



Desktop Virtualization

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What are we going to talk about

- Overview
- Why are you considering DV?
- DV types
- Analysis
- Guidance



Journey to the Cloud...

2013+

2010

Virtualization 1.0

- Tier-1 Applications
- Unplanned downtime
- VDI
- Resource optimization
- Business continuity

Virtualization 2.0

- Utility billing/chargeback
- Automation and Orchestration
- Self-service portals
- Storage virtualization
- Client hypervisor
- Integrated physical/virtual management
- Policy-based management
- Network/IO virtualization
- Application Virtualization

Virtualization 3.0 (Cloud Computing)

The fully virtualized datacenter spans internal and external cloud adaptive, intelligent infrastructure service oriented (IT as a service)

- Integrated cloud management
- Holistic monitoring/diagnosis
- Cross-hypervisor management
- External cloud federation
- Platform as a Service
- Virtualization-aware applications

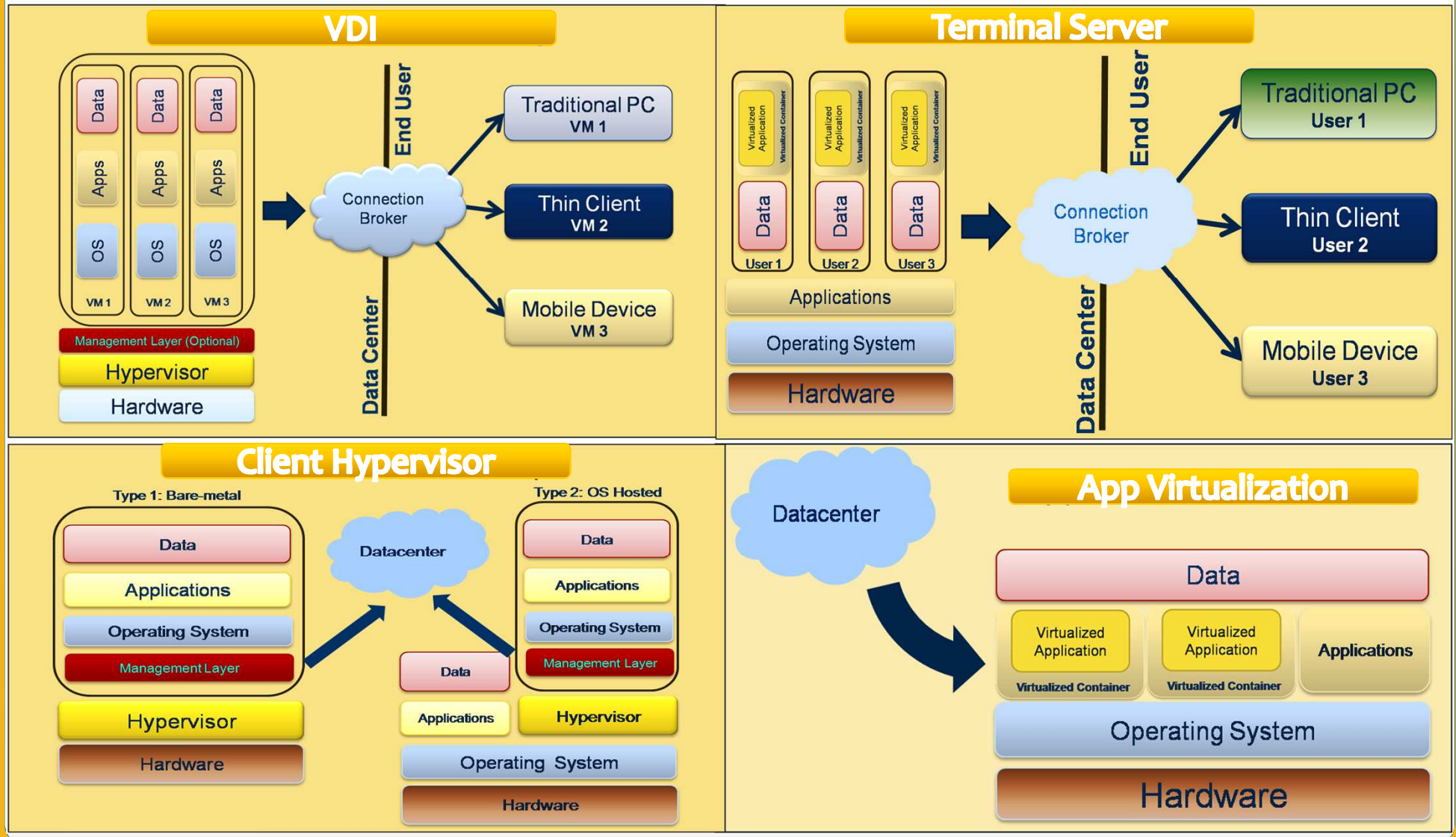
... Operational Savings

Why are you considering DV?

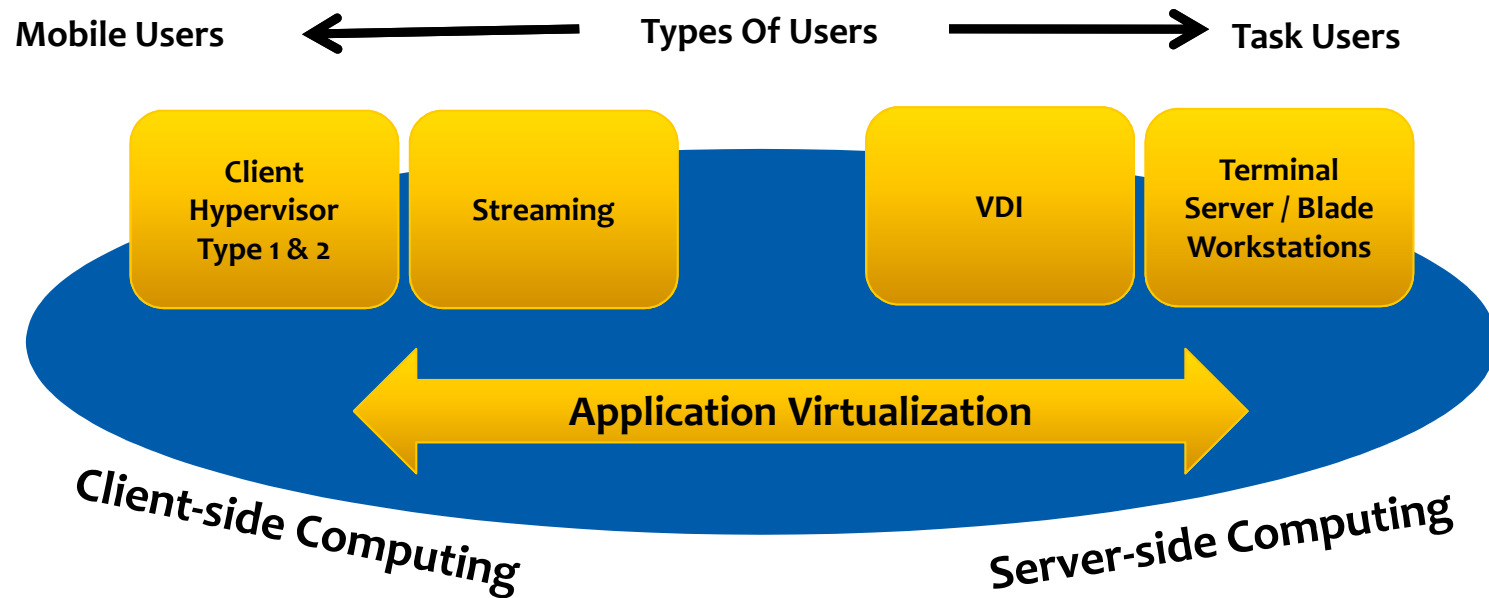
- Windows 7 Migration
- Cost savings and green IT
- Helpdesk efficiency / desktop management
- PC lifecycle Management
- User Experience
- Cloud integration
- BC/DR
- BYOPC



Desktop Virtualization Types

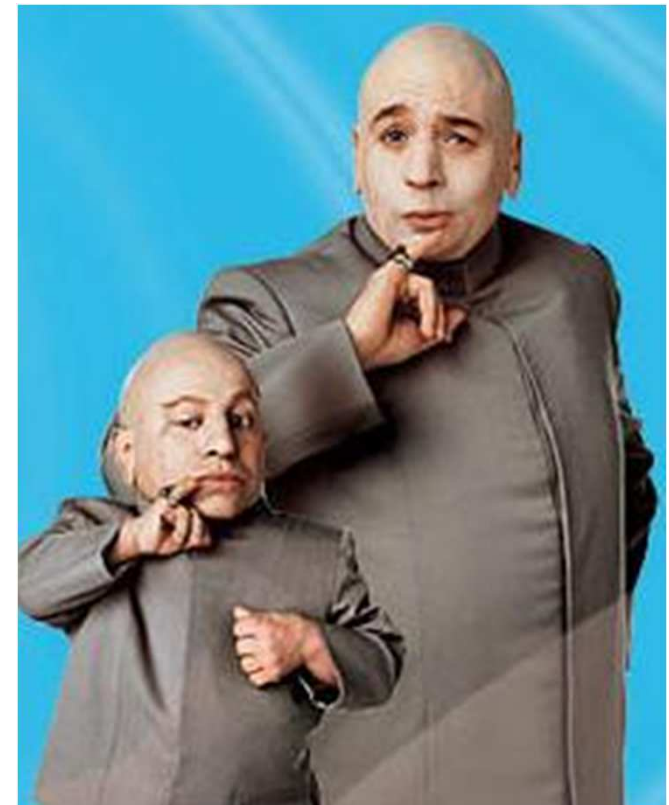


User profiling



Server & Desktop Virtualization: “not a mini me...”

- Server Virtualization is about Consolidation, Containment & Availability
- Desktop Virtualization is about Standardization & Customization
- Desktops will always have exceptions
- Not much CapEx savings, but Significant OpEx savings



BYOPC / BYOC / CYOPC

- Bring, Buy, Choose Your Own PC
- Save on costs
- Maximize user experience
- Supportability
- Access to corporate network
- Private and corporate data mix
- Hardware ownership
- Encryption
- Data ownership



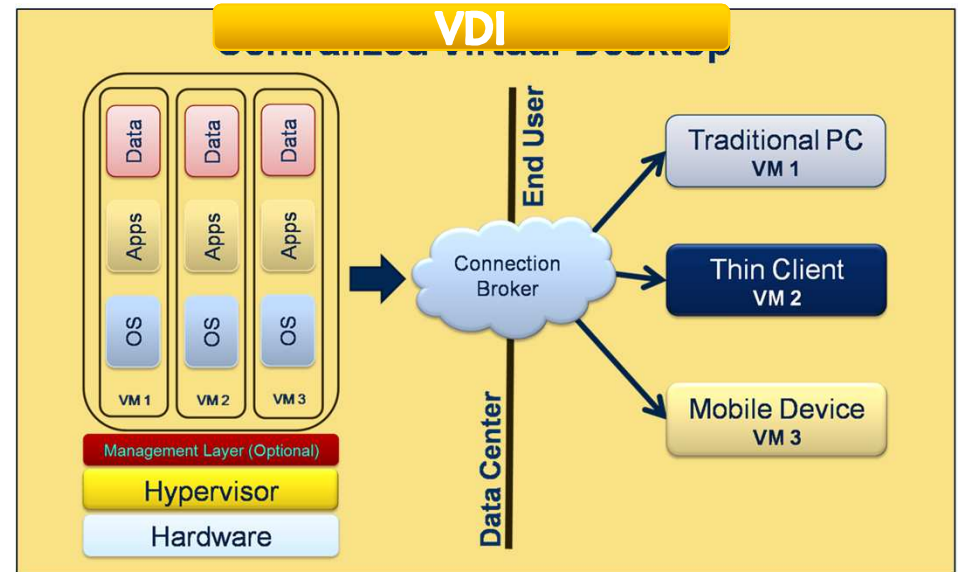
VDI: Server-Hosted Virtual Desktops

- VMs reside on servers in the data center
- Server-based computing model
- Centralized management, access, performance, and security
- VDI “secret sauce”:
 - Storage
 - Management
 - User Personalization



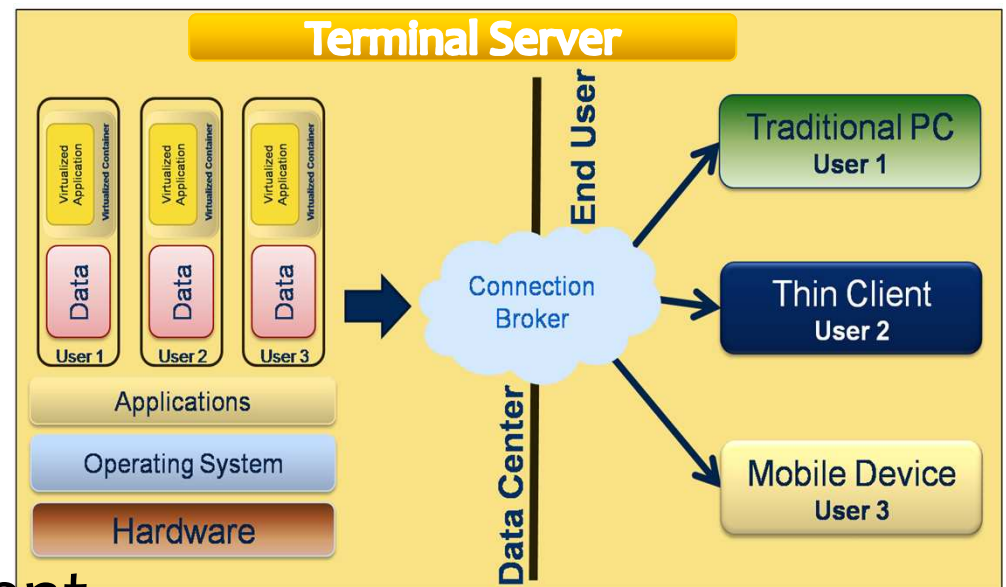
VDI: Server-Hosted Virtual Desktops

- Ease of management
- Power savings
- Replace broken hardware with Thin Clients
- Support savings
- Use of existing hardware
- Business continuity
- Backups
- Device independence
- Sensitive applications



Terminal Server

- Lower cost
- Proven technology
- Thin client computing
- High ratio of users/server
- Highly managed
- Remote access
- Eyes only security
- Easy application deployment



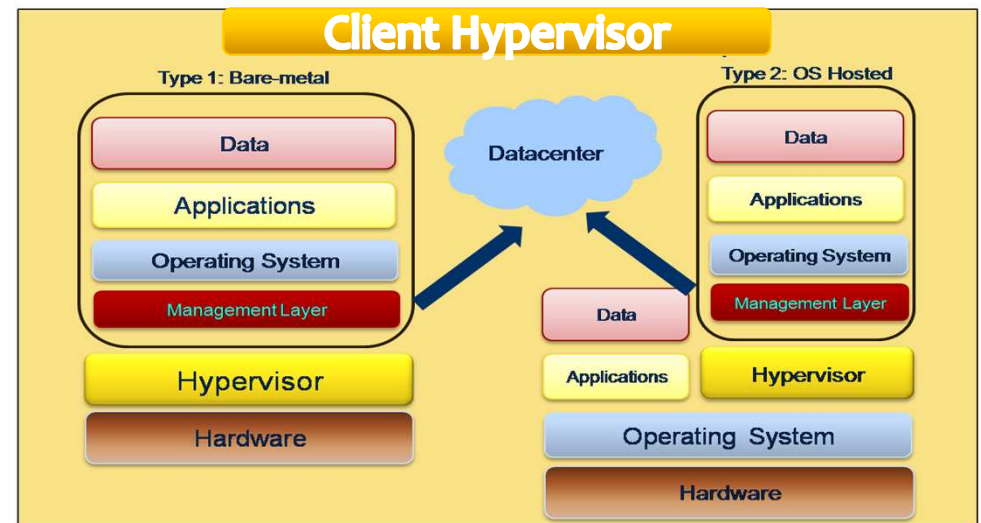
Client Hypervisors – Type 1

- Standardized HAL
- Reduce initial investment
- Single Windows image
- Multiple VMs
- Enable BYOC
- Swap user machine
- Easier management and update



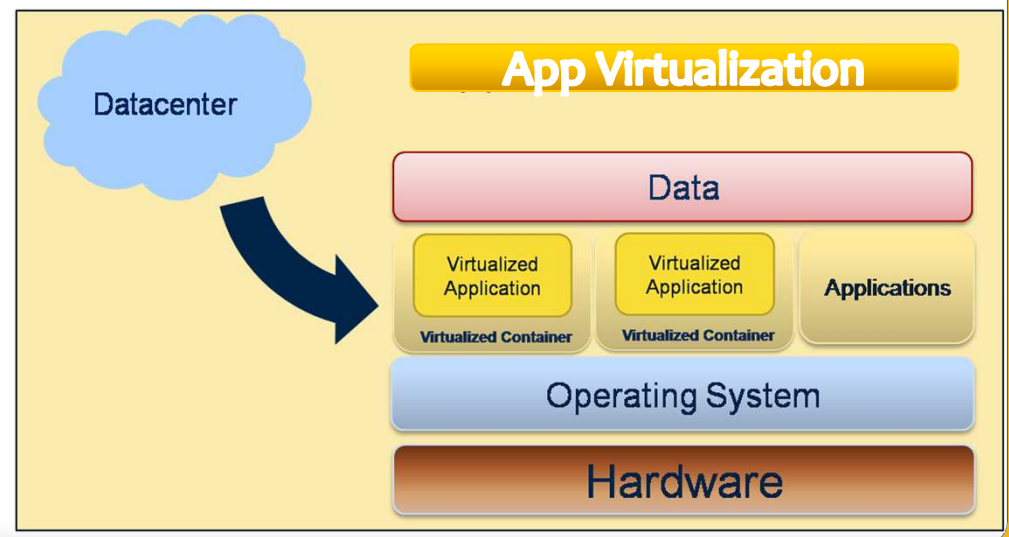
Client Hypervisors – Type 2

- Reliance on general-purpose OS
- Double, triple, or quadruple number of managed VMs
- Patching
- Upgrading
- Antivirus



Application Virtualization

- Legacy Application Support
- Reduced Storage Requirements
- Reduce/Eliminate Application Conflicts
- Centralized Mgmt
- Centralized Distribution
- Not all apps can be virtualized

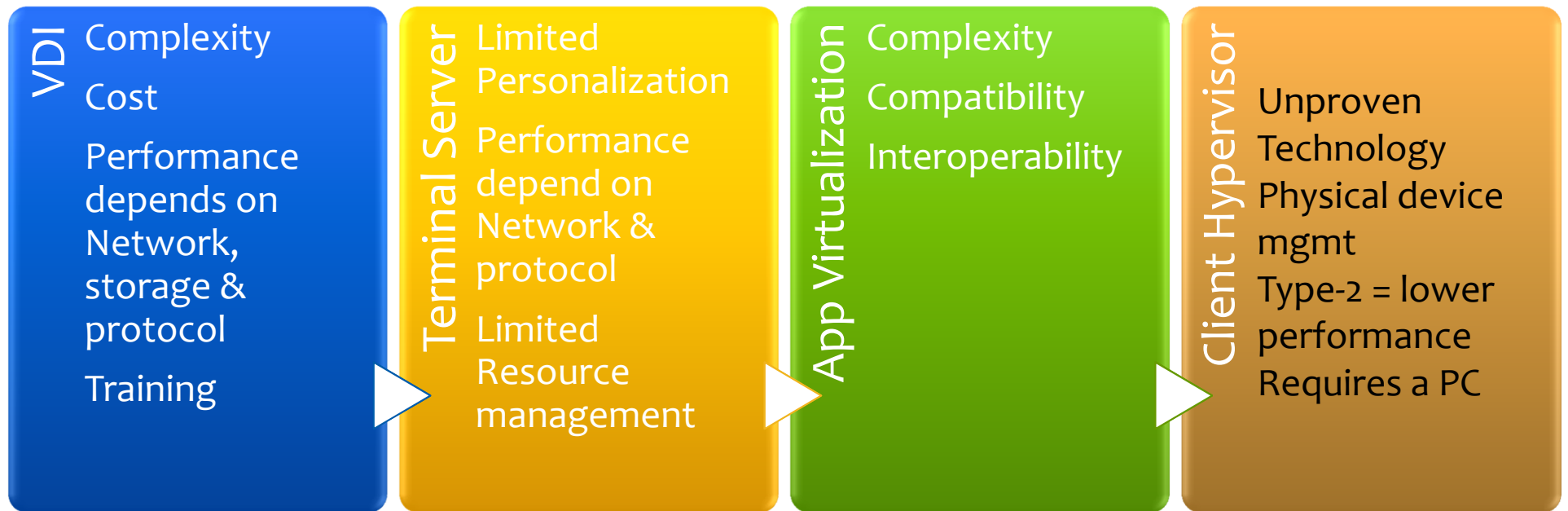


Thin Clients

- Zero clients
- iPad “but it’s a big iPhone”
- Netbooks
- Cisco Cius
- Smart Phones (future use case)



Desktop Virtualization Challenges



Misconceptions

- No cost savings
- Too complex
- Too many management consoles
- Storage costs are too high
- No Off-line use case
- Branch Offices are network reliant

Scenario – CVMUG Holdings

- 3200 Users
- Regular Users (95%), Power Users (5%)
- Average IOPS/user = 15
- Total IOPS needed = 48000 IOPS
- Total physical servers needed: $3200 / 40\text{VMs} = 80$
- Total Blade chassis = 10

Cost Comparison



Cost Comparison



Where are the savings?

OpEx:

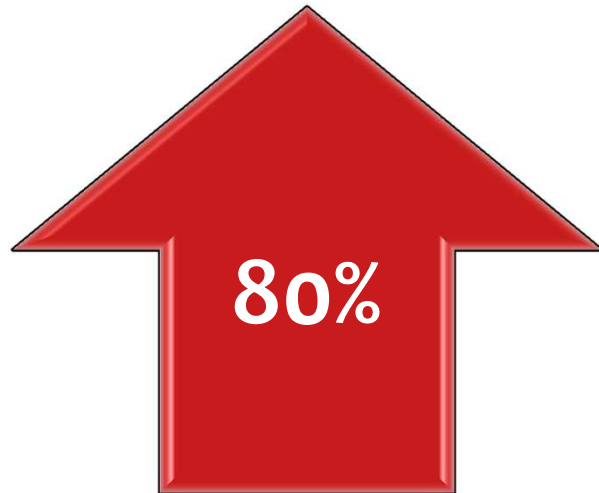
Traditional PC (3200 x \$400) \$1,280,000.00

Desktop Virtualization (3200 x \$150) \$ 480,000.00

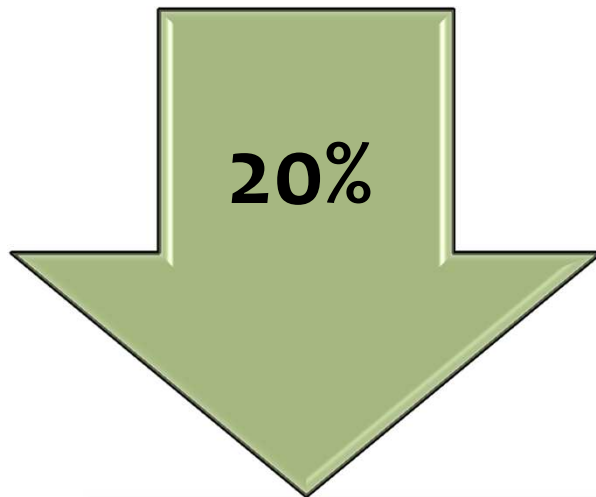
Savings: \$ 800,000.00



Savings are in OpEx



OpEx costs going Up and represent more than 80% of desktop virtualization TCO.



CapEx costs have been steadily going down and represent less than 20% of desktop virtualization TCO.

Operational Benefits

- Provisioning
- Off-line use cases
- User experience
- Security
- Performance
- Storage



Performance

- Apps running in the data center running faster
- Only sending screen updates
- Graphics intensive apps
- Video rendering
- WAN performance
- Autodesk Cloud solutions



Tips & Guidance

Desktop Virtualization G1

- Server virtualization mindset, focus on CapEx reduction
- Little to no management
- High Deployment cost, low efficiency, low utilization, low adoption

Desktop Virtualization G2

- Must understand DV value lies with OpEx reduction and improving resource utilization through management
- Integrate DV into the overall desktop management strategy
- Conduct (POC) and pilot to gauge product and user fit
- Recognize that you will need to manage the hybrid, physical and virtual

Tips & Guidance contd...

- Determine where existing infrastructure can continue to deliver ROI
- Create solid business cases desktop virtualization can address
- Recognize both the technical limitations and the business value
- Evaluate vendors with pilot programs
- Create proof of concept and define target user groups
- Begin deploying virtual desktop solutions to the selected user groups
- Stage deployment to maintain proper capacity management
- Scale deployment depend on the success of initial deployment

Sales, Sales, Sales, Marketing, Marketing, Marketing....

- You're in the sales business
- User perception
- User buy-in
- Create a story
- Get them engaged



Questions

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Thank You

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