



# Why Blades – OpenVMS Technical Update

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# Blades Update

- What is a Blade
- Why - value proposition of Blades
- Overview of the components that make up a BladeSystem
- Blades and OpenVMS – what is the same and what is different compared to a normal standalone server
- OpenVMS support plan
- Schedule

# What is a Blade and why are Blades Good For You



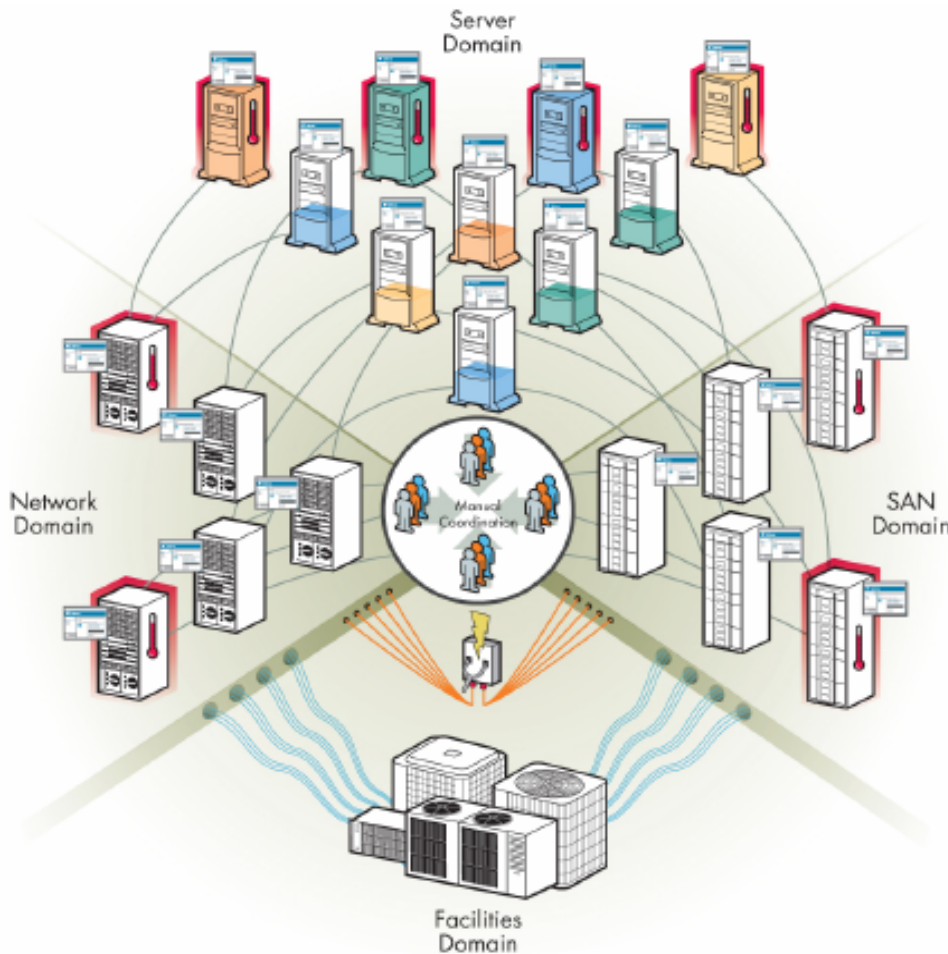
- What is a Blade system
  - A pre-wired enclosure with integrated power and cooling
  - Server Blades that can be plugged into the enclosure and are automatically connected together
  - A server Blade is a complete server with CPUs, memory, disks, and storage/network/management interfaces
  - Storage Blades
- Why Blades – marketing words
  - High cost of IT infrastructure
  - Cost of acquisition vs cost of ownership
  - Inflexible IT islands
  - Speed in introducing IT change

# Why Blades

- Space savings – more compute power in a smaller footprint compared to equivalent number of processors in racked servers
- Cable management and fewer cables to connect servers to LAN/SAN
- Power/cooling efficiencies
- Ease of management – more consistency across OS/architecture
- Flexibility – easy to change
- All of the above translate into lower cost of acquisition and cost of ownership compared to discrete servers
- See
  - <ftp://ftp.compaq.com/pub/products/servers/blades/idc-tco-deployment.pdf>

# It's a racked, stacked and wired world

## This is the root cause of infrastructure pain



- ✗ Inflexible provisioning
- ✗ Manually coordinated
- ✗ Over-provisioned
- ✗ Managed 1 by 1
- ✗ More expensive to own than buy

Because of conventional IT's limited form and processes, operational efficiency, cost and flexibility has hit the brick wall

# Introduction of c-Class is an expansion of the portfolio

## c-Class

Automated and virtualized *infrastructure*

## p-Class

Optimized to simplify scale-out *servers*



New Nov 1st!  
Integrity BL60p

## PC Blade solutions

Optimized for density



New Nov 7th!  
AMD based PC blade



Datacenter optimized

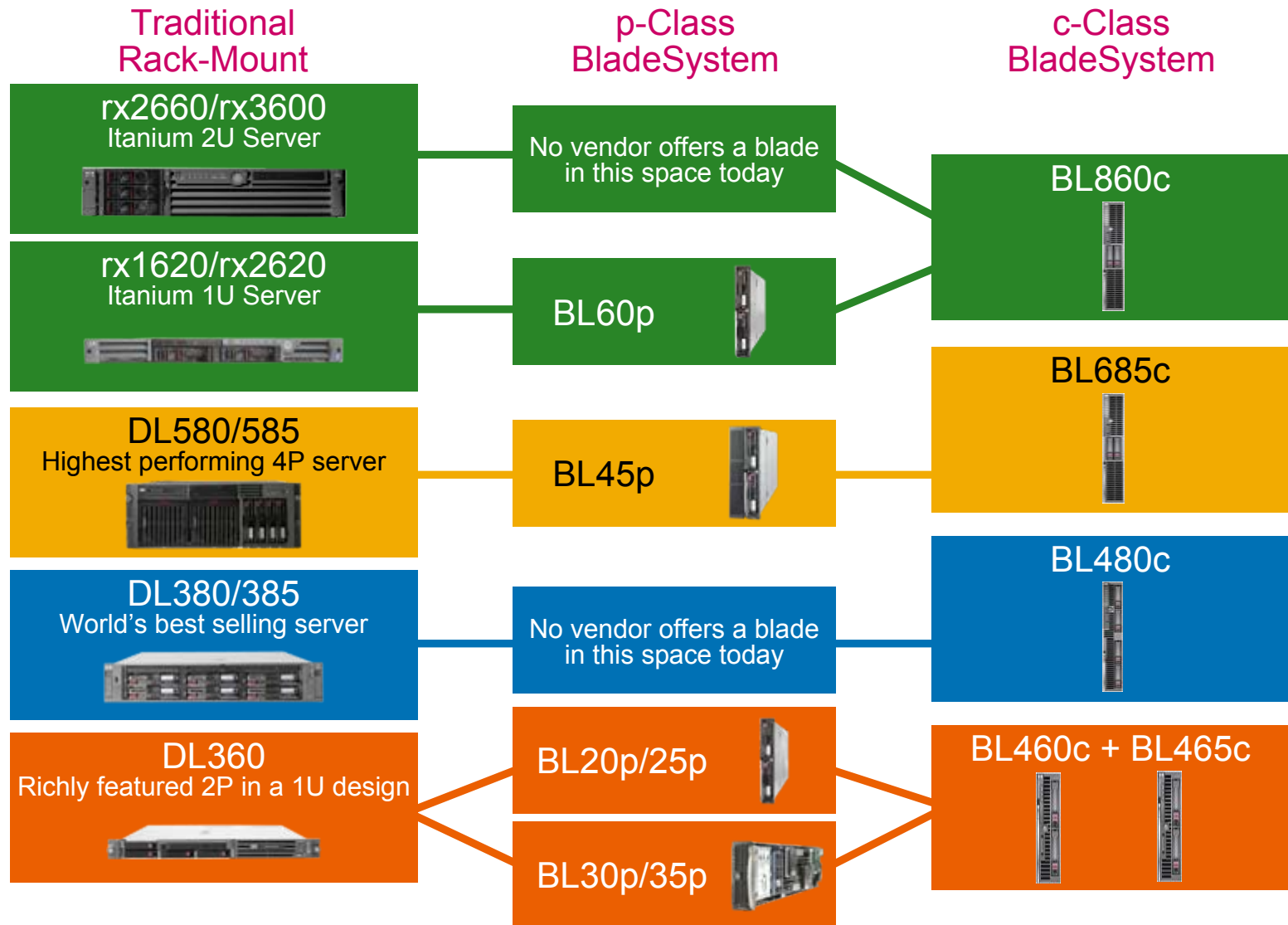


Remote sites & SMB

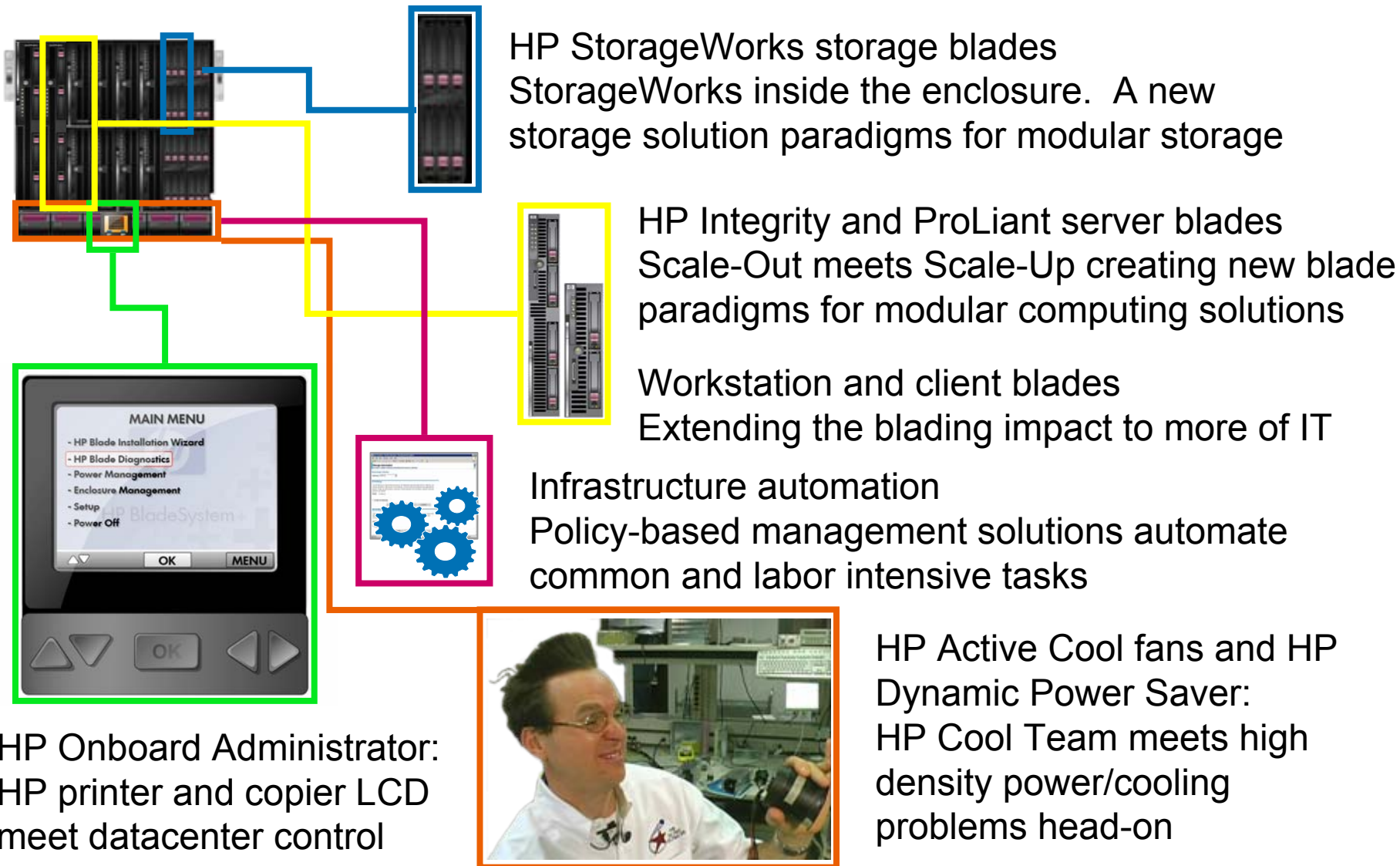
New 2006!

- Common unified management
- Consistent industry standards
- Choice for any environment

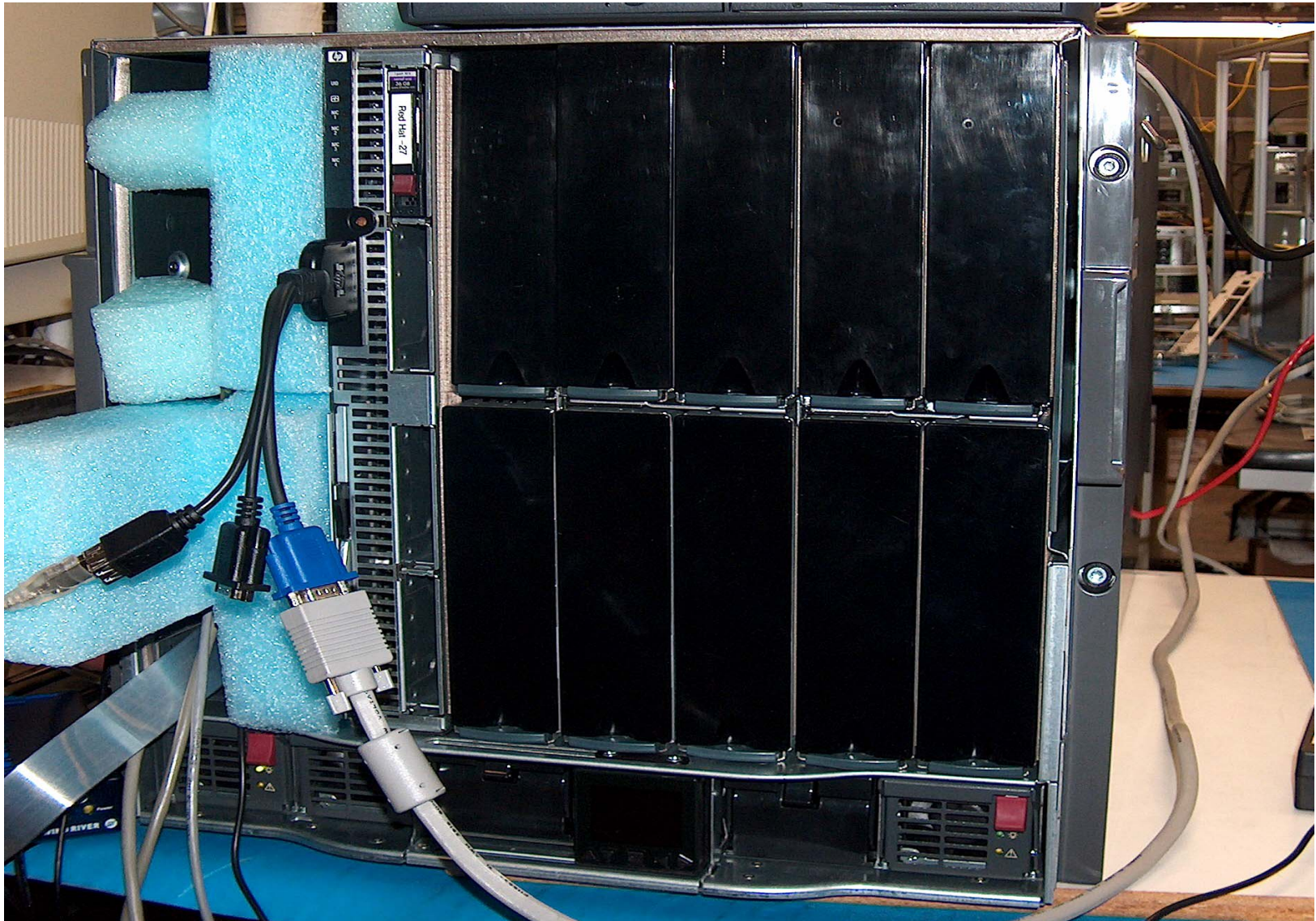
# HP c-Class BladeSystem Server Positioning



# A cross-HP solution platform

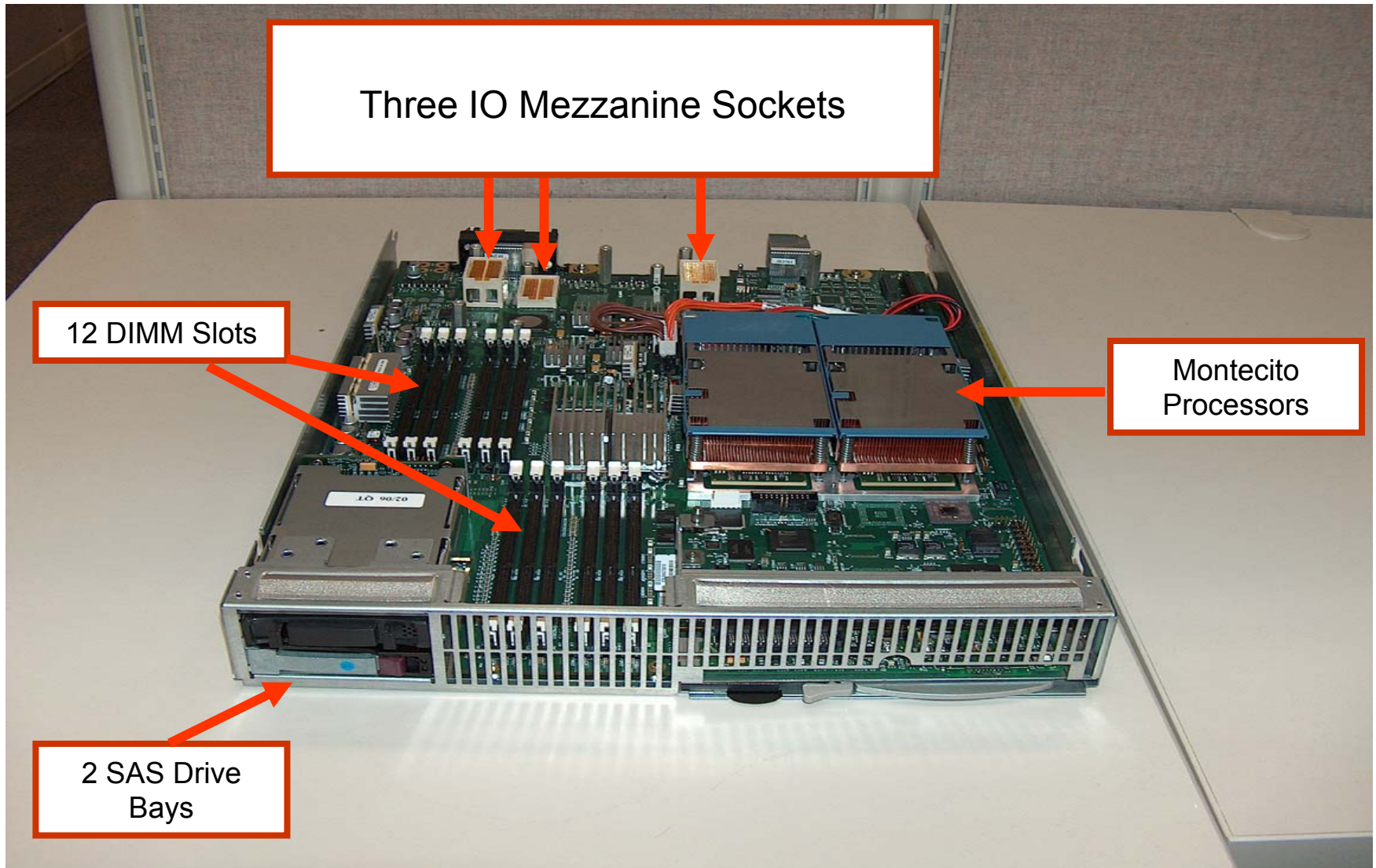








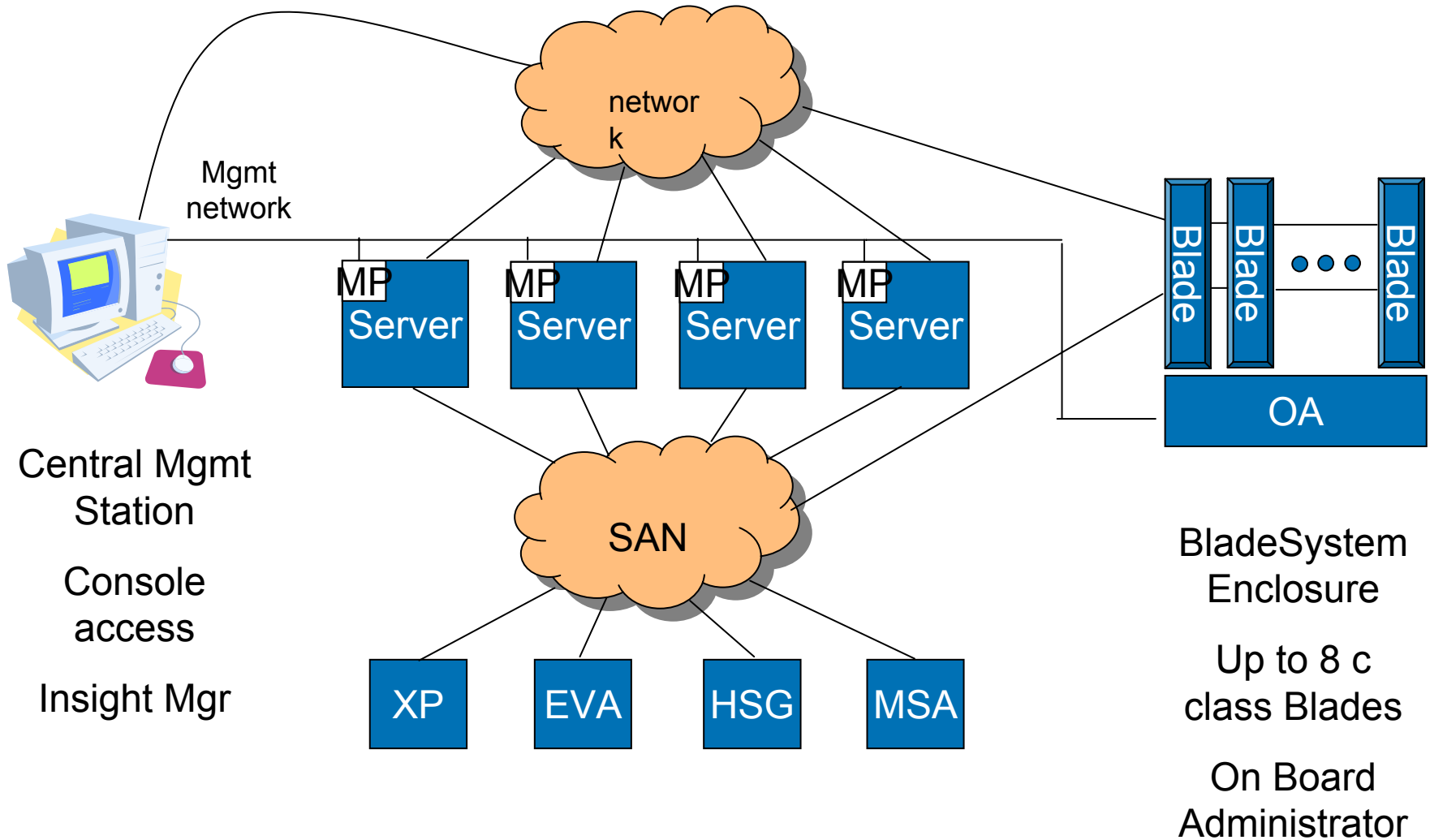
# BL860c Server Blade



# Blades with OpenVMS

- In most ways running OpenVMS on a Blade is just like running VMS on any server
- Differences in:
  - How you set it up – deployment, provisioning. Use of HP System Insight Mgr
  - Server management – some aspects are specific to the Blade/OS, some aspects are enclosure related
  - Multi OS/multi architecture in a single enclosure, goal for consistent manageability regardless of OS/architecture target
  - Value proposition of savings on power, cooling, tools to monitor and display
  - Other value adds of Blades – redeploy/reprovision, replace failed Blade with one from spares pool, increase capacity with Blade from spares pool. Under investigation.

# Adding Blades to a VMS Cluster



# Development Plans

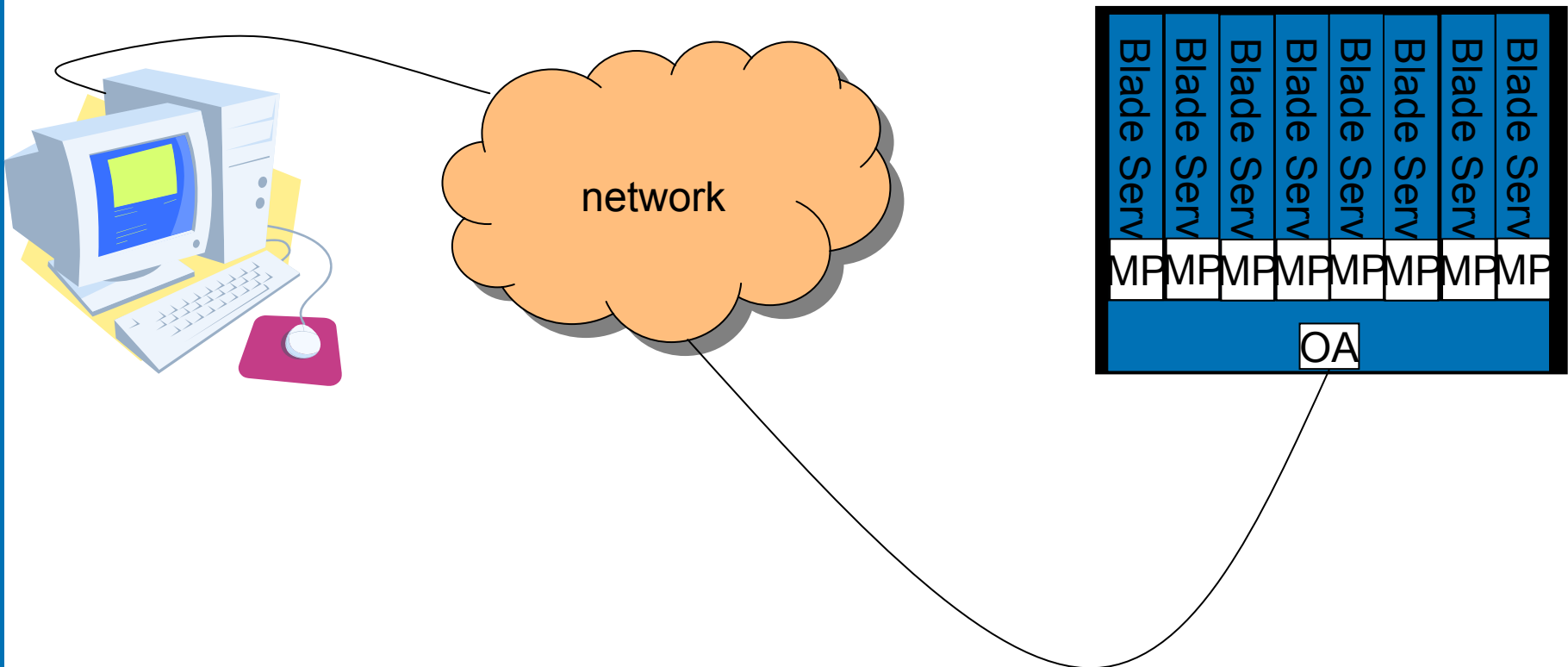
- Blade server looks like an rx3600 – 2 socket server with internal SAS drives, imbedded NICs, MP, PCIe cards.
- Has booted OpenVMS V8.3
- Unique hardware infrastructure that is software compatible with current server hardware:
  - PCIeexpress mezzanine cards. 4Gb Fibre, Gbit NIC, SAS/BP Raid. All use existing device drivers.
  - MP on each Blade with low speed IO – USB, serial, 2D graphics
  - SAN and Network connect modules. 3 variants of each:
    - Pass Through
    - Managed Switch
    - Virtual Connect
- Blades and console connections
- Blades and OS/firmware/application installation/upgrade
- System/Server Mgmt Providers

# Blades Console



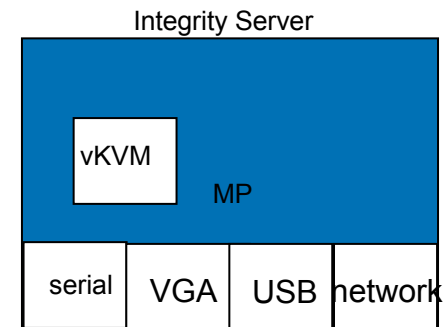
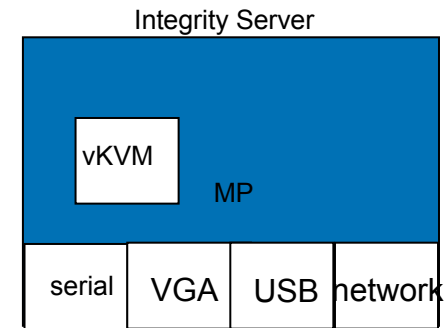
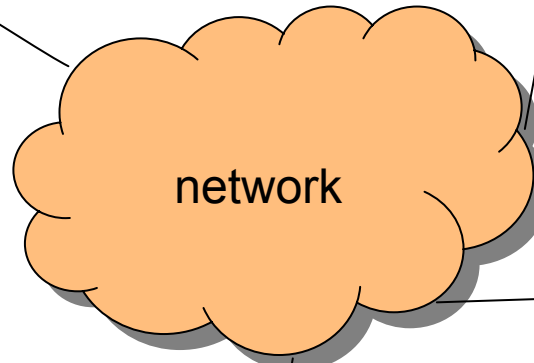
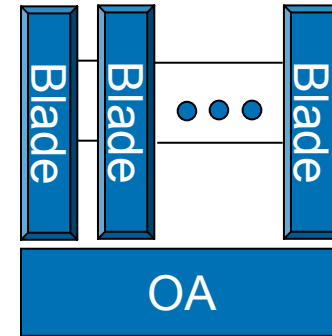
Connect OA to mgmt network. In the enclosure there is a mgmt LAN that connects the OA to the MP on each Blade. OA and each Blade MP have IP address, a user on the mgmt LAN will see the OA and each Blade MP and can telnet or browse to OA or individual Blade MP

No development work required in OpenVMS for these methods.



# vKVM – virtual KVM

- vKVM logic on MP receives kb/mouse network packets
- vKVM logic on MP sends VGA output over network
- User on the PC/workstation sees graphical console on each server, can switch between them, operates kbd/mouse as if directly connected to target server
- Under investigation for OpenVMS V8.3-1H1





# System/Server Management

- OS provisioning/deployment - active investigation area by Sys Mgmt Team
- No installation DVD per Blade or per enclosure. Network based installs are the model.
- Baseline capability – install/upgrade VMS from InfoServer on same LAN as Blade(s).
  - From Blade console, user does network boot/install to install VMS on that Blade
  - This is just like install/upgrade of VMS from InfoServer for any server (not Blades specific).
- More advanced capability
  - Control OS install/upgrade from HP SIM
  - vMedia

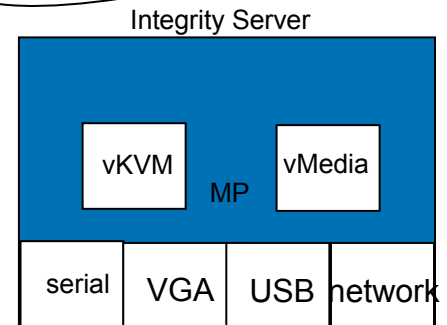
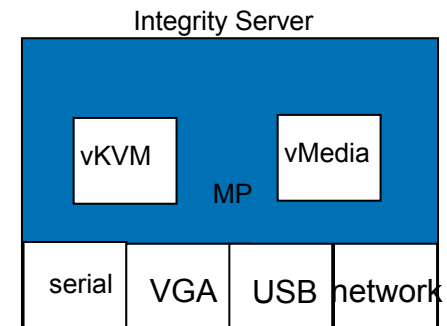
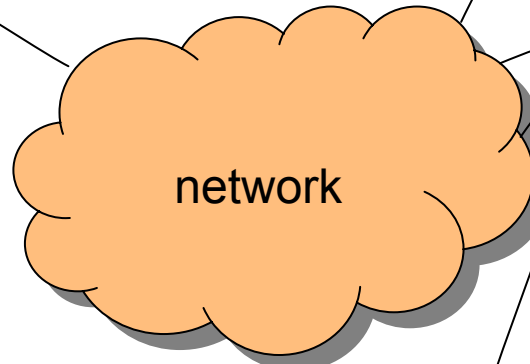
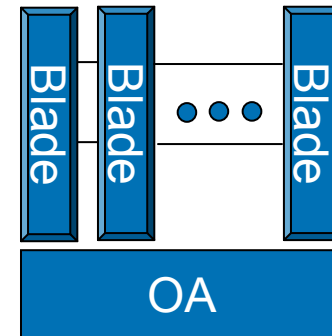
# Use HP SIM to control OS install/upgrade



- HP SIM admin can deploy an OS to a Blade by pointing and clicking
  - Requires a VMS DVD or image backup on the network or in the SAN
  - Plan to support in OpenVMS V8.3-1H1
- vMedia

# vMedia – virtual media

- vMedia logic allows USB DVD drive in PC to be configured as a direct attached USB drive on server
- Sys mgr can do fw updates, OS installs/upgrades on the server from media installed in the PC USB DVD



USB drive in PC seen by fw/OS on server as locally attached USB DVD

# vMedia

- HP SIM admin could deploy an OS to a Blade with the OS media in a system somewhere on the network
- Removes the requirement for an InfoServer on the same LAN as the BladeSystem
- Under investigation for OpenVMS V8.3-1H1

# System Management development plan



- SIM providers
  - Generic OS providers (nothing specifically to do with Blades): OS, Computer System, Process, CPU, Memory, FW Version
  - Server mgmt – differences between a normal server with its own fan/power vs a Blade where the fan/power is in the enclosure: Fan/Power, Indication, MP
- Need to understand providers that sit on the VMS/Blade to monitor and send alerts, vs providers that monitor the enclosure and send alerts.
- System Management team investigating

# Testing

- Test Plans in progress:
  - Focus on Blades in a cluster with other OpenVMS servers
  - IO interconnect matrix and compatibility with network/SAN
  - New functions – vKVM, vMedia
  - HP SIM, indications, new mechanisms for install/upgrade
  - Multi-architecture/multi-OS

# Schedule Estimate

- OpenVMS development and test
  - Boot OS (done)
  - Base operating system development
    - Console interfaces
    - Device drivers
    - Low level support for server management providers
  - System management development
    - Provisioning
    - System and server management providers
  - Functional validation of server, enclosure, IO infrastructure
  - Functional validation of system management tools
  - Load/stress, interoperability testing
- Projecting OpenVMS V8.3-1H1 on Blades September 2007



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