Deployment Strategies from ProLiant Essentials Rapid Deployment Pack to Utility Data Center

Jay Chitnis
Marketing Manager
Utility Data Center Group

John Gilmore
Product Manager
Industry Standard Server Group

Richard Mouser
Development Manager
Industry Standard Server Group

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What we will cover today

- Overview of how Rapid Deployment Pack and Utility Data Center can provision ProLiant servers to meet changing business demands on IT infrastructures
- Benefits of each approach to server provisioning
- How server provisioning can create highly available datacenter infrastructures and reduce total cost of ownership
- Better understanding of how these product offerings fit into HP's vision of the Adaptive Enterprise

Input from our customers

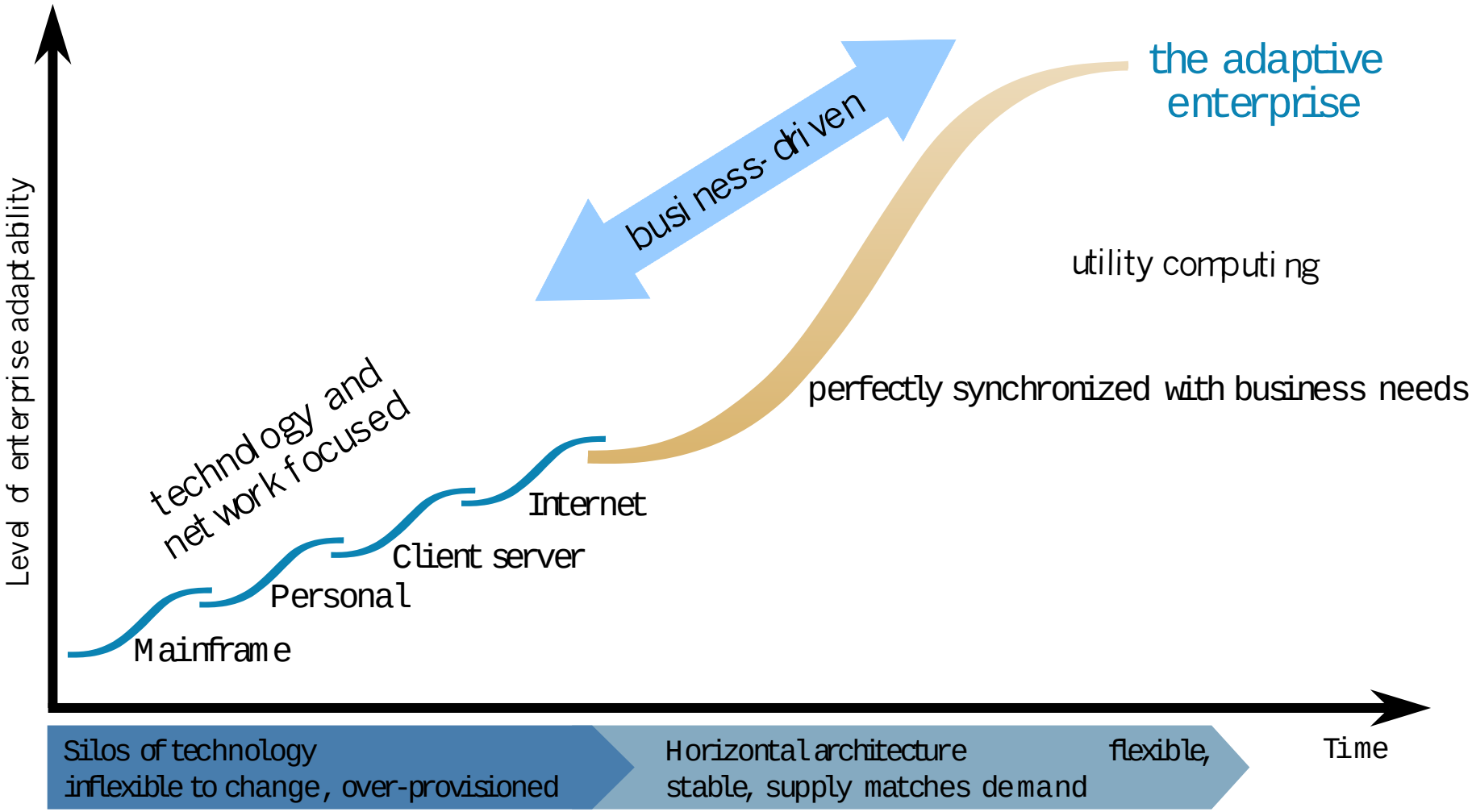
Technology environment
- Complex data centers
- Disaster recovery
- Server sprawl
- High business expectations

Business environment
- Headcount freeze
- Travel budgets
- Capital expenditure reductions
- Extensions of depreciation

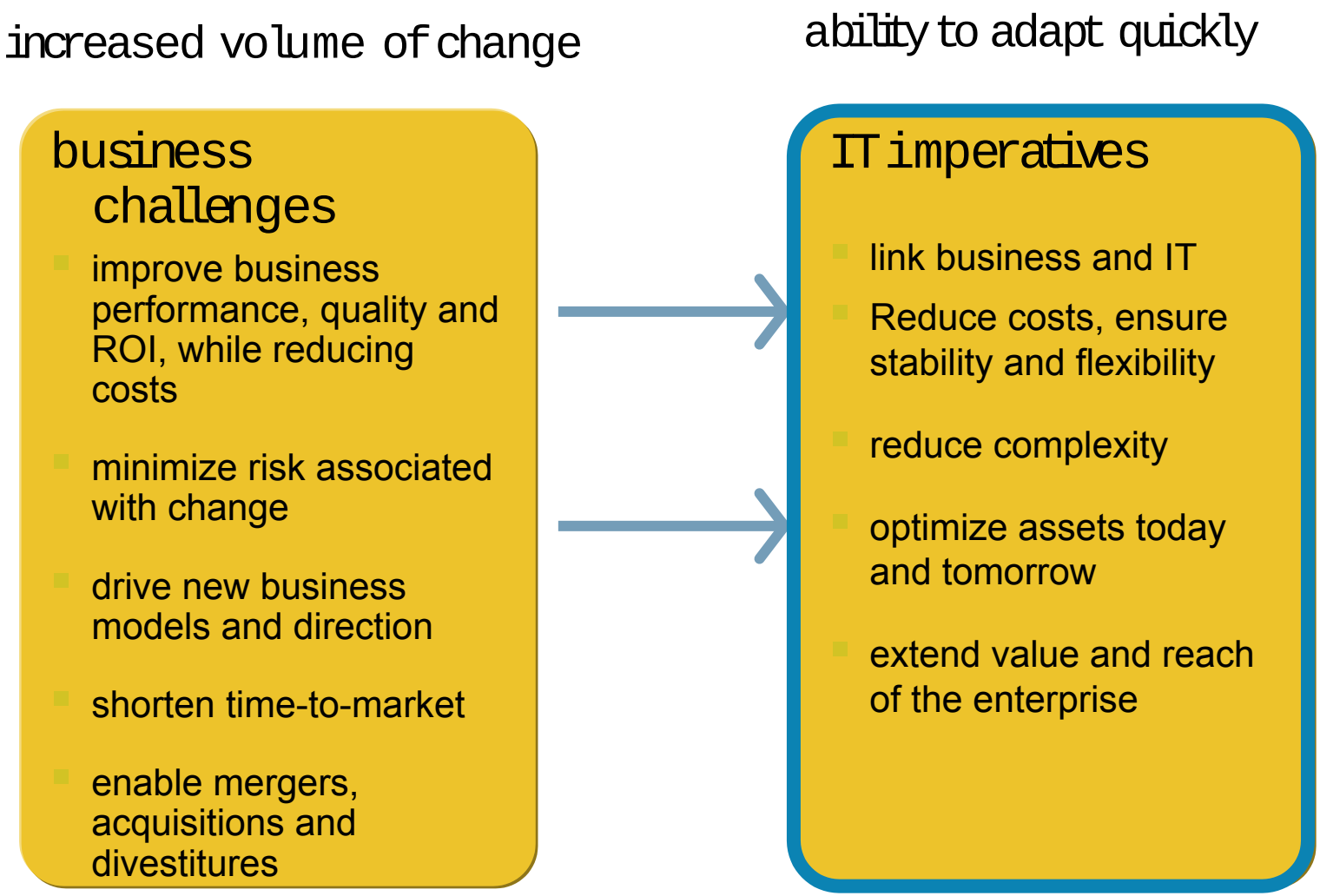
Forcing IT to rethink solutions

Depreciation schedules ?
IT or Server consolidation ?
Blades ?
Service-level management ?
TCO ?
Windows 2003 ?
Industry standards ?
Virtualization ?
Remote management ?
Infiniband ?
Fabrics ?
Business continuity ?
Management tools ?
Workload balancing ?
Deployment tools ?
Mainframes ?
Linux ?
Itanium ?

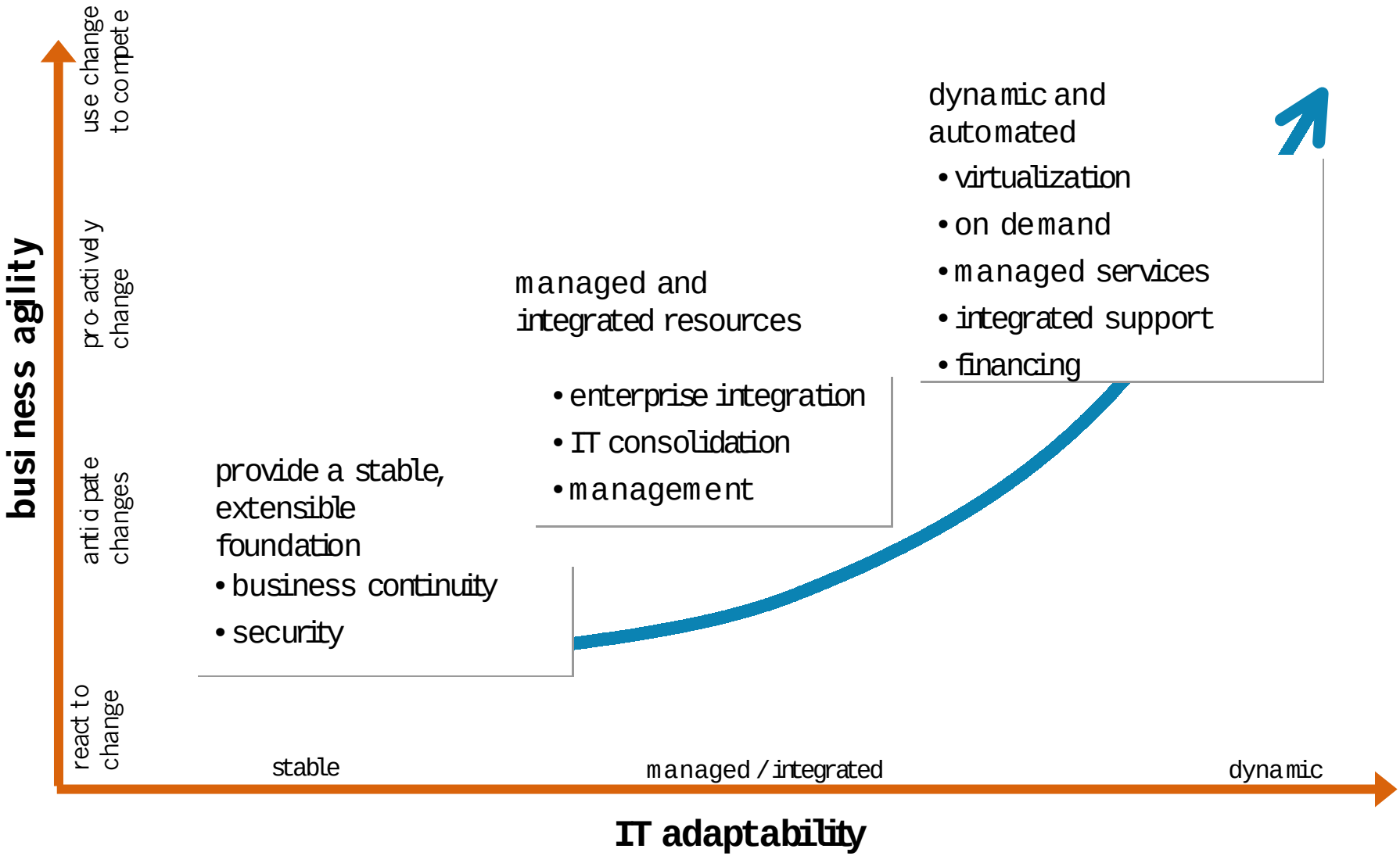
The industry is moving to a new model of computing



Today's business challenges require IT to adapt



Building the foundation of an adaptive enterprise



Dynamic resource allocation and optimization

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Rapid Deployment

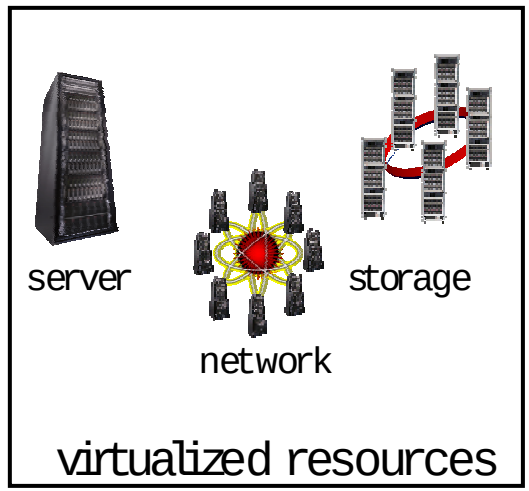
- automated deployment, re-deployment & re-provisioning tools

Utility Data Center

- virtual server environment
- single system partitioning & workload optimization
- modular, virtualized blade & rack architectures
- virtualized data center integration

balance supply & demand

HP Utility Data Center



Common Deployment Problems

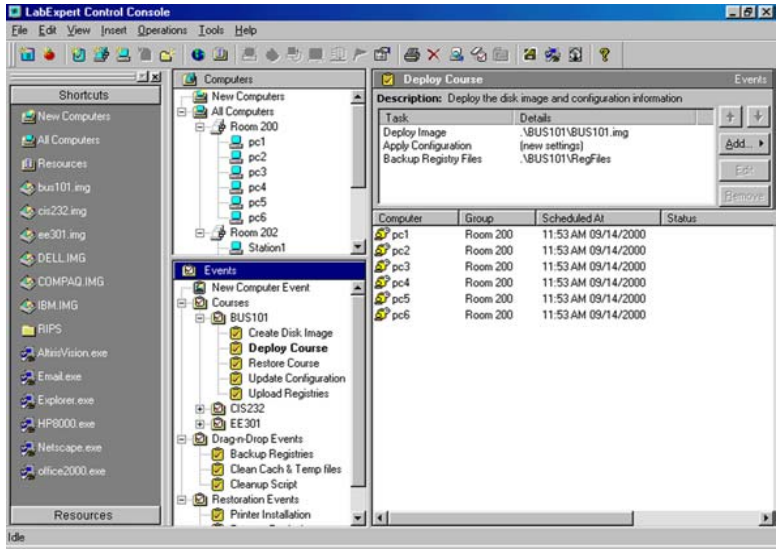
- server deployment is a tedious and time consuming task
- no standard tools for automating multi-server deployment
- automating deployment requires high level of expertise on multiple tools
- standardizing server deployment processes sounds good but difficult to achieve
- remote sites and remote datacenter locations are problematic for server deployment
- server downtime is costly – costs much higher to restore a server to a known working configuration
- i have 50 servers I need to deploy next week….

What is Rapid Deployment Pack?

Joint HP and Altiris solution

- Automates the process of deploying and provisioning server software
  - Altiris eXpress Deployment Server for servers
    - Off the shelf version
  - ProLiant Integration Module for Altiris eXpress
    - Includes optimizations for ProLiant servers
- A software option that can be purchased along with ProLiant servers
- A free 30 day trial is available on all Rapid Deployment Pack CD's

ProLiant essentials Rapid Deployment Pack



key features

- gui, console-based deployment server
- drag and drop servers into configurations

- built-in pxe services and pxe image tools
- network booting for headless deployment

- deploy via scripting or imaging
- built in script generation and editing

- remote power control
- uses wake-on-lan, riloe or integrated lights-out

- server configuration on-the-fly
- drag and drop tasks to create configs

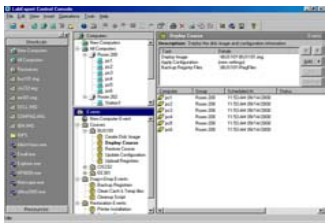
- scalable deployment without network degradation
- using multicast, deploy 100 servers in 30 minutes

Multi-Server Deployment Technology Overview

Deployment Server

- The "Brains" for deployment
- Communicates with PXE, SQL, Console
- Ensures deployment tasks are carried out as designed

Deployment Console



- Drag and drop configuration
- Visual status indicators
- Physical/logical grouping
- Script Wizard / Editor

File Share

- Stores scripts / configurations
- Stores OS & OEM CD files
- Stores disk images

SQL Server

- Stores server profiles
- Stores server hw/sw inventory
- Logs all configuration activities

Deployment Agent

- Manages post OS configuration
- Executes tasks initiated at console
- Remote console capability

PXE Server

- Allows net boot (no floppy/CD)
- Sends PXE boot images to server
- Multiple Boot OSes possible
- Multiple PXE images per task

Altiris eXpress console

Use the Event Wizard to easily set-up tasks

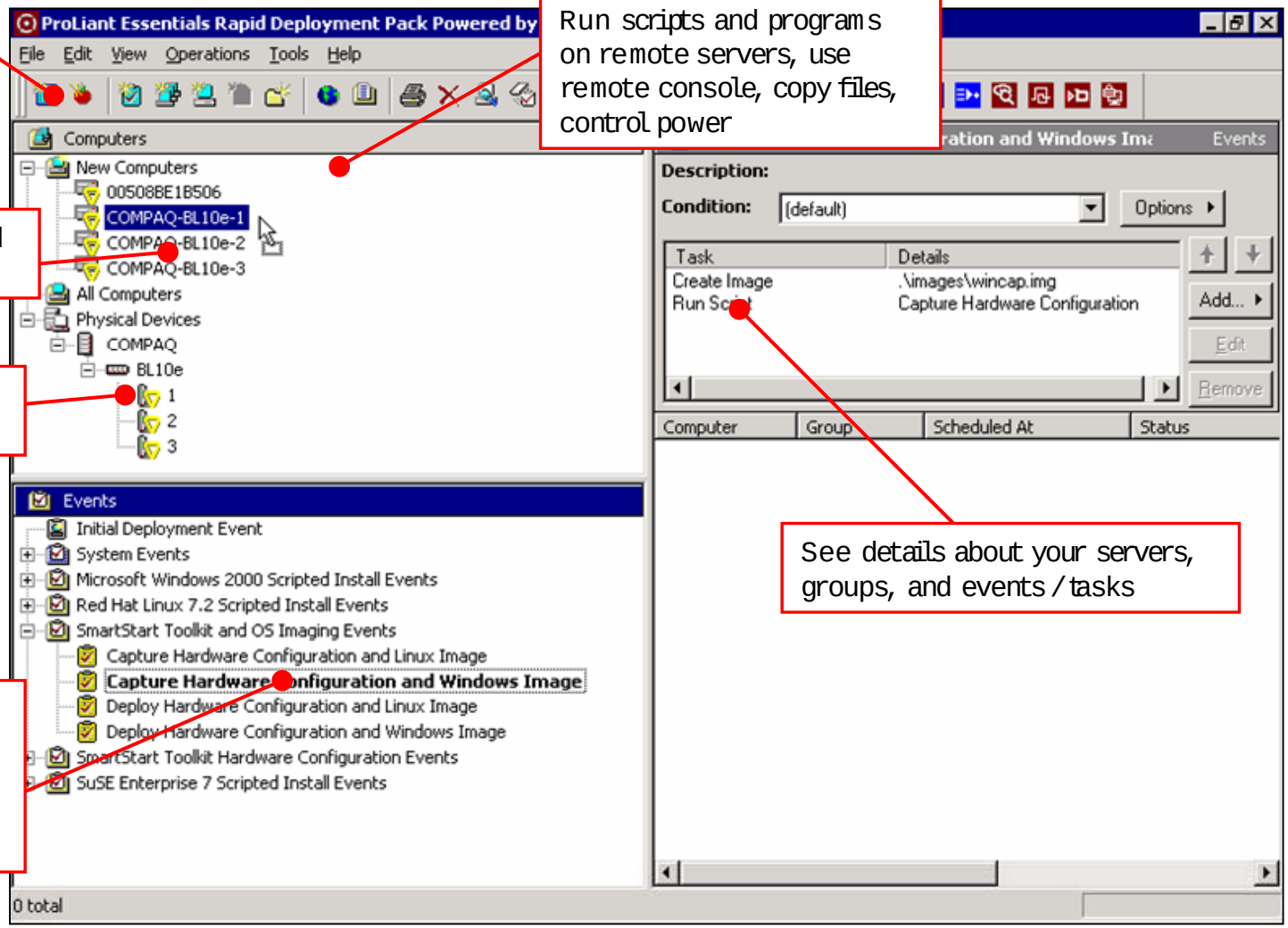
Flexible organization and grouping of all servers

View physical location of blade servers

Run an event by simply dragging it to a server or group (or drag servers or groups to the event)

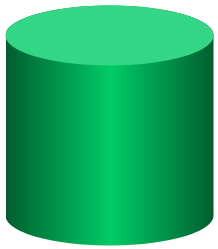
Run scripts and programs on remote servers, use remote console, copy files, control power

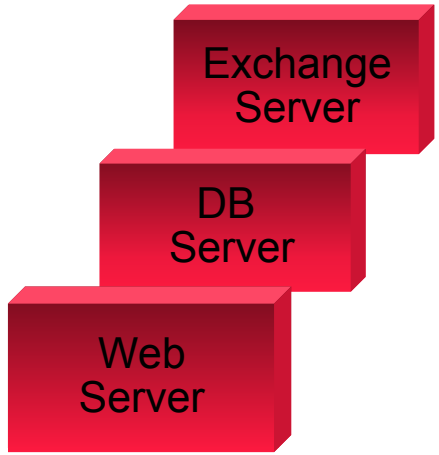
See details about your servers, groups, and events / tasks



Server Deployment with Rapid Deployment Pack

Software Images





Build Servers From Profiles

- **Remote Power On**
- **Automated Network Boot**
- **Server Configuration On The Fly**
- **Select OS and Application Images**
- **Management by Groups and Function**

Deployment infrastructure decisions

- bootstrap method for target servers
  - pre-boot eXecution Environment (PXE)
  - floppy/virtual floppy
  - partition
- deployment method
  - imaging
  - scripting
- network topology
  - distributed
  - centralized

Pre-boot execution environment (PXE)

benefits

- enables remote, headless deployment and management
- relatively easy to configure
- uses same boot configuration as a physical boot diskette
- supported in all ProLiant BL and G2 servers
- the best choice for blades
- faster and easier than physical boot floppies

issues

- requires DHCP
- it's a broadcast technology
- requires PXE-enabled NICs
- short runs only (not WANs)
- network configuration issues:
  - disable Spanning Tree Protocol on node ports
  - enable TFTP/MTFPT across subnets
  - Setup IP forwarding agents

Deployment Methods

scripting

- a set of commands performed with or without user interaction using a script file
- flexible, good for varied hardware
- more time consuming to create, modify, use
- requires more expertise

imaging

- a snapshot of a computer's hard drive (or portion of it)
- fast, but less flexible
- easier to use
- bandwidth saving through multicast or throttling
- requires post-imaging configuration

Script-based Deployment Process

- customize the OS script file for your environment
- deploy the hardware configuration and start scripted OS install to target servers
- use variable-based scripting to automatically set name and IP address during scripted install

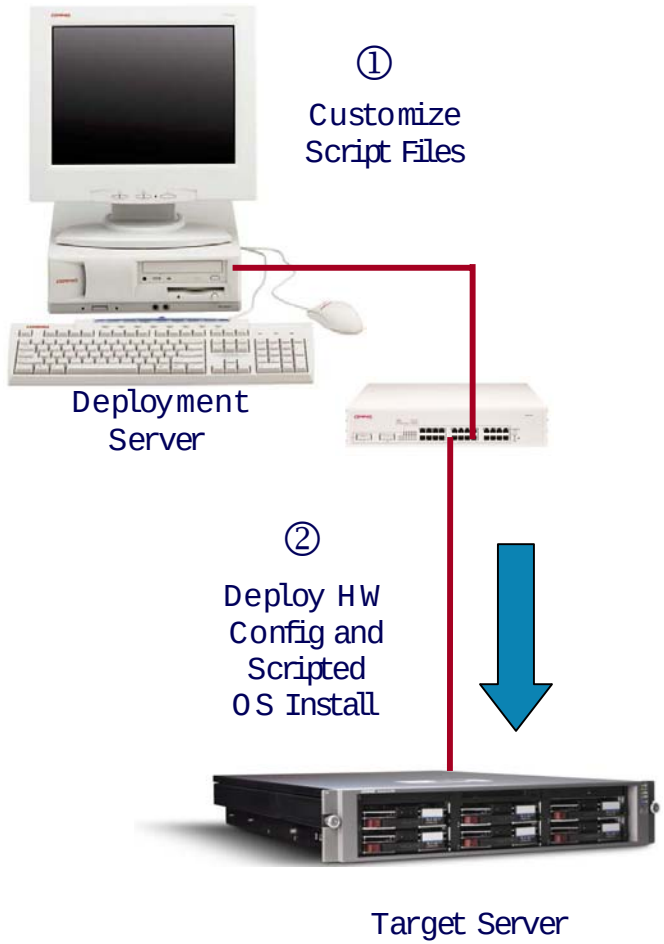
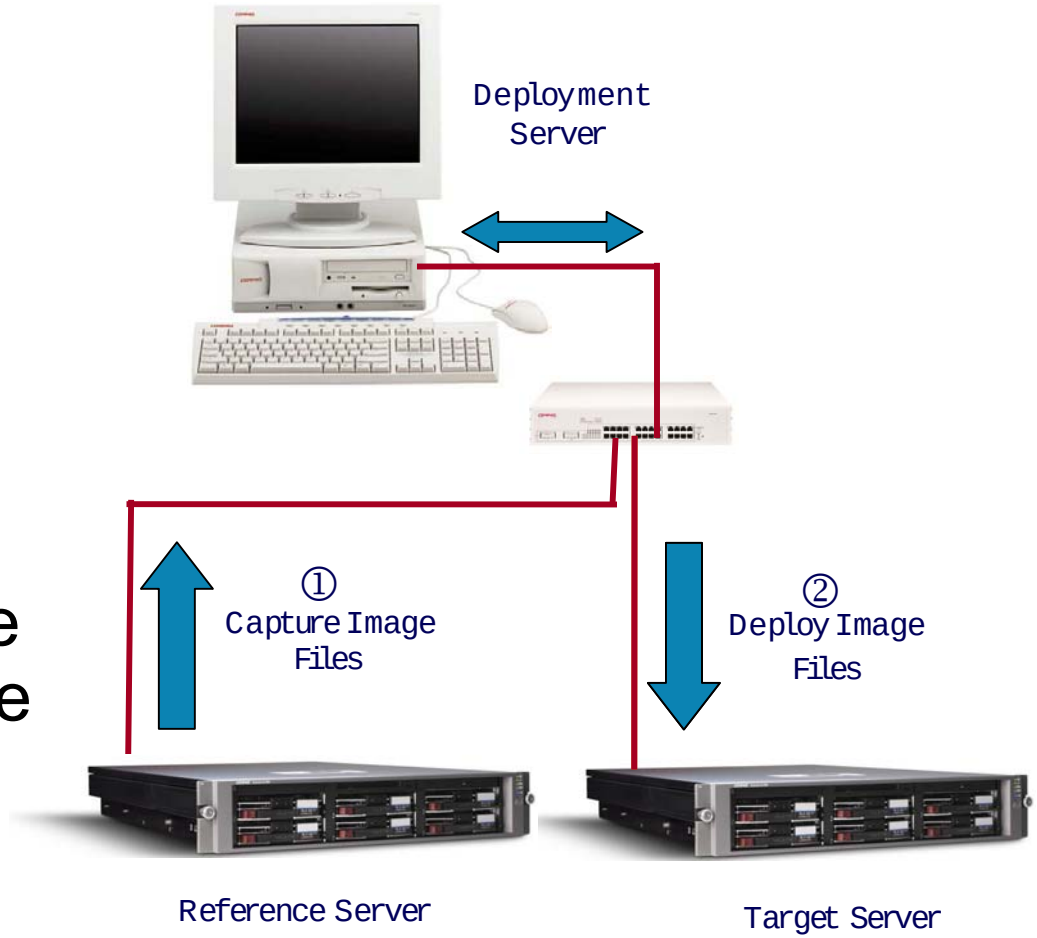
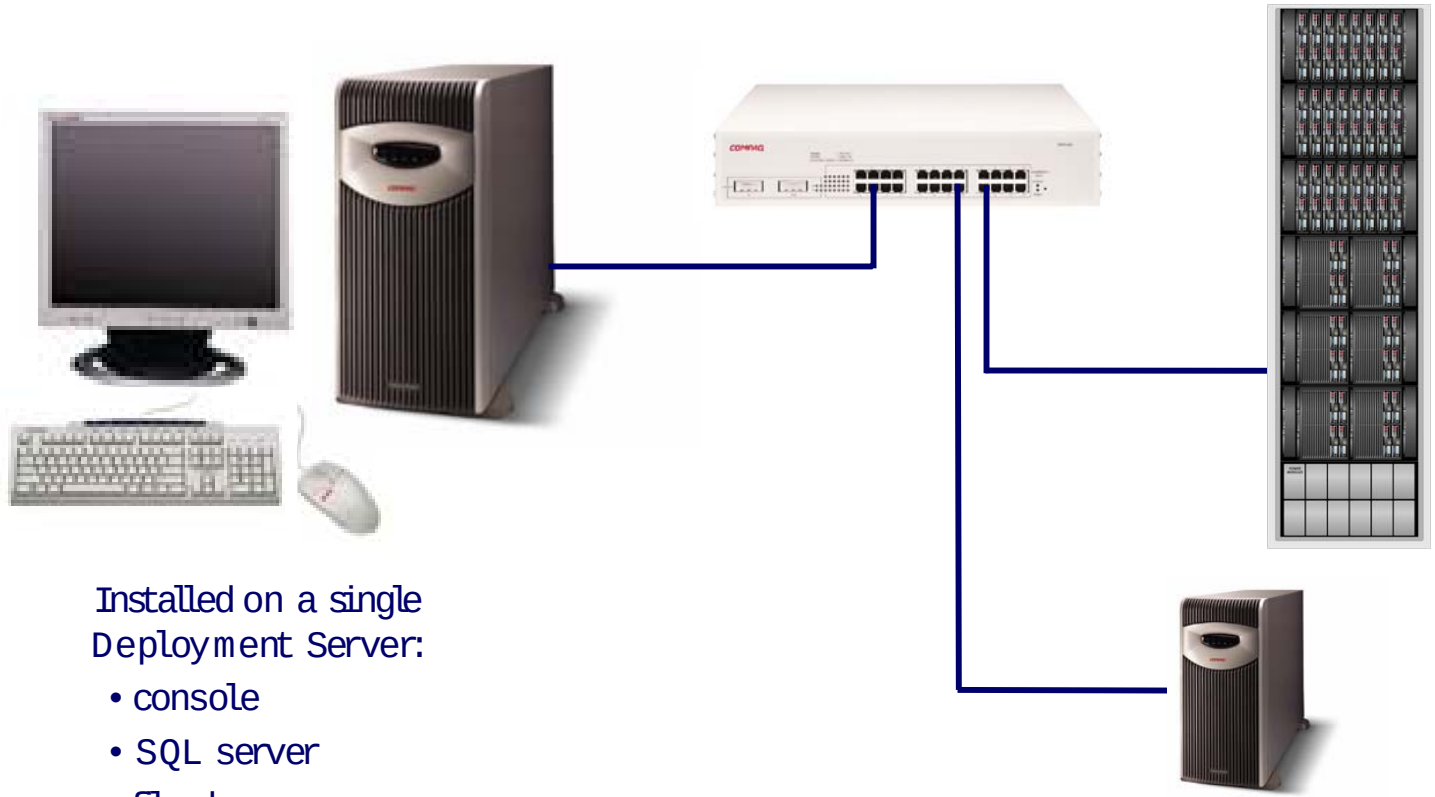


Image-based Deployment Process

- capture hardware configuration and disk image from a reference server
- deploy the hardware configuration and disk image to target servers
- use automatic post-image configuration to customize computer name, IP address, domain, etc.



Simple installation – test lab



Installed on a single Deployment Server:

- console
- SQL server
- file share
- PXE server
- Windows services

DHCP Server available in subnet (can run on Deployment Server on an isolated network)

Custom installation – large

Installed on primary Deployment Server:

- console
- SQL server
- Windows services

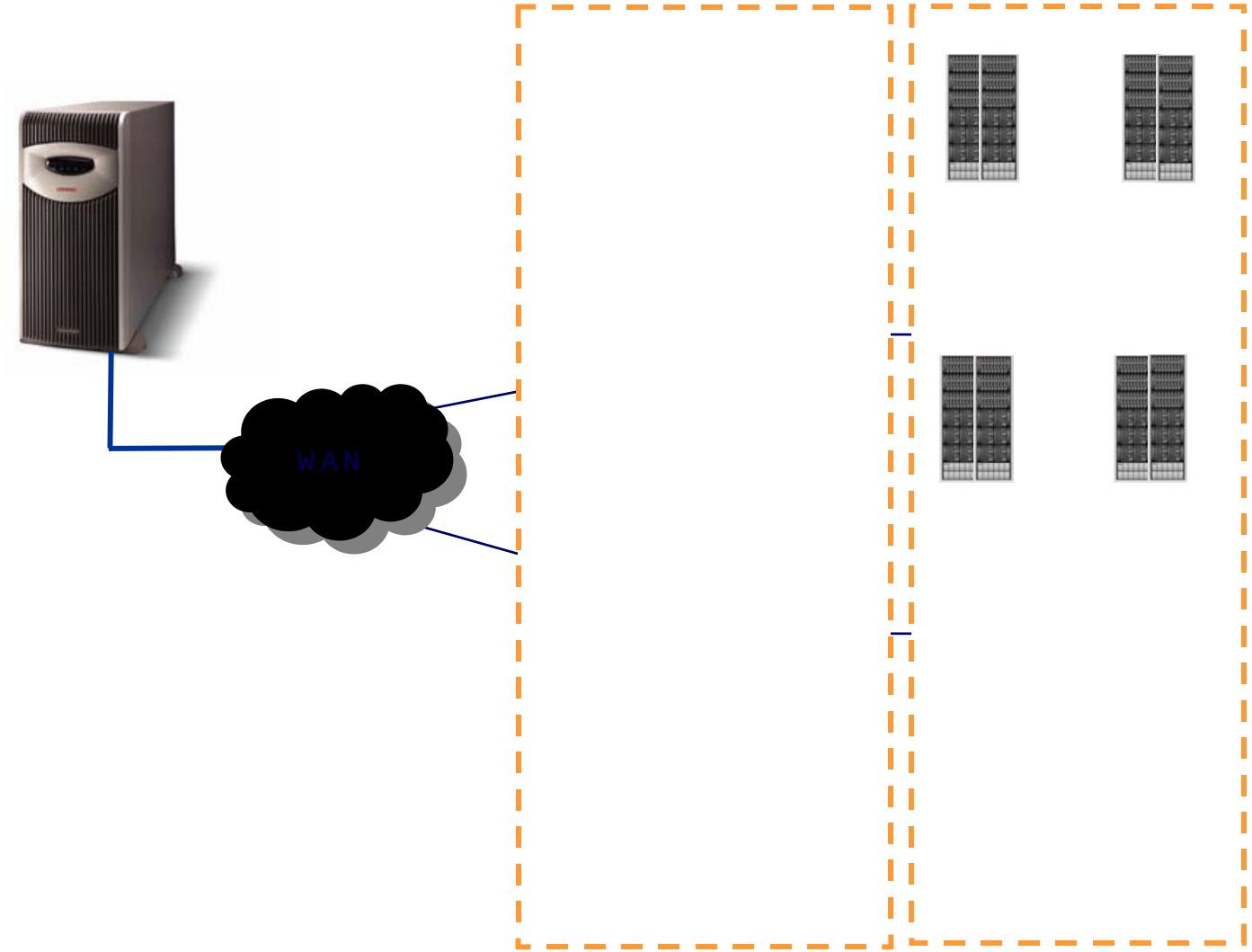
Installed on secondary servers:

- DHCP (optional)
- PXE (optional)
- File share

Custom installation - enterprise

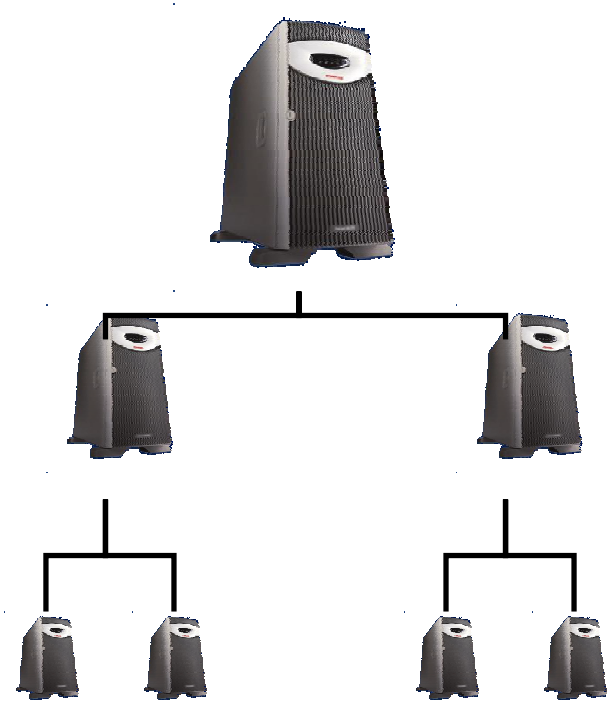
installed on local server:

- SQL Server
- deployment server
- console
- file share
- file replication



Rapid Deployment Pack V2.0 Enterprise Scalability

- Control all deployments from one central Web console (or leave control distributed)
- Manage multiple Deployment Servers from a single console
- Standardize configurations across the enterprise with automatic event and image synchronization
- Create and view Web reports of configurations, events status and computers
- Remotely install new Deployment Servers!



The ONLY suite of tools designed for scalability across the enterprise!

Rapid Deployment Pack Summary

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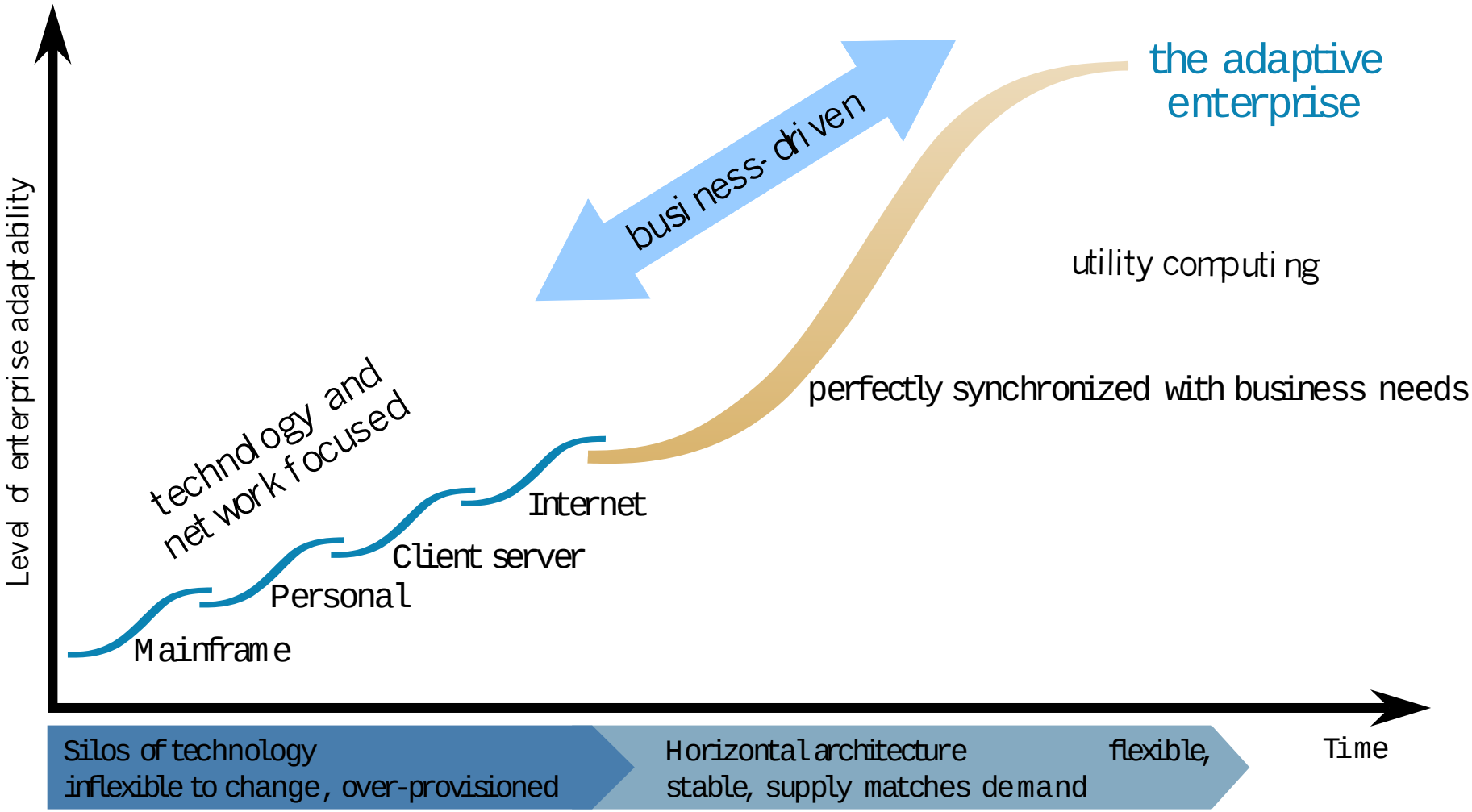
Features

- Automated deployment of servers with DAS
- Imaging/Scripting based
- Task driven
- Basic configuration of network switches and network storage software
- Supports HP ProLiant servers running Windows and Linux

Benefits

- Simplifies automated server deployment allowing companies to rapidly respond to changing workloads
- Reduces time and resources spent on deployment by enabling remote automated server deployment
- Improves consistency of server configurations maximizing server uptime

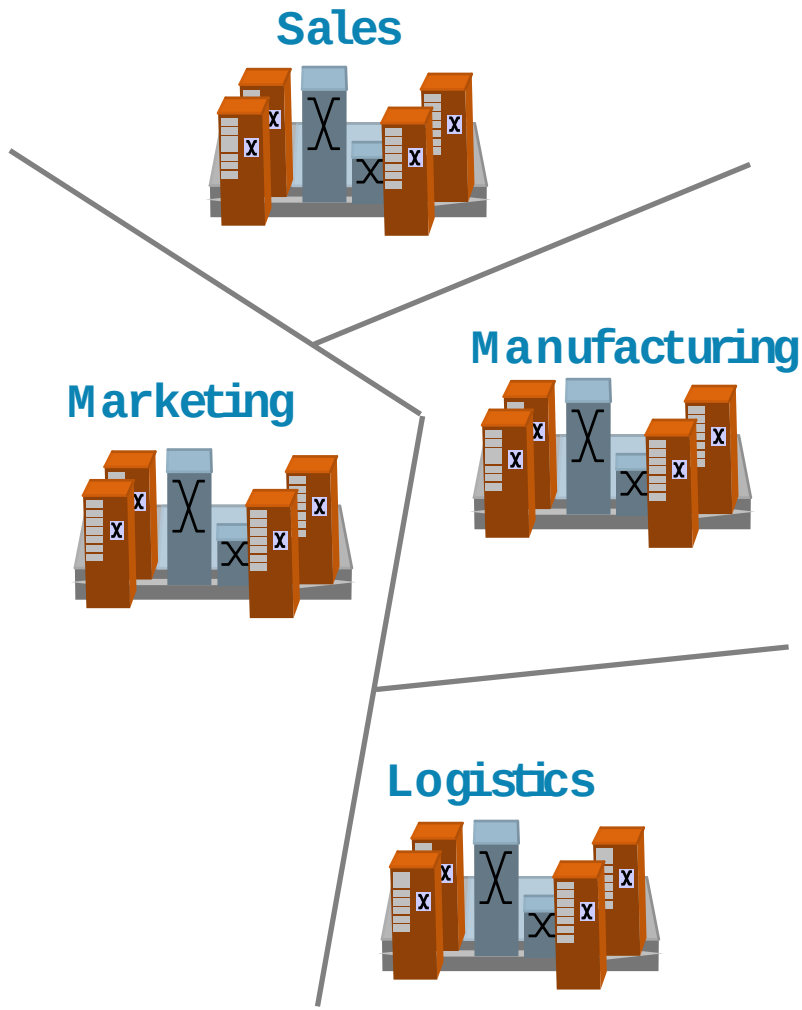
The industry is moving to a new model of computing



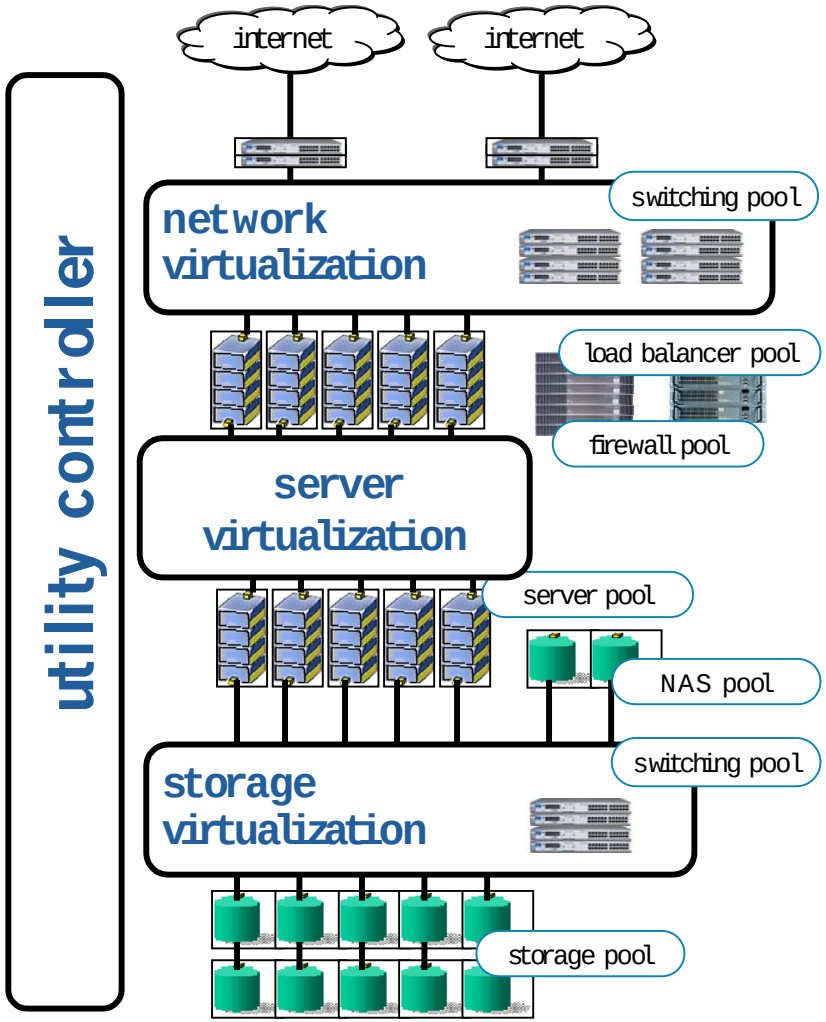
"Traditional" IT Infrastructure"

Complex, Costly, Change is Not Easy

- IT features *vs.* IT economics
- Applications tied to platform
- Dedicated, application-specific development, test, production, and disaster recovery environments
- Each environment sized for expected peak load, little or no resource sharing
- Human errors are still a significant cost to IT service goals



What is HP's Utility Data Center?



hp utility data center

- virtualized pools of resource for instant ignition
- failover protection and data replication to protect servers, storage and network
  - wire-once fabric
  - utility controller software for service definition and creation

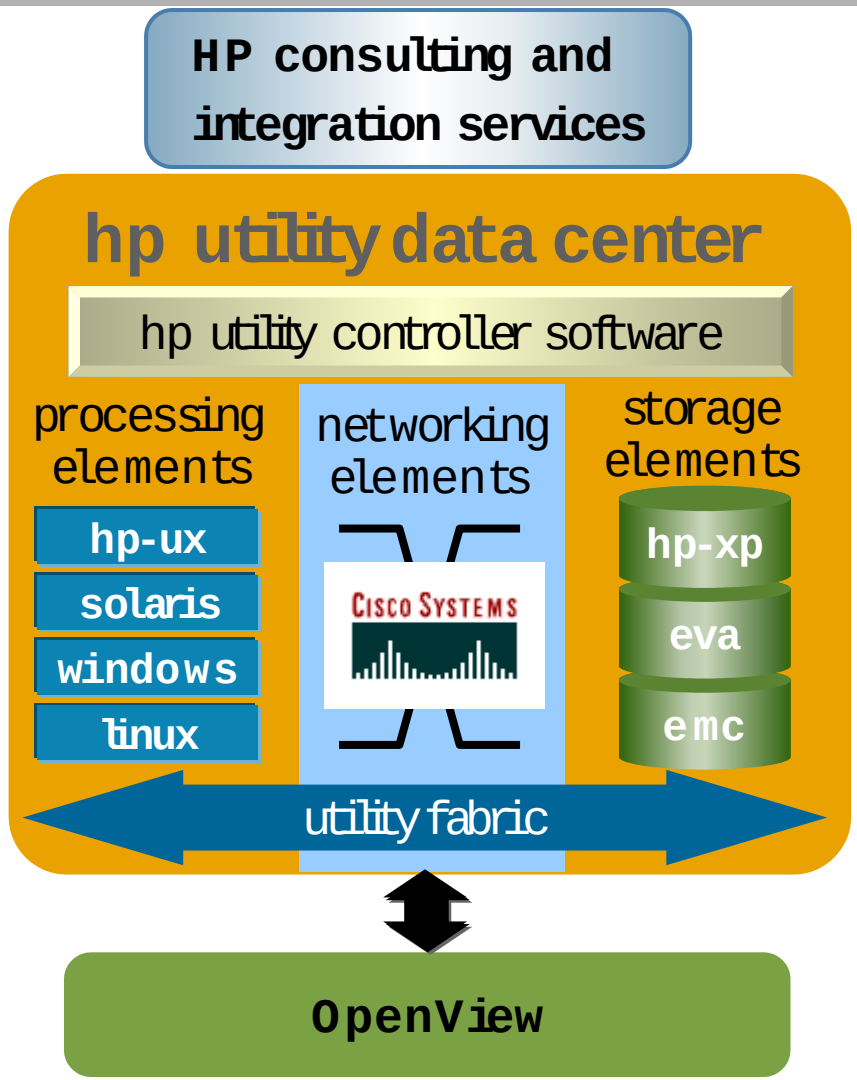
New applications and systems can be ignited within minutes

Server, storage and network utilization approaches 100%

Resources are 'virtualized' and optimize themselves to meet your service level objectives

Administrative and operational overhead is minimized

HP Utility Data Center Components



- Virtual Server Pools
  - Heterogeneous server environments
  - HP servers optimized for UDC
  - Protect your current investments
- Virtual Network Pools
  - Standards-based VLANs
  - Flexible and robust network infrastructure
- Virtual Storage Pools
  - HP XP and EVA storage offer flexible 'network-based' virtualization
  - Integration with OpenView for storage management
  - EMC Symmetrix
- Utility Controller Software
  - Manages service templates
  - Integrates with HP software: resource, workload and failure mgt.

HP's Utility Data Center

HP UDC at the Palo Alto Research Labs. 12/02

Creating a service with the Utility Data Center

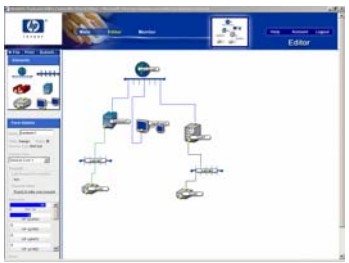
1. Architect new service:

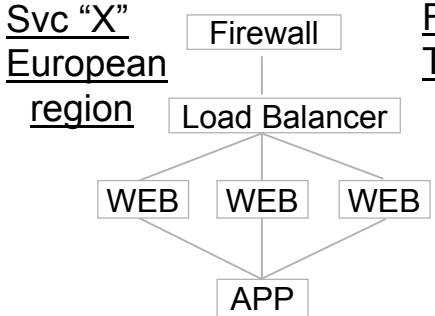
- business case
- service growth projection
- SLO requirement
- availability
- security needs
- time to implement

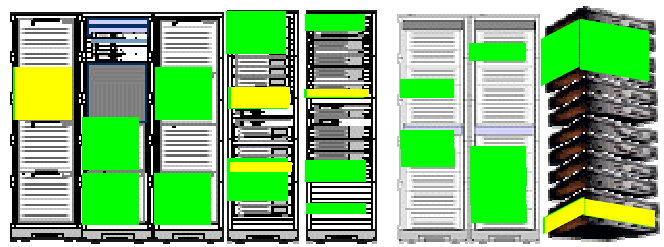
3. Create the service

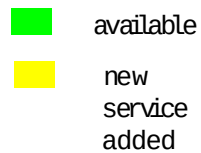
- automatically locate and allocate resources
- auto-configure network and storage
- auto-configure firewall & load balancers
- auto-configure & boot servers

2. Build a service template:

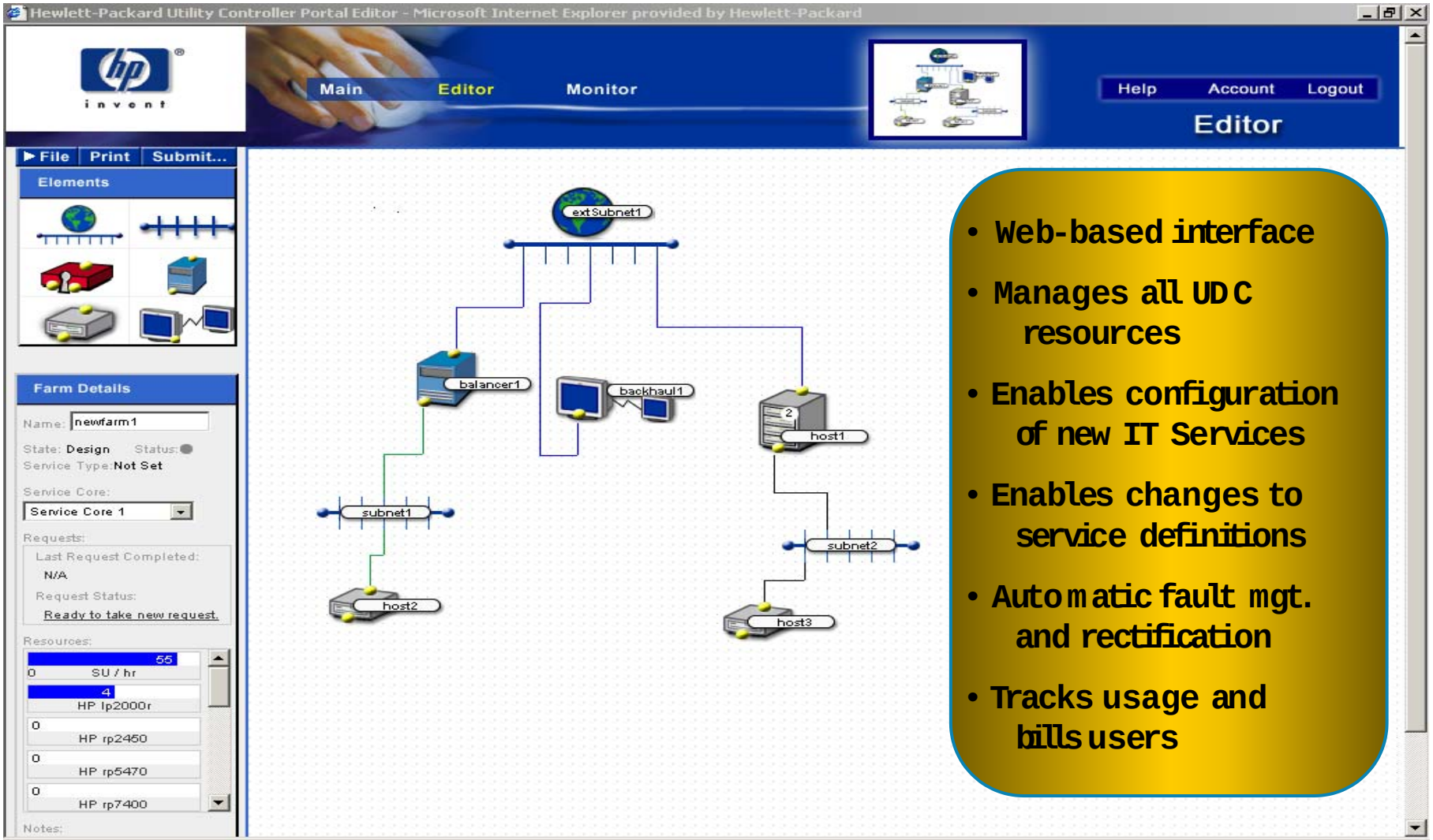




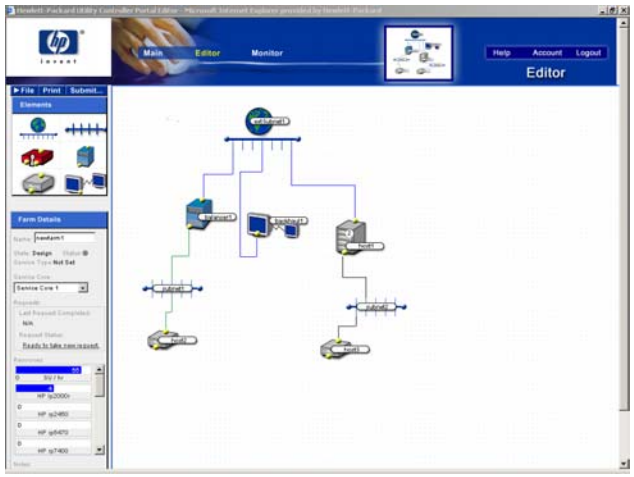




Utility Controller Software Portal Interface



UDC service usage for billing and chargeback



customer's deployed infrastructure

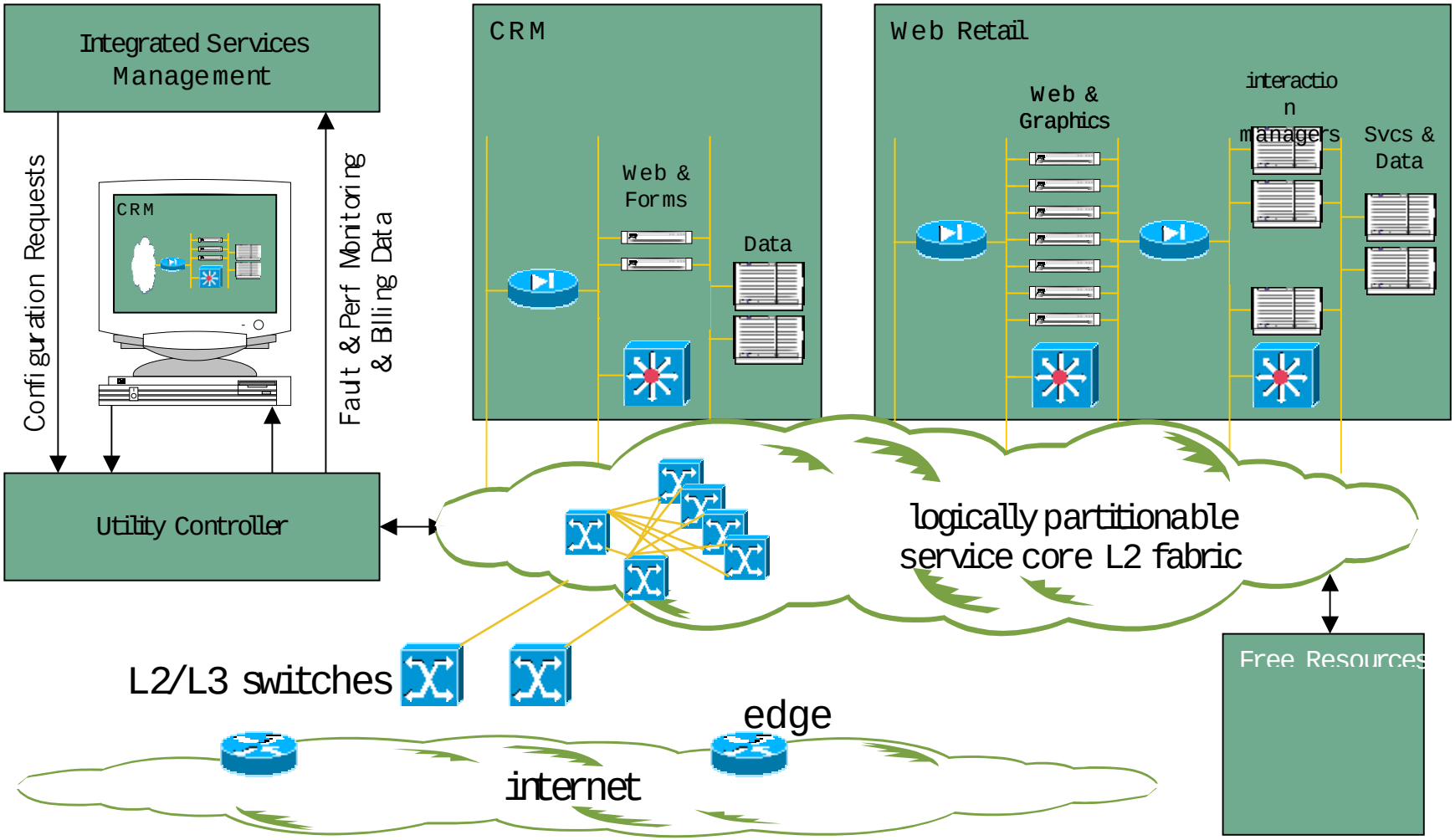
HP On Demand Solutions

customer invoice per user

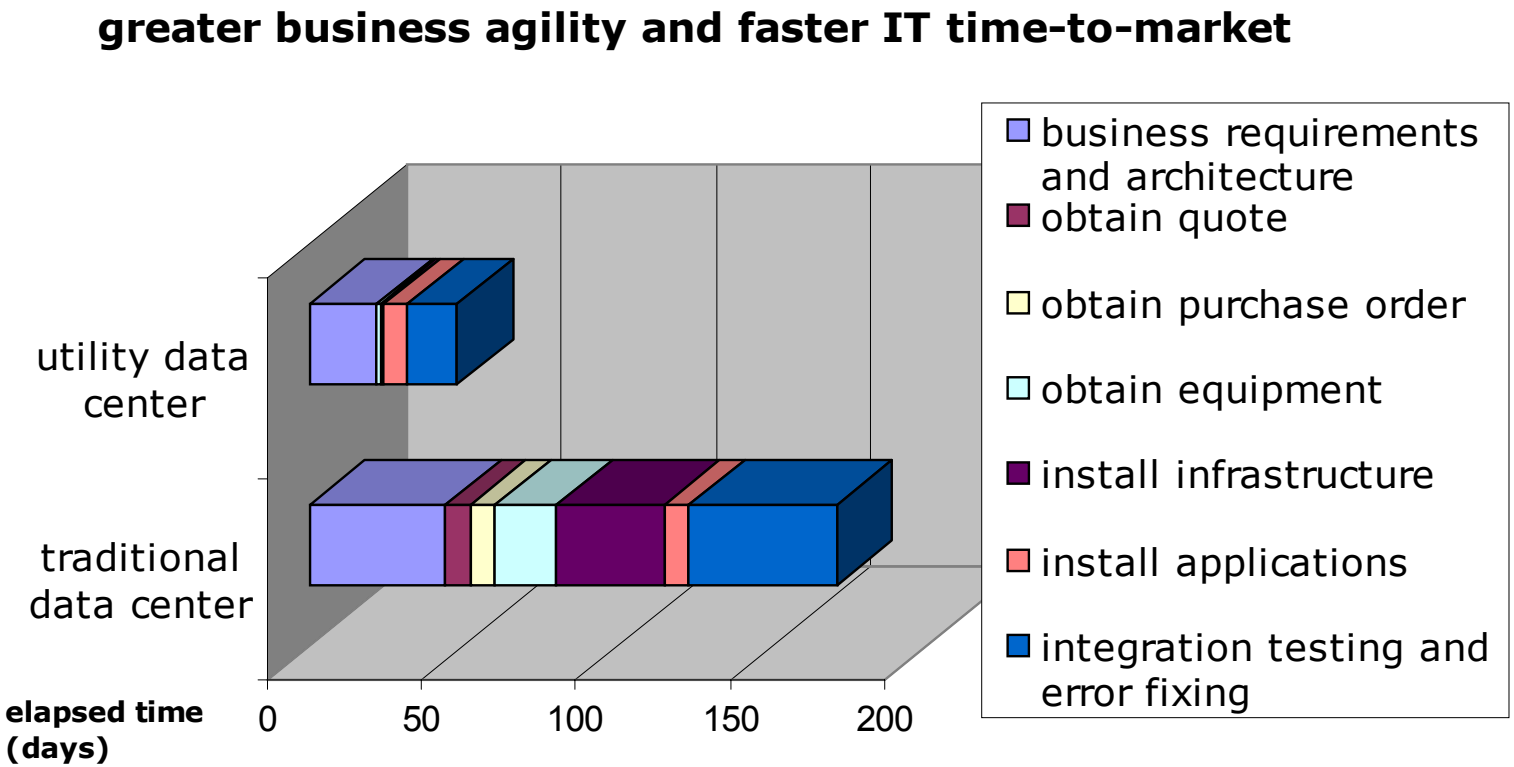
service unit rate table

metered item	service units
hp L3000	6
hp A180	4
hp LPR1000	2
Sun 420	3
XP Raid 1GB	1
XP Mirror 1GB	1.5
XP offsite 1GB	2
--.	…

HP Utility Data Center in action



UDC speeds time to market for new IT Services

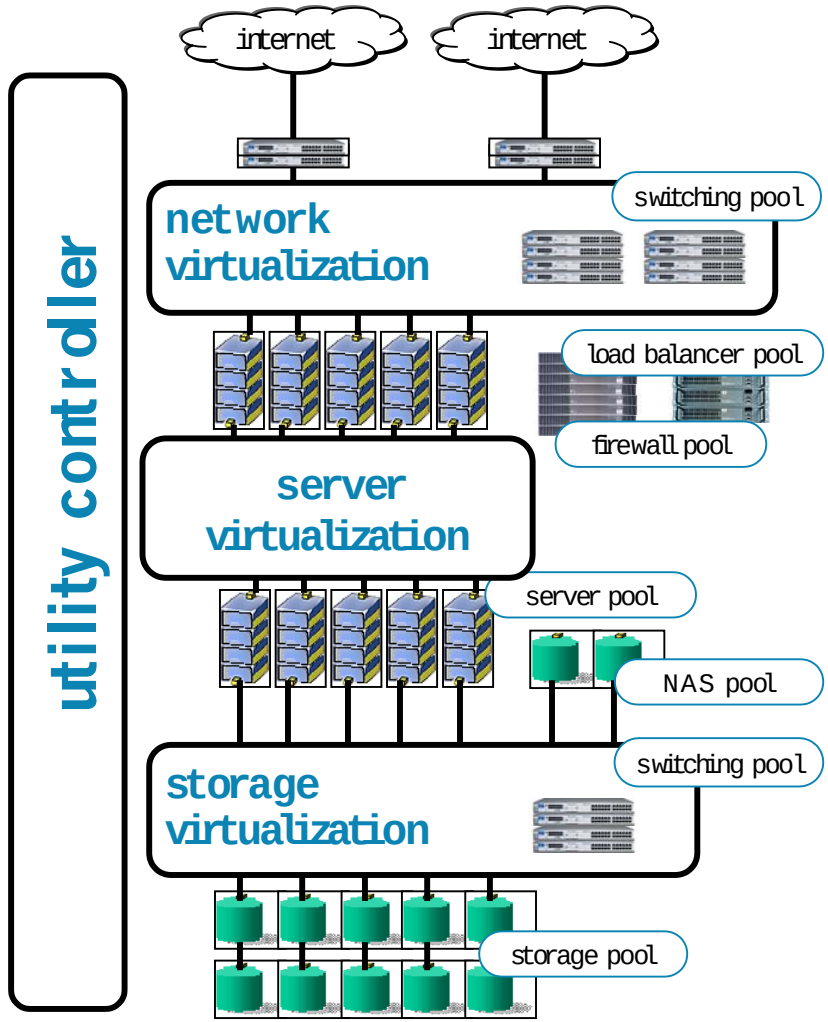


UDC reduces deployment times for new IT services by 75%

HP Utility Data Center

HP Utility Data Center is a complete solution for virtualizing data center environments, transforming the economics of your operation

1. All resources are wired once to support their virtual, flexible allocation and reallocation
2. New applications and systems can be ignited within minutes
3. Server, storage and network utilization approaches 100%
4. Resources are 'virtualized' and optimize themselves to meet your service level objectives
5. Administrative and operational overhead is minimized and opportunities for error reduced



Customer successes put HP ahead in utility computing

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Global electronics manufacturer

"The HP UDC will allow us to flexibly adapt to the business fluctuations of the electronics industry. We'll be able to reduce our total cost of ownership by streamlining data center management and reducing excess IT capacity while also incorporating the industry's best platform for application consolidation."

VP and GM of Infrastructure and Operations

msx INTERNATIONAL

"By using the UDC (utility data center) we have met all of our internal challenges and it gave us the ability to sell excess capacity to our external customers."

Kevin Dann,
European Computer Sys. Mgr.
MSX International

HP has developed a potentially compelling vision for services-centric, utility computing in the enterprise, and is beginning to deliver components of that vision.

--Michael Dortch
Robert Frances Group

HP has a hard product.., whereas IBM has just got a blueprint.

--Will Cappelli,
Giga Information Group

HP has taken the lead for market mind share with Policy Based Computing Service.

--Gartner Group

HP's Utility Data Center: First to Deliver.

--Tom Bittman, Donna Scott
Gartner Group

ProLiant profile
Hannaford brothers

- Business challenge:
  - aggressive growth strategy through acquisition
  - apply current supply-chain model to new acquisitions to increase efficiencies
- IT challenge:
  - replicate entire infrastructure solution across 140 locations in 3 months
  - do it with 10% less IT staff
  - from one location over 1,000 miles away
- Results
  - cut three weeks out of server deployment cycle with RDP
  - deployed, controlled and maintained the entire infrastructure from a central location using Insight Manager, RILOE and RDP ProLiant Essentials

choice and flexibility to create efficient, adaptive infrastructure solutions that solve your toughest business problems

Demand a better return on IT
A new IT architecture, one that is open, modular and flexible

Interex, Encompass and HP bring you a powerful new HP World.