OSCAR on Debian
the EDF Experience

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Outline

OSCARonDebian
  › Introduction
  › Port Issues
    • OSCAR scripts
    • OSCAR prereqs
    • OSCAR Packages

EDF Approach
  › A solution: Bootable CD/DVD
  › Proposition to integrate Oscar in an almost automatized Installation
OSCAR on Debian - Introduction

OSCAR initially developed for RPM Linux distributions

OSCAR based on
  › general scripts/libs
  › prereqs
  › OSCAR packages

Since OSCAR 3.0, development of PackMan/DepMan
  › Virtualization of the binary package format
OSCAR Port to Debian

Goals

› Port to the Debian Sarge Linux distribution
› Port compatible with the “official” OSCAR suite

Issue

› new binary package format (.deb vs. .rpm) with new tools to manage binary packages (apt, dpkg)
› new filesystem organization
› different organization of configuration files
PackMan / DepMan

Simplify the port on new binary packages formats
› no longer depending on RPM packages
› have to create a new “backend” for Debian

Some scripts and libs are still rely on RPM packages
OSCAR Scripts and Libraries

Scripts and libs: some of them are RPM based

Source audit
› find RPM based commands
› create a new abstraction API to replace RPM based commands for more generic commands (extending or creating OSCAR libs)

Port to have a “generic” code (not depending on a specific binary package format)
OSCAR Prereqs

OSCAR prereqs are
› Basic software components needed by OSCAR
› Installed during the OSCAR initialization step

Problems
› some prereqs are available as RPM packages
› scripts based on RPM commands

Port on Debian
› Creation of Debian packages
› Scripts modification using more generic commands
OSCAR Packages

OSCAR packages' structure
› XML meta-file
› scripts
› binary packages

Port to the Debian distro
› Create Deb packages or use existing packages
› Adapt the XML file
› Adapt scripts

Binary Package (e.g. RPM, Deb)

XML file

Scripts
Use of Debian Tools

Debian has a specific approach to manage packages
  ›based on Advanced Package Tool (APT)
  ›SIS for Debian based on Deboot and APT
    •Deboot to create a basic system, using an online repository
    •APT to install other package into the image, using a local or an online repository

Current solution
  ›Image created using online repository
  ›OSCAR packages managed with a local repository
OSCARonDebian – Current State

**A development version available**
- allows to install a cluster
- compatible with RPM based distributions
- closed to OSCAR 4.1 (simple modifications)

**Issue**
- some OSCAR Packages are not “stable” (Debian packages not compliant with Debian rules)
- still need to be tested
- what is the best way to integrate modifications in OSCAR (current discussions)
Proposal for an OscarOnDebian Installation

How to have a Debian-based environment for Oscar?

› Hand made installation of the master node
  • Long, boring, unreproductible, non industrial solution, ...

› Network Installation
  • Network infrastructure is needed
  • Environment dependancies (pxe, dhcp, floppy, cd, ..)
  • Installation server is needed

› Bootable CD/DVD containing everything
  • Fully independant from environment constraint
Bootable CD/DVD

Goal
›Provide a Debian environment for OSCAR tools

Contains (at least)
›Boot loader : Grub
   • Kernel's choice (x86, x86-64, ...)

›Packages .deb
   • Personalized Debian Mirror

›Installation Server
   • FAI embeded server to preinstall the master node
   • Configure the master node as an Oscar server and/or FAI server
Standard Master Node Configuration

**Hardware:**
- 2 network interfaces

**Environment softwares**
- DHCP Server
- Installation server for the nodes (Oscar, FAI, ...)
- User management Authentication (NIS Master/Slave, LDAP, ..)
- NFS Server needed by FAI
- FTP Server for the Debian Mirror

**Clustering softwares**
- PBS/Torque server
- Maui server
How to use Oscar tools?
(Or where to plug OSCAR in this process?)

Boot on CD

Master node pre-configuration

Reboot

Installation process

Easier to integrate