

# A new model for Unix software distribution at DESY

- results from
  - a meeting in Zeuthen in January
  - a workshop in Hamburg yesterday
- finishing the design now
  - YOUR input is welcome

# The current model

- `/products` -> `/afs/<cell>/products`
  - complicated structure below, optimized for saving disk space
  - one link determines the "default" version for all systems of a given sysname
- `/usr/local` -> `/afs/<cell>/@sys/usr/local`
  - bin, lib, ... populated by thousands of symlinks set and removed by hand

# What's wrong with this?

- hard to maintain & keep up to date
- hard to compile anything w/o catching a dependency on /usr/local/lib or /usr/local/bin
- duplicates many distributed packages
- /usr/local isn't local
- not appropriate for critical systems
- not available for mobile/external/home systems
- insane symlink depths
- HH and Zeuthen drifting apart quickly

# Objectives

- well defined state of installed software
  - reproducible
  - self documenting
- allow
  - installation of several versions of a package at the same time
  - partially local installs
- no uncalled for dependencies
  - but allow shared libs
- easy access to information for users
  - what's available?
  - is it recent?
  - where's the docs?
- use established tools

# The new approach

- /usr/local is local and empty
- /opt/products is local and populated by
  - an rpm package for each version of a product
  - or a single symlink per product and version
- /afs/<cell>/@sys/products
  - mounted on /opt/products on a reference system
  - populated by the very same rpm packages
- “default” links are local, from a sub-package

# Example

- to install a product:
  - rpm -i antiword-0.33-1.i386.rpm
    - installs locally, into /opt/products/antiword/0.33
  - or:
    - symlink /afs/<cell>/@sys/products/antiword/0.33
    - rpm -i --justdb antiword-0.33-1.i386.rpm
- to make it the default:
  - rpm -i antiword-default-0.33-1.i386.rpm
    - contains /opt/products/bin/antiword symlink

# Example (continued)

- for both types of installation:
  - local rpm DB holds info on each and every file and package:
    - which versions are installed: `rpm -q antiword`
    - default version: `rpm -q antiword-default`
    - all files from 0.33: `rpm -ql antiword-0.33`
    - all documentation files: `rpm -qd antiword-0.33`
    - general information: `rpm -qi antiword`
  - package dependencies are intact

# Advantages

- free choice per system/product/version
  - save local disk space, or be independent ?
- tests are possible
  - note <cell> may be any cell
  - fix security problems
    - immediately on public login hosts
    - later on critical systems
- tools like rpm2html just work

# Details

- default-packages will populate /opt/products/...
  - bin (included in standard PATH)
  - man (included in standard MANPATH)
  - info (included in standard INFOPATH)
- use these with care (NOT used by default):
  - include - use -I switches instead
  - lib - use
    - LD\_RUN\_PATH (or link statically) at compile time
    - LD\_LIBRARY\_PATH at run time

# More details

- wherever possible:
  - on Linux, we'll use packages from SuSE
  - on Solaris, we'll use packages from TWW
    - "The Written Word" open source distribution
- exceptions: compilers, perl, ...
- versions may differ across platforms
  - unless where that's a real problem
- all packages will be signed

# Agenda

- finish design
- provide tools to
  - simplify link type installs & incorporate TWW
  - keep a system up to date automatically
- produce the packages
- introduce new scheme
  - gradually
  - starting soon (long before DL5/Solaris10...)