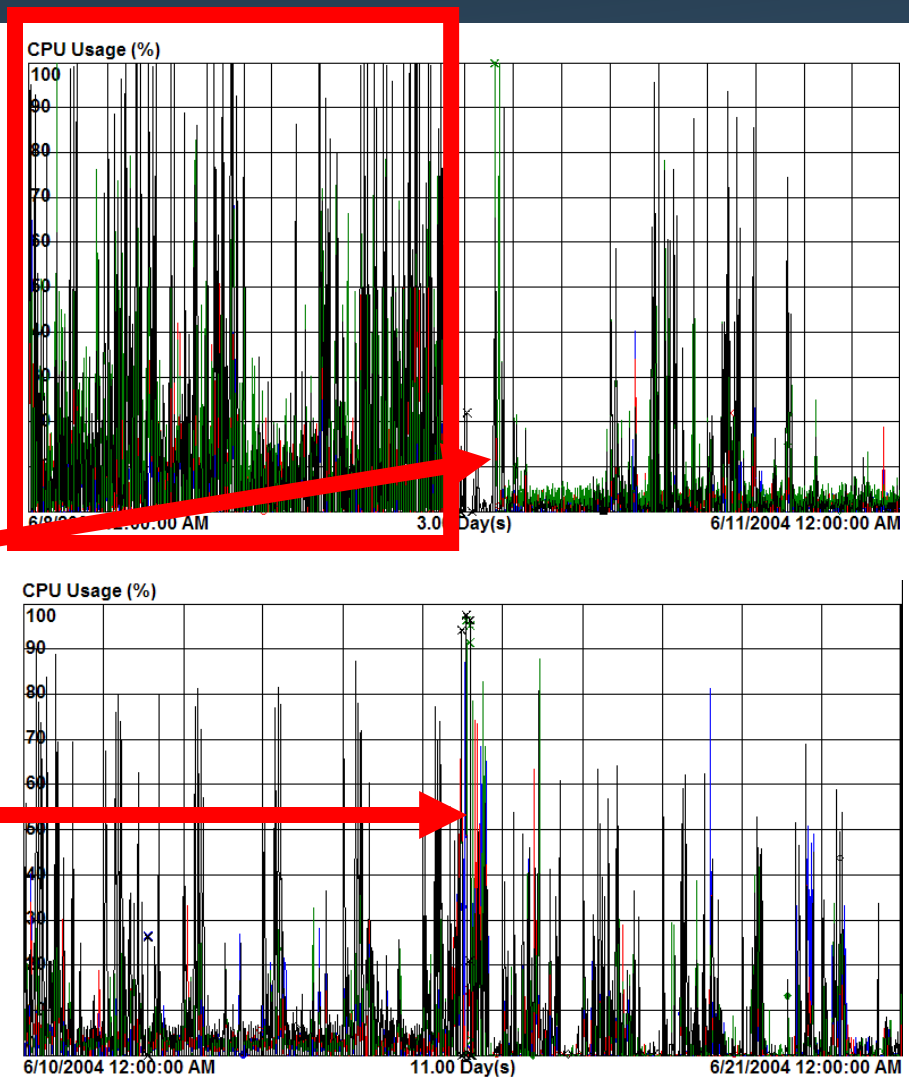
Server 2000 Memory Leaks

- Discovered slow memory leak on a Server 2000 machine that had step change drops when CPU spiked each day
- Happening on other servers, but not all – only Server 2000 OS
- Problem due to AV scans on Server 2000 machines
- Changed AV scan settings to fix memory leaks



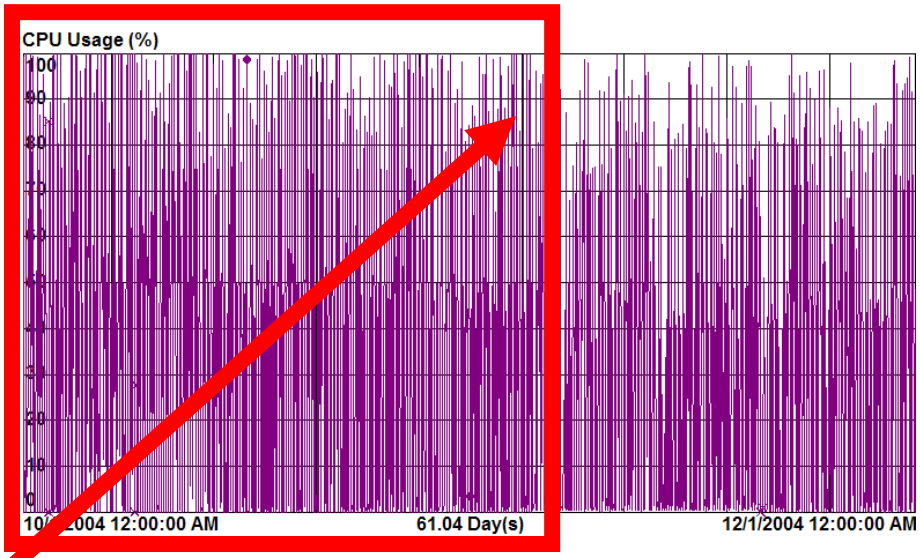
PI Server Upgrade Justification

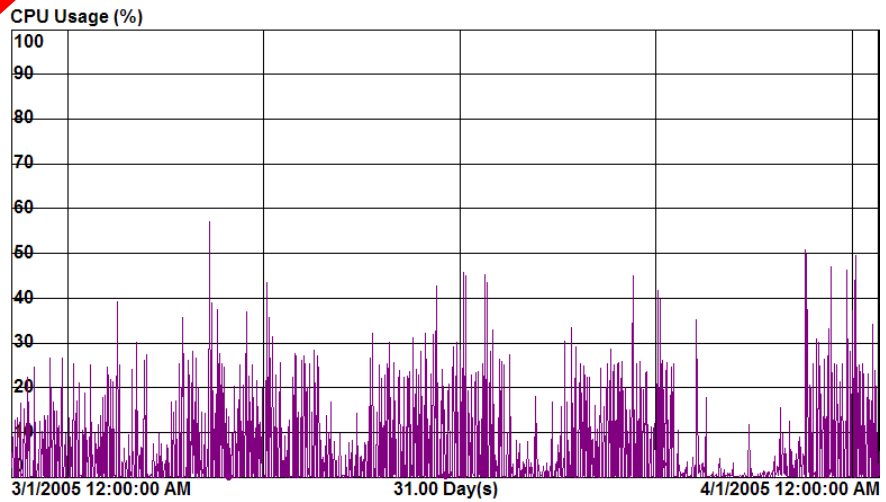
- PI server
  - Performance problems
    - morning reports maxing out CPUs
    - taking up to 10 minutes to run one particularly large report
  - Justified new server using same PI UDS 3.3 (3.4 with multi-threading not available, yet)
    - Reduced CPU usage
    - same report runs in 30 seconds
  - Upgraded to PI UDS 3.4 with multi-threading:
    - same report now runs in 4 seconds
    - spread spikes out during peak usage periods
    - Impact most likely larger if done without hardware upgrade



Application Server Purchase Justification

- Shipment Scheduling application server
  - Performance problems: very slow response over several months
  - Trends showed very high CPU usage
  - Increased memory from 500MB to 1GB; slight CPU improvement, but still high
  - Able to show that hardware was impacting performance & justified purchase of new server
  - Big improvement





SUMMARY…

- Power Distribution & Monitoring
  - Key to providing continued uptime during power fluctuations/outages
- Data Center Monitoring
  - Early detection and alerting key to preventing equipment damage
- Server “Dashboard”
  - invaluable tool used every day to highlight problems before serious consequences
- IT Monitor allowed easy view of historical data over long periods
  - key to finding SLOW memory leaks that are hard to see in short term
  - able to modify trends quickly & easily and to group items together on trends on the fly
  - key to discovering problems in a timely manner

…SUMMARY (continued)

- Troubleshooting
  - SQL reports grabbing all available memory and not letting go
  - Server 2000 memory leaks upon AV scans
- Upgrade Justification
  - New Application server
  - New PI server
- Capacity Planning
  - Raid Sets: Purchases based on disk usage monitoring
  - Server Consolidation
    - Previously had multiple under-utilized servers
    - Used IT Monitor to look at required resources and determine how much server consolidation was possible
    - Server consolidation project: **annual savings of K$25**

Additional Information

UC2005 Presentation:

"IT Monitor in Action"

http://www.osisoft.com/templates/item-abstract.aspx?id=1914

Product Series Recorded Webinar:

"IT Monitor in Action"

http://videostar.osisoft.com/Webinars/downloads/C557S107_IT_Monitor_Action.wmv

Questions?

Thank you

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