



Rapid Deployment Pack and Blade Servers – Cradle to Grave



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Agenda

- Blade Hardware Overview
- RDP – What's New
- Lessons Learned
- Tips and Tricks

HP Blades, Next Logical Evolution

- First complete portfolio, incl. first 4P blade
- #1 Windows/Blades
- #1 Performance in SAP, SPECweb99_SSL, Exchange



Optimized for change & scale

- Resource provision
- Auto recovery
- Dynamic scaling

Over 65K server blades sold!

Space saving scale-out

- Embedded technologies
- Management by groups
- Remote deploy & manage

Harness the power of standards

- First x86 server: SystemPro
- Price:performance servers
- Standards, best of breed

#1 rack-optimized x86 servers

#1 Windows & Linux

#1 x86 servers

Over 7M servers sold!

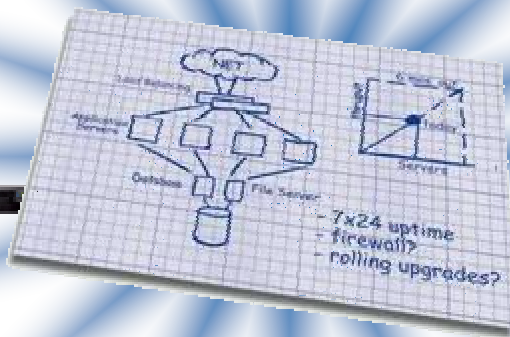
1989

2004



HP Blade Systems: Integration of Servers, Network, and Storage

access tier
application tier
data resource tier



firewall/VPN
L2 VLAN switch
load balancer

management & deployment

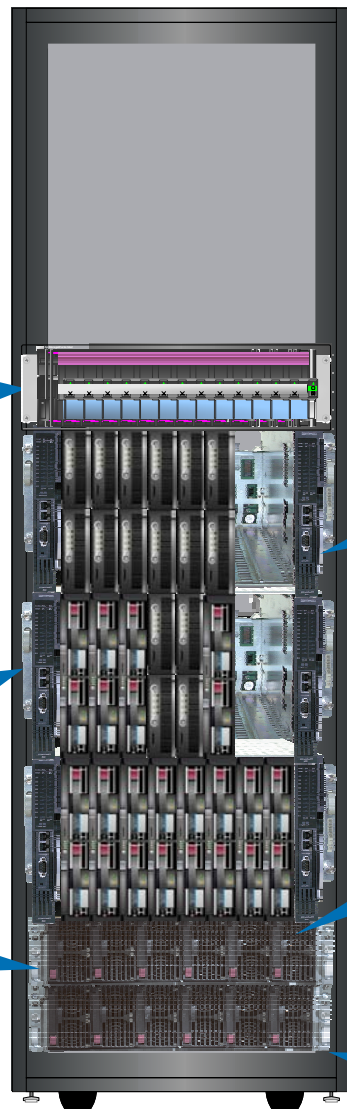


blade system architecture



rack-mounted server architecture


Centralised Power Solution.



Future Systems Compatibility & Capability
Later generations compatibility with power systems




Secure, Safe, Scalable Enclosure Power Feeds
Bus Bars offer highly available and scalable enclosure feeds



Dramatic Power & Heat Reduction
Typically 30% less than Similar traditional servers



Visualization and intelligent power management
Systems Insight Manager
Complete systems control



N+1 Power Redundancy
iLO, Structured power redundancy through out enclosures



Wholesale Power Cable Consolidation
4 power leads can power up to eighty blade servers

HP Server Blade Portfolio

designed for adaptive, multi-tiered architectures



1P



BL10e (BL e-Class)

- Maximum density blades for scale-out solutions
- Front-end web and infrastructure applications

2P



BL20p (BL p-Class)

- Performance 2P blade designed with enterprise availability
- Mid-Tier Applications Server Blade



BL30p (BL p-Class)

- Optimized for compute density and external storage solutions
- Mid-Tier Applications Server Blade

4P



BL40p (BL p-Class)

- High performance 4P blade designed for mission-critical applications
- Back-end Server Blade



&



*Proven, reliable, and powerful
x86 processor architecture*



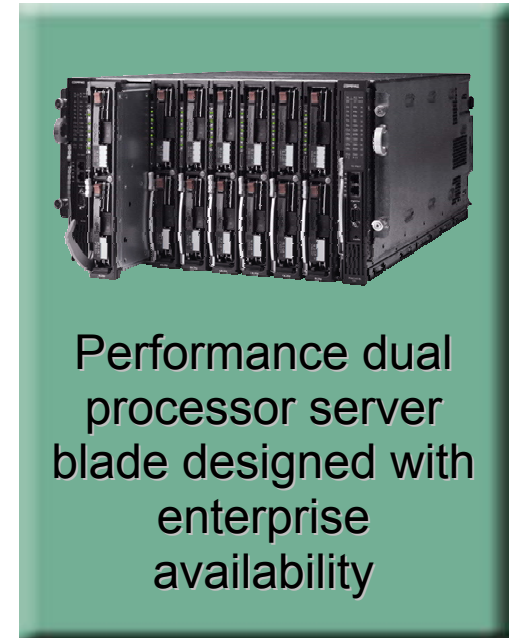
ProLiant BL20p G2



Dual port fibre channel mezzanine card available for SAN storage

- Up to two high-speed 3.06GHz/533MHz Xeon processors
- Up to 8GB max ECC DDR memory
- All three NICs Gbit capable (10/100/1000)
- Advanced version of Integrated Lights-Out (iLO) for remote graphical console and virtual media support
- USB Support (Local Floppy, CD, KVM, etc)
- Internal drive capacity, up to 292GB
- Choice of Patch Panel or GB Switch for Network connectivity

Currently Available



ProLiant BL40p

First 4-way server blade engineered for the back-end enterprise space

- Features up to **four Xeon MP 3.0GHz/4MB L3 or 2.2GHz/2MB L3 processors**
- Up to **12GB** max ECC DDR memory with online spare
- Integrated Smart Array 5i Plus and **four hot plug SCSI drives**
- USB Support (Local Floppy, CD, KVM, etc)
- Advanced version of Integrated Lights-Out (iLO)
- **Two PCI-X slots** for redundant Fibre Channel connectivity to take full advantage of external networked storage

Currently Available

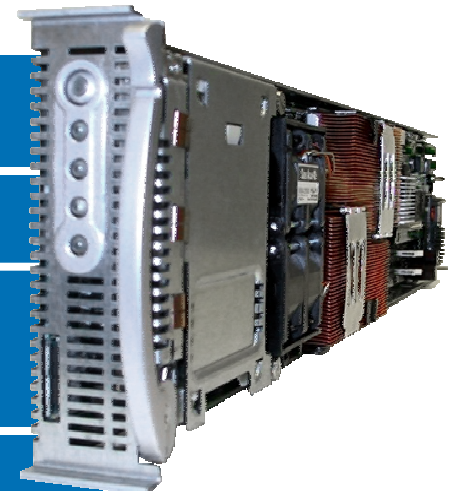


High performance 4-way server blade powering mission critical back-end applications

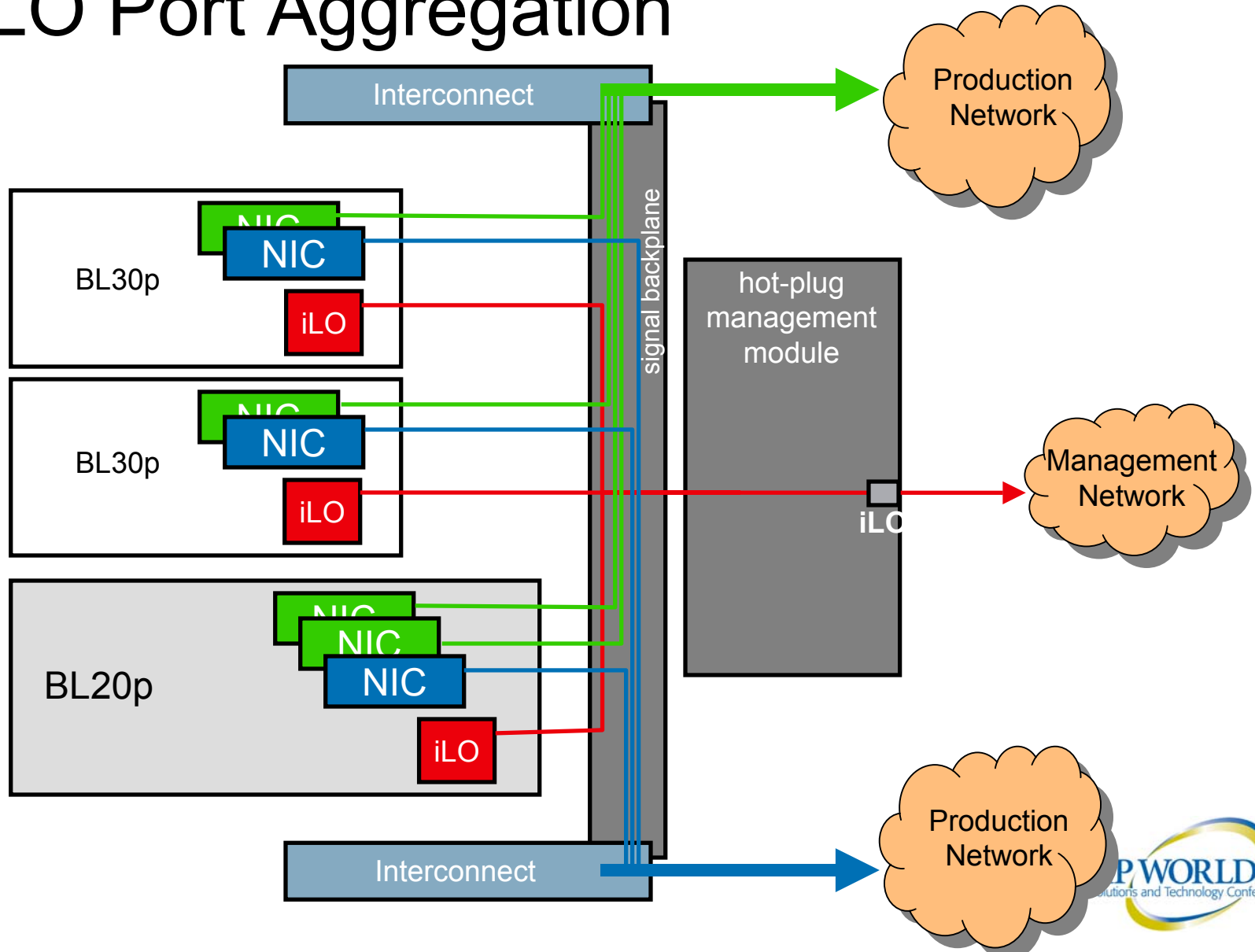
BL30p Blade Spec Summary



Form Factor	16 blades per 6U enclosure (required sleeve holds 2 blades)
CPU Capacity	Dual processor capable
Processor	Prestonia 533 front-side bus 3.06 GHZ / 512K L2 cache 3.2 GHz / 2M L3 cache
Memory	PC2100 DDR 1GB std (1x1GB) / 4GB max using 2 sockets Flex Memory enables interleaving with 2 DIMMs
Internal Storage	Optional, up to two (2) 60GB small form factor ATA, non-hot-plug
RAID	Set in OS only; BIOS setting allows both HDDs to be bootable
Management	integrated Lights Out (iLO) with Advanced Pack features
NICs	(2) General purpose 10/100/1000 NICs plus one 10/100 for iLO
FC SAN Support	Dual-port FC adapter option (QLogic ISP2312)



iLO Port Aggregation



Blade Sleeve

- Sleeve is required to support BL30p
- Sleeve fits a single p-Class server blade bay and holds 2 BL30p blades
- Enables 16 double-dense blades per enclosure – up to 96 per rack!

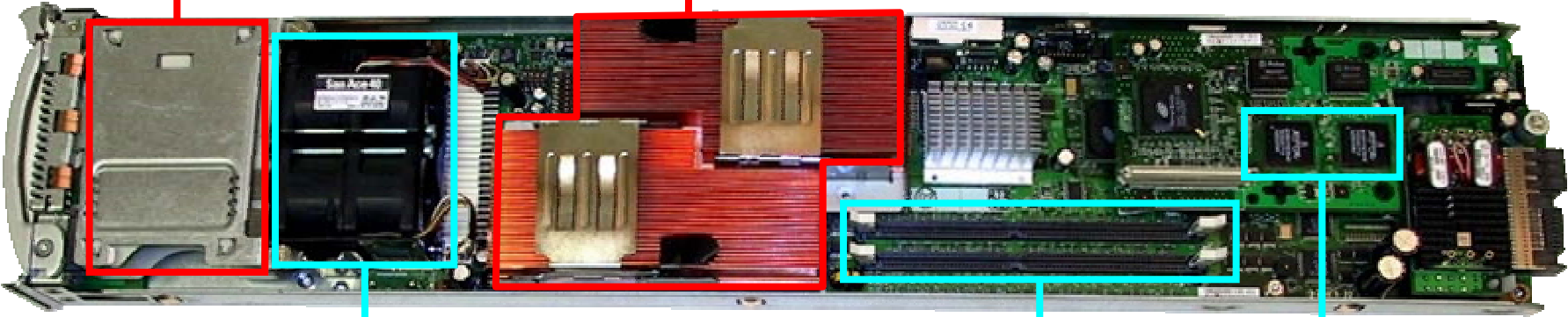


BL30p Features

Two HDDs
(optional)

Two Intel Xeon
CPUs

Dual port FC adapter
(optional)



Fans

4 GB
Memory

Dual Gbit
NICs



Deployment Positioning

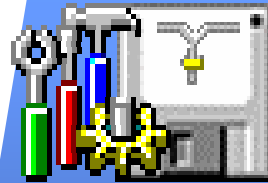


SmartStart CD



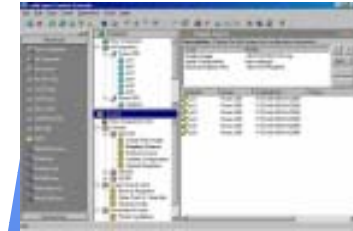
single server
interactive,
assisted install
interview-based
or replication

SmartStart Scripting Toolkit



multiple server
automated with
boot disk required
customer-created
scripts

Rapid Deployment Pack



multiple server
automated from
remote console
pre-packaged
deployment
events

What is Rapid Deployment Pack?

Joint HP and Altiris solution

Automates the process of deploying and provisioning server software

- Altiris Deployment Solution for servers for Windows or Linux
- ProLiant Integration Module - includes optimizations for ProLiant servers
- A software option that can be purchased along with ProLiant servers
- Available in two packages
 - Windows Edition: hosted by Windows server and deploys Windows and Linux
 - Linux Edition: hosted by Linux server and deploys only Linux
- 7-day evaluation license built into every CD
- Additional 30-day evaluation license available from www.hp.com/servers/rdp download

Extending ProLiant Server Support

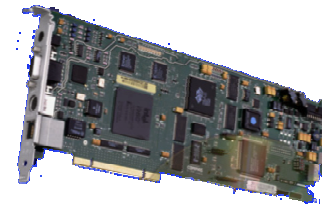


ILO and RILOE integration

Integrates with HP Lights-Out functions for power control and console interface



- browse directly to an iLO/RILOE system from the deployment server console



SAN Support

- *How To Guide* for deploying SAN drivers and support software on ProLiant Blade Servers
 - SAN HBA drivers
 - Fibre Channel Setup
 - Install Secure Path
 - Driver support connecting to HSG80, EVA, XP
 - Boot from SAN - www.hp.com/servers/rdp/kb search for “SAN”



What's new in RDP Windows Edition, Release 1.60?



New Server Support

- ProLiant BL30P
- DL585

New OS Support

- Red Hat Enterprise Linux 3 Update 2 Scripted Installation
- RHEL 3 Imaging
- RHEL 2.1 Update 4

Misc

- SSST 2.4
- PSP 7.10
- SAN and BfS drivers are integrated
- Virtual R/E/B with mixed server types
- Improved WEB Console



Competitive Comparison

	HP ProLiant BL	IBM
Power Redundancy	Redundant AC inputs Redundant power supplies Non-redundant DC	Redundant power supplies and AC Switches, mgmt module and blowers rely on A-side DC
Blade Storage Options	SCSI ATA FC SAN	SCSI ATA FC SAN
Maximum 42U Density	96 blades (non-redundant power) 80 (redundant power)	84 blades
Simultaneous remote mgmt sessions	Any	1 per enclosure
# PDUs Needed	0	Up to 16 (16 x \$2000 that is)
Facility DC Connectivity	Yes	No
Backplane Design	Completely passive; Each bay has breaker protection	Active backplane (over 200 components); Bays are not breaker protected

HP versus IBM

- HP offers SAN connectivity with redundant local disks
 - IBM offers either SAN connectivity OR redundant local disks
- HP offers SCSI drives with no change in form-factor
 - IBM has a 1U per blade cost to use SCSI
- HP has AMD on the roadmap
 - Intel resells BladeCenter making an AMD future bleak
- HP consistently wins SAP and Exchange benchmarks
- HP ships with 3 GB NICs standard
 - IBM charges for the 3rd NIC (and no SAN connectivity if you do)
- HP is shipping the same original Power Supplies
 - IBM is revving up for its 4th generation of Power Supplies
- HP has certifications for all major SAN vendors (even IBM!)
 - IBM has certified IBM Storage

Lessons Learned

- Cisco Switch Compatibility

- All Switches are Cisco compatible
 - GbE has a STP limitation (see below)
 - GbE2 (Nortel Alteon Application Switch) is 100% compatible
 - KEEP SWITCH FIRMWARE CURRENT!!!
 - 100% Cisco IOS switch is on the way – we heard you!

- Spanning Tree Config

- GbE
 - If LAN has multiple STP instances, either disable STP on GBE or disable crosslinks
- GbE2 – Which do you prefer?
 - STP Off = Blocked Uplink (Requires little training for network group)
 - STP On = Blocked Crosslink (Requires some training for network group)

Lessons Learned (cont'd)

- Incorrect Rack Name in RDP Console
 - Info is from static SMBIOS table and requires reboot to change
 - Last resort is to reboot Server Enclosure (SE) Mgmt module – No Downtime
- Blades do not power-on Automatically
 - Blue patch cable is not installed
 - BL30p requires SE and Power Enclosure (PE) firmware to be at 2.03+ (Don't mix and match firmware)
- Invalid Topology errors
 - Check Blue patch cable connections for matching up/down arrows
 - If using 2 mini-bus bars, set highest PE and SEs to Power Zone 2

Lessons Learned (cont'd)

- My Server won't PXE boot
 - “The wheel just spins and then times out”
 - The wheel (of fortune ☺) spins for 2 basic reasons:
 - PXE-E51 – DHCP Problem (Cisco Switches, DHCP Service, etc)
 - PXE-E53 – PXE Problem (Check PXE Service, associate boot files)
 - DHCP Server Option 60 req'd if PXE and DHCP reside together
 - Enable “Port Fast” if using Cisco switches
 - Test this with a small mini-hub/switch if possible
- “Bad Command or Filename”
 - Usually happens when F: drive doesn't map
 - Add the RDP server to the Imhosts in the PXE bootfile
- PXE Boot hangs at “Initializing TCP/IP via DHCP”
Computer name is already assigned
 - DHCP server offered an address that is statically

Tips and Tricks



- Make Copies of your default jobs
 - Copy entire default job folders to your own folders
 - Or export the default folders to .bin files for safekeeping
- Make copies of your “..\deploy\configs” folder
 - Allows customization of unattended, BIOS, and arrays with no worries if you make a mistake you can't find
- Running out of memory during installs?
 - Update your PXE/Server ROM
 - Use the UNDI driver
 - Don't remove the REM Bootwork Unload from your jobs
- Error 53 during Mapping of Network drives
 - Add DS to the Imhosts. file in BootDisk Creator
 - Don't run Netbios on both NICs of DS (if multi-homed)

Tips and Tricks



- When Possible, use blank CONREP files
 - Unique CONREP file only needed for non-default BIOS
 - This approach allows the same CONREP input files to be used on all Proliant platforms
- Use the enclosure “Service Port” to your advantage
 - Uses DB-9 Null Modem cable (included)
 - Shows overall server enclosure health info
 - Displays current IP address of each iLO in each blade
- Static IP Bay Configuration (SIPBC)
 - New with the –B22 SKU (existing enclosures are upgradeable)
 - Makes iLO address “sticky” to the slot (1.55+ fw req’d)
 - Makes swapping and replacing blades easier – yes, it’s optional

Tips and Tricks

- iLO Mouse is less than perfect?
 - Use HPLOMOPT/HPONCFG to optimize mouse –or–
 - Install Terminal Services pass-thru Service
- iLO Login names are difficult to update?
 - Use HPCONFG/HPLOCFG in conjunction with HPSIM –or–
 - Install iLO Directory Services Integration and use Directory accounts!
- Stop PXE boot for troubleshooting
 - Press ESC when “Press F2 for diags” is displayed
 - Hitting F2 offers some low-level diagnostics
 - To restart the boot process type “Bootwork.exe”
- HP Smart Components (formerly called softpaqs)
 - Add a /s to silently install any SC (cp00xxxx.exe)
 - SC’s do not return standard DOS errorlevel codes
 - Add a /DOSRETCODE switch to force DOS errorlevels

Tips and Tricks

- NIC Teaming
 - Do not image a server with teamed NICs
 - Can be automated using cqnccmd.exe
- NIC Teaming Configuration
 - Use Load Balancing unless a good reason exists not to
 - Balance with IP = best when requestors are across a router
 - Balance with MAC = best when requestors are on local vlan
- Need to reboot iLO?
 - Go to Network Settings Page and click “Apply”

Tips and Tricks

- My Server is stuck in a “Boot Loop”. It boots PXE, connects the server and says “Booting to Production”.
 - The server is being forced to boot PXE and the job assigned to it is an OS (Windows/Linux) job.
- SE is missing the Blue Interconnect Cables
 - Use short regular patch cables
- Setup IM agents and passwords on the DS after completing RDP Installation
- Initial PXE clients do not show up in RDP console
 - They sit at the PXE Menu awaiting input
 - Set “Initial” PXE option to Boot Immediately

Tips and Tricks

- “Can I debug the PXE process”
 - Yes – look in the ..\PXE\PXE.ini file. Set all “debug” lines to TRUE
 - This will spit 4 txt debug files to the root
- “I really screwed up my PXE server”
 - Remove just PXE server from Add/Remove programs
 - Run PXE.EXE from the CD

Comprehensive set of resources



The *new* Knowledge Base

- Available at www.hp.com/servers/rdp/kb
- Search for information through the RDP knowledge base by keyword search
- Index.html trick



ProLiant Essentials Rapid Deployment Pack
knowledge base

[printable vers](#)

» management home

- » new products
- » retired products
- » special promotions

- » RDP - Windows Edition
- » RDP - Linux Edition
- » how to buy
- » **knowledge base**
- » evaluation license
- » register license

» site map

search

search: >>

(example: pxe + \"undi driver\")

latest entries

Date	Number	Title
08/02/2003	00000113	» Windows 2003 (Japanese) Scripted Install Fails With "Out Of Memory" Message
08/02/2003	00000112	» Windows 2003 Scripted Install Stops At 100% During The Blue Screen File Copy Phase
08/02/2003	00000111	» How To Create A Windows Scripted Install Job For An Additional Windows Edition

Planning Documentation

- Planning Guide
- Support Matrix

Installation Documentation

- 1.5 added Separate Installation Guide
- User Guide
- Altiris Deployment Solution User Guide and Rel Notes

Other Documentation

- SAN Boot Guide
- Microsoft Technet



Where to go for help

WWW.HP.COM/GO/Blades

WWW.HP.COM/SERVERS/RDP

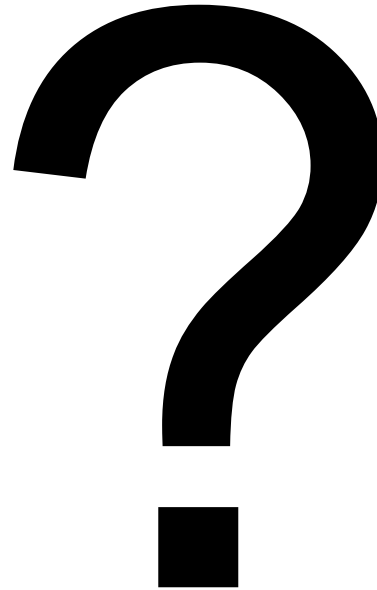
WWW.HP.COM/SERVERS/SWDRIVERS

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Questions?





i n v e n t



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