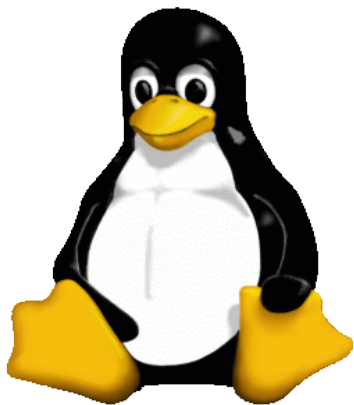




Scientific Linux

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The Future of DESY Linux (?)



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September 14, 2004

Outline



- What **DESY Linux (DL)** is
- What **Scientific Linux (SL)** is
- What **Scientific Linux DESY (SLD)** will be
- What the **status** of SLD3 is
- What will **change from the user's point of view**
- **When** it's going to happen

DESY Linux



- base distribution
 - criteria: usability, size, lifetime (availability of security fixes), use/acceptance in HEP, ISV support
- + bug fixes
 - example: make screen lock usable in kerberized environment
- + customization
 - examples: HEPiX, HEPiX11, continuity for users
- + additional software
 - /opt/products
- + automatic installation, configuration and maintenance
 - VAMOS/sue/cfengine

Base Distribution Candidates: debian



- lifetime: 12 months after next release
- **release cycle completely undefined**
 - when we picked the DL5 base distro last year, we wondered whether a new debian stable would be released the same year
 - it wasn't, and the question remains the same
- debian stable is completely **out of date**
 - not usable on current hardware
 - not available for amd64 (platform younger than distro)
- **not widely accepted in HEP**
- debian is not for us

Candidates: SuSE Professional



- current choice for DL5
 - 8.2
 - 9.0 for notebooks, amd64
- defined release cycle: every 6 months
- defined lifetime: 2 years
 - barely enough
- after release, security fixes only
 - no bug fixes or enhancements
- not widely accepted in HEP
 - acquisition by Novell may improve acceptance in US



Candidates: SuSE Enterprise

- release cycle: 12-18 months
- lifetime: 5 years
 - security fixes
 - bug fixes, enhancements
 - for < 5 years
- much shorter package list than professional
 - addons available for a fee
- significant monetary **cost**
- negotiations about an acceptable volume discount failed
- **not widely accepted in HEP**

Candidates: Red Hat Professional



- no longer exists
- previous releases no longer supported by Red Hat
- "Fedora Legacy" project provides some patches
 - but not sufficient
- security fixes available from commercial suppliers
- CERN now subscribed for Progeny transition service to support 7.3 until 12/04
 - 5\$/month/system or 2500\$/month
 - external sites using CERN RH7.3 do NOT have access
- successor: Fedora



Candidates: Fedora

- successor to Red Hat Professional
- "community driven, Red Hat sponsored project"
- release cycle: 3-6 months
- **lifetime**: 3 months after next release
- actually the **development & public alpha** for Red Hat Enterprise now
- Fedora Legacy works as for former Red Hat professional
 - no supply of commercial security patches (?)
- great for enthusiastic private users
- not for professional use

Candidates: Red Hat Enterprise



- release cycle: 12-18 months
- lifetime: 5 years
 - 2.5 years "full" support
 - enhancements, new drivers, updates, bug fixes ("errata")
 - 1/2 year "deployment support"
 - like "full", except w/o updates
 - 2 more years "maintenance support"
 - fixes for serious/security bugs only
- RHEL 3 was released fall '03
 - has 3.5 years to live after SuSE terminates support for 8.2
- widely accepted in HEP (CERN, SLAC, FNAL, IN2P3, ...)

RHEL: The Problem



- as for SLES, significant **cost** for "subscriptions"
 - SLAC: DOE deal, undisclosed conditions ("more than MS")
 - CERN: HEP deal, 30-40\$/year/system, discount for 1000+
 - CERN will only test drive this on a single cluster until 12/05
- but unlike SuSE, Red Hat makes the **source RPMS freely available**, for the release and any updates
 - **recompile** (for redistribution: remove Red Hat's trademarks), and you've got yourself a **free Enterprise distribution**
 - work, & not as trivial as it seems at first glance, but doable
 - results: White Box Linux, Tao Linux, CentOS/Caosity, Lineox, CERN Enterprise Linux 3 (CEL3), Fermi Linux LTS 3, ...

Scientific Linux



- binary & source distribution, rebuilt from "laundered" source packages of RHEL 3 AS + cluster suite + developer suite
 - + OpenAFS and a few other addons
 - + installer modifications to support "base + site" mechanism
- started as "de-fermized" version of Fermi Linux LTS 3
 - called HEPL, then renamed to SL
- joined by CERN, after HEPiX spring '04 meeting
 - contributed builds for amd64 and ia64
 - turned CEL3 into an SL3 site
- naming convention: **Scientific Linux <Site> <Version>**

More on Scientific Linux



- hosted at FNAL, available from CERN as well
- download: <ftp.scientificlinux.org/linux/scientific/<version>>
 - current version: 3.0.2 (built from RHEL 3 Update 2 sources)
 - 3.0.(n-1) with all updates applied is equivalent to 3.0.n
 - 3.0.3 release candidate available since a few days
 - package repositories & ISO images
- web site: www.scientificlinux.org (or plone.fnal.gov)
- **mailing lists**: scientific-linux-users, scientific-linux-devel
- errata are rebuilt by CERN and FNAL
- release notes and errata announcements are posted by FNAL



SL vs. RHEL

- technically, should make no difference at all
- **SL** caveats
 - it is **NOT Red Hat Enterprise Linux**
 - no ISV support
 - there is **no guaranteed support** from CERN or FNAL
 - they kindly make it available, that's it
 - errata rebuilds may be delayed compared to RHEL
 - we may have to contribute
- **RHEL** caveats
 - **cost, counting beans**, RHN proxy/satellite maintenance
 - no AFS and other addons

What "Scientific Linux DESY" will be



- base distribution
- + bug fixes
 - example: make screen lock usable in kerberized environment
- + customization
 - examples: HEPiX, continuity for users
 - but drop obsolete items
 - prefer HEP/GRID compatibility over DESY legacy
- + additional software, as on DL5
- + automatic installation, configuration and maintenance
 - VAMOS/sue/cfengine

SLD3



- will be the first DESY Linux based on Scientific Linux
- based on SL3 \approx RHEL3 \approx Red Hat 9
 - kernel 2.4
 - glibc 2.3.2
 - gcc 3.2.3
- this is **NOT** a successor to DL5 (2.4/2.3.2/3.3.x)
 - even though version numbers are not too meaningful on RH
- it's **rather a continuation**
 - major difference for users should be the lifetime
- no major (user visible) changes (& progress) before SLD4

Status of "Scientific Linux DESY 3"



- repository mirrors exist in HH and Zn
- test installations were done in HH and Zn
- a public preview system exists: `sl3.ifh.de`
 - allows login for all accounts enabled for Zeuthen
 - result of automatic installation/maintenance
 - looks a lot like DL5
 - DESY software installed from DL5 packages
 - (99% unchanged)
 - software updates typically lag behind a bit (sheer lazyness)
- status web page is <http://www-zeuthen.desy.de/linuxsl3>



What "looks a lot like DL5" means

- fully integrated with AFS, Kerberos, NIS, LDAP, amd, ...
- AFS `sysname` is a list (for the 1st time)
 - `'i586_rhel30'` `'i586_linux24'` `'i386_linux24'`
- shells execute the same dot-files as on DL5
- almost all DL5 standard software available
 - `ini` command is still missing
- default `gcc` is `3.2.3` as it comes with RHEL
 - default runtime libs are from this version as well
- some system packages are missing (not available on RHEL)
- some are not available in the same version as on DL5

gcc



- unfortunately, version numbers don't mean anything on RHEL
- their gcc 3.2.3 is more similar to a 3.3.3 release than a 3.2.3 release
 - from the size of the diff -urN output against both releases
 - even contains code from gcc 3.4
- their libstdc++ does not provide all ABI versions our DL5 version does
 - but this seems to affect rare corner cases only
 - ROOT and ROOT based application built on DL5 work with it
 - building on SL3 against DL5 ROOT libs works as well
 - => we don't intend to replace any system libraries

missing packages



- RH distributions always have been much leaner than SuSE
 - that's even more true for enterprise distributions
 - a number of applications we could simply install is missing
 - `xv`, `doxygen`, `kile`, `lyx`, `gvim` are a few of them
 - some may be available as packages from other sources
 - SL contributions
 - some SuSE packages can be used
 - some will have to be provided by us
 - but some gimmicks will not become available at all
- try the preview, and **tell us what's dearly missed**
- **there seems to be no libc5**

glibc



- again, the version is not too meaningful
- 2.3.2, but provides 2.3.3 ABI
 - major change w.r.t. DL5 is **NPTL**
 - Native POSIX Thread Library
 - no more handler thread
 - threads share PID, identified by TID
 - differences in signal handling
 - should be backward (only) binary compatible
 - but rumours say some apps must be recompiled all the same
 - try your **multithreaded applications** on the preview asap
 - check the status web page for pointers to NPTL reading
 - NPTL will **NOT** become available on DL5



Deliberate changes planned

- generally, as few as possible
 - unless they enhance compatibility with other labs, GRID, ...
- but we'd like to **drop the HEPiX11 environment**
 - NOT the whole of the HEPiX login scripts
 - just the part dealing with the window manager
- instead, provide **KDE** (and possibly **GNOME**) as is
 - maybe a few minor enhancements of default settings
 - maybe also some lightweight window manager coming with RHEL
 - again, as is
 - note fvwm is not part of the distribution
- objections?



Time Scales

