Changing Datacenters, Changing IT

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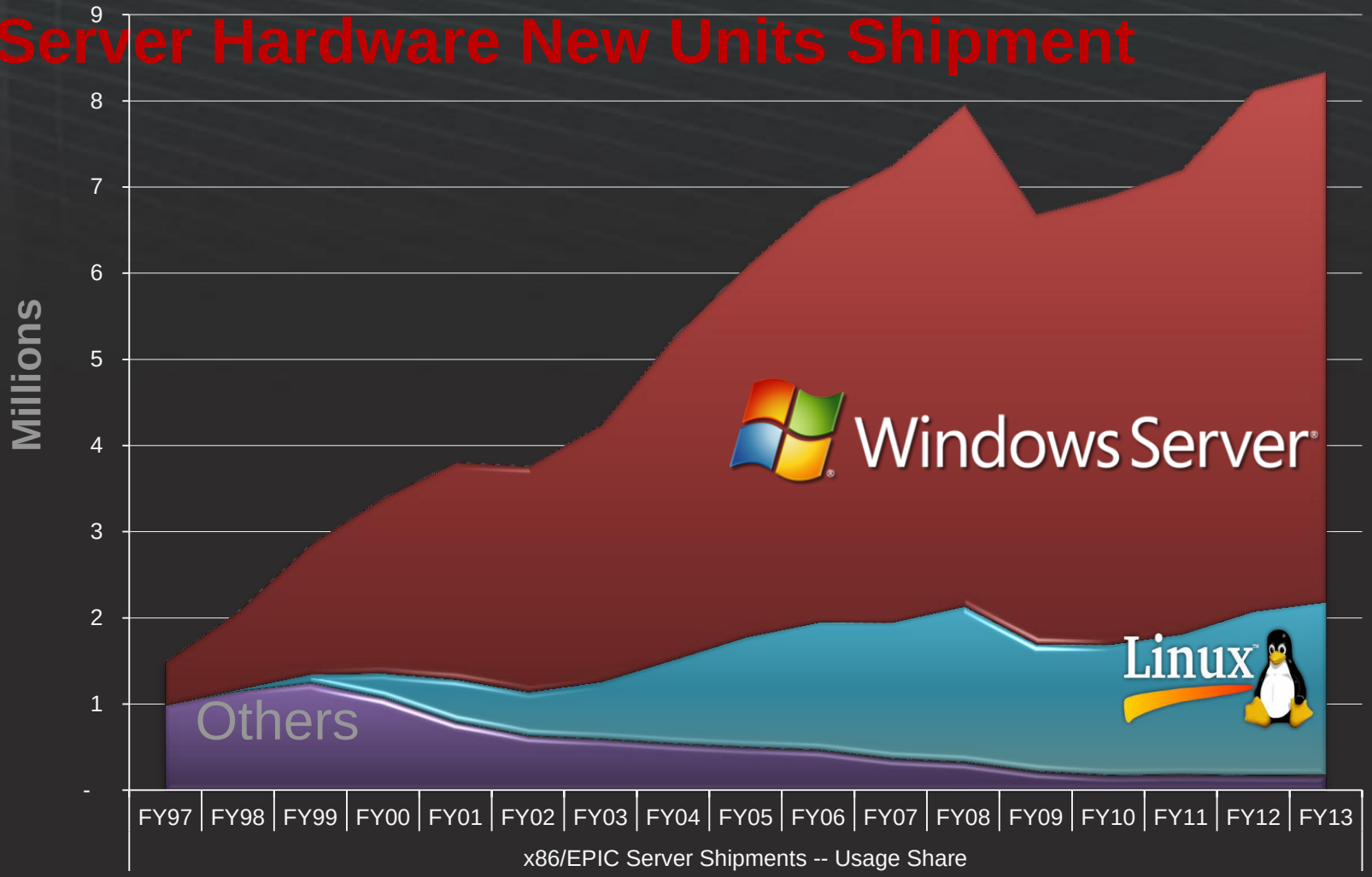
Reader's Digest Version

- Datacenters are changing
- Some will prosper
- Others will not
- Plan accordingly

The Windows Server Business

Server Hardware New Units Shipment

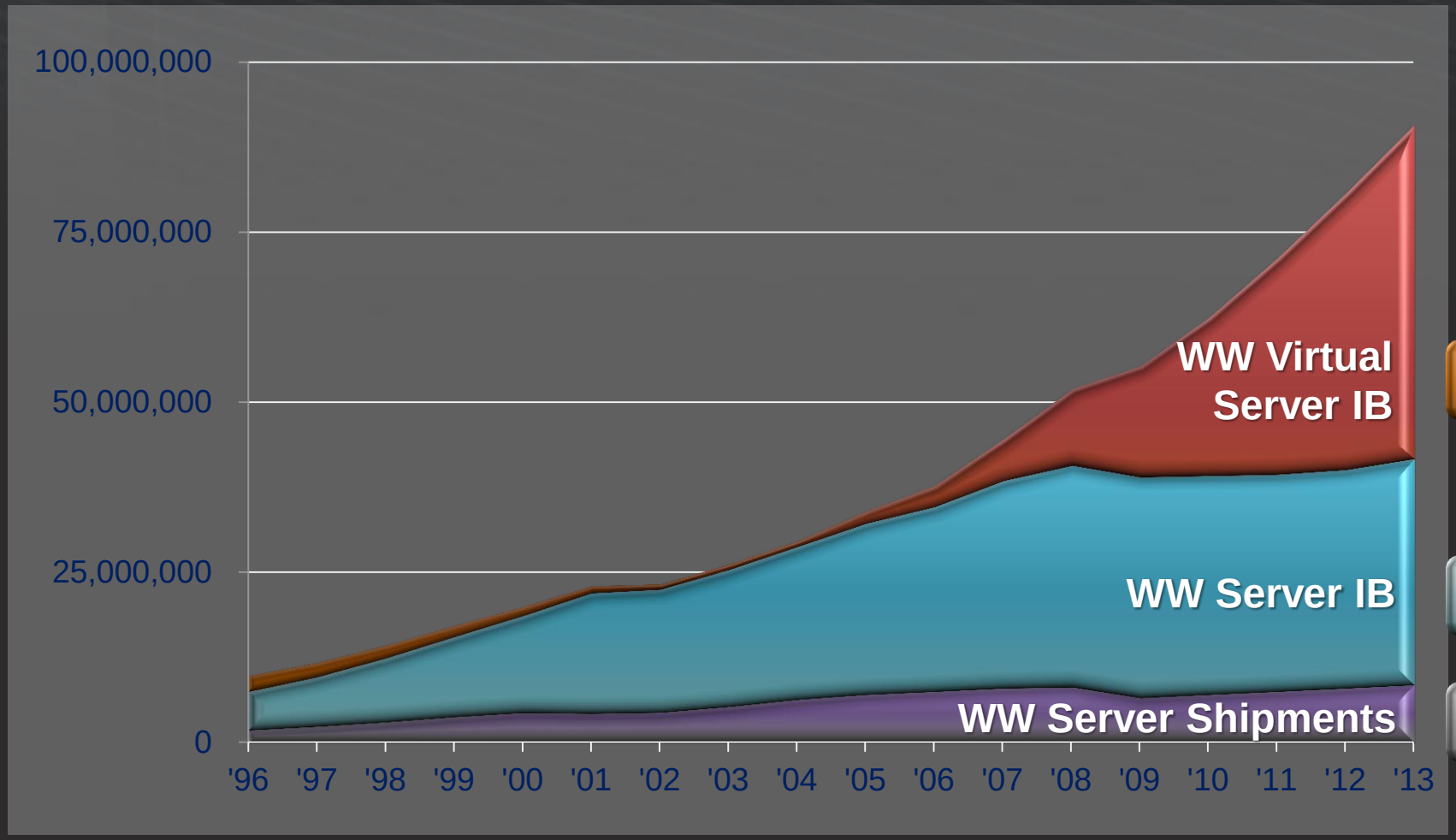


Server and Tools is ~$15B Business *for Microsoft*

**IDC = Server Forecast as of March 2010: FY07 to FY10 H1 are actual results; FY10 H2 to FY13 are forecasted results

The Evolution From Physical to Virtual Machines

'09-'13 CAGR



IDC, Bringing the Private Cloud to the Data Center, Doc # DR2010_T2_ME, March 2010

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The Changing Datacenter

Traditional Computing

Virtualized Computing

Cloud Computing

Private Public

Changes in the datacenter drive changes in IT

Lessons

- Friction suppressed the true market demand for Windows Server
- Clouds further reduce friction so the number of Servers is going to skyrocket
- Managing with a mouse is going to increasing be a strategy for failure

What is Cloud Computing?

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What is Cloud Computing?

- MVP Summit

What is Cloud Computing?

Real clouds are fuzzy, ill-defined and shifting
With no crisp edges
And hard to get in focus.

So is **cloud computing**.

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What is Cloud Computing?

Architecture gestalt

verses

Business model

What is Cloud Computing?

Architecture gestalt

- Elastic and self healing
- End-user as admins via self-service portals
- Delivering IT as a Service (*aaS)

What is Cloud Computing?

Business model

- Buying IT services from someone else
- Pay for use
- Public vs. private cloud

What is Cloud Computing?

Hybrids make sense

- Cloud and non-cloud architectures
- Cloud + non-cloud business models

Cloud: IT as a Service

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Cloud: IT as a Service

SOFTWARE
as a SERVICE

PLATFORM
as a SERVICE

INFRASTRUCTURE
as a SERVICE

Cloud: IT as a Service

Service:

Work done **by somebody**
for somebody else
as a job, duty, punishment, or favor

Service	By Somebody	For Somebody
SaaS	Vendors (e.g. MSFT)	End Users
PaaS	Vendors (e.g. MSFT)	Developers
IaaS	Vendors or IT	IT, Developers, Testers, End Users

Cloud: IT as a Service

SaaS

Microsoft Office 365 | Windows Intune | Microsoft Dynamics

End Users

PaaS

Windows Azure Platform | Microsoft System Center

Developers

IaaS

Windows Server Hyper-V | Microsoft System Center

IT, Developers, Testers, End Users

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Cloud? What Cloud?

Deniers

- CIO Survey
  - 7 percent “likely use public cloud services”
  - 47 percent “private cloud their first pick”
- MVP Summit
  - ~”We don’t need no stinking cloud.”

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Cloud, What Cloud?

Denying the cloud is like **denying gravity**.
Might make an **amusing** conversation.
But **don't bet your life** on it.

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Cloud? What Cloud?

Why they are **wrong (1):**

The “Innovator’s Dilemma”*

* Clayton Christensen

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Cloud? What Cloud?

Why they are **wrong (2):**

Punctuated Equilibria*

* Niles Eldredge and Stephen Jay Gould

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Cloud? What Cloud?

Why they are **wrong (3):**

- Subversion

Reality Check

Today's IT is
the **post-facto cleanup**
of the mess someone created before us

Quintessence

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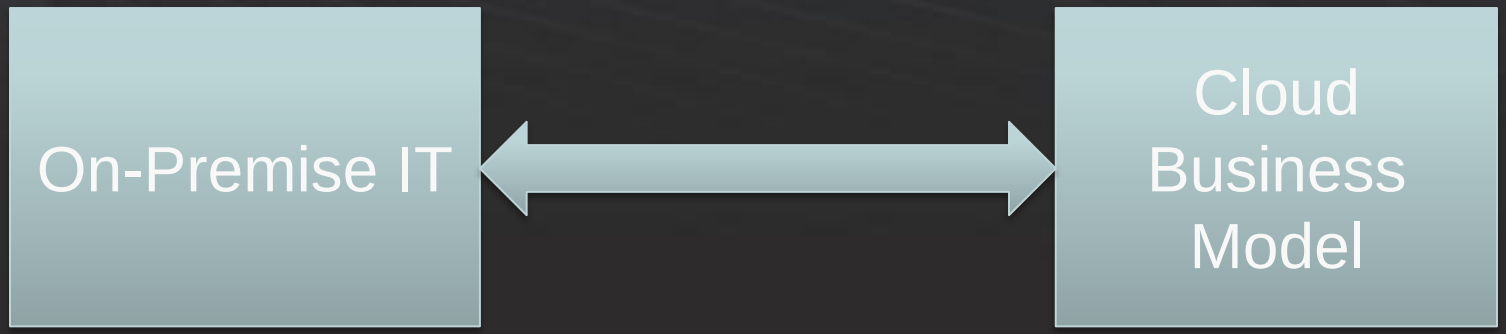
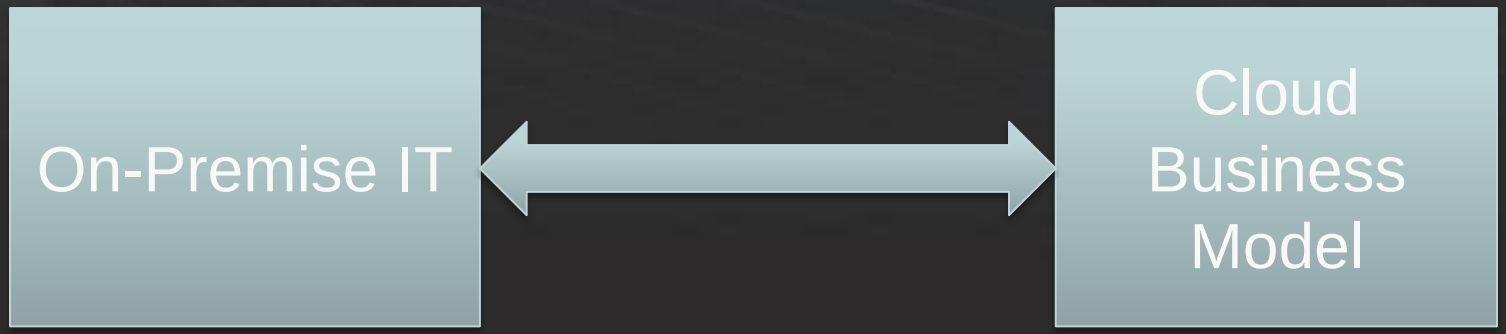
Quintessence



Control
- Physical access & security
- Configuration and change
- Costs
- Bandwidth and latency

Elastic and affordable
- 1 => 10,000 => 1 servers
- Inexpensive when you use it
- You only pay when you use it

Quintessence



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Economics Matter

What discount could you get if you bought **10** servers vs. 1?

Economics Matter

How about **100**?

Economics Matter

How about 1,000?

Economics Matter

At 1,000 servers you'd have no choice but to **automate**

and that would make it

even **more economical**

Economics Matter

A **1,000** server datacenter
has a much more **lower TCO/Server**
than a **100** server one

Economics Matter

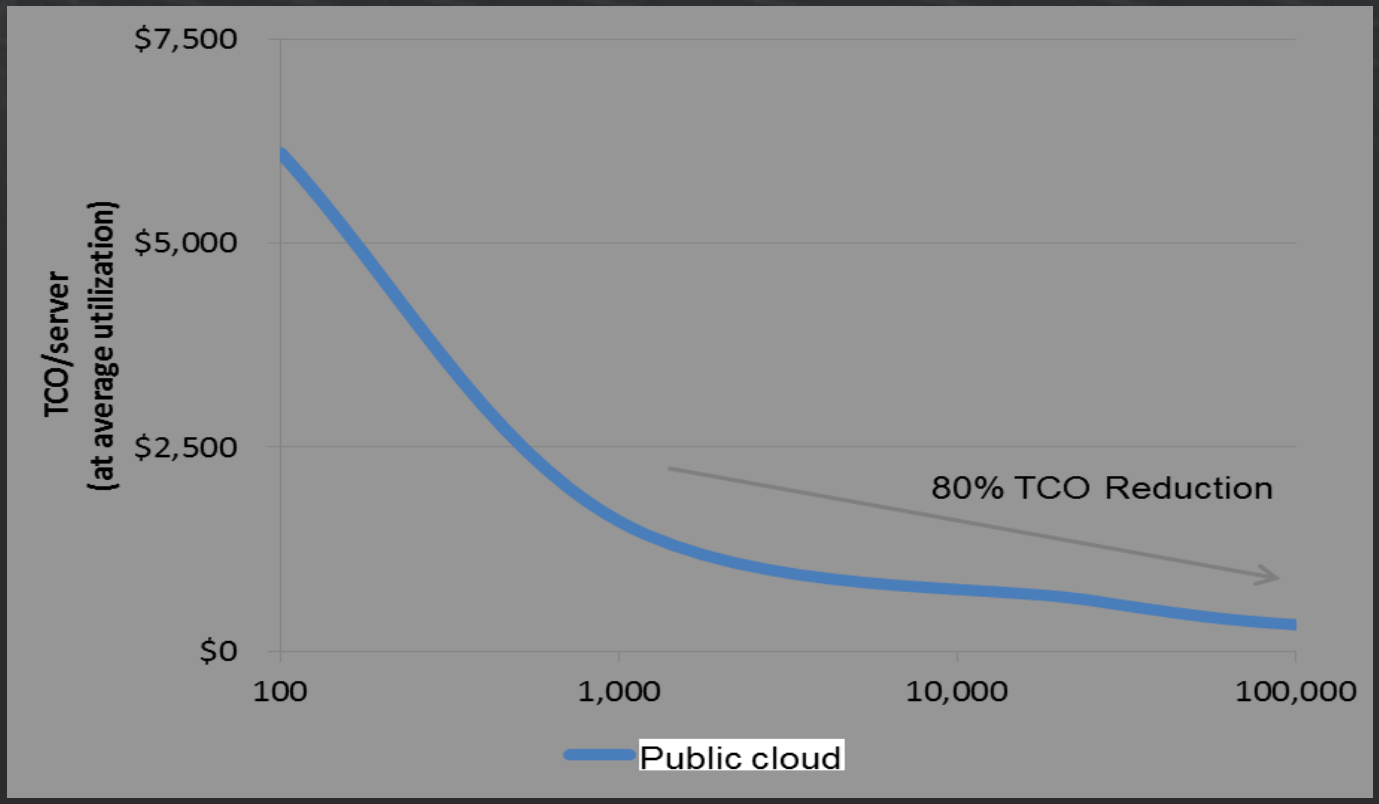
Sounds **compelling** … right?

Economics Matter

But wait ….

Size Matters in Economics*

* The Economics of the Cloud
By Rolf Harms and
Michael Yamartino



A 100,000 server datacenter has
80% lower TCO
than a 1,000 server one

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*"Technologies that matter are the ones that produce a **compelling** economic advantage."*

Jeffrey Snover

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Denying the cloud is like **denying gravity**

Might make you **popular** at a party

But **don't bet your *livelihood*** on it.

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What then must we do?*

- Study and understand the cloud
- Analyze its intrinsic characteristics
- Refine our professional value proposition

*Tolsoy

Automation is the Heart of Cloud

Cloud requires tight integration of servers, networking, storage, OS, middleware and applications

- Dynamic provisioning, configuration, monitoring, fault recovery, management

Automation is the Heart of Cloud

- "Site Up" focus drives continuous improvement
  - Failures produce additional automation
  - "*We will audit our change process and **increase the automation** to prevent this mistake from happening in the future.*" – Amazon Service Disruption

Automation enables the public cloud business model

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Public Cloud Business Model

- Automation the primary factor in super high server/admin ratios
- Automation in the large requires standardization
  - Standardization further lowers costs
- Automation is what enables Self-Service Portals

Automation enables the public cloud business model

AND….

AND…

- People are expensive
- People break stuff
- Therefore, in the cloud business model, anything that requires people needs to be minimized to
  - Minimize costs and service disruptions

Public cloud still needs local admins

- Fewer and with a polarized set of skills

Automation enables the public cloud business model

BUT….

It is optimized to deliver a relatively

small set of standardized scenarios

Why?

- Because variations require people
- People are expensive
- People screw things up

Sound familiar?

“Any customer can have a car painted any color that he wants so long as it is black.”

Henry Ford

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Is this the end of local servers and admins?

Maybe

Maybe not

McDonalds verses tailored clothing

Highly differentiated solutions compete nicely

If they are in the ballpark

- However, much of IT today is not in the ballpark

Highly differentiated IT is **not** about
clicking a mouse faster or for more hours.

Highly differentiated IT is **not** about **getting more** out of your **old** software and servers.

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Highly differentiated IT is **not** about **laying off** admins.

Highly Differentiated IT

- IT that advances the business
  - Delivering the best **functionality**
  - The **way** that business needs it
  - With **continuous availability**
  - At a **low cost**
  - With the **agility** to respond quickly to changing needs

Highly Differentiated IT

- Delivering the best **functionality**
  - Do you understand your companies business?
  - Do you understand the competitors and what they do for IT?
  - How often do you meet with non-IT?
  - Are you responding to their requests or proposing solutions to advance the business?

Highly Differentiated IT

- The way that business needs it
  - Do you support the companies processes?
  - Do you bridge the natural islands of isolation that hurt the business and cause manual steps?
  - Are you up to speed on how to run IT in a way that will withstand an Compliance Audit?

Highly Differentiated IT

- With **continuous availability**
  - Have you had a business continuity discussion?
  - Do you have a disaster recovery plan?
  - Are you clustering?
  - Do you have a change management process?

Highly Differentiated IT

- At a **low cost**
  - Are you automating operations?
  - Are you leveraging virtualization to drive up utilization?

Highly Differentiated IT

- With the **agility** to respond quickly to changing needs
  - Are you solving point problems or building tools, systems and skills?
  - Do you know how to leverage the community to solve problems?
  - Does the community owe you any favors?

Ok – so how do we do that?

Highly Differentiated IT

- Engage in the your companies business
- Update to the latest versions
- Follow a three step program
  1. Automate
  2. Automate
  3. Automate

Automation enables the public cloud business model

AND….

Automation enables **highly differentiated IT**

The Good News

- Microsoft's **distinct competence** is in taking high end computing and making it doable by the masses
  - We are doing that for automation

Automation == PowerShell

- PowerShell is **NOT** a CLI or a Shell
  - PowerShell is a **distributed automation engine** **with** a CLI and a Shell

PowerShell

- Distributed automation engine exposed as:
  - An interactive shell
  - A scripting language
  - An API
  - A remoting interface
- Cmdlets
- Coverage is king
  - WMI, WSMAN, COM, .Net, ADSI, XML, native code …
  - Common Engineering Criteria
  - 3rd party support

Success Stories

- Bourbon Street
- TechEd Inventory

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But wait – it gets **even better**

In the **past**,

Windows Server has been a great OS

for **a server** and **its devices**

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Windows Server 8 is a great OS

for **lots of servers** and

the **devices connecting** them

whether they are **physical** or **virtual**

whether they are **on-premise** or **off**

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And **secure, robust multi-machine automation**

is at the heart of Windows Server 8

Multi-Machine Server Manager

Robust Connections

Automation

WMI V2 Provider Model

PowerShell V3

Task Scheduler Cmdlets

>2330 Cmdlets

Remote Role Install & Config

Supports latest CIM and WSMAN standards

Simplified Script Authoring

Fast scripts using DLR

Secure Multi-machine Workflows

New WMI Providers for security, storage, networking, virtualization

PowerShell V3 Features

Manageability Tenet	Syntax / Language improvements	Our favorite ISV highlights
updateable help	Simplified foreach / where	PowerWF
paging support	Output redirection	Restart Manager & AutoSave in ISE
disconnect/reconnect	Bugs on Connect site	Workflow extensibility
Server migration	Get-ChildItem improvements (dir -ad)	Out-GridView parameters
Default parameter values	FlagsExpression	Runspace pool / Hosting APIs
ETW Logging	Public AST	Workflow parameters (Common& custom)
Declarative initial session config	New Parser	Right-click run
New cmdlets	Module autoloading	Managing non-Windows machines
Module enhancements	Tab Expansion	V2 bug fixes
Second hop remoting	Engine Performance Improvements	WOA (what works, what doesn't)
Job Scheduling	DLR Support	MinShell (what works, what doesn't)
Web Cmdlets	CLR 4 support	Workflow activities in the box
Group Policy	Generics support	PowerShell Web Access
SDK	Job extensibility	Converting a workflow to a script
REST	Workflow Jobs	Converting a script to a workflow
RunAs	PowerShell Workflow Intro	Editor Enhancements
Native code / Cim Cmdlets	Batch invocation	LiteralPath
Dev tools	Objects from hashtables	Robust connections
Snippets	Alternate data streams	Cmdlet adapters
Add-Ons	Control Panel Cmdlets	All the new modules
Intellisense	Workflow Persistence	F1 in ISE
Show-Command	Workflow Logging	Carriage returns / Word wrap
Authoring best practices	Dynamic types & formats	Script Explorer
Building a XAML workflow	Restart-Computer -Wait	CSV improvements
Building a Script workflow	Workflow Performance Guide	Tee-Object -Append
Script workflow best practices	Get-Content -Tail	ACL Cmdlets
Troubleshooting	Nested pipeline support	Workflow Execution Environment
Workflow help	Favorite codeplex stuff	Favorite baby scripts & other fun stuff
Converting a cmdlet to an activity		

Economics Matter

Windows Server 8 will be the **easiest OS**
To **automate**
To build public and **private clouds**
And deliver **highly differentiated IT**

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Call to Action

- Upgrade to the latest versions
- Invest in automation skills
- Engage in the community

Thank you.

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Your Feedback is Important

Please fill out a session evaluation form drop it off at the conference registration desk.

Thank you!

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