

Automation- The Critical IT Skill

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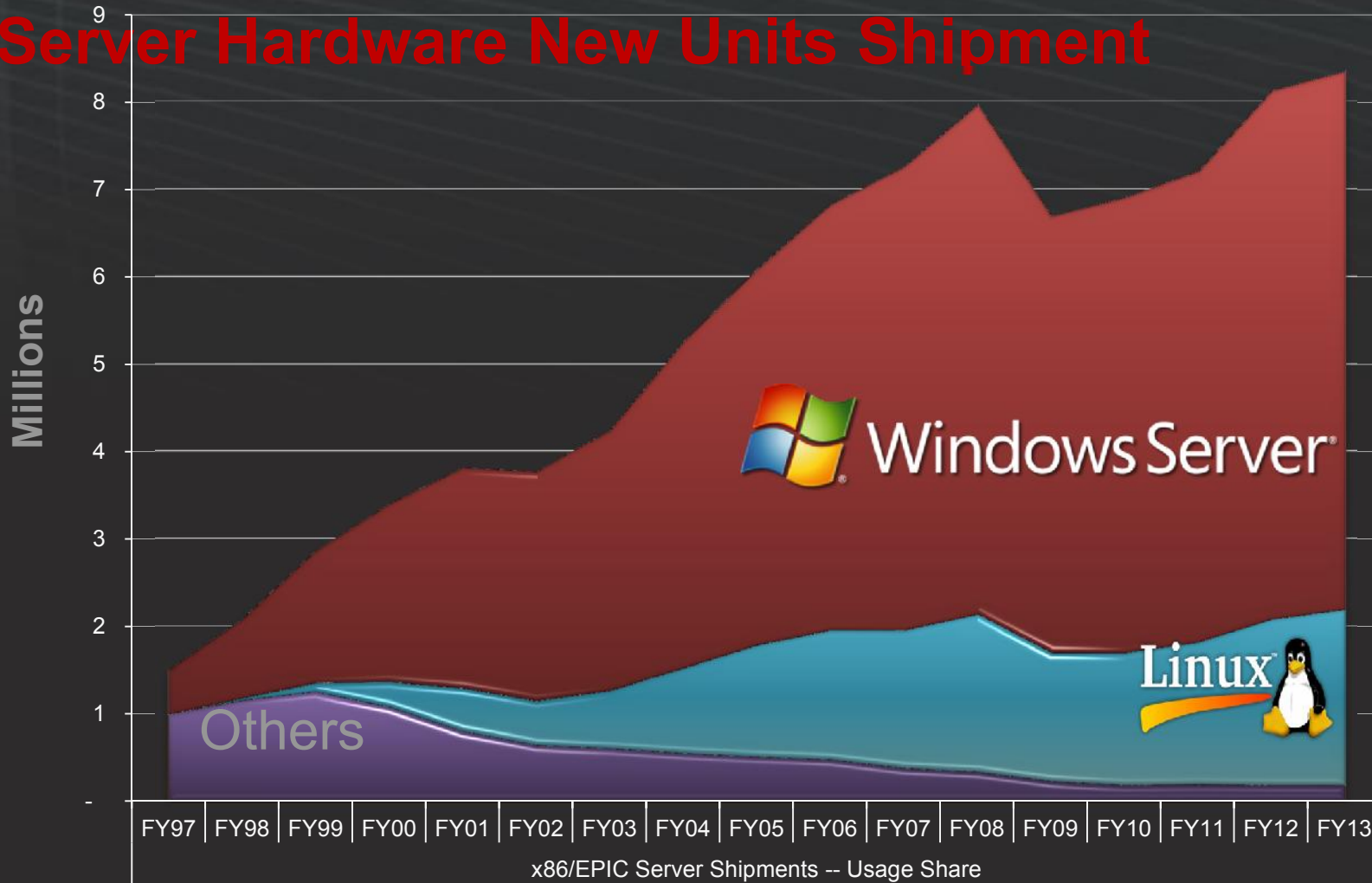
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Reader's Digest Version

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

The Windows Server Business

Server Hardware New Units Shipment

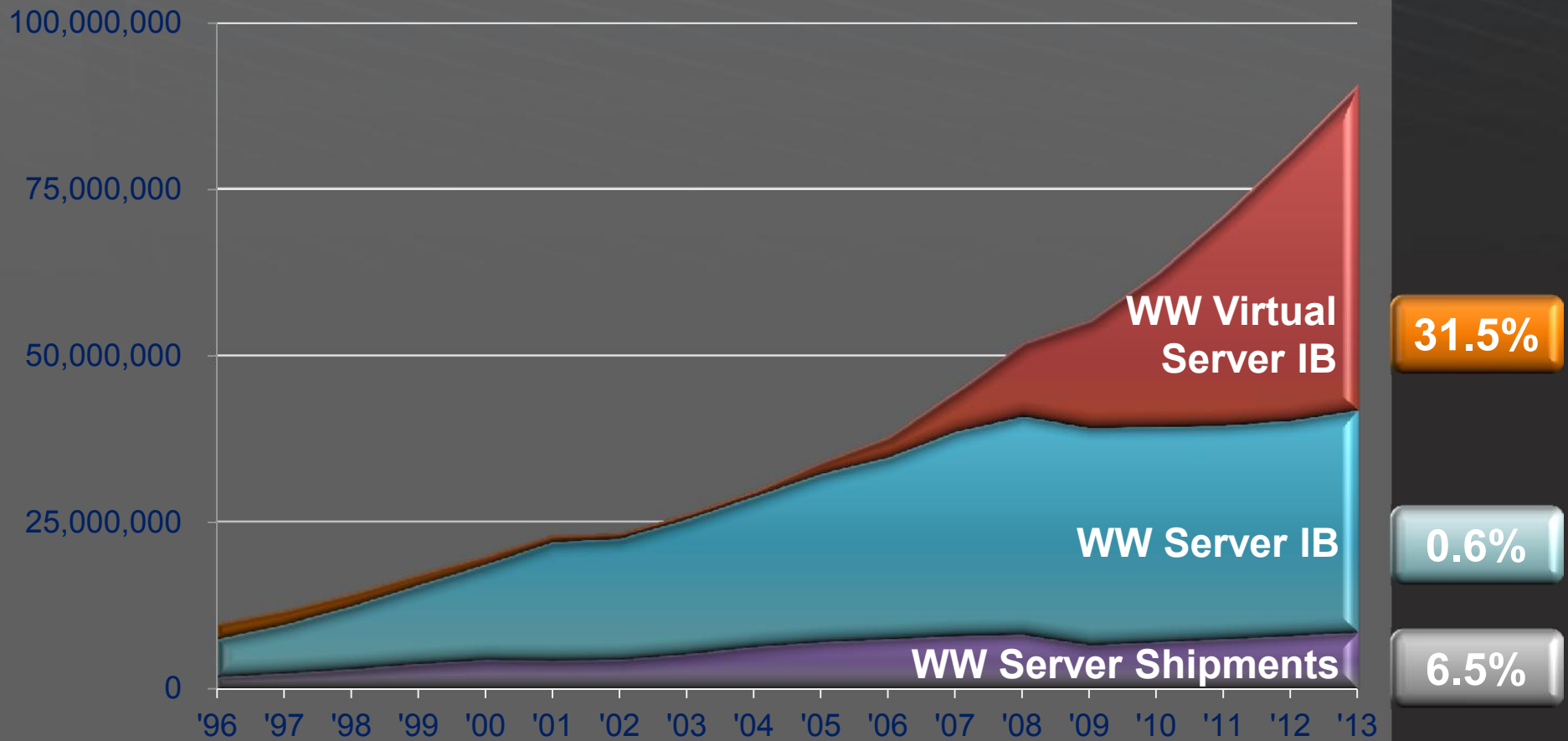


Server and Tools is ~\$15B Business for Microsoft

**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



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 increasingly be a strategy for failure

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**.

What is Cloud Computing?

Architecture gestalt
verses

Business model

What is Cloud Computing?

Architecture gestalt

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

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: 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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Windows Server

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.”

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**:

The “Innovator’s Dilemma”*

* Clayton Christensen

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Cloud? What Cloud?

Why they are **wrong**:

Punctuated Equilibria*

* Niles Eldredge and Stephen Jay Gould

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Cloud? What Cloud?

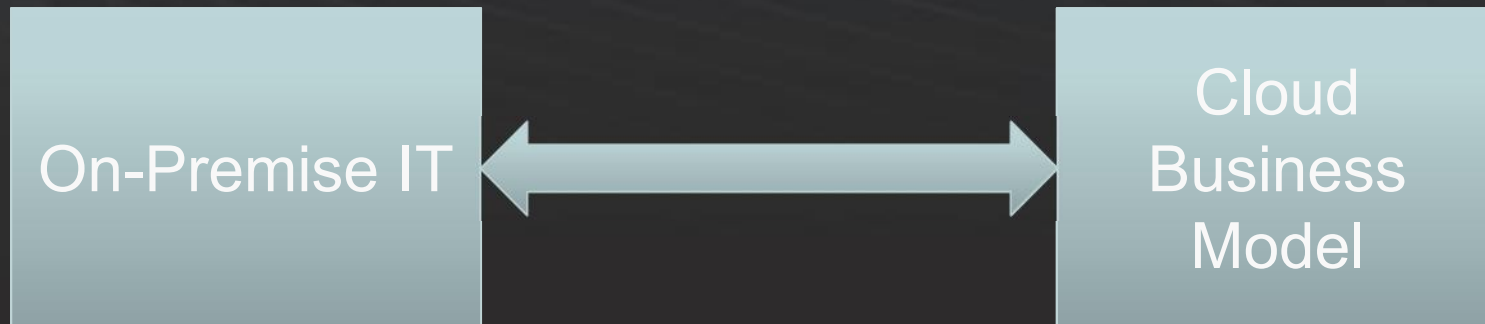
Why they are wrong:

Subversion

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

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Physics



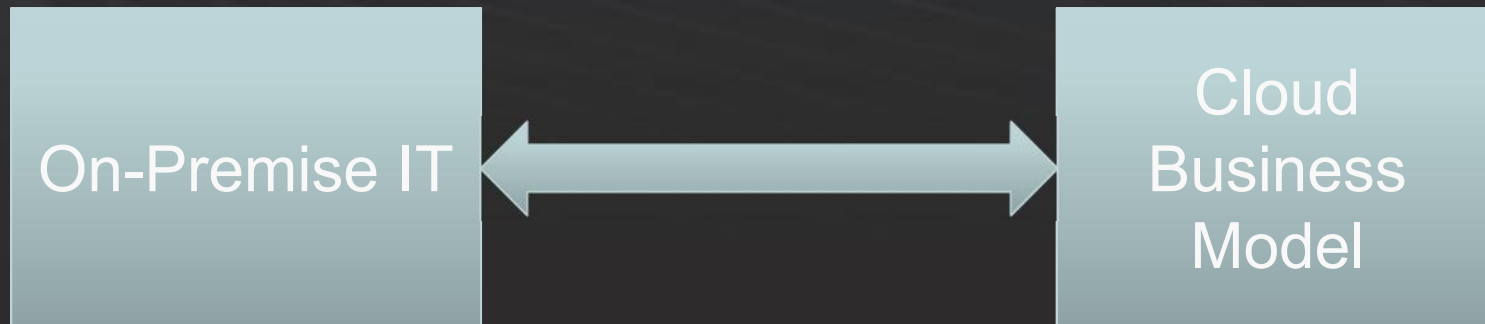
Control

- 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

Physics



Elastic and affordable

- 1 => 10,000 => 1 servers
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Control

- Physical access & security
- Configuration and change
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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

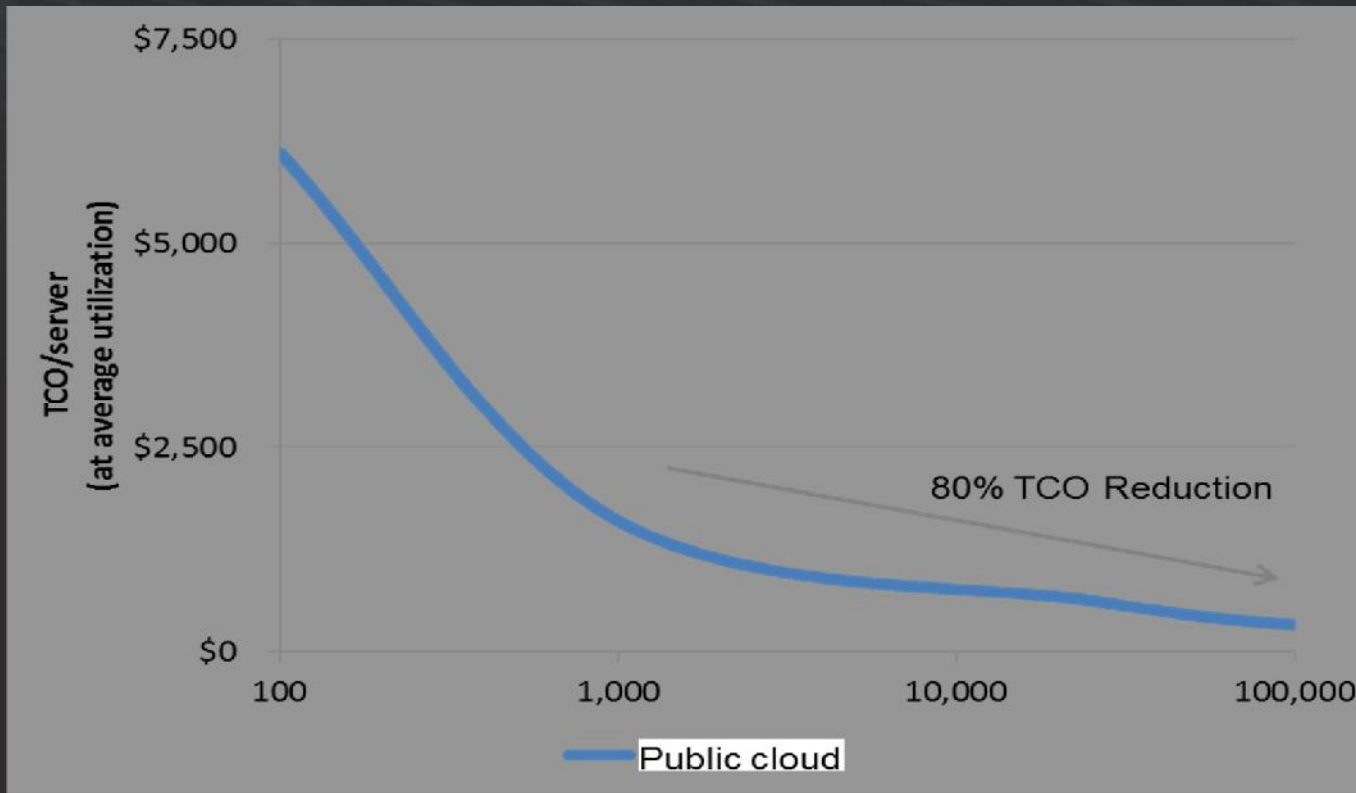
Sounds **compelling** ... right?

Economics Matter

But wait

Size Matters*

* [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

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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.....

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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?

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“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

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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.

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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?

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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

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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

But wait — it gets **even better**

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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

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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
updateable help
paging support
disconnect/reconnect
Server migration
Default parameter values
ETW Logging
Declarative initial session config
New cmdlets
Module enhancements
Second hop remoting
Job Scheduling
Web Cmdlets
Group Policy
SDK
REST
RunAs
Native code / Cim Cmdlets
Dev tools
Snippets
Add-Ons
Intellisense
Show-Command
Authoring best practices
Building a XAML workflow
Building a Script workflow
Script workflow best practices
Troubleshooting
Workflow help
Converting a cmdlet to an activity

Syntax / Language improvements
Simplified foreach / where
Output redirection
Bugs on Connect site
Get-ChildItem improvements (dir -ad)
FlagsExpression
Public AST
New Parser
Module autoloading
Tab Expansion
Engine Performance Improvements
DLR Support
CLR 4 support
Generics support
Job extensibility
Workflow Jobs
PowerShell Workflow Intro
Batch invocation
Objects from hashtables
Alternate data streams
Control Panel Cmdlets
Workflow Persistence
Workflow Logging
Dynamic types & formats
Restart-Computer -Wait
Workflow Performance Guide
Get-Content -Tail
Nested pipeline support
Favorite codeplex stuff

Our favorite ISV highlights
PowerWF
Restart Manager & AutoSave in ISE
Workflow extensibility
Out-GridView parameters
Runspace pool / Hosting APIs
Workflow parameters (Common& custom)
Right-click run
Managing non-Windows machines
V2 bug fixes
WOA (what works, what doesn't)
MinShell (what works, what doesn't)
Workflow activities in the box
PowerShell Web Access
Converting a workflow to a script
Converting a script to a workflow
Editor Enhancements
LiteralPath
Robust connections
Cmdlet adapters
All the new modules
F1 in ISE
Carriage returns / Word wrap
Script Explorer
CSV improvements
Tee-Object -Append
ACL Cmdlets
Workflow Execution Environment
Favorite baby scripts & other fun stuff

Economics Matter

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

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!