ProLiant Essentials Performance Management Pack: Case Study

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Agenda

- **Introduction**
- Performance Management Pack (PMP) overview
  - Installation
  - Licensing
  - UI
- Nationwide Implementation
  - Case Studies
  - Benefits
  - Lessons Learned
- PMP ROI Calculator
- Useful Links and Tips
- Q&A

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PMP 3.0: What is it?

A ProLiant performance management solution integrated with HP SIM 4.1 and Insight Manager Agents

- Performance Analysis
  - On-Line
  - Off-Line
  - Static
- Nothing to install if you have SIM 4.1 and “recent” agents
- Only pertinent performance parameters and an explanation of the values are presented

PMP 3.0: What does it monitor?

- CPU
- Memory
- Smart Array/SCSI/IDE controllers
- Direct-attached SCSI/ATA disks
- Network Interface Controllers
- Fibre Channel Host Bus Adapters
- PCI Bus
- HP MSA500 and MSA1000 storage devices

Static Analysis

Processors
- Mixed Cache Sizes
- Mixed Frequencies

Memory
- Available physical memory <20MB

Network Interface Controllers
- Running at speeds lower than the maximum
- Teaming Issues

Storage
- Negotiated speed slower than supported
- Logical disk comprised of disks with different drive speeds
- Logical disk comprised of disks with different drive capacities

Host buses
- Bus overload
- Bus unbalanced

PMP 3.0 Product Architecture

Front tier:

- Windows system running Internet Explorer 6.0 or later

Middle tier:

SIM 4.1 running under:

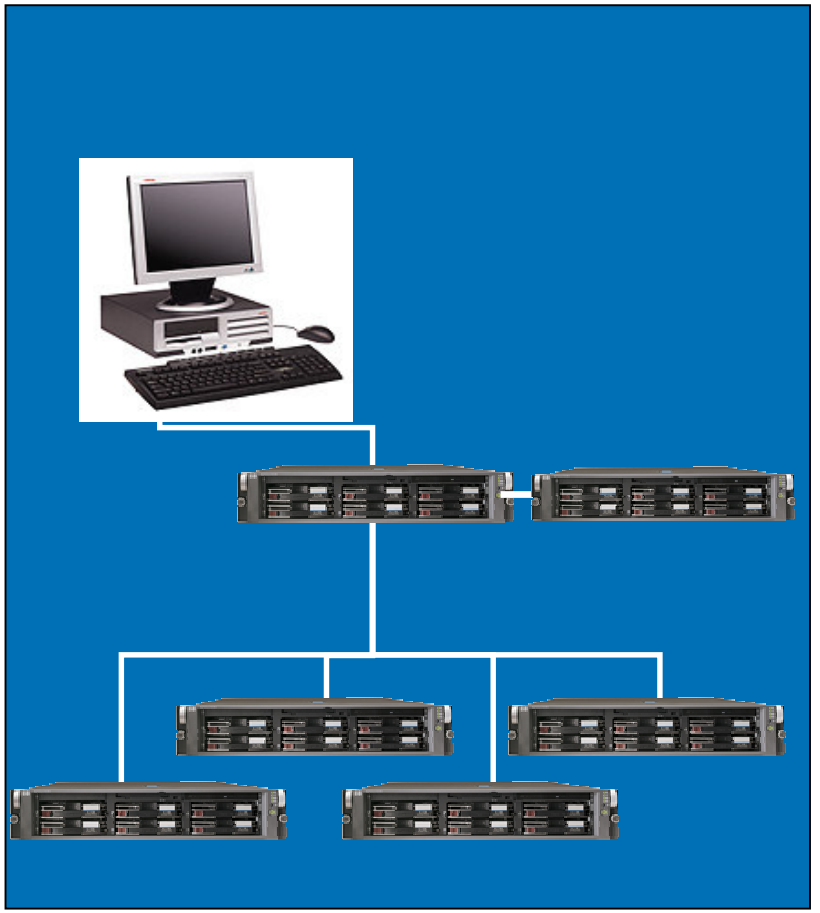
- Windows XP Pro SP1
- Windows 2000 SP2
- Windows Server 2003

Using either:

- MSDE SP3 (local only)
- SQL Server 2000 SP3

Monitored servers:

- NT 4.0 SP6a: Insight Agents 6.10.1.0
- W2K SP2: Insight Agents 6.20
- W2K3: Insight Agents 6.40



Installation Overview

- PMP 3.0 is automatically installed with both typical and custom installations of SIM 4.1 for Windows
- Same database type (MSDE/SQL) and location (remote/local) as other SIM 4.1 components
- PMP 3.0 will migrate existing logged data and licenses from PMP 2.1

Installation Overview (contd.)

PMP modifies the SIM 4.1 menus as follows:

- Optimize
  - Performance Management Pack
    - Online Analysis
    - Offline Analysis
- Reports
  - Performance Management Pack Reports
    - Static Analysis Report
    - System Summary Report
    - CSV (comma-separated-value) File Generator
- Options
  - Performance Management Pack Options
    - Licensing
    - Configuration
    - Manual Log Purge

Licensing Overview

Free Licenses

- Central Management Server
- Pre ML/DL Servers (ProLiant 5500, 6400R, 6500, 7000, 8000, and 8500 equipped with Pentium III Xeon or better)
- 5 Additional Servers

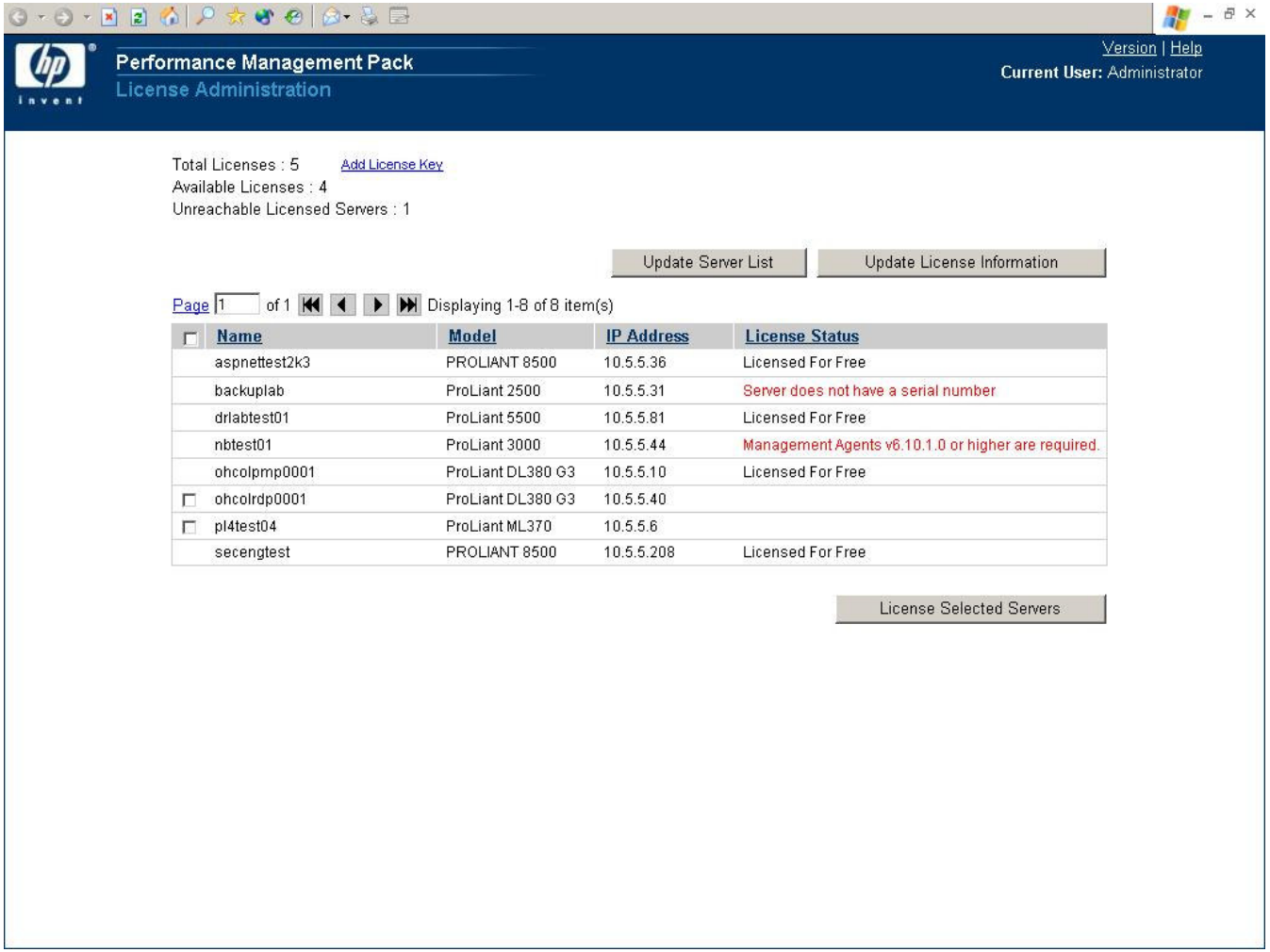
Additional Trial Licenses

- Contact HP sales team

For Fee Licenses

- Single License
- Flexible License
- Tracking License

PMP Licensing Screen



Licensing Rules

Licenses cannot be applied under these conditions:

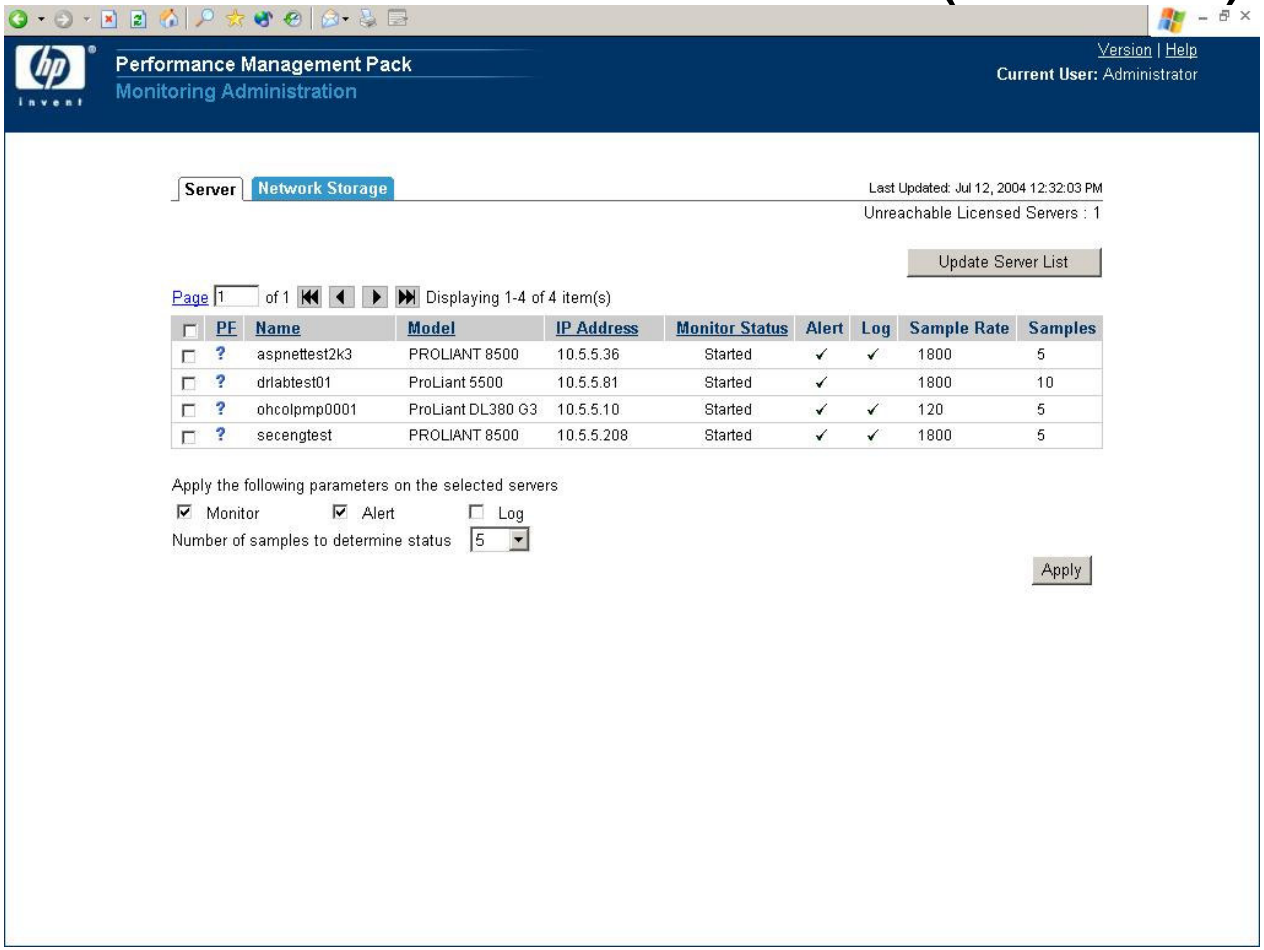
- The server is not supported
- The server does not have a serial number
- The agents do not meet version requirements
- The Service Pack level does not meet the minimum requirements

After a license is applied it is permanently "attached" to that server. When that server is retired the license is retired along with the server.

Data Collection Overview

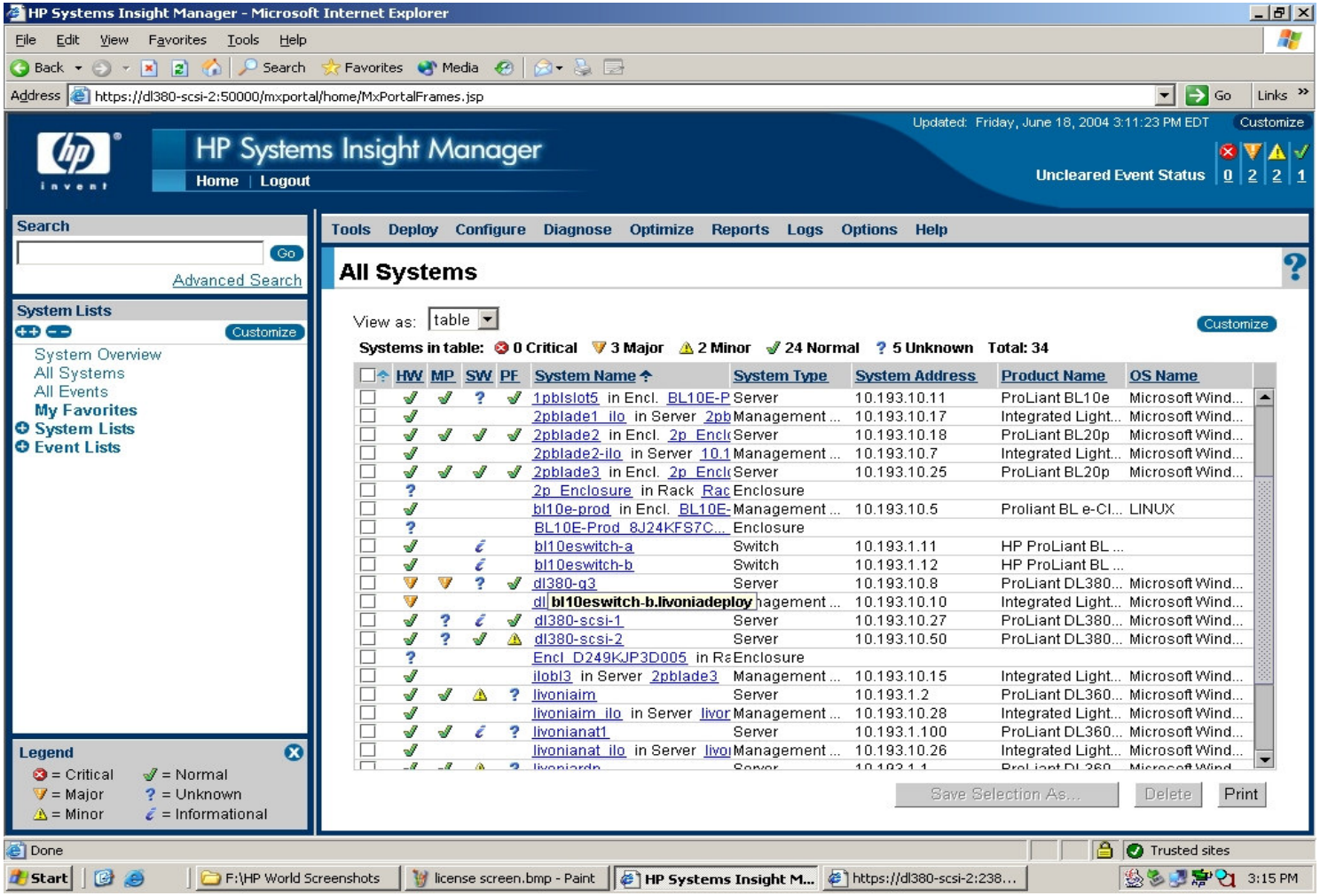
- Data collection intervals configured globally or per-server via Management agents on servers
- Configure performance management parameters globally or per-server (via Options - Performance Management Pack Options – Configuration) and apply

Data Collection Overview (contd.)

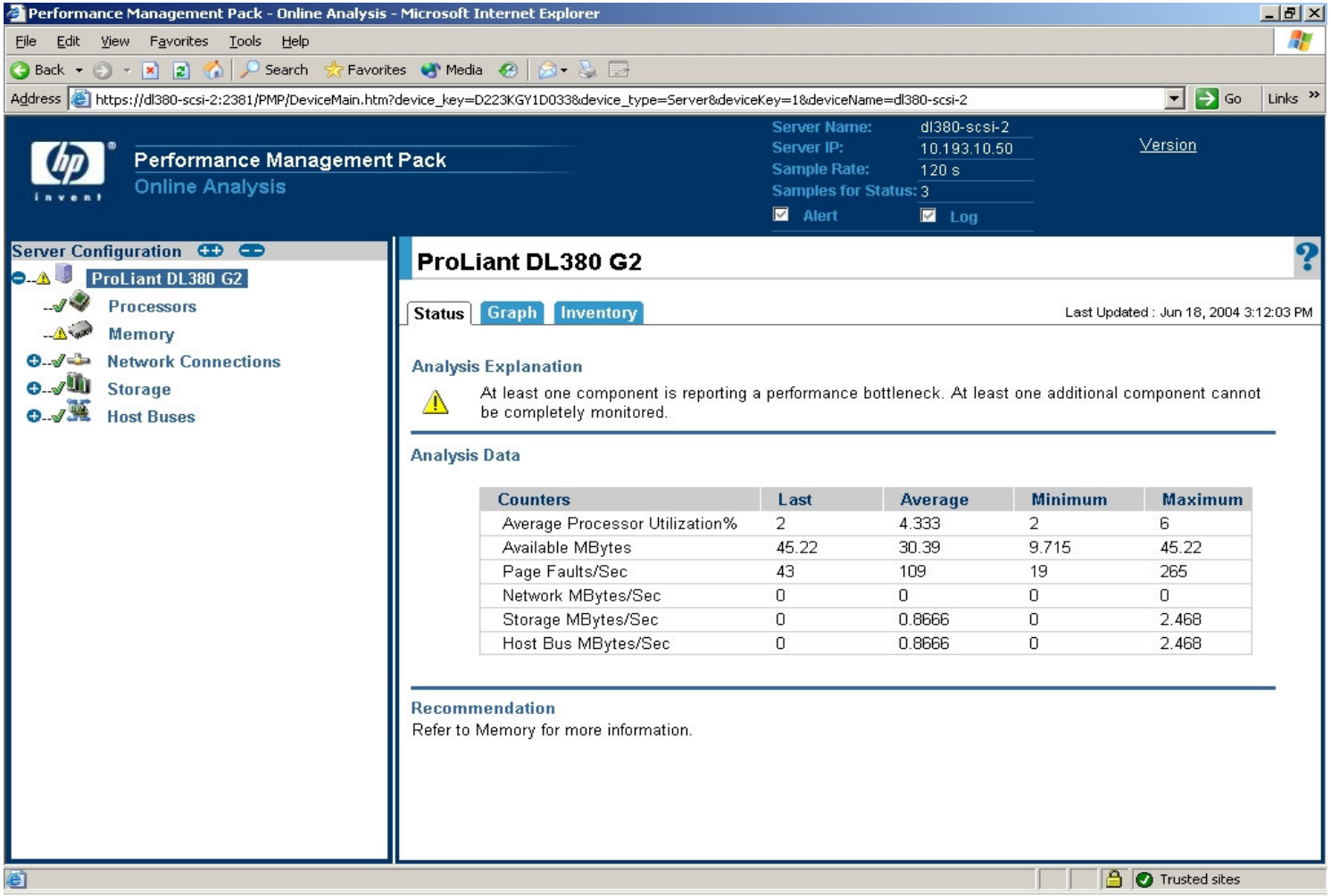


- **Monitor**: Enables monitoring of the status of the servers, updating information displayed in SIM and PMP
- **Alert**: Sends alerts to SIM whenever the status of a server changes
- **Log**: Stores detailed performance information for later reporting or playback

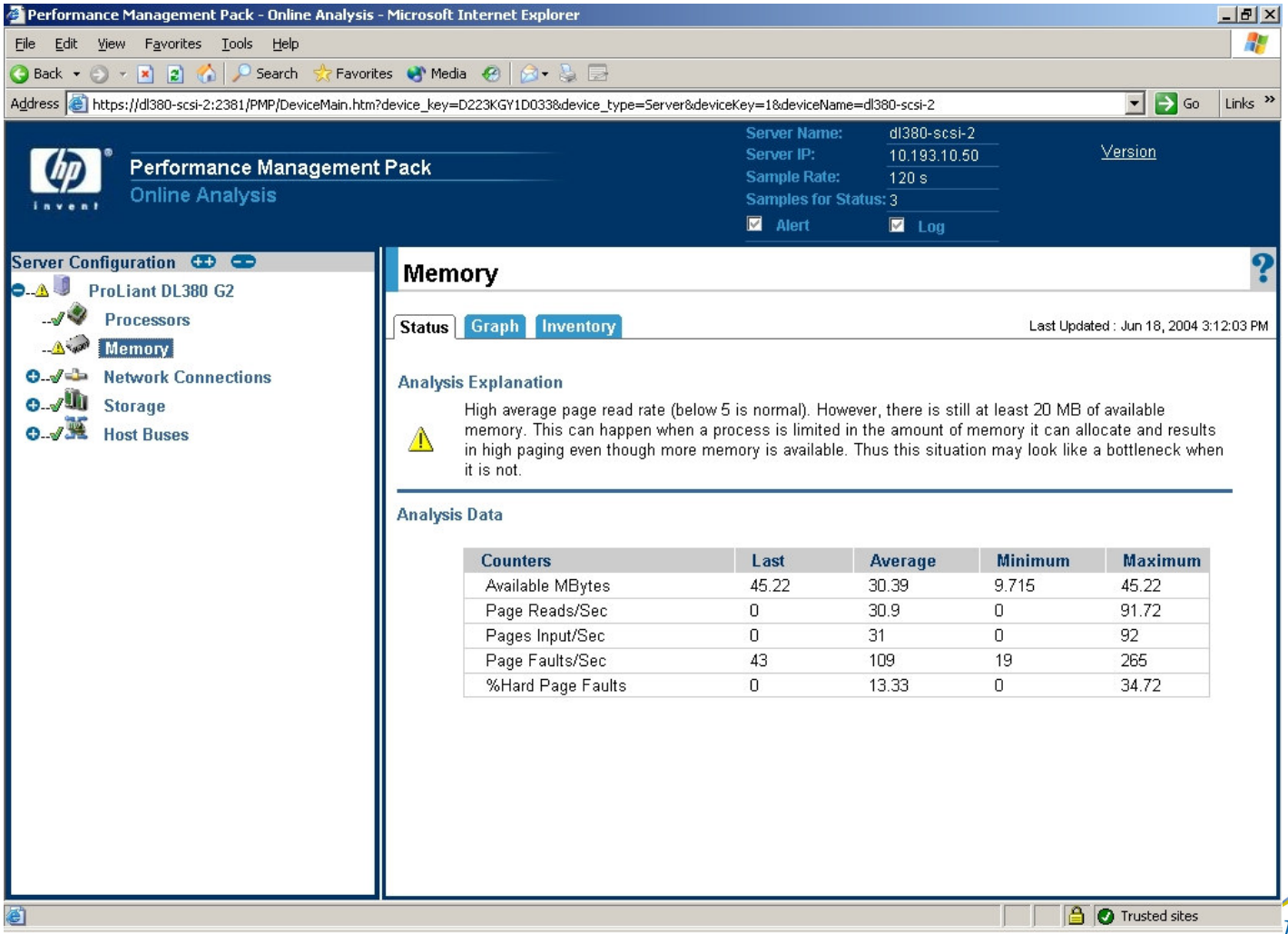
SIM 4.1 All Systems View



PMP: Server Drill Down

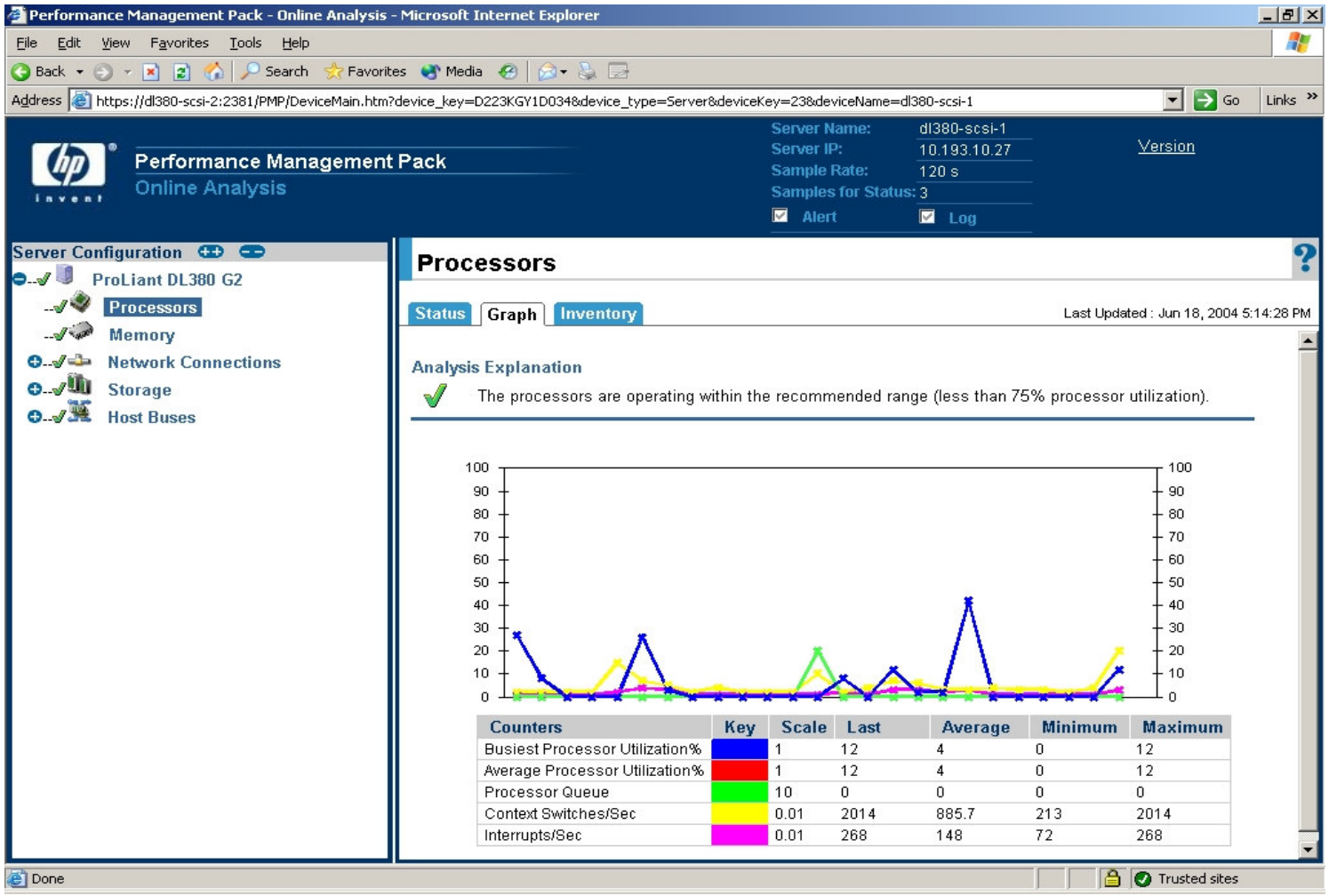


PMP: Server Component Drill Down



Counters	Last	Average	Minimum	Maximum
Available MBytes	45.22	30.39	9.715	45.22
Page Reads/Sec	0	30.9	0	91.72
Pages Input/Sec	0	31	0	92
Page Faults/Sec	43	109	19	265
%Hard Page Faults	0	13.33	0	34.72

PMP: Server Component Graph



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  - **Benefits**
  - **Lessons Learned**
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About Nationwide

- Leading insurance and financial services company with more than $148 billion in statutory assets worldwide
- Ranked 118th in Fortune 500
- Over 30,000 employees (not including agents)
- Over 3,500 ProLiant servers

Nationwide Monitoring Environment

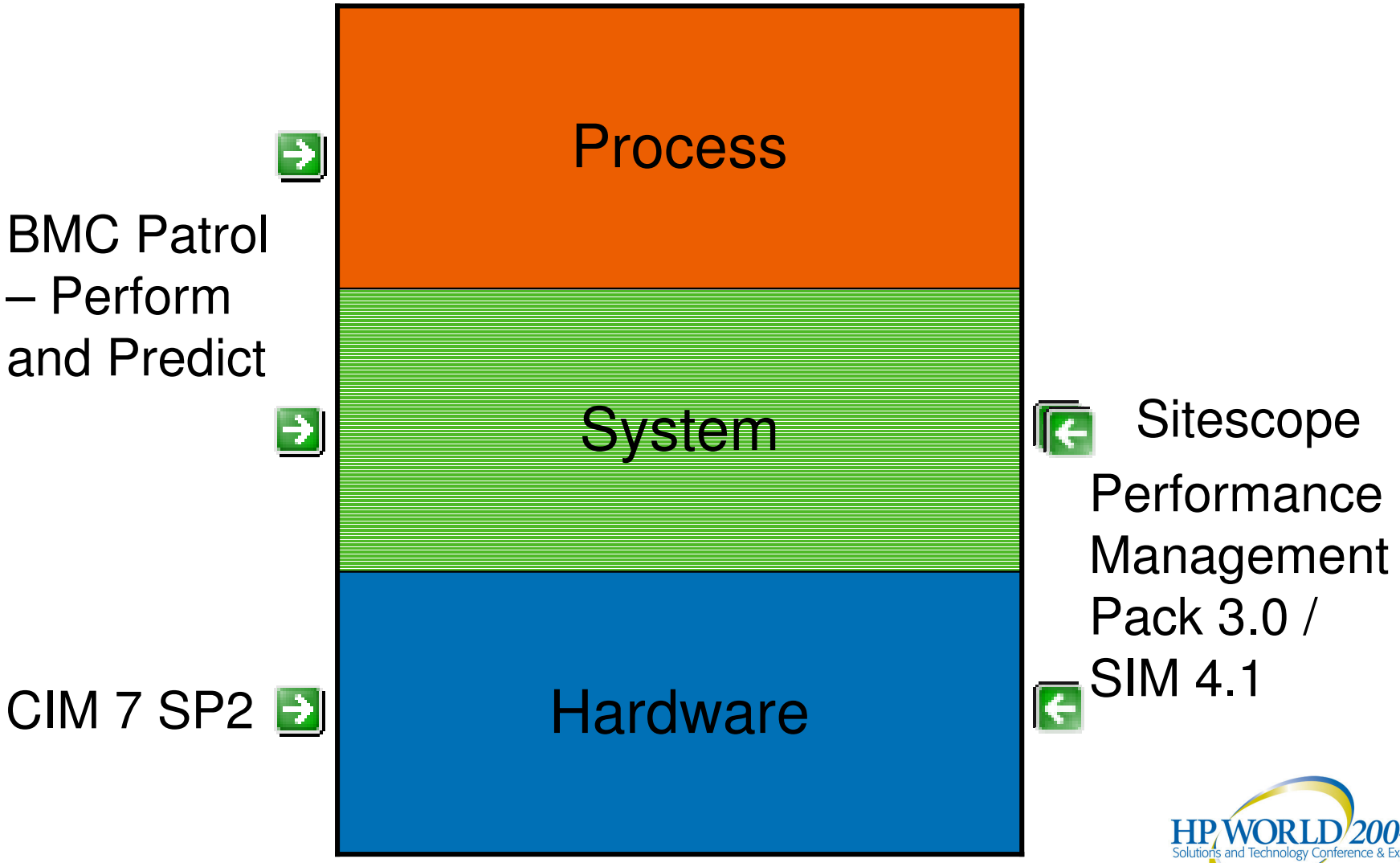
Nationwide currently utilizes the following server hardware and performance-monitoring tools:

- Compaq Insight Manager 7 (Production)
  - Hardware monitoring for failure/pre-failure notifications
  - H/W S/W reporting
- Systems Insight Manager 4.1
  - Production Pilot
- BMC Patrol - Perform and Predict (Best/1)
  - Capacity/performance data collection, monitoring, and modeling (down to process level)

Nationwide Monitoring Environment (contd.)

- Sherlock
  - In-house tool used for monitoring of host-up/down in DMZ's
- Mercury Interactive Sitescope
  - Agent-less host up/host down and performance monitoring tool
- Performance Management Pack 3.0
  - Production Pilot
  - 400+ Servers running PMP

Nationwide Monitoring Environment (contd.)



Nationwide SIM/PMP Implementation

- SNMP agents send traps to DNS alias
- Alias points to production server in one data center
- In case of issue, alias reconfigured for secondary server in other data center
- Currently maintained on dual-processor DL380G2 with 1GB memory
- DB housed on external SQL Server
- Our new production implementation will be a clustered solution

Case Study 1
Server Consolidation

In our ongoing server consolidation process, PMP helps by allowing us to determine the next best candidates for migration based on servers that are severely underutilized that can likely be moved to shared servers

PMP value:

- Detailed offline analysis of performance data showing average utilization for user-defined time period
- Real-time monitoring of shared servers for potential performance issues as servers are migrated to them

Case Study 2
Storage Subsystem Incident

Drive replacements have moved from the SA's to data center operators. One potential issue would be if a 10K RPM drive were inserted into a 15K RPM-based RAID set.

PMP value:

- Real-time monitoring will detect any actual performance impact and report if encountered
- PMP will log the issue of drive mismatch so corrective action can be taken

Case Study 3
After-hours Performance Issues

Sustained system performance issues without logging/trending occasionally leads to the need to monitor the issues as they happen. This is an issue when support is not on-site 24/7.

PMP value:

- Performance data collection/retention allows for “after the fact”, point-in-time views as well as user-defined timeframe reports
- Playback feature allows VCR-like ability to play, forward, pause, stop through collection data as it happened

Case Study 4
Performance Issue Proactivity

The ability to react to server availability and/or performance issues as they occur is a necessity but being proactive will reduce unplanned server downtime.

PMP value:

- Continuous real-time monitoring of performance data allows support to be notified when performance degradation is rising but not yet critical

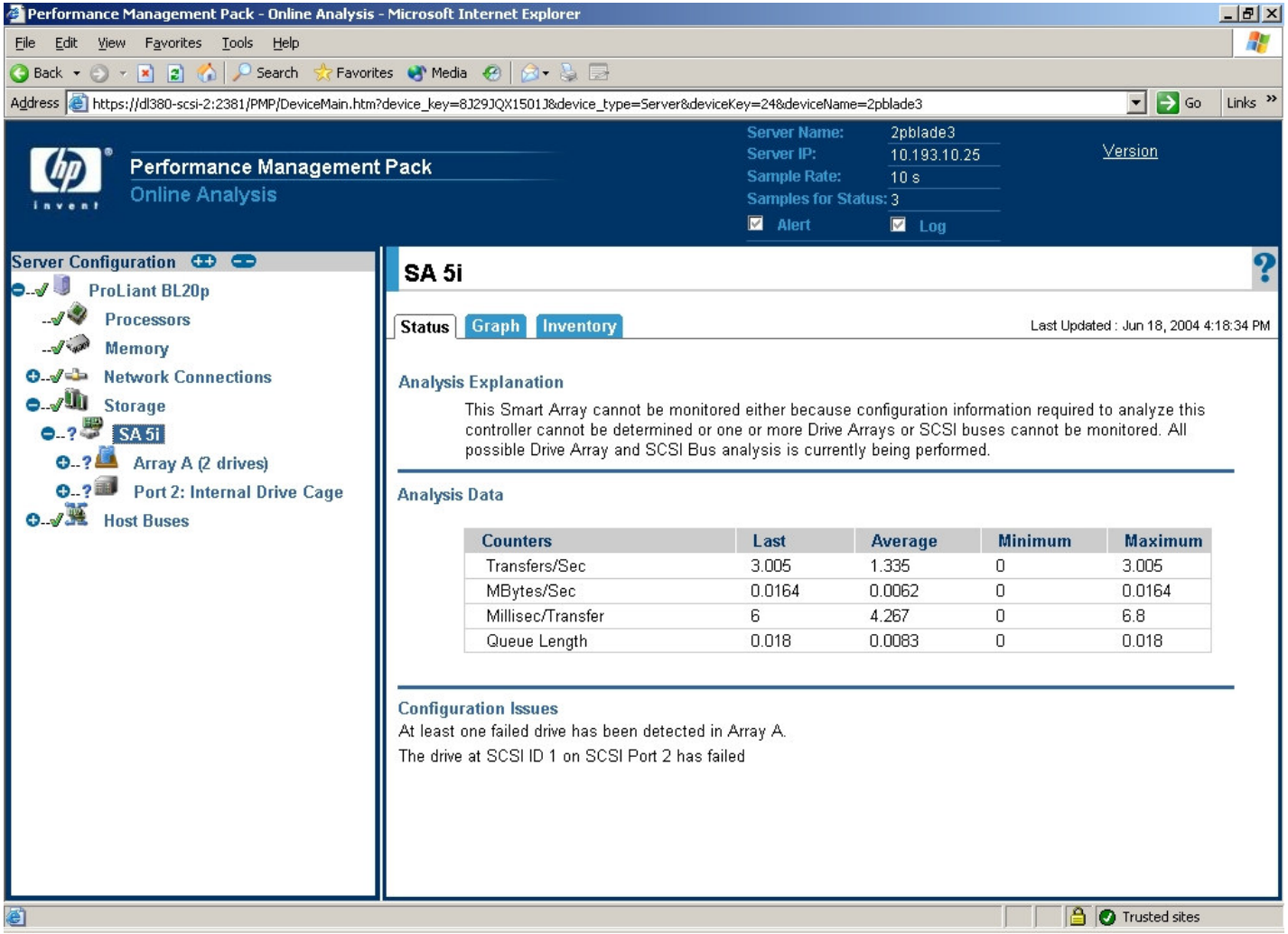
Benefits to Nationwide

- Ease of use
- Simplified management thus reducing administrative costs
- Reduction of 3rd party toolsets
- Reduced tool cost without sacrificing functionality
- Easy to implement (no additional tool/agents to install)

Nationwide Implementation Timeline

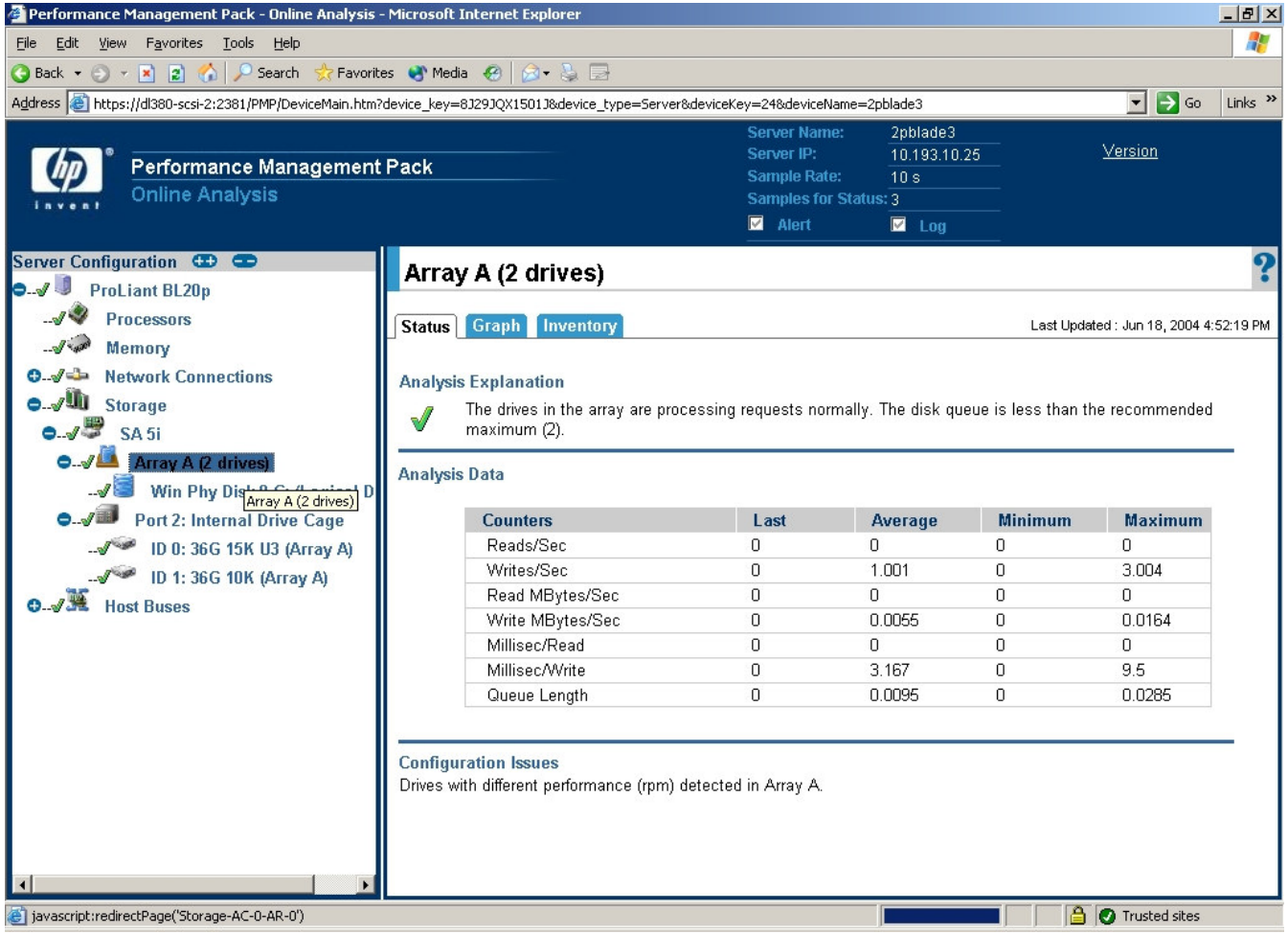
- Pilot group using PMP on over 400 production servers
- We have tested this product in our internal lab environments as well as in a Hewlett Packard lab in Michigan, noting/correcting several performance issues impacting customers in the process
- In process of upgrading agents on servers that were out of date
- SIM 4.1 and PMP 3.0 should be used in all production environments by end of 2004.

Lessons Learned



- Unknown status due to "broken array" i.e. due to the failed drive.
- Not necessarily a bottleneck; remaining drives aren't yet over taxed.

Lessons Learned (contd.)



- PMP logs a potential issue, however, in this case, there is no performance problem
- There is no icon for a detected configuration issue that does not impact performance

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PMP ROI Calculator

ProLiant Essentials Performance Management Pack
Return-on-investment calculator

Performance resolution costs without PMP		
Number of servers to analyze	1,500	totals/yr
Average number of performance issues experienced per year per server	1	1,500
To analyze each performance issue:		
average hours spent	2	
number of people	3	9,000
Average hourly rates (loaded costs):		
internal personnel	$85	
outside consultants	$180	
%age of hours by outside consultants	0%	$765,000

Performance resolution costs with PMP		
Number of servers to analyze	1,500	totals/yr
Average number of performance issues experienced per year per server	1	1,500
To analyze each performance issue:		
average hours spent	1/2	
number of people	1	750
Average hourly rates (loaded costs):		
internal personnel	$85	
outside consultants	$180	
%age of hours by outside consultants	0%	$63,750

Acquisition and deployment costs of PMP		
Cost per PMP license	$99	$148,500
Is Insight Manager already installed?	Yes	
deployment time for IM7 console (hours)	0	$0
console server hardware	$0	$0
Management agent installation/upgrade time per server (hours)	1/2	$63,750
Total acquisition & deployment costs		$212,250

Total savings with PMP		
Performance resolution costs per year:		
without PMP	$765,000	
with PMP	$63,750	-/-
Cost of deployment of PMP	$212,250	-/-
Total first-year net savings		$489,000
Net first-year savings per server		$326
Time to ROI (months)		3.6

PMP ROI Calculator version 1.7e — © 2004 Hewlett-Packard Company, L.P.

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Useful Links

- Home page
  http://www.hp.com/products/pmp
- Interactive flash product demonstration
  http://h18004.www1.hp.com/products/servers/proliantessentials/valuepack/pmp/download/english/launch.html
- PMP ROI calculator
  http://h18004.www1.hp.com/products/servers/proliantessentials/valuepack/PMP/pmp-roi-calculator.xls
- SIM home page
  http://h18013.www1.hp.com/products/servers/management/hpsim/index.html

Tips

- Graphs not shown
  - Browser security and privacy options on Local Intranet Web content zone needs configured to:
    - Enable Download signed ActiveX Controls
    - Prompt to Download unsigned ActiveX Controls
    - Enable Run ActiveX controls and plug-ins
    - Enable Script ActiveX controls marked safe for scripting
    - Enable Active scripting
    - Allow stored and per-session cookies
- All text/screen does not fit on display
  - Remedy by running in at least 1024x768, 256 colors maximized.

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Q&A

- Questions
- Comments
- Concerns

Thank You!

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