Out With the Old, in With the New: Choosing Practical Alternatives to the PC

Mark Margevicius

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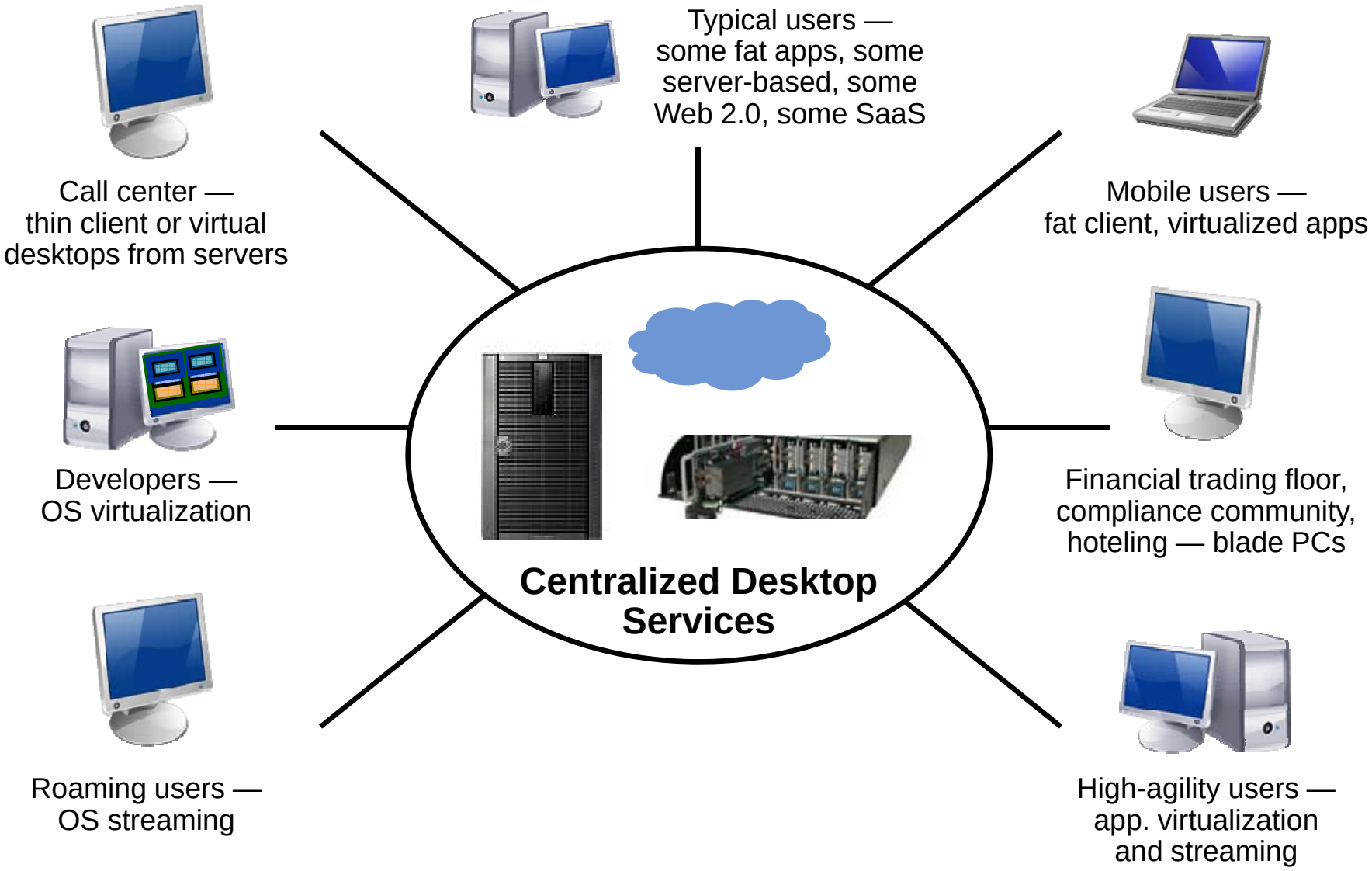
Which One? Which *Ones*!



Key Issues

1. What are the drivers in business and the IT organization that are forcing organizations to rethink their client architectures?
2. Which technologies show the greatest promise in offering the best blend of features and manageability?
3. What are the strengths and weaknesses of the various alternatives?

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PC Deficiencies Introduce Opportunities and Architectures

Desktop and laptop PCs have valuable attributes but, in many ways, have shifted from strategic to tactical for many organizations.

PC Challenges *(real or perceived)*

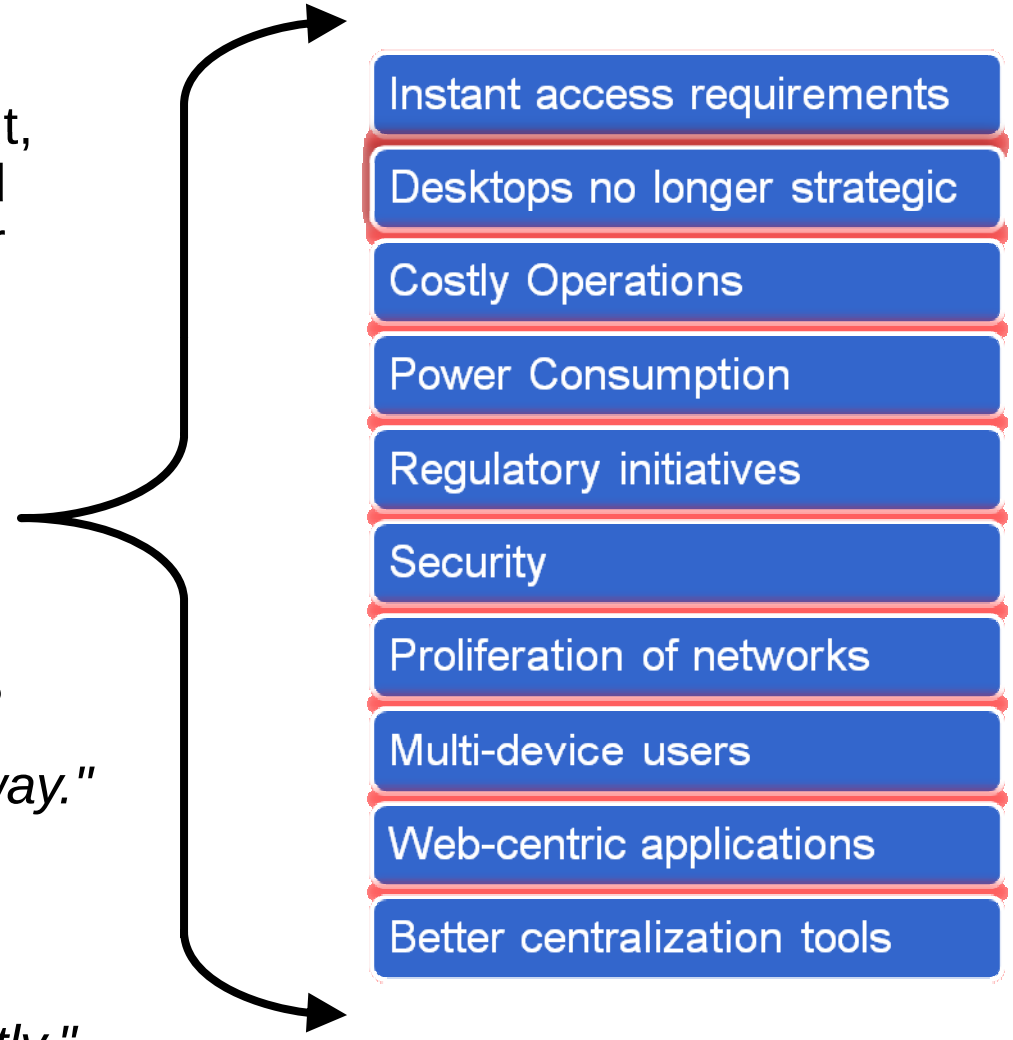
Do these sound familiar?

"There has to be a better way."

"Not another PC refresh."

"PCs are such a pain."

"PCs are waaaaay too costly."



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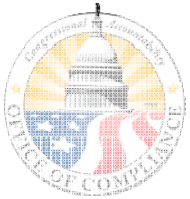
Catalysts for Change: Why Now?

Windows Migrations — Most organizations will migrate OS sometime. Many will move to Windows 7 within three years.



Security and Compliance — Regulatory concerns, data privacy and corporate data security issues associated with PCs often go unchecked.

Hardware Refresh — Organizations have postponed system upgrades for as long as six years.

Operational Costs — Spending excessively on nonstrategic work under severe scrutiny.

Choice — Desktop as a service, consumerism, remote computing, OS agnostic platforms all signal to new requirements that are not being met today.

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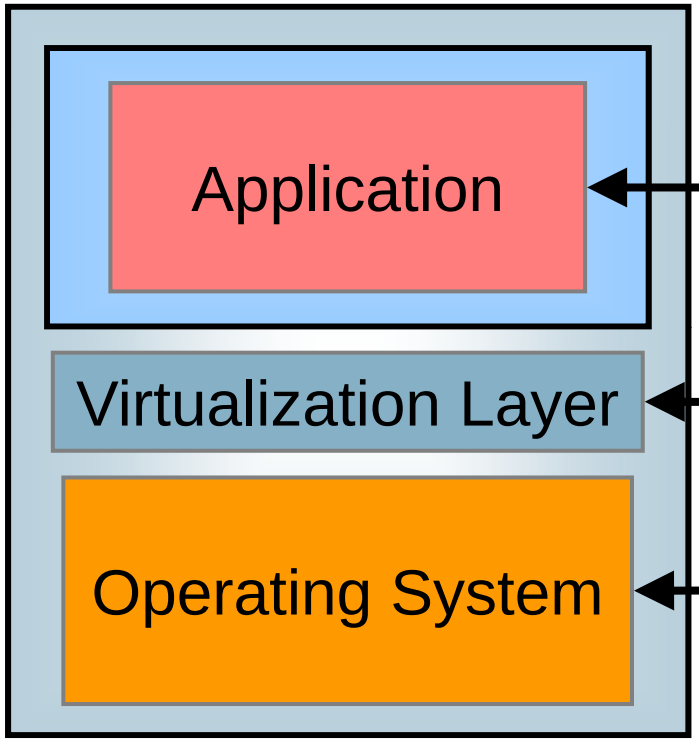
Virtual Everything: Bubbles of Software



Virtualization decouples each layer from the layer below.

Application installed in container with copy of OS resources.

Virtualization layer runs on the operating system to create a standardized interface for application installation.

OS installed in virtual machine.

Thin virtualization layer runs on hardware to create standardized interface for OS installation.

Set to be embedded in PC hardware and operating systems.

The V-Word — Industry Confusion and Mismarketing

Hosted Virtual Desktops

Uses virtualization on the server to deliver user environment to desktop.

(Often) identical PC image is used.

Typically consolidates four to five users per server core.

Requires infrastructure build-out (network, storage, servers).

Virtual Work Space

Separation of user data from the rest of the configuration.

Enables seamless user roaming from system to system.

Applicable to HVDs, SBC environments, traditional PCs.

What Is Virtualization?

Application Virtualization

Helps reduce packaging costs.

Must be augmented to configuration management tools.

Helps create application portability.

Often includes streaming technologies.

PC Virtualization

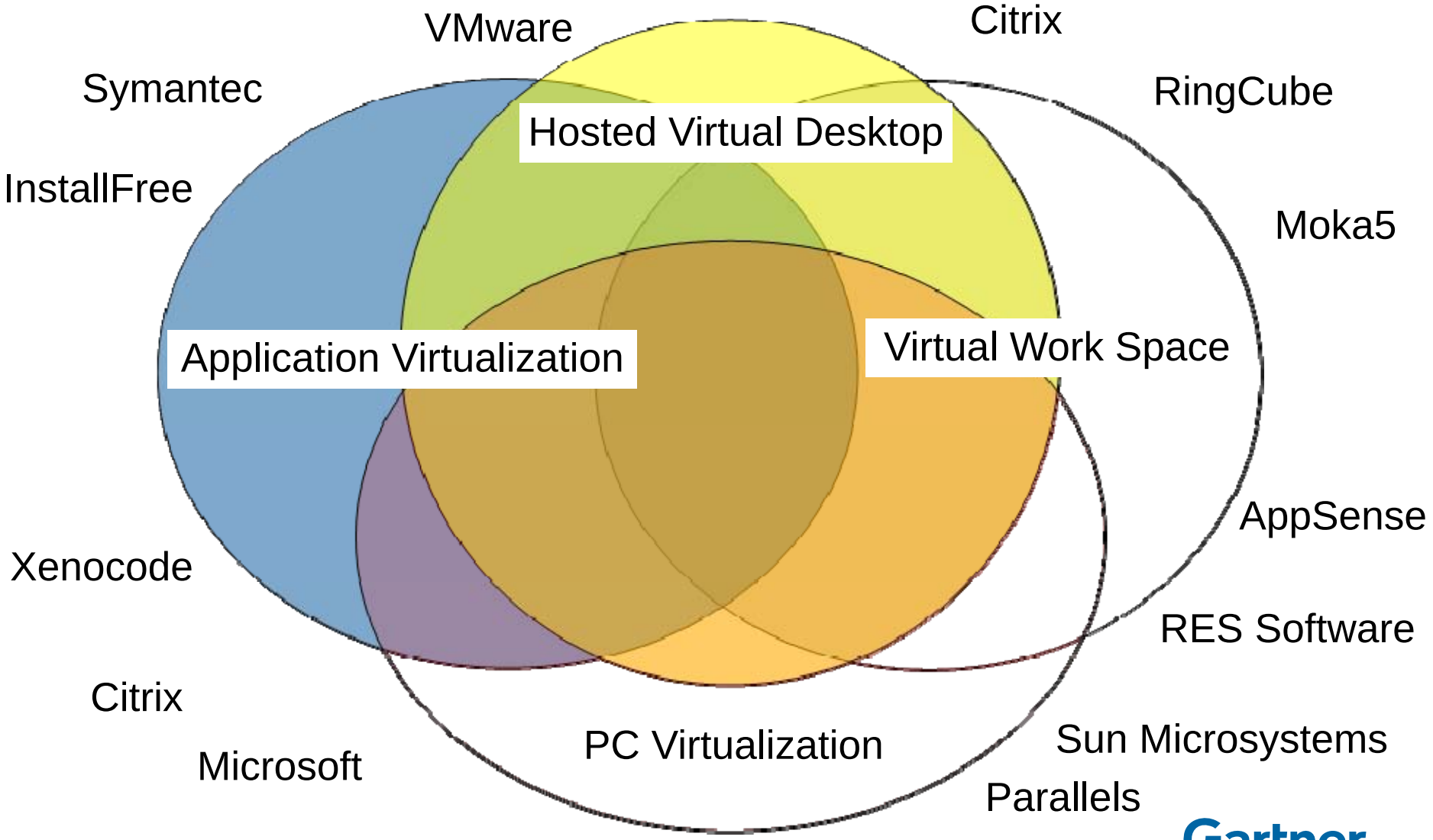
Not widely available (yet).

Enables lower-level management and control.

Moves certain OS tasks to the platform level.

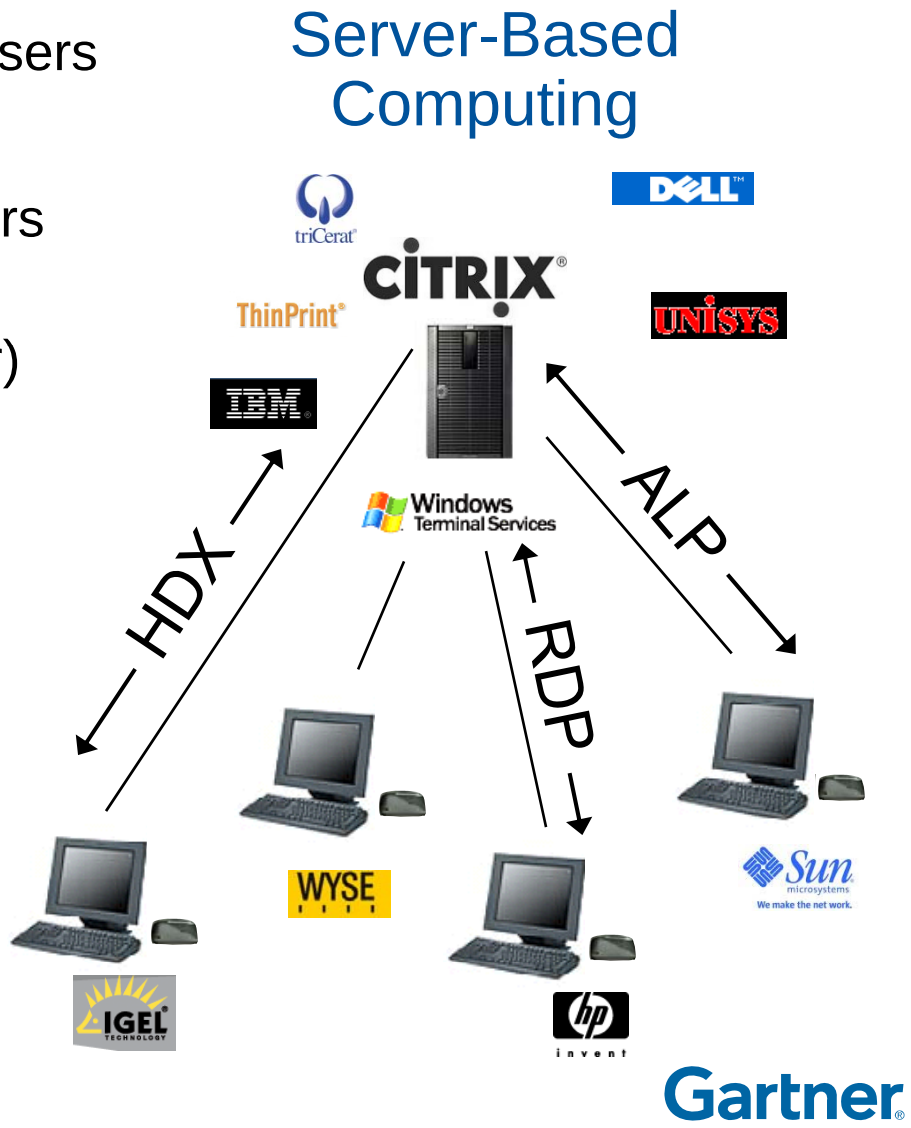
Will enable better control and stability.

The Four Desktop Virtualization Markets



Server-Based Computing — Established Alternative

- Applications are shared among users
- 80-100 users (typical) per server
- Applications are published to users
- Lower TCO than PCs (although capital costs are higher)
- Not for all applications or users
- Performance issues with heavy computation or graphics-based applications
- Application testing and remediation highly recommended
- Large ecosystem of vendors
- Battle-hardened and scalable



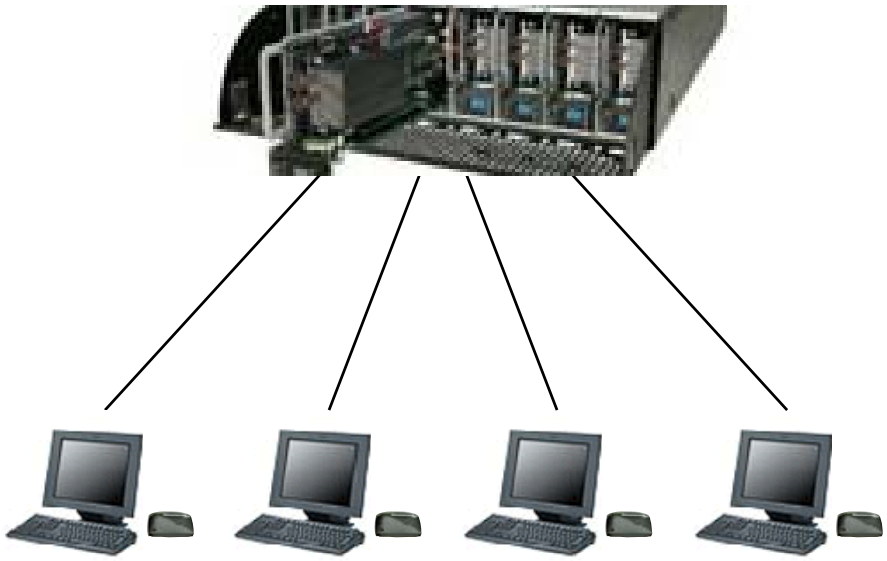
Blade-Based PCs — Niche Solutions

- Dedicated 1-to-1 PC-to-user ratios
- Degrees of customization available
- No degradation in performance
- Offers failover and redundancy
- High capital costs (1.5x to 2.5x more than traditional desktop PCs)
- Better economics if used as a pooled resource
- Better client-side manageability
- Tends to be fairly vertical; often found on Wall Street, in hospitals and network operation centers
- Proprietary solutions

Blade-Based PCs

CLEARCUBE

hp invent



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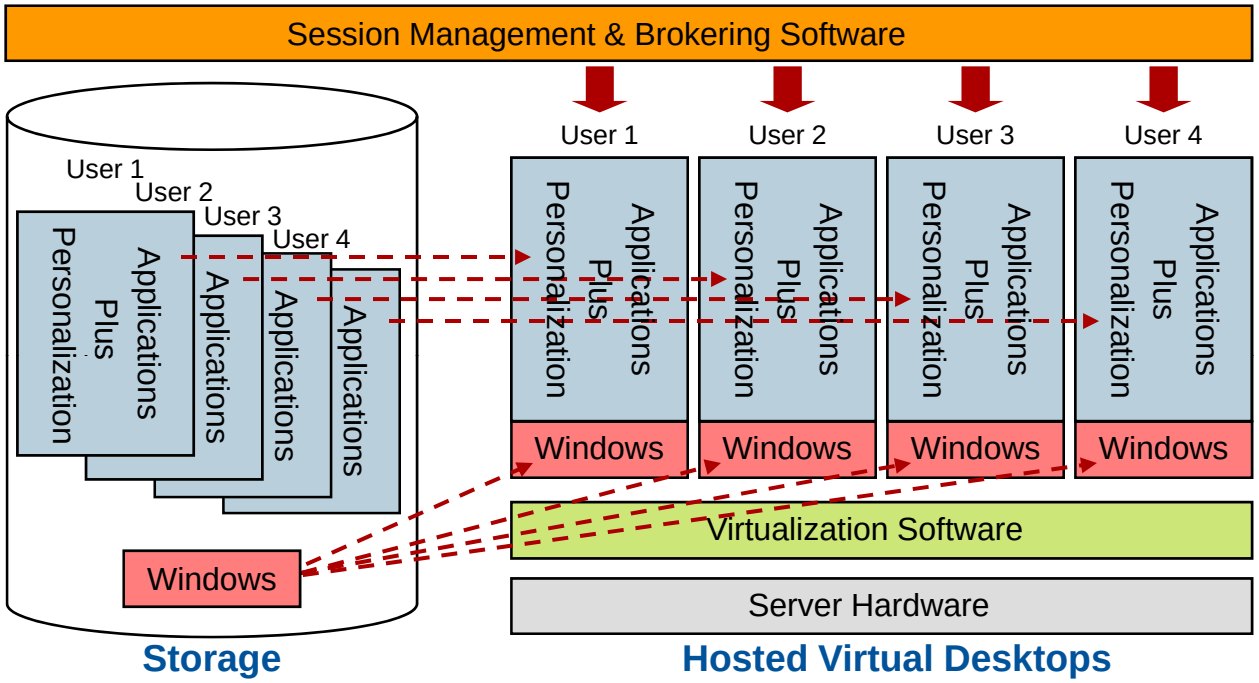
Hosted Virtual Desktops — Up and Comer



- Virtual instances of Windows XP and Windows 7 running on servers
- Each core supports five to six users
- Applications are the same as with local PCs
- Provides for central management
- Offers device/user independence
- Management tools still evolving

Known Issues:

- High Capex
- User Flexibility
- Online Only
- Multimedia
- Licensing

Soon to Be Solved:

- User profiles
- Offline
- User-installed apps
- Capex (at least better)

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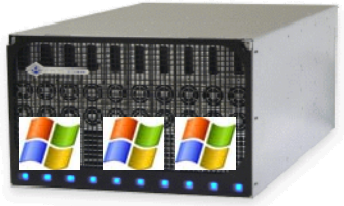
Brokering Software — Connecting Users With Centralized Resources

Server-Based Computing

Hosted Desktops on Server VMs



Blade PCs and Workstations

Image Management | Session Control | Redirection

Provisioning | Policy Management | Authentication

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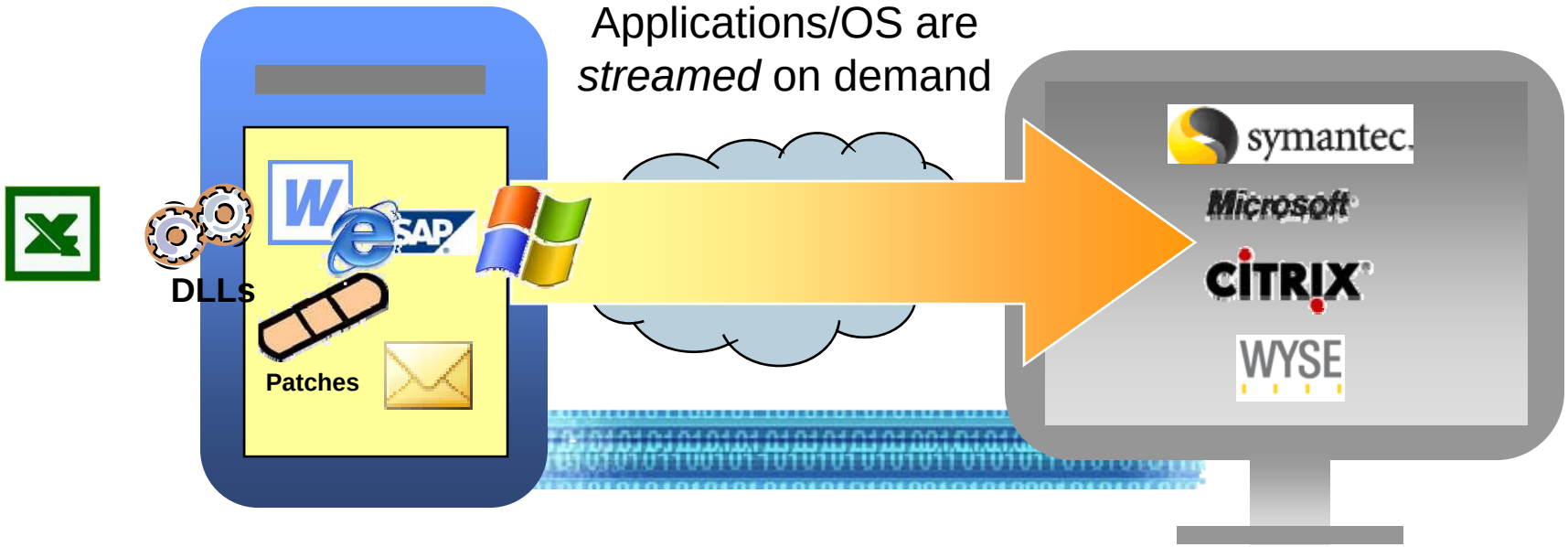
OS and Application Streaming — Robust Networks a Must



Application Server

PC/Thin Client

Strengths

- Delivered as needed
- Central management
- Client-side execution
- Works over 56K to 128K bandwidth
- Rich experience
- Can support Java, Windows, WTS and .NET
- Offers offline functionality

Weaknesses

- Scalability unknown
- Vendor viability
- Requires client
- Cost of deploying platform can be prohibitive
- Can add complexity

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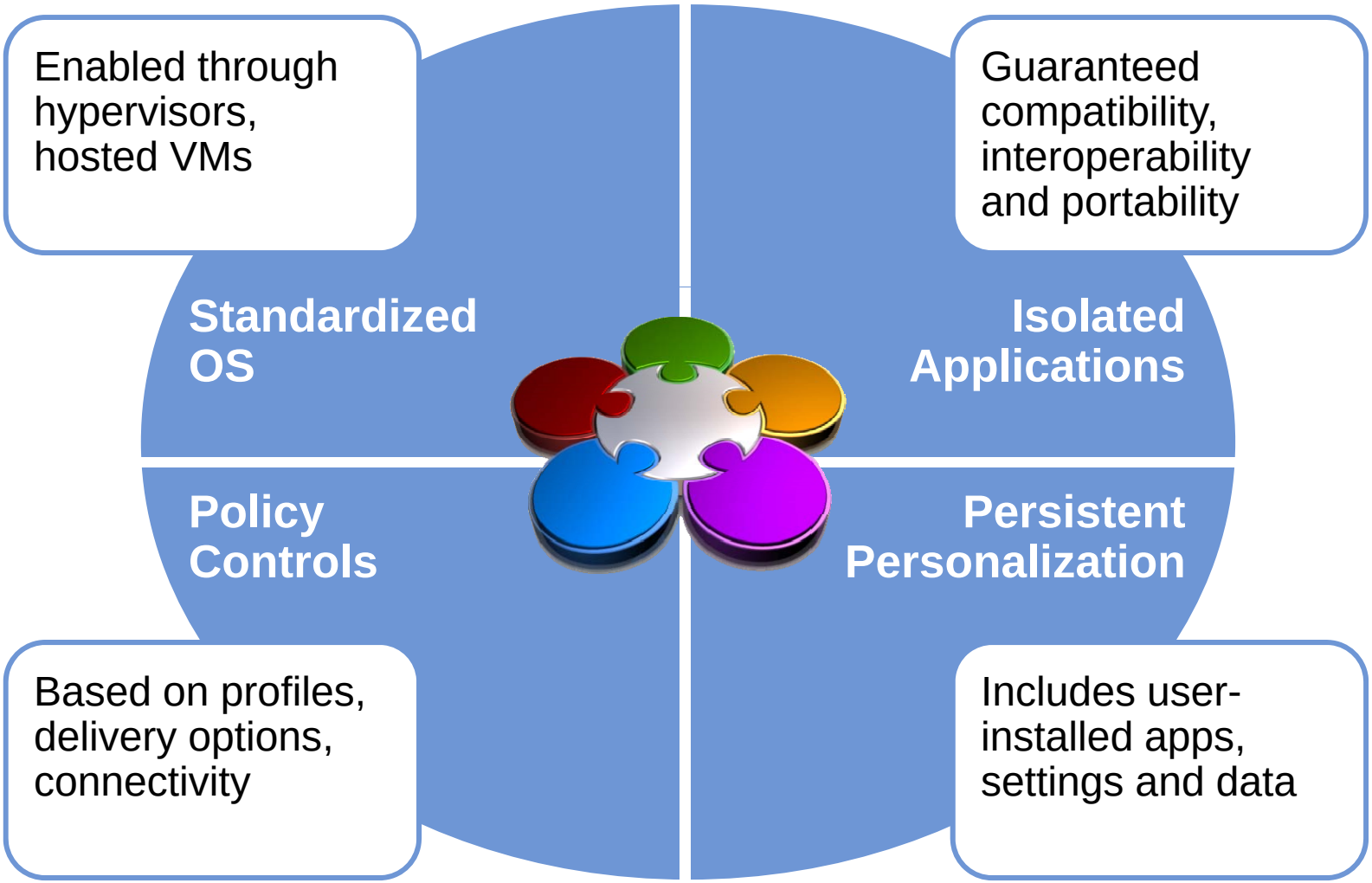
Build Your Own Desktop — The Composite Work Space



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The Future of Client Computing

By the end of 2012, 60% of all enterprise PC configurations will use at least one technology that is needed to deliver all or parts of the composite work space.

Reasons why PC configuration methods will not change:

- PCs are a known entity, warts and all.
- Capital expense tends to be low.
- Distributed technologies lead to distributed problems.
- Users "need" PCs.
- Legacy tools, processes have an inertia too difficult to break.

Reasons why old PC configuration methods no longer work:

- Issues associated with risk, security and compliance can no longer be ignored.
- Users want flexibility, choice and portability.
- Operational costs are too high and nonstrategic.
- Business requirements require a more-nimble PC infrastructure.

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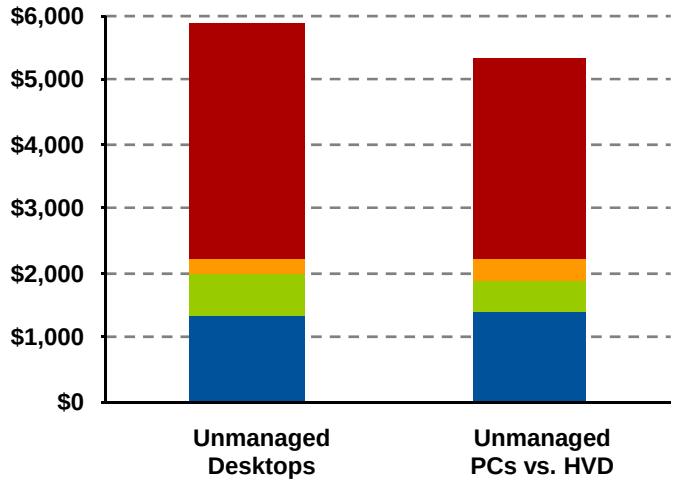
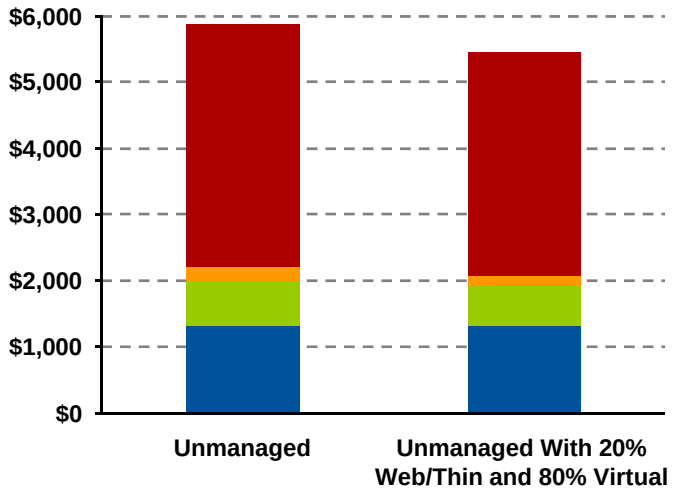
TCO — It's More Than Just Capital Costs

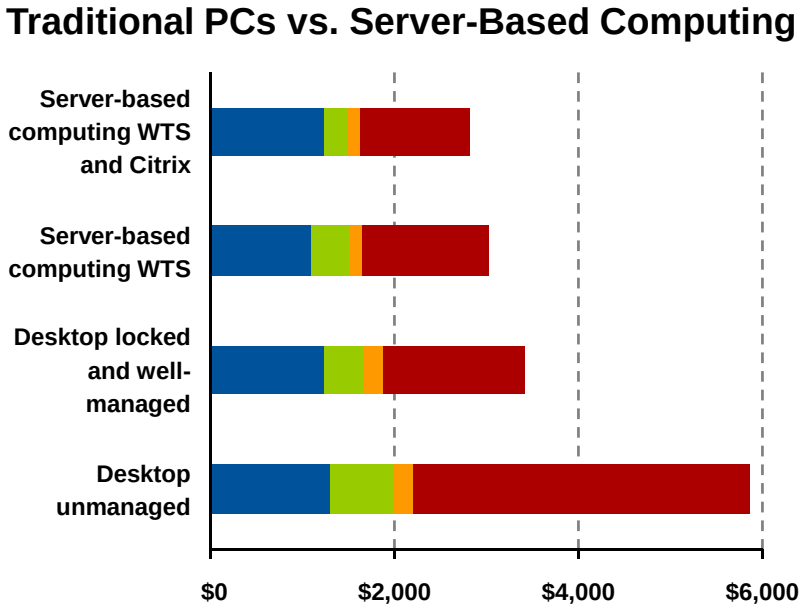
Traditional PCs vs. HVD



Locally Installed vs. Application Virtualization



Traditional PCs vs. Server-Based Computing



- Biggest return is in end-user costs.
- Direct costs are often about the same.
- Network costs not included.
- "New" ROI not accounted for.

New Links, New Lock-In Scenarios

- Brokers and session managers for hosted virtual desktops
- Virtual appliances
- VM formats
- Virtualized applications and software distribution
- Hypervisors and hardware
- I/O extension ("enlightenments")
- Management tools and instrumentation
- VM switching instructions

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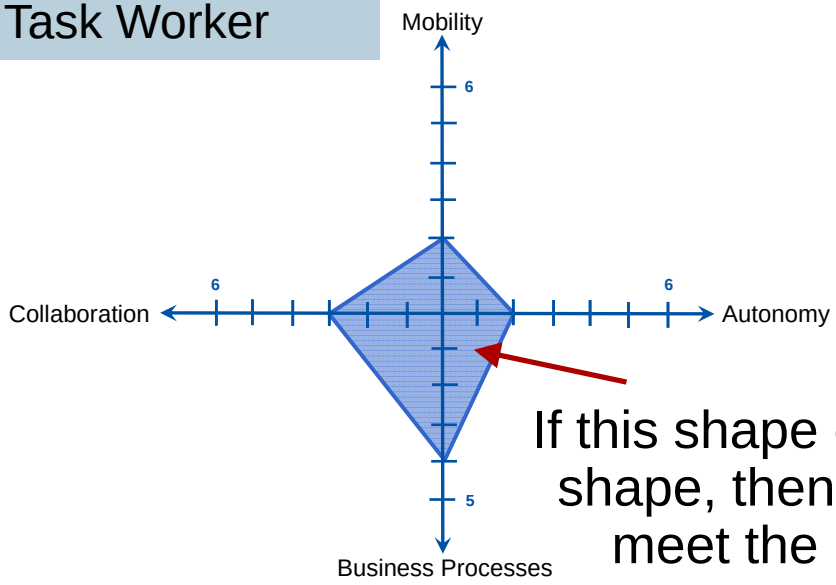
Applying the User Segmentation Model

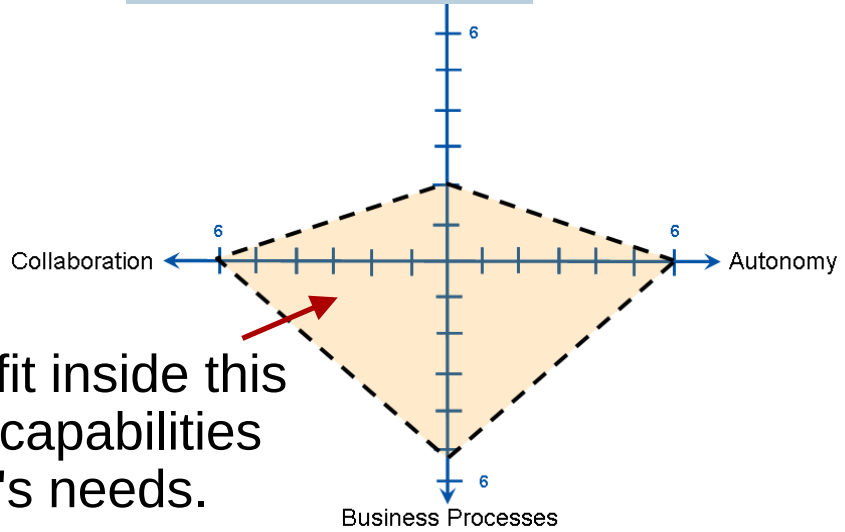
Requirements

Fixed Location Task Worker



Capabilities

Multiconnection Terminal + HVD



If this shape can fit inside this shape, then the capabilities meet the user's needs.

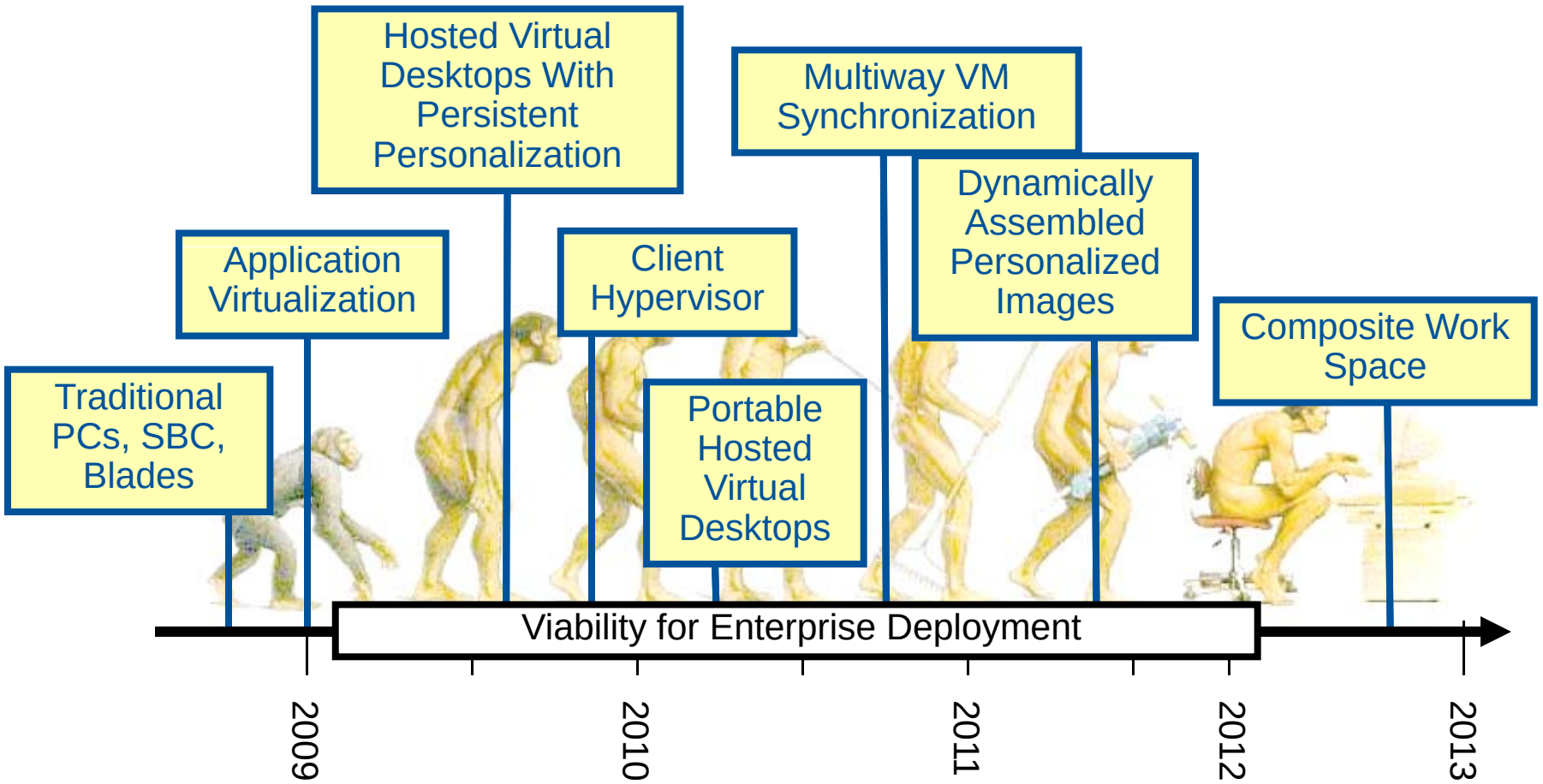
Objectives

- **Ensuring users get the capabilities they need**
- **Optimizing capital and operational costs**
- **Technology independence**

Advice

- **Think "necessary and sufficient"**
- **Define three to five user profiles**
- **Minimize overprovisioning**

Client Computing Technologies Rates of Readiness Differ



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Your Action Plan

- **Monday Morning**
  - *Make sure* you recognize and understand the differences between the various types of client architectures.
  - *Devise* a plan to understand and manage costs for the current environment.
- **Next 90 Days**
  - *Investigate* application virtualization and hosted virtual desktops to see if and how they might fit user requirements. Consider how both technologies might be exploited during Windows 7 migrations.
  - *Investigate* how OS and application bubbles fit with your management tools.
- **Next Year**
  - *Plan* for different forms of the technology to become viable for broader deployment through 2011 — but be realistic.
  - *Identify and segment* user requirements. Consider where and when to deploy each technology option and build *your* road map so as to accommodate the uncertainties in technology road maps.

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Related Gartner Research

- ***The PC of 2012 Will Morph Into the Composite Work Space***
  Mark Margevicius (G00168362)

- ***Best Use Scenarios for Hosted Virtual Desktops***
  Mark Margevicius (G00165252)

- ***Defining Four Desktop Virtualization Markets***
  Brian Gammage, Mark Margevicius (G00160383)

- ***VMware View and Citrix XenDesktop Battle for Your Hosted Virtual Desktops***
  Mark Margevicius, Federica Troni (G00168811)

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