

Evangelizing Virtualization

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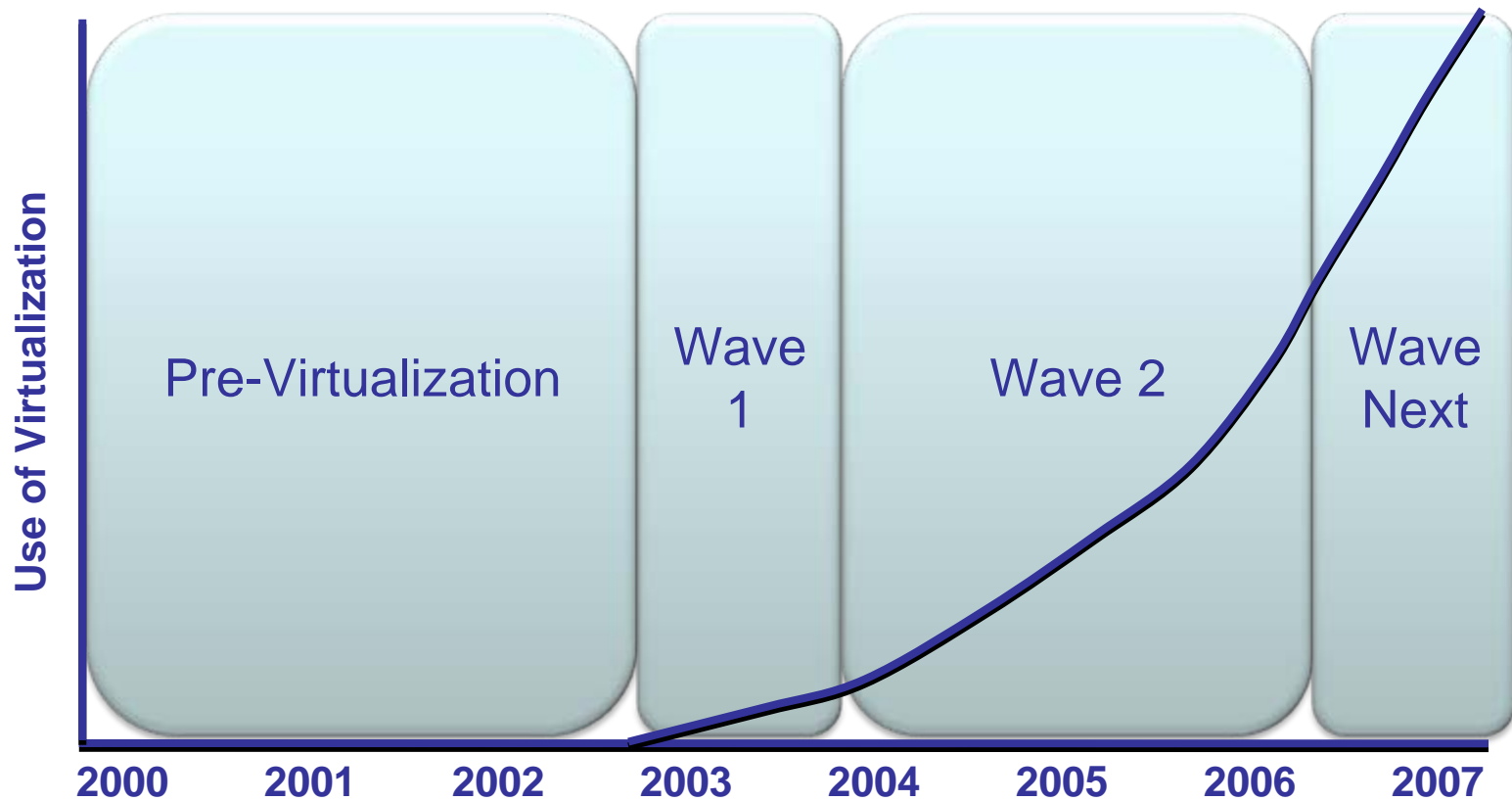
Agenda

- Who is Avanade
- Virtualization Evolution inside Avanade
- Bringing Virtualization to Production
- Lessons Learned

Avanade Overview

- Joint Venture between Accenture and Microsoft formed in 2000
- 5,000 people across 32 offices in 21 countries
- Onsite, near shore and off site Global Delivery Centers of Excellence
- 2,200 customers
- Asset-based consultancy with dedicated teams building assets and tools

Virtualization Evolution



Virtualization Evolution

Pre-Virtualization (2000 – 2002)

- Many small servers - instances more important than high-end performance
 - Frequent rebuilds
 - Delegated administration
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- Not enough instances
 - Very poor hardware utilization
 - QA is very time intensive
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- 40-45 physical servers
 - SAN storage

Virtualization Evolution

Wave 1 (2003)

- VMware Workstation 3.2
 - Dual proc servers (2x2)
 - Supplemental instances of operating systems
 - Faster provisioning
 - Undo disks led to new QA paradigm
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- Not enough capacity
 - Mediocre performance
 - Poor operational model
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- | | |
|--------------------------|---------------|
| • 40-45 physical servers | • 15-20 VMs |
| • 2-3 virtual servers | • SAN storage |

Virtualization Evolution

Wave 2 (2004 – 2006)

- Microsoft Virtual Server 2005, VMware Server
 - Larger, pooled hardware (2x9)
 - Central management & provisioning
 - Dedicated HW for QA
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- Poor planning & management tools
 - Poor delegation sophistication and granularity
 - AD tombstoning
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- | | |
|--------------------------|----------------------|
| • 55-60 physical servers | • SAN Storage |
| • 6-8 virtual servers | • 100's of VM images |
| • 80-100 VMs | |

Virtualization Evolution

Wave Next (2007+)

- Microsoft Virtual Server 2005, Veridian, VMware Server, ESX
- Pooled hardware – multi-core AMD & Intel (4x16)
- Delegated pools of virtualization resources
- Microsoft System Center Virtual Machine Manager & VMware Virtual Center for management
- Hosted demos for global sales & PoC

- 45-50 physical servers
- 10-15 virtual servers
- 100-200 VMs
- SAN storage
- 100's of VM images

Taking it to Production

How Did We Do It?

- Education
 - What virtualization is / is not
 - What can and can't (and should and shouldn't) be virtualized
 - Bring in vendors to share their experiences and best practices
 - Showcase lab implementation
- Convert IT test environment
- Identify apps to virtualize in production

Taking it to Production

Resistance

- “That’s not possible”
- “It won’t work for us”
- “How do I back it up?”
- “How do I operate it?”
- “We need 1 VM per server and that’s not cost effective”

Taking it to Production Challenges

- “I need more space than performance – ATA drives will work fine”
- “I need to worry about the processor I buy?”
- Designing for resilience
- The world is going x64

Lessons Learned

- Education is key
- HW sizing & config is “different”
 - Eggs in one basket, higher utilization
 - + VMs are portable
- Storage is key
- Capacity management is important again
- Right and wrong way to virtualize a test environment
 - AD – promote and seize
 - P2V not build guides
- Undo disks can hurt
 - AD tombstoning
 - Patching
- Data center mentality required