ZYPP
common package and patch management for SUSE Linux

Duncan Mac-Vicar P.
Software Engineer, YaST
Agenda

ZYPP

• Package management
• How was it done before
• ZYPP
• ZYPP features
• What is new?
• The future
Package management

- Automatic resolving of dependencies
- Automatic fetching of packages
- Handling of different installation medias
- Update system with latest software available.

YaST pkg-manager, apt, smart...
Problems with old pkg-manager

- Only knew about packages
- Selections were handled by the YaST UI
- Patches were handled by YOU

Enterprise path:
- ZenWorks used libredcarpet
ZYPP: Overview
ZYPP

- Abstract resolvables:
  - packages, patches, messages, scripts, selections, patterns, languages, system, etc.
- Better solver
- Modern extensible design
  - new targets, source types, resolvable types, capabilities
ZYPP

Solver

Pool

zypp

Source (yum)
Target (rpm)
Source (DVD)
Target (modalias)
Target (storage)

YaST
ZenWorks
Introducing Capabilities

• Grouped in:
  • requires, conflicts, suggests, freshens, supplements, prerequires, obsoletes, etc
• Are created from a resolvable kind, and a parseable string.
  • Most common case, a package, and a edition:
    • REQUIRES, package, “kdelibs > 3.2.1”
    • Crazy case: REQUIRES, system, “uptime:2 years”
Hardware capabilities

Provides capabilities based on the running system, like hardware.

```
system

PROVIDES:

modalias(pci:v0000104Cd0000840[01]sv*sd*bc*sc*i*) (at runtime!)

wlan-kmp-default-1_2.6.16.11_4-13.i586.rpm

SUPPLEMENTS:

modalias(kernel-default:pci:v0000104Cd0000840[01]sv*sd*bc*sc*i*)
modalias(kernel-default:pci:v0000104Cd00009066sv*sd*bc*sc*i*)
modalias(kernel-default:pci:v000010B7d00006000sv*sd*bc*sc*i*)
```
Patterns

• Can express any set of capabilities
• Can be satisfied in various ways.

Web server.
• Requires apache
• Recommends php and MySQL
Patterns: selections on steroids

- KDE, Gnome (visible)
- KDE-kiosk, Gnome-kiosk (invisible)
- Kiosk

- KDE-kiosk if KDE and kiosk are selected
- KDE-kiosk supplements kiosk IF KDE is also selected
Patches

• Solution to a specific problem
• Specifies a set of rules
• Solver makes them possible:
  • satisfied: not installed but not needed
  • freshens: conditionals
  • atoms
• Atoms can be any kind of resolvable
  • Common case: packages, scripts and messages.
Software selector enhanced
Language dependent packages

- Translations, fonts, or input methods

yast2-trans-de
  provides: locale(yast2:de)

xmanja
  provides: locale(ja)

Language resolvable can be installed and they will match those capabilities.
Trusted sources

• ZYPP introduces signed repositories and media (DVD/CD)
• Metadata containing checksums is signed
• Key handling is based on the trusted rpm database keyring
Signed sources

The owner of the key may distribute updates, packages, and package repositories that your system will trust and offer for installation and update without any further warning. In this way, importing the key into your keyring of trusted keys allows the key owner to have a certain amount of control over the software on your system.

Import Untrusted GnuPG Key

The following GnuPG key has been found:
ID: A84EDAEB8C00ACA
Fingerprint: 79C1 79B2 E1C8 20C1 890F 9994 A84E DAE8 9C80 0ACA
Name: SuSE Package Signing Key <build@suse.de>

You can choose to import it into your keyring of trusted public keys, meaning that you trust the owner of the key. Please ensure that you can trust the owner and that the key belongs to that owner before importing it.

Validation Check Failed

File /repodata/repmind.xml (http://you.suse.de/pub/suse/update/10.1/) is signed with the following GnuPG key, but the integrity check failed:

ID: A84EDAEB8C00ACA
Fingerprint: 79C1 79B2 E1C8 20C1 890F 9994 A84E DAE8 9C80 0ACA
Name: SuSE Package Signing Key <build@suse.de>

This means that the file has been changed by accident or by an attacker since the repository creator signed it. Using it is a big risk for the integrity and security of your system.

Use it anyway?

Yes  No
ZenWorks integration

- ZenWorks uses libzypp for dependency resolving
- ZYPP sources and ZenWorks services are kept in sync.

smooth path

YaST, YOU  ZenWorks, zmd, rug

single user  enterprise environment
What's new?
Regressions

- progress information
- performance
- command line tool
  - rug like syntax
  - shell (try zypper sh )
opensuse-updater

Available Updates:
The following are software upgrades and patches to add features and fix bugs.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>New Version</th>
<th>Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td>A collective update with fixes</td>
<td>Patch</td>
<td>2600-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>acroread: Security upgrade to version 7.0.9</td>
<td>Security</td>
<td>2506-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>After a kernel update, suspend to disk no...</td>
<td>Patch</td>
<td>2422-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>amarok: fix magnatune.com album brows...</td>
<td>Patch</td>
<td>2516-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>Autoyast2: Handle patterns with autoyast</td>
<td>Patch</td>
<td>2466-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>bind: Security update to fix remote denial...</td>
<td>Security</td>
<td>2529-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>bluez-utils: Bluetooth service not started...</td>
<td>Patch</td>
<td>2492-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
<tr>
<td>Bugfix for autofs</td>
<td>Patch</td>
<td>2549-0</td>
<td>SUSE-Linux-10.2-Updates</td>
</tr>
</tbody>
</table>
opensuse-updater

- KDE based applet
- Born as Google SOC 2006 project by Narayan Newton
- originally designed as a Zenworks client
- dummy applet.

http://opensuse.org/Standards/Zypp_Updates_Status_Xml
Future, 10.3 and beyond
The future

repo 1  repo 2

cache

resolvable

on demand
In progress: scripting tools

```
require '../src/zypp'

include ZYpp

init_target

resolvables("installed").each do |res |
  puts "#{res.class.to_s} : #{res.name} #{res.edition} #{res.arch}"
  puts "-------------------------------------------------------------------------"
  puts "#{res.description}"
  puts "#{res.summary}"
  puts "-------------------------------------------------------------------------"
end
```
Packages matching search term:

Results from http://download.opensuse.org/distribution/10.2/repo/oss/suse
- amarok-libvisual (1.4.4)
- amarok-sine (1.4.4)
- amarok-xemms (1.4.4)
- amarok (1.4.4)

Results from http://packman.iu-bremen.de/suse/10.2
- pack-amarok (3.2.5)

Software Installation

Software to be installed

Select the software components you wish to install:

- amarok

Package Description:
No description available.

Packages containing items matching search term:

Results from http://packman.iu-bremen.de/suse/10.2
Questions?
General Disclaimer
This document is not to be construed as a promise by any participating company to develop, deliver, or market a product. Novell, Inc., makes no representations or warranties with respect to the contents of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to revise this document and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes. All Novell marks referenced in this presentation are trademarks or registered trademarks of Novell, Inc. in the United States and other countries. All third-party trademarks are the property of their respective owners.

This work is licensed under the Creative Commons Attribution-Noncommercial-Share Alike 2.5 License. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-sa/2.5/.

For other licenses contact author.
Corporate color palette and margins

These gray lines show the margins that need to be adhered too. If your slide content extends beyond the margins you may need to move to a full screen slide layout.

Most importantly keep the area under the logo clear.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R</strong></td>
<td><strong>G</strong></td>
<td><strong>B</strong></td>
<td><strong>R</strong></td>
<td><strong>G</strong></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>188</td>
<td>225</td>
<td>141</td>
<td>252</td>
<td>194</td>
<td>79</td>
</tr>
<tr>
<td>225</td>
<td>213</td>
<td>75</td>
<td>182</td>
<td>201</td>
<td>207</td>
</tr>
<tr>
<td>186</td>
<td>189</td>
<td>182</td>
<td>237</td>
<td>238</td>
<td>236</td>
</tr>
<tr>
<td>0</td>
<td>149</td>
<td>48</td>
<td>232</td>
<td>128</td>
<td>0</td>
</tr>
<tr>
<td>157</td>
<td>176</td>
<td>41</td>
<td>100</td>
<td>132</td>
<td>164</td>
</tr>
<tr>
<td>107</td>
<td>108</td>
<td>105</td>
<td>224</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>98</td>
<td>90</td>
<td>201</td>
<td>86</td>
<td>22</td>
</tr>
<tr>
<td>115</td>
<td>126</td>
<td>31</td>
<td>77</td>
<td>68</td>
<td>102</td>
</tr>
<tr>
<td>115</td>
<td>52</td>
<td>54</td>
<td>46</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>SUSE</strong></td>
<td><strong>Yellow</strong></td>
<td><strong>Green</strong></td>
<td><strong>Blue</strong></td>
<td><strong>Gray</strong></td>
<td><strong>Misc</strong></td>
</tr>
</tbody>
</table>

© March 9, 2007 Novell Inc.