HP-UX and Tru64 UNIX®

a side-by-side comparison

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Agenda

HP-UX and Tru64 UNIX®
A Side-by-Side Comparison

- road maps for HP UNIX® offerings
- releases, chips and platforms
- how different or alike?
  - common "UNIX is UNIX" core
  - functionally equivalent enterprise features
  - differentiating value-add features
- device management and storage
  - journal file systems
- administrative frameworks and installation
  - system administration framework
  - SMP and platform partitioning
  - resource management - frameworks
- clustering
  - TruCluster Server and MC/Service Guard
- latest enterprise features

D.H. BROWN ASSOCIATES, INC.

hp-ux 11i

(DH Brown 2002)

- ✓ hp-ux 11i is ranked #1 in all five categories
- ✓ Tru64 UNIX® is ranked #1 in scalability and systems management

- #1 scalability
- #1 reliability, availability and serviceability
- #1 systems management
- #1 internet and web application services
- #1 directory and security services

Moving Forward

- strong leadership
- high-end scalability
- mission-critical availability
- manageability
- workload management
- security

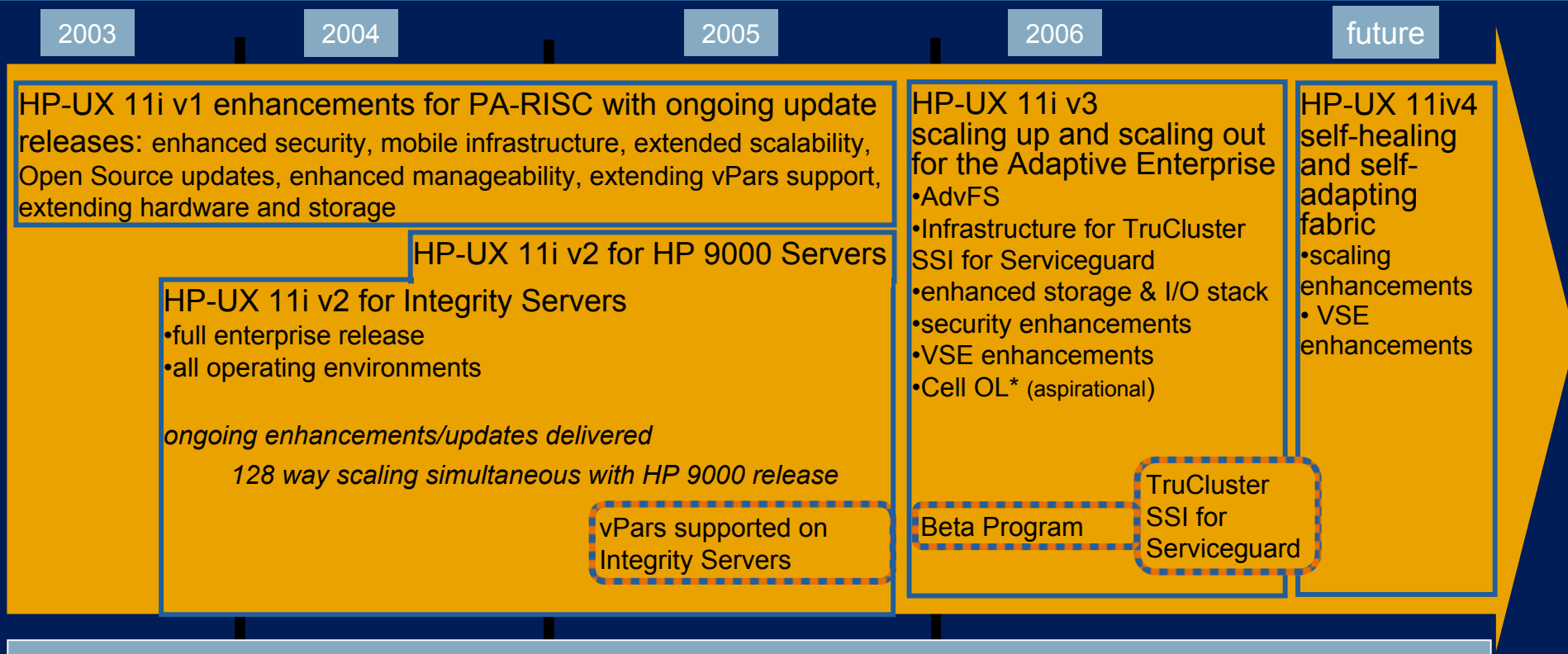
Enhancing HP-UX with Tru64 Technologies

enhancing hp-ux with Tru64 UNIX® technologies

current plans include:

- TruCluster Server software
- Advanced File System (AdvFS)
- select other technologies

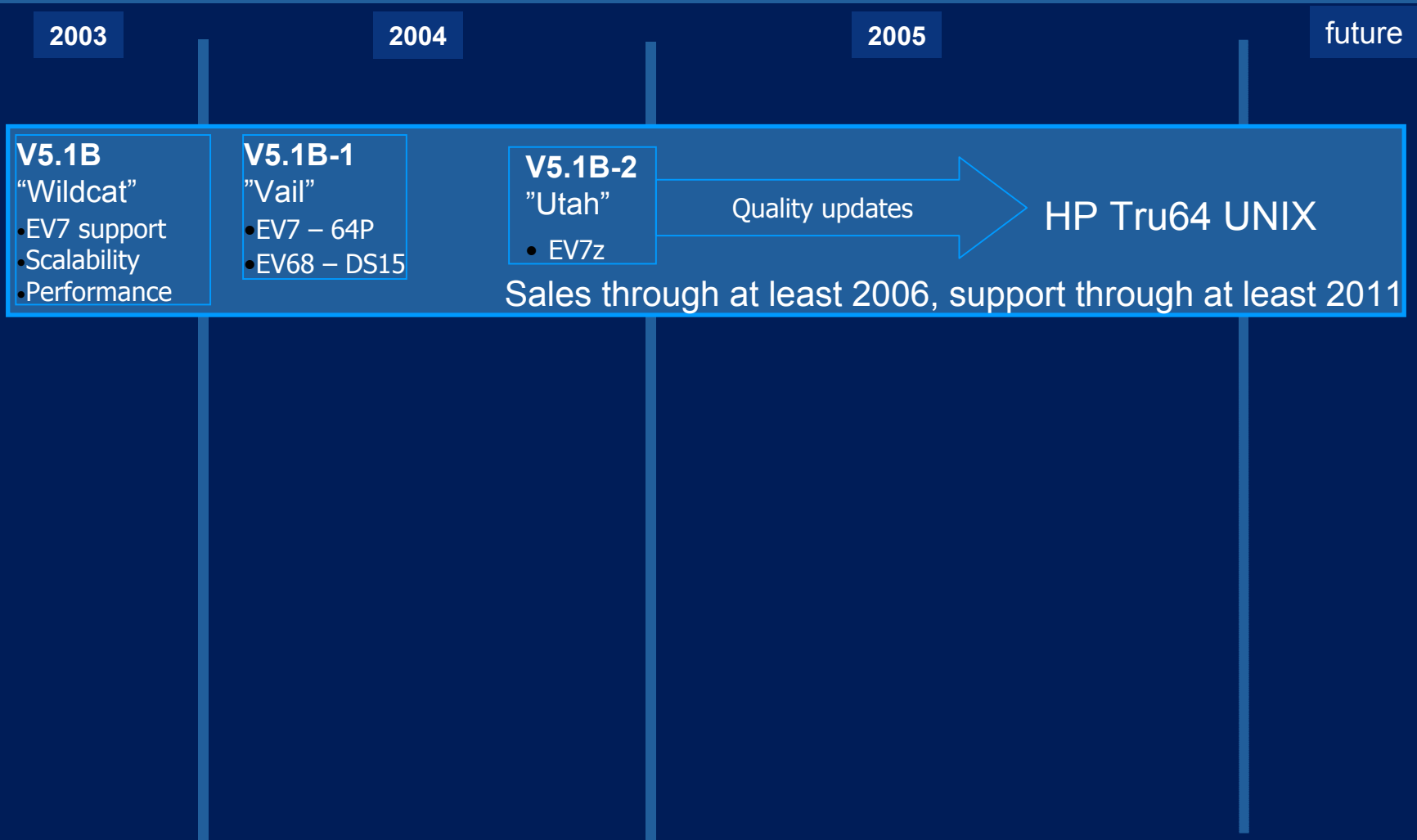
HP-UX 11i Roadmap:
The UNIX® Foundation of the Adaptive Enterprise



HP-UX 11i v2 on Integrity full ecosystem accelerated making it the version of choice
- **preserves and builds on HP-UX 11i v2 ISV momentum**
- **accelerated vPars availability**
- **accelerated common release for PA-RISC based HP 9000 and Itanium®-2 based Integrity servers**

HP-UX 11i v3 will advance leadership in scale-up and scale-out
- **HP remaining committed to Tru64 UNIX customers bringing best technology from Tru64 UNIX into HP-UX & Serviceguard (AdvFS and TruCluster Single System Image)**

HP UNIX® operating system roadmap
HP Tru64 UNIX



Customer value: investment protection and a better HP-UX

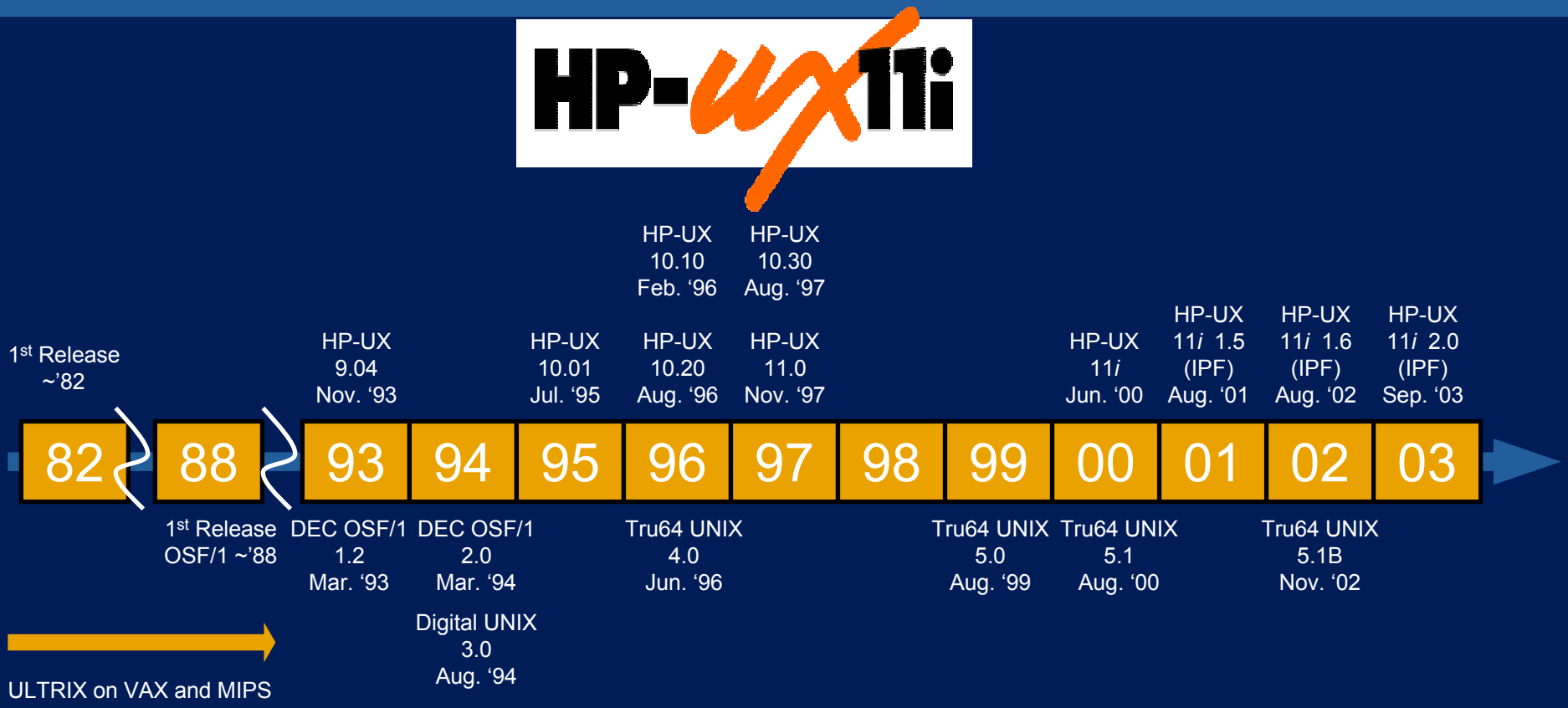
hp server roadmap details

	02	03	04	05
hp server PA-RISC	HP Superdome PA-8700 speed-up	PA-8800	PA-8900	
	HP Server rp8400 PA-8700 speed-up	PA-8800	PA-8900	
	HP Server rp7410 PA-8700 speed-up	PA-8800	PA-8900	
	HP Server rp5400 PA-8700	HP Server rp5610 PA-8800	PA-8900	
	HP9000 A-class PA-8700 speed-up			
Itanium®-based hp servers		HP Superdome Madison 32p future Itanium® 64p	future Itanium® 32-128p	future Itanium® 32-128p
	HP Server rx9610 Itanium® processor	Madison Itanium® 16p	future Itanium® 16p	future Itanium® 16p
		Madison Itanium® 8p	future Itanium® 8p	future Itanium® 8p
	McKinley 4p	Madison 4p	future Itanium® 4p	future Itanium® 4p
	McKinley 2p	Madison 2p	future Itanium® 2p	future Itanium® 2p
hp AlphaServer	HP AlphaServer GS EV68 (1-32p)	EV7 (8-64p)	EV7z	
	HP AlphaServer ES EV68 (1-4p)	EV7 (2-8p)	EV7z	
	HP AlphaServer DS EV68 (1-2p)			

in-box upgrades and binary compatibility

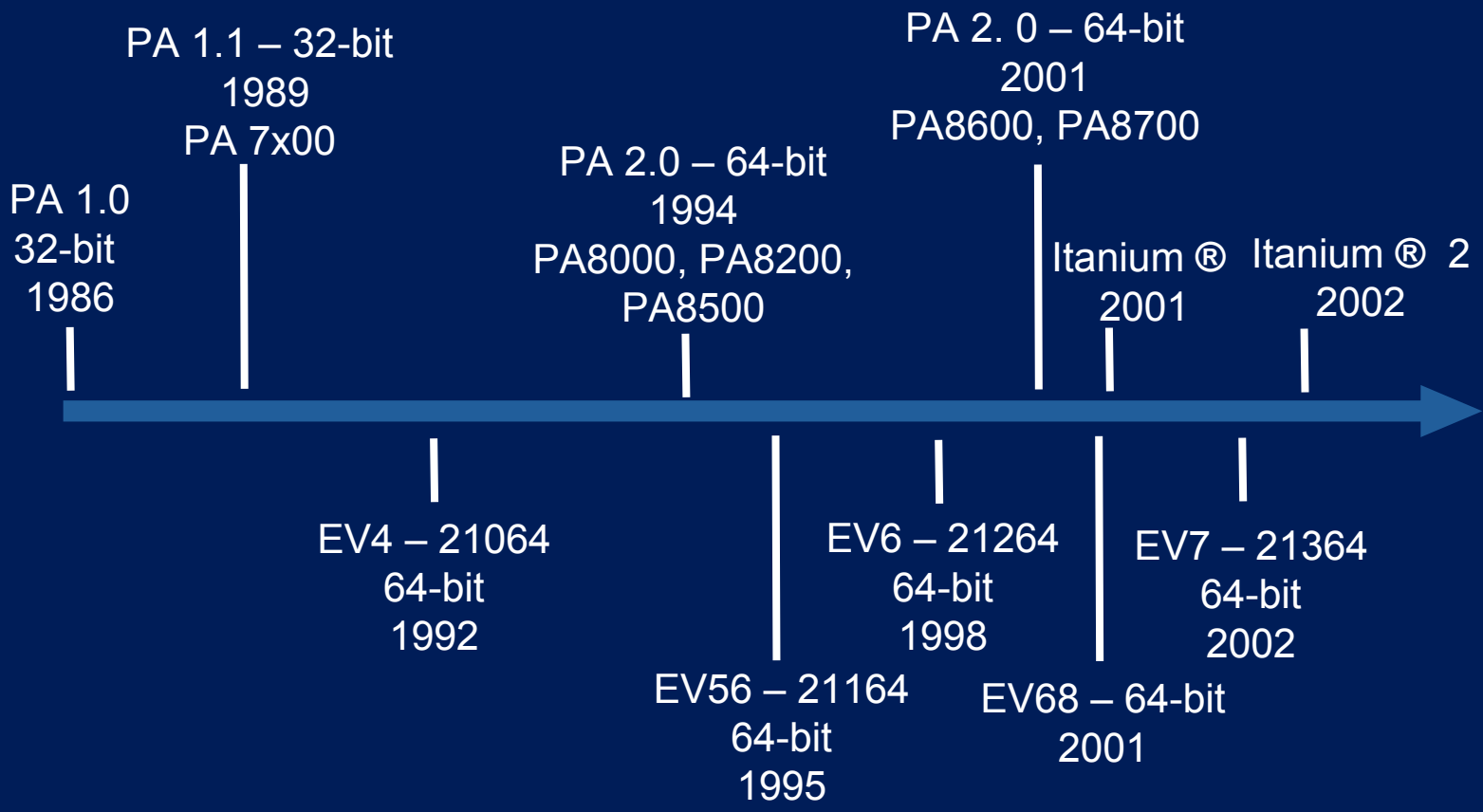
seamless migration at customer schedule

o/s release history



Tru64 UNIX® on AlphaServer

processor release history



UNIX® histories

Tru64 UNIX® ~1990

- replaced Digital's earlier BSD based UNIX – Ultrix
- starting point - Open Software Foundation's (OSF) OSF/1
  - low level kernel services – CMU Mach
  - higher level kernel services – BSD UNIX
  - compatibility APIs, libs and tools for SysV UNIX
- continued Digital/Compaq enterprise enhancements

HP-UX ~1982

- starting point – mix of BSD and AT&T's UNIX technology
- continual enhancements and infusions
  - System V releases
  - BSD APIs and tools
  - OSF
  - HP enterprise enhancements

common “UNIX® is UNIX” core

Tru64 UNIX® and HP-UX share a common core of basic programming, user and admin **interfaces** around UNIX traditions and standards

- common history in UNIX traditions and development
- UNIX standardization efforts begun around ~90. POSIX, X/OPEN and standards group define a core of APIs and functionality that both O/Ss adhere to
- examples:
  - user/group accounts
  - shells
  - file and directory commands
  - rooted tree and basic file system directory layout
  - process/job control including cron and at
  - system ASCII message and error logs
  - system startup, run-levels and shutdown
  - basic IP network Interface and services configuration
  - kernel building

users, groups and shells

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
user and group files	`/etc/passwd` `/etc/group`	`/etc/passwd` `/etc/group`
default user account definition	`/usr/skel`	`/etc/skel`
command-line utilities to add a user	`adduser, useradd`	`useradd`
system-wide shell startup file	`/etc/profile`	`/etc/profile`
shell information	`/etc/shells, man sh`	`man 1 sh`
bourne shell	`[/usr]/bin/sh`	(removed with 11i 1.5)
korn shell	`[/usr]/bin/ksh`	`/usr/bin/ksh`
POSIX shell	`[/usr]/bin/posix/sh`	`/usr/bin/sh`
C shell	`[/usr]/bin/csh`	`/usr/bin/csh`

manipulating files and file systems

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
user file and dir commands	`ls, cd, find, …`	`ls, cd, find, …`
mounting/unmounting file systems	`mount, umount`	`mount, umount`
boot time mounted file systems	`/etc/fstab` `/sbin/bcheckrc`	`/etc/fstab` `/sbin/bcheckrc`
list mounted file systems	`df`	`df, bdf`

file system directory hierarchy

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
	/	/
device special files	/dev, /devices	/dev
configuration files	/etc	/etc
diskless file sharing		/export
default user home dirs	/home, /usr/users	/home
	/lost+found	/lost+found
temporary mount	/mnt	/mnt
remote NFS mount		/net
optional software	/opt,/usr/opt,/var/opt	/opt, /var/opt
system binaries	/sbin	/sbin
kernel and kernel builds	/vmunix, /subsys, /sys	/stand/vmunix /stand
	/tmp	/tmp
	/usr	/usr
libraries	/usr/lib, /usr/shlib	/lib
	/var	/var
cluster member specific files	/cluster	No – cluster file system

basic processes and jobs

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
process control	ps, kill, nice, renice	ps (ps UNIX95), kill, nice, renice
cron, at, batch	/usr/sbin/cron	/usr/sbin/cron
	/var/adm/cron	/var/adm/cron
	/var/spool/cron/crontab	/var/spool/cron/crontab
	/var/adm/cron/log	/var/adm/cron/log
	/var/spool/cron/atjobs	/var/spool/cron/atjobs

system logs

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
ASCII Logs	`/etc/syslog.conf`	`/etc/syslog.conf`
	`syslogd`	`syslogd`
	`/var/adm/syslog.dated/XXX/[kern|daemon,].log`	`/var/adm/syslog/syslog.log`
BINARY logs	`/etc/binlog.conf`	`/etc/nettlgen.conf`
	`binlogd`	`kl`
	`/var/adm/binary.errlog`	`/var/adm/kl.KLOGXX`

startup and shutdown

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
startup	`init`	`init`

	`/etc/inittab`
	`(initdefault 3)`
	`/sbin/rc[2|3]`
		`/etc/inittab`
		`(initdefault 3)`
		`/sbin/rc`

	`/sbin/rc[0|2|3].d`	`/sbin/rc[0|2|3|4].d`
	`/etc/rc.config`	`/etc/rc.config.d/XX`
shutdown	`shutdown, reboot`	`shutdown, reboot`

network interfaces and services

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
interface names	`lnX, eeX`	`lanX`
interface settings	`/etc/rc.config`	`/etc/rc.config.d/hpetherconf` `/etc/rc.config.d/netconf`
show configured interfaces	`ifconfig -a`	`lanscan` `ifconfig interface`
network services daemon	`/usr/sbin/inetd`	`/usr/sbin/inetd`
network services daemon config file	`/etc/inetd.conf`	`/etc/inetd.conf`
network services config file	`/etc/services`	`/etc/services`
failover between physical NICs	NetRAIN	LAN Monitor
aggregation between physical NICs	Link Aggregation (LAG)	Auto Port Aggregation (APA)

kernel builds and configuration

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
location of kernel	`/vmunix`	`/stand/vmunix`
kernel build area	`/sys/HOST`	`/stand/build`
build definition file	`/sys/conf/HOST`	`/stand/system`
tools	`doconfig`	`Configure, sysdef, system_prep, mk_kernel`
dynamic interfaces	`sysconfig, /etc/sysconfigtab`	`Kmsystem, kmtune`

functionally equivalent enterprise features

Tru64 UNIX® and HP-UX share a common set of "**functional equivalent**" features to meet enterprise computing needs

- UNIX vendors added competing enterprise features during the 90's
- paradigms often the same
- interfaces different and vendor specific
- examples
  - journal file systems
  - volume management, HP-UX with LVM
  - hardware management
  - centralized management with GUI capability
  - graphical, automated and cloned installations
  - basic SMP CPU resource management
  - using multiple NICs for a single network interfaces
  - event management systems

differentiating value-add features

In some areas, Tru64 UNIX® and HP-UX have relative competitive advantages through differentiating features

- examples
  - Tru64 UNIX
    - TruCluster Single System Image (SSI) Clustering
    - built-in multi-pathing storage, device location independent naming
  - HP-UX
    - integrated resource/workload management
    - RAS – OLAR, resiliency functions, partitioning (soft and hard)
    - built-in Security Functions

scaling

	Tru64 UNIX® V5.1B	HP-UX 11i v2
file size	16 TB	2 TB
file system size	16 TB	2 TB
memory	256GB	256GB
bits	64 Clean	64 with legacy 32
threading	NXM	NXM
CPUs	32	64

storage

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
device naming	physical location independent	physical location dependent
multi-pathing	built-in to single system and cluster, auto-configured and automatically used on all storage	manually configured add-on using either: • volume manager (LVM pvlinks, VxVM DMP) • RAIDArray Driver (AutoPath, SecurePath)
legacy Berkley file system	UFS	HFS
journal file system	AdvFS (owned and developed by Compaq)	VxFS (Third party from Veritas Software)
volume manager	LSM - licensed port of Veritas VxVM	LVM of IBM/OSF heritage VxVM (third party from Veritas)

hardware management – Tru64 UNIX® hwmgr

```
# hwmgr -view hier
HWID:   hardware hierarchy
-------------------------------------------------
   1:   platform AlphaServer 1000A 5/400
   2:     cpu CPU0
   6:     bus pci0
   9:       connection pci0slot8
  28:         bus pci1
  29:           connection pci1slot0
  39:             scsi_adapter isp0
  40:               scsi_bus scsi0
  48:                 disk bus-0-targ-1-lun-0 dsk0
  49:                 disk bus-0-targ-4-lun-0 cdrom0
  50:                 disk bus-0-targ-14-lun-0 dsk1
  31:           connection pci1slot1
  41:             scsi_adapter pza0
  42:               scsi_bus scsi1
  51:                 disk bus-1-targ-1-lun-0 dsk2
  ...
```

hardware management – HP-UX ioscan

```
# ioscan
H/W Path         Class                                  Description
=============================================================
                 root
0                ioa                                      System Bus Adapter
0/16               ioa                                  F16 Port
0/16/1                ba                                lba Bridge
0/16/1/3/0                      ba                      Legacy IO Core I/O Adapter
0/16/1/3/0/1                       tty                  Built-in RS-232C
0/16/1/3/0/2                       tty                  Built-in RS-232C
0/16/1/3/0/3                       ext_bus              Built-in Parallel Interface
0/16/1/3/0/4                       ps2                  Built-in Keyboard
0/16/1/3/0/5                       ipmi                 IPMI Controller
0/16/1/3/0/6                       acpi_node            ACPI Device
0/16/1/3/1                      sideba                  Intel IDE controller
0/16/1/3/1.0                       ext_bus              ide_ch
0/16/1/3/1.0.0                        target
0/16/1/3/1.0.0.0                           disk          MATSHITALS-120 SLIM4  00
0/16/1/3/1.0.7                        target
0/16/1/3/1.0.7.0                           ctl           Initiator
0/16/1/3/1.1                       ext_bus              ide_ch
0/16/1/3/1.1.0                        target
...
```

HP-UX disk device special naming

/dev/c#t#d#[s#]

- c# **card instance**
  - class and instance number can be seen in the first two columns of **/usr/sbin/ioscan -f** output.
- t# **target address** of the device on the interface bus
  - The address can range from 0 to 7 for a single-ended device, and from 0 to 15 for a fast wide device.
- d# **device number**
  - and can range from 0 to 7 maximum. On SCSI devices, d# is the SCSI LUN. Except for multi-function devices, d# is typically d0.
- s# **section** number (aka partition)
  - optional; made available for backward compatibility
  - section 0 now represents the *entire* disk

device special file location

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
disks, cdroms	`/dev[ices]/disk`	`/dev/dsk`
	`/dev[ices]/rdisk`	`/dev/rdsk`
Floppies	`/dev[ices]/disk`	`/dev/floppy`
	`/dev[ices]/rdisk`	`/dev/rfloppy`
Tapes	`/dev[ices]/rtape`	`/dev/rmt`
	`/dev[ices]/ntape`	
LSM / VXM volumes	`/dev/vol/`***`XX`***`/`	`/dev/vx/dsk`
LVM volumes		`/dev/vg`***`XX`***`/dsk`

finding the disk

Tru64 UNIX

```
# hwmgr -view devices
 HWID: Device Name          Mfg      Model      Location
 ------------------------------------------------------------
    3: /dev/dmapi/dmapi
   ...
   37: /dev/disk/dsk0c     Maxtor   5T020H2      bus-0-targ-0-lun-0
   38: /dev/disk/cdrom0c   COMPAQ   CD-224E      bus-1-targ-0-lun-0
   39: /dev/disk/dsk101c   COMPAQ   BD009635C3   bus-2-targ-0-lun-0
   40: /dev/disk/dsk102c   COMPAQ   BD009635C3   bus-2-targ-1-lun-0
   ...
```

HP-UX

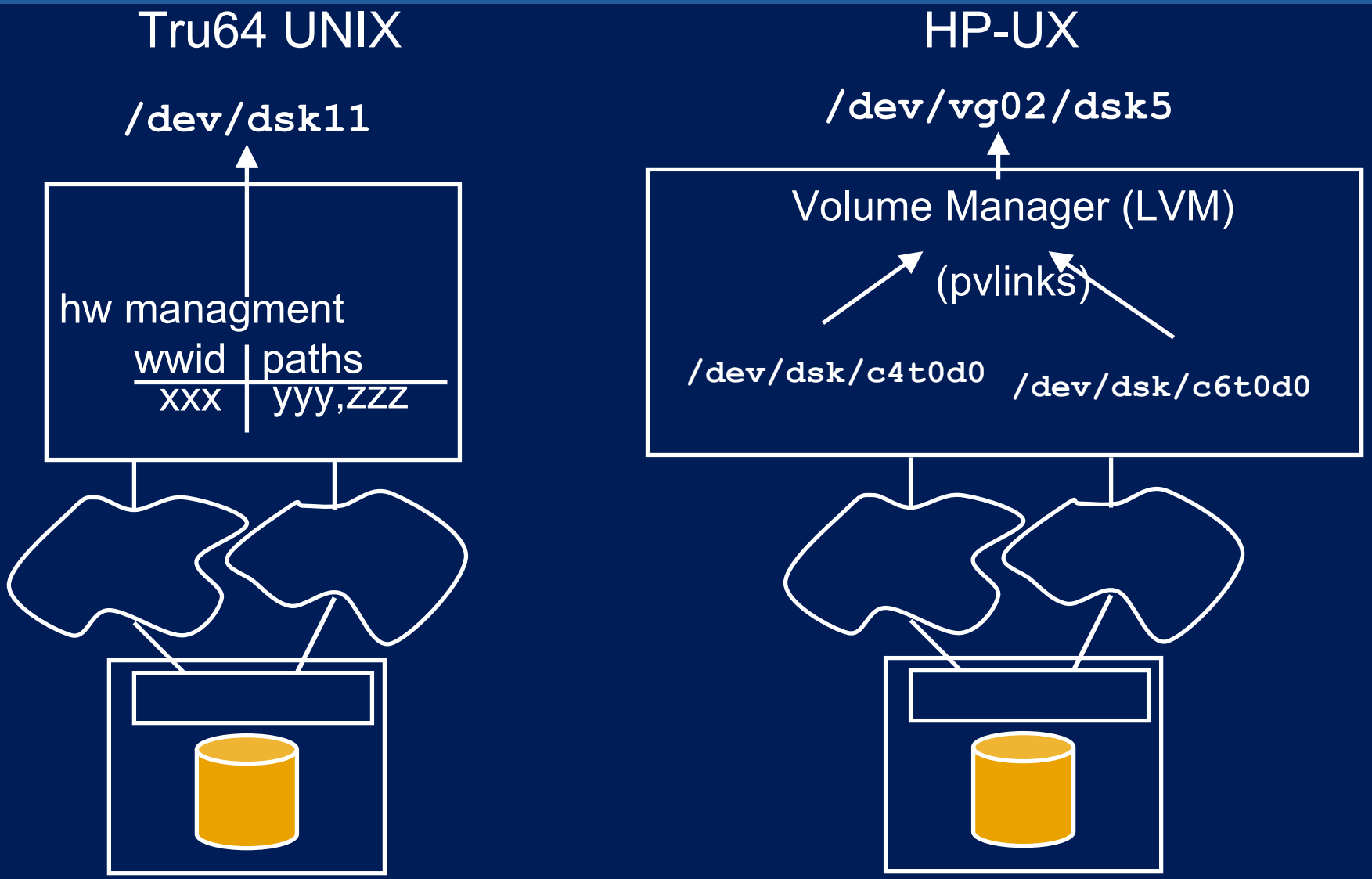
 # ioscan -fnc disk

```
Class      I  H/W Path         Driver      S/W State   H/W Type     Description
=========================================================================
disk       0  0/16/1/3/1.0.0.0  sflop       CLAIMED     DEVICE       MATSHITALS-120
                              /dev/floppy/c1t0d0   /dev/rfloppy/c1t0d0
disk       1  0/16/1/3/1.1.0.0  sdisk       CLAIMED     DEVICE       HITACHI DVD-ROM
                              /dev/dsk/c2t0d0   /dev/rdsk/c2t0d0
```

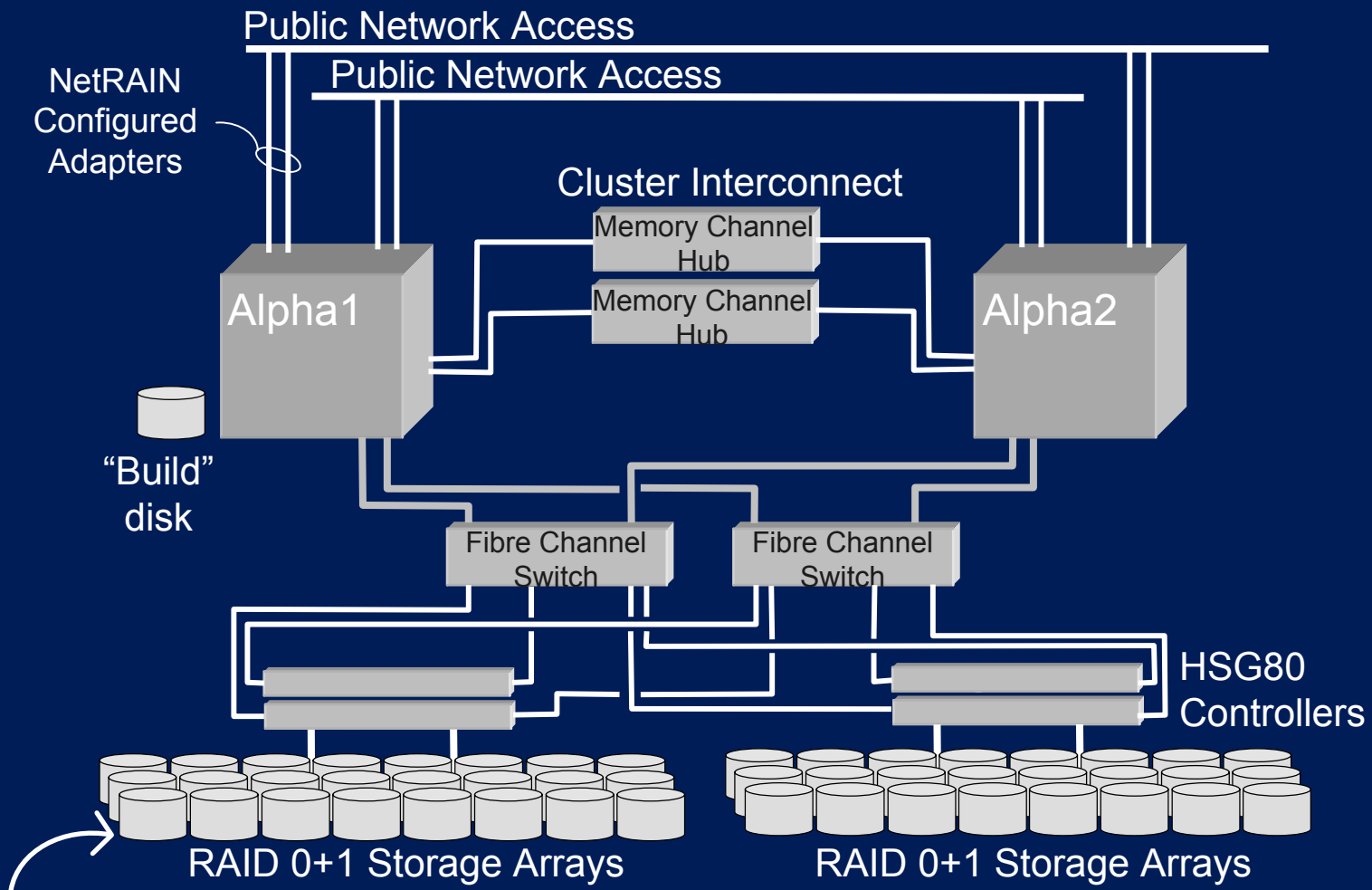
unique identification with “WWID”

```
# hwmgr -show scsi -did 0 -full

        SCSI                    DEVICE    DEVICE   DRIVER NUM   DEVICE FIRST
 HWID:  DEVICEID HOSTNAME       TYPE      SUBTYPE  OWNER  PATH  FILE   VALID
PATH
------------------------------------------------------------------------------
   17:  0         ernie          disk      none     2      2     dsk0   [0/3/0]

WWID:0410004c:"DEC     RZ26     (C) DECPCB=412225056947(ZG25056947  );
HDA=0000030635357245"
      BUS    TARGET  LUN    PATH STATE
      ------------------------------
      0      3       0      valid
      2      3       0      valid
...
```

multipathing



multi-pathing in TruCluster Server



Veritas volume manager commands

Tru64 UNIX® V5.1B

```
# man lsm
volintro(8)                                                    volintro(8)
…
  volassist, vold, voldg, voldiskadm, voledit, volencap, volinfo, volinstall,
  voliod, vollogcnvt, volmend, volnotify, volplex, volprint, volrecover, vol-
  reconfig, volrootmir, volsd, volsetup, volstat, voltrace, volume, volwatch
…
# man lsmsa
```

HP-UX 11i v2.0

```
# man vxintro
 vxintro(1M)                VERITAS Volume Manager                vxintro(1M)
…
        vxassist, vxconfigd, vxdctl, vxdg, vxdisk, vxdiskadd, vxdiskadm,
      vxedit, vxevac, vxinfo, vxiod, vxmake, vxmend, vxmirror, vxnotify,
      vxpfto, vxplex, vxprint, vxr5check, vxreattch, vxrecover, vxrelayout,
      vxrelocd, vxresize, vxsd, vxsparecheck, vxstat, vxtask, vxtrace,
      vxvmconvert, vxvol
…
# man vmsa
```

journal file systems

	Tru64 UNIX® V5.1B	**HP-UX 11i v2.0**
	AdvFS	JFS (VxFS)
storage model	multi-volume	single volume
journals	meta-data optional – user file data, Atomic Data Logging	meta-data
allocation abstraction	extents	extents
Recovery	automatic on mount	external tool **`fsck`**, run in `bcheckrc`
on-line resize	**`addvol`**, **`rmvol`**, or `mount -o expand`	(*volume mgr cmds*), **`fsadm`**
read-only file system copies	clones (**`clonefset`**, **`mount`**)	snapshots (**`mount -F vxfs -o snapof=...`**)
on-line defragmentation	**`defragment`**, **`vfast`**	**`fsadm`**

file systems – example

Tru64 UNIX® V5.1A

```
# df -k
Filesystem   1024-blocks  Used Available Cap  Mounted on
cluster_root#root 196608  110184   79592  59% /
root1_domain#root 262144   38063  219120  15% /cluster/members/member1/
                                                    boot_partition
data_domain#data 8380080 5038071 3334232  61% /data
root2_domain#root 262144   38056  219112  15% /cluster/members/member2/
                                                    boot_partition
cluster_var#var  1996712  122815 1866160   7% /var
cluster_usr#usr  1996712  715025 1265288  37% /usr
/proc                  0       0       0 100% /proc
```

HP-UX 11i v1.6

```
# bdf
Filesystem          kbytes    used   avail %used Mounted on
/dev/vx/dsk/rootdg/rootvol  204800   79376  117635   40% /
/dev/vx/dsk/rootdg/standvol 307200   63626  228402   22% /stand
/dev/vx/dsk/rootdg/varvol  2516067  713390 1691210   30% /var
/dev/vx/dsk/rootdg/usrvol  1093938  869330  210725   80% /usr
/dev/vx/dsk/rootdg/tmpvol  2097152  823990 1193607   41% /tmp
/dev/vx/dsk/rootdg/homevol   20480   14694    5786   72% /other/home
/dev/vx/dsk/rootdg/optvol  2097152 1933605  153379   93% /opt
```

system administration framework

consistent management

- command line (CLI), Character, X11/Motif, and web-based management tools (Java)
- common single system and cluster management
- Java-based Management Station
- management from a PC

HP-UX 11i V2.0

- system administration manager (SAM)
- service control manager
- OpenView

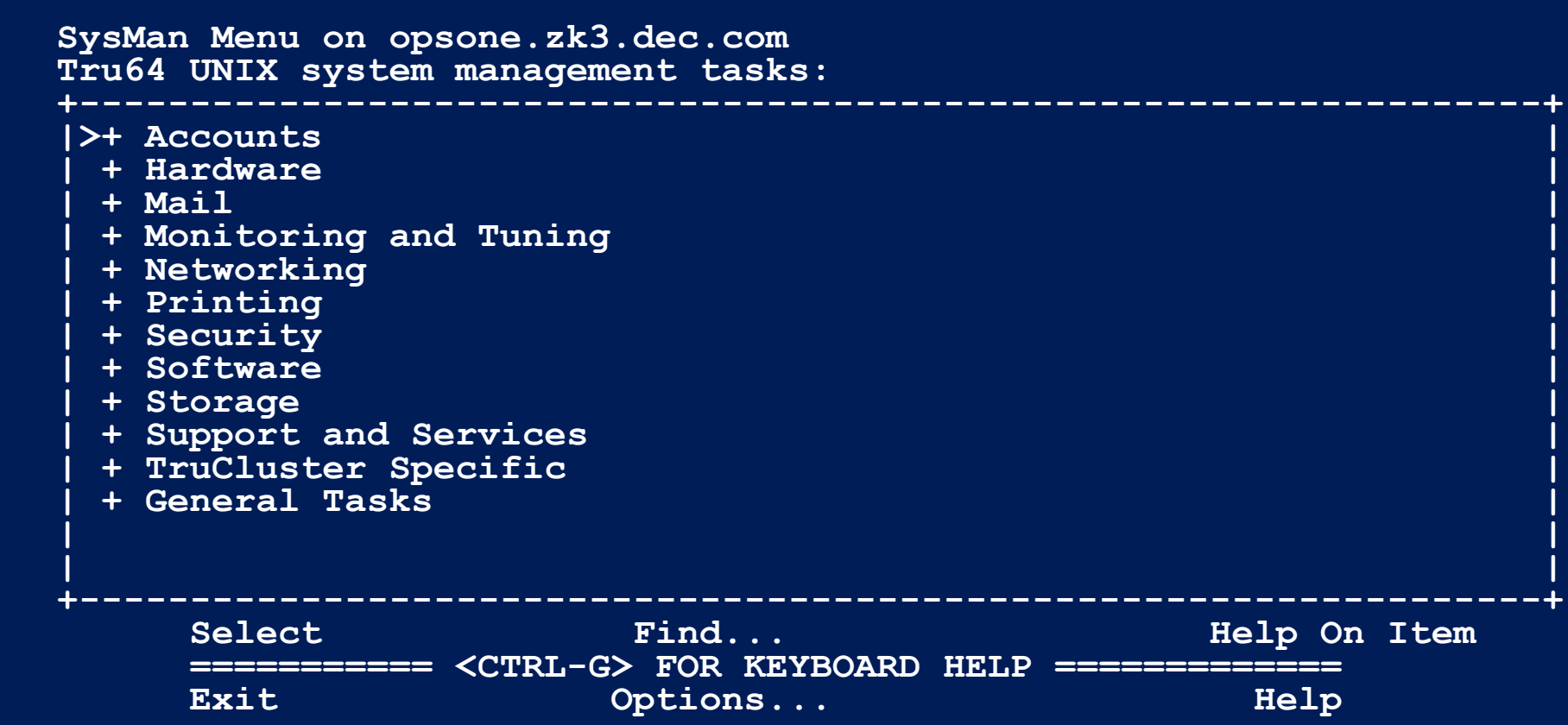
Tru64 UNIX® V5.1B

- Sysman
- Insight Manager

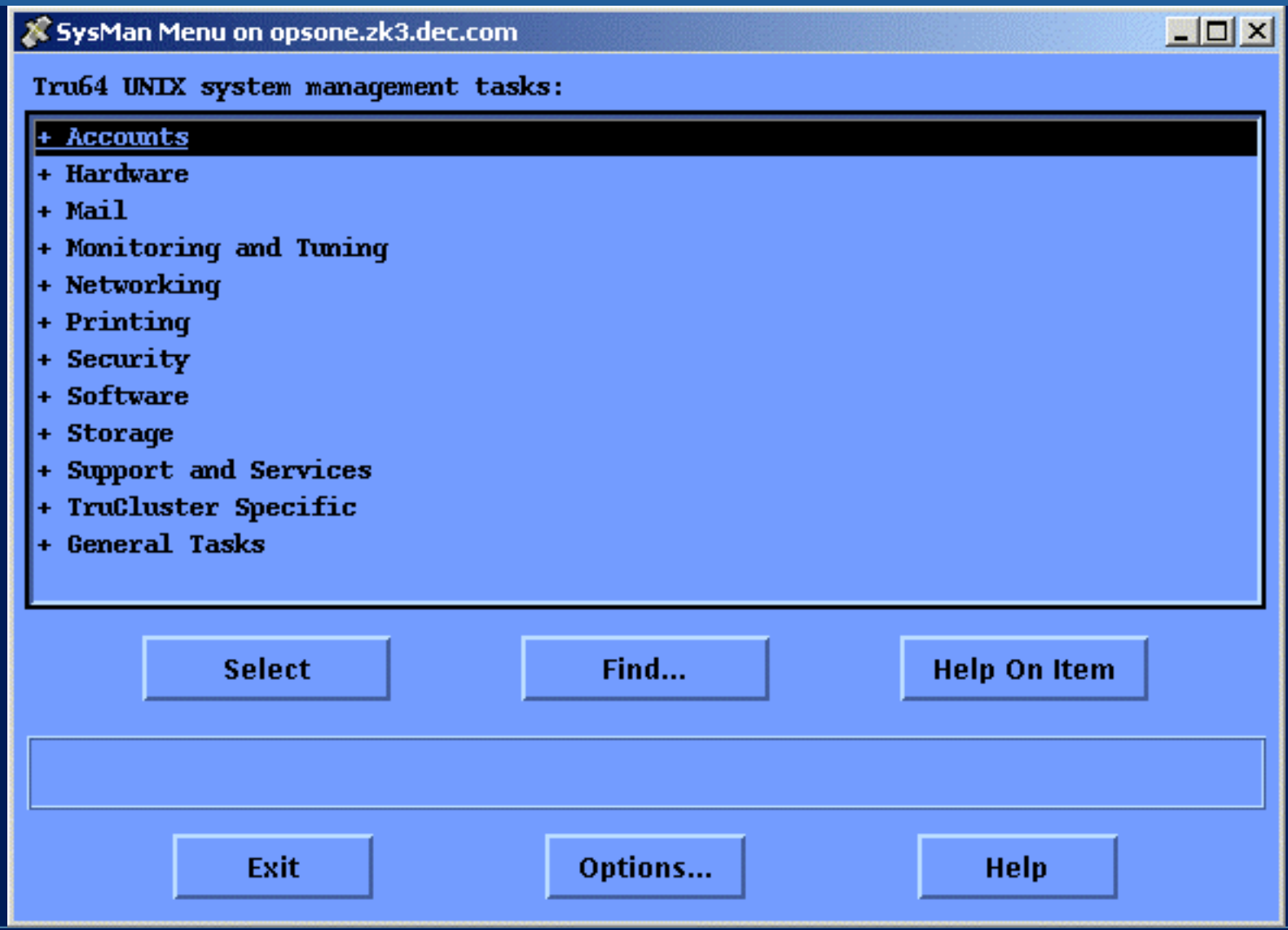
Tru64 UNIX® Sysman

```
# sysman
Use the following keys when working with SysMan applications on a terminal:
Field Navigation:
    Use the Tab key or the arrow keys to move from field to field.
Scrolling:
    Use Page Up/Page Down (or Prev/Next) to scroll.
Selection:
    Use the space bar to:
        - toggle the selection in a list box
        - choose an item in a radio box
        - enable or disable a check box (toggle button)
Activation:
    Use the enter (return) key or the space bar to click on the current
button.
    Pressing enter when a list box item is selected acts like a double-click;
    it invokes the default button for the list box.
    Note that OK, Cancel, Apply, and Help can always be invoked using the
    Escape key and the underlined letter in the button (e.g. Esc-O for OK)
Help:
    The Help key or the F1 key displays the help for the current window.
    Esc-H works as well.
For detailed help on the keyboard bindings, please refer to the on-line help.
```

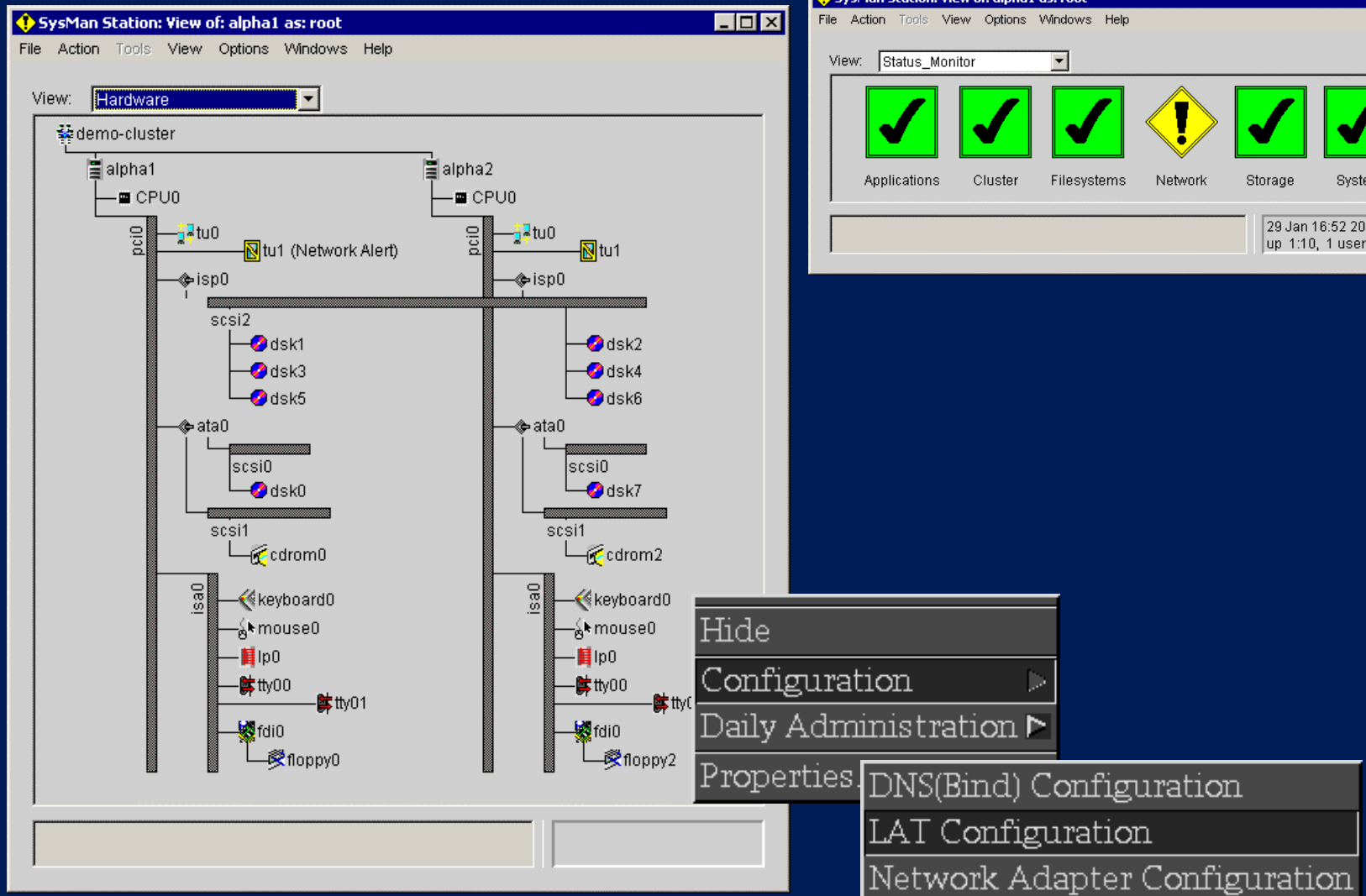
Tru64 UNIX® Sysman



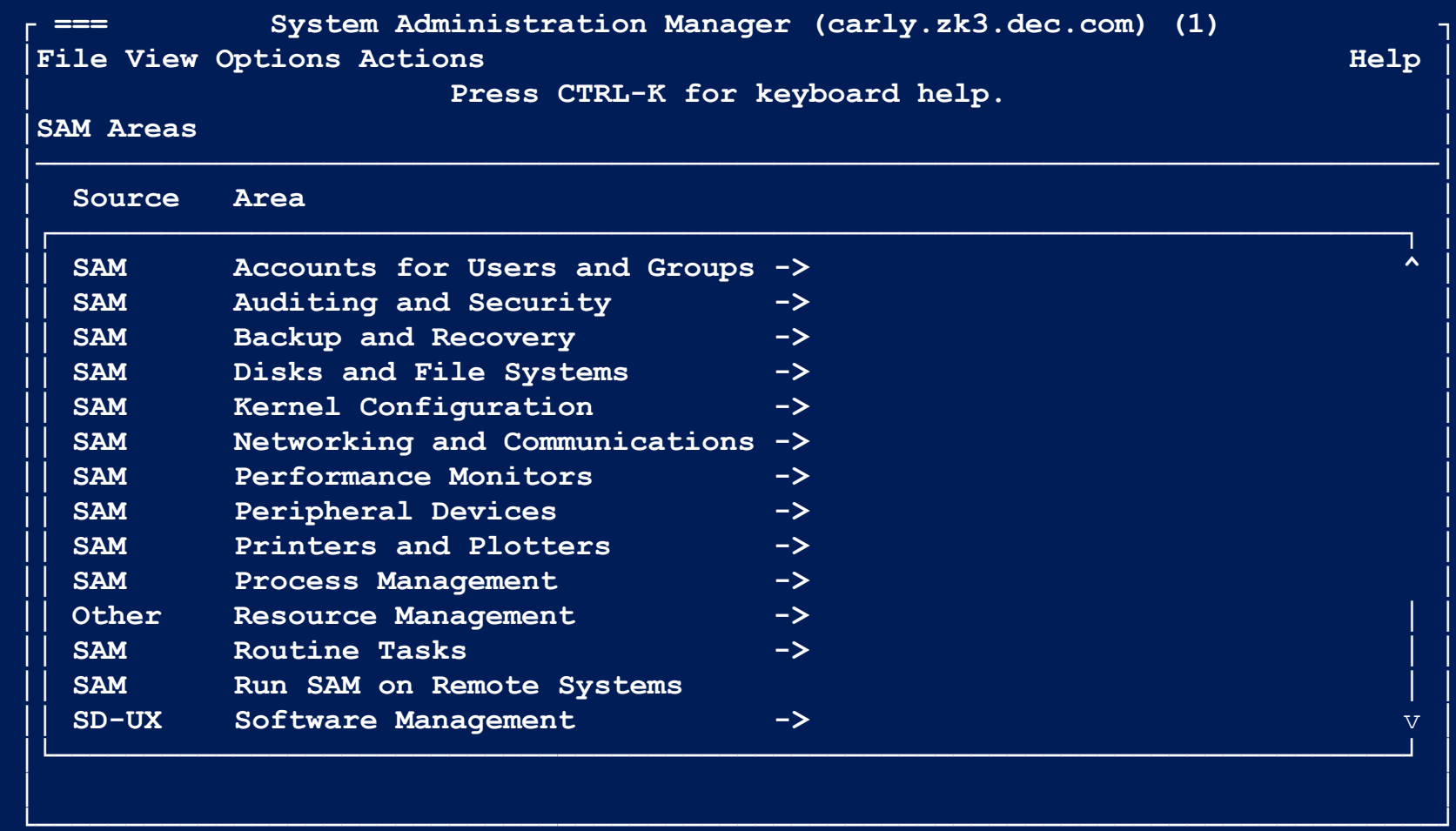
Tru64 UNIX® sysman -menu



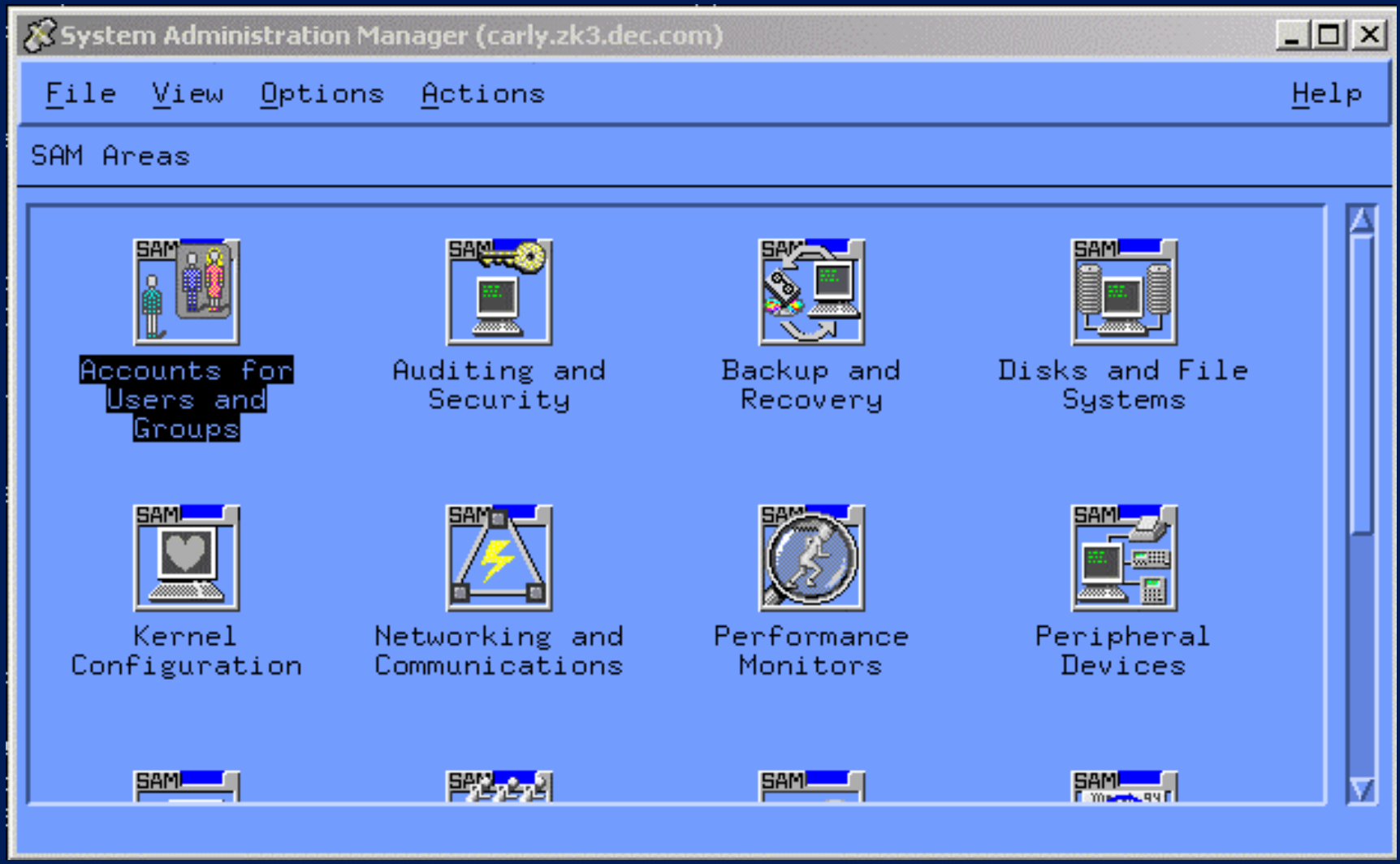
Tru64 UNIX SysMan Station



HP-UX SAM


=== System Administration Manager (carly.zk3.dec.com) (1)
File View Options Actions Help
Press CTRL-K for keyboard help.
SAM Areas
Source Area
SAM Accounts for Users and Groups ->
SAM Auditing and Security ->
SAM Backup and Recovery ->
SAM Disks and File Systems ->
SAM Kernel Configuration ->
SAM Networking and Communications ->
SAM Performance Monitors ->
SAM Peripheral Devices ->
SAM Printers and Plotters ->
SAM Process Management ->
Other Resource Management ->
SAM Routine Tasks ->
SAM Run SAM on Remote Systems
SD-UX Software Management ->
^
v

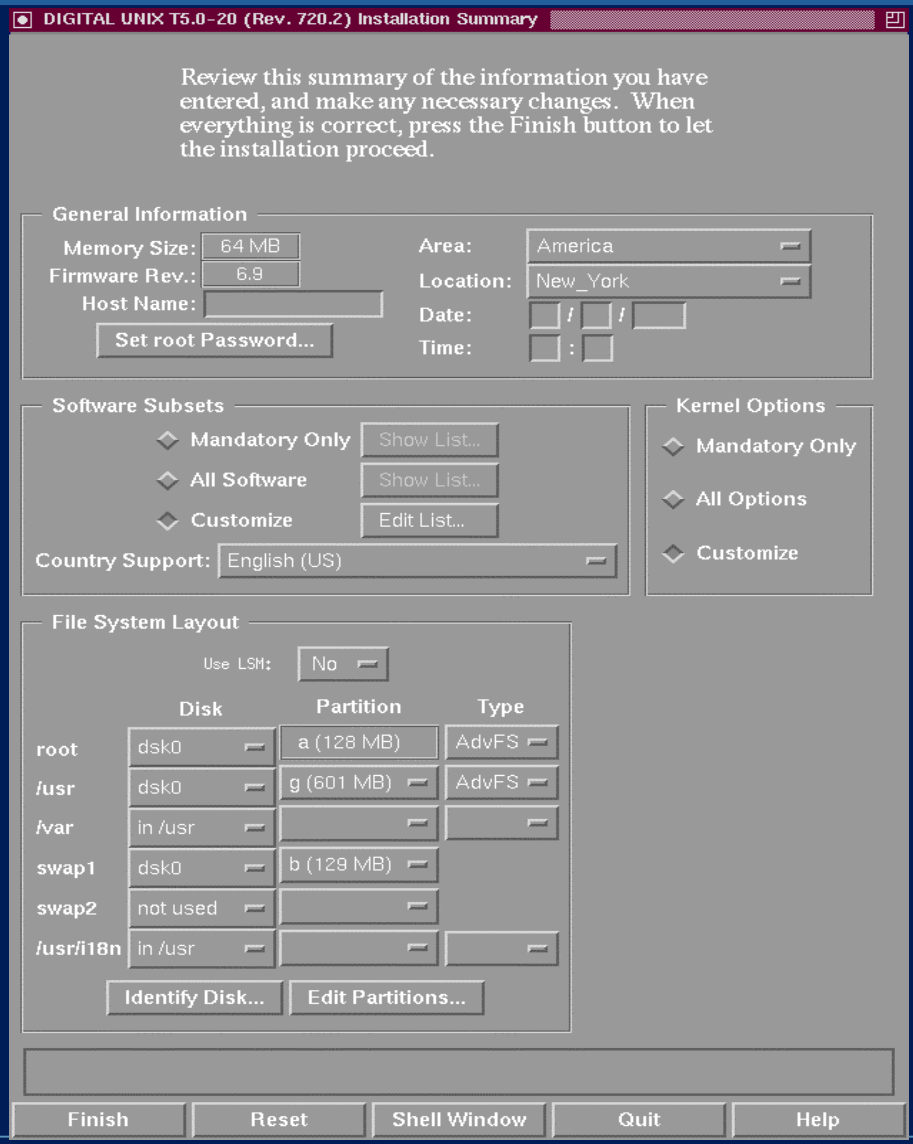
HP-UX SAM


System Administration Manager (carly.zk3.dec.com)
File
View
Options
Actions
Help
SAM Areas
Accounts for Users and Groups
Auditing and Security
Backup and Recovery
Disks and File Systems
Kernel Configuration
Networking and Communications
Performance Monitors
Peripheral Devices

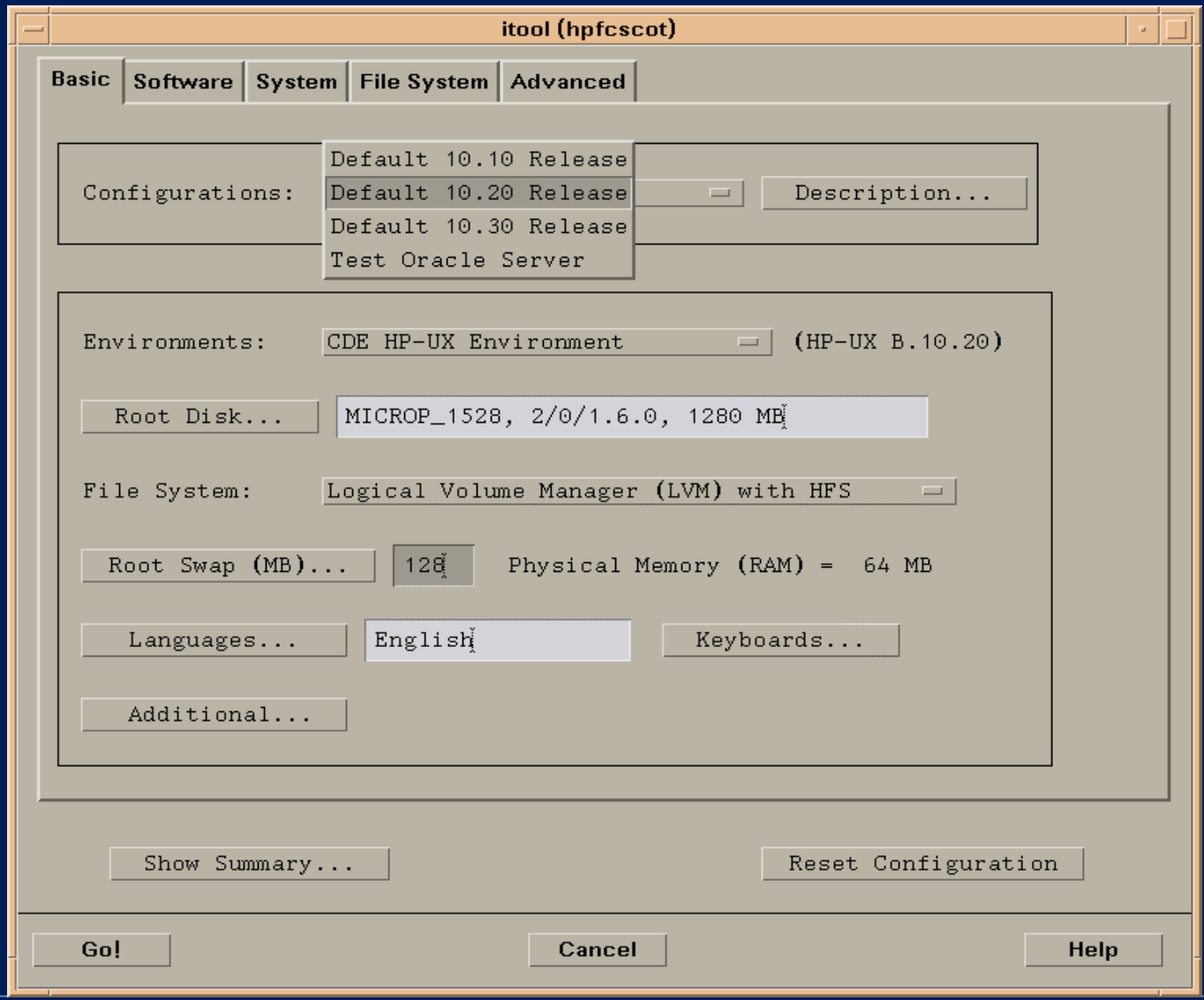
installation and software package tools

Tru64 UNIX® V5.1B	HP-UX 11i v2.0
factory installed software (FIS)	instant ignition
graphical installation	Ignite-ux
installation cloning	Ignite-ux
remote installation service	Ignite-ux
bootable tape	Ignite-ux
software subset management (setld)	software distributor (swlist, swinstall,…)

Tru64 UNIX® graphical installation



HP-UX Ignite – ignite-ux server



pre-packaged OS software options – o/s environments

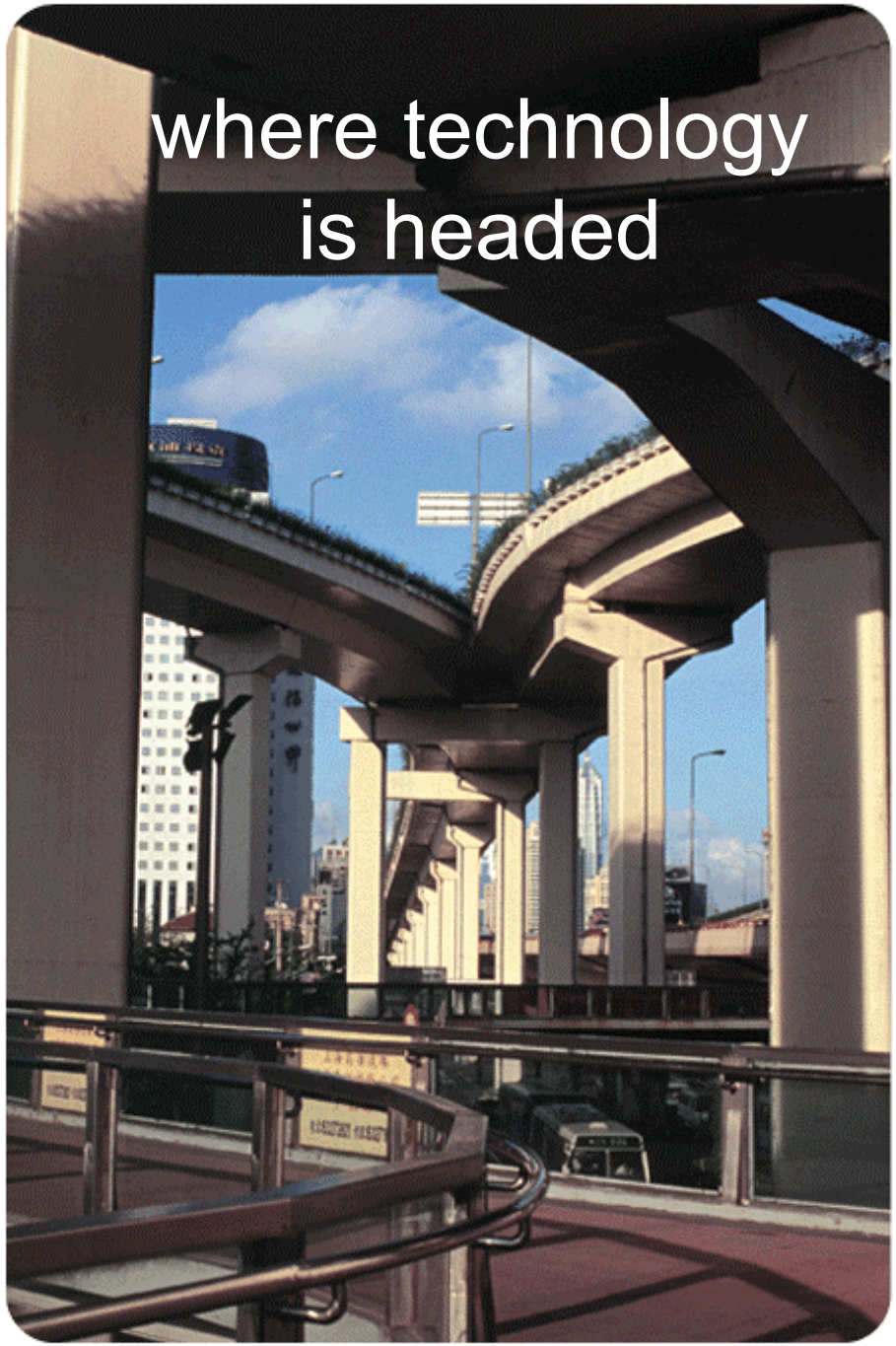
HP-UX has o/s environments

- distribution has 5 ”meta” subset groupings based on platform role to simplify pricing, distribution, installation and configuration
- commercial operating environments
  - 11i Mission Critical Operating Environment
  - 11i Enterprise Operating Environment
  - 11i Operating Environment
- technical operating environments
  - 11i Minimal Technical Environment
  - 11i Technical Computing Operating Environment (TCOE)

Tru64 UNIX® - no equivalent, pick and choose from one distribution

event systems

Tru64 UNIX® v5.1B	HP-UX 11i v2.0
event management system (EVM)	**event monitoring service (EMS)**
framework to define, post, wait for and log “events”	framework to define, post, wait for and log “events”
logging emphasis – notifying and logging when a change is reported	**polling emphasis** – detecting when something changes
integrated into and highly used in base system as well as clustering	heavily used in clustering, made available on stand-alone, less part of core os infrastructure
Integrated with UNIX ASCII and binary logs	
works cluster wide	works cluster wide
programming and scripting APIs, graphical monitoring tool (sysman)	programming API, graphical monitoring tool (SAM)



why things connect becomes more important than how they connect. where information technology capabilities are going:

- SMP and platform partitioning…
- resource management frameworks…
- OLAR/RAS...
- clustering…
- disaster tolerance…

SMP and platform partitioning

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
SMP scheduling	soft processor affinity with binding options	soft processor affinity with binding options
	processor sets	processor sets
	`runon, pset_xxx`	**`mpsched, psrset`**
platform partitioning	hard partitions	Npartitions (hard)
		Vpars (soft)

resource management - frameworks

Tru64 UNIX® V5.1B

- **class scheduler**
  - maximum
  - cpu only

HP-UX 11i v2.0

- **Process Resource Manager (PRM)**
  - minimum and or maximum share
  - cpu, diskio, memory
  - prmconfig, xprm
  - /etc/prmconf
- **Workload Manager (WLM)**
  - extension to PRM
  - prioritized service level objectives
  - resource adjustment to meet application objectives (feedback)
  - adjusts to admin specified schedule,application input,..
- **WebQoS**
  - plug in for WebServers

OLAR/RAS

Tru64 UNIX® V5.1B

- OLAR CPUs
- memory troller
- automatic off-line bad CPUs
- multi-path storage I/O
  - automatic/transparent
  - performance/HA

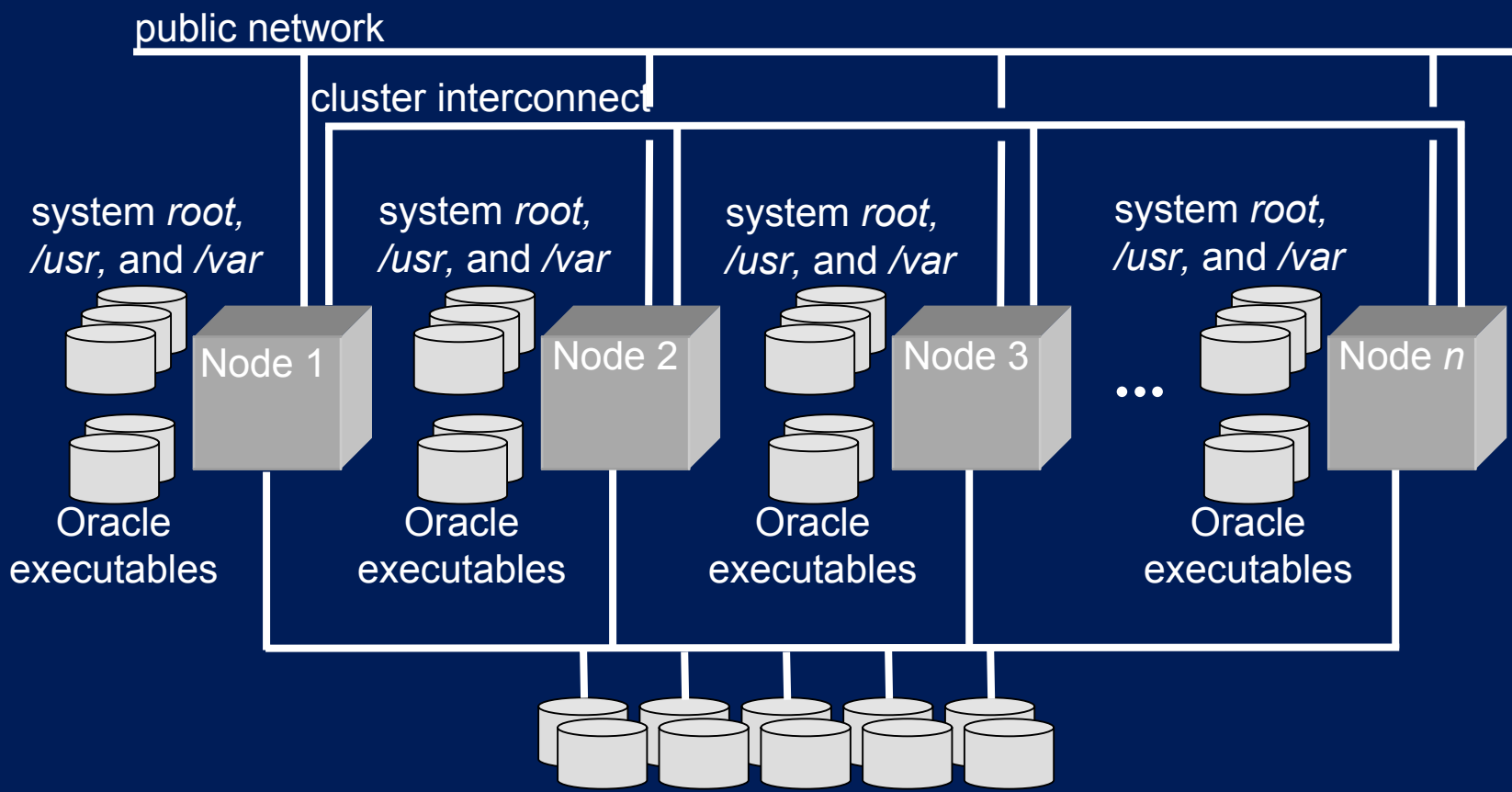
HP-UX 11i v2.0

- OLAR PCI I/O devices
- memory error detection and recover
- notify and manual off-line bad cpus
- storage path failover – pvlinks,
  - part of cluster, not base O/S
  - no load-balancing
- icod

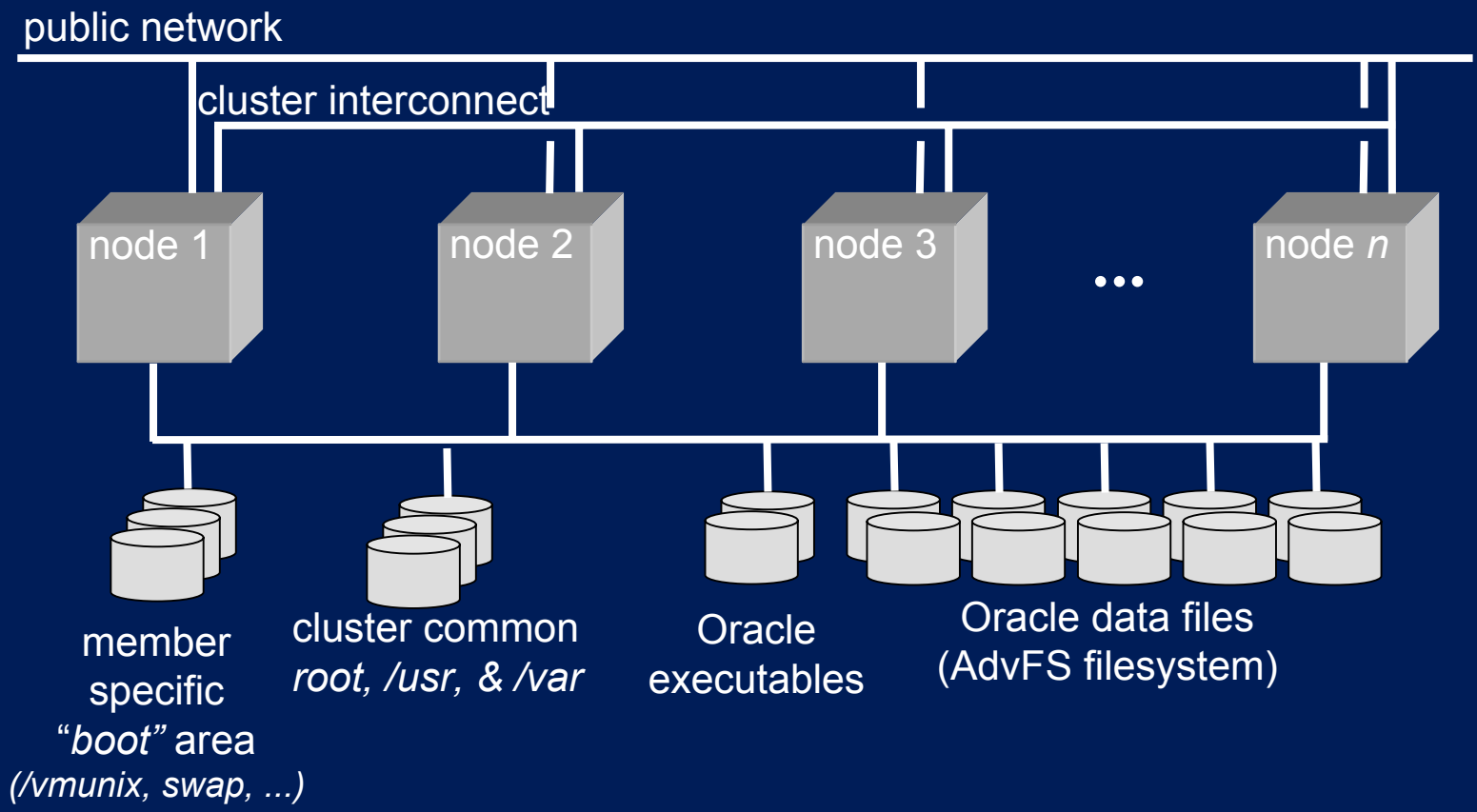
clustering

	Tru64 UNIX® V5.1B	HP-UX 11i v2.0
failover clustering	was Available Server Environment (ASE) – now superseded by TruCluster Server	MC/ServiceGuard
failover clustering with selected hooks for parallel applications (OPS/RAC) on raw devices	was ASE Production Server (PS) – now superseded by TruCluster Server	MC/ServiceGuard Extension for *Oracle9i*® Real Application Clusters (SG eRAC) (formally MC/LockManager and **MC/ServiceGuard OPS Edition**)
single image cluster for failover or parallel applications (Oracle OPS/Oracle9*i* RAC) using single cluster wide rooted-tree filesystem	TruCluster Server	

HP-UX 11i v2.0 MC/ServiceGuard extension for Oracle9*i*® RAC (SG eRAC) with Oracle9*i* Real Application Clusters – (formerly **MC/SG OPS edition**)



Tru64 UNIX®/TruCluster Server V5.1B with Oracle9*i*® Real Application Clusters



disaster tolerance

Tru64 UNIX® V5.1B DT

- TruCluster Server based with either:
  - hardware based mirroring using StorageWorks data replication manager (DRM)
  - Oracle Standby Database (called DataGuard in Oracle9*i*)
- Custom systems (CS) integrates solution as DT Campus

HP-UX 11i v2.0 DT

- MC/ServiceGuard based with either:
  - hardware support in HP XP disk arrays or EMC Symmetrix disk arrays
  - software based MirrorDisk/UX
  - Oracle Standby Database (called DataGuard in Oracle9*i*)
- Standard Products
  - Extended MC/ServiceGuard clusters (a.k.a. Campus Clusters)
  - MetroCluster
  - ContinentalClusters

References

- Tru64 UNIX® doc set on-line
  - http://www.tru64unix.compaq.com/docs/pub_page/doc_list.html

- HP 11i doc set on-line
  - http://docs.hp.com/hpux/11i/index.html

  - Operating Environments
    http://docs.hp.com/hpux/onlinedocs/os/11i/hpwoldfullpres.pdf
  - Configuring Peripherals
    http://docs.hp.com/hpux/onlinedocs/B2355-90698/B2355-90698.html
  - Managing Systems and Workgroups: A Guide for HP-UX System Administrators
    http://docs.hp.com/hpux/onlinedocs/B2355-90742/B2355-90742.html
  - Ignite-UX Administration Guide (Installation)
    http://docs.hp.com/hpux/onlinedocs/B2355-90749/B2355-90749.html
  - HP-UX System Administration Tasks
    http://docs.hp.com/hpux/onlinedocs/B2355-90672/B2355-90672.html

Where to Find the Transition Modules

- To obtain the current Planning Transition Modules, go to:
- http://www.hp.com/go/transition-modules/

- These are also referenced off of the Alpha RetainTrust web site (so you'll only have to remember one source!)
- http://www.hp.com/go/alpha-retaintrust

What You'll See…

- Initial page – introducing you to the Transition Modules
- Information about downloading information (the ZIP file of the web tree) – once you accept the 'terms and conditions" for this information
- If you accept the "terms and conditions", you will fill out a short form to supply your customer info.
- - You can then download an encrypted zip file
- - Includes a "readme.txt" file with specific instructions on how to unzip the file. Requires a decryption key.
- - Once your info is validated, you will receive (within 2-3 days) a key to decrypt the file and access the Transition Modules.

What's Next?

- New Transition Module Coming – March 2004
- Planning – Oracle Database Migration

- Updates (as needed) to existing Planning Modules

- Followed by Design-focused Transition Modules

Summary…

- Providing a staged approach, with heavy emphasis on up-front planning; to mitigate risk…
- Providing customers with a framework for how to approach transition planning. (Plan-Design-Implement-Manage).
- Providing Transition Modules to assist customers through each phase of transition, beginning with the Planning phase.
- ISV Planning Tool, to be utilized by hp account reps, to assist customers in planning their application migration, is available now.

Links to Additional Information

- To obtain the current Planning/Design Transition Modules, go to:
  - http://www.hp.com/go/transition-modules/
- More information on Tru64 UNIX® Application Transition Tools at:
  - http://www.hp.com/go/tru64appmigration/
- Alpha RetainTrust web site:
  - http://www.hp.com/go/alpha-retaintrust

Alpha RetainTrust Complimentary Training: Webcasts

- Technical webcasts to date:
  - Tru64 UNIX® & HP-UX: Side-by Side Comparison for System Administrators
  - Tru64 UNIX®: Side-by-Side Comparison: Clusters & Disaster Tolerance
  - Tru64 UNIX® & HP-UX: Side-by-Side Comparison: Storage Platform Configurations
  - Tru64 UNIX® & HP-UX: Side-by-Side Comparison: Resource and Workload Management {slide set only; look for a new recording soon}
  - Transitioning your Applications from Tru64 UNIX® to hp-ux on Itanium®: Application Transition Tools
  - Tru64 UNIX® & HP-UX: Planning a Technology Transition
  - Tru64 UNIX® & HP-UX: Enterprise Server Evolution

Playback recordings as well as download slide deck are available at:

- www.hpbroadband.com
- Enter email address and keyword tru64unix

Complimentary Customer Training: Web-based Courses - available with an e-coupon

In-depth web based customer training (available via e-coupon)

- ✓ Tru64 UNIX to HP-UX System Administration
- ✓ Tru64 UNIX to hp-ux Application Porting

Check the Alpha RetainTrust website for details on how to obtain your e-coupon.

http://www.hp.com/go/alpha-retaintrust

Or send mail to tru64.training@hp.com to obtain your e-coupon.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