

SOLARIS 11 DEPLOYMENT (Welcome to the modern era)

DOAG Conference 2012

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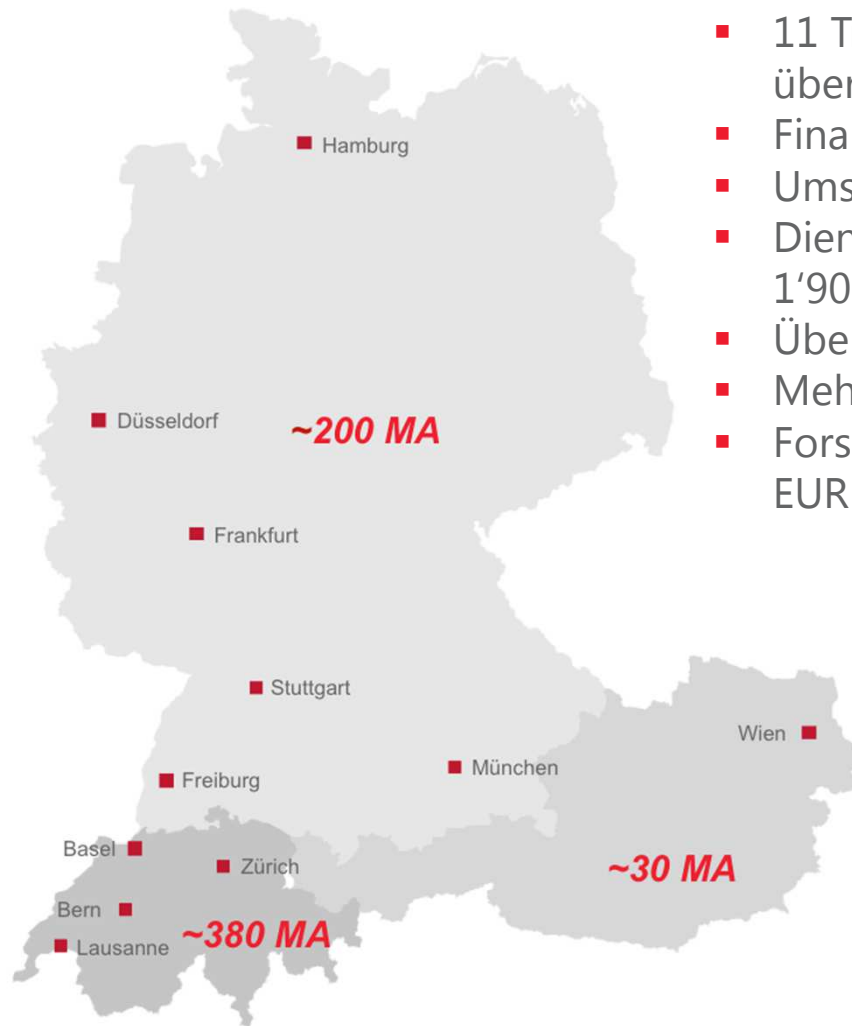
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Solaris 11 – Deployment: Willkommen in der Neuzeit
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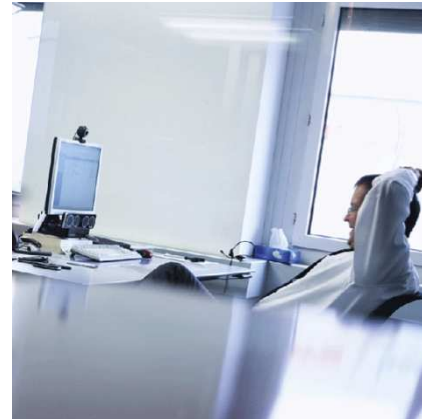
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Compliance

- übersetzt
- optimiert
- umfassend

biGenius

- schnell
- einfach
- umfassend

Toolbox

- standardisiert
- generiert
- automatisiert

Infrastructure Care

- optimiert
- nachhaltig
- modular

Application Care

- planbar
- effizient
- nachhaltig

Comprehensive Application Development

- unabhängig
- kompetent
- vollständig

AGENDA

1. Introduction

2. Jumpstart vs. Automated Installer

3. Demo Solaris 10: Going crazy with JUMPSTART

4. Demo Solaris 11: Easy deployment with AUTOMATED INSTALLER?

5. IPS – Package management with Solaris 11

6. The Distribution Constructor

7. Conclusion

Introduction



INTRODUCTION

Why so complicate...?

After installation tasks @runtime?

How to do a centralized
software update?

Repository?

More tools! Why?

Disaster! And now?



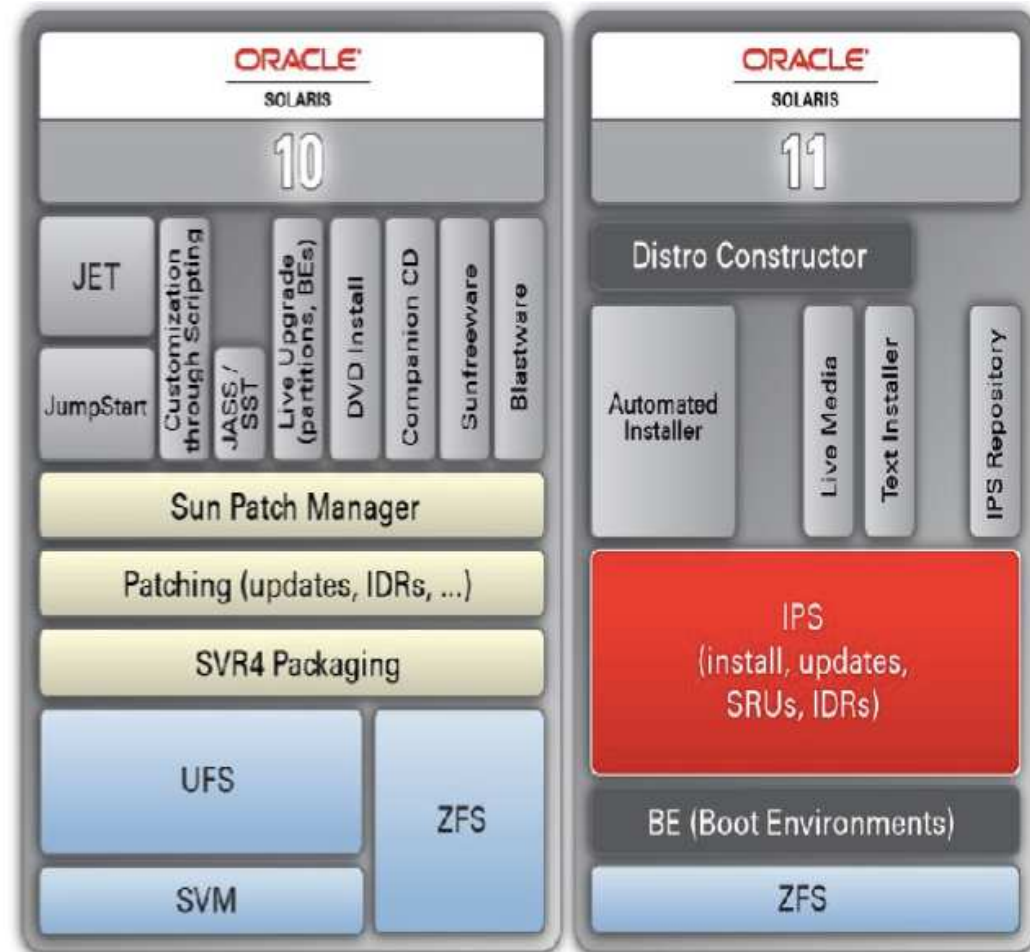
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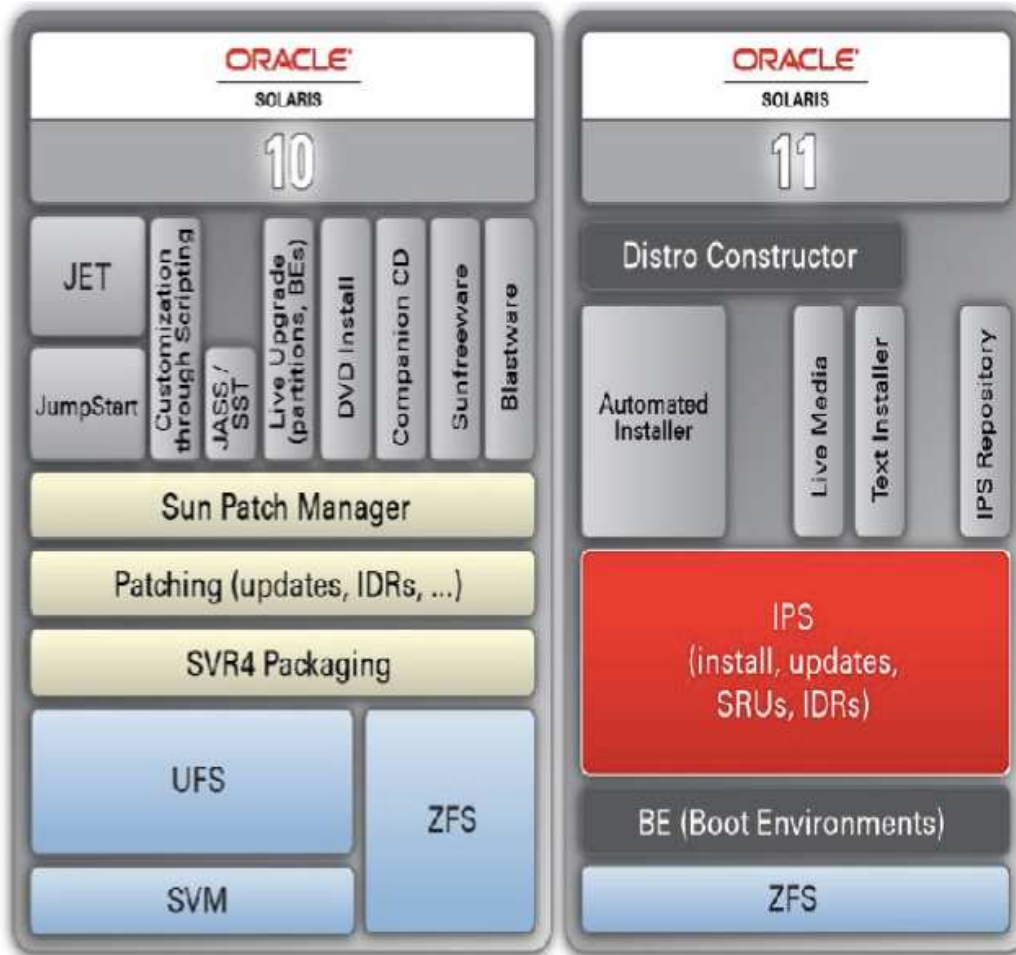
INTRODUCTION

SOLARIS 10

- A lot of tools, commands
- Complicate and messy
- Jumpstart
- No repositories
- Two filesystems
- 3rd party software needed
- Nothing for the disaster case
- Patchcluster



INTRODUCTION



SOLARIS 11

- Logical and systematic
- One filesystem
- Automated Installer
- BE for disaster case
- Repos, centralized
- All in one
- Merged, easy commands
- IPS – YUM for Solaris
- Similar commands

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Jumpstart vs. Automated Installer



JUMPSTART VS. AUTOMATED INSTALLER

JUMPSTART

- Automated Installation of Oracle Solaris 10
 - x86 and SPARC packages are not combined
 - Often not working at first try
 - WANboot based
- Hard to use
 - Different commands
 - A lot of files needed
 - Installation of zones after jumpstart tasks (e.g. with finish-script)
 - Predefined cluster – but not smooth
- Post-Installation via finish script not at runtime
- A lot of prereqs
 - Dependencies not installed / configured automatically

JUMPSTART VS. AUTOMATED INSTALLER

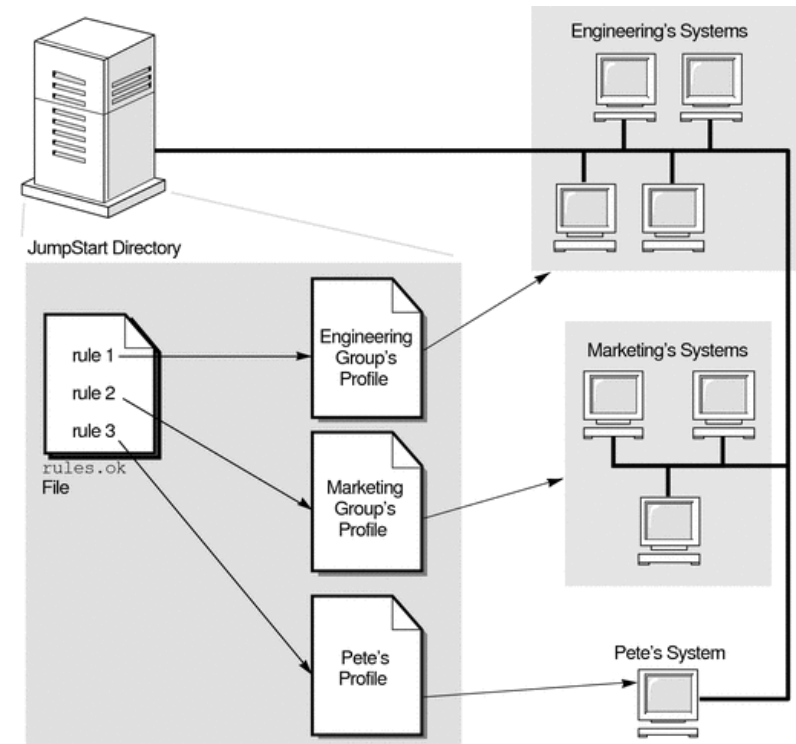
Parts of the Jumpstart server

- Services
 - DHCP
 - TFTP
 - NFS
 - RARP
- Configuration files
 - sysidcfg
 - profile
 - rules
 - Optional begin- and finish-scripts
- The check tool

JUMPSTART VS. AUTOMATED INSTALLER

Configuration files

- Profiles
 - Define the install conditions
 - Disks, partitioning, filesystem, packages
 - Flat file type
- Rules
 - Assign profile, begin- and finish-scripts
 - Flat file type
- Sysidcfg
 - root account, timezone, hostname, ...
 - Network configuration, naming
 - Flat file type

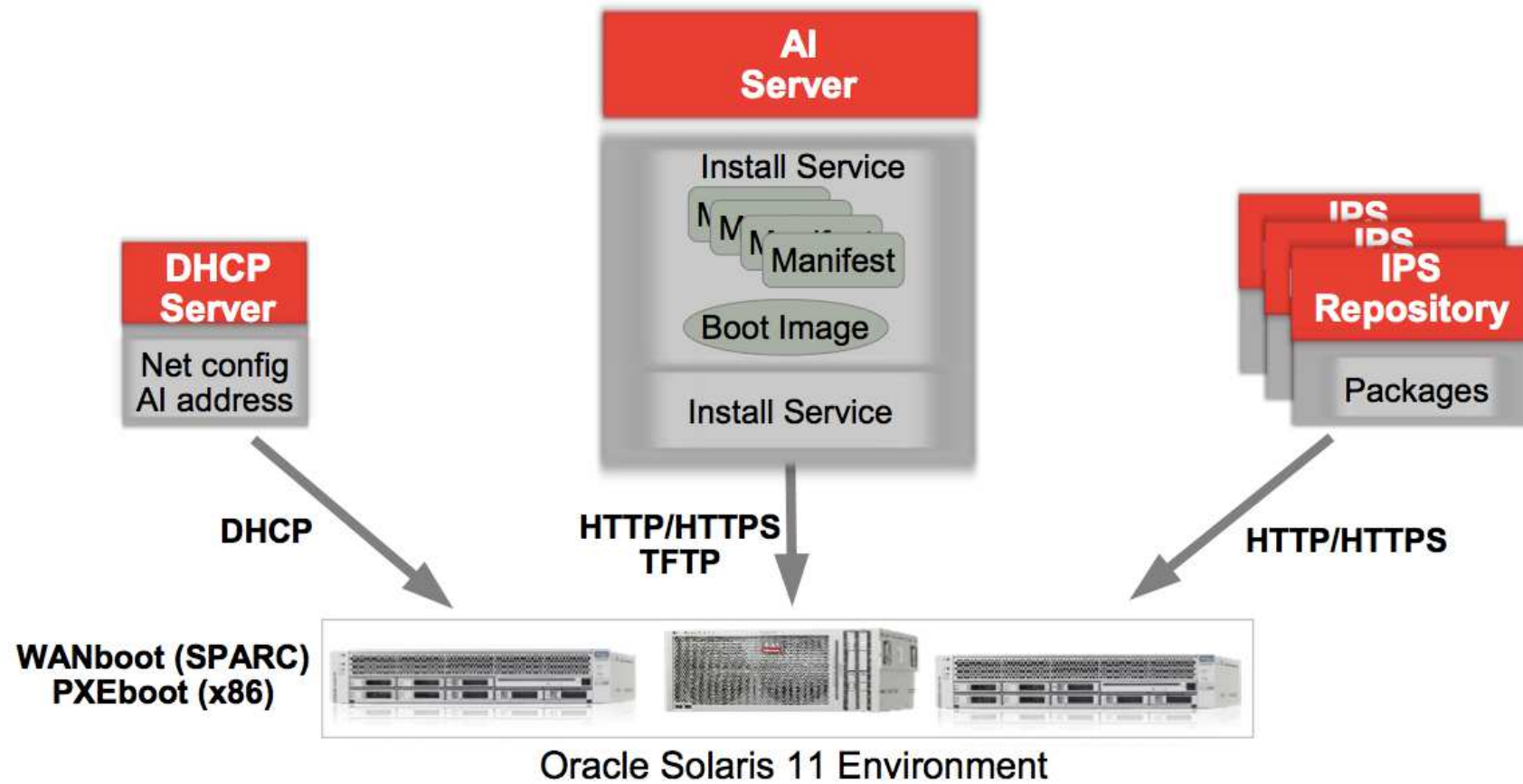


JUMPSTART VS. AUTOMATED INSTALLER

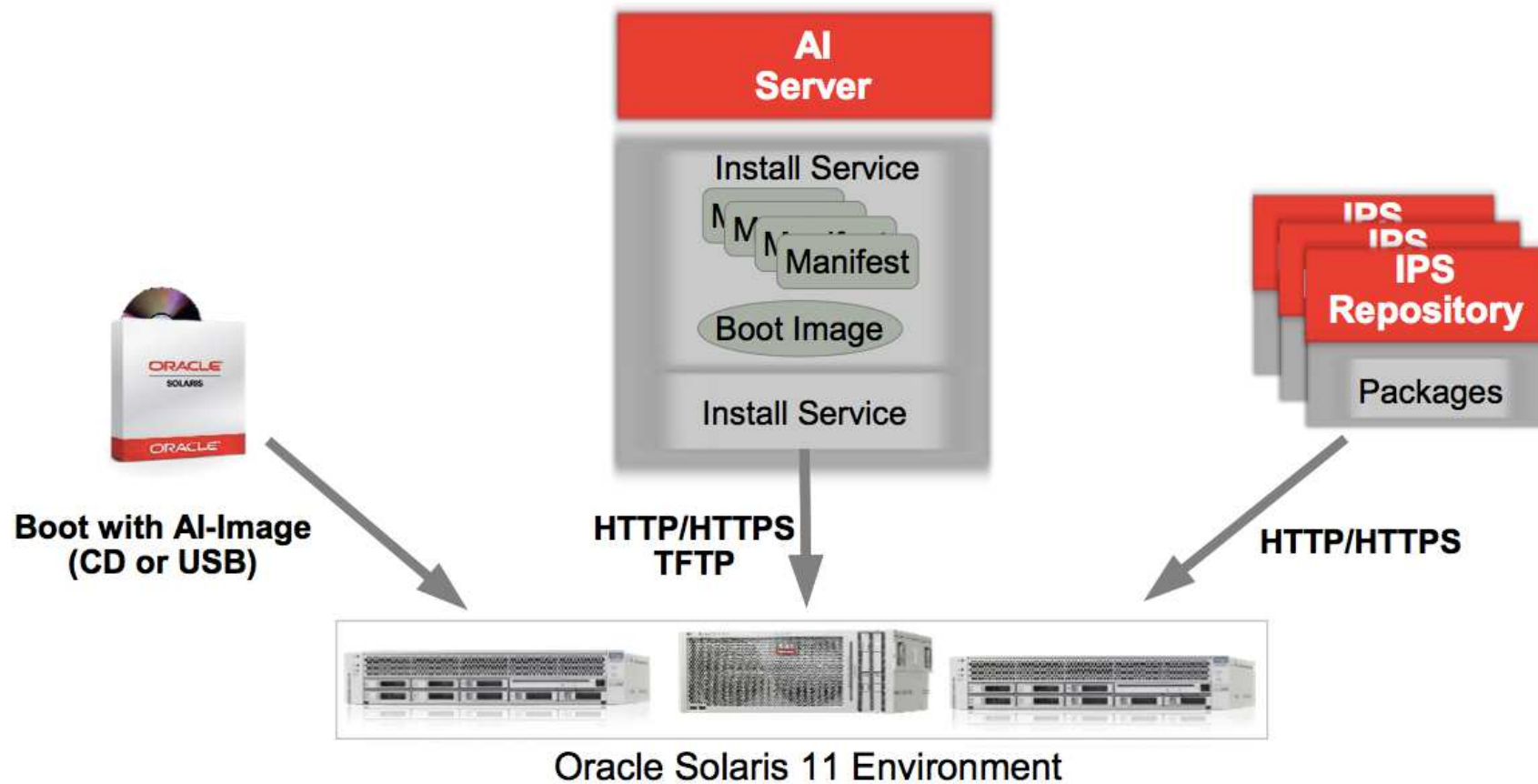
AUTOMATED INSTALLER

- Automated Installation of Oracle Solaris 11
 - x86 and SPARC packages are combined
 - Usually working at first try
 - Fast, easy, uniform, hands-free installation
 - WANboot based
- Easy to use
 - One command - `installadm(1M)`
 - Extensible customization files
 - Zones and systemconfiguration integrated
 - Predefined install groups – very smooth and completed
- Separate installation and system-configuration
- Post-Installation via first-boot-SMF-services at system runtime

JUMPSTART VS. AUTOMATED INSTALLER



JUMPSTART VS. AUTOMATED INSTALLER



JUMPSTART VS. AUTOMATED INSTALLER

Parts of the AI-Server

- AI-Software
 - IPS package installadm and dependencies
 - Services: DHCP, TFTP, HTTP/S, optional: mDNS
 - `installadm(1M)` is the central tool to manage AI
- Manifests
 - Configuration of client and installation
 - Like Solaris 10 profiles and RHEL kickstart file
- IPS repository

JUMPSTART VS. AUTOMATED INSTALLER

Manifests and profiles

- AI-Manifest
 - Define the install conditions
 - Disks, partitioning, repositories, additional software packages
 - XML type
- Criteria
 - Assign manifests to clients
 - Value or range of ARCH/CPU/IPV4/MAC/MEM/PLATFORM/ZONENAME
- Sysconfig profile
 - User/root account, password, timezone, locales, hostname
 - Terminal/keyboard type, network configuration, naming
 - Use the interactive tool to configure SC profiles
 - Convert an old Solaris 10 sysidcfg file with command `js2ai` (1M)

JUMPSTART VS. AUTOMATED INSTALLER

Compare

FUNCTION	JUMPSTART	AUTOMATED INSTALLER
Server installation:	You need the <code>setup_install_server</code> (1M) command.	Create a new installation service with command <code>installadm create-service</code> .
Adding a client:	Use the command <code>add_install_client</code> (1M).	Easy doing with command <code>installadm create-client</code> .
Define install conditions:	You can realize that with a „profiles“ file.	Use an AI manifest.
Define client rules:	You have to create a „rules“ file manually.	With command <code>installadm set-criteria</code> you can associate clients to AI manifests.
Run configurations after installation:	A „sysidcfg“ file and a finish script are needed.	Create a sysconfig profile and use a first-boot-SMF-service.

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Demo Solaris 10: Going crazy with JUMPSTART



DEMO JUMPSTART

Overview

- Server (TVD-SOL-10-JUMPSTART) => VM in host-only-network
 - 2048 MB RAM
 - 10GB HDD for root ZFS pool
 - 20GB HDD for jumpstart ZFS pool
 - 192.168.109.101

- Client (TVD-SOL-10-CLIENT) => VM in host-only-network
 - 2048 MB RAM
 - 20GB HDD for root ZFS pool
 - MAC: 00:0C:29:8B:C4:B6
 - 192.168.109.102

DEMO JUMPSTART

Prereqs and prepared tasks

- Installed dhcp packages:
 - `pkgadd SUNWdhcsu`
 - `pkgadd SUNWdhcsr`
 - `pkgadd SUNWdhcsb`
 - `pkgadd SUNWdhcm`
- Created two ZFS filesystems for a better overview:
 - `/export/install` and `/export/config`
- Activated rarp service:
 - `svcadm enable rarp`
- Created install server
 - From Solaris 10 DVD iso (`./Solaris_10/Tools`)
 - `./setup_install_server /export/install`

JUST ...

... watch the console



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Demo Solaris 11: Easy deployment with AUTOMATED INSTALLER?



DEMO AUTOMATED INSTALLER

Overview

- Server (TVD-SOL-11-AI) => VM in host-only-network
 - 2048 MB RAM
 - 10GB HDD for root ZFS pool
 - 20GB HDD for ai ZFS pool
 - 192.168.56.101

- Client (TVD-SOL-11-CLIENT) => VM in host-only-network
 - 2048 MB RAM
 - 10GB HDD for root ZFS pool
 - 20GB HDD for zones ZFS pool
 - MAC: 00:0C:29:4A:89:2B
 - Zones: TVD-SOL-11-CLIENT-Z1 / TVD-SOL-11-CLIENT-Z2
 - 192.168.56.102 (CLIENT) / 192.168.56.103 (Z1) / 192.168.56.104 (Z2)

DEMO AUTOMATED INSTALLER

Prereqs and prepared tasks

- Need some activated services:
 - `svcadm enable /network/dns/multicast`
 - `svcadm enable /network/tftp/udp6`
 - `svcadm enable /system/install/server`
- Created some ZFS filesystems for a better overview:
 - e.g.: `/export/manifest`, `/export/zones`, `/export/profiles`, ...
- Created install-service
 - From automated installer iso
 - Name: `sol1111x86`
 - `installadm create-service -n sol1111x86 -s /export/auto_install/sol-11-1111-ai-x86.iso -d /export/auto_install/sol1111x86 -B 192.168.56.101 -i 192.168.56.101 -c 9`
 - Created and refreshed default repo from iso to `/export/repo/sol1111`

JUST ...

... watch the console



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IPS – Package management with Solaris 11



IPS

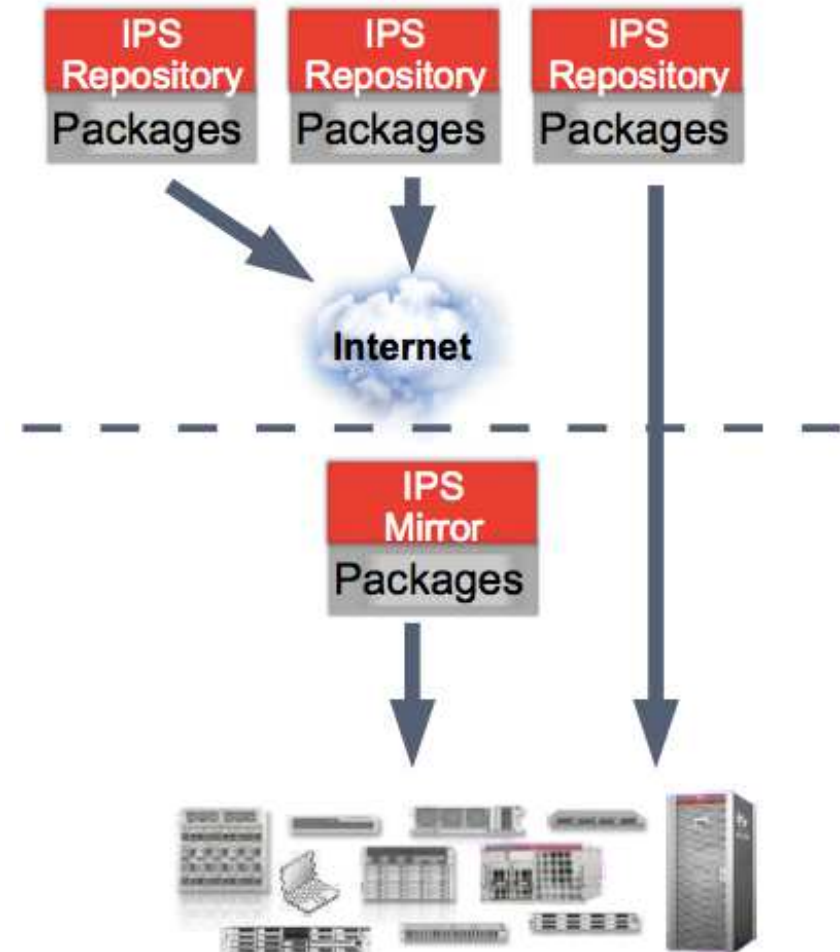
Overview IPS (Image Packaging System)

- Network centric package management (à la yum)
 - combined x86 and SPARC packages
 - Repositories in filesystem or remote (http/https)
- Easy to use (yum like syntax)
 - e.g. `pkg search/install/update/uninstall/... PKGXYZ`
- Package versioning
 - e.g. `pkg://solaris/toolXY@0.5.11,5.11-0.175.0.3.0.4.0:20111229T191505Z`
- Automatically follow dependencies
- Package management
 - no more pre/post or remove/install scripting in packages
 - CLI (pkg) or GUI (packagemanager) based

IPS

IPS – Network architecture

- One or more repositories
- Mirror, copy via proxy
 - set `$http(s)_proxy` variable
- Default repository:
 - <http://pkg.oracle.com/solaris/release/>
- Support repository for contract customers:
 - <https://pkg.oracle.com/solaris/support/>



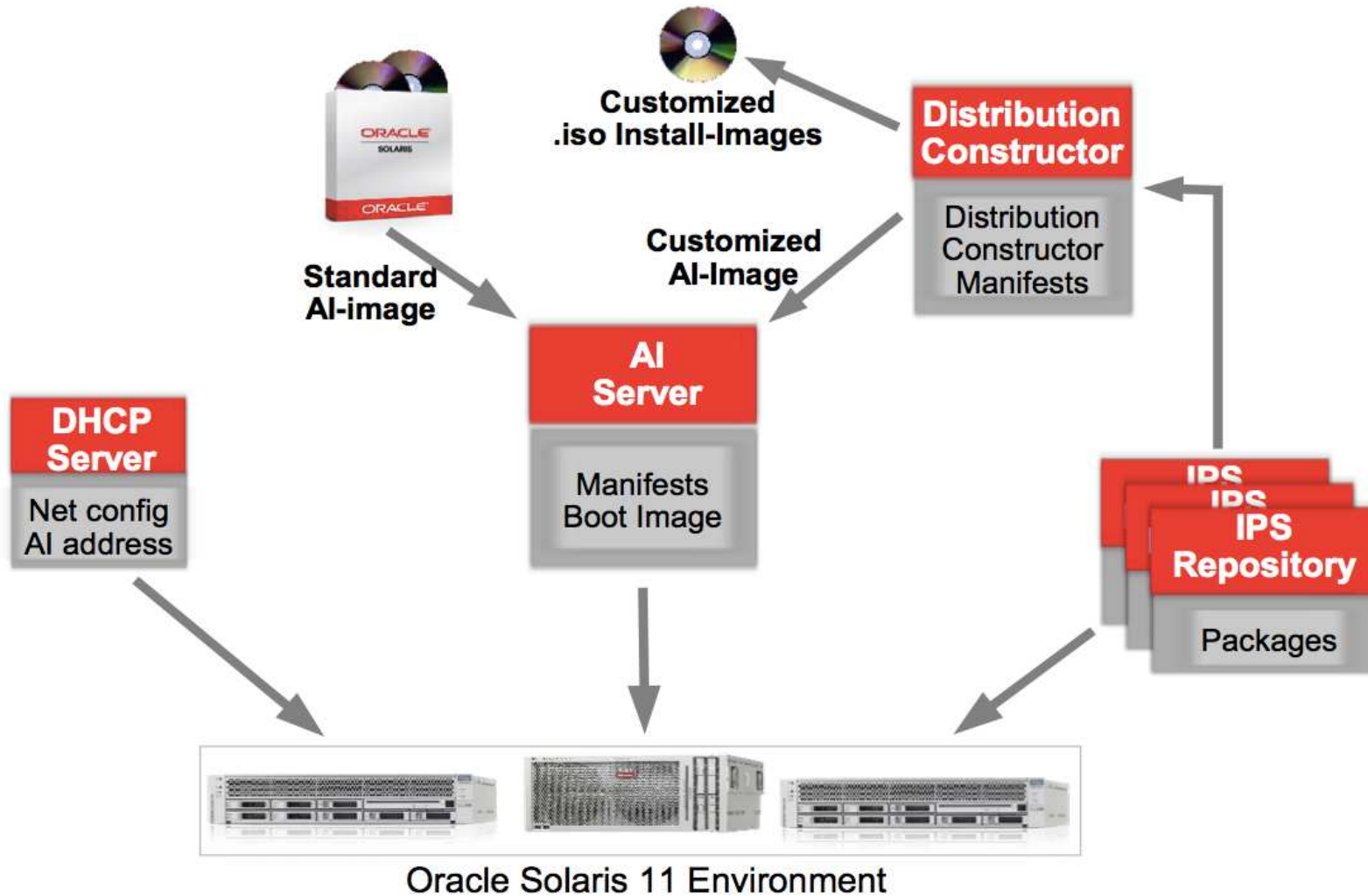
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The Distribution Constructor



DISTRIBUTION CONSTRUCTOR



DISTRIBUTION CONSTRUCTOR

Overview

- Even the Solaris developers are using this tool
- Create customized installation images or virtual machines
- Bootable iso or vm images based on:
 - Parameters in the distribution constructor manifest (XML)
- Bootable USB image for x86 installation
- Checkpointing:
 - Stop creation at serveral checkpoints
 - Debugging

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Conclusion



CONCLUSION SOLARIS 11 DEPLOYMENT

Well done Oracle ...

- Homework done, first step to an easier deployment

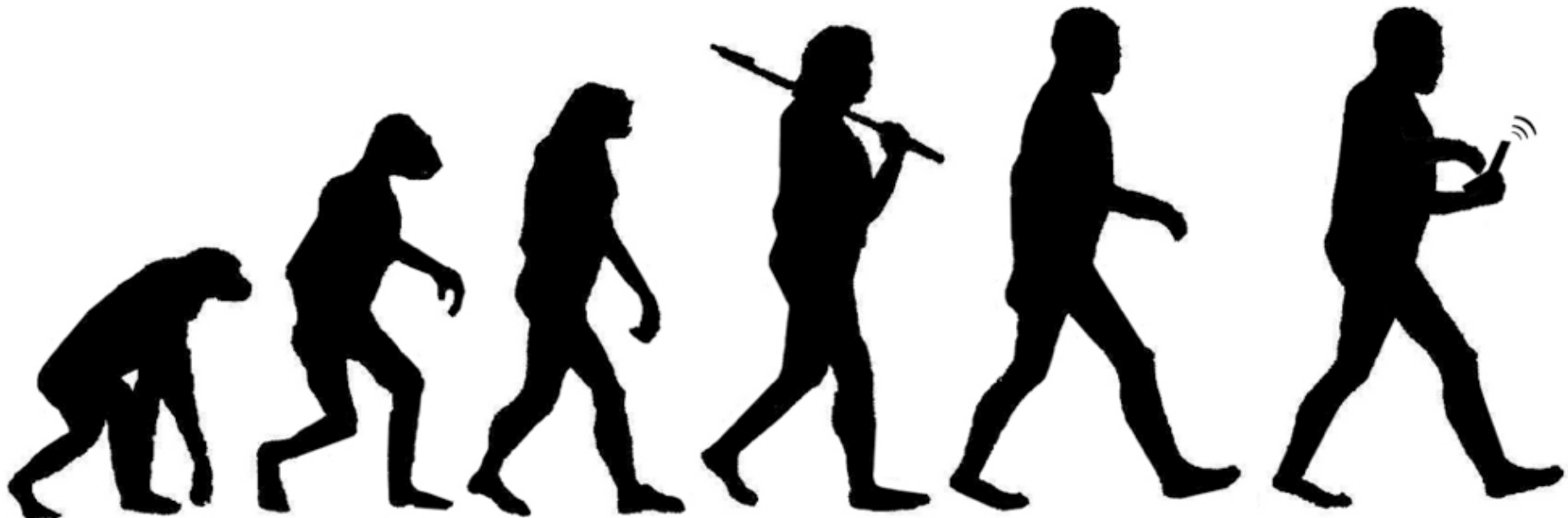
... but keep on working!

- More interactive tools like sysconfig profile tool:
 - e.g. to create manifests or to define criteria
- Please make package management faster
- Consolidate more commands:
 - e.g. zoneadm and zonecfg



CONCLUSION SOLARIS 11 DEPLOYMENT

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