

Data Center Summit - Day Two

Benefits of Service Processor Management



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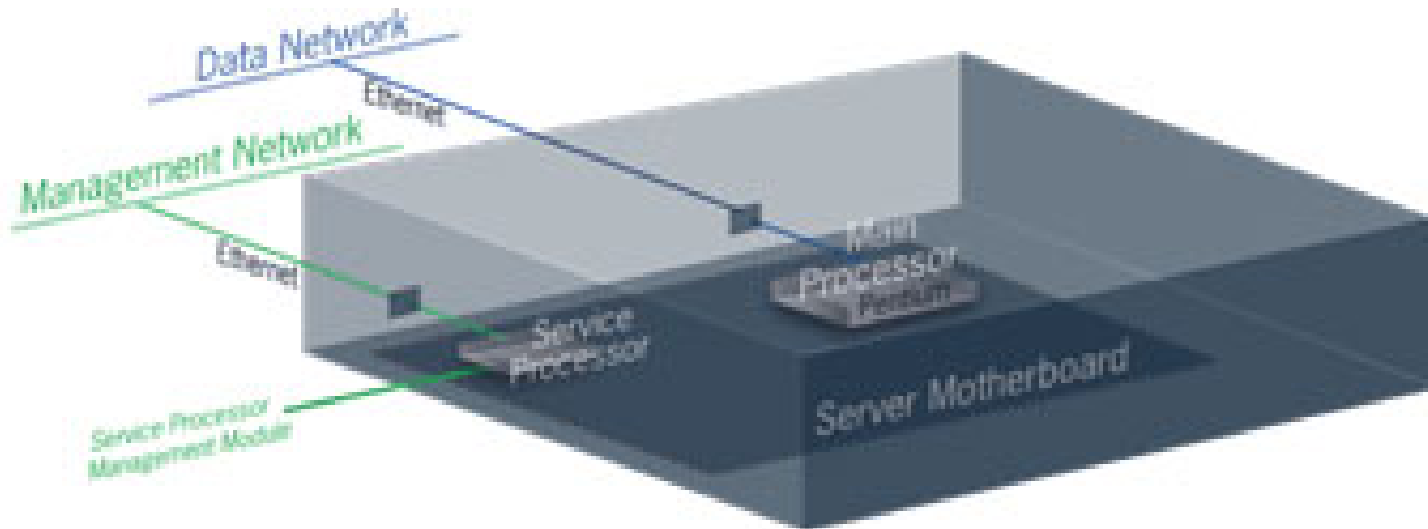
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Agenda

- Introduction to Service Processors (SPs)
- Benefits and deployment challenges
- Remote Management Case Study: EMC

What is a Service Processor (SP)?

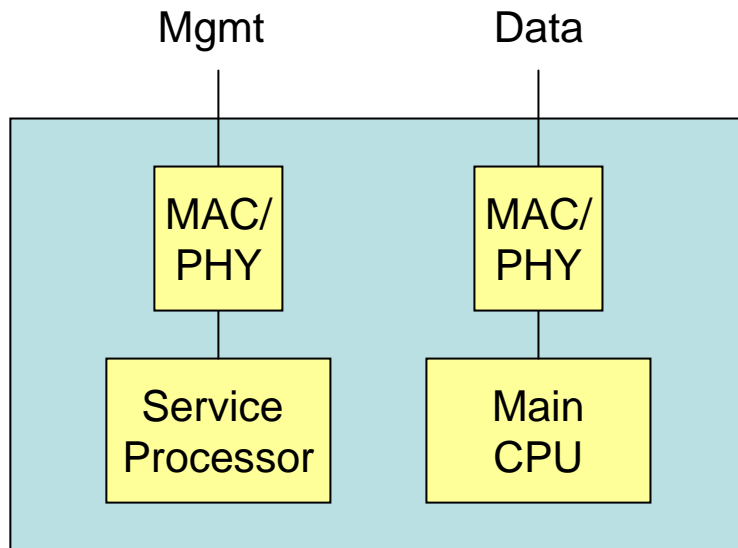
- Microcontroller embedded in server chassis
- Independent from the main CPU and OS



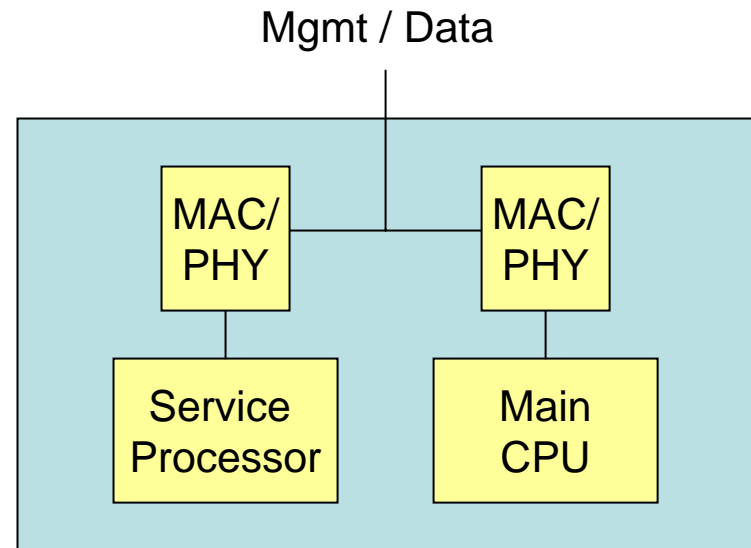
Service Processor Access

Service processors are accessible through either a dedicated Ethernet interface (out-of-band) or a shared data Ethernet interface (sideband).

Out-of-Band (Dedicated Ethernet)

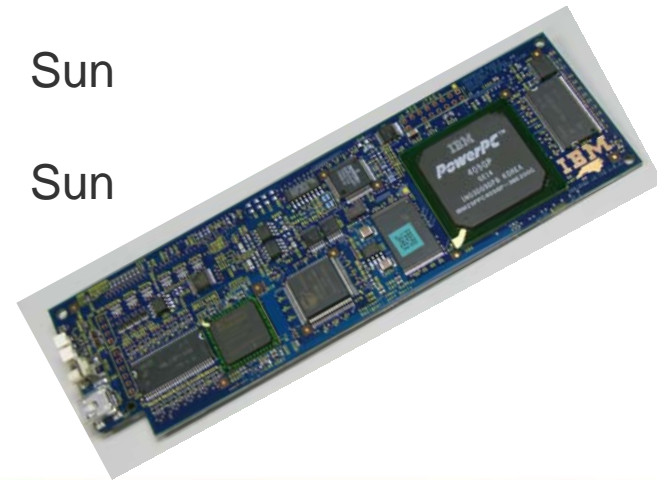


Sideband (Shared Ethernet)



Common Service Processors

Type	Meaning	Vendor	Versions
IPMI	Intelligent Platform Management Interface	Multivendor	1.5, 2.0
iLO	Integrated Lights-Out	HP	1x ,2
DRAC	Dell Remote Access Controller	Dell	III, IV, V
RSA	Remote Supervisor Adapter	IBM	I, II
ALOM	Advanced Lights-Out Management	Sun	
ILOM	Integrated Lights-Out Management	Sun	



Common Features of Service Processors

- **All SPs:**
 - Remote power control
 - Remote SoL console access
- **Some SPs:**
 - Graceful shutdown support
 - Health monitoring
 - Remote ID LED control
 - Data encryption
 - System event log (SEL)
 - Virtual KVM
 - Virtual Media

Benefits of Service Processors

- Operating cost savings
- Simplified server management
- Improved visibility of server's health status

Deployment Challenges

- Extra Ethernet and IP address – means extra costs
- No AAA security built-in to the SP
- For IPMI, deploying new servers requires enabling it, which is usually a hurdle
- Lack of discovery mechanism for SP capabilities already deployed in the IT environment
- Consolidation tools are either vendor-specific or not broad enough feature-wise
- Hard to integrate into overall management framework

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Case Study: Remote Management With Service Processors

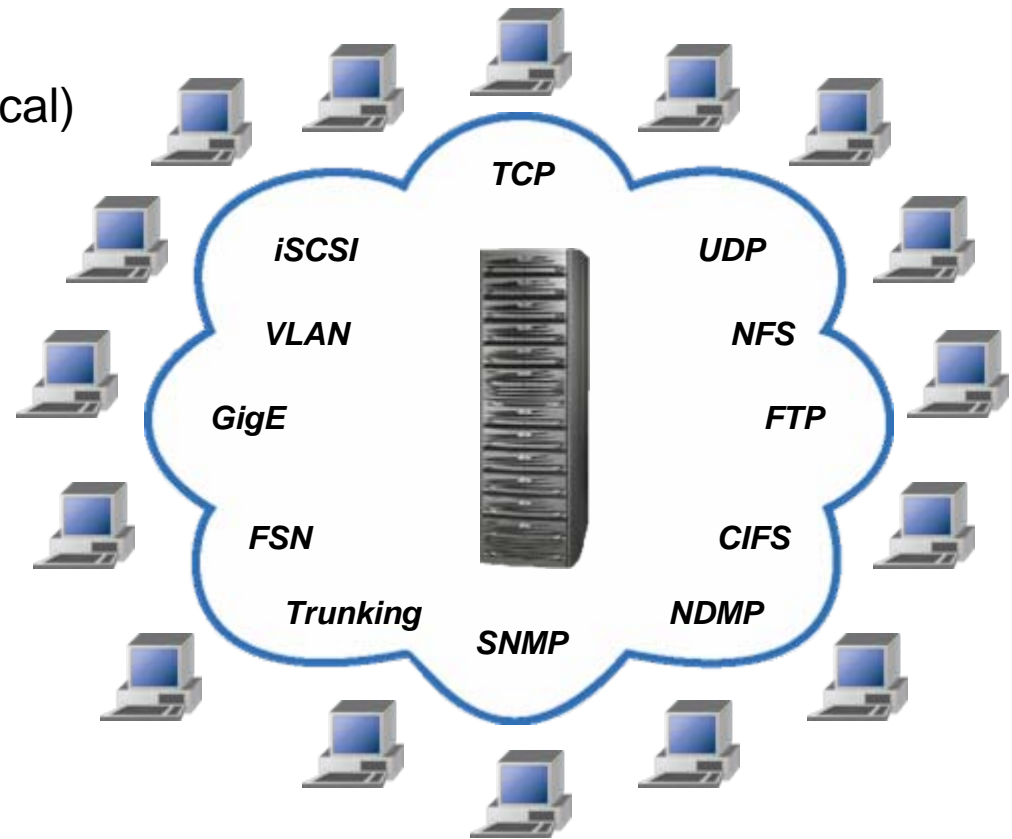


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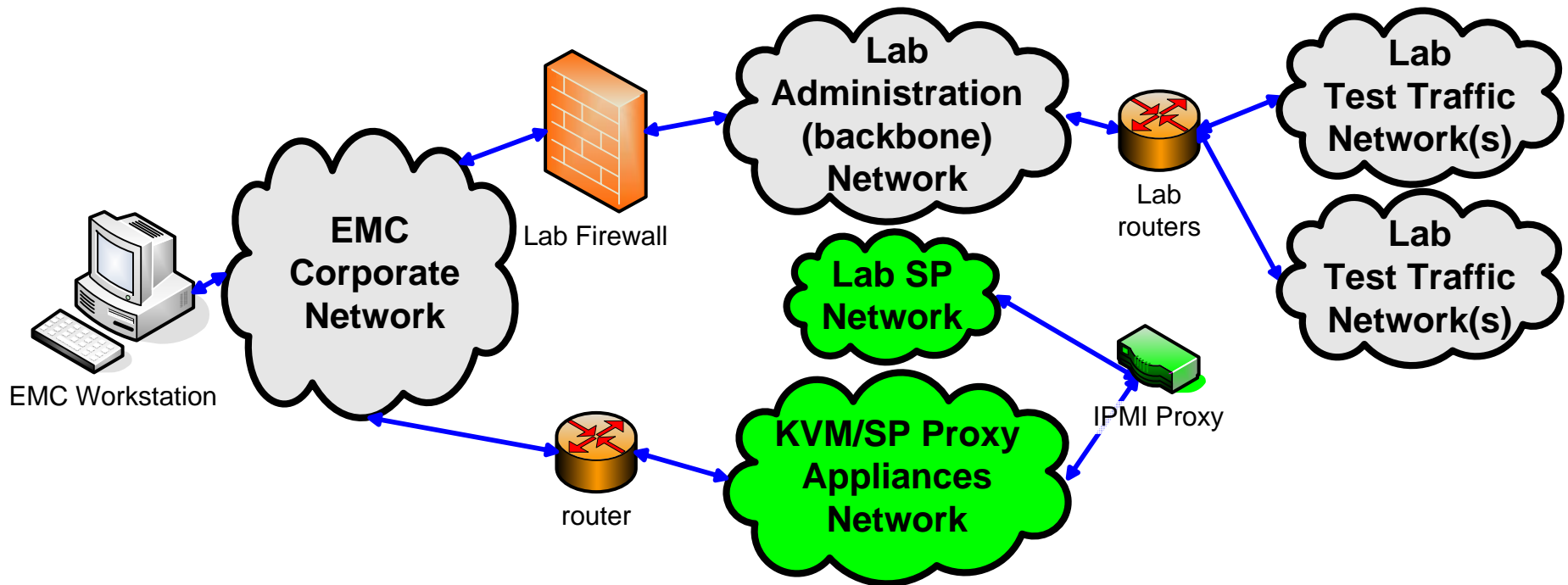
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EMC Celerra IP Storage

- Network interfaces
 - Gigabit Ethernet (copper/optical)
- Network protocols
 - TCP/IP, UDP/IP
 - CIFS, NFS v2, v3, and v4
 - iSCSI target
 - FTP, TFTP, SNMP
 - NDMP v2, v3, and v4
 - NTP, SNTP
- Fail-Safe Networking
- Virtual LAN
- Link Aggregation, Ethernet Trunking



Celerra ENG/DVT/QA Lab



- All client-servers are connected to the Administration Network
 - In-band SP connect on separate VLAN
 - Out-band SP connect to separate LAN (Proxy appliances)

Celerra Lab – Types of Equipment

- LAN and SAN Networking gear
- EMC Storage Systems
- SP-enabled and non-SP Servers
 - Intel-based (Dell, Compac)
 - AMD-based (HP, Sun)
 - SUN Sparc-based (Sun, Fujitsu)
 - Stand-alone and Chassis-based

Lab Challenges

- Management of a large lab environment
 - 4000+ LAN and SAN ports
 - 500+ EMC Celerra, EMC storage systems
 - 1600+ Intel/AMD for Windows, Linux, Solaris
 - 1000+ SPARC for Solaris
- Staff management - 22 lab support engineers
- Efficient support to 200+ development/QA Engineers
- Reliable global, 24x7 lab access

Lab Management Challenges

- Power control and remote console access to the lab devices
- Centralized listing of all the machines
- Centralized authentication and authorization to control access
- Restrictive access levels

SP Benefits

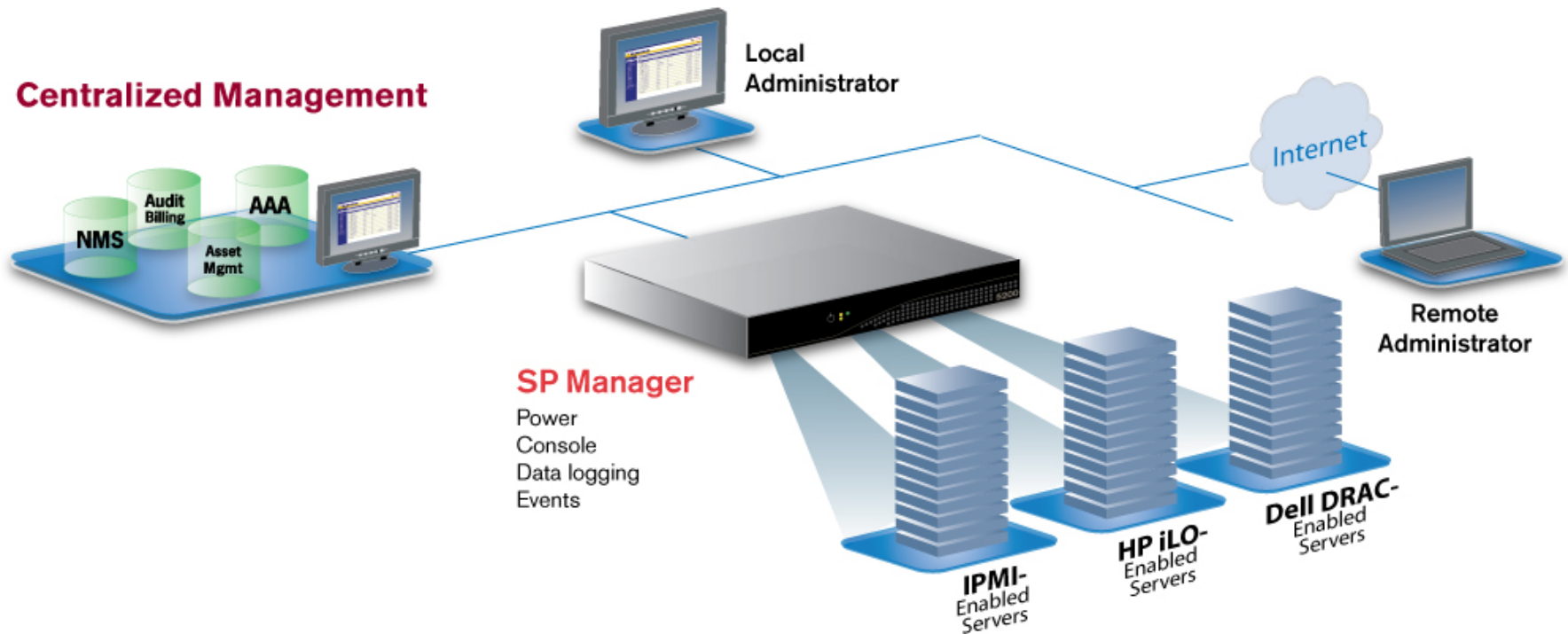
- Easier to deploy (Ethernet-based)
- Power control and remote console access capabilities, plus much more
- Most SPs support authentication and authorization to control access

SP Challenges

- SPs are different across vendors
 - Different Command Line Interfaces
 - Different authentication support levels
 - Different functional results
- SPs have different deployment methods
 - Sideband (shared Ethernet)
 - Out-of-band (dedicated Ethernet)
- Centralized listing tools are vendor-specific

Solution: SP Managers

SP Managers serve as a **gateway** and provide a **consistent user interface** to access **multi-vendor SPs**.



Benefits of SP Managers

- Gateway to multi-vendor SP environments
 - Normalizes authentication, authorization and access level capabilities
 - Provides consistent user experience across different SP types
- Supports multiple SP deployment methods
- Consolidation of multiple SP managers provides centralized view of the entire lab

Benefits / Results for EMC

- Added third-shift lab support, originally took lots of phone/email calls to restart hung systems; now works on EMC products
- Remote Engineers/users able to power on/off/cycle systems, cutting need for trouble tickets or onsite visits

SP take-aways

- Using multi-vendor IPMI / Service Processors is confusing
- Large user base requires external authentication/authorization control
- Determining if the SP use dedicated Ethernet for out-of-band or shared Ethernet for in-band or both
- Side benefits to be explored:
 - HW inventory independent of OS
 - HW sensors independent of OS

Next Steps for Celerra Lab

Investigate the use of other SP features:

- Event notification and SNMP trap capabilities
- Hardware inventory information (e.g. FRU)
- Sensor information (CPU temperature, chassis status, etc.)

Call to Action

- Find out which servers have SPs in your environment (current and future)
- Look into how SPs can benefit your remote management strategy
- Understand the challenges of deploying SPs in your specific environment, and whether SP managers help you address them

Avocent SP Managers



MergePoint 5200



MergePoint 5224/5240

- Leverage infrastructure already deployed
- Fast and secure SP deployment
- Ethernet port and IP address savings
- Consolidated server management for your entire infrastructure



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Ivan Passos

Director, Product Management

Avocent

ivan.passos@avocent.com

Daniel Chen

Lab Network Architect

EMC

chen_daniel@emc.com

Visit Avocent at booth #739

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