

Future Directions for the HP-UX 11i Operating Environments

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What will we be covering

- *HP-UX Operating Environments: what are they*
- *Define their benefits and their structure*
- *Release history of HP-UX 11i Operating Environments*
- *Improvements to date*
- *Planned Improvements to the HP-UX 11i Operating Environments*
- *Review*
- *Questions*

What is an HP-UX 11i Operating Environment?

- *An operating environment is a collection of HP-UX Base Unix, associated network and mass storage drivers and other software components all targeted to a specific customer segment*
- *Each HP-UX 11i Operating Environment has been tested as a unit*
- *Delivered as a solution to meet the customers needs*
- *Continually updated with new products and updated revisions to existing software products*
- *Maintenance releases are provided with updateability in mind*
- *First released in December 2000*

HP-UX 11i Operating Environments Benefits

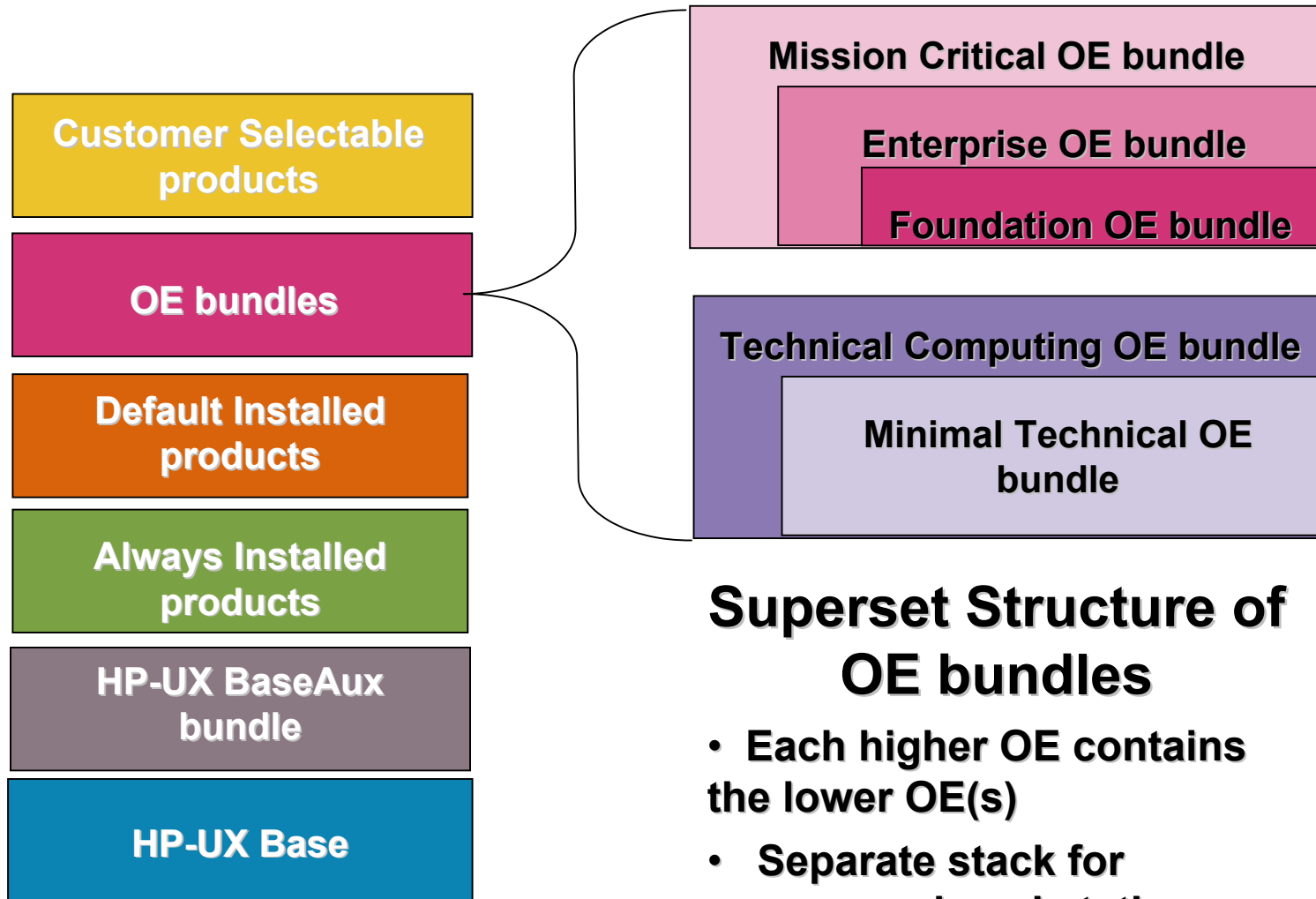


- *Greatly simplified software deployment*
 - Only one reboot needed to install the Operating Environment (OE) of your choice
 - No codewords are necessary to access any of the functionality/application components resident on the OE media
 - Comprehensive offering of Network, Mass Storage, and I/O Drivers available during the install process
 - Online Diagnostics loaded during cold install
- *Simple to purchase license*
 - Each OE license product contains licensing for the base HP-UX O/S and all of the included HP applications

HP-UX 11i Operating Environments Benefits

- *Attractive pricing*
 - Pricing of the OE licenses reflects a built-in advantage over purchasing individual OE components separately
- *Published testing results*
 - Testing results of application products in the OEs will be published on docs.hp.com for worldwide access both inside and outside HP
- *Simple to purchase software support*
 - Simplification in Software Support ordering and contract administration has been achieved in parallel with the introduction of HP-UX 11i Operating Environments

HP-UX 11i Operating Environment Architecture



Superset Structure of OE bundles

- Each higher OE contains the lower OE(s)
- Separate stack for servers and workstations

* Does not include any patch or HW Enablement bundles

Current HP-UX 11i Operating Environments (11i v1 0603)



Commercial Servers

Foundation Operating Environment

Enterprise Operating Environment

Mission Critical Operating Environment

Workstations and Technical Servers

Technical Computing Operating Environment

Minimal Technical Operating Environment

CIFS/9000 Server
CIFS/9000 Client
Netscape Communicator
PAM Kerberos
ServiceControl Manager
MySQL

EMS HA Monitors
MirrorDisk/UX
Online JFS (v3.3)
OV GlancePlus Pak
Process Resource Manager

ECM Toolkit
MC/ServiceGuard v11.13
ServiceGuard NFS
Cluster Object Manager
Workload Manager
Workload Manager Toolkit

CIFS/9000 Server
CIFS/9000 Client
Java 3D 1.3/1.4
MLIB
MPI
PAM Kerberos
Visualize Conference

3D Graphics Dev Kit and RTE
TechSysConf
Netscape Communicator

	<u>Always Installed</u>	<u>Default Installed</u>	<u>Customer Selectable</u>
Stand Alone Software	Base VxVM (v 3.5) Online Diagnostics	Perl Mozilla Mozilla Source Java JRE 1.2/1.3 Java JPI 1.2/1.3 HPUX Apache	100Base-T (HP-PB,EISA) MUX (PCI, EISA) ATM (PCI, HSC) TokenRing (PCI, HP-PB, EISA) FDDI (HSC,HP-PB, EISA) HP-UX Install Utilities 11.11 HyperFabric (PCI, HSC) Netscape Directory Server Pay Per Use Agent * IP Filter Java OOB * IDS 9000

	<u>HPUXBaseAuxContents</u>		<u>Always-Installed NW Drivers</u>		<u>HP-UX 11i Core Functionality</u>
Base Components	DMI&SCR EMS Framework Judy Libraries Update-UX	ObAM5 Partition Manager Software Distributor	FDDI (PCI) FibreChannel [Tachlite] (PCI) SCSI RAID (PCI)	IEther (PCI) Gigabit Ethernet (PCI, PCI-X, HSC, NextGen PCI) 100BaseT (PCI)	HPUXBase64 (64-bit) HPUXBase32 (32-bit)

Release History of HP-UX 11i Operating Environments



- *Initial release, December 2000: 11i v1*
 - Four operating environments: Foundation OE, Enterprise OE, Mission Critical OE and Technical Computing OE
 - Nine maintenance releases have occurred since the initial release for the 11.11 (11i v1.0) release stream
 - An additional operating environment, Minimal Technical OE, was added in 2001

- *Second release, July 2002: 11i v1.6*
 - Three operating environments were released to support the first Itanium HP-UX release: HP-UX OE, Minimal Technical OE and Technical Computing OE
 - First IPF OE release

Release History of HP-UX 11i Operating Environments



- *Third release, 2H 2003: 11i v2*
 - Five operating environments will be released: Foundation OE, Enterprise OE, Mission Critical OE, Minimal Technical OE and Technical Computing OE
 - Second IPF OE release

Improvements to the HP-UX 11i Operating Environments



- *Added IPF support, August 2002 (11i v1.6)*
- *Added additional installation options with addition of the Default Installed category allowing the ability to remove software components, June 2003 (11i v1), 2H 2003 (11i v2)*
- *Added additional install time security features, 2H 2003 (11i v2)*
- *Added kernel tuning sets to the server and workstation OEs, 2002 (11i v1)*
- *Added additional software products, Ongoing*

Future Improvements

- *Design for more install time choices*
 - Software Selection
 - Security
 - Kernel Tunables
- *Integration of TruCluster and AdvFS technology*
- *Improved Update features*
- *Unify dependencies on common products*
- *Modularization of the Core*

Disclaimer

- *Improvements to the HP-UX 11i Operating Environments represent directions and areas of discussion*
- *No commitment is made with respect to when or if these improvements will ever be released*

Goals

- *Improve Return on IT Investment*
- *Deliver More*
- *Create an Adaptive Enterprise Design*

simplification

+

standardization

+

modularity

- **Reduce number of elements**
- **Automate change**
- **Use standard technologies and interfaces**
- **Adopt common enterprise architecture**
- **Implement standard processes**
- **Break down monolithic structures**
- **Create reusable components**
- **Implement logical architectures**

New Install Time Choices: Software Selection

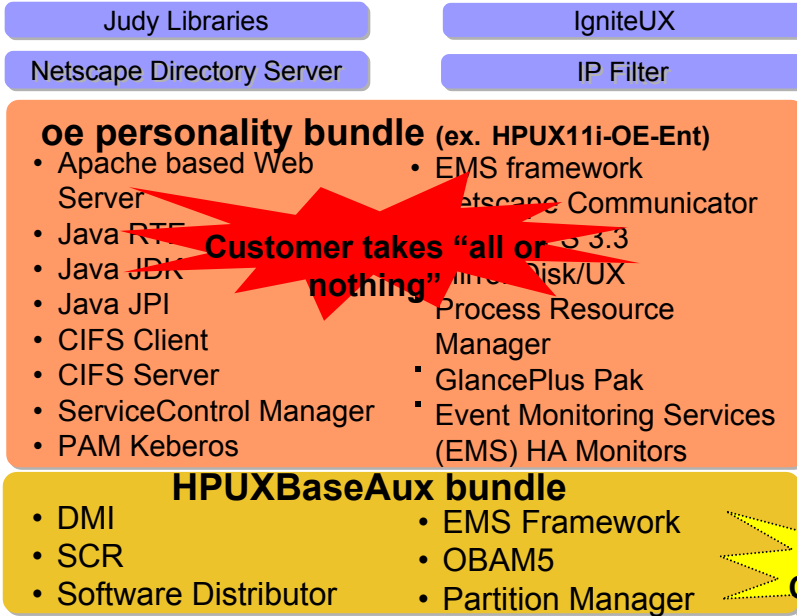


- *Modularize OEs to provide finer granularity*
- *Deliver, Install and Update most OE software components as individual components rather than bundles*
 - Offers customers more flexibility and choice
 - Allows for easy identification of installed OE components
 - Individual OE bundle tags will remain with the software component and will be listed when swlisted
 - Facilitates easy removal of installed components in the future
 - Because bundle tags will remain, customers can more easily choose components for removal or update

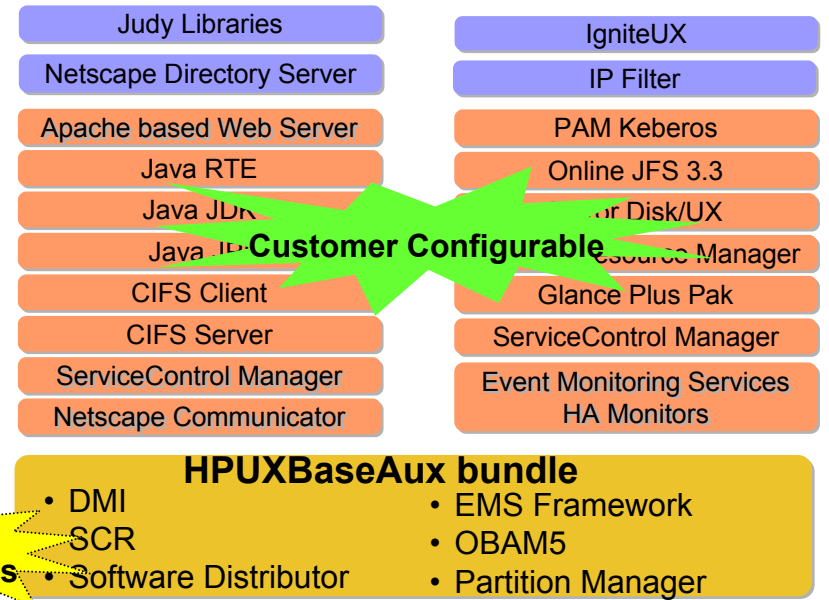
Modularized OE Structure

ISUs, Software Packs, Quality Packs, HWE, etc.

Current HP-UX 11i OE structure



Proposed HP-UX 11i OE structure



hp-ux base bundle

hp-ux base bundle

Network Drivers

Network Drivers

Key:

Always Installed

Default Installed

Customer Selectable

New Install Time Choices: Software Selection

- *Components will continue to be tested together as an operating environment*
- *OEs will be setup with defaults which will allow quick install utilizing default selections if the customer chooses not to make any changes*
- *OE components will continue to be available as a package with respect to Support and Licensing*
- *All the benefits of an integrated solution with the flexibility of a la carte customization*

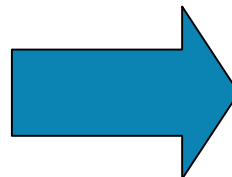
Flexibility without complexity!

Modularized OE Structure: Customer Tailored Install

Components offered on OE Media

Judy Libraries	Pay Per Use
IDS 9000	JavaOOB
Apache based Web Server	PAM Keberos
Java RTE	Online JFS 3.3
Java JDK	Mirror Disk/UX
Java JPI	Process Resource Mgr
CIFS Client	Glance Plus Pak
CIFS Server	MySQL
ServiceControl Manager	Event Monitoring Services
Mozilla	HA Monitors
Fiber Channel	Gigabit
FDDI	Base VxVM
iCOD	nPartition Manager
WBEM	Online Diagnostics
HPUXBaseAux bundle <ul style="list-style-type: none"> • DMI • SCR • Software Distributor • EMS Framework • OBAM5 • Partition Manager 	
HP-UX base bundle	

Customer
makes
Install
time
choices...



Installed result on customer system

Judy Libraries	JavaOOB
Apache based Web Server	Online JFS 3.3
Java JDK	Mirror Disk/UX
CIFS Client	Glance Plus Pak
CIFS Server	Event Monitoring Services
Mozilla	HA Monitors
Fiber Channel	Gigabit
FDDI	Base VxVM
iCOD	nPartition Manager
WBEM	Online Diagnostics
HPUXBaseAux bundle <ul style="list-style-type: none"> • DMI • SCR • Software Distributor • EMS Framework • OBAM5 • Partition Manager 	
HP-UX base bundle	

Key:

Always Installed

Default Installed

Customer Selectable

New Install Time Choices: Security

- *Add install time security (Bastille) to earlier 11i release streams as well as new operating environments for future release streams*
 - Three security levels
 - Selectable at initial system install, modifiable at a later date
- *Allow customers to “lock down” their system to prevent uncontrolled access when system first boots*
- *All OE components are/will be compatibility tested with the security scheme*

New Install Time Choices: Kernel Tunables



- *Additional application specific kernel tunables will be added to the operating environments*
- *Will provide defaults to setup a general purpose kernel*
- *Changes will be implemented at install time but may be modified using kernel configuration tools*

Support for TruClusters and AdvFS Technology



- *Integration of Tru64 features into HP-UX 11i Operating Environments: TruClusters and AdvFS*
- *Complexities are being worked*
- *Planned Release with 11i v3*

Improved Update Features

- *Continued support for Update from previous release streams, varies by release*
- *Continued support for update from one OE to another, specifics vary by release*
- *Automatically update what has been installed on the customer system- Match Target*
 - Controllable by customer
 - More flexibility on what will be updated
 - Software components and patches (bundles) will be supported by update

Unify Dependencies on Common Products

- *Currently many software components include their dependent components within their own package*
 - Results in potential inefficiencies and growing media and system space concerns
 - Increases system management overhead
 - If security defects are identified, must be fixed in multiple places
- *Create a strategy where dependencies: Java, perl, HP Apache based web server, and others; will always be made available within the OE, rolling their versions on a periodic basis*
- *Customers can always install newer versions of these components; however, specified versions will always be made available*

Unify Dependencies on Common Products

- *Components will be “default installed” such that customers can de-select individual components at initial install based on specific customer requirements, i.e. customer does not want a web server product due to security demands*

Modularization of the Core

- *Movement of Core products out of Core and into individual OE components*
 - Offer greater install flexibility
 - Ability to tailor install and update

Review of improvements

- *Design for more install time choices*
 - Software Selection
 - Security
 - Kernel tunables
- *Integration of TruCluster and AdvFS technology*
- *Improved Update features*
- *Unify dependencies on common products*
- *Modularization of the Core*

How are we doing?

- *Are we addressing your needs?*
- *Is there anything else we can do?*
- *What are your specific problems?*
- *Your chance to give HP feedback*
- *Survey*

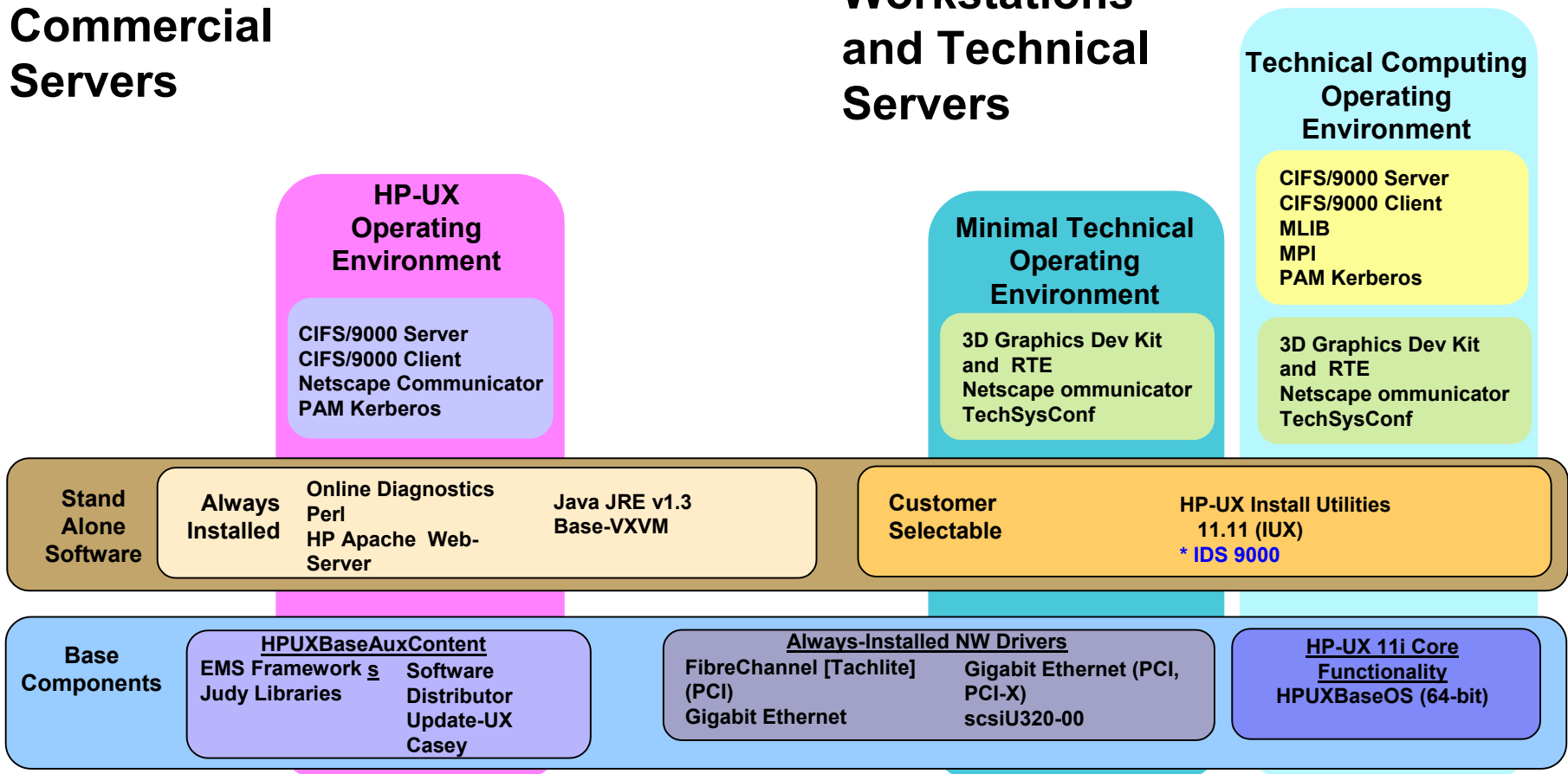
Questions??

Backup slides

HP-UX 11i v1.6 Operating Environments, released 8/03

Commercial Servers

Workstations and Technical Servers



HP-UX 11i v2 Operating Environments, releasing 2H 03



Mission Critical Operating Environment bundle

ECM Toolkit
MC/ServiceGuard
ServiceGuard NFS
Cluster Object Mgr
Workload Manager
Workload Manager Toolkit

Enterprise Operating Environment bundle

EMS HA Monitors
MirrorDisk/UX
Online JFS (v3.3)
OV GlancePlus Pak
Process Resource Manager

Foundation Operating Environment bundle

CIFS/9000 Server
CIFS/9000 Client
Java JPI v1.3
Java JPI v1.4
PAM Kerberos

Base OS Install

Base OE Install

<u>Customer Selectable Stand Alone Software</u>	ATM (PCI) HyperFabric (PCI) MUX (PCI) TokenRing (PCI) HP-UX Install Utilities IDS 9000 (Servers only)	PkgBuilder PayPerUse JavaOOB Security Level 10 Security Level 20 Security Level 30
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<u>Default Installed Stand Alone Software</u>	Perl MySQL Security Tools ServiceControl Mgr Judy Libraries Netscape Suite 7.0 GNOME 1.4 GTK+ Lib Bastille Secure Shell Mozilla Mozilla Source	IP Filter Secure Patch Check ParManager Java JRE v1.3 Java JRE v1.4 Java SDK v1.3 Java JDK v1.4 HPUX Apache webserver HPUX TOMCAT HPUX Webmin HPUX XML
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Always -Installed Stand Alone Software

Online Diagnostics iCOD WBEM Services	Base-VXVM nPartition Provider
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Always -Installed Stand Alone NW Drivers

FDDI (PCI) FibreChannel (PCI) IEther (PCI) USB	Gigabit Ethernet (PCI) NextGen PCI) scsiU320-00
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Base Aux bundle Contents

Casey EMS Framework ONC SWGETTOOLS	Peripheral Device Tool Software Distributor Update UX
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HP-UX 11i Core Functionality
HPUXBaseOS (64-bit)

Minimal Technical Operating Environment bundle

3D Graphics DK and RTE
TechSysConf

Technical Computing Operating Environment bundle

CIFS/9000 Server
CIFS/9000 Client
Java JPI v1.3
Java JPI v1.4
Java 3D for 1.3
Java 3D for 1.4
MLIB
MPI
PAM Kerberos



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