



Optimize Your Lights-Out Experience



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A Customer Success Story

- ISP in Finland
- Big Lights-Out Management users
- New Data Center!
- Remotely Managed ProLiant Servers
- One Administrator left behind...

Purpose and Process

- Purpose: Make you a better Lights-Out user
- Process
 - Learn a little about you, your wants and needs
 - Explain the Lights-Out Management payoff
 - Illustrate Best Practice Objectives
 - Efficiency
 - Effectiveness
 - Economy
 - Detail the Best Practices
 - Closing Q&A
- Does this meet your expectations?

Your Wants and Need

- Customers Need...
 - More hours in the day
 - Faster ways of working
 - Features that work as advertised
 - Modern techniques
- Consultants and HP Solutions Architects Need...
 - New techniques to share
 - Knowledge to solve customer needs
- Without spending hours reading docs...

Payoff and Call to Action

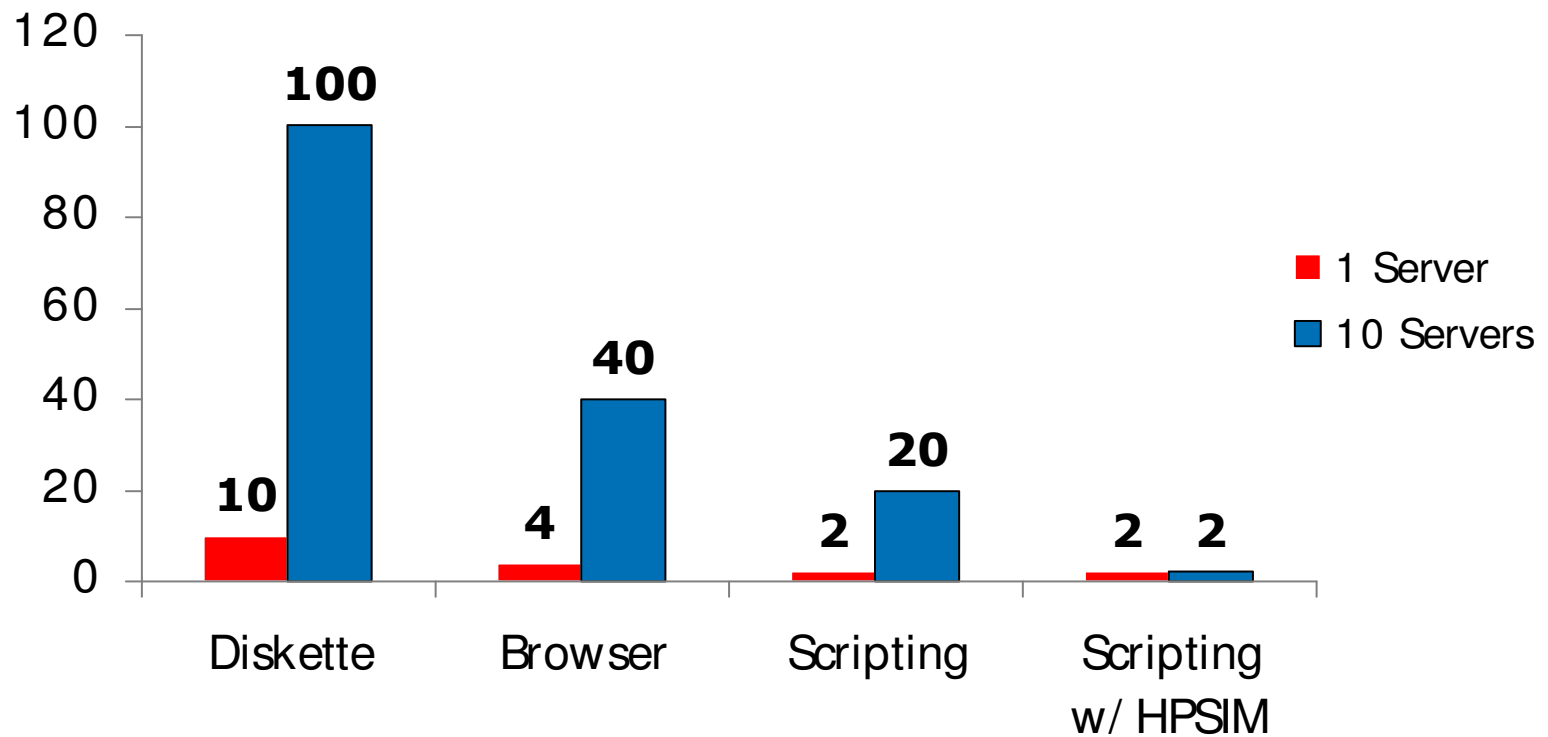
- Payoff
 - save time and money
 - gain competitive advantage
 - enable new work processes
- Call to Action
 - Write down top three Best Practices
 - Map out a plan to implement
 - E-mail me (doug.hascall@hp.com)

Objective 1: Efficiency

- Efficiency: A measure of effort required to complete a task
- Example: Flashing firmware of iLO devices
 - Physical Diskette Methodology (10 min/iLO)
 - iLO Browser Methodology (4 min/iLO)
 - iLO Scripting Methodology (<2 min/iLO)

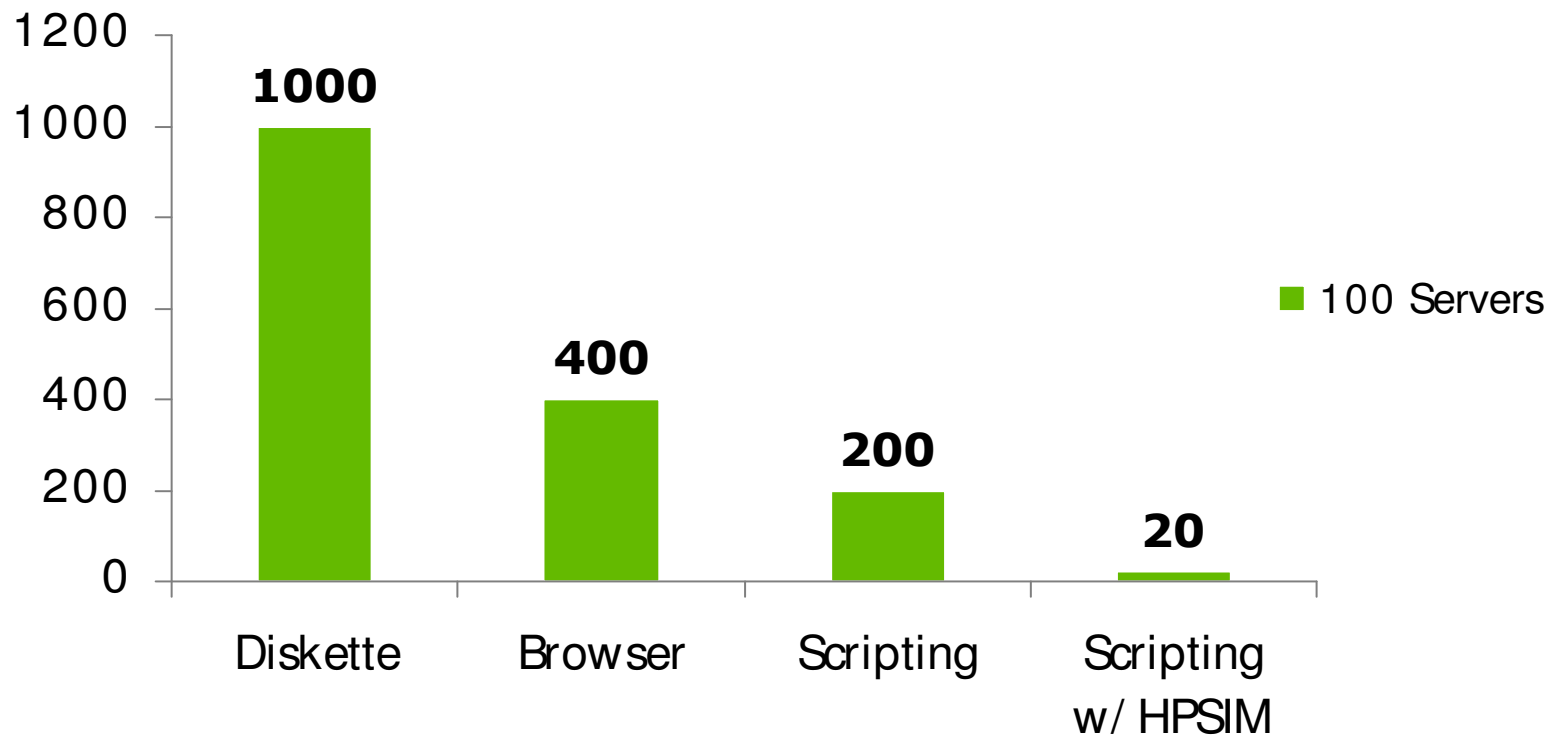
Objective 1: Efficiency

Flashing Time (minutes) for 1 and 10 iLO Devices



Objective 1: Efficiency

Flashing Time (minutes) for 100 iLO Devices



Objective 2: Effectiveness

- Effectiveness: A measure of the correctness of a task being completed
 - Humans: Good at problem solving
 - Automation: Preferred for boring, repetitive tasks
- Best Practice is to automate the repetitive tasks and check logs/run a query to check correctness

Objective 3: Economy

- Economy: Comparative cost of methodologies
- Labor costs at \$40/hr
 - Physical Diskette Methodology (\$667)
 - iLO Browser Methodology (\$267)
 - iLO Scripting Methodology (\$133)
 - iLO Scripting w/ HPSIM Methodology (\$13)
- Add intangible costs of errors...
- Customer example: Water Services of Phoenix

Overview of Best Practice Categories



- Lights-Out Web Site
- Security
- Scalability
- Deployment
- Performance
- Cost Savings
- Integration (with other tools)
- Data Center
- Get Out Of Jail!





Best Practice:

Know the Lights- Out Management Web Site

Lights-Out Web Site

- Wealth of information
 - White Papers
 - Updated Firmware and Software
 - User Guides
 - Utilities
- Alias URL: www.hp.com/servers/lights-out

Lights-Out Home Page

HP.com - ProLiant remote management - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Mail Web


Address <http://h18013.www1.hp.com/products/servers/management/remotemgmt.html?jumpid=servers/lights-out> Go

United States-English

» HP Home » Products & Services » Support & Drivers » Solutions » How to Buy

» Contact HP Search:

Server management All of HP U.S.

 **Remote management**
Lights-Out technologies

» Servers

» ProLiant servers

- » ProLiant BL (blade systems)
- » ProLiant DL (rack-optimized)
- » ProLiant ML (expansion-optimized)
- » Entry-level servers
- » ProLiant clusters
- » ProLiant Essentials
- » ProLiant Storage
- » Options & Accessories

» New products

» Grow with Itanium

» ProLiant IT consolidation

» ISS technology papers

» Special promotions


» Solutions

» Site map


HP's industry leading Lights-Out technology is now [directory enabled](#), providing secure, scalable, and cost effective remote management.

» Technical support
» Discontinued products


» RiLoe II » iLO Standard » iLO Advanced

 **Remote Insight Lights-Out Edition II**

- Optional PCI card supported in ML and DL servers
- Enhanced graphical remote console performance
- Advanced virtual systems administration and deployment

 **Integrated Lights-Out Standard**

- Basic Lights-Out management embedded in many ProLiant ML, DL and BL servers
- Upgradeable to the complete Integrated Lights-Out Advanced feature set as your demands require

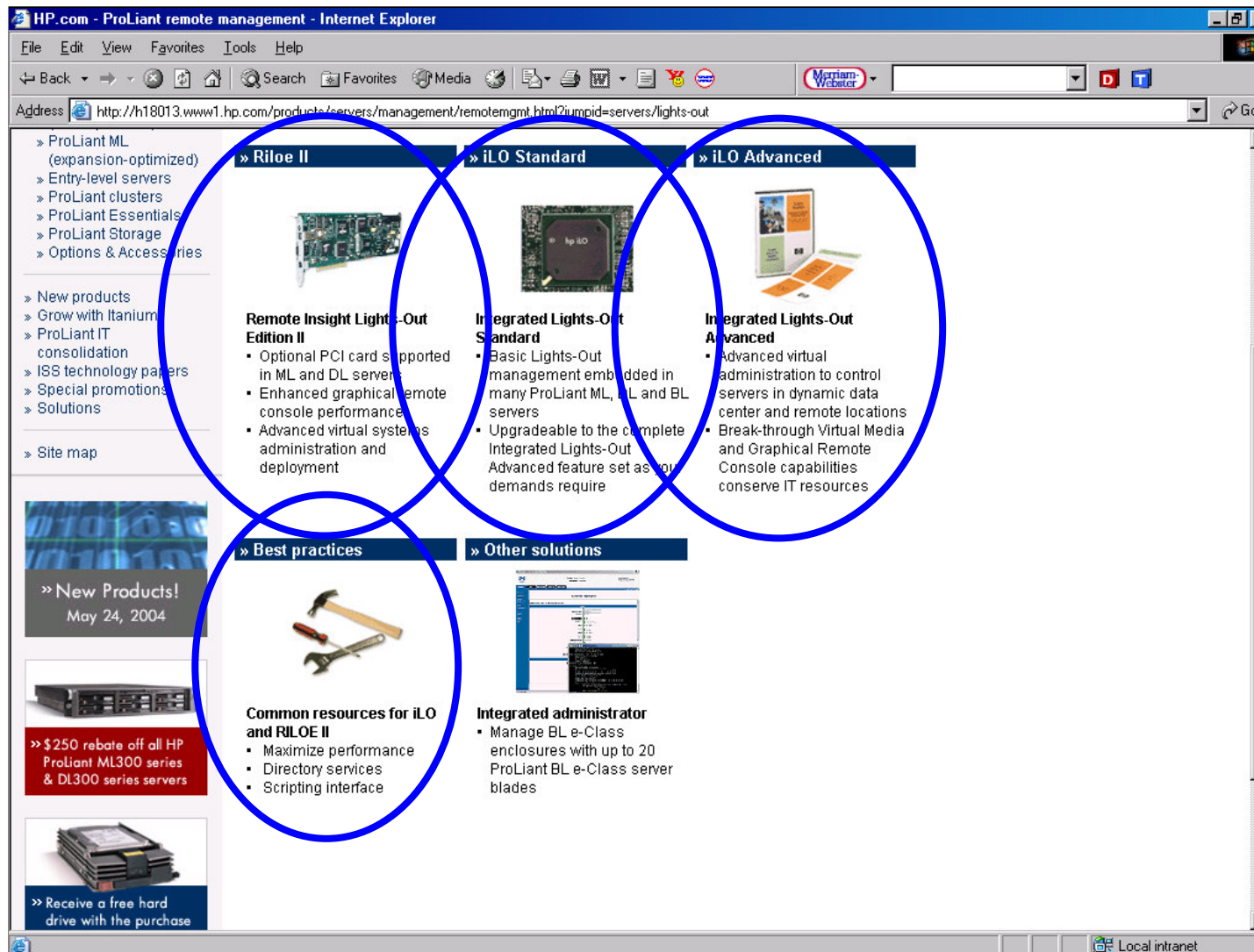
 **Integrated Lights-Out Advanced**

- Advanced virtual administration to control servers in dynamic data center and remote locations
- Break-through Virtual Media and Graphical Remote Console capabilities conserve IT resources

» Best practices » Other solutions

Local intranet

Lights-Out Home Page (scroll down)



HP.com - ProLiant remote management - Internet Explorer

Address: http://h18013.www1.hp.com/products/servers/management/remotemgmt.html?jumpid=servers/lights-out

» ProLiant ML (expansion-optimized)
 » Entry-level servers
 » ProLiant clusters
 » ProLiant Essentials
 » ProLiant Storage
 » Options & Accessories

» New products
 » Grow with Itanium
 » ProLiant IT consolidation
 » ISS technology papers
 » Special promotions
 » Solutions

» Site map

» New Products!
 May 24, 2004

» \$250 rebate off all HP ProLiant ML300 series & DL300 series servers

» Receive a free hard drive with the purchase

» Riloe II

Remote Insight Lights-Out Edition II

- Optional PCI card supported in ML and DL servers
- Enhanced graphical remote console performance
- Advanced virtual systems administration and deployment

» iLO Standard

Integrated Lights-Out Standard

- Basic Lights-Out management embedded in many ProLiant ML, DL and BL servers
- Upgradeable to the complete Integrated Lights-Out Advanced feature set as your demands require

» iLO Advanced

Integrated Lights-Out Advanced

- Advanced virtual administration to control servers in dynamic data center and remote locations
- Break-through Virtual Media and Graphical Remote Console capabilities conserve IT resources

» Best practices

Common resources for iLO and RILOE II

- Maximize performance
- Directory services
- Scripting interface

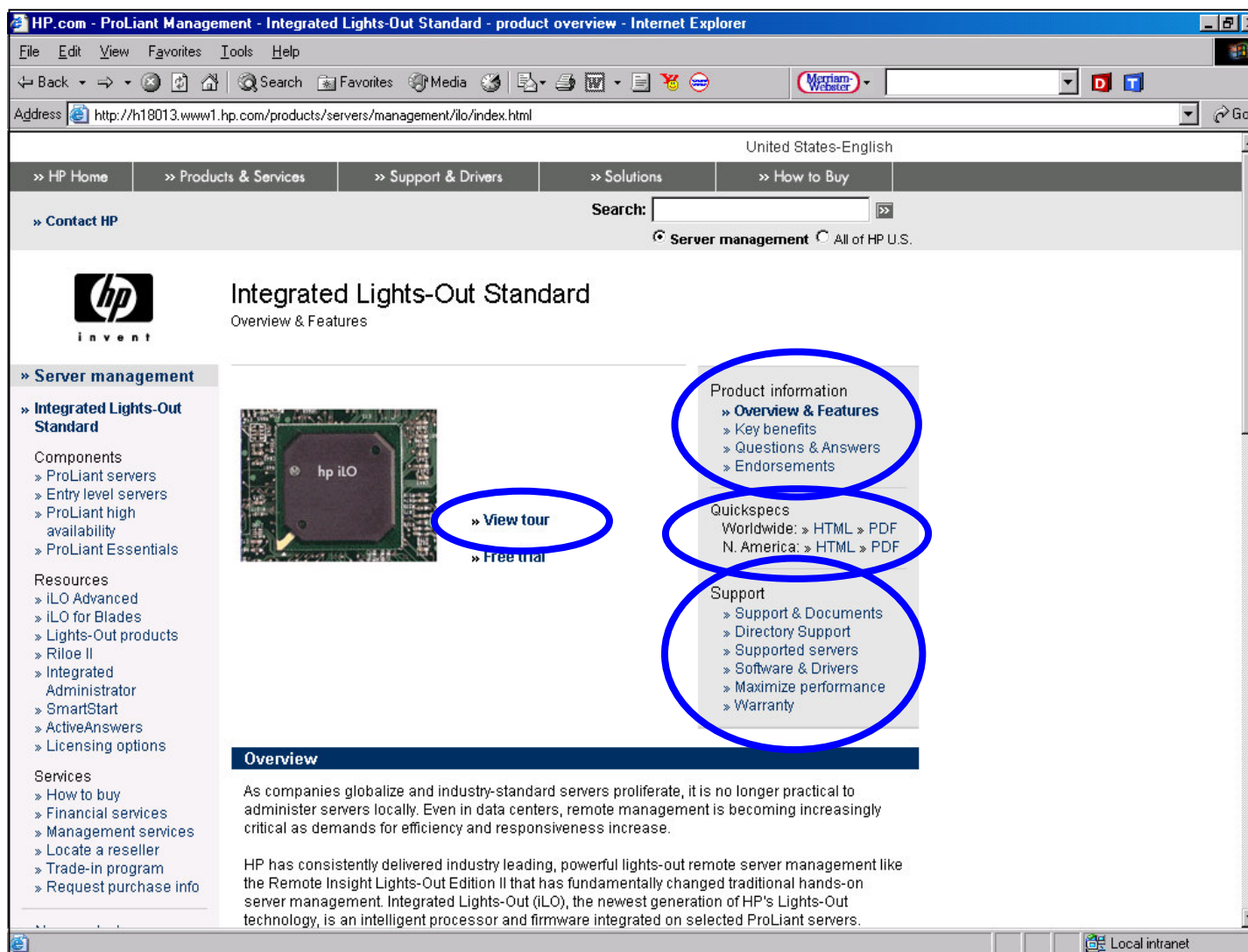
» Other solutions

Integrated administrator

- Manage BL e-Class enclosures with up to 20 ProLiant BL e-Class server blades

Local intranet

iLO Standard Product Page



HP.com - ProLiant Management - Integrated Lights-Out Standard - product overview - Internet Explorer

Address: http://h18013.www1.hp.com/products/servers/management/ilo/index.html

United States-English

» HP Home » Products & Services » Support & Drivers » Solutions » How to Buy

Search:

» Contact HP

Server management All of HP U.S.

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Integrated Lights-Out Standard

Overview & Features

» Server management

» Integrated Lights-Out Standard

Components

- » ProLiant servers
- » Entry level servers
- » ProLiant high availability
- » ProLiant Essentials

Resources

- » iLO Advanced
- » iLO for Blades
- » Lights-Out products
- » RiLoe II
- » Integrated Administrator
- » SmartStart
- » ActiveAnswers
- » Licensing options

Services

- » How to buy
- » Financial services
- » Management services
- » Locate a reseller
- » Trade-in program
- » Request purchase info

View tour

Free trial

Product information

- » Overview & Features
- » Key benefits
- » Questions & Answers
- » Endorsements

Quickspecs

Worldwide: » HTML » PDF

N. America: » HTML » PDF

Support

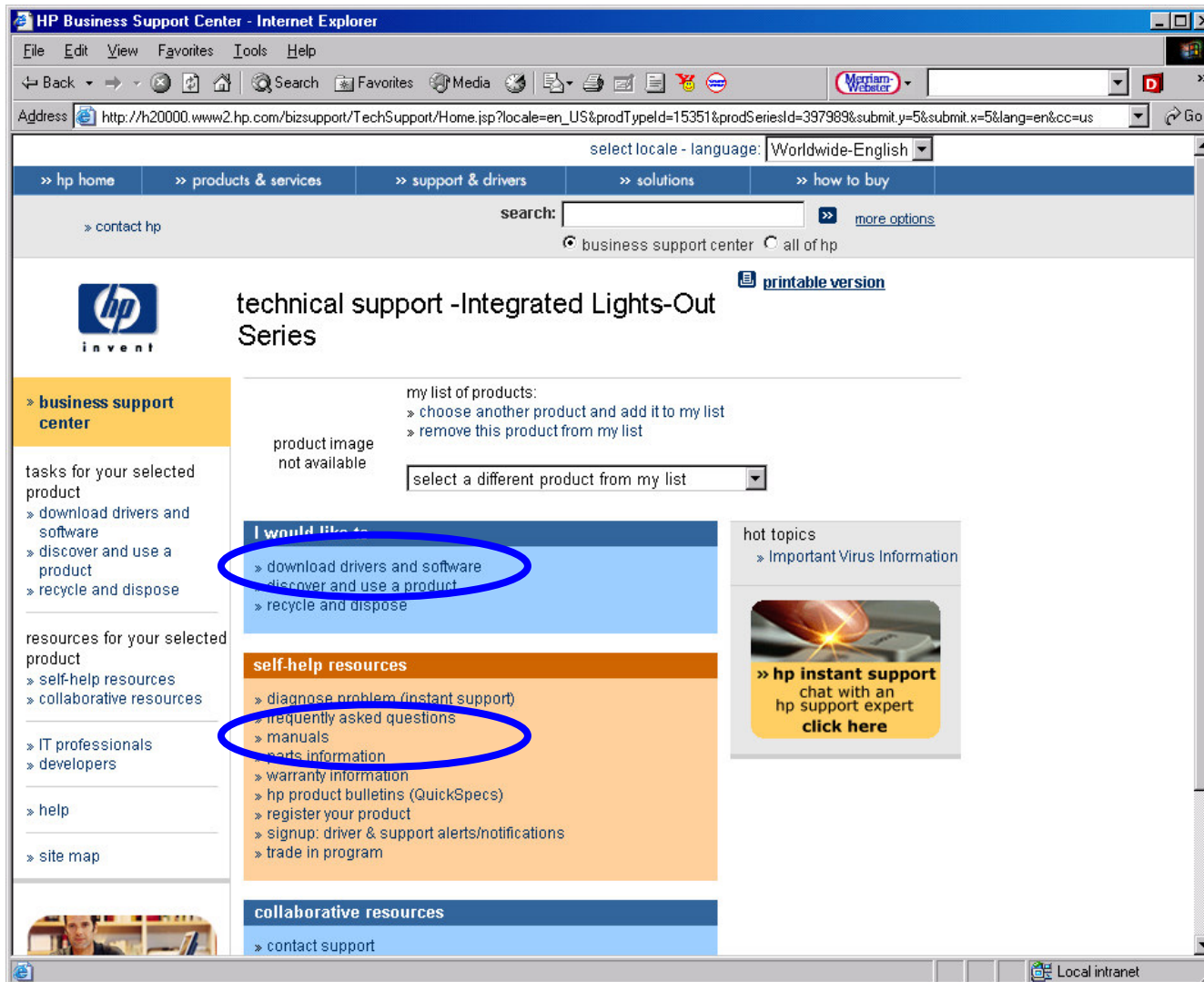
- » Support & Documents
- » Directory Support
- » Supported servers
- » Software & Drivers
- » Maximize performance
- » Warranty

Overview

As companies globalize and industry-standard servers proliferate, it is no longer practical to administer servers locally. Even in data centers, remote management is becoming increasingly critical as demands for efficiency and responsiveness increase.

HP has consistently delivered industry leading, powerful lights-out remote server management like the Remote Insight Lights-Out Edition II that has fundamentally changed traditional hands-on server management. Integrated Lights-Out (iLO), the newest generation of HP's Lights-Out technology, is an intelligent processor and firmware integrated on selected ProLiant servers.

iLO Technical Support Page



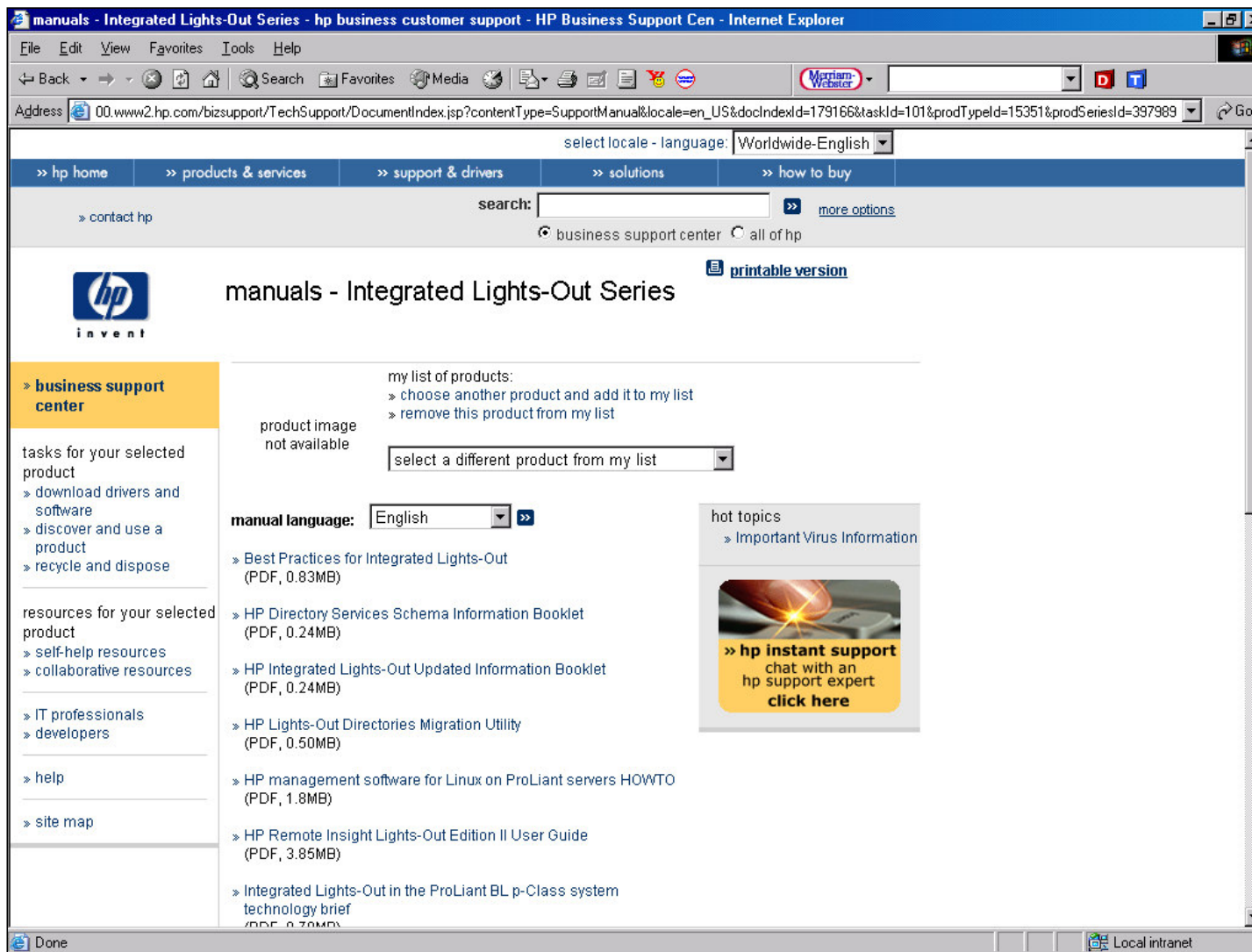
The screenshot shows the HP Business Support Center website in Internet Explorer. The browser window title is "HP Business Support Center - Internet Explorer". The address bar shows the URL: http://h20000.www2.hp.com/bizsupport/TechSupport/Home.jsp?locale=en_US&prodTypeId=15351&prodSeriesId=397989&submit.y=5&submit.x=5&lang=en&cc=us. The page is titled "technical support - Integrated Lights-Out Series".

The page layout includes a navigation bar with links: >> hp home, >> products & services, >> support & drivers, >> solutions, >> how to buy. A search bar is located below the navigation bar. The main content area is divided into several sections:

- business support center**: A sidebar on the left containing links for tasks for your selected product (download drivers and software, discover and use a product, recycle and dispose), resources for your selected product (self-help resources, collaborative resources), IT professionals, developers, help, and site map.
- product image not available**: A section with a dropdown menu to select a different product from my list.
- I would like to**: A section with a blue background containing links: >> download drivers and software, >> discover and use a product, >> recycle and dispose.
- self-help resources**: A section with an orange background containing links: >> diagnose problem (instant support), >> frequently asked questions, >> manuals, >> parts information, >> warranty information, >> hp product bulletins (QuickSpecs), >> register your product, >> signup: driver & support alerts/notifications, >> trade in program.
- collaborative resources**: A section with a blue background containing a link: >> contact support.
- hot topics**: A section on the right containing a link: >> Important Virus Information.
- hp instant support**: A section on the right with a graphic of a hand clicking a button and the text: >> hp instant support chat with an hp support expert click here.

Two blue circles highlight the links ">> download drivers and software" and ">> frequently asked questions".

iLO Manuals Page



The screenshot shows a web browser window titled "manuals - Integrated Lights-Out Series - hp business customer support - HP Business Support Cen - Internet Explorer". The address bar shows the URL: "00.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&locale=en_US&docIndexId=179166&taskId=101&prodTypeId=15351&prodSeriesId=397989".

The page features a navigation bar with links: "hp home", "products & services", "support & drivers", "solutions", "how to buy", and "contact hp". A search bar is also present.

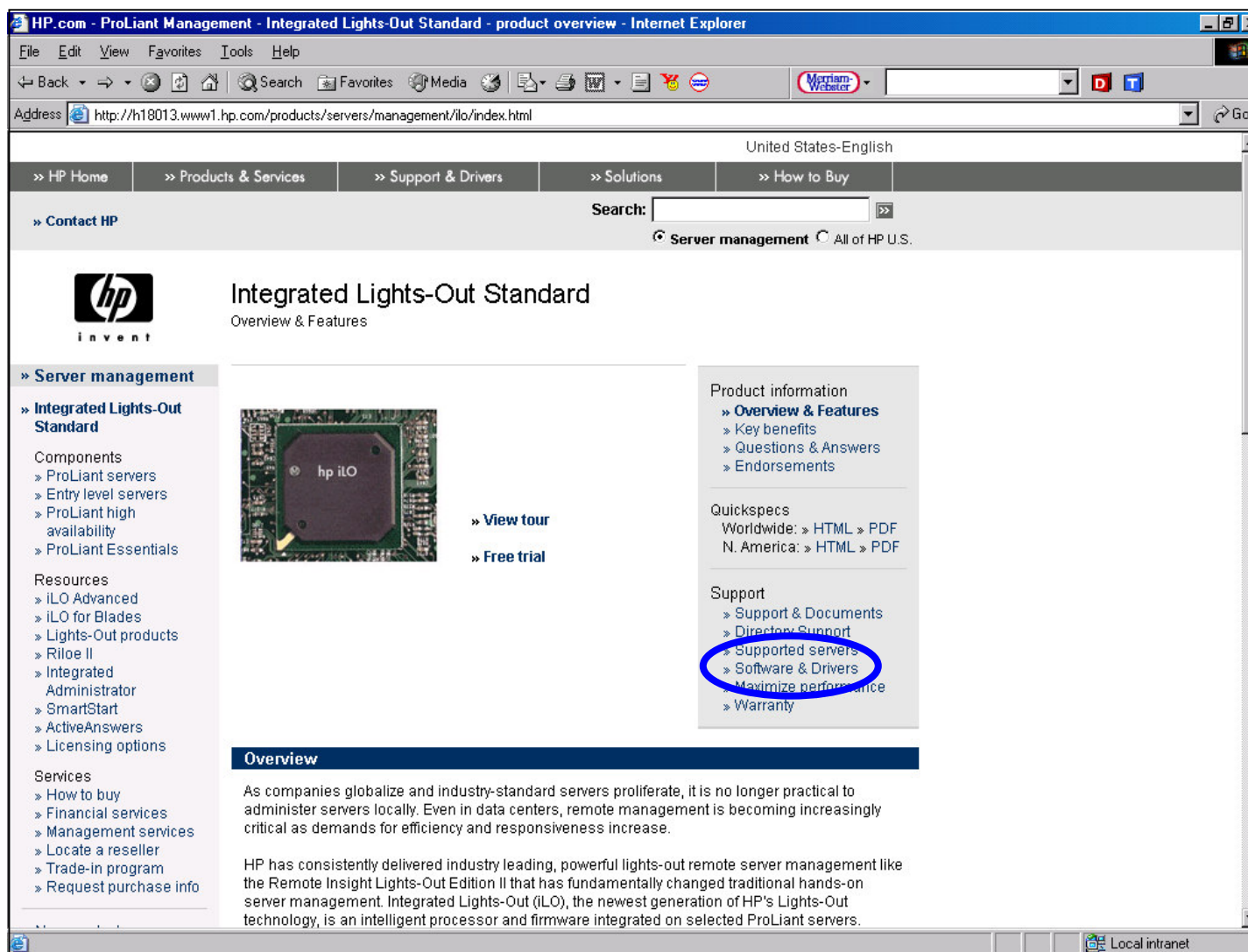
The main content area is titled "manuals - Integrated Lights-Out Series" and includes a "printable version" link. On the left, there is a sidebar with sections: "business support center", "tasks for your selected product" (including download drivers and software, discover and use a product, and recycle and dispose), "resources for your selected product" (including self-help resources and collaborative resources), "IT professionals", "developers", "help", and "site map".

The main content area lists products and manuals:

- product image not available
- select a different product from my list
- my list of products:
 - choose another product and add it to my list
 - remove this product from my list
- manual language: English
- Best Practices for Integrated Lights-Out (PDF, 0.83MB)
- HP Directory Services Schema Information Booklet (PDF, 0.24MB)
- HP Integrated Lights-Out Updated Information Booklet (PDF, 0.24MB)
- HP Lights-Out Directories Migration Utility (PDF, 0.50MB)
- HP management software for Linux on ProLiant servers HOWTO (PDF, 1.8MB)
- HP Remote Insight Lights-Out Edition II User Guide (PDF, 3.85MB)
- Integrated Lights-Out in the ProLiant BL p-Class system technology brief (PDF, 0.70MB)

On the right, there is a "hot topics" section with a link to "Important Virus Information" and a "hp instant support" chat box with a "click here" link.

iLO Standard Product Page



HP.com - ProLiant Management - Integrated Lights-Out Standard - product overview - Internet Explorer

Address: http://h18013.www1.hp.com/products/servers/management/ilo/index.html

United States-English

» HP Home » Products & Services » Support & Drivers » Solutions » How to Buy

Search:

» Contact HP ☒ Server management ☐ All of HP U.S.

hp
invent

Integrated Lights-Out Standard

Overview & Features

» **Server management**

» **Integrated Lights-Out Standard**

Components

- » ProLiant servers
- » Entry level servers
- » ProLiant high availability
- » ProLiant Essentials

Resources

- » iLO Advanced
- » iLO for Blades
- » Lights-Out products
- » RiLoe II
- » Integrated Administrator
- » SmartStart
- » ActiveAnswers
- » Licensing options

Services

- » How to buy
- » Financial services
- » Management services
- » Locate a reseller
- » Trade-in program
- » Request purchase info

» View tour

» Free trial

Product information

- » **Overview & Features**
- » Key benefits
- » Questions & Answers
- » Endorsements

Quickspecs

Worldwide: » HTML » PDF

N. America: » HTML » PDF

Support

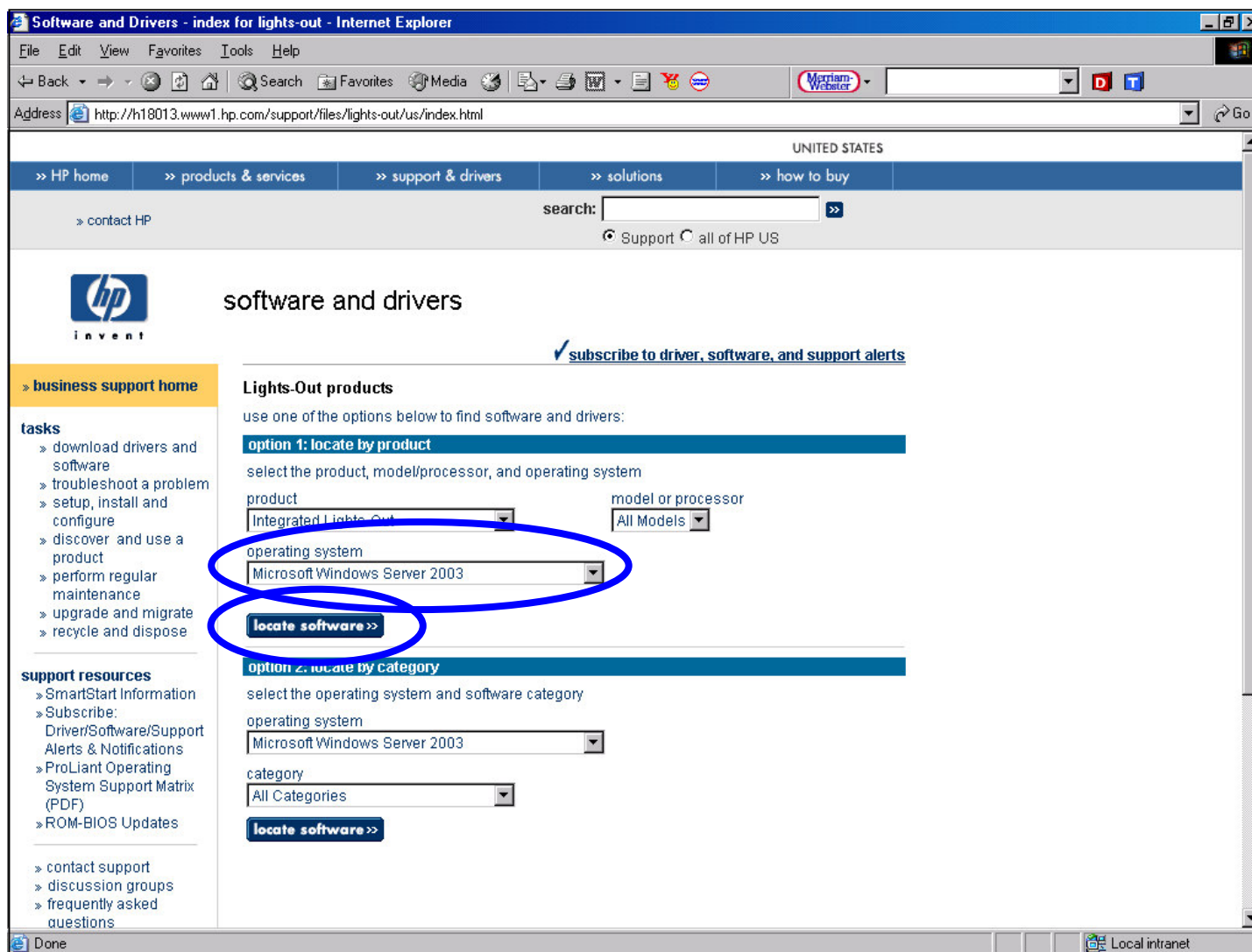
- » Support & Documents
- » Directory Support
- » **Supported servers**
- » Software & Drivers
- » Maximize performance
- » Warranty

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Locate Software and Drivers



iLO Software and Drivers

Software and Drivers - Integrated Lights-Out All Models, Microsoft Windows Server 2003 - Internet Explorer

Address: http://h18013.www1.hp.com/support/files/lights-out/us/locate/69_5867.html


UNITED STATES

» HP home » products & services » support & drivers » solutions » how to buy

» contact HP

search:

☒ Support ☐ all of HP US

 **software and drivers**

[✓ subscribe to driver, software, and support alerts](#)

» business support home

tasks

- » download drivers and software
- » troubleshoot a problem
- » setup, install and configure
- » discover and use a product
- » perform regular maintenance
- » upgrade and migrate
- » recycle and dispose

support resources

- » SmartStart Information
- » Subscribe: Driver/Software/Support Alerts & Notifications
- » ProLiant Operating System Support Matrix (PDF)
- » ROM-BIOS Updates
- » contact support
- » discussion groups
- » frequently asked questions

Integrated Lights-Out All Models, Microsoft Windows Server 2003

select a category

- » Driver - Lights-Out Management
- » Firmware - Lights-Out Management
- » Software - Lights-Out Management

software and drivers by category

Driver - Lights-Out Management [» top of page](#)

name	current version	previous version
HP ProLiant Integrated Lights-Out Management Interface Driver for Windows 2000/Server 2003	» 1.4.4.0 17 Dec 03	» 1.4.3.4 1 Jul 03

Firmware - Lights-Out Management [» top of page](#)

name	current version	previous version
Firmware Upgrade Image for the HP Integrated Lights-Out Management Controller	» 1.55 A 7 May 04	» 1.51 A 29 Mar 04
Integrated Lights-Out ROM Flash Update - Windows NT/2000/Server 2003	» 1.55 7 May 04	» 1.51 15 Mar 04
Options ROMPaq Firmware Upgrade Diskette for HP Integrated	» 1.55 A 7 May 04	» 1.51 A 29 Mar 04

Done Local intranet

Lights-Out Home Page

HP.com - ProLiant remote management - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Mail Web


Address <http://h18013.www1.hp.com/products/servers/management/remotemgmt.html?jumpid=servers/lights-out> Go

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- » ProLiant Essentials
- » ProLiant Storage
- » Options & Accessories

» New products

» Grow with Itanium

» ProLiant IT consolidation

» ISS technology papers

» Special promotions


» Solutions

» Site map

HP's industry leading Lights-Out technology is now [directory enabled](#), providing secure, scalable, and cost effective remote management.

» Technical support
» Discontinued products


» RiLoe II



Remote Insight Lights-Out Edition II

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- Enhanced graphical remote console performance
- Advanced virtual systems administration and deployment


» iLO Standard



Integrated Lights-Out Standard

- Basic Lights-Out management embedded in many ProLiant ML, DL and BL servers
- Upgradeable to the complete Integrated Lights-Out Advanced feature set as your demands require

» iLO Advanced



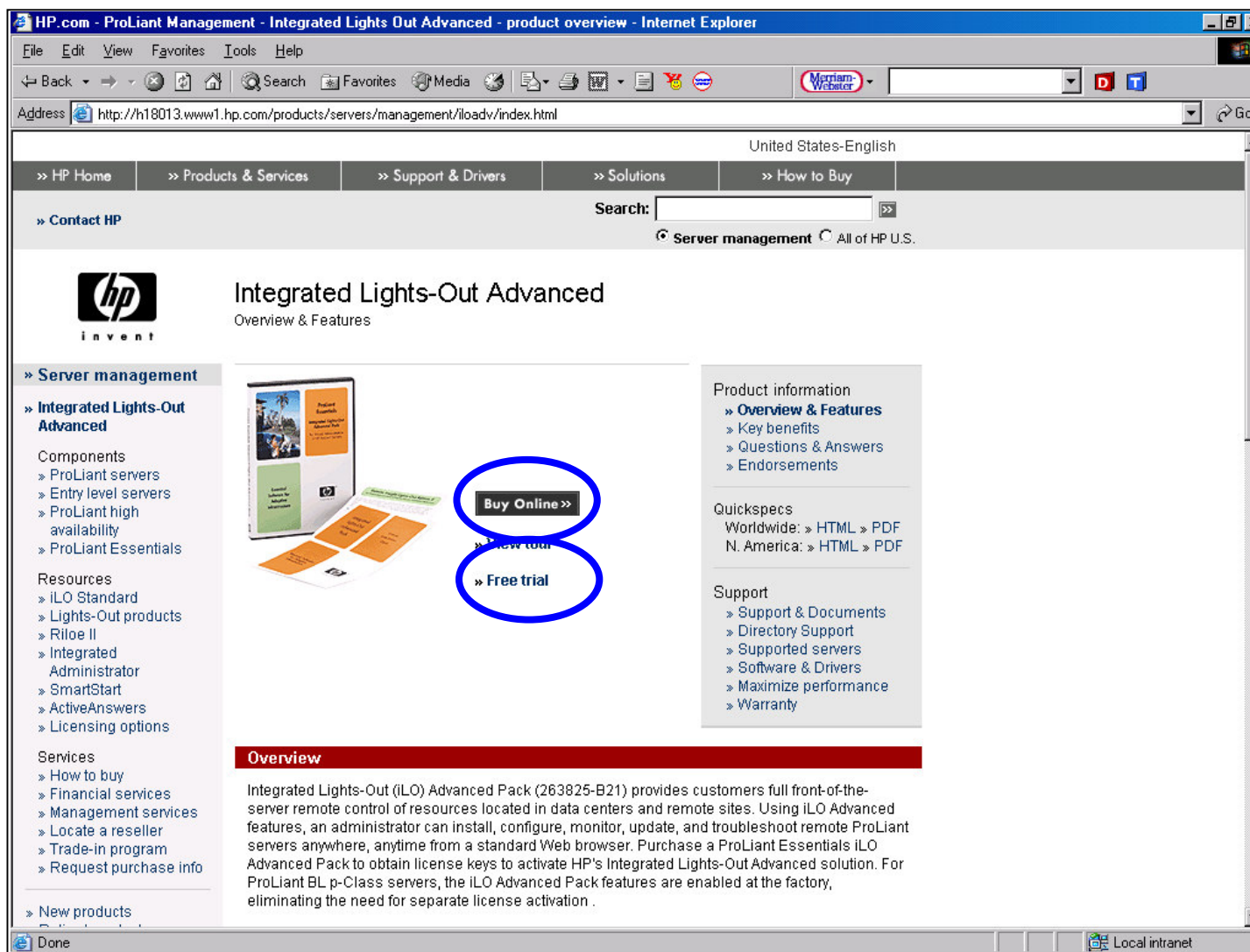
Integrated Lights-Out Advanced

- Advanced virtual administration to control servers in dynamic data center and remote locations
- Break-through Virtual Media and Graphical Remote Console capabilities conserve IT resources

» Best practices » Other solutions

Local intranet

iLO Advanced Product Page



HP.com - ProLiant Management - Integrated Lights Out Advanced - product overview - Internet Explorer

Address: http://h18013.www1.hp.com/products/servers/management/iloadv/index.html

United States-English

» HP Home » Products & Services » Support & Drivers » Solutions » How to Buy

Search:

» Contact HP

Server management All of HP U.S.

hp
invent

Integrated Lights-Out Advanced

Overview & Features

» Server management

» Integrated Lights-Out Advanced

Components

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- » Entry level servers
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- » ProLiant Essentials

Resources

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- » Lights-Out products
- » Rilo II
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Quickspecs

Worldwide: » HTML » PDF

N. America: » HTML » PDF

Support

- » Support & Documents
- » Directory Support
- » Supported servers
- » Software & Drivers
- » Maximize performance
- » Warranty

Buy Online >>

Free trial

Overview

Integrated Lights-Out (iLO) Advanced Pack (263825-B21) provides customers full front-of-the-server remote control of resources located in data centers and remote sites. Using iLO Advanced features, an administrator can install, configure, monitor, update, and troubleshoot remote ProLiant servers anywhere, anytime from a standard Web browser. Purchase a ProLiant Essentials iLO Advanced Pack to obtain license keys to activate HP's Integrated Lights-Out Advanced solution. For ProLiant BL p-Class servers, the iLO Advanced Pack features are enabled at the factory, eliminating the need for separate license activation.



Security Best Practice:

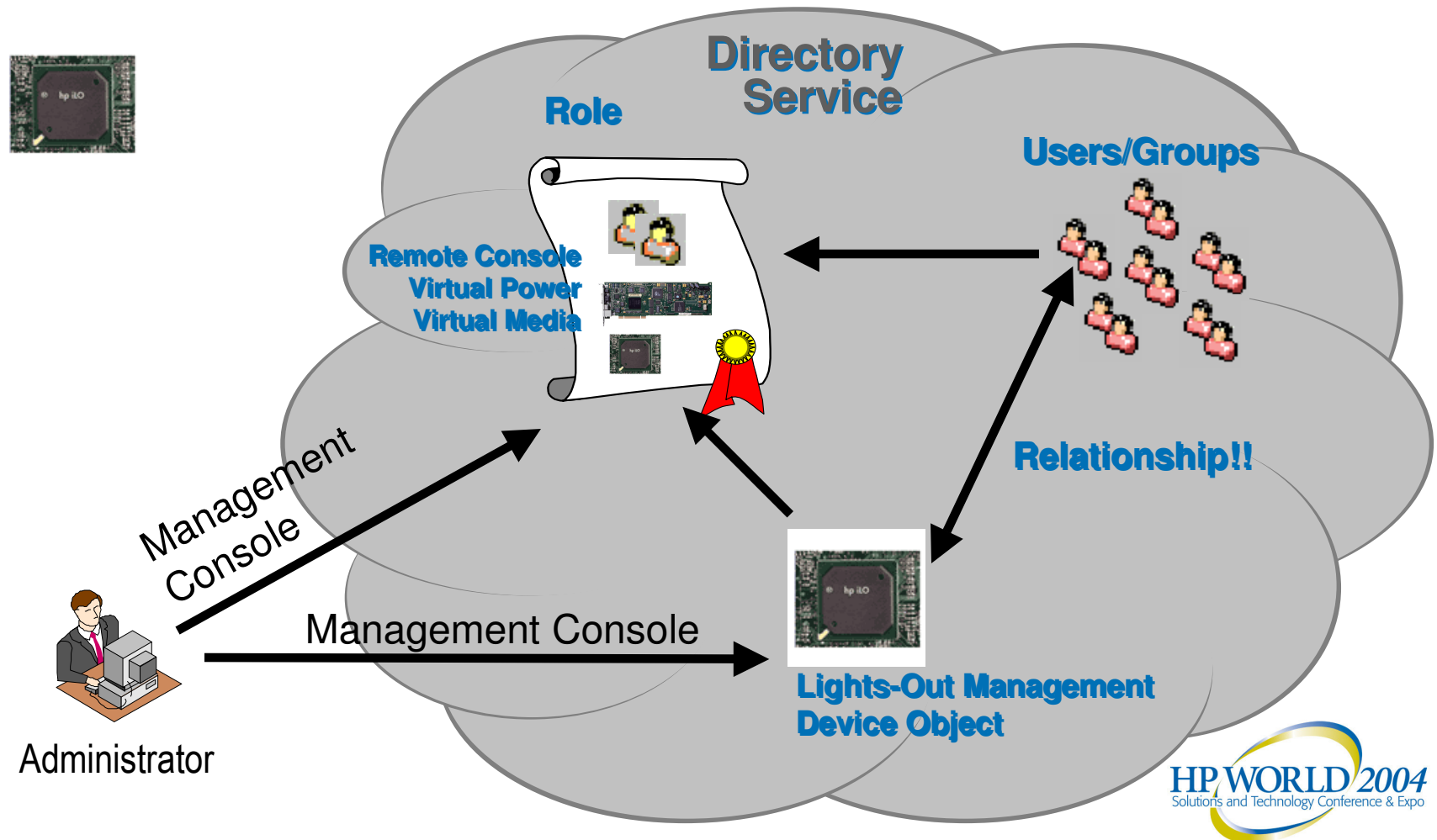
Implement
Directory
Services
Support for
Lights-Out
Management

Implement Directory Services Support

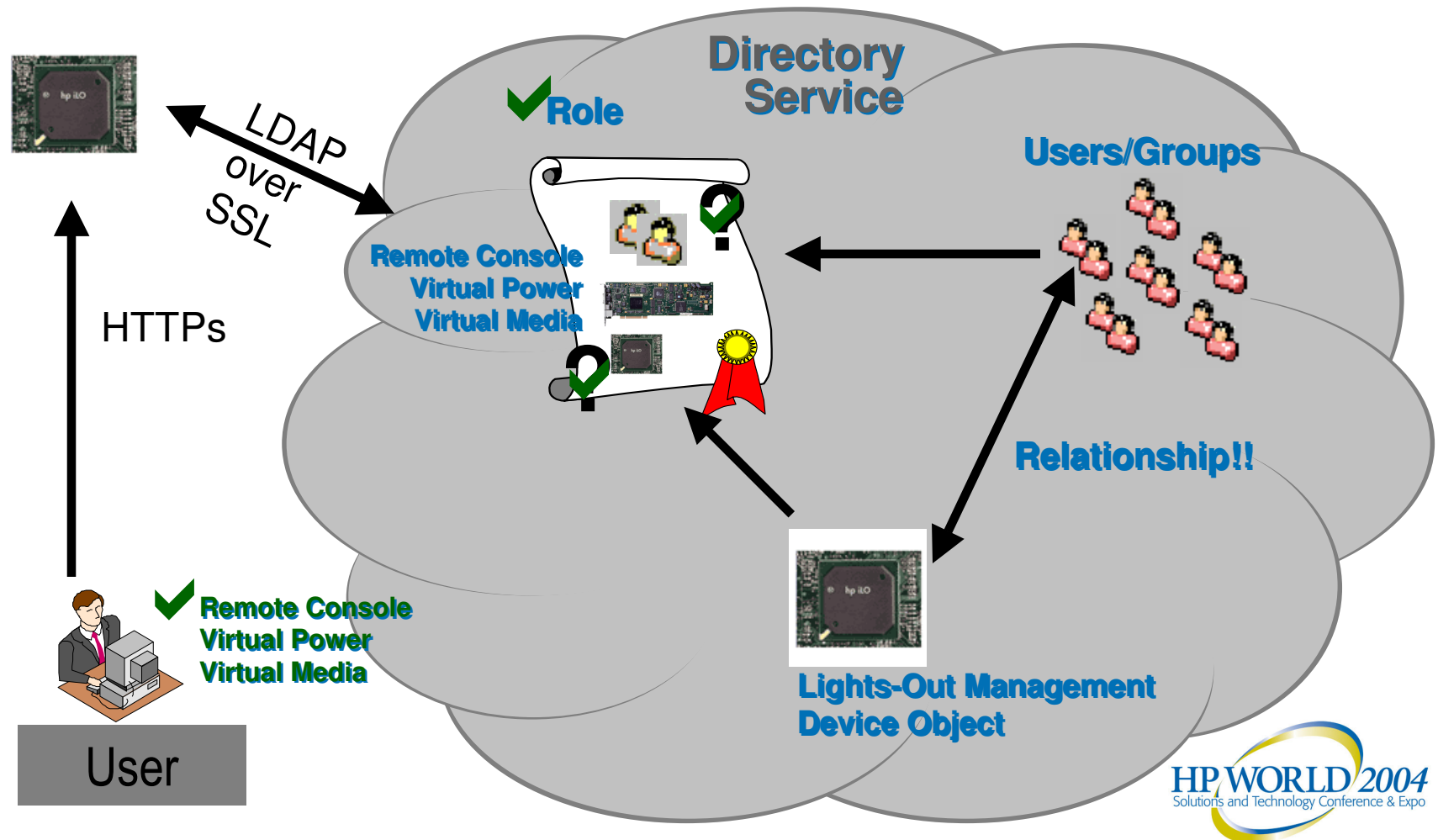


- Advantages
 - No sharing of Administrator passwords
 - Uses the Directories strong password rules
 - Immediate revocation of privileges
- Architectural Objects
 - Existing Users and Group Objects
 - Lights-Out Management Device Object
 - Lights-Out Management Role Object

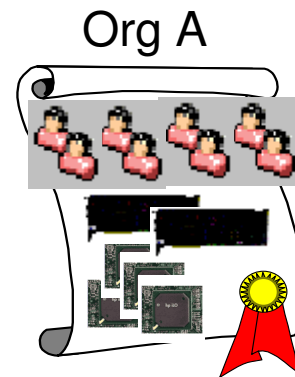
Role, Device, User/Group Objects



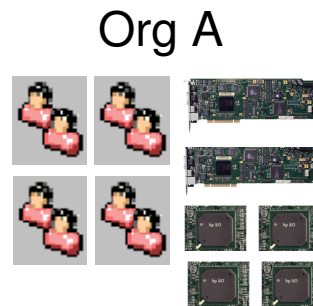
Role, Device, User/Group Objects



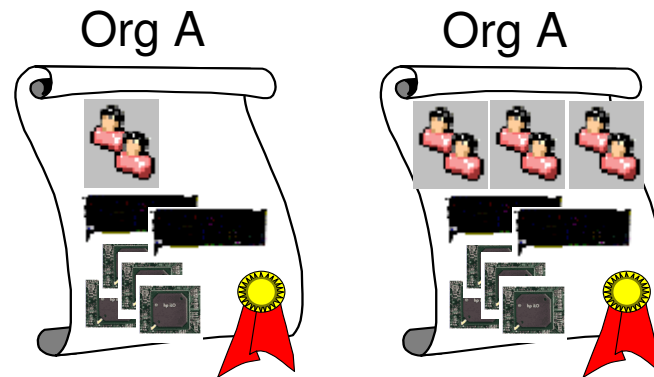
Role and Device Best Practices: A Simple Organization



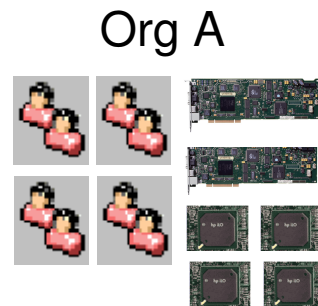
Admin Users
Remote Console
Virtual Power
Virtual Media
Configure Device



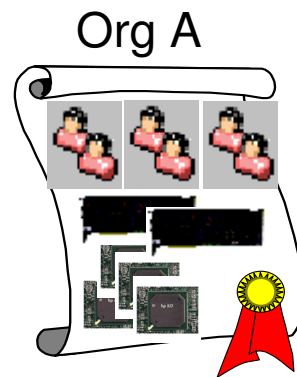
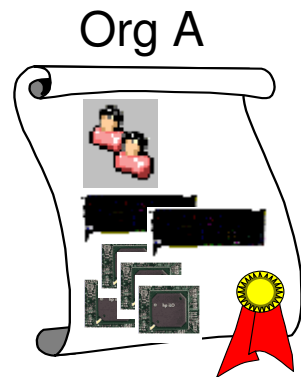
Role and Device Best Practices: A Common Architecture



Admin Users
Remote Console Remote Console
Virtual Power Virtual Power
Virtual Media Virtual Media
Configure Device

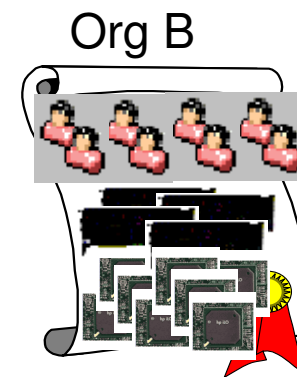
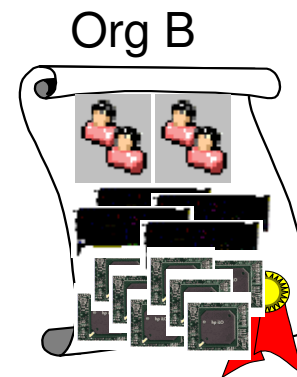


Role and Device Best Practices: Distributed Support Organizations



Admin Users
Remote Console
Virtual Power
Virtual Media
Configure Device

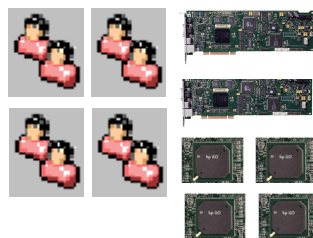
Remote Console
Virtual Power
Virtual Media



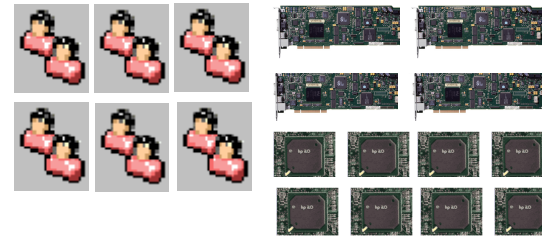
Admin Users
Remote Console
Virtual Power
Virtual Media
Configure Device

Remote Console
Virtual Power
Virtual Media

Org A



Org B



Steps to Directory Services Success

- Review Schema Changes
 - see HP Schema White Paper
- Avoid Certificate Problems
 - ensure Domain Controller supports LDAP over SSL
 - common problem
 - see Directory Services White Paper
- Avoid Domain Crossing
 - Have Lights-Out Management Roles and Device objects in the same domain



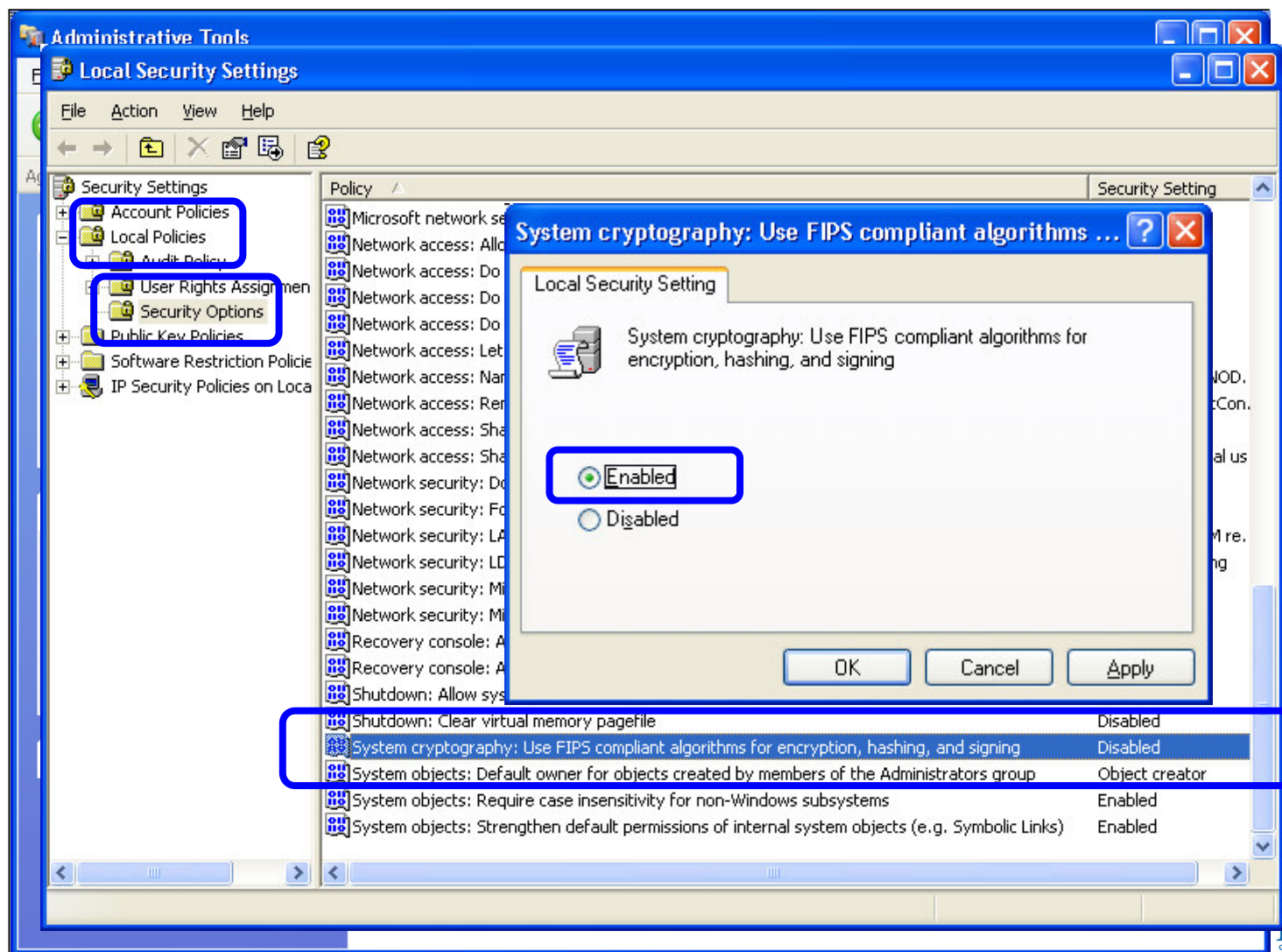
Security Best Practice:

Use FIPS-
Approved
Encryption
Ciphers

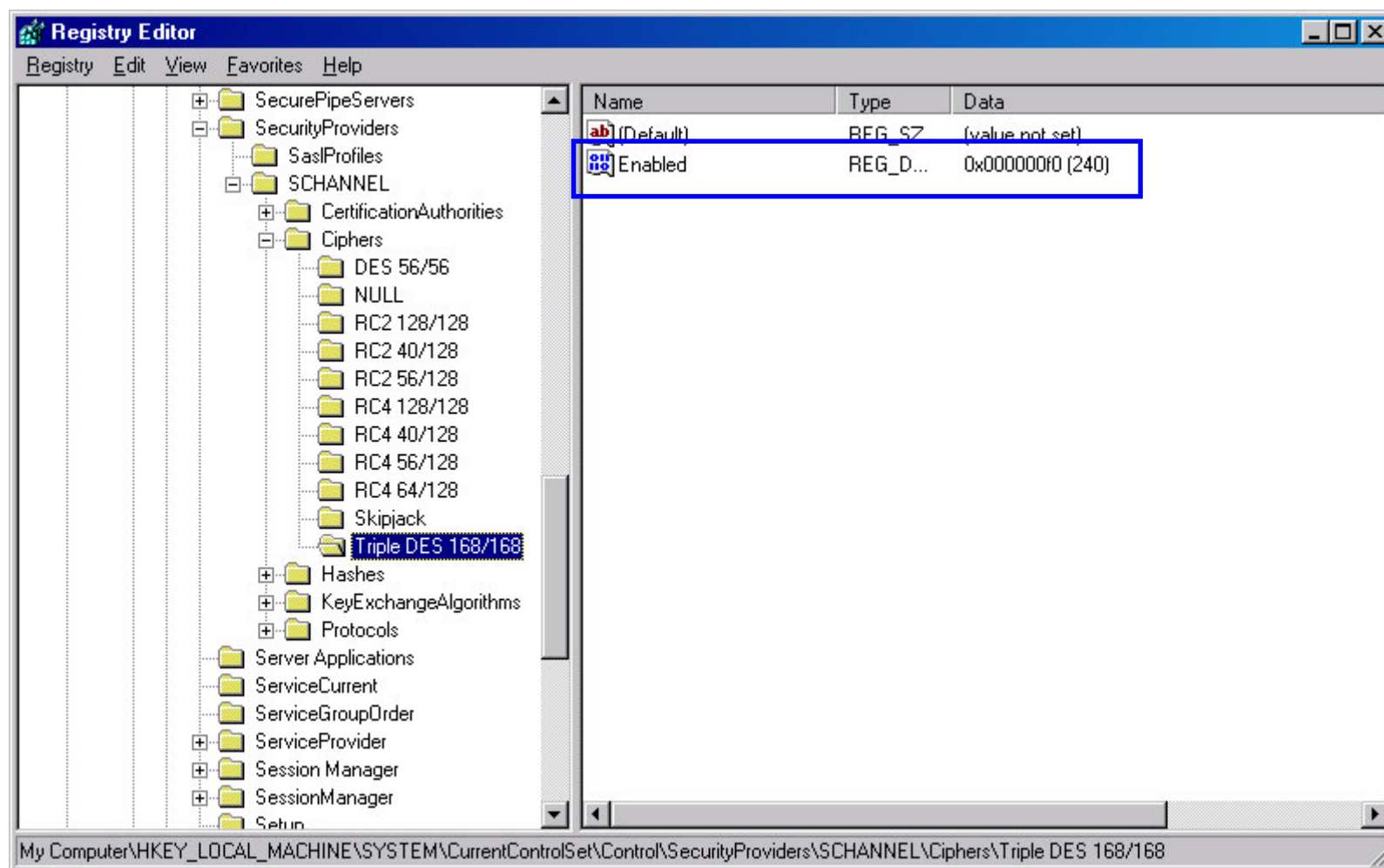
Use FIPS-Approved Ciphers

- Today's iLO and RILOE II support 3DES
- Future Firmware will support AES
- How to require FIPS-Approved Ciphers
 - Easy with XP client
 - Requires registry editing on Windows 2000 client
 - Easy with Mozilla browser

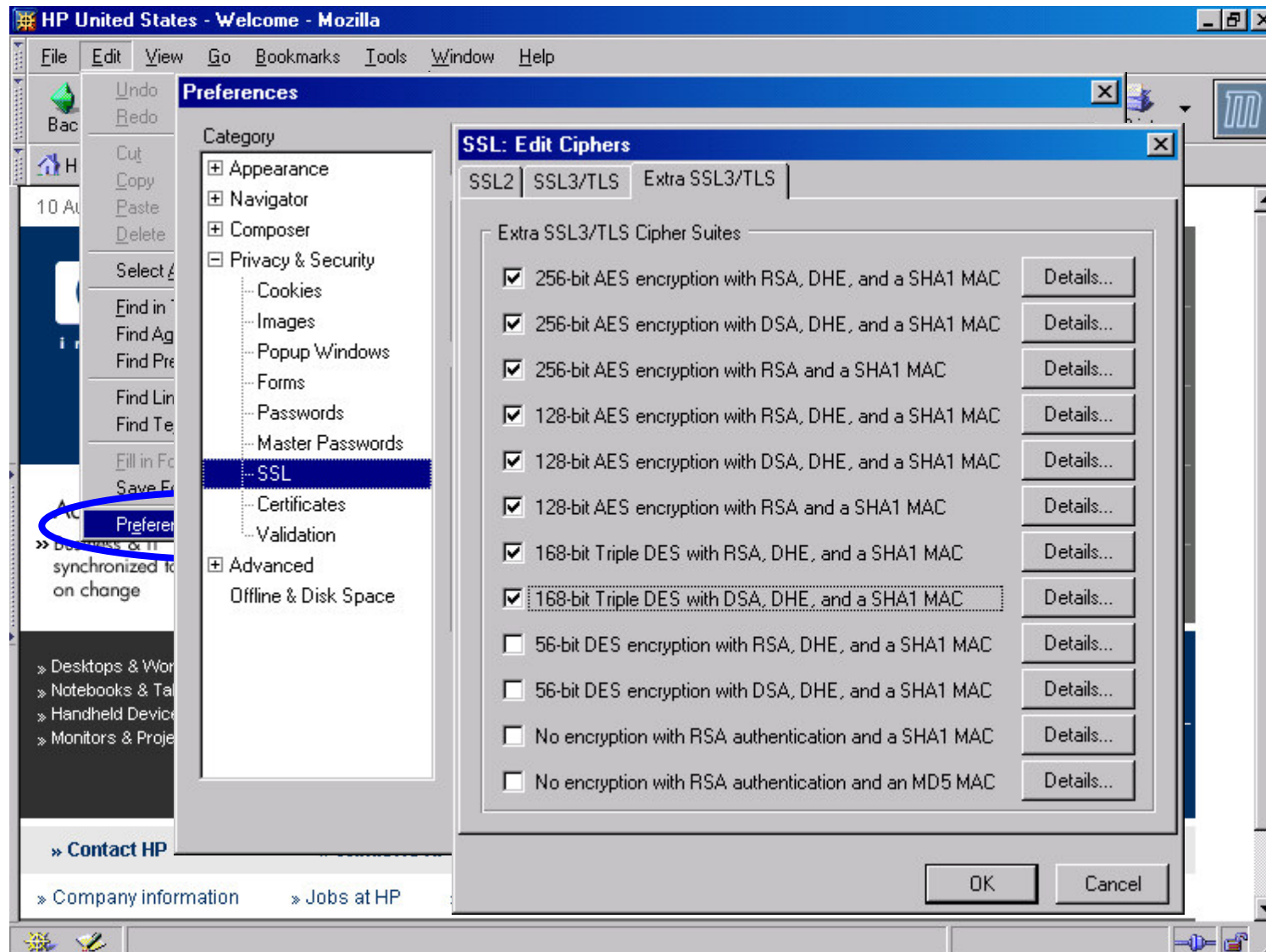
Enabling FIPS on XP Client



Enabling FIPS on Windows 2000



Selecting FIPS Ciphers in Mozilla





Security Best Practice:

Implement Dedicated Management Network

Dedicated Management Network

- Isolate Management Traffic
- Isolate DHCP onto Management Net
- Lock down DHCP to Specific MAC Addresses
- Route SNMP from Agents on Management Net



Scalability Best Practice:

Implement XML Scripting

Implement XML Scripting

- Easily manage hundreds / thousands of devices
- Primary utility is CPQLOCFG.EXE
- Completely configure Lights-Out device settings
- Control server state, connect Virtual Media
- RIBCL syntax described in User Guides

RIBCL XML Syntax

- Add User syntax

```
<RIBCL VERSION="2.0">
```

```
<LOGIN USER_LOGIN="adminname" PASSWORD="password">
```

```
<USER_INFO MODE="write">
```

```
<ADD_USER
```

```
  USER_NAME="User"
```

```
  USER_LOGIN="username"
```

```
  PASSWORD="password">
```

```
    <ADMIN_PRIV value ="No"/>
```

```
    <REMOTE_CONS_PRIV value ="Yes"/>
```

```
    <RESET_SERVER_PRIV value ="Yes"/>
```

```
    <VIRTUAL_MEDIA_PRIV value ="Yes"/>
```

```
    <CONFIG_ILO_PRIV value="No"/>
```

```
</ADD_USER>
```

```
</USER_INFO>
```

```
</LOGIN>
```

```
</RIBCL>
```

Sample XML Scripts

- Find in download section of Lights-Out web site

Add_User.xml	Change_Password.xml	Clear_EventLog.xml
Delete_User.xml	Get_All_Users.xml	Get_All_User_Info.xml
Get_Diagport.xml	Get_Directory.xml	Get_FW_Version.xml
Get_Global.xml	Get_Host_Power.xml	Get_Network.xml
Get_SNMP_IM.xml	Get_Topology.xml	Get_UID_Status.xml
Get_User.xml	Hotkey_Config.xml	License.xml
Mod_Blade_Rack.xml	Mod_DiagPort_Settings.xml	Mod_Directory.xml
Mod_Global_Settings.xml	Mod_Network_Settings.xml	Mod_SNMP_IM_Settings.xml
Mod_User.xml	Reset_RIB.xml	Reset_Server.xml
Set_Host_Power.xml	UID_Control.xml	Update_Firmware.xml

CPQLOCFG Utility

- Find in download section of Lights-Out web site
- Command Syntax
CPQLOCFG -S <dns> -F <file> -U <user> -P <pwd> -V -C
- Required Parameters
 - S <dns> the DNS name/IP address of the LOM device
 - F <file> the name of the XML script file
- Optional Parameters
 - U <user> specify a user name (overriding the script)
 - P <pwd> specify a password (overriding the script)
 - V verbose output to the log file
 - C check XML grammar only



Scalability Best Practice:

Industry
Standard
Scripting

Industry Standard Scripting

- DMTF Server Management Working Group
- Platform-independent
- Industry-standard
- Focused on server system hardware
- Command Line Interface protocol
- NDA Session offered here at HP World
 - Session 3802
 - Thursday, 11 AM



Scalability Best Practice:

Directory
Services as a
Scalability Best
Practice and the
Migration Utility

Directory Services and Scalability

- User databases on every Lights-Out device = low scalability
- Scripting tools help
- Better answer is Directory Services integration

Migration Utility for Directories

- Find in download section of Lights-Out web site
- Walks through migration steps
 - Discovery
 - Firmware update
 - Naming LOM devices
 - Creating LOM device objects
 - Associating LOM device objects to Role objects
 - Configuring iLO / RILOE for Directory support
- Tested in labs on 150 devices
- Customer reports of migrating 500-1000 devices

Discovery Process

- IP Scanning may be seen as a security threat
- Give heads up to network monitoring team
 - Turn off IP scan check for Discovery client?
- Migration Utility can save Discovery results
 - No need to re-run each time.



Deployment Best Practice:

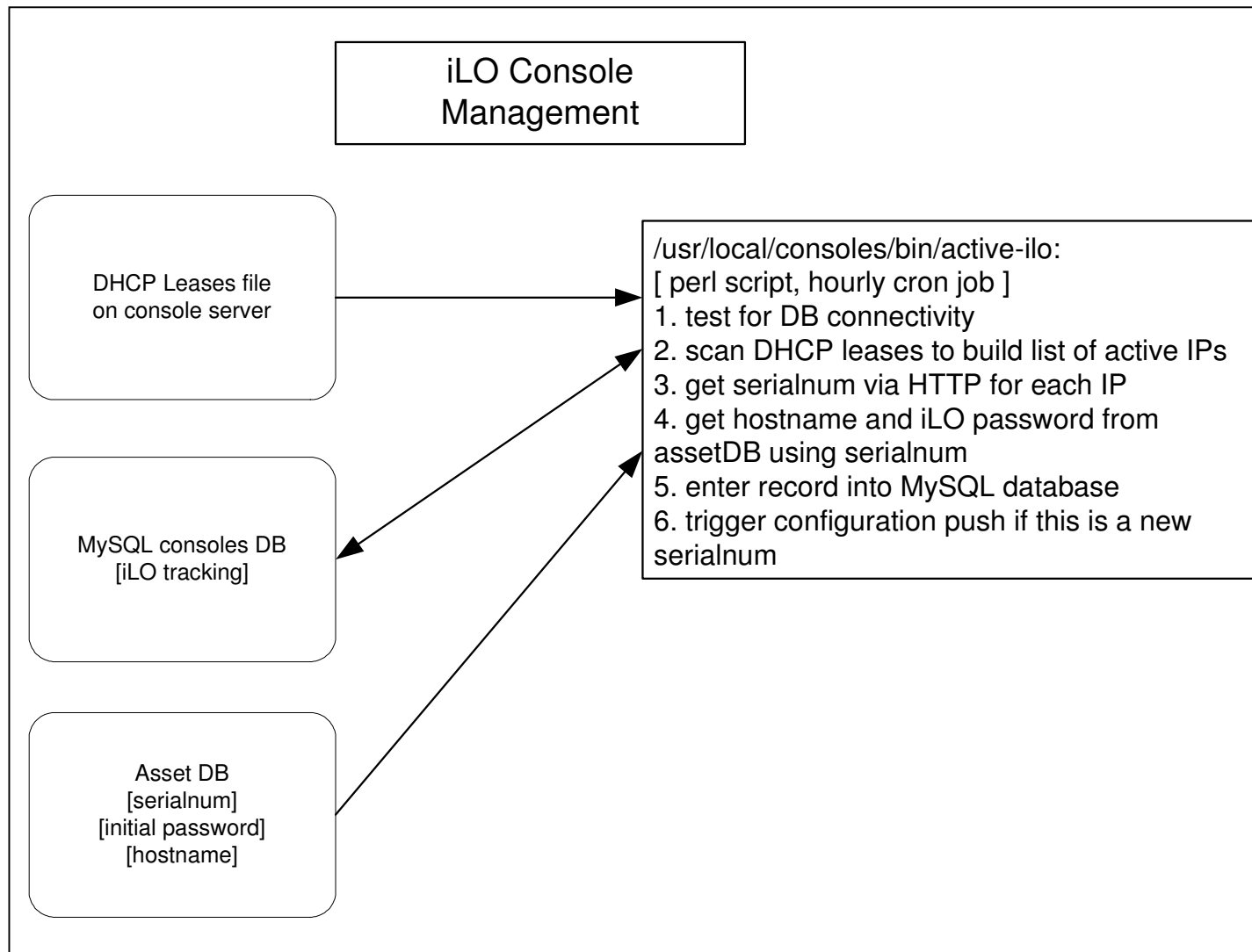
A Customer Example



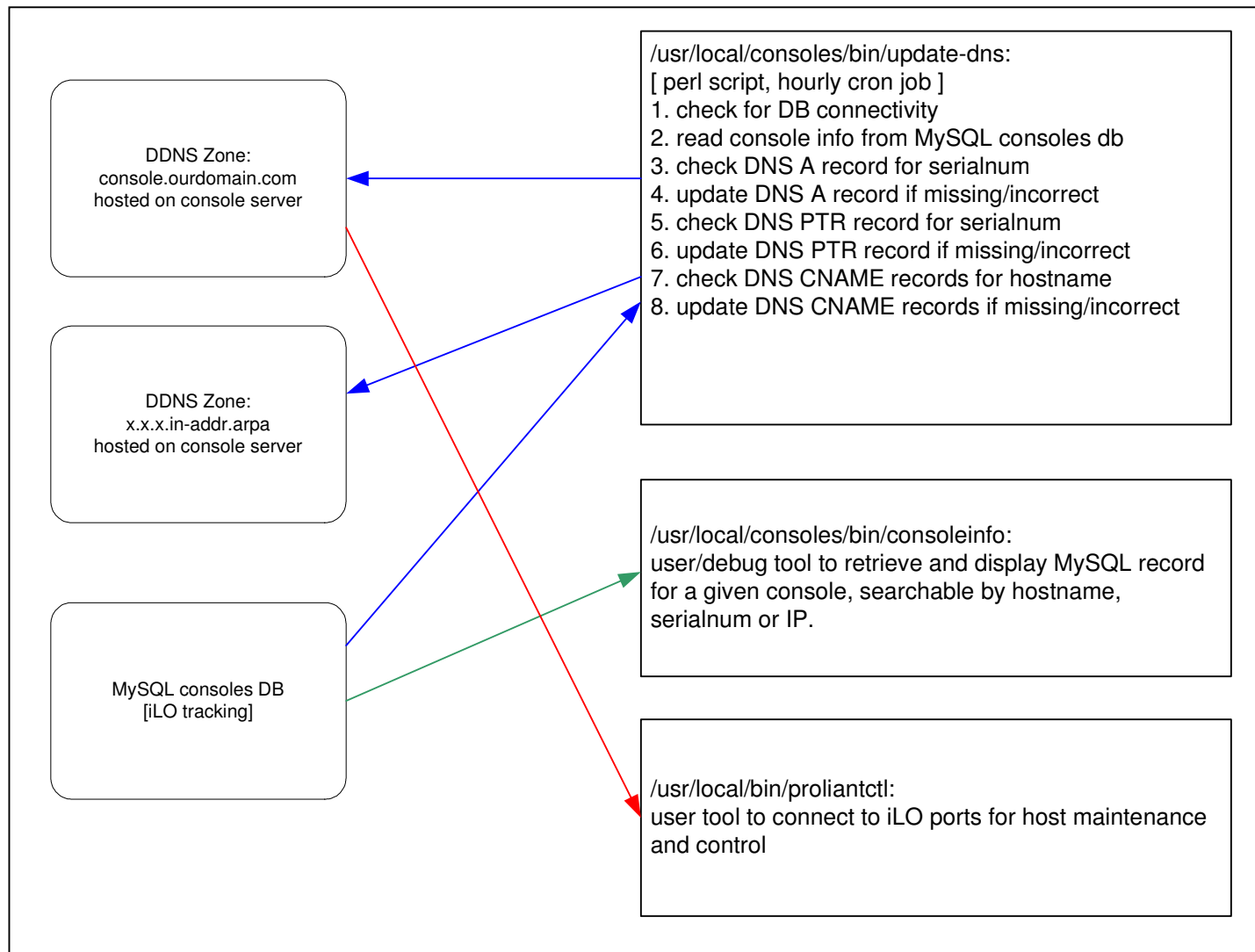
Lights-Out and Deployment

- Real customer example - asked to be anonymous
- Perl scripts interact with Lights-Out devices
- Detailed on following slide

Customer's Deployment Flow Diagram



Customer's Other Management Processes using Lights-Out





Deployment Best Practice:

Using Bar- Coding

Bar-Coding and Deployment

- Unique login data on Default Network Settings Tag
- Data is human-readable and bar-coded for automation
- Read bar-code data into customer databases, spreadsheet, or directly into web UI
- See Appendix A of “Best Practices for Integrated Lights-Out” for details on using Perl and bar-coding



Deployment Best Practice:

Using Virtual Media

Virtual Media and Deployment

- Plug in power and two network cables
- Almost all OSes can be deployed remotely via Virtual Floppy
- Windows Server 2003 and Red Hat Linux 7.3+ can be deployed remotely via Virtual CD
- Scriptable Virtual Media (new for iLO 1.60) makes remote deployment easier and faster

Scriptable Virtual Media

- Example XML script for Scriptable Virtual CD

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
    <RIB_INFO MODE = "write">
      <INSERT_VIRTUAL_MEDIA "CDROM" IMAGE_URL = "http://servername/path/to/file"/>
      <SET_VM_STATUS DEVICE = "CDROM">
        <VM_BOOT_OPTION value = "BOOT_ONCE"/>
        <VM_WRITE_PROTECT value = "Y"/>
      </SET_VM_STATUS>
    </RIB_INFO>
    <SERVER_INFO MODE="write">
      <SET_HOST_POWER HOST_POWER="Yes"/>
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

- See User Guide for more information



Deployment Best Practice:

Using Static IP
Bay
Configuration for
Blades

Static IP Bay Configuration for Blades



- Some customers prefer Static IP addressing
- Now easier for blades with iLO 1.60 firmware
- Define starting Static IP address for first server
- Check which bays should participate
- iLO assigns remaining Static IP addresses
- Saves 7x to 15x the effort
- See iLO User Guide for more information

Static IP Bay Configuration

https://16.100.225.20/ie_index.htm - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address https://16.100.225.20/ie_index.htm Go

hp iLO INTEGRATED LIGHTS-OUT

Server Name: HPQ-JSUJ83EN6E0
iLO Name: ILOTPIL0T2210
Current User: Administrator

System Status Remote Console Virtual Devices Administration BL p-Class

Insight Agent | Log out

Static IP Bay Configuration ?

Standard Configuration Parameters

Beginning IP Address (Bay 1) 16.100.223.33

Ending IP Address (Bay 16) 16.100.223.48

Subnet Mask 255.255.255.0

Gateway IP Address 16.100.223.1

Advanced Configuration Parameters

Domain Name domain.one

Primary DNS Server 0.0.0.0

Secondary DNS Server 0.0.0.0

Tertiary DNS Server 0.0.0.0

Primary WINS Server 0.0.0.0

Secondary WINS Server 0.0.0.0

Static Route # 1 (destination, gateway) 0.0.0.0, 0.0.0.0

Static Route # 2 (destination, gateway) 0.0.0.0, 0.0.0.0

Static Route # 3 (destination, gateway) 0.0.0.0, 0.0.0.0

Done Local intranet

Static IP Bay Configuration

https://16.100.225.20/ie_index.htm - Internet Explorer

File Edit View Favorites Tools Help

Address https://16.100.225.20/ie_index.htm

hp iLO INTEGRATED LIGHTS-OUT

Server Name: HPQ-JSUJ83EN6E0
iLO Name: ILOTPIL0T2210
Current User: Administrator

System Status Remote Console Virtual Devices Administration BL p-Class

Insight Agent | Log out

Rack Settings
Rack Topology
Server Blade Mgt. Module
Power Mgt. Module
Redundant Power Mgt. Module
Static IP Bay Configuration

Domain Name domain.one

Primary DNS Server 0.0.0.0

Secondary DNS Server 0.0.0.0

Tertiary DNS Server 0.0.0.0

Primary WINS Server 0.0.0.0

Secondary WINS Server 0.0.0.0

Static Route #1 (destination, gateway) 0.0.0.0, 0.0.0.0

Static Route #2 (destination, gateway) 0.0.0.0, 0.0.0.0

Static Route #3 (destination, gateway) 0.0.0.0, 0.0.0.0

Enable iLO IP Address Assignment

Enable iLO IP assignment for the following bays. Un-checked bays will use their individual static or DHCP-configured addresses.

<input type="checkbox"/> Bay #1	<input type="checkbox"/> Bay #2	<input type="checkbox"/> Bay #3	<input type="checkbox"/> Bay #4
<input type="checkbox"/> Bay #5	<input type="checkbox"/> Bay #6	<input type="checkbox"/> Bay #7	<input type="checkbox"/> Bay #8
<input type="checkbox"/> Bay #9	<input type="checkbox"/> Bay #10	<input type="checkbox"/> Bay #11	<input type="checkbox"/> Bay #12
<input checked="" type="checkbox"/> Bay #13	<input checked="" type="checkbox"/> Bay #14	<input checked="" type="checkbox"/> Bay #15	<input checked="" type="checkbox"/> Bay #16

Enable All Clear All Apply

Done Local intranet



Deployment Best Practice:

Static IP Assignment via Local Scripting

Static IP Addressing via Local Scripting



- Some customers prefer Static IP addressing
- Assign iLO Static IP addressing via local scripting
- CPQLODOS for DOS
 - PXE, Physical Floppy, Virtual Floppy, RDP
 - Part of the SmartStart Scripting Toolkit
- HPONCFG for Windows and Linux
 - Run on host OS
 - Launch after automated OS deployment
 - Uses host OS security
- Neither tool requires Lights-Out username/password





Performance Best Practice:

Remote Console Performance

Remote Console Performance

- Strong correlation between customer satisfaction and optimized configuration
- RILOE II = 266 MHz
- iLO = 66 Mhz
- Embedded iLO needs low hardware costs



Optimize Server Display Settings

- No Background or Pattern
- 800x600 or 1024x768 display resolution
- 256 color or 24 bpp color depth
- Turn off menu animation

Optimize Server Mouse Settings

- Settings to Optimize
 - No Pointer Scheme
 - No Pointer Shadow
 - Speed slider in middle
 - No Mouse Acceleration (NT and 2000)
 - No Advanced Pointer Precision (Windows 2003)
 - Turn off Mouse Trails and Snap-To Default Button
- Use Mouse Optimization (HPLOMOPT) or Online Configuration (HPONCFG) utilities to automate

Optimize Client

- Recommend 700+ MHz client
- 128 MB RAM
- Client screen resolution larger than server
- Mouse speed to middle
- Turn off mouse acceleration / advanced pointer precision

Use Terminal Services Pass-Through

- New feature in iLO 1.50 firmware
- Removes “Try Terminal Services First” step
- iLO will select highest performance method
 - Terminal Services Pass-Through if configured / functional
 - iLO Remote Console at other times
- POST through Blue Screen functionality
- Integrates best features of both
 - Performance of Terminal Services
 - Always available functionality of iLO
 - Security of dedicated management network



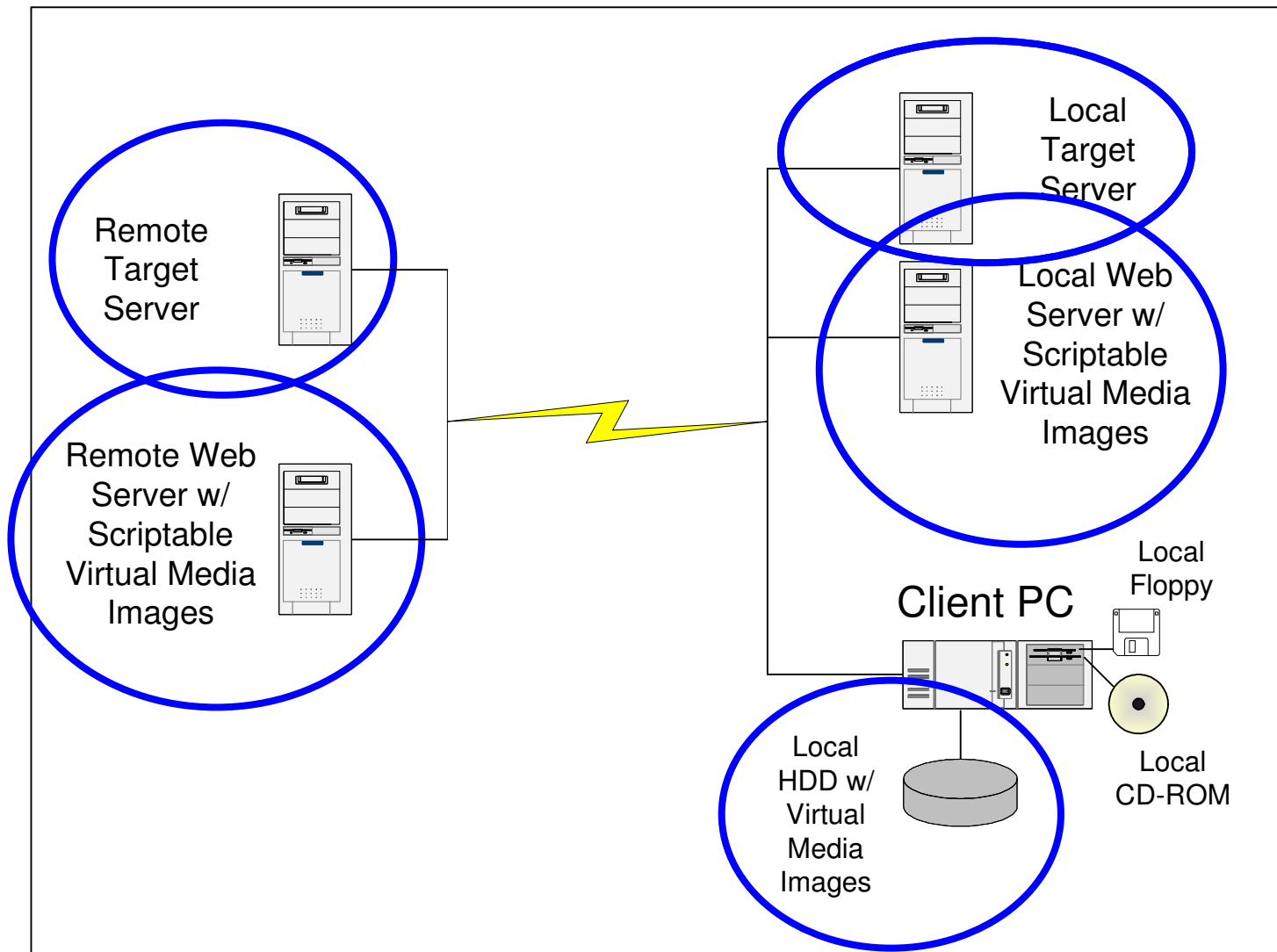
Performance Best Practice:

Virtual Media Performance

Virtual Media Performance

- Virtual Media can benefit from Best Practices
- Use Image Files whenever possible
 - 4x improvement for Virtual Floppy images v. physical
- Have Images “close” to client when using the Virtual Media applet (interactive)
- Have Images “close” to the target server when using Virtual Media scripting

Virtual Media Performance





Performance Best Practice:

Use CLI or XML
for Simple
Operations

Use CLI or XML for Simple Operations



- CLI faster than web UI
 - Power On / Off
 - Reset Server
- Use Saved Sessions w/ PuTTY
- XML Scripting also faster for server control
 - Power On / Off
 - Especially for 1 to many Servers



Cost Savings Best Practices:

- *iLO Advanced License

- *Network Infrastructure

- *IT Dept Charge-Backs

iLO Advanced Acquisition Cost

- iLO Advanced licensed per server
 - linear scalability w.r.t. cost and implementation effort
 - better solution is volume licensing options
- Volume Licensing Options
 - Activation Key Agreement
 - Flexible Quantity Kits
- See the web site www.hp.com/servers/proliantessentials and click on Volume Choices for more information

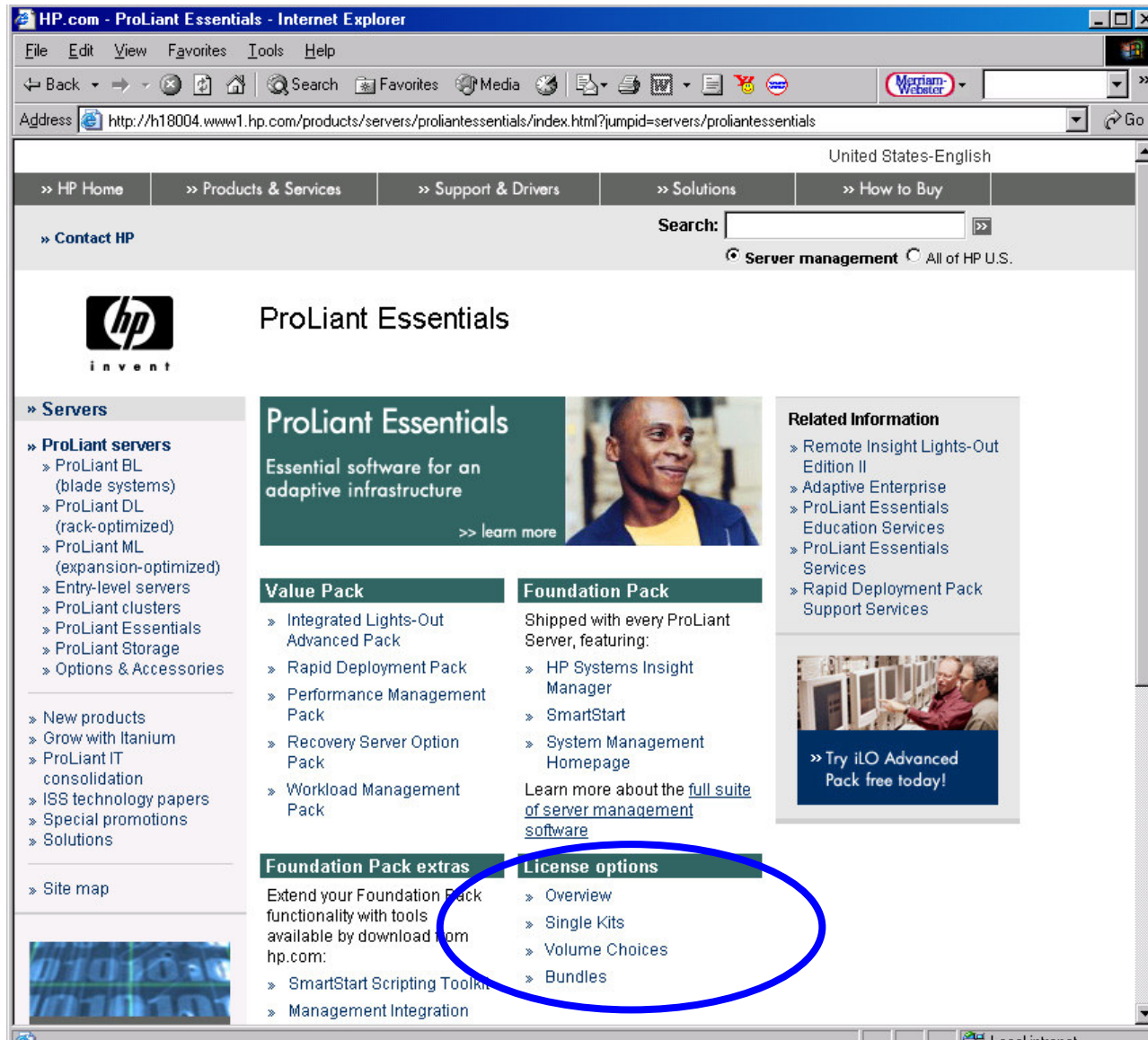
Activation Key Agreement

- Work with account manager and contracts group
- Purchase iLO Advanced tracking license with each server
- Negotiated price per server usually less than cost of a single license key
- Same key used for all servers
 - enables easy scripted deployment of keys
- Best for customers who
 - purchase licenses over time
 - want a single, organization-wide key

Flexible Quantity Kits

- Customers specify exact number of licenses needed
- Receive key legally valid for that number of servers
- Negotiated price per server usually less than cost of a single license key
- Same key used for all servers
 - enables easy scripted deployment of keys
- Best for customers who
 - need a large, one-time purchase
 - purchase quantities on a quarterly basis
 - want a single, organization-wide key

ProLiant Essentials Licensing Options



HP.com - ProLiant Essentials - Internet Explorer

Address: http://h18004.www1.hp.com/products/servers/proliantessentials/index.html?jumpid=servers/proliantessentials

United States-English

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ProLiant Essentials

Essential software for an adaptive infrastructure

» learn more

Related Information

- » Remote Insight Lights-Out Edition II
- » Adaptive Enterprise
- » ProLiant Essentials Education Services
- » ProLiant Essentials Services
- » Rapid Deployment Pack Support Services

» Try iLO Advanced Pack free today!

Value Pack

- » Integrated Lights-Out Advanced Pack
- » Rapid Deployment Pack
- » Performance Management Pack
- » Recovery Server Option Pack
- » Workload Management Pack

Foundation Pack

Shipped with every ProLiant Server, featuring:

- » HP Systems Insight Manager
- » SmartStart
- » System Management Homepage

Learn more about the [full suite of server management software](#)

Foundation Pack extras

Extend your Foundation Pack functionality with tools available by download from hp.com:

- » SmartStart Scripting Tool
- » Management Integration

License options

- » Overview
- » Single Kits
- » Volume Choices
- » Bundles

» Servers

» ProLiant servers

- » ProLiant BL (blade systems)
- » ProLiant DL (rack-optimized)
- » ProLiant ML (expansion-optimized)
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» ISS technology papers

» Special promotions

» Solutions

» Site map

Network Infrastructure Costs

- Implement a cheap rack-level switch
 - management is not bandwidth intensive and intermittent
 - use rack switch, up-link to data center or core switch
- Eliminate the extra port
 - not for every customer
 - iLO Shared Network Access
 - low bandwidth, shares network cabling with main NIC
- IT charge-backs
 - monthly/annual charge per IP address
 - a barrier to implementing Lights-Out Management
 - push for lower charges for management ports



Integration Best Practice:

Integration with
HP Systems
Insight Manager

HP Systems Insight Manager Example Integration Points



- Lights-Out devices discovered
- Lights-Out status displayed as an icon
- Links to Lights-Out devices
- Lights-Out devices send Lights-Out SNMP traps
- Lights-Out devices forward SNMP traps from Insight Management Agents
- iLO Advanced License information discovered and displayed

HP Systems Insight Manager Management Processor (MP) Status



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Address: https://hpsim:50000/mxportal/home/MxPortalFrames.jsp

Updated: Friday, July 9, 2004 2:26:52 PM CDT

Uncleared Event Status: 92 1265 4073 5358

HP Systems Insight Manager

Home Logout

Search

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

Demo Systems

DemoList1

DemoList2

System Lists

Systems by Type

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

DemoList1

View as: table

Systems in table: 0 Critical 1 Major 1 Minor 5 Normal 0 Unknown Total: 7

	HW	MP	SW	PF	System Name	System Type	System Address	Product Name	OS Name
<input type="checkbox"/>	✓				16.101.169.61	Switch	16.101.169.61	HP ProCurve Switch 5304XL	
<input type="checkbox"/>	✓				cca15110	Printer	16.101.169.17	HP Jetdirect	
<input type="checkbox"/>	✓				cca15111	Printer	16.101.169.58	HP Jetdirect	
<input type="checkbox"/>	✓	✓			hpsim	Server	16.101.170.45	ProLiant DL360 G2	Microsoft Window...
<input type="checkbox"/>	✓	?			mnhap	Server	16.101.169.135	ProLiant ML350	Microsoft Window...
<input type="checkbox"/>	✓	?			rook	Server	16.101.170.47	ProLiant DL380 G2	Microsoft Window...
<input type="checkbox"/>	✓	?			sirfrancis	Server	16.101.168.59	ProLiant 6500	Microsoft Window...

Save Selection As... Delete Print

iLO Login Screen - linked from HP Systems Insight Manager




HP Integrated Lights-Out Login - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Mail News RSS Feeds

Address <https://hpsimilo/login.htm> Go Links

 **iLO**
INTEGRATED LIGHTS-OUT

Account Login

This is a private system. Do not attempt to login unless you are an authorized user.
Any authorized or unauthorized access and use may be monitored and can result in criminal or civil prosecution under applicable law.

Login Name:

Password:

© Copyright 2003 Hewlett-Packard Development Company, L.P.
Contains security software licensed from RSA Data Security Inc.
Portions Copyright 1989, 1991, 1992 by Carnegie Mellon University
Derivative Work - 1996, 1998-2000 Copyright 1996, 1998-2000 The Regents of the University of California

Local intranet

Server System Page with MP information



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Address <https://hpsim:50000/mxportal/home/MxPortalFrames.jsp>

Updated: Friday, July 9, 2004 2:51:23 PM CDT Customize

HP Systems Insight Manager

Home Logout

Uncleared Event Status 96 1269 4074 5360

Search

Go

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

Demo Systems

DemoList1

DemoList2

System Lists

Systems by Type

Systems by Status

Systems by Operating

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

System Page

hpsim

General System Information

Address 16.101.170.45, 172.25.161.2, 127.0.0.1

System Name hpsim

DNS Name hpsim.americas.cpqcorp.net

Serial Number 6J2BJNT1F004

Management Protocols SNMP:1.0, SSH:SSH-2.0-OpenSSH_3.7.1p1, SMH:1

Contact Brad Kirby

Location Houston

System Type Server HP ProLiant

Product Model ProLiant DL360 G2

Hardware Description x86 Family 6 Model 11 Stepping 4 AT/AT COMPATIBLE -

Software Description Microsoft Windows 2000 Server, 5.0, Service Pack 4, Build 2195 Multiprocessor Free

Status Information

Hardware Status

from Insight Management Agents

from SNMP

from ping

Management Processor Status

Software Status

Server Role

Management Processor

Name hpsimilo

Address 16.101.169.69

Model Integrated Lights-Out (iLO)

Opening page <https://hpsim:50000/mxportal/home/MxBannerData.jsp...>

Local intranet

Management Processor System Page in HP Systems Insight Manager



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Address <https://hpsim50000/mxportal/home/MxPortalFrames.jsp>

Updated: Friday, July 9, 2004 2:36:22 PM CDT Customize

Uncleared Event Status 94 1268 4074 5359

HP Systems Insight Manager

Home Logout

Search

Go

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

Demo Systems

DemoList1

DemoList2

System Lists

Systems by Type

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

System Page

hpsimilo

Identity Links Events

General System Information

Address 16.101.169.69

System Name hpsimilo

DNS Name hpsimilo.americas.cpqcorp.net

Serial Number ILO6J2BJNT1F004

Management Protocols SNMP:1.0

Contact Brad Kirby

Location Houston

System Type Management Processor

Product Model Integrated Lights-Out (iLO)

Hardware Description x86 Family 6 Model 11 Stepping 4 AT/AT COMPATIBLE -

Software Description Microsoft Windows 2000 Server, 5.0, Service Pack 4, Build 2195 Multinprocessor Free

Status Information

Hardware Status

from management agent

from SNMP

from ping

Server for Management Processor

Name hpsim

Address 16.101.170.45

Model ProLiant DL360 G2

Lights-Out Events Screen in HP Systems Insight Manager



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Address <https://hpsim:50000/mxportal/home/MxPortalFrames.jsp>

Updated: Friday, July 9, 2004 2:48:22 PM CDT Customize

HP Systems Insight Manager

Home Logout

Uncleared Event Status 96 1269 4074 5360

Search

Go

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

Demo Systems

DemoList1

DemoList2

System Lists

Systems by Type

Systems by Status

Systems by Operating

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

System Page

hpsimilo

Identity Links Events

To view event details, make sure 'Event Type' column is displayed and click on desired link.

Events in table: 0 Critical 1 Major 0 Minor 0 Normal 2 Informational Total: 3

State	Severity	Event Type	System ...	Event Time	Action
Not cleared	Major	Remote Insight Integrated Lights-Out Unauthorized Login Attempts	hpsimilo	7/9/04 2:45 PM	
Not cleared	Major	Generic trap (Ver. 2)	hpsimilo	7/9/04 2:41 PM	
Not cleared	Major	Discovered System	hpsimilo	5/26/04 7:11 PM	

Clear Delete Assign To... Enter Comment... Print

Done Local intranet

All Management Processors System List



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address: https://hpsim.50000/mxportal/home/MxPortalFrames.jsp

Updated: Friday, July 9, 2004 2:58:23 PM CDT Customize

HP Systems Insight Manager

Home Logout

Uncleared Event Status 96 1269 4074 5361

Search

Go

Advanced Search

System Lists

Customize

System Overview

All Systems

All Events

My Favorites

System Lists

Systems by Type

All Systems

All Servers

All Clients

All Networking Devices

All Printers

All Management Processors

All Backs

All Enclosures

DemoList1

DemoList2

ProLiant Servers

TestList

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

All Management Processors

View as: table Customize

Systems in table: 5 Critical 2 Major 0 Minor 9 Normal 0 Unknown Total: 16

	HW	MP	SW	PE	System Name	System Type	System Address	Product Name
<input type="checkbox"/>	✓				alexh2	Management P...	16.101.169.81	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				checkmateilo	Management P...	16.101.169.15	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				hpsimilo in Server hpsim	Management P...	16.101.169.69	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				hpsm01lo	Management P...	16.101.169.108	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				hpsm90lo	Management P...	16.101.169.123	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				ilom06clap11s	Management P...	16.101.170.58	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				ilopva1	Management P...	16.101.169.151	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				ilor1021	Management P...	16.101.170.57	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				kolpekiran	Management P...		Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				j2000	Management P...	16.101.169.9	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				mlxilo in Server 16.101.169.16	Management P...	16.101.170.37	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✗				ribcim7sp1	Management P...	16.101.169.43	
<input type="checkbox"/>	✓				ribcimxe30	Management P...	16.101.170.49	
<input type="checkbox"/>	✓				riopensdemo	Management P...	16.101.169.63	Remote Insight Lights-Out Edition II
<input type="checkbox"/>	✓				ros56181lap	Management P...	16.101.169.143	Integrated Lights-Out (iLO)
<input type="checkbox"/>	✓				swrna32k000_rib	Management P...	16.101.169.195	Remote Insight Lights-Out Edition

Save Selection As... Delete Print

Done Local intranet

Creating a Custom List

HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print View Source

Address: https://hpsim:50000/mxportal/home/MxPortalFrames.jsp

Updated: Friday, July 9, 2004 3:25:11 PM CDT Customize

Uncleared Event Status 96 1271 4075 5366

HP Systems Insight Manager

Home Logout

Search

Go

Advanced Search

System Lists

Customize

System Overview

All Systems

All Events

My Favorites

System Lists

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

All Systems

View as: table

Customize

Systems in table: 71 Critical 14 Major 3 Minor 219 Normal 0 Unknown Total: 307

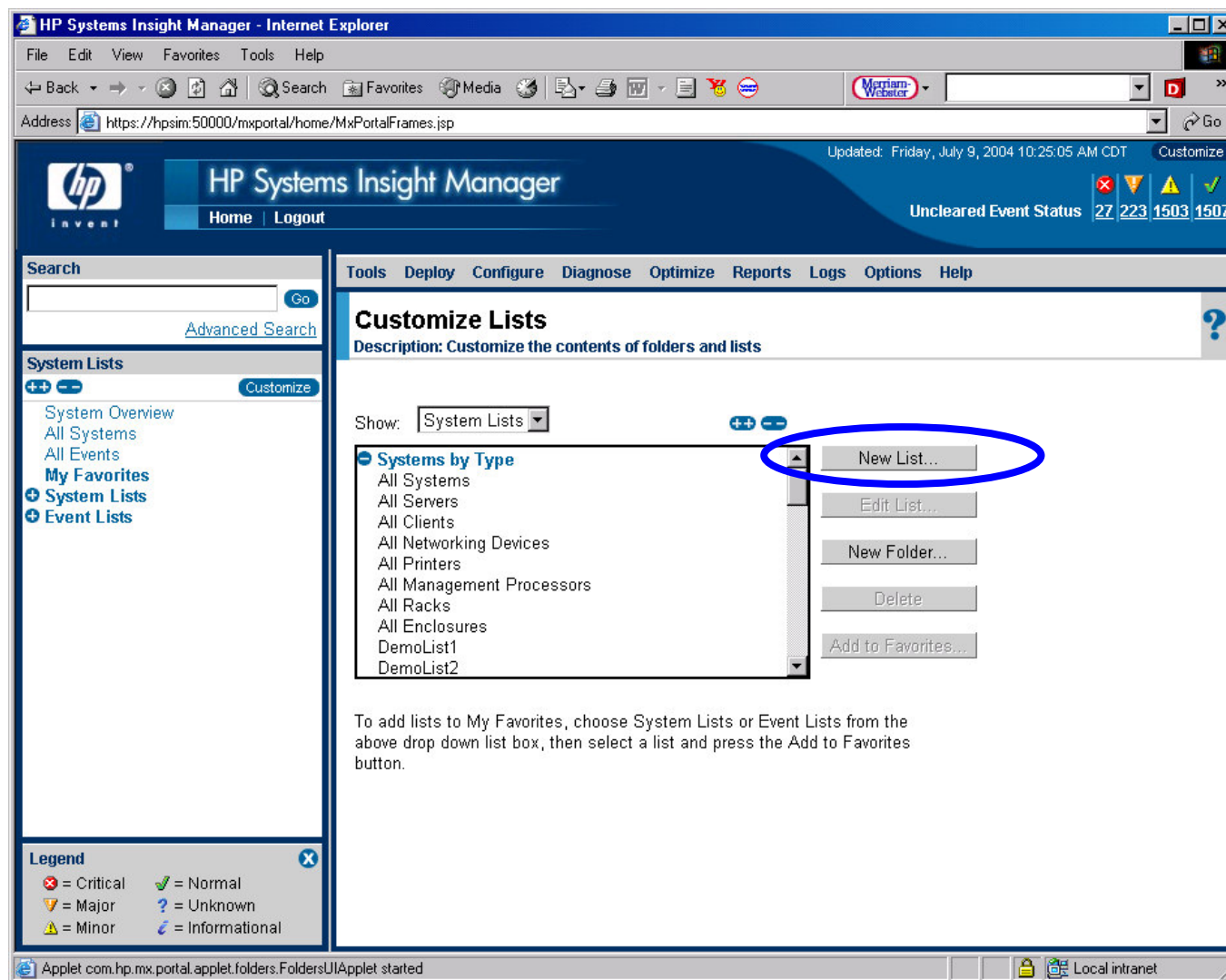
	HW	MP	SW	PF	System Name	System Type	System Address	Product Name	OS Name
<input type="checkbox"/>	✓				16.101.168.1	Unmanaged	16.101.168.1		
<input type="checkbox"/>	✓	✗	?	?	16.101.169.14	Server	16.101.169.14	ProLiant DL380...	Linux - Red Hat
<input type="checkbox"/>	✗		?	?	16.101.169.19	Unmanaged	16.101.169.19		
<input type="checkbox"/>	✓	?	?	?	16.101.169.22	Server	16.101.169.22	Linux Server	LINUX
<input type="checkbox"/>	✓				16.101.169.27	Desktop	16.101.169.27	Deskpro	Microsoft Wind...
<input type="checkbox"/>	✓	?	?	?	16.101.169.28	Server	16.101.169.28	PROLIANT 8500	Microsoft Wind...
<input type="checkbox"/>	✓				16.101.169.37	Unknown	16.101.169.37		
<input type="checkbox"/>	✓				16.101.169.39	Desktop	16.101.169.39	Deskpro	Microsoft Wind...
<input type="checkbox"/>	✓				16.101.169.49	Unknown	16.101.169.49		
<input type="checkbox"/>	✓	?	?	?	16.101.169.53	Server	16.101.169.53	IBM Server	
<input type="checkbox"/>	✓		?	?	16.101.169.54	Unknown	16.101.169.54		
<input type="checkbox"/>	✓		?	?	16.101.169.61	Switch	16.101.169.61	HP ProCurve S...	
<input type="checkbox"/>	✓				16.101.169.66	Unknown	16.101.169.66		
<input type="checkbox"/>	✓				16.101.169.73	Unknown	16.101.169.73		
<input type="checkbox"/>	✗				16.101.169.80	Notebook	16.101.169.80	Notebook Pers...	Microsoft Wind...
<input type="checkbox"/>	✗	?	?	?	16.101.169.105	Server	16.101.169.105	server rx2600	Microsoft Wind...
<input type="checkbox"/>	✗				16.101.169.116	Unmanaged	16.101.169.116		
<input type="checkbox"/>	✓				16.101.169.119	Unmanaged	16.101.169.119		
<input type="checkbox"/>	✓	?	?	?	16.101.169.131	Server	16.101.169.131	ProLiant 3000	Microsoft Wind...
<input type="checkbox"/>	✓	?	?	?	16.101.169.134	Server	16.101.169.134	ProLiant ML350	Microsoft Wind...
<input type="checkbox"/>	✓	?	?	?	16.101.169.140	Server	16.101.169.140	ProLiant ML310...	Microsoft Wind...
<input type="checkbox"/>	✓				16.101.169.141	Printer	16.101.169.141	HP Jetdirect	

Save Selection As... Delete Print

javascript:doCustomizeList()

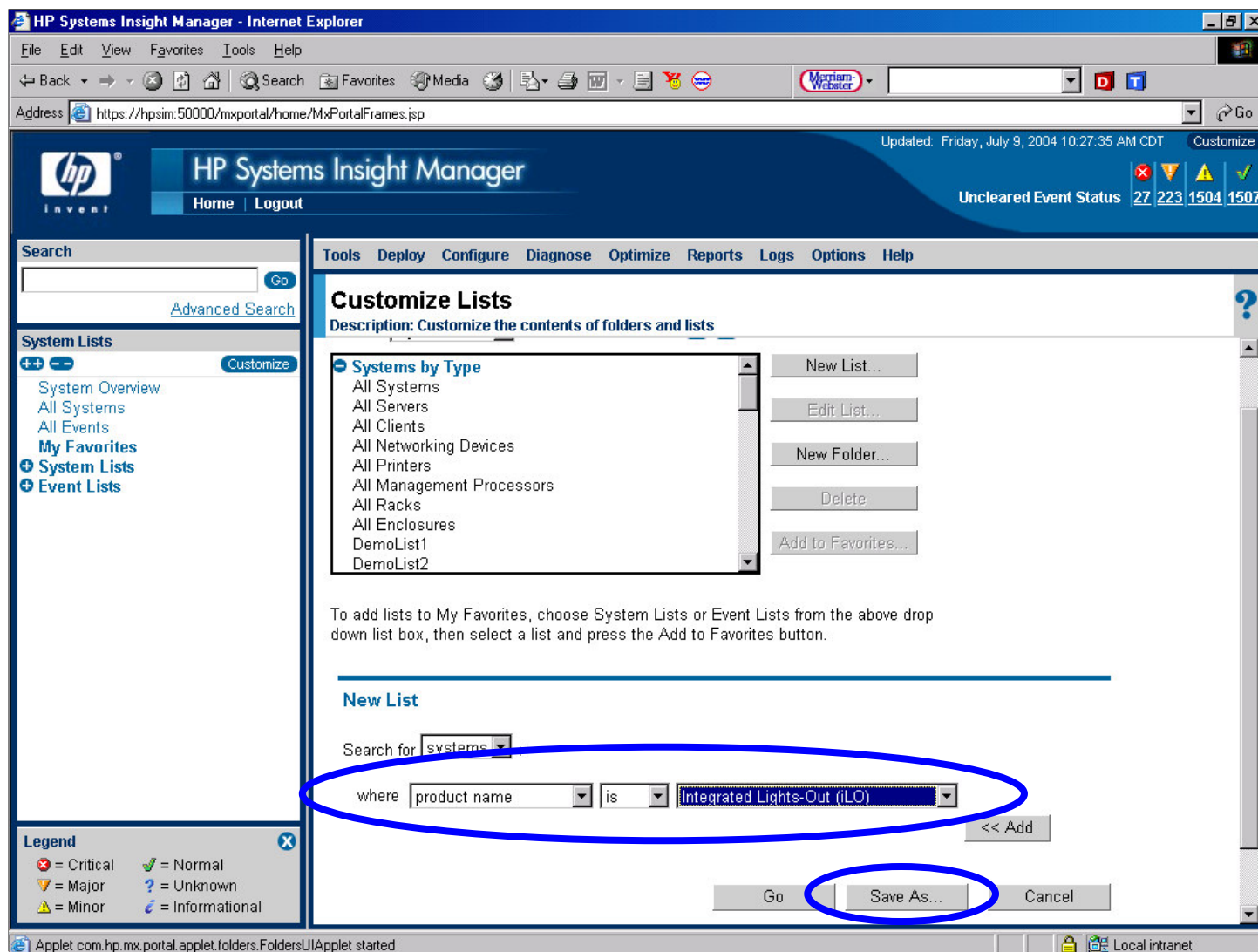
Local intranet

Creating a New Custom List



The screenshot shows the HP Systems Insight Manager web interface in an Internet Explorer browser window. The address bar shows the URL: <https://hpsim:50000/mxportal/home/MxPortalFrames.jsp>. The page title is "HP Systems Insight Manager". The top navigation bar includes links for Home, Logout, and Uncleared Event Status (27, 223, 1503, 1507). The main content area is titled "Customize Lists" with the description "Description: Customize the contents of folders and lists". On the left sidebar, there is a "System Lists" section with a "Customize" button. The main content area shows a "Show:" dropdown menu set to "System Lists". Below this, there is a list of system types: "Systems by Type" (All Systems, All Servers, All Clients, All Networking Devices, All Printers, All Management Processors, All Racks, All Enclosures, DemoList1, DemoList2). To the right of this list, there are buttons: "New List..." (circled in blue), "Edit List...", "New Folder...", "Delete", and "Add to Favorites...". At the bottom of the page, there is a legend for event status: Critical (red X), Major (yellow triangle), Minor (yellow triangle), Normal (green checkmark), Unknown (blue question mark), and Informational (blue exclamation mark).

Defining List Criteria



HP Systems Insight Manager - Internet Explorer

Address: https://hpsim:50000/mxportal/home/MxPortalFrames.jsp

Updated: Friday, July 9, 2004 10:27:35 AM CDT

Uncleared Event Status: 27 223 1504 1507

Customize Lists
Description: Customize the contents of folders and lists

Systems by Type

- All Systems
- All Servers
- All Clients
- All Networking Devices
- All Printers
- All Management Processors
- All Racks
- All Enclosures
- DemoList1
- DemoList2

New List...
Edit List...
New Folder...
Delete
Add to Favorites...

To add lists to My Favorites, choose System Lists or Event Lists from the above drop down list box, then select a list and press the Add to Favorites button.

New List

Search for: systems

where: product name is Integrated Lights-Out (ILO)

<< Add

Go Save As... Cancel

Legend

- Critical
- Major
- Minor
- Normal
- Unknown
- Informational

Applet com.hp.mx.portal.applet.folders.FoldersUIApplet started

Saved Custom List and Results

HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Address <https://hpsim:50000/mxportal/home/MxPortalFrames.jsp>

Updated: Friday, July 9, 2004 3:33:41 PM CDT Customize

HP Systems Insight Manager

Home Logout

Uncleared Event Status 96 1271 4076 5367

Search

Go

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

System Lists

Systems by Type

All Systems

All Servers

All Clients

All Networking Devices

All Printers

All Management Processors

All Racks

All Enclosures

DemoList1

DemoList2

ProLiant Servers

TestList

All iLO Devices

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

All iLO Devices

View as: table Customize

Systems in table: 4 Critical 2 Major 0 Minor 6 Normal 0 Unknown Total: 12

	HW	MP	SW	PF	System Name	System Type	System Address	Product Name	OS Name
<input type="checkbox"/>	✓				16.101.169.143	Management P...	16.101.169.143	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓				alexh2	Management P...	16.101.169.81	Integrated Light...	
<input type="checkbox"/>	✓				checkmateilo	Management P...	16.101.169.15	Integrated Light...	
<input type="checkbox"/>	✓				hpsimilo in Server hpsim	Management P...	16.101.169.69	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓				hpsm01ilo	Management P...	16.101.169.108	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓				hpsm90ilo	Management P...	16.101.169.123	Integrated Light...	Linux - Red Hat
<input type="checkbox"/>	✗				ilom06clap11s	Management P...	16.101.170.58	Integrated Light...	
<input type="checkbox"/>	✓				ilopva1	Management P...	16.101.169.151	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✗				ilor1021	Management P...	16.101.170.57	Integrated Light...	
<input type="checkbox"/>	✗				kolpekiran	Management P...		Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓				I2000	Management P...	16.101.169.9	Integrated Light...	
<input type="checkbox"/>	✗				mqxlilo in Server 16.101.16	Management P...	16.101.170.37	Integrated Light...	

Save Selection As... Delete Print

Opening page <https://hpsim:50000/mxportal/home/MxBannerData.jsp...>

Local intranet

Creating a New Custom Command

HP Systems Insight Manager - Internet Explorer

Address: https://hpsim:50000/mxportal/home/MxPortalFrames.jsp

Updated: Friday, July 9, 2004 3:39:42 PM CDT

Uncleared Event Status: 98 1271 4077 5369

HP Systems Insight Manager

Home Logout

Search

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

System Lists

Systems by Type

All Systems

All Servers

All Clients

All Networking Devices

All Printers

All Management Processors

All Racks

All Enclosures

DemoList1

DemoList2

ProLiant Servers

TestList

All iLO Devices

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

System Information

Integrated Consoles

Command Line Tools

Consoles

Custom Commands

New Custom Command...

Manage Custom Commands...

MSBA Scan...

MSBA

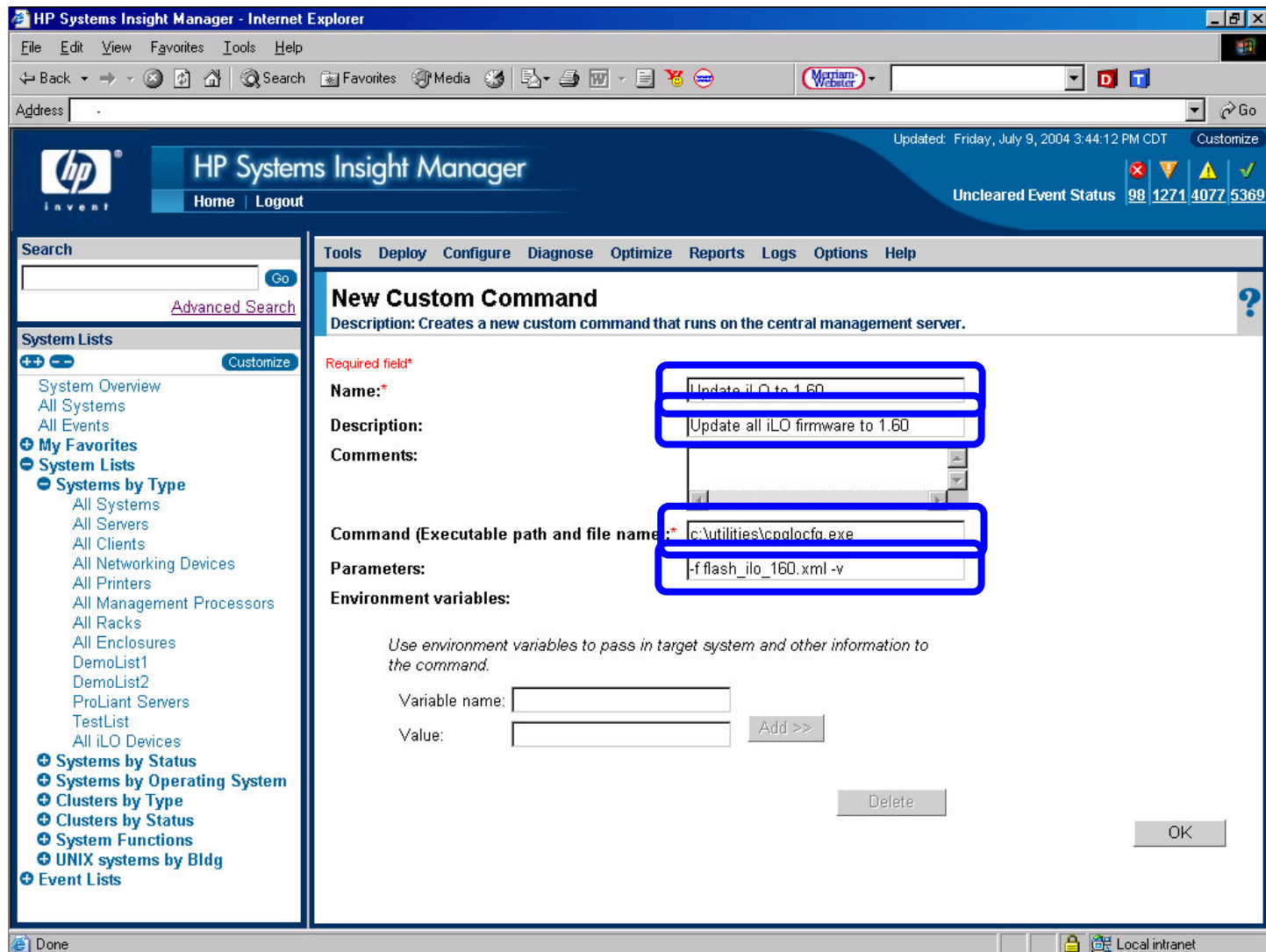
Formal ? 0 Unknown Total: 12

			System Address	Product Name	OS Name
<input type="checkbox"/>	✓		16.101.169.143	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓	alexh2	Management P...	Integrated Light...	
<input type="checkbox"/>	✓	checkmateilo	Management P...	Integrated Light...	
<input type="checkbox"/>	✓	hpsimilo in Server hpsim	Management P...	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓	hpsm01lo	Management P...	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓	hpsm90lo	Management P...	Integrated Light...	Linux - Red Hat
<input type="checkbox"/>	✗	ilom06clqp11s	Management P...	Integrated Light...	
<input type="checkbox"/>	✗	ilopva1	Management P...	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✗	ilor1021	Management P...	Integrated Light...	
<input type="checkbox"/>	✗	kolpekiran	Management P...	Integrated Light...	Microsoft Windo...
<input type="checkbox"/>	✓	l2000	Management P...	Integrated Light...	
<input type="checkbox"/>	✗	mqkxilo in Server 16.101.16	Management P...	Integrated Light...	

Save Selection As... Delete Print

Done Local intranet

Defining a New Custom Command



HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail News RSS Feeds

Address: Go

Updated: Friday, July 9, 2004 3:44:12 PM CDT Customize

Uncleared Event Status 98 1271 4077 5369

HP Systems Insight Manager

Home Logout

Search Go [Advanced Search](#)

System Lists [Customize](#)

- System Overview
- All Systems
- All Events
- My Favorites
- System Lists
 - Systems by Type
 - All Systems
 - All Servers
 - All Clients
 - All Networking Devices
 - All Printers
 - All Management Processors
 - All Racks
 - All Enclosures
 - DemoList1
 - DemoList2
 - ProLiant Servers
 - TestList
 - All iLO Devices
 - Systems by Status
 - Systems by Operating System
 - Clusters by Type
 - Clusters by Status
 - System Functions
 - UNIX systems by Bldg
- Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

New Custom Command

Description: Creates a new custom command that runs on the central management server.

Required field*

Name:

Description:

Comments:

Command (Executable path and file name):

Parameters:

Environment variables:

Use environment variables to pass in target system and other information to the command.

Variable name:

Value:

Done Local intranet

Executing Custom Command

HP Systems Insight Manager - Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Search Favorites Media Print Copy Paste

Address <https://hpsim:50000/mxportal/home/MxPortalFrames.jsp> Go

Updated: Monday, July 12, 2004 5:56:19 PM CDT Customize

Uncleared Event Status **117 1397 4348 5747**

HP Systems Insight Manager

Home Logout

Search

Advanced Search

System Lists

System Overview

All Systems

All Events

My Favorites

System Lists

Systems by Type

All Systems

All Servers

All Clients

All Networking Devices

All Printers

All Management Processors

All Racks

All Enclosures

DemoList1

DemoList2

ProLiant Servers

TestList

All iLO Devices

Systems by Status

Systems by Operating System

Clusters by Type

Clusters by Status

System Functions

UNIX systems by Bldg

Event Lists

Tools Deploy Configure Diagnose Optimize Reports Logs Options Help

System Information

Integrated Consoles

Command Line Tools

Consoles

Custom Commands

New Custom Command...

Manage Custom Commands...

MSBA Scan...

Update iLO to 1.60...

Customize

Normal ? 0 Unknown Total: 12

	HW	MP	SW	PT	Name	System Address	Product Name	OS Name
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.143	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.81	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.15	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.69	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.108	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.123	Integrated Light...	Linux - Red Hat
<input checked="" type="checkbox"/>	✓				Management P...	16.101.170.58	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.151	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.170.57	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.169.9	Integrated Light...	Microsoft Windo...
<input checked="" type="checkbox"/>	✓				Management P...	16.101.170.37	Integrated Light...	Microsoft Windo...

Save Selection As... Delete Print

Done Local intranet



Integration Best Practice:

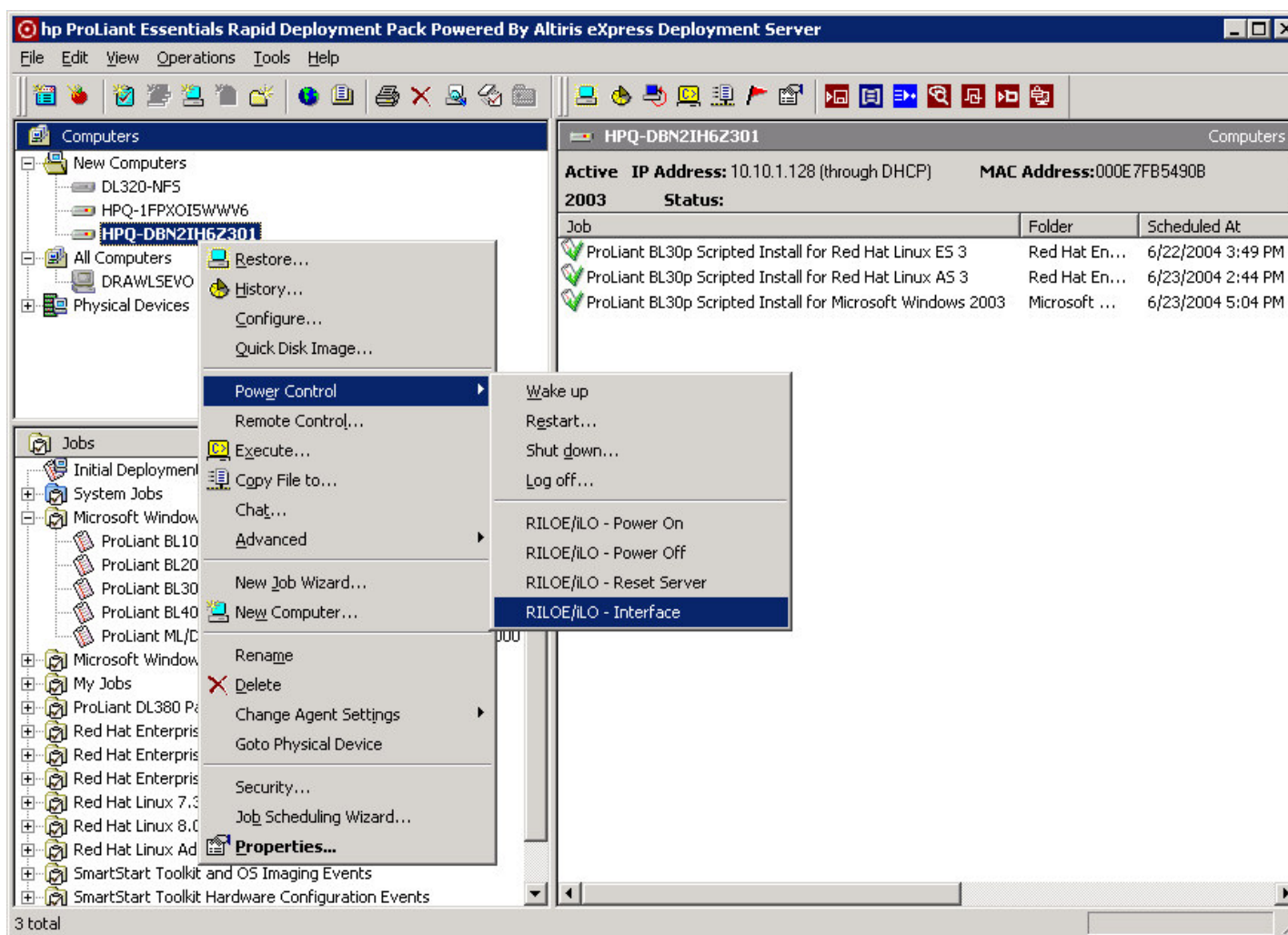
Integration with
HP Remote
Deployment
Pack (RDP)

RDP and Lights-Out Integration Points

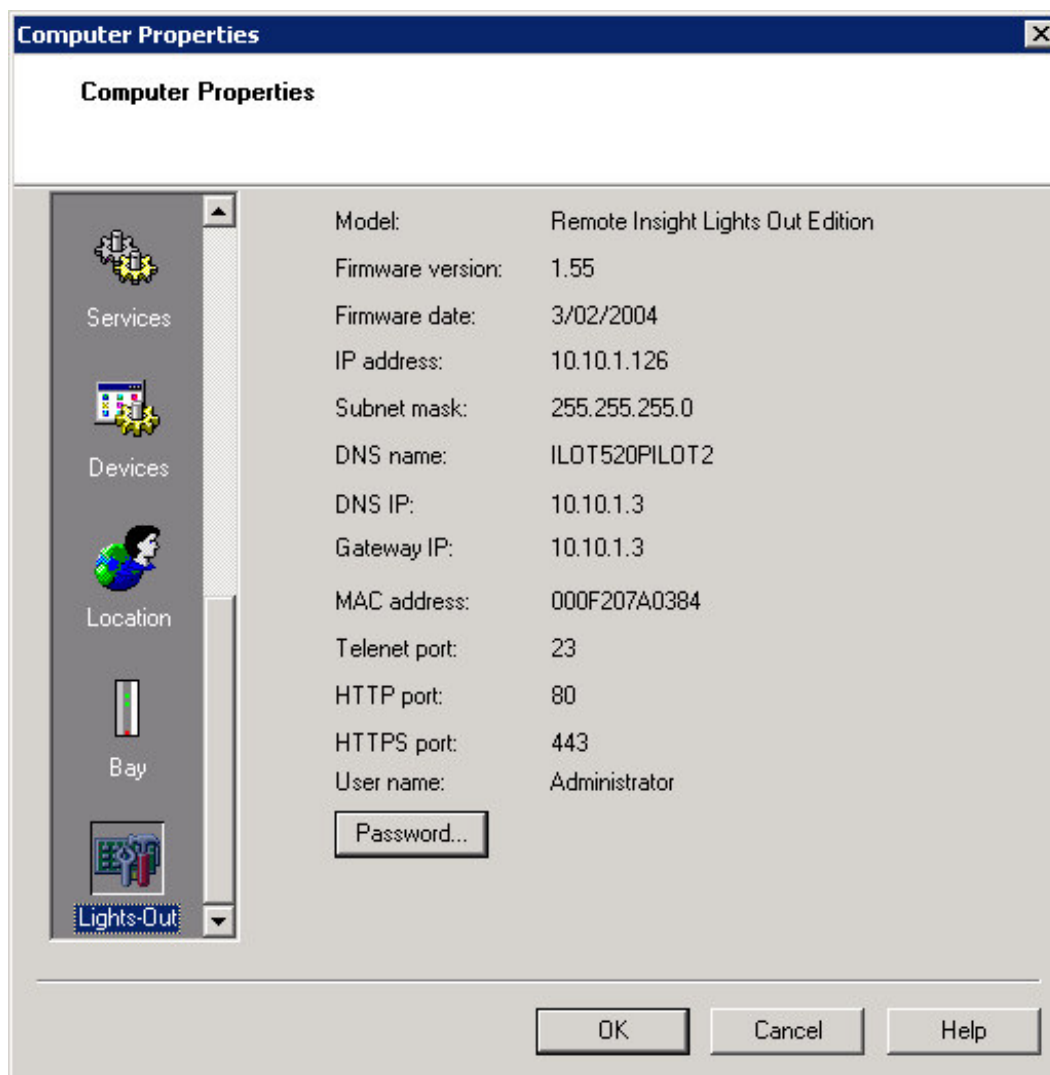


- Server power control via Lights-Out
- Lights-Out properties in RDP
- HP-developed RDP scripts for Lights-Out Management
- Lights-Out use of System Tokens in scripts

Server Power Control via Lights-Out



Lights-Out Properties in RDP



HP-Developed Scripts using Lights-Out Management



- Lights-Out configuration run via RDP script
- Mouse optimization run via RDP script
- Working on using Lights-Out Scriptable Virtual Media during the RDP process

Use of System Tokens

- System Tokens are like environment variables
- Tokens interesting to Lights-Out

%ID%	Unique Computer ID generated by the Deployment Server
%IPNAME%	Full DNS name of the computer
%NAME%	Complete computer name as displayed in the console
%NICyIPADDR%	IP Address for NIC y (y=1-8)
%NICyIPNETMASK%	Netmask for NIC y (y=1-8)

- Idea to use System Tokens to derive Lights-Out settings
 - Use %NAME% and append ‘_I’ or ‘_R’ for LOM DNS
 - Derive LOM IP Address from %NICyIPADDR%



Integration Best Practice:

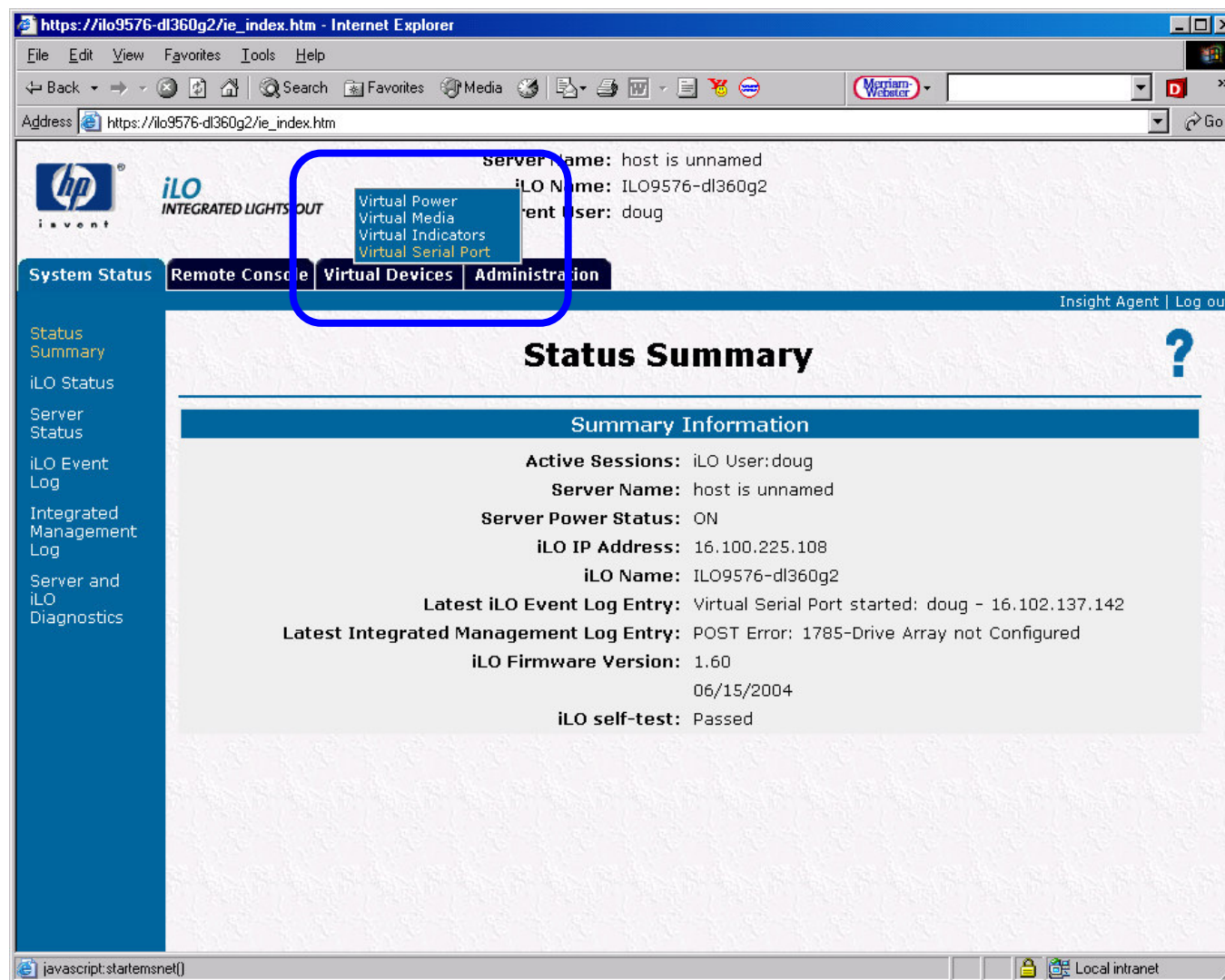
Windows Server
2003 Emergency
Management
Services (EMS)

Emergency Management Services and Lights-Out Management Integration



- Lights-Out team also works with OS vendors
- EMS originally conceived as serial connection only
- Lights-Out team worked with Microsoft to extend the specification to include Virtual Serial Port
- Allows Lights-Out team to make EMS available over the network

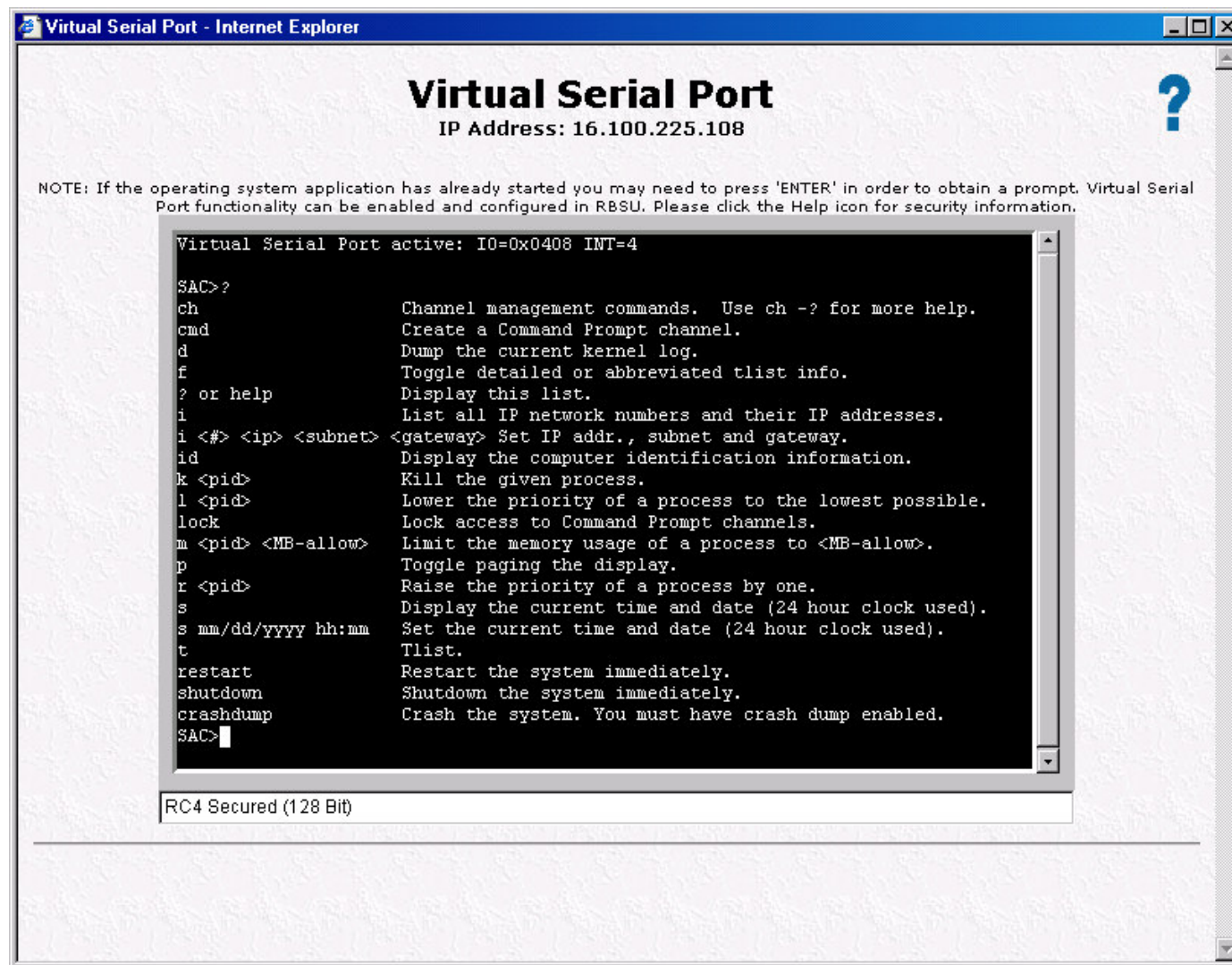
Launching Virtual Serial Port



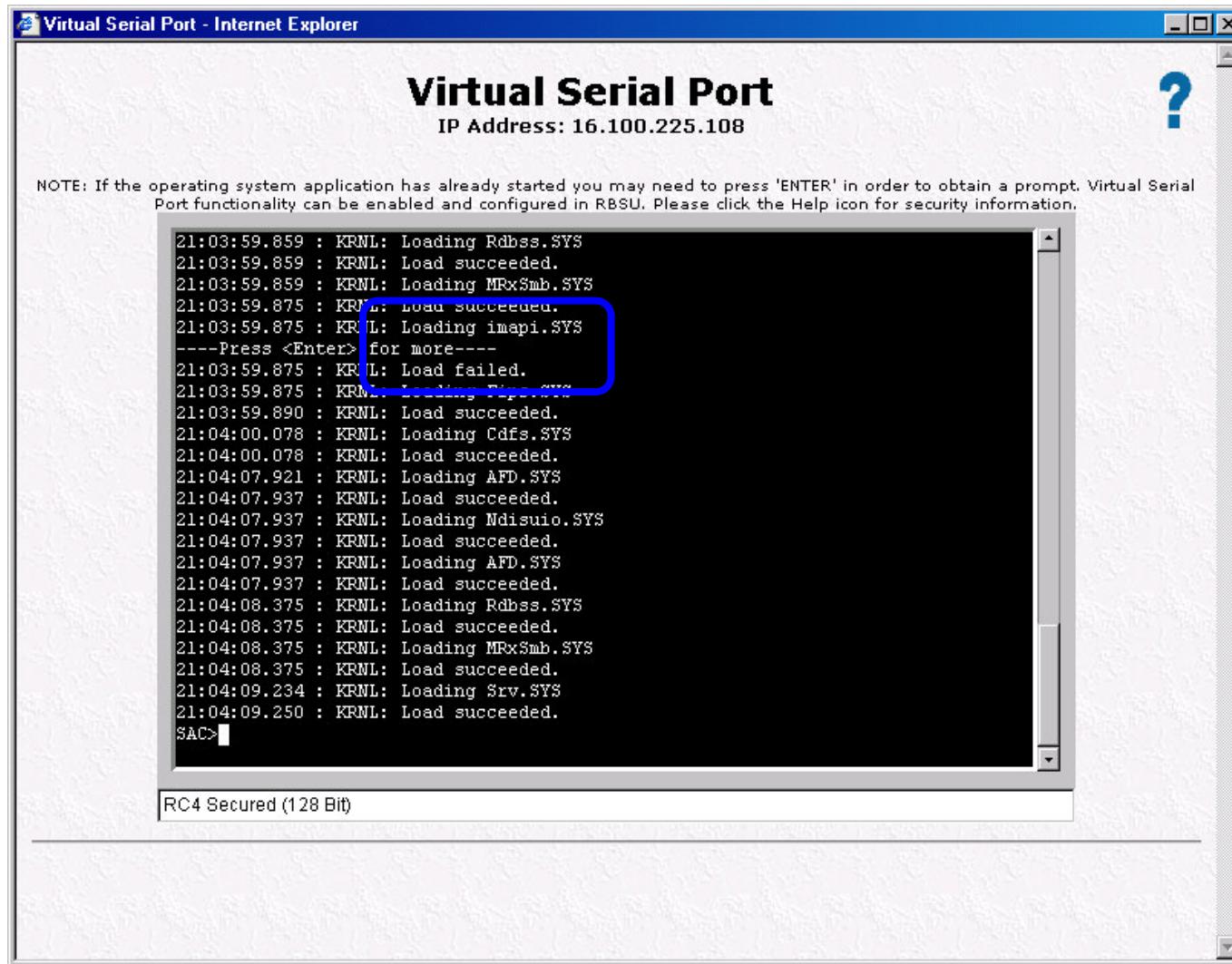
The screenshot shows the HP iLO web interface in Internet Explorer. The address bar displays `https://ilo9576-dl360g2/ie_index.htm`. The page features a navigation menu on the left with options like **System Status**, **Remote Console**, **Virtual Devices**, and **Administration**. A blue box highlights the **Virtual Devices** menu, which includes sub-options: **Virtual Power**, **Virtual Media**, **Virtual Indicators**, and **Virtual Serial Port**. The main content area displays the **Status Summary** page, which includes a **Summary Information** section with the following details:

- Active Sessions:** iLO User: doug
- Server Name:** host is unnamed
- Server Power Status:** ON
- iLO IP Address:** 16.100.225.108
- iLO Name:** ILO9576-dl360g2
- Latest iLO Event Log Entry:** Virtual Serial Port started: doug - 16.102.137.142
- Latest Integrated Management Log Entry:** POST Error: 1785-Drive Array not Configured
- iLO Firmware Version:** 1.60
- iLO self-test:** Passed

Running EMS ? Command



Output of EMS 'd' Command



```
Virtual Serial Port - Internet Explorer

Virtual Serial Port
IP Address: 16.100.225.108

NOTE: If the operating system application has already started you may need to press 'ENTER' in order to obtain a prompt. Virtual Serial
Port functionality can be enabled and configured in RBSU. Please click the Help icon for security information.

21:03:59.859 : KRNL: Loading Rdbss.SYS
21:03:59.859 : KRNL: Load succeeded.
21:03:59.859 : KRNL: Loading MRxSmb.SYS
21:03:59.875 : KRNL: Load succeeded.
21:03:59.875 : KRNL: Loading imapi.SYS
----Press <Enter> for more----
21:03:59.875 : KRNL: Load failed.
21:03:59.875 : KRNL: Loading Pipe.SYS
21:03:59.890 : KRNL: Load succeeded.
21:04:00.078 : KRNL: Loading Cdbs.SYS
21:04:00.078 : KRNL: Load succeeded.
21:04:07.921 : KRNL: Loading AFD.SYS
21:04:07.937 : KRNL: Load succeeded.
21:04:07.937 : KRNL: Loading Ndisuio.SYS
21:04:07.937 : KRNL: Load succeeded.
21:04:07.937 : KRNL: Loading AFD.SYS
21:04:07.937 : KRNL: Load succeeded.
21:04:08.375 : KRNL: Loading Rdbss.SYS
21:04:08.375 : KRNL: Load succeeded.
21:04:08.375 : KRNL: Loading MRxSmb.SYS
21:04:08.375 : KRNL: Load succeeded.
21:04:09.234 : KRNL: Loading Srv.SYS
21:04:09.250 : KRNL: Load succeeded.
$AC>
```

Output of EMS 't' Command

Virtual Serial Port - Internet Explorer

Virtual Serial Port
IP Address: 16.100.225.108

NOTE: If the operating system application has already started you may need to press 'ENTER' in order to obtain a prompt. Virtual Serial Port functionality can be enabled and configured in RBSU. Please click the Help icon for security information.

```

PageFile: \??\E:\pagefile.sys
Current Size: 393216 kb Total Used: 4488 kb Peak Used 4608 kb

Memory: 261664K Avail: 164672K TotalWs: 105788K InRam Kernel: 1768K P: 7020K
Commit: 73572K/ 47776K Limit: 635260K Peak: 84516K Pool N: 7824K P: 7172K

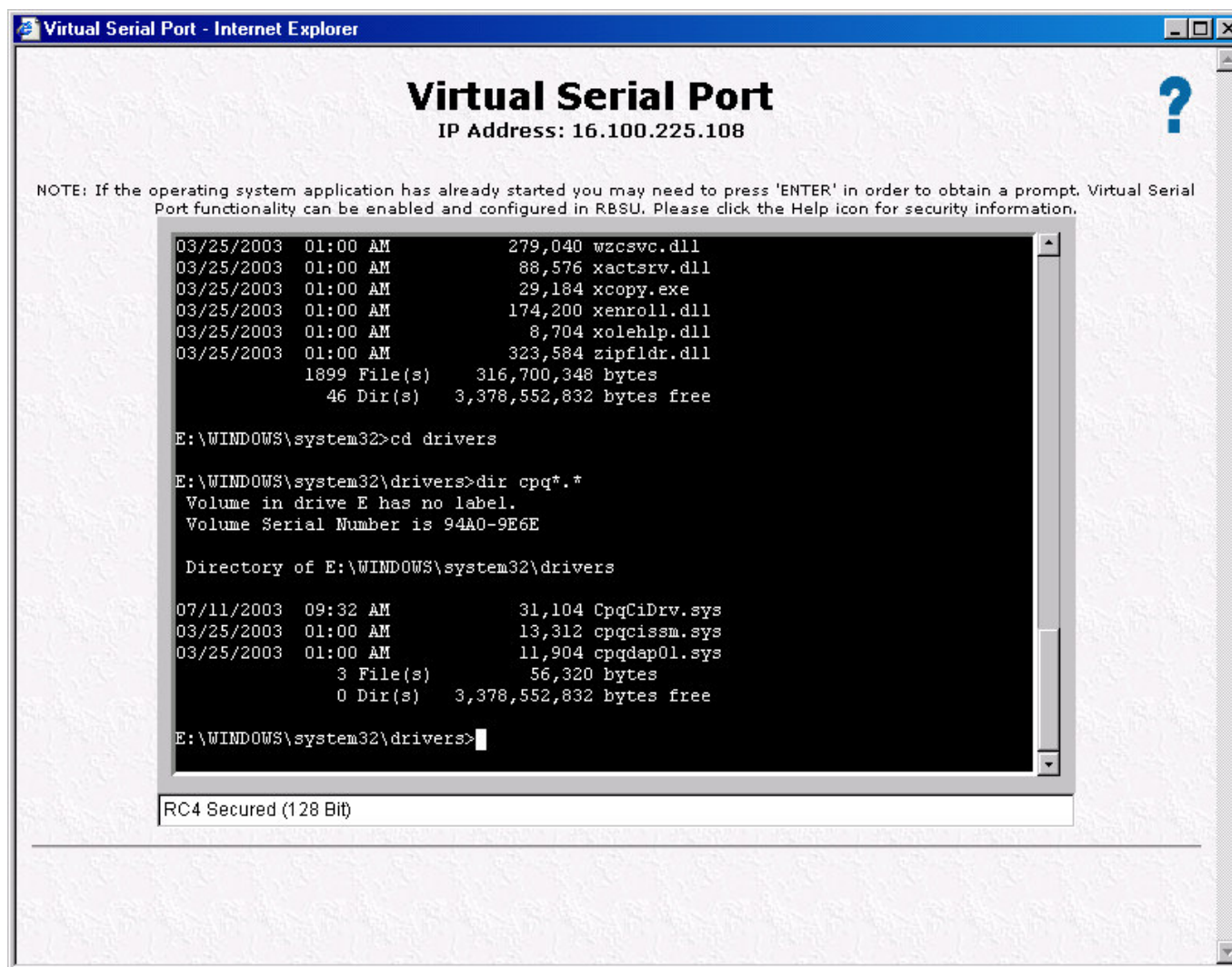
----Press <Enter> for more----
  User Time   Kernel Time    Ws   Faults   Commit Pri Hnd Thd   Pid Name
                28328   36361
0:00:00.000   21:28:17.156    16      0      0  0  0  1      0 Idle Process
0:00:00.000   0:00:17.500    212   3501     28  8 200 48      4 System
0:00:00.000   0:00:00.046    480    197    164 11  17  3   432 smss.exe
0:00:00.437   0:00:00.718   3000   1384   1352 13 299  9   604 csrss.exe
0:00:00.796   0:00:00.828   3520  10773   6684 13 482 18   628 winlogon.exe
0:00:00.281   0:00:01.484   3756   1372   1416  9 271 16   672 services.exe
0:00:00.328   0:00:00.296   7424   2593   6860  9 367 21   684 lsass.exe
0:00:00.031   0:00:00.125   2496    816    796  8 166  8   908 svchost.exe
0:00:00.000   0:00:00.031   3580    921   3196  8 112  6  1032 svchost.exe
0:00:00.000   0:00:00.000   1764    443    580  8  76  5  1048 svchost.exe
0:00:02.187   0:00:00.890  13880  12614   9600  8 781 38  1080 svchost.exe

----Press <Enter> for more----

```

RC4 Secured (128 Bit)

Output of EMS CMD Prompt



Virtual Serial Port
IP Address: 16.100.225.108

NOTE: If the operating system application has already started you may need to press 'ENTER' in order to obtain a prompt. Virtual Serial Port functionality can be enabled and configured in RBSU. Please click the Help icon for security information.

```

03/25/2003 01:00 AM      279,040 wzcsvc.dll
03/25/2003 01:00 AM      88,576 xactsrv.dll
03/25/2003 01:00 AM       29,184 xcopy.exe
03/25/2003 01:00 AM      174,200 xenroll.dll
03/25/2003 01:00 AM       8,704 xolehlp.dll
03/25/2003 01:00 AM     323,584 zipfldr.dll
      1899 File(s)      316,700,348 bytes
       46 Dir(s)      3,378,552,832 bytes free

E:\WINDOWS\system32>cd drivers

E:\WINDOWS\system32\drivers>dir cpq*.*
Volume in drive E has no label.
Volume Serial Number is 94A0-9E6E

Directory of E:\WINDOWS\system32\drivers

07/11/2003 09:32 AM       31,104 CpqCiDrv.sys
03/25/2003 01:00 AM       13,312 cpqcissm.sys
03/25/2003 01:00 AM       11,904 cpqdap01.sys
           3 File(s)         56,320 bytes
           0 Dir(s)      3,378,552,832 bytes free

E:\WINDOWS\system32\drivers>
  
```

RC4 Secured (128 Bit)



Data Center Best Practices:

Cool the Hardware, not the Admins

- Data center is not a comfortable place
- Administer from your desk
- Lock the data center
- Make human presence in the data center a rare thing
- Turn the Lights Out.

Wireless LAN v. Crash Cart

- Crash cart: Monitor, keyboard, mouse, stack of CDs and disks
- Roll around to service servers in the data center
- Better to diagnose remotely before going to the server
- Wireless laptop with Lights-Out Management more functional than Crash Cart
 - No cables to connect (or misconnect)
 - Intelligent Management Processor on system board
 - Laptop hard drive of images instead of stack of floppies and CDs



Get Out of Jail! Best Practices:

Virus / Worm Response via Lights-Out



- November 22, 1988 - Internet Worm released, networked computers under assault
- Typical worm response
 - isolation / quarantine
 - repair
- Lights-Out is an excellent tool to battle worm
 - HP Lights-Out products proven resilient in the face of network events
 - Dedicated, secure Management network can be isolated from the infected network

“Just as one should have contingency plans in case of fire, those plans must also include worm attacks.



One should always assume that, in the end, one's computers may be highly disrupted by an electronic attack. To deny this would be folly.”

Nicholas Weaver,
University of California, Berkeley



Recover from Lost Lights-Out Password



- Configured for Directory Services...?
- Use OS Online Configuration Utility (HPONCFG)
 - create a new account or change existing password
 - no system downtime
- Reboot Server and use F8 RBSU
 - create a new account or change existing password
 - requires system downtime
- Use iLO Security Override Switch
 - Turns off login password requirement
 - requires system downtime... by the book
- Reset RILOE II to Factory Defaults
 - All settings, including userid/password set to Factory Defaults
 - requires system downtime and board to be removed

Recover from Failed iLO Flash

- Try to login and reconnect to iLO, try to flash again
- Try to flash using the OS Online Flash Component
- Use FTP-Based Flash Recovery
 - FTP flash only available if iLO reset during previous flash
 - Detailed instructions in iLO User Guide, Appendix A
 - Try to Ping the iLO
 - Connect to iLO via FTP
 - Login with username 'flash' and password 'recovery'
 - Put drive:\path\filename
- Use the ROMPaq diskette
 - Setting the Security Override Switch may be required

“Why is it listeners always know
when the speaker should stop
and he/she seldom does.”

Malcolm S. Forbes



Other Related Lights-Out Sessions

- Successful Techniques for Lights-Out Management with HP ProLiant Servers.
 - Monday:
 - 8:00 AM to 12:15 PM (#4024)
 - 2:00 PM to 6:15 PM (#4024A)
 - Wednesday:
 - 8:00 AM to 12:15 PM (#4024B)
 - 1:15 PM to 5:30 PM (#4024C)
- NDA Session (#3802) on **DMTF CLP**
 - Thursday: 11:00
- ASE NDA Demos in N427D
 - Monday
 - 9:30 AM to 10:45 PM
 - 5:15 PM to 6:30 PM
 - Wednesday
 - 8:00 AM to 9:15 AM
 - 3:45 PM to 5:00 PM
 - Tuesday
 - 8:00 AM to 9:15 AM
 - 1:30 PM to 2:15 PM
 - Thursday
 - 11:00 AM to 12:15 PM
 - 5:15 PM to 6:30 PM

Wrap-Up

- Discussed twenty-seven Best Practices
- Payoff
 - Efficiency
 - Effectiveness
 - Economy
- Call to Action
 - Select three Best Practices
 - Write up your plan to implement these Best Practices
- What questions do you have?

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