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**Presentation Title: Upgrading to UnixWare 7.1.4**

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**Session ID: 121**

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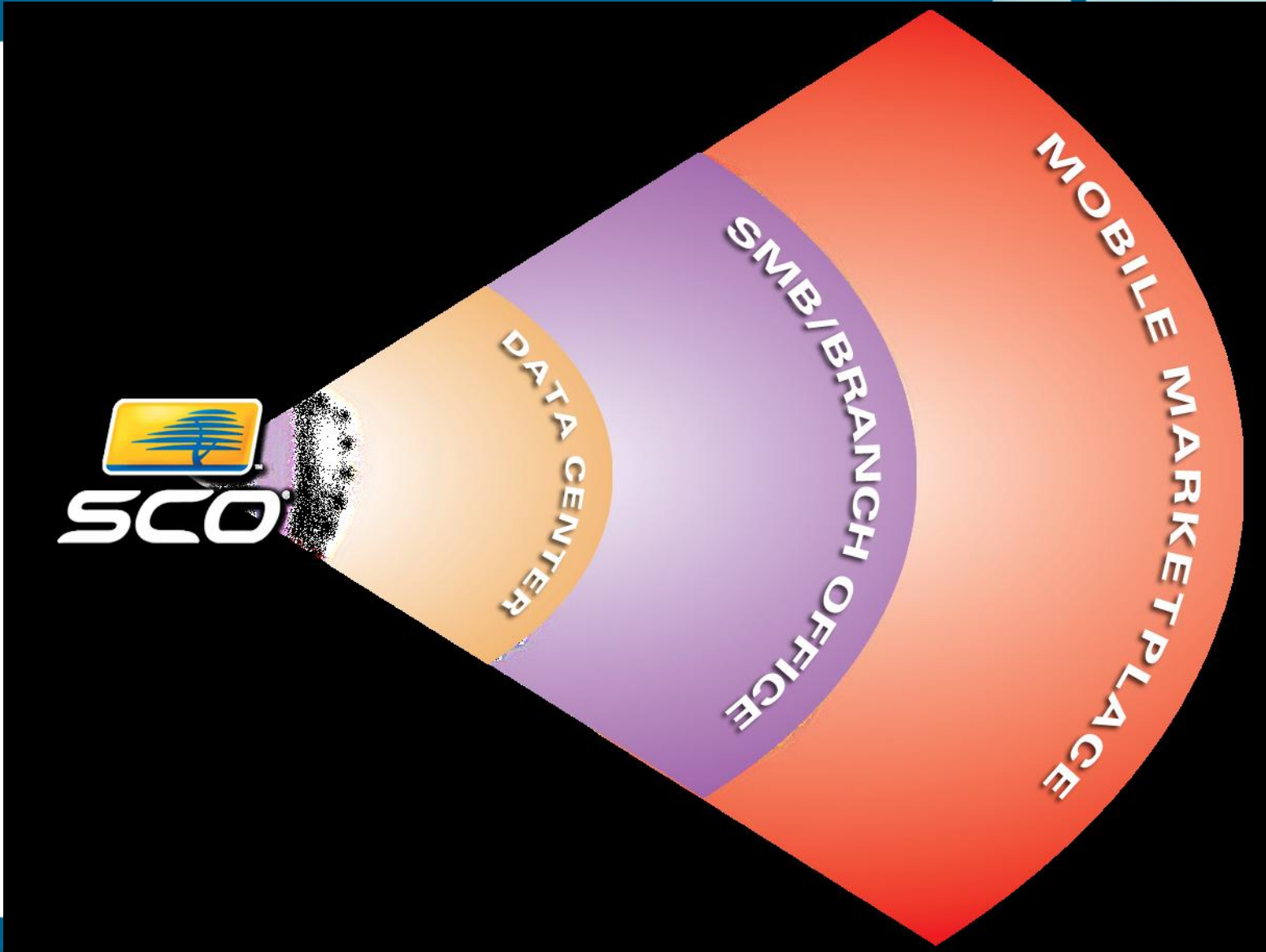
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# Agenda



- Benefits of Migration to UnixWare 7.1.4
- New Features
- Hardware System Requirements
- ISL vs Upgrade
- ISL Tips & Debugging
- Upgrade Tips & Debugging
- Application Compatibility
- SCO Services
- Resources



## Summary:

- New & updated editions
- Enhanced OpenServer application support
- New & updated Java, open source components
- Updated optional services
- SCOHA clustering solution



## Summary (continued):

- New & enhanced hardware support
- Web services support
- Enhanced security
- Improved installation & upgrade
- Many other enhancements & bug fixes

# UnixWare 7.1.4 New Features



- New & expanded editions
  - Low cost Small Business Edition (SBE)
  - Increased memory and number of CPUs for other editions
- Enhanced OpenServer application support
  - Enhanced Application Compatibility (ACP)
  - OpenServer Kernel Personality (OKP)
  - Xenix support
- Updated Java
  - Java run-time, SDK, Mozilla plug-in, javax.com



# UnixWare 7.1.4 New Features



- New & updated open source components
  - Mozilla, Apache, sendmail, PostgreSQL, MySQL, CUPS, Samba, Squid, cdrtools, IP Filter, tcpdump, PHP, Perl, plus more
- Enhanced security
  - Pluggable Authentication Module (PAM), IPsec (VPN support), OpenSSL, OpenSSH, many security updates
- New & updated optional services
  - SCO HA or ReliantHA clustering
  - Advanced File and Print Server (AFPS)
  - NetTraverse Merge

# UnixWare 7.1.4 New Features



- Web services support
  - SCOx infrastructure & Web Services Substrate (WSS)  
Apache, Tomcat, gSOAP, plus more
- New & enhanced hardware support
  - New & updated graphics, network adapter (NIC), and host bus adapter (HBA) drivers
  - IDE with ATA-6 support for > 128 GB
  - USB 2.0
  - i845 (ICH1-4, AC97) audio support
  - Enhanced PCI serial

# UnixWare 7.1.4 New Features



- New & enhanced hardware support (continued)
  - Hot add memory, hot swap CPU, hot plug PCI-X
  - ACPI boot support
  - Intel and AMD dual core support
  - Enhanced hyperthreading support
  - AMD Opteron (32-bit mode) & Athlon, IBM x440

# UnixWare 7.1.4 New Features



- Many other enhancements & bug fixes
  - Marry driver with encryption feature
  - Network Time Protocol (NTPv4)
  - Name Server Switch (NSS)
  - dlpid networking performance
  - UNIX95 conformance (minor issues)
  - Emergency recovery bootable cdrom & MBR option
  - Default desktop selection
  - Enlarged printer queue (999 jobs)
  - Enhanced PPP scalability

# UnixWare 7.1.4 New Features



- Many other enhancements & bug fixes (continued)
  - Improved scoadmin (e.g. storage manager, DNS manager)
  - DocView automatic indexing and print book
  - Updated guides and manual pages
  - PostScript printing on PCL printers
  - Multiple USB printer support

# UnixWare 7.1.4 New Features



- Improved installation
  - ISL can install in partitions above 8 GB
  - CD2 is optional
  - Improved installation performance
  - HBA cdrom with CD1 as HBA cdrom option
  - USB support (keyboard, mouse, disk, cdrom, floppy)
  - User defined slices & filesystems
  - 4 GB swap space limit
  - DHCP client option
  - Media-less network install using PXE boot

# UnixWare 7.1.4 New Features



- Improved upgrade
  - Upgrade wizard (uli) skips reboot
  - uli -f <dir> allows use of mounted images
  - Remote upgrades now possible

# UnixWare 7.1.4 Hardware System Requirements



Memory: 64 MB, 256+ MB recommended

Disk: 2 GB, 4+ GB recommended

Video: 1024 X 768 default with X-window

Use swap, sar, & rtpm commands, Skunkware top to check memory & CPU utilization.



## UnixWare 7.1.4 ISL vs Upgrade



- Upgrade allows use of existing hardware & software configuration.
- ISL allows use of new hardware, e.g. a larger, faster disk or a new system.
- Time to install vs upgrade may not be appreciably different, although not having to re-install applications or re-configure the system could make upgrade the faster choice.
- Recommendation: back up your system before upgrading.



- Use a UnixWare 7.1.4 media kit with the May 2006 recut CD1 or download the recut CD1 from the SCO support download page. This recut CD1 contains a number of changes to allow installation on the latest hardware:
  - Updated USB driver
  - enhanced mode IDE support (legacy free)
  - Updated HBA & network drivers
  - USB HBA floppy & disk geometry fixes

## UnixWare 7.1.4 ISL Tips



- The May 2006 recut CD1 installation will automatically apply the maintenance pack 3 set and ptf9052c. However, there are additional updated packages available on the MP3 cdrom, which is included in new media kits and available for download.



- To install the additional updated packages from the MP3 cdrom after ISL is complete, do the following:

```
# mount /dev/cdrom/cdrom1 /mnt
```

- or -

```
# mount `marray -a uw714mp3May2006.iso` /mnt
```

```
# cd /mnt
```

```
# ./install.sh
```

...

```
# umount /mnt
```



- The installation script will re-install the MP3 set, so ptf9052c will need to be re-installed from the recut CD1:

```
# mount /dev/cdrom/cdrom1 /mnt
```

```
# pkgadd -d /mnt/upd.additions/ptf9052 ptf9052
```

```
# umount /mnt
```

The system should be rebooted after ptf9052 is installed. See the recut CD1 release notes and MP3 cdrom release notes for more information.

## UnixWare 7.1.4 ISL Tips



- A third-party or custom HBA cdrom can be used as an alternative to a floppy when loading additional HBA drivers during ISL. The file layout is the same as for an HBA floppy.
- The CD1 as HBA cdrom feature allows HBA drivers not included in the CD1 boot image but present on the cdrom to be loaded – just select yes in response to “Load more HBA drivers?” without inserting an HBA floppy.
- See the recut CD1 release notes for the list of HBA drivers included in the cdrom boot image and on the cdrom.

## UnixWare 7.1.4 ISL Tips



- Note that ISL will overwrite the active partition, including any user filesystems in that partition.
- Operating systems & filesystems on inactive partitions are preserved if the Disk Configuration screen partition layout is not modified.
- Filesystems on inactive partitions or other disks can be mounted, e.g. from a previous UnixWare installation.

# UnixWare 7.1.4 ISL Debugging



- Access the VT0 console via `<Alt><SysRq>H` or `<Ctrl><Alt>H` for:
  - Error messages
  - Memory detection
  - Device enumeration
  - resmgr command
  - Access to ISL scripts in `/isl/ui_modules`
- Return to ISL via `<Alt><SysRq><F1>` or `<Ctrl><Alt><F1>`





- Boot parameter `IVAR_DEBUG_ALL=1` enables ISL debug logging

- Copy the log files to floppy

```
find /tmp/log/* | cpio -ocv > /dev/dsk/f0t
```

- Retrieve the log files from floppy

```
cpio -icv < /dev/dsk/f0t
```



- Root host bus adapter is not found
  - Check the device enumeration on the VT0 console
  - Do you need to use the CD1 as HBA cdrom feature?
  - Do you need a third-party diskette or cdrom?
  - Did your USB floppy get properly recognized?



- Root host bus adapter is not found (continued)
    - If you have very new hardware, try using the DCU to manually bind the driver to the HBA instance:
      - Select "Enter the DCU", "Hardware Device Configuration"
      - Press <F2> under "Device Name" and select appropriate driver
- NOTE: If hardware is not supported, could result in panic!



- Cdrom drive is not found
  - If the cdrom is jumpered as slave and there is no master device, re-jumper the cdrom as master.



- Network adapter is not auto-detected
  - Is there an SCO driver on the OEM web site (e.g. Marvell Yukon)?
  - If the NIC is a newer version of an existing chipset, could it be a board ID issue? Use the resmgr command to check.
  - If you need a third-party driver, select "Defer network configuration", install the third-party NIC driver package after ISL completes, then use "scoadmin network" to configure networking.



- Some boot parameters:

ACPI=Y (used post-ISL)

Use on modern hardware to avoid hangs, panics, incorrect number of cpus, excessive interrupt time shown by rtpm.

ATAPI\_DMA\_DISABLE=Y

Prevents cdrom errors on some systems.

ENABLE\_4GB\_MEMORY=N

Prevents "Out of KMA memory" panic on some HP systems with more than 33 GB RAM installed.



- Some boot parameters (continued):

PSM=MPS (default is ATUP)

Can be used to avoid problems on SMP systems when the mouse and network adapter share an IRQ.

USE\_VESA\_BIOS=Y

Prevents a blank screen when booting installation cdrom with some graphics adapters (e.g. Nvidia GeForce 4).

Use the SHOW command to display the current parameters.



- PANIC: vfs\_mountroot cannot mount root

- This occurs when the kernel loads but the root disk is not detected.

- Check to see that you are installing to the right disk!

Verify the disk on the "Disk Configuration" screen

Make sure that the BIOS boot order is correct

Check that the BIOS properly enumerates the disk



## UnixWare 7.1.4 Upgrade Tips



- Use the Upgrade Wizard (uli) to upgrade from UW711, OU800 (UW712), or UW713.
- Maintenance packs should be removed before upgrading to UW714.
- UW713 with update pack 1, 2, or 3 must be upgraded to UW714 using update pack 4. Alternately, the update packs should be removed in reverse order before upgrading.
- To install & run the Upgrade Wizard, use CD2 from the UW714 media kit:

```
# pkgadd -d cdrom1 uli
```

```
# uli
```

## UnixWare 7.1.4 Upgrade Tips



- The Upgrade Wizard will prompt for an upgrade license if needed, then will install the update set, followed by other packages on CD2 & CD3 (CD3 will be prompted for but it may not actually be needed).
- The Upgrade Wizard will determine in what order the packages need to be updated, resolve dependencies, and also allow new packages to be freshly installed.
- Following the `uli` upgrade and rebooting, the updates from the MP3 cdrom and `ptf9052c` should be installed (refer to the previous instructions for installing).

## UnixWare 7.1.4 Upgrade Tips



- Note: if the system was originally installed with UW711 or OU800 and the scohelp package was installed, it should be removed prior to installing MP3. Refer to the MP3 cdrom release notes for more information.
- An alternative to using physical media with the Upgrade Wizard is to use a “married” cdrom iso image (marry is available in OU800 and later):

```
# mount `marry -a <CD2 iso>` /mnt  
# uli -f /mnt
```

## UnixWare 7.1.4 Upgrade Tips



The caveat is that if a CD3 package (ReliantHA, AFPS, or Merge) needs to be updated the mounted image will need to be manually changed when uli reaches that point:

```
# umount /mnt
```

```
# mount `marray -a <CD3 iso>` /mnt
```

- The uli -f <dir> option allows a remote upgrade by setting the DISPLAY environmental variable for remote X-window display, or by running uli over a connection like telnet.

## UnixWare 7.1.4 Upgrade Tips



- Note: the upgrade process attempts to preserve existing configuration information by merging changes or by creating a backup of the existing configuration file, but it may not be perfect.
- Recommendation: back up your system before upgrading.

# UnixWare 7.1.4 Upgrade Debugging



- Check the `/var/sadm/install/logs/*` log files for errors, but note that some “errors” are benign.
- To log additional information for the update set & package, create the following empty file:

```
# > /var/sadm/pkg/installdbg
```

The log file for this additional information is:

```
/var/sadm/pkg/installdbg.log
```

# UnixWare 7.1.4 Upgrade Debugging



- The UW714 update set (UpdateSet) contains:

libC	uccs
libc	udidk
libm	udienv
libosr	update714
libthread	usb
syshead	

- The UW714 MP3 set (uw714mp3) contains:

libc	pam
libthread	uw714m3

## UnixWare 7.1.4 Upgrade Debugging



- The Upgrade Wizard (uli) can be re-run if needed, and will be faster the second time when re-installing the update set since the update714 package is skipped and only the smaller set packages are re-installed.
- Note: uli doesn't perform version checking, so if it's re-run it will also re-install any previously updated packages like X, Java, etc.



## UnixWare 7.1.4 Application Compatibility



- UnixWare, OpenServer, and Xenix applications that worked with UW711 or later should continue to work with UW714.
- The UW714 upgrade doesn't include/upgrade Linux RPMs if the Linux Kernel Personality (LKP) was previously installed, but Linux applications should continue to work.
- Installation or runtime checks for the OS name or version (e.g. a specific check for 7.1.1 vs 7.1.1 or later) can be worked around by using the SCOMPAT environmental variable or chsysinfo command. See the uname(1) and chsysinfo(1) manual pages for more information.

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# UnixWare 7.1.4 Resources



- Online documentation and late news

<http://www.sco.com/support/docs/unixware>

- Knowledge base

<http://wdb1.sco.com/kb/search>

- Download page

<http://www.sco.com/support/update/download/product.php?pfid=1&prid=6>

# UnixWare 7.1.4 Resources



- Certified and compatible hardware  
<http://www.sco.com/chwp>
- Skunkware packages  
<http://www.sco.com/skunkware>
- UnixWare & OpenServer public mailing list  
[Legend-subscribe@list.sco.com](mailto:Legend-subscribe@list.sco.com)