



Session 025

Automated Deployment Services

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IBM @server xSeries
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Reality

- Building a server is time intensive
- Manual deployment is subject to
 - Decreased consistency
 - Greater potential for errors
 - Increased cost

Today's Solutions

- Current Automated Deployment Tools

Solution	Pros	Cons	Examples
Current Imaging	Speed	Cost Inflexible	Ghost/ Powerquest Altiris SMS OSD FP
Unattended Install	Flexible Low cost	Install speed Not "lights out" Doesn't scale	Answer files RIS

- Script-based Administration Tools

- Each server has to be addressed individually
- No audit trail of administrative activities

The Solution

- Automated Deployment Services
- A platform enabling
 - Large-scale server deployment
 - Server repurposing
 - Mass server administration
- Licensed with Windows 2003 Server Enterprise Edition
 - No additional license fees
 - Developed, tested, and supported specifically for Windows Server deployments

Agenda

- ADS Overview
 - Benefits, Positioning, and Solutions Guide
- ADS in Depth
- Virtual Server Migration Toolkit
- Next Steps

An ADS Overview

- Powerful tools for rapid deployments of Windows Servers in the datacenter
 - MMC GUI, command-line, and programmatic interfaces
 - Sample sequences and scripts
- Platform for ISV and OEM development
 - Well-documented interfaces for easy integration and extensibility
 - Feature of WS2k3 Enterprise Edition
 - No per target licensing

Target Scenarios

- **Fast, Automated Server Builds**
 - Accelerate and automate normal build process
 - Automate blade server provisioning
 - Rapidly roll out a new data center facility
- **Automated Control of Dynamic Environments**
 - Regular re-purposing of test/dev environments
 - On demand re-purposing of servers/blades
- **Mass Script-based Server Administration**
 - Centralized change and configuration control with auditing

ADS Feature Set

- Imaging and Deployment
 - Unicast or Multicast image deployment
 - Image editing and choice of sector or cluster-based format
 - Virtual Floppy Support
 - Secure remote deployment
 - Scalable Architecture

ADS Feature Set

- Versatile Set of User Interfaces
 - MMC Snap-in for point and click operation
 - Command-line interface
 - Complete programmatic WMI interface for automation
- Server Administration
 - Centralized scripting of server farms
 - Leverages existing scripts
 - Persistent log of all ADS activities
 - Released this week: ADS MOM Management Pack

demo

Target User And Environment

- Target User
 - Administrators responsible for server deployments and administration
- Target Environment
 - Well-connected data center or staging lab
 - 10Mbps or higher links
 - Not supported across slow and unreliable links
 - PXE and DHCP
 - Windows 2000 Server and Windows Server 2003
 - Not designed for desktop migration or lifecycle

PXE And DHCP

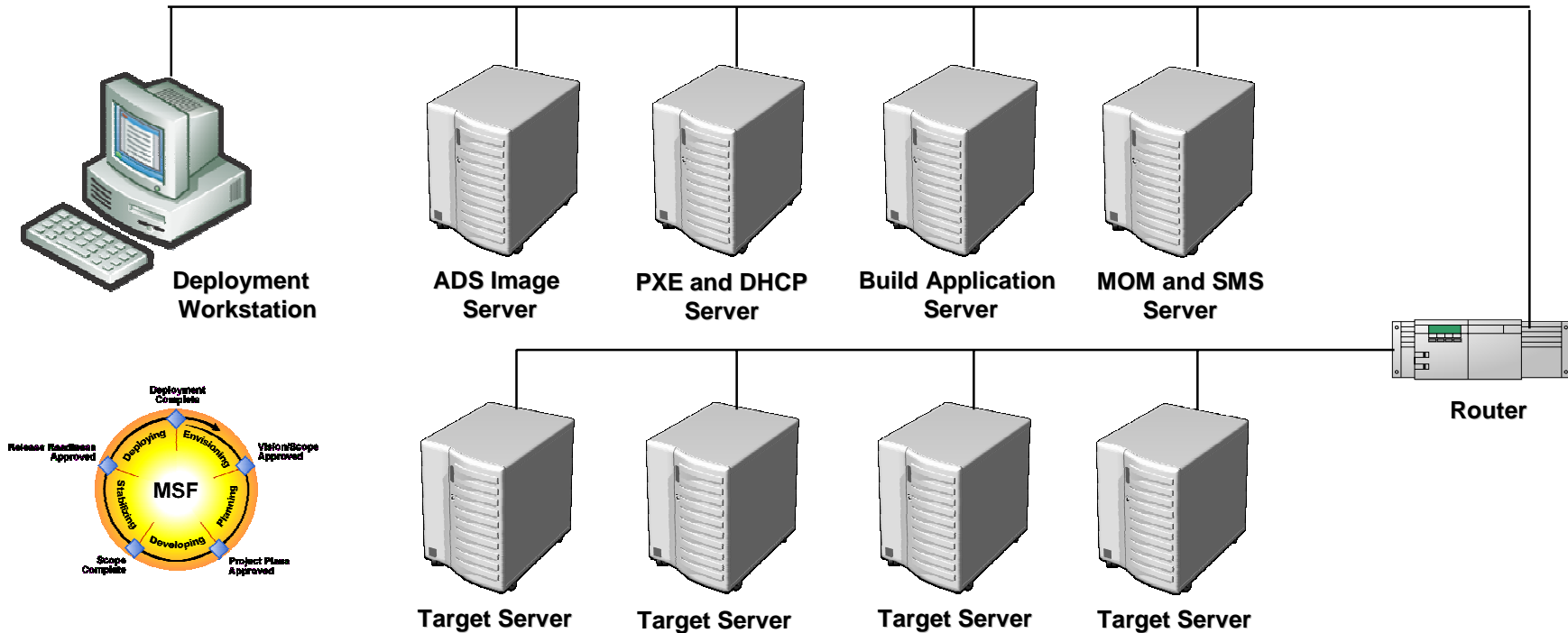
- PXE
 - Enables over-the-net bare metal boots
 - A widely supported industry standard
 - Include in virtually all corporate PCs since 1998
- DHCP
 - A widely supported industry standard
 - Required by PXE
 - Allows for the use of either static or dynamic IP addresses
- Both PXE and DHCP can be used in datacenter environments

Server Deployment Solution

- Core Component of Windows Server Deployment Solution Accelerator
 - Server provisioning process integrating ADS and other Microsoft management tools

Windows Server Deployment

Solution Accelerator



- Uses ADS as a cornerstone for enabling processes around server consolidation, web hosting, and replacing new hardware
- Automation eases on-time provisioning
- Build role-based images with MOM and SMS agents

Improving Deployment Revisited

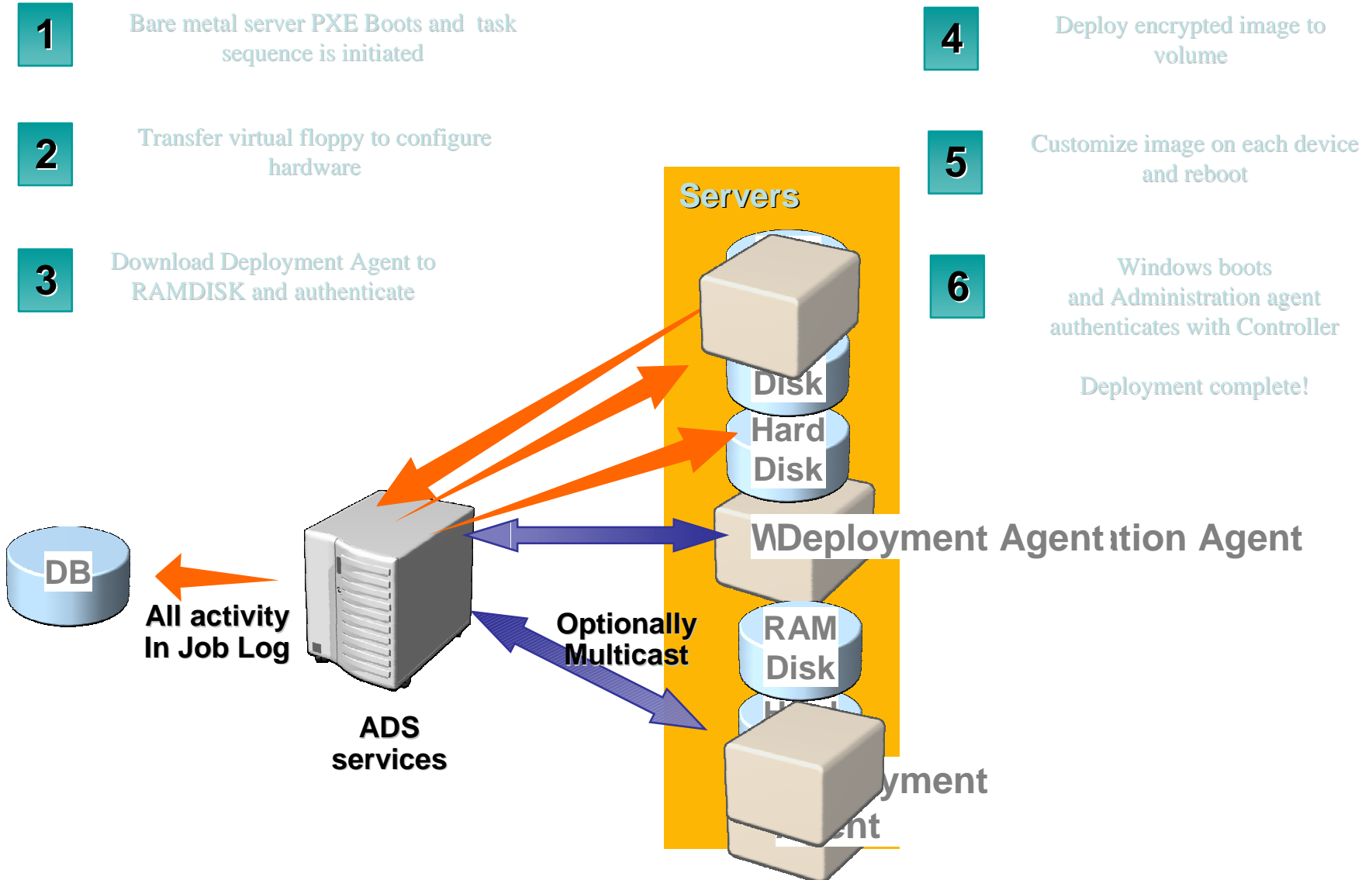
- Building servers is time intensive
 - Imaging and bare-metal PXE boot
 - Build times reduced from 4 hrs to 10 min
 - Automated server build time for 100 machines dropped from 18 hrs to 27 min
- Manual deployment is subject to:
 - Decreased consistency, greater potential for errors, and increased cost
 - Labor costs reduced by 95%

*** Numbers are actual results from customer case studies!**

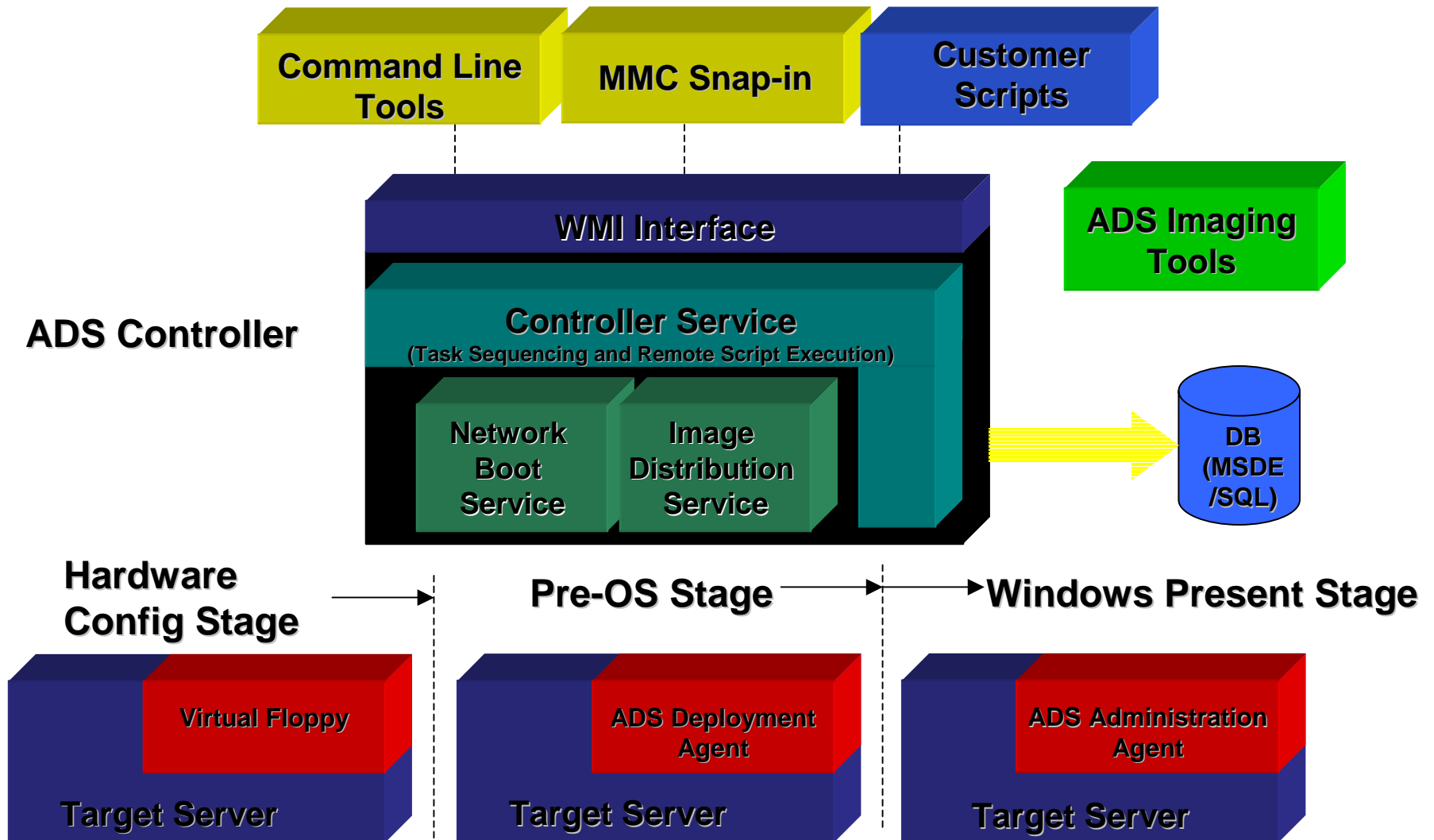
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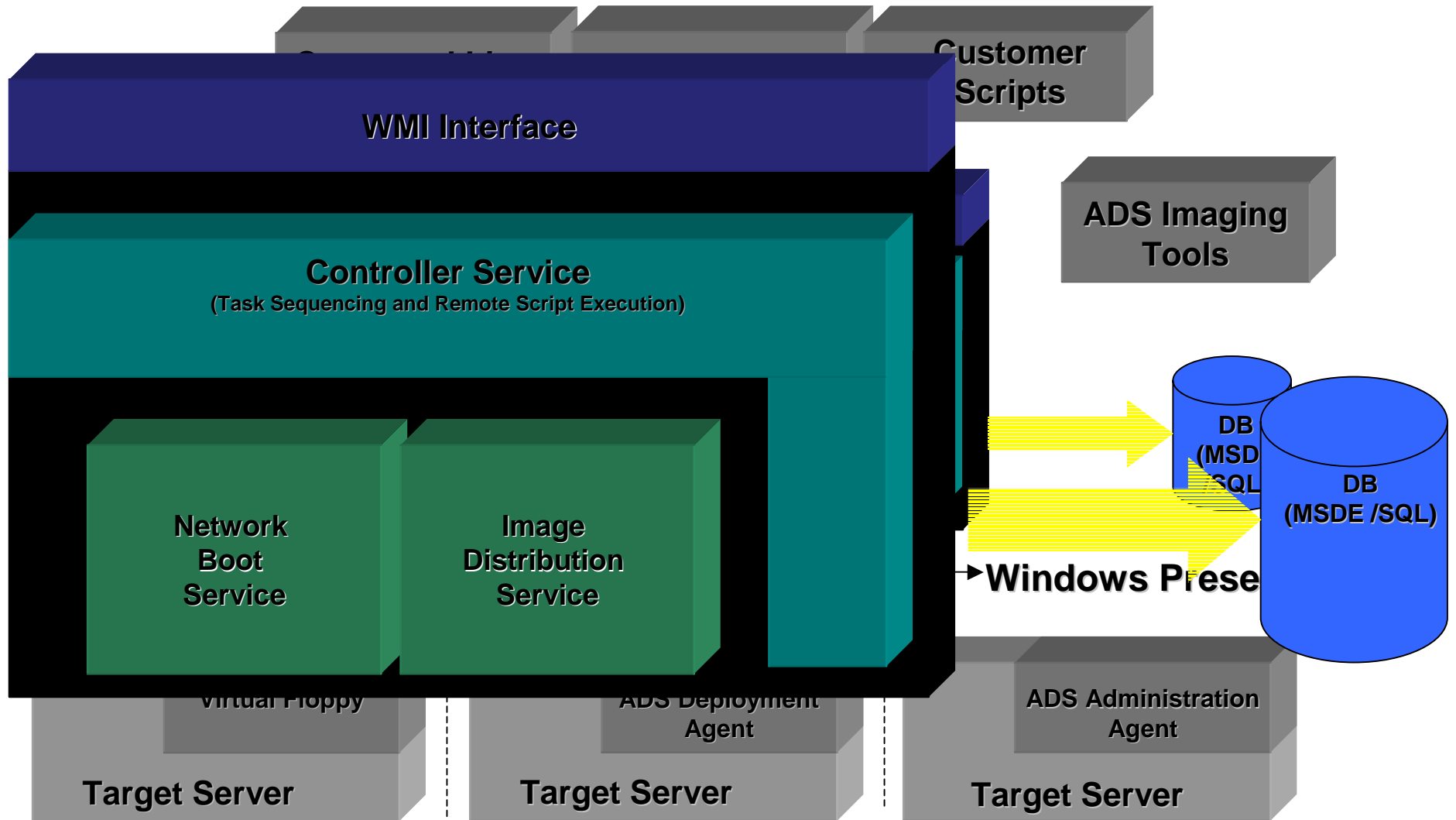
ADS Deployment Steps



Architectural View



ADS Controller



ADS Controller Overview

- Three Controller Services
 - Network Boot Services (NBS)
 - PXE Server
 - Deployment Agent Builder Service
 - Image Deployment Service (IDS)
 - Controller Service
- A Scaleable Architecture
 - ADS Controller can scale across multiple machines

ADS Controller

- SQL Database Used for State Storage
 - Can be either included MSDE or remote SQL Server

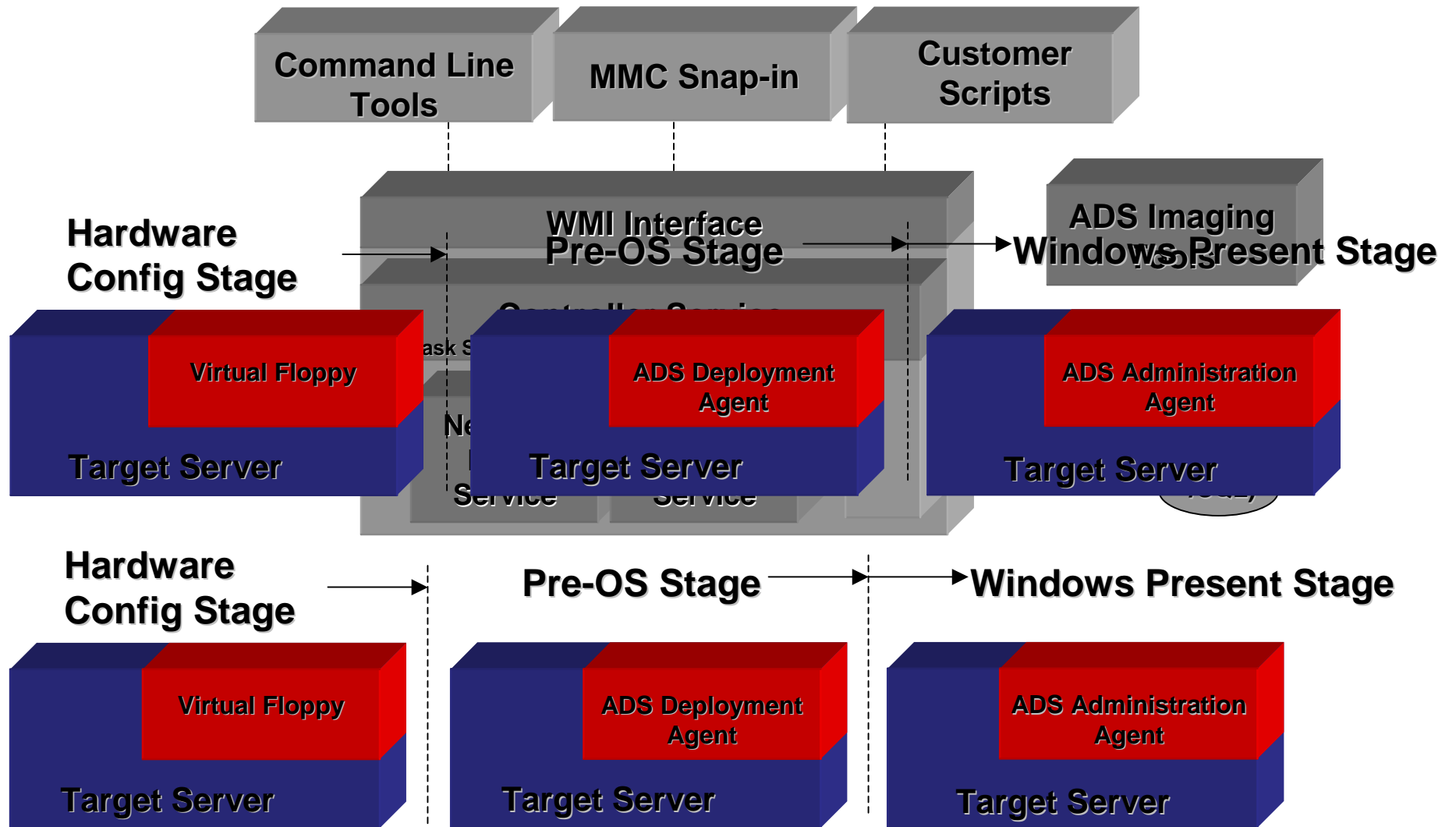
Intelligent Controller

- Network Boot Service
 - PXE services
 - Uniquely Identifies Devices
 - Enables Auto-Add of Targets
 - Deployment Agent Builder sub-service
- Image Distribution Service
 - Image Repository
 - Unicast and Multicast image distribution

Intelligent Controller

- Controller Service
 - Coordinates with other services and target devices
 - Manages Task Sequencing
 - Remote script execution with central logging
 - Exposes programmatic interface

Target Agents

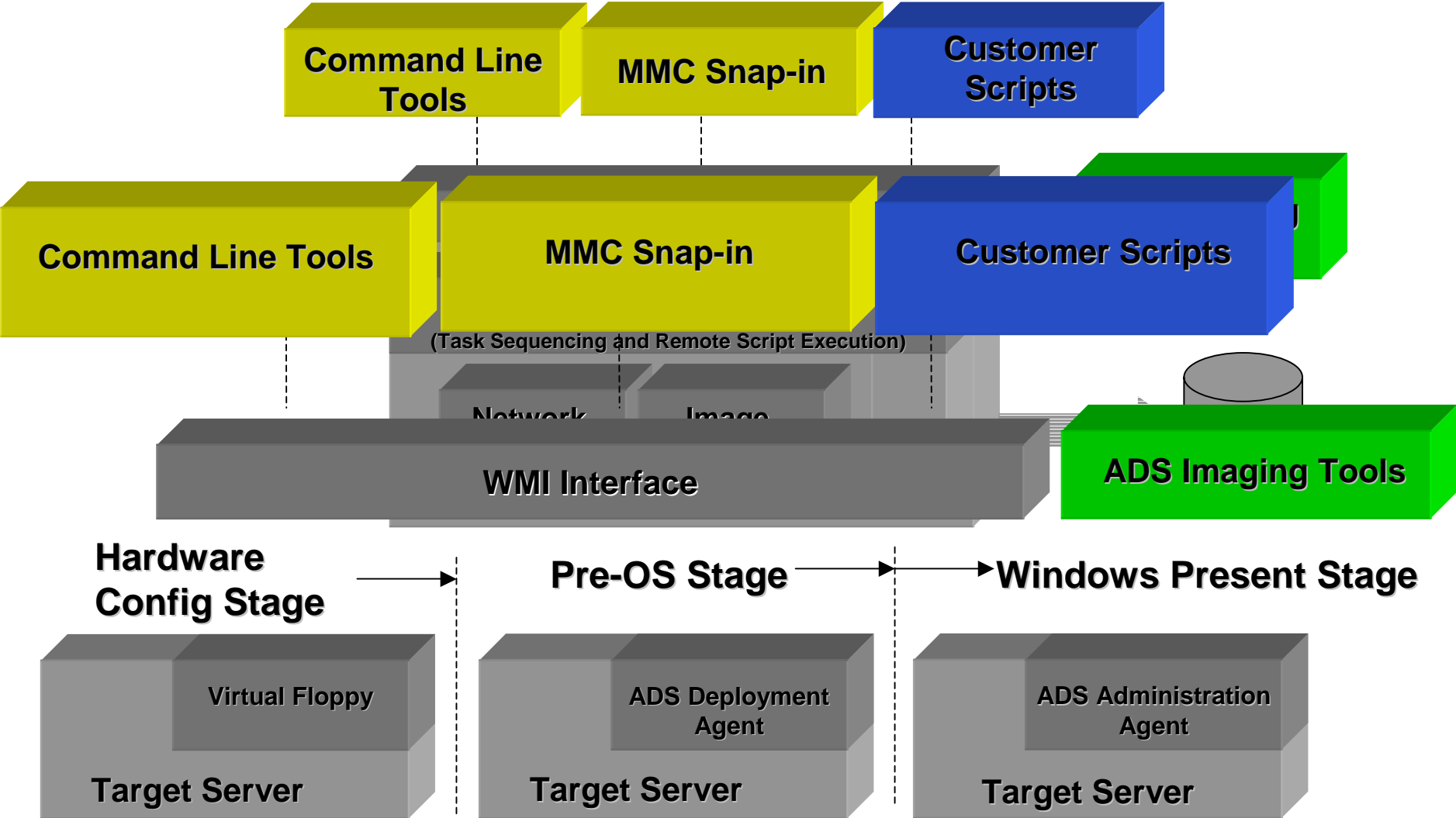


Target Agents And Control

- Virtual Floppy Support
 - A DOS runtime environment
 - BIOS Settings, RAID Configuration, Etc.
- Deployment Agent
 - A RAM-resident OS deployed through PXE
 - Provides Basic OS Deployment Functionality
 - Partition Disks, Copy Image Files, and Issue Reboots
- Windows Administration Agent
 - Lightweight, remote script and command execution

demo

Interfaces And Imaging Tools



ADS Imaging

- A Comprehensive Set of Imaging Tools
 - Local or remote image capture
 - Online image editing
 - Remote image capture can be driven from MMC UI or command line tools
- Uses Sysprep so only one image needed per HAL
 - ACPI versus Non-ACPI, UP versus MP
 - Large datacenters generally maintain 4-6 images

Imaging Format And Tools

- ADS Imaging Format
 - Sector-based or File-based
 - Optional Compression and/or Encryption
 - Requires target partition to be equal or greater size than capture drive
- Flexible Image Editing Features
 - Images can be mounted as a drive
 - Add/remove files, edit registry hives

ADS System Interfaces

- Flexible Set of Interfaces
 - WMI, MMC GUI, and command-line
- WMI and command-line interfaces are full featured
 - Anything that can be done in the GUI can be done through script and programmatically
 - WMI
 - Scriptable interface callable from any COM-compliant language
 - ADS can be used as a deployment platform
 - Full functionality is exposed: Scripting, MMC, and command-line interfaces all use WMI

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Virtual Server 2005 Migration Toolkit

- Based on ADS
- Targeted at NT4 to Virtual Server Migration and Server Consolidation
 - Can also migrate Win2K and Win2K3
- P2V Migration
 - Migrates physical servers to virtual servers

Virtual Server 2005 Migration Toolkit

- Moves operating system and installed applications by moving disk images
 - Process takes less than one hour per sever after planning and infrastructure setup complete
- Targeted for use by IT professionals
 - Requires some scripting knowledge
- Not all physical servers can be migrated
 - Hardware emulation limitations
 - Servers with 96MB or less of RAM
 - Some hardware configurations will require manual intervention

VS05 And VSMT Timeline

- Virtual Server 2005
 - RC – End of June
 - RTM – End of summer
 - General Availability – RTM + 8 weeks
- VSMT
 - Alpha is Available Today
 - To select VS Technology Adoption Program customers
 - Beta – Q304
 - RTM – Q404

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ADS Partners

- OEM partnerships



- Testing ADS to run and deploy to their platforms
- Providing additional ADS plug-ins to simplify customer deployment experience

- ISV partnerships

- Ecora
- BladeLogic
- Amphus

- ISVs can easily take advantage of ADS imaging in their product
- Increases functionality and reduces their time-to-market for Windows deployments

Customer Results



Australian Federal Tax Office

- ADS being used in Sydney Server Data Center, with 700 servers and expected to grown 2X in 12 months
- Reducing server build time from 1 day to 2 hours on average



Tesco.com

- Eliminated Manual Configuration and improved server Deployment time by 12x

- Largest Telco in Australia, with 40K FTE
- Built 1000 new servers for their ISP hosting services



- Attenda – Leading European Internet hosting and IT outsourcer
- Saved 280 hours during 100 server build out project

Attenda®

Resources

Websites

<http://www.microsoft.com/windowsserver2003/ads>

<http://www.microsoft.com/dsi>

External Feedback

adsfeed@microsoft.com

Newsgroups

Microsoft.public.windows.server.setup

Microsoft.public.windows.server.general

Solutions Accelerator

<http://www.microsoft.com/business/reducecosts/efficiency/manageability/serverdeployment.mspx>

Comparing ADS and RIS

<http://www.microsoft.com/windowsserver2003/techinfo/overview/risvsads.mspx>

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