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ORACLE

# Oracle Solaris 11 - Best Practices

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Principal Sales Consultant

# Know the source

- See „Evaluating Oracle Solaris 11“

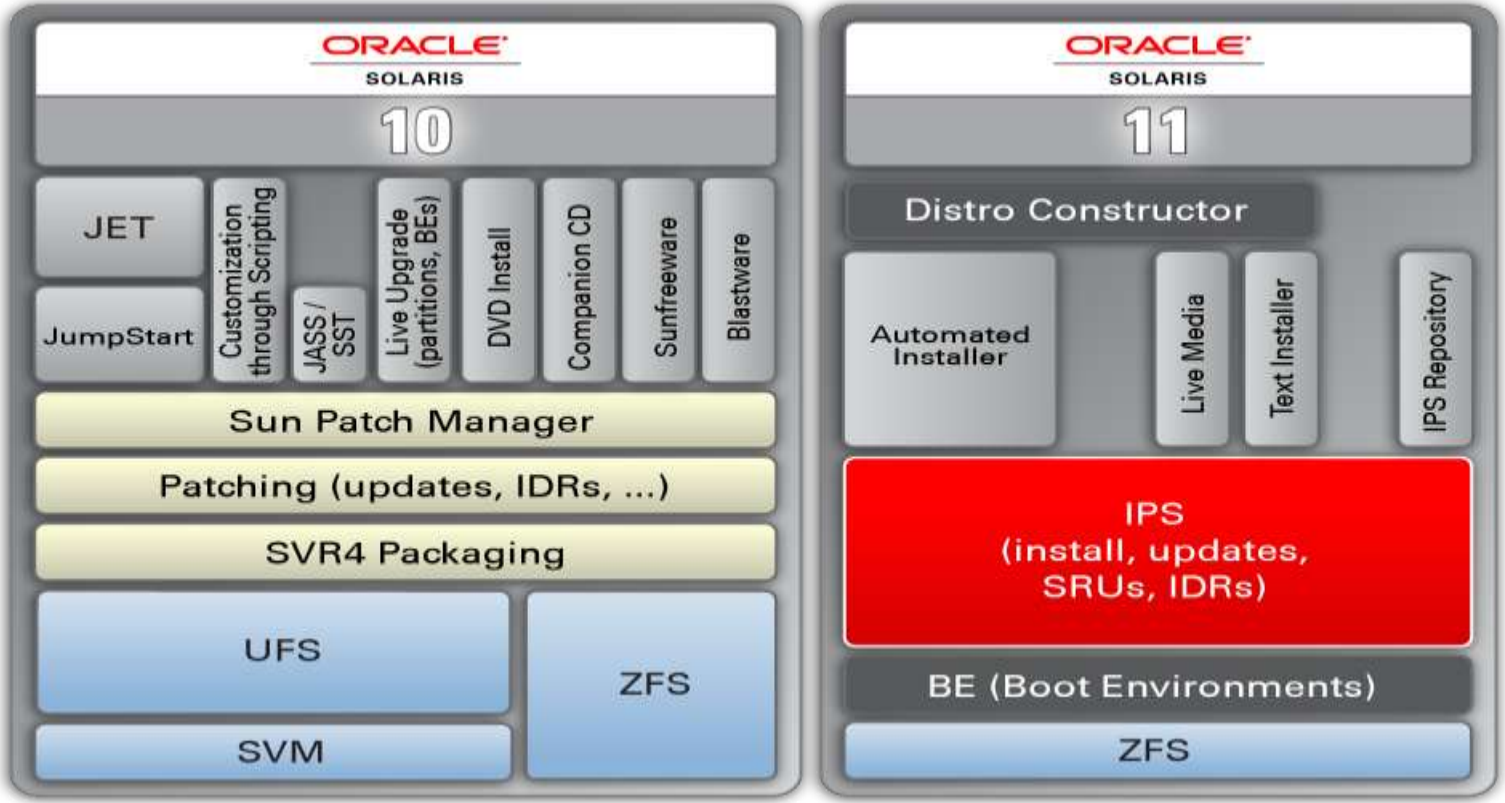
http://www.oracle.com/technetwork/server-storage/solaris11/overview/evaluate-1530234.html

- With
  - Howto Documents
  - Cheat Sheets
  - ... and much more ...

# Agenda for Today

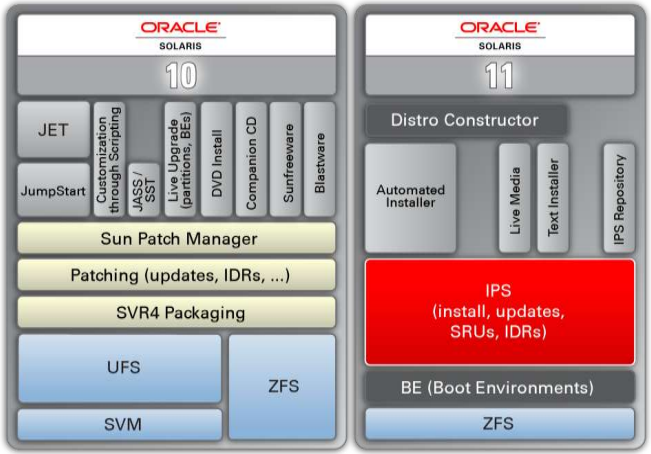
- OS Lifecycle management
  - About IPS Packages, Repositories and Boot Environments
  - (Automated Installer)
- Networking
  - Configuring Network Interfaces and Services
- Zones
  - What's new
- Deployment of Oracle Solaris 11

# Oracle Solaris 11 Lifecycle Management News

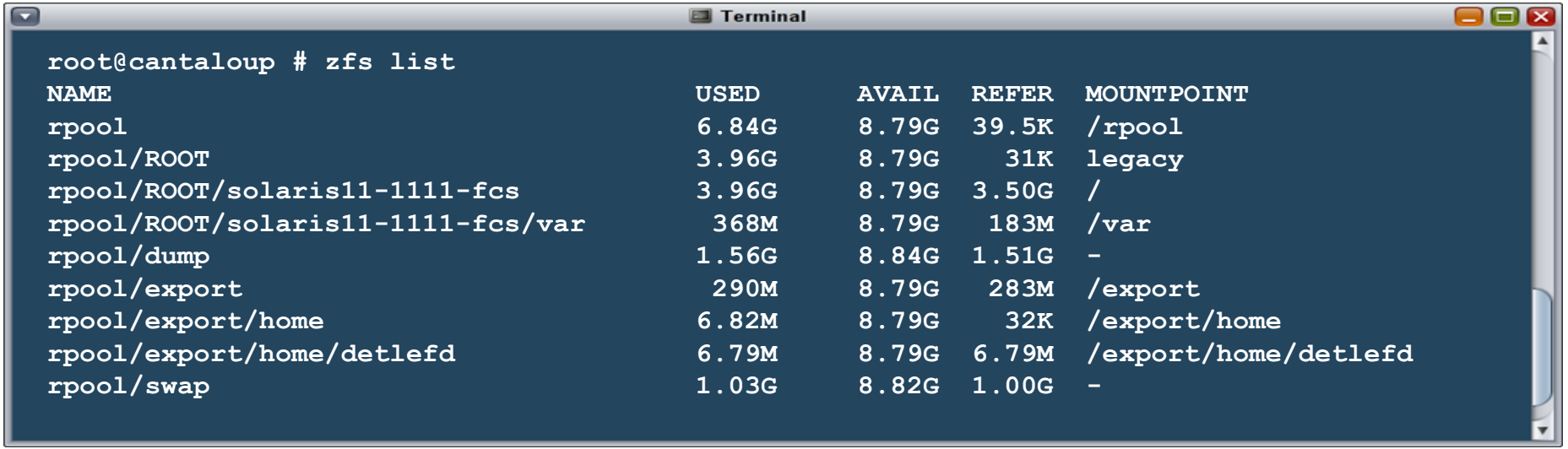


# Oracle Solaris 11 Lifecycle Management News

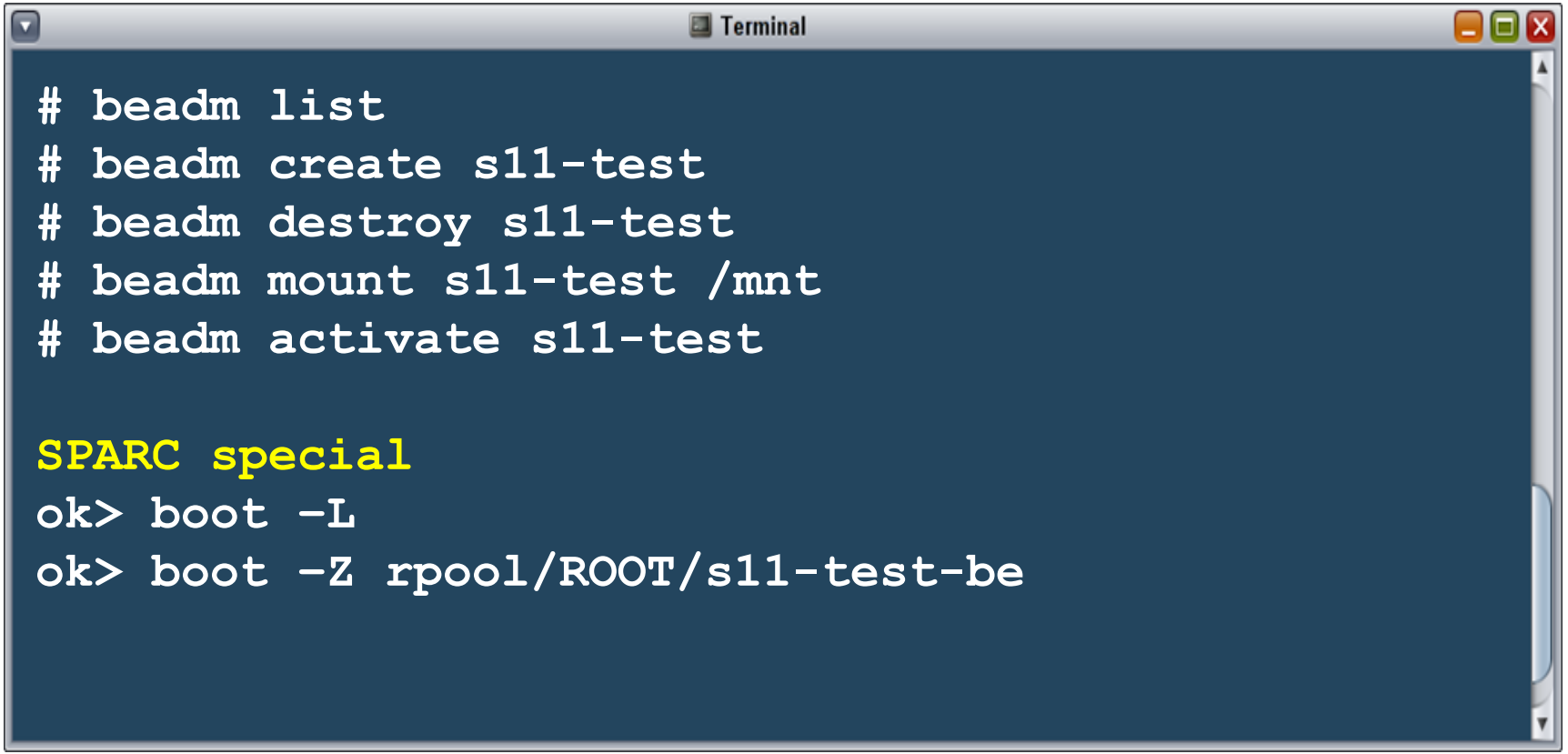
- Simplify architecture
- Reduce the size of install images
- Clean-up and  restructure the Oracle Solaris 11 installer
- ZFS as root-filesystem
- Boot Environments
- Image Packaging System
- Automated Installer
- Distribution Constructor (DC)



# Oracle Solaris 11 Boot Environments



# Managing Bootenvironments

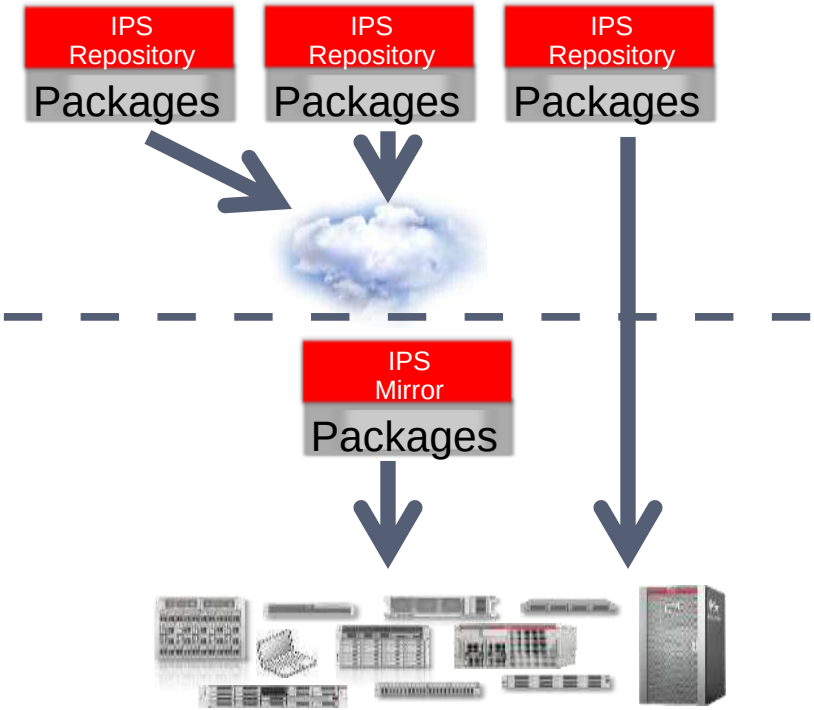


# The Image Packaging System (IPS)

- Network-centric Package Management
  - Manifests and package content files (combined x86 and SPARC)
  - Access Repositories in filesystem or by http://...
  - Efficient use of available bandwidth
- Package versioning
  - **e.g. pkg://solaris/entire@0.5.11,5.11-0.175.0.3.0.4.0:20111229T191505Z**
- Follow package dependencies
- Execute actions but not generic scripts on pkg installation

# The Image Packaging System (IPS)

## Network-Architecture and repositories

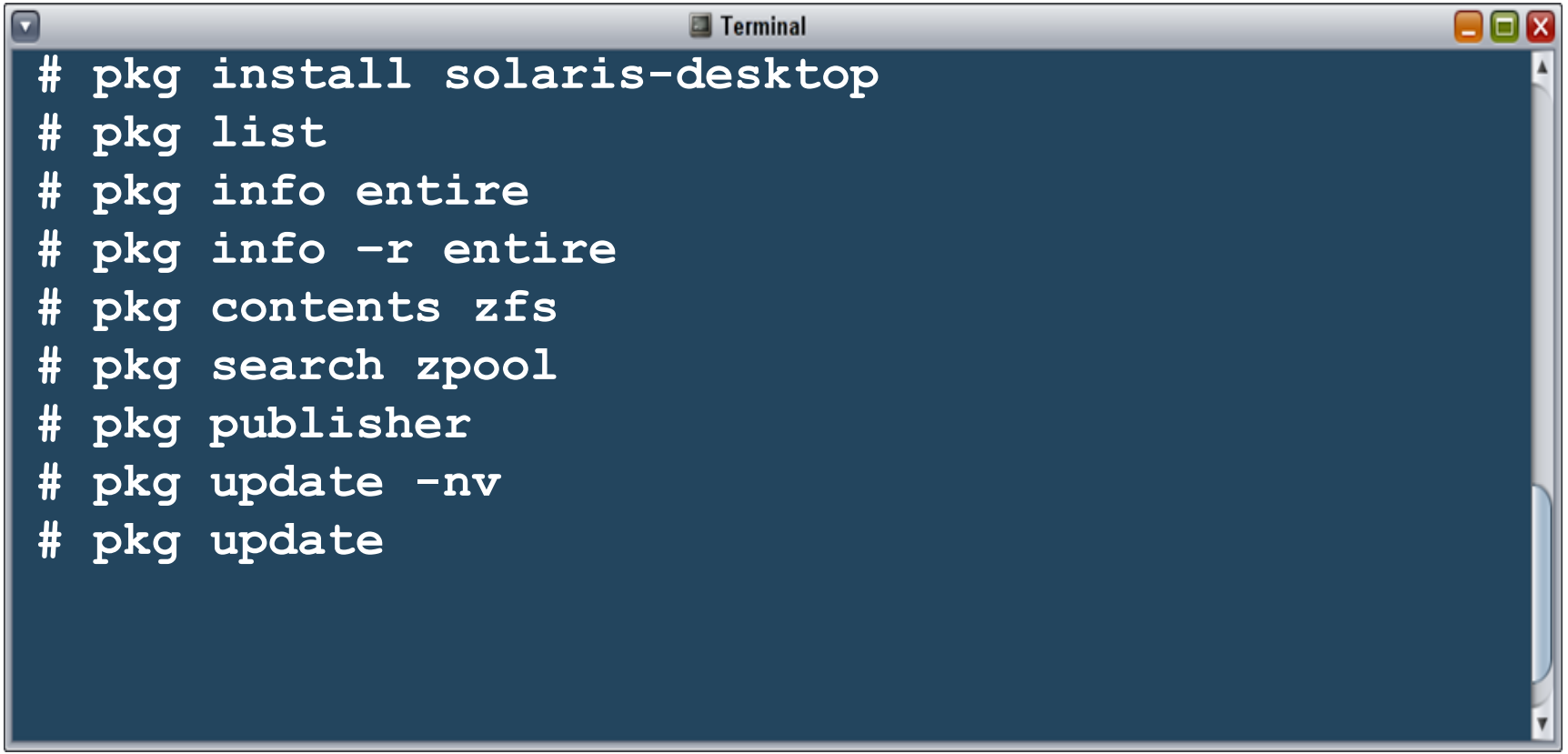



- One or more repositories
- Mirror, copy, access via proxy
  - Be aware of: $http_proxy
- Updates to Repositories
  - Support Repository Updates (SRU)*
- Package tools
  - CLI pkg(1)
  - GUI updatemanager
  - GUI packagemanager(1)

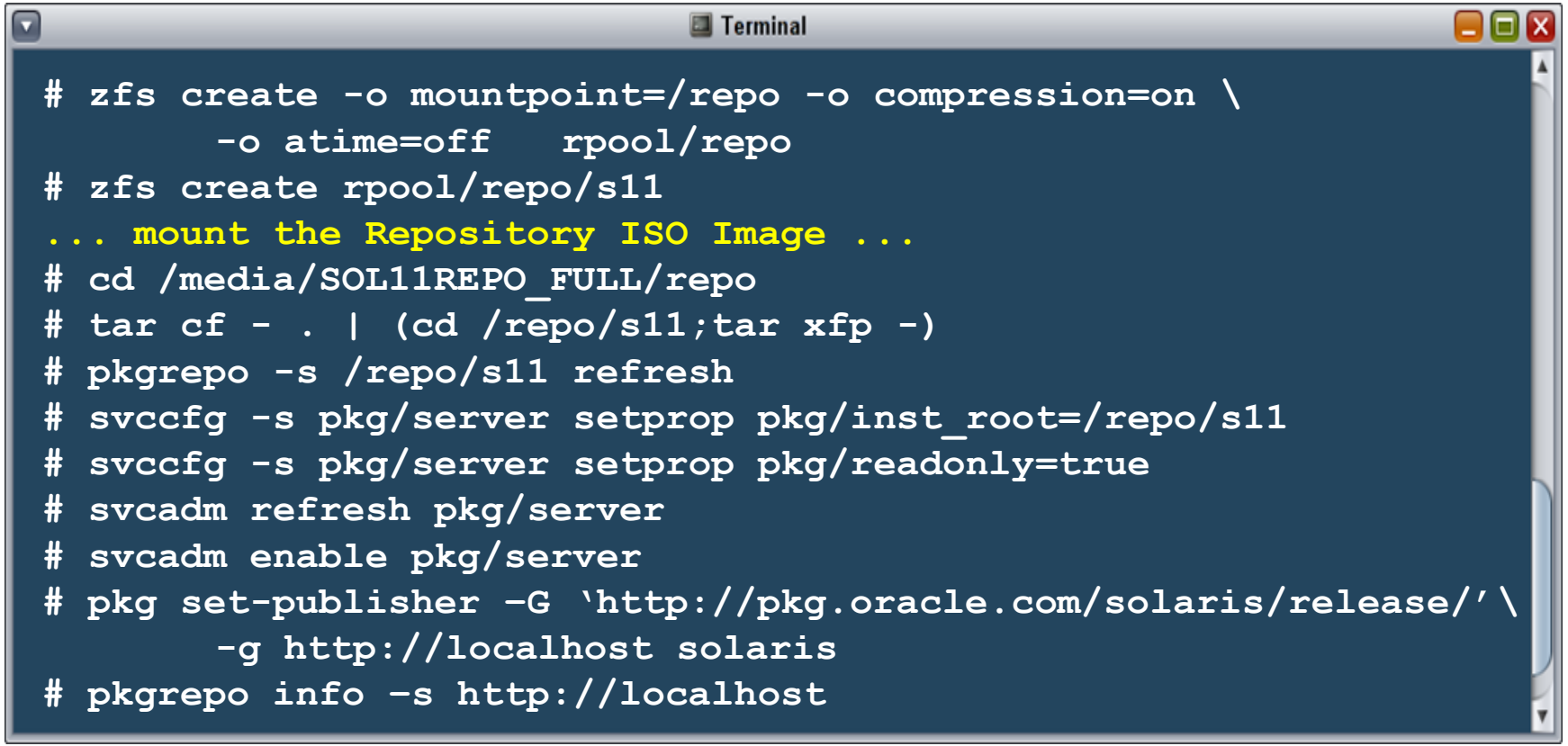
# Oracle Solaris 11 Repositories

- Package version numbering explained
  - My Oracle Support [ID 1378134.1]
- http://pkg.oracle.com/solaris/release/en/index.shtml
  - Default repository for Oracle Solaris 11

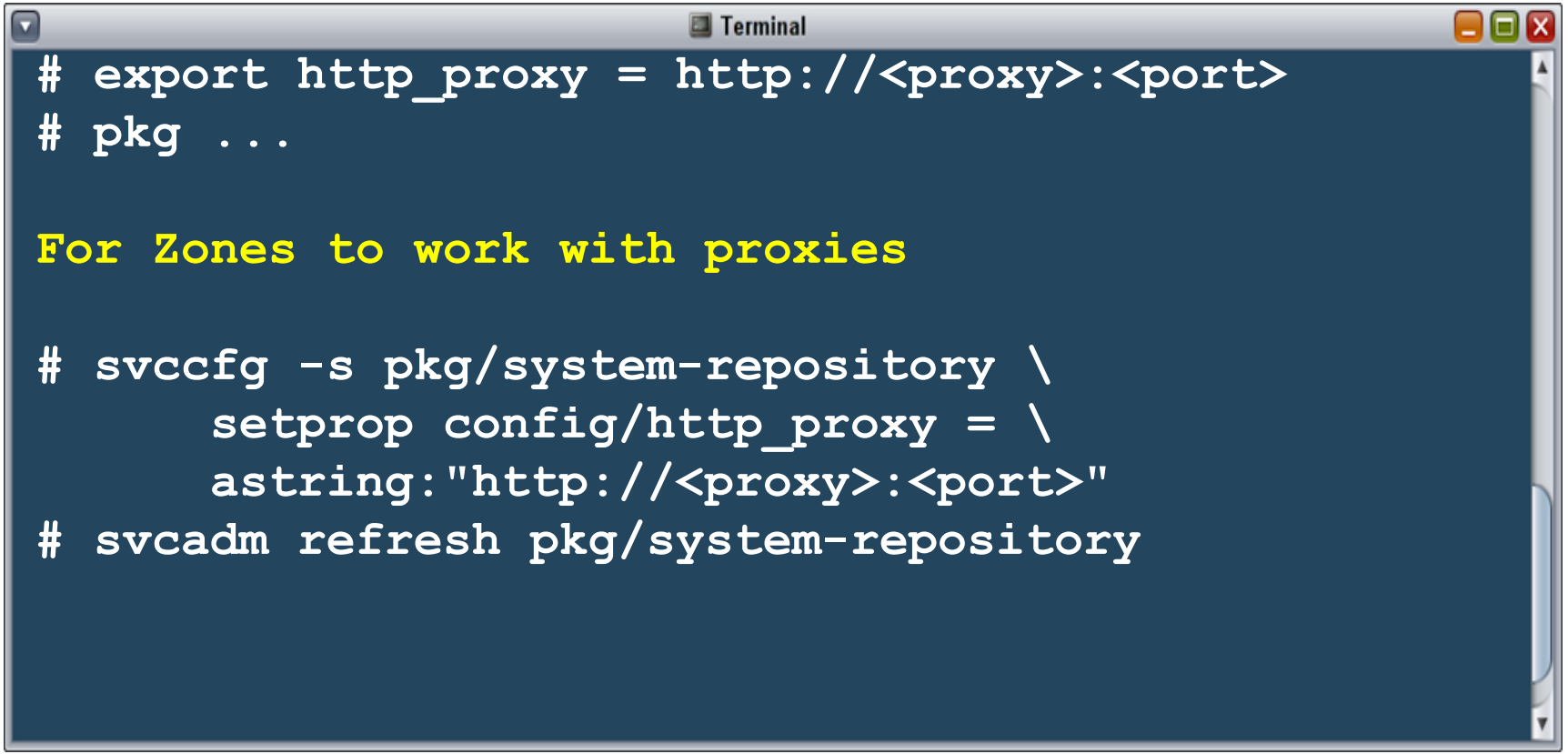
# Working with IPS Packages



# Setting up the Oracle Solaris 11 Repository Server



# If proxies are needed



# Support Repository Updates (SRU)

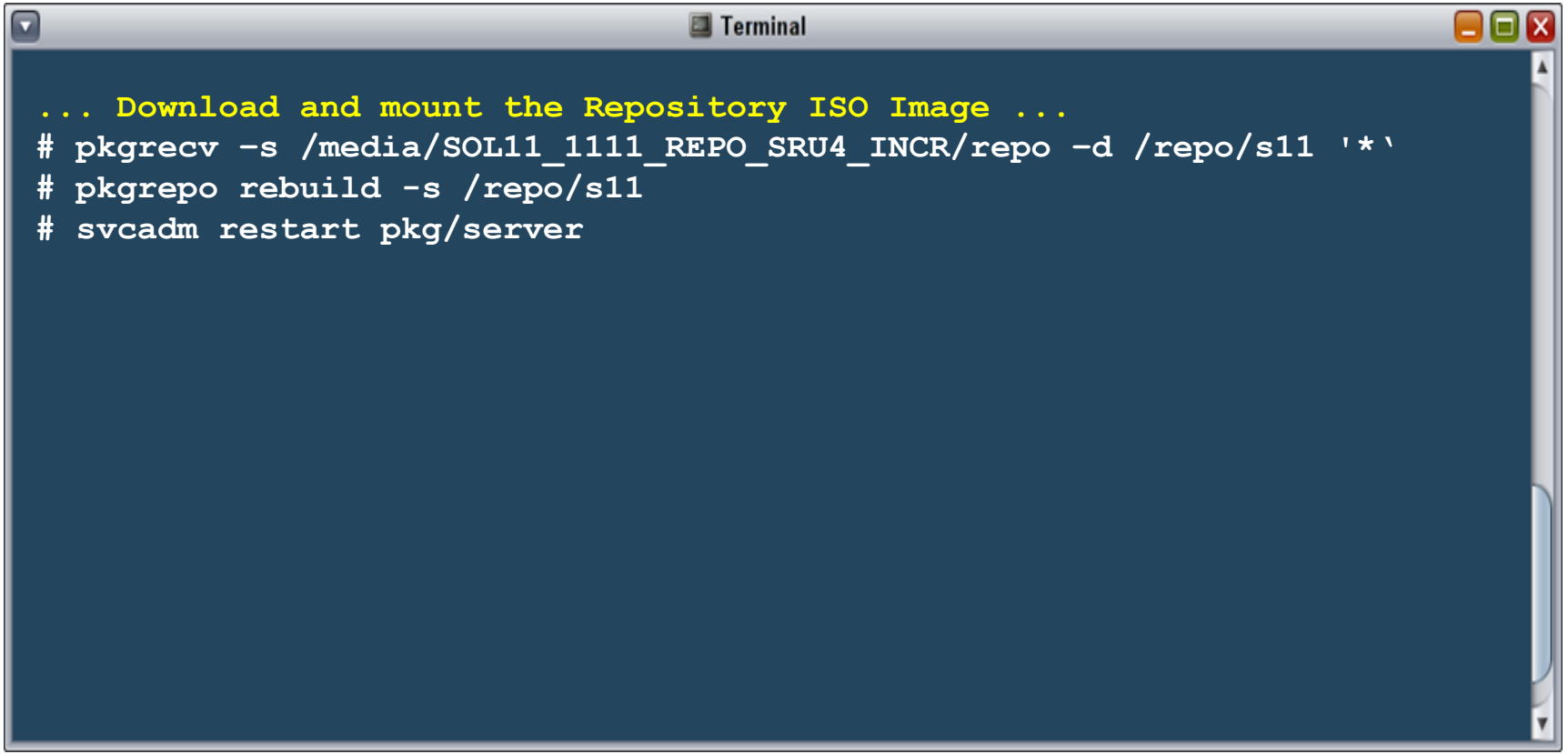
- Monthly updates
  - Service Updates for Customers with Service contract
- Synchronize online from https://pkg.oracle.com/solaris/support/
  - Request certificate at https://pkg-register.oracle.com/
  - See „Support Repositories Explained [ID 1021281.1]“
- Download offline from http://support.oracle.com
  - See Oracle Solaris 11 SRU Index [ID 1372094.1]

# SRU Explained

- SRU are cumulative
  - Holds the latest package update of a package
  - See the following easy Example:

| Packagename | Bundled Version with FCS | Bundled Version with SRU 1 | Bundled Version with SRU 2 | Bundled Version with SRU 3 | Bundled Version with SRU 4 |
|---|---|---|---|---|---|
| pkgA | 1.0 | 1.1 (updated) | 1.1 (cumulative) | 1.2 (new) | 1.3 (new) |
| pkgB | 2.7 | - | 2.7.1 (new) | 2.7.2 (new) | 2.7.2 (cumulative) |
| pkgC | 3.4 | - | 3.5 (new) | 4.0 (new) | 4.0 (cumulative) |
| entire | 1.0 | 1.0.1 (new) | 1.0.2 (new) | 1.0.3 (new) | 1.0.4 (new) |

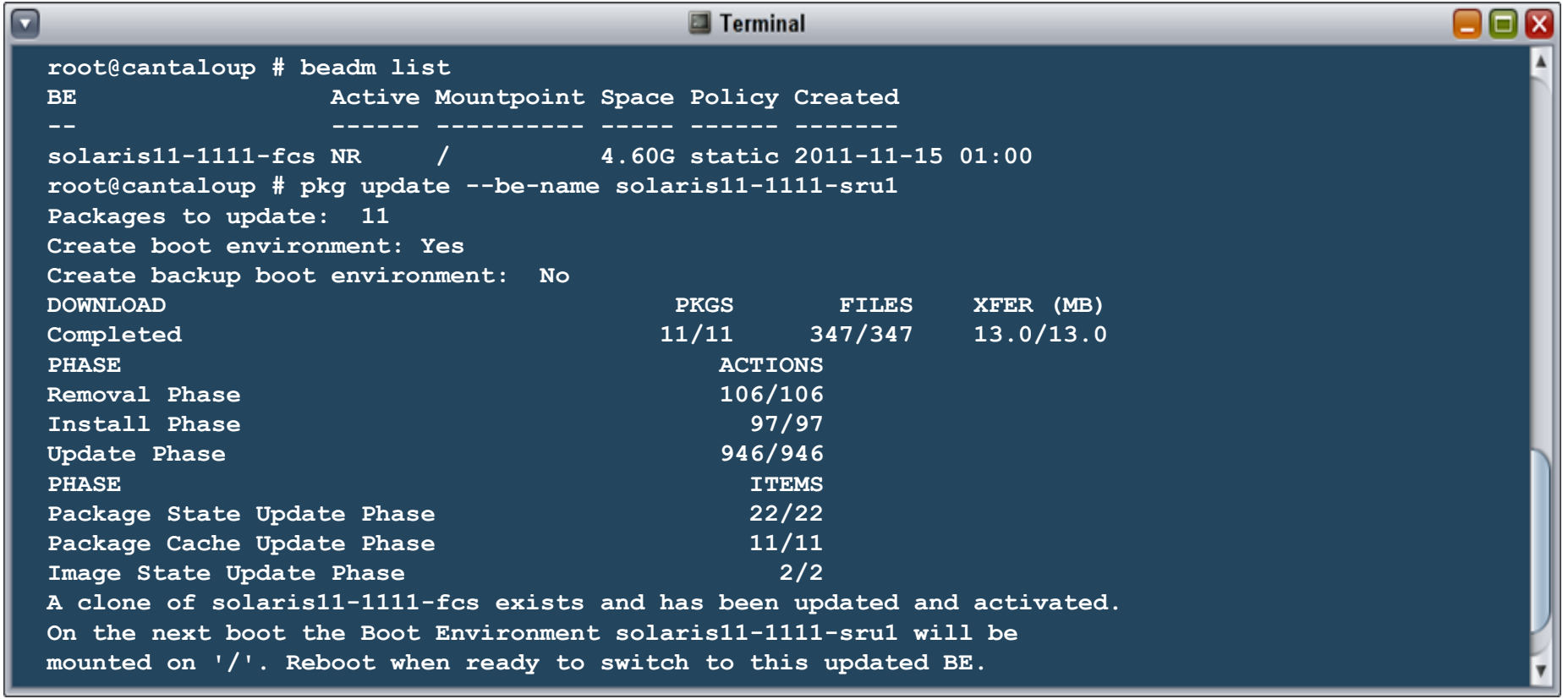
# Merging-in an offline SRU Image



# Working with Repositories

- Keep your Repository up-to-date by automatically syncing in the SRU
- Only keep one Repository, that holds the Release bits and the SRU
- Create one central Repo Server and acess via http or nfs

# Oracle Solaris 11 SRU Update



# How is a System Updated ?

1. Find the **installed** packages
2. If no option has been specified, find the newest version of *entire* in the configured IPS-repository
3. Install the package versions, required in entire

# Create your own package groups ?

- Extend the existing group packages
  - solaris-small-server
  - solaris-large-server
  - solaris-desktop
  - ...
  - Create an own group package, that depends on the upper
- The next *pkg update* will just update, what is installed

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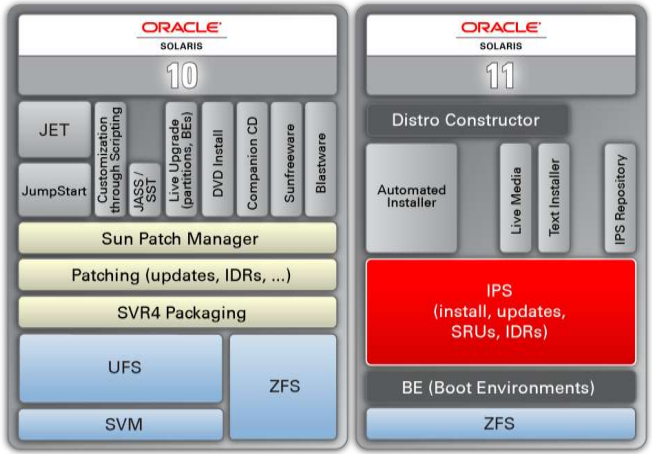
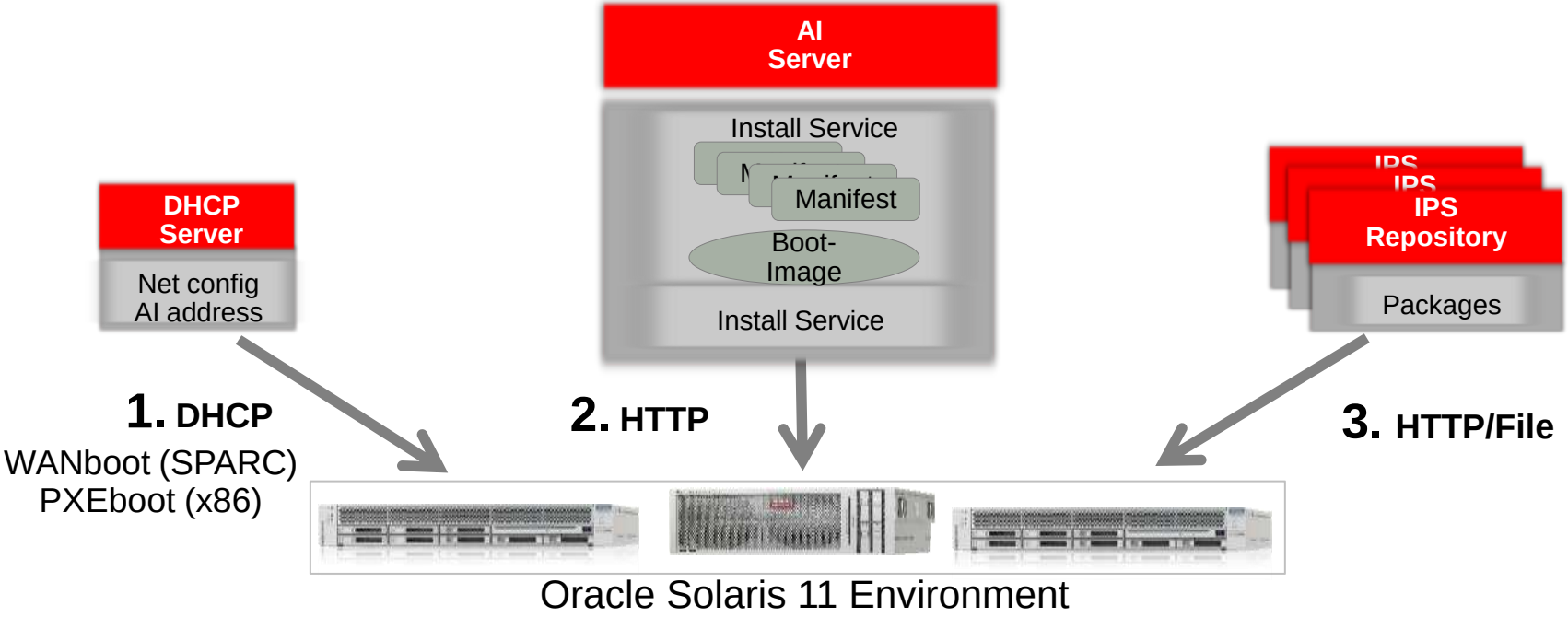
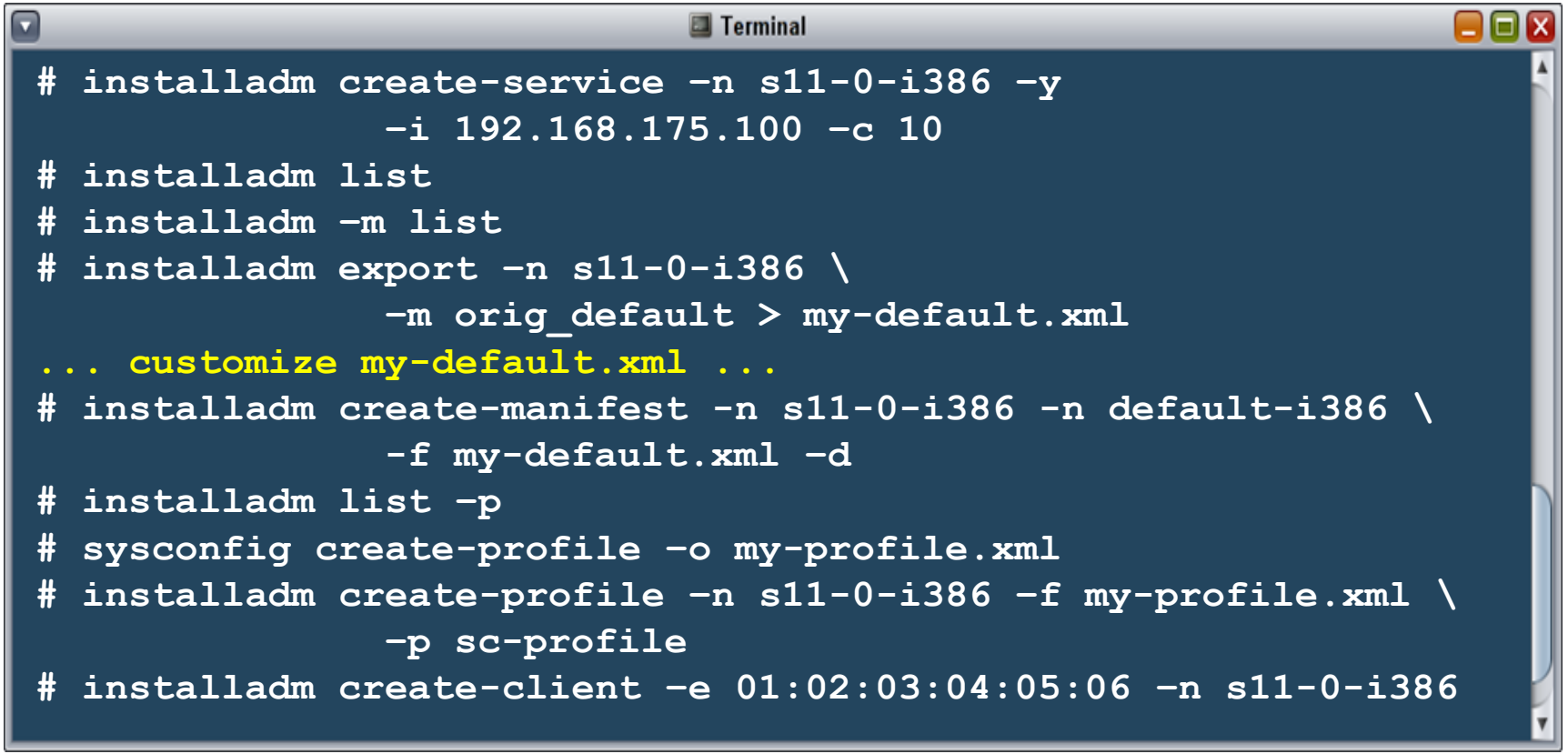


# Basic Flow of Automated Installation



# Administrating the Automated Installer



# Customize AI Manifest

Terminal

```
root@cantaloup # cat my-default.xml
...
<auto_install>
  <ai_instance name="default">
    ...
    <software type="IPS">
      <source>
        <publisher name="solaris">
          <origin name="http://pkg.oracle.com/solaris/release"/>
        </publisher>
      </source>
      <software_data action="install">
        <name>pkg:/entire@latest</name>
        <name>pkg:/group/system/solaris-large-server</name>
      </software_data>
...
```

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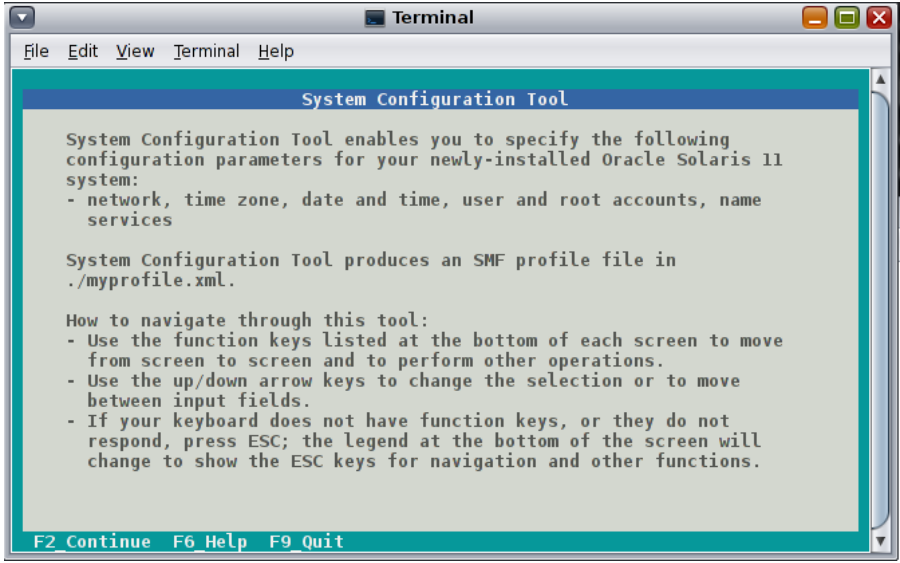
# Configuring a System with sysconfig

- Easiest starting point

```
# sysconfig configure
```

- Hostname, Network, User, Keyboard, Name Service, Timezone,

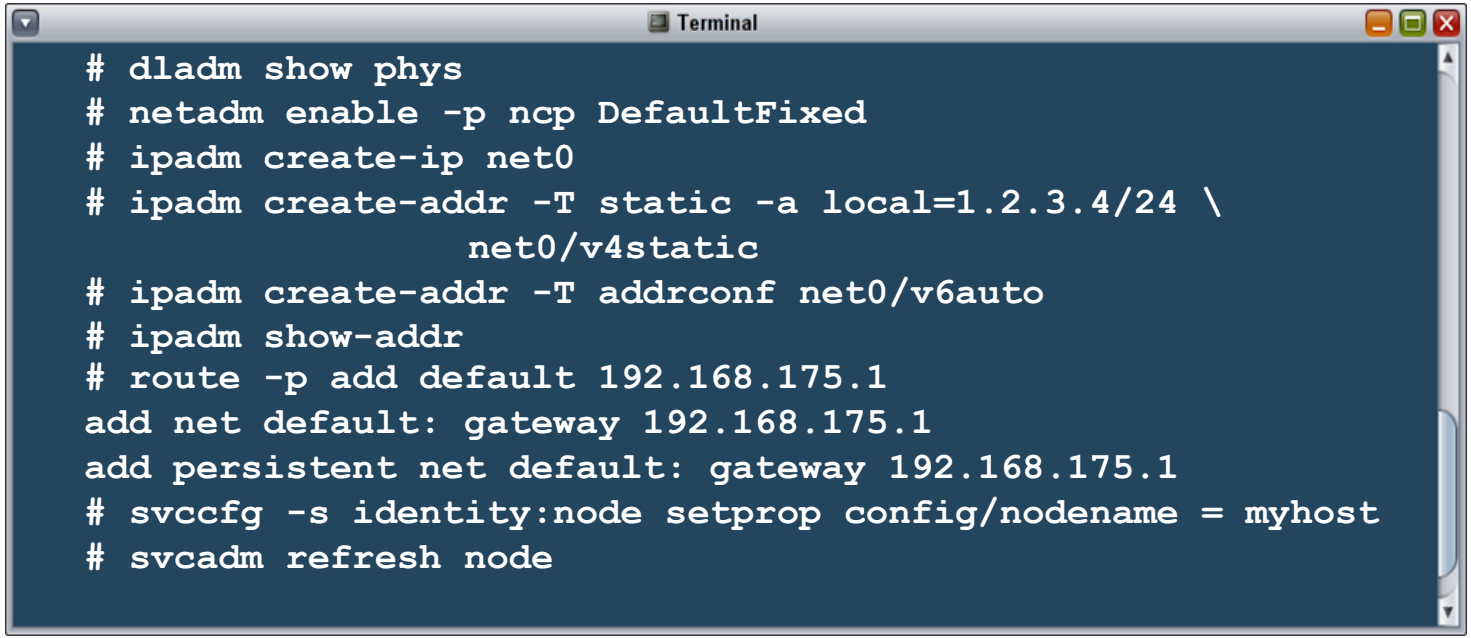


# Working with networks

# Configuring a System

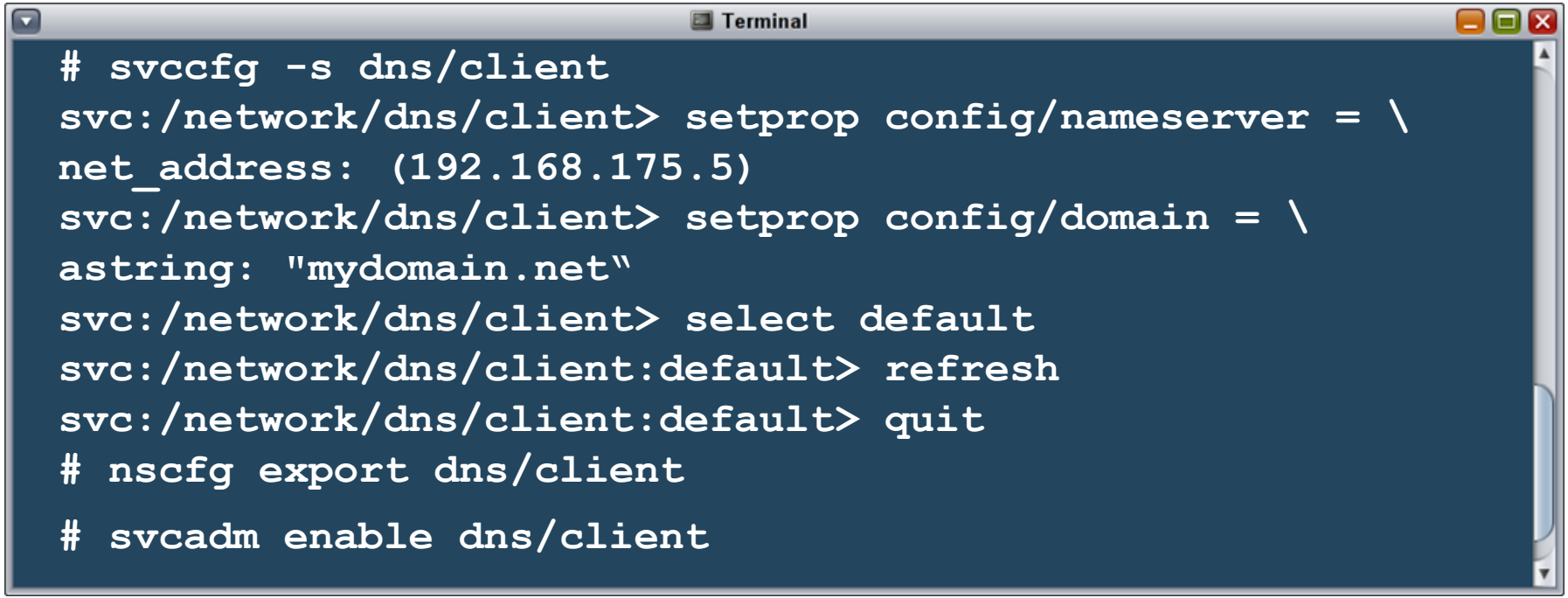
## Network Configuration Profiles (NCP)

- Automatic **or** Manual (DefaultFixed)



# Configuring a System

## The DNS configuration



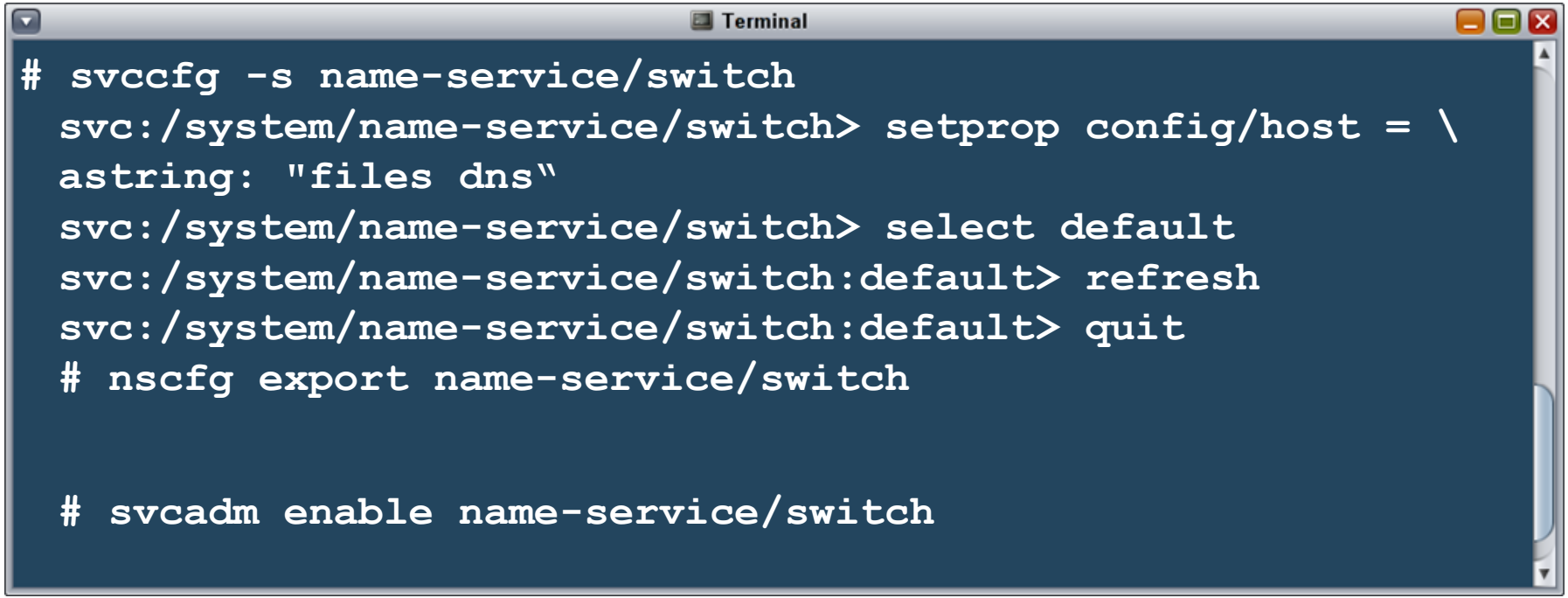
# Configuring a System

## The DNS configuration - The easier Alternative

- Edit /etc/resolv.conf as known
- Import the config and make active
  - *nscfg import dns/client*
  - *svcadm enable dns/client*

# Configuring a System

## Setup name service switch



# Configuring a System

## Setup name service switch - The easier Alternative

- Edit /etc/nsswitch.conf as known
- Import the config and make active
  - *nscfg import name-service/switch*
  - *svcadm enable name-service/switch*

# Configuring a System

## The alternatives

- Use sysconfig
- Edit /etc/resolv.conf, /etc/nsswitch.conf and use *netcfg import ....*

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# Terminology

- One **Global Zone** per System
  - Installed directly on bare metal or into VM
- Multiple **Non-global Zones** sharing one global Zone
  - Virtualized Environment
- A **Branded Zone** emulates a non-native OS Environment
  - **Solaris 10 Zone**
    - A branded Zone used to run a Solaris 10 user space
  - **Solaris Legacy Container**
    - A branded Zone used to run a Solaris 8 or Solaris 9 user space

# Solaris 11 Zone Installation

- Zone root by Default on own ZFS Dataset (compressed)
- One Zones model (no more to distinguish sparse/whole)
- Zones Minimization
  - Install by default `pkg://solaris/group/solaris-small-server`
- Zone Installation
  - Automatic: with profiles and Automated Installer (AI)
  - Interactive: similar to AI based install
  - Automatic Zone upgrade from global zone
  - `pkg update`
  - `zoneadm attach –u/-U`

# Zone installation (2)

- Need IPS Repository to Install Packages in a Zone
  - Set http_proxy or https_proxy for GZ if behind a firewall
- Zones inherit Publishers from Global Zone
  - No need to manage repositories in the zones
- IPS proxy to global zone
  - Allows zones to install pkg regardless of network config

# Solaris 11 Zones Deployment

- AI is also used when installing zones interactive
- Default manifest

```
/usr/share/auto_install/manifest/zone_default.xml
```

- Default profile enables interactive system configuration
- Provide alternate manifest and/or profile with

```
zoneadm -z <zone> install -m <manifest> -c <profile>.xml
```

- Create profile with

```
sysconfig create-profile –o <profile>.xml
```

# Resource Management

## Helps organizations meet service level agreements


CPU cap


CPU shares


Memory Cap


Swap Cap

New for Oracle Solaris 11:


Bandwidth Cap


CPUs for Networking


Max Processes per Zone

# Zones Resource Management

- Balance
  - Faire Share Resources through rules
  - Assigned based on shares in the event of 100% utilization (no limit below 100%)
- Capping
  - Cap Resources on a Limit
- Partitioning
  - Assign and use Resources Exclusively

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# Planning for Oracle Solaris 11

- Start now
  - Learn about new functionalities
  - Check your Applications
  - Ask your ISV
- Create your internal Repository
- Check your JumpStart Server and plan to migrate to Automated Installer
- Start with new projects

# Know the source

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# Q&A

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