

Microsoft Azure for Developers

Setting up your development environment in Microsoft Azure



Who am I?



- Jan Mulkens
- @ Ordina since 2014
- Microsoft BI Consultant
- MCSE: Business Intelligence
- MS Specialist: Implementing Azure Infrastructure Solutions
- ...

Twitter: @JanMulkens

Blog: <http://www.janmulkens.be>

Agenda

Microsoft
Azure?

Why Azure?

Working with
Azure

Why
PowerShell?

Making it all
work for you

Resources

Microsoft Azure?

Microsoft Azure?

Over 60 services, with more to come in FY15



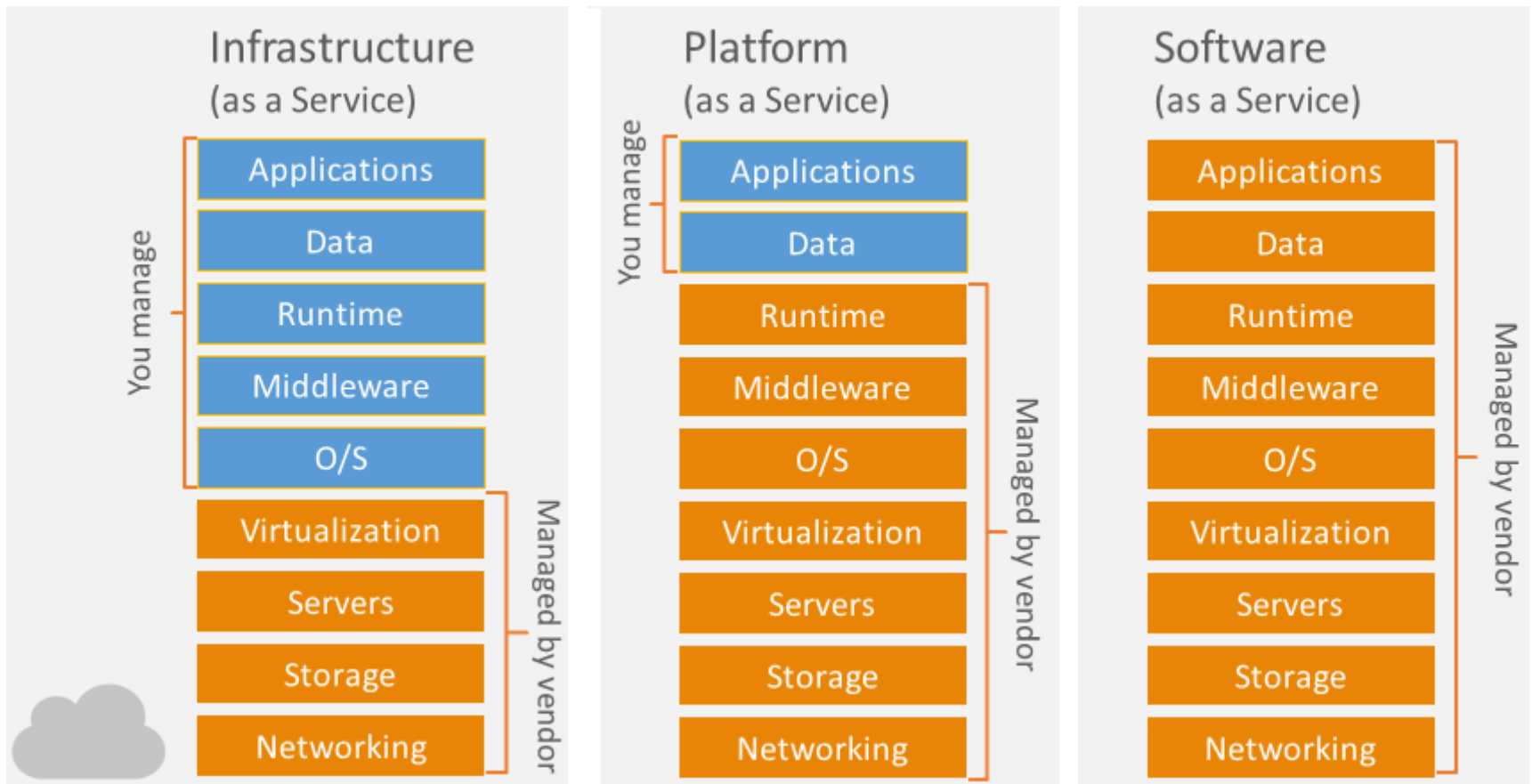
Application Services

Compute

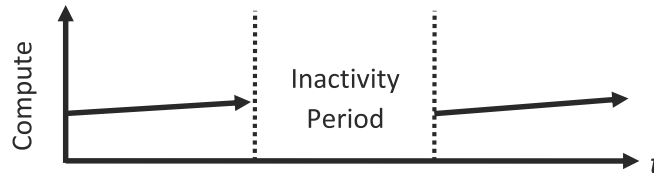
Data Services

Networks

Microsoft Azure?

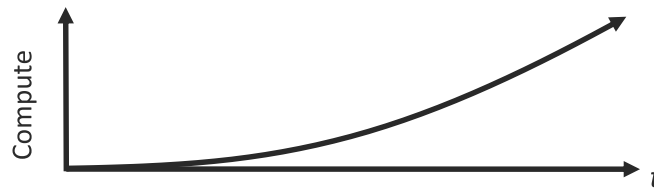


Cloud Computing Patterns



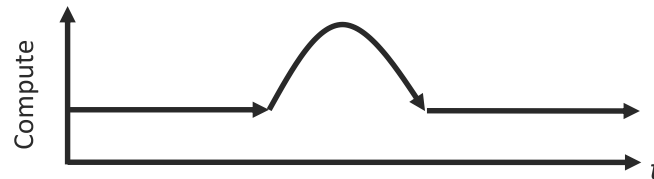
On and Off

On and off workloads (e.g. batch job)
Over provisioned capacity is wasted
Time to market can be cumbersome



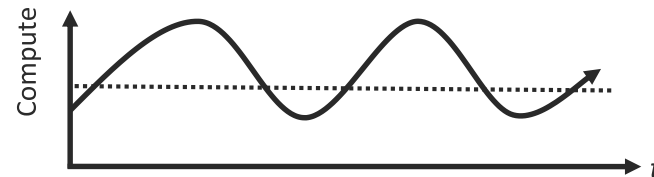
Growing Fast

Successful services needs to grow/scale
Keeping up with growth is a big IT challenge
Cannot provision hardware fast enough



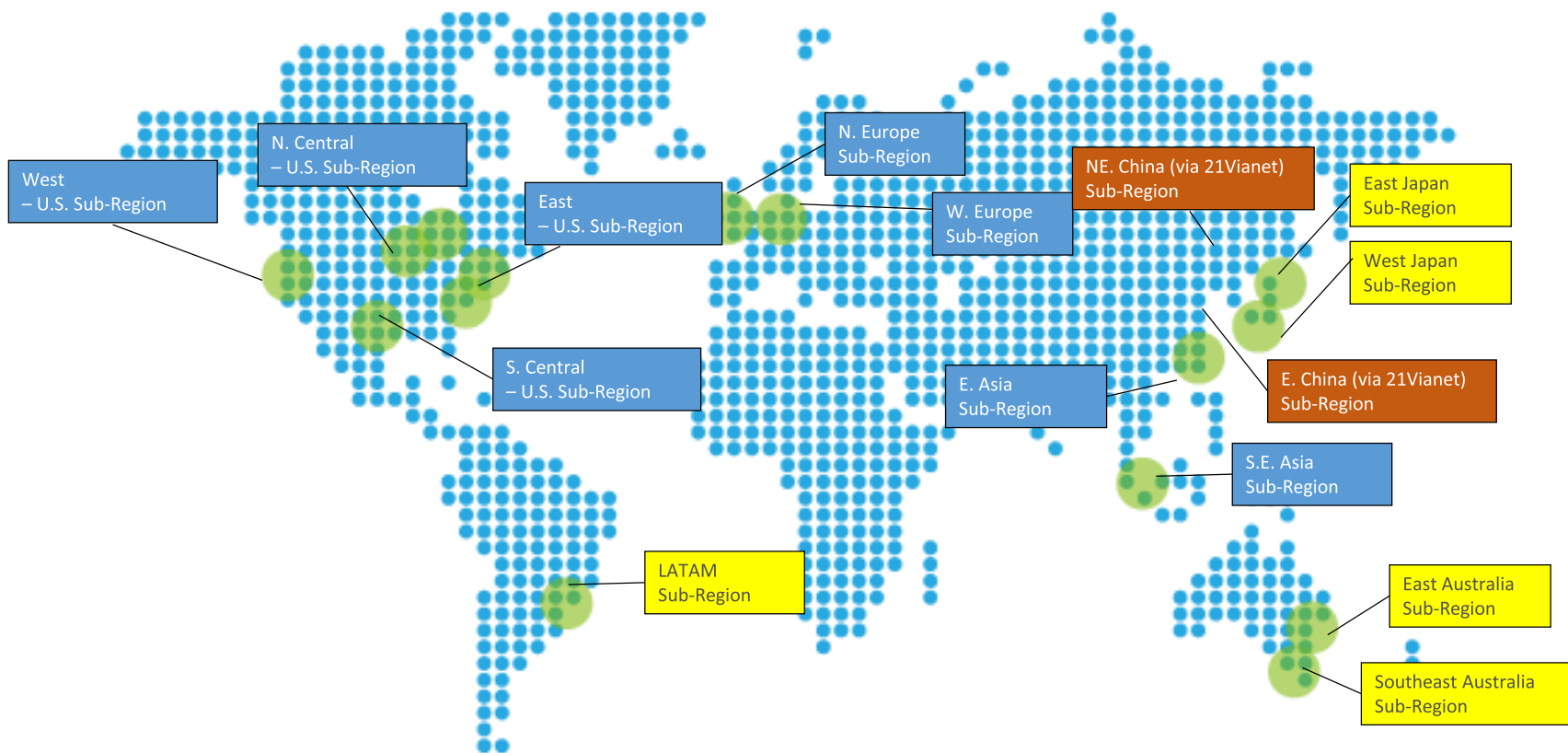
Unpredictable Bursting

Unexpected/unplanned peak in demand
Sudden spike impacts performance
Cannot over provision for extreme cases



Predictable Bursting

Services with micro seasonality trends
Peaks due to periodic increased demand
IT complexity and wasted capacity



Azure Management Portal

Microsoft Azure

Subscriptions

JaMu@ordina.be

ALL ITEMS

WEBSITES
0

VIRTUAL MACHINES
5

MOBILE SERVICES
0

CLOUD SERVICES
1

SQL DATABASES
0

STORAGE
1

HDINSIGHT
0

MEDIA SERVICES
0

SERVICE BUS
0

VISUAL STUDIO ONLINE
0

CACHE
0

all items

NAME	TYPE	STATUS	SUBSCRIPTION	LOCATION
ordsharpdemostorage	Storage Account	Online	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI-	Cloud service	Stopped	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI	Virtual machine	Stopped (D...	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI	Virtual machine	Stopped (D...	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI	Virtual machine	Stopped (D...	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI-	Virtual machine	Stopped (D...	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI	Virtual machine	Stopped (D...	Ordina - SharePoint Bi - ...	West Europe
ORDSPBI	Virtual Network	Created	Ordina - SharePoint Bi - ...	West Europe
Ordina	Directory	Active	Shared by all Ordina sub...	Europe, United States

NEW

MANAGE ACCESS KEYS

MANAGE DOMAIN

DELETE

?

Azure Management Preview Portal

The screenshot displays the Microsoft Azure Management Preview Portal. The interface features a dark blue sidebar on the left with navigation links: HOME, NOTIFICATIONS, BROWSE, ACTIVE, BILLING, and a NEW button at the bottom. The main content area has a blue header with the 'Microsoft Azure' logo and a 'PREVIEW' badge. In the top right corner, the user 'Jan Mulkens' from 'ORDINA' is logged in. The dashboard includes several tiles: 'Service health AZURE' with a world map showing service status; 'Tour' with a lightbulb icon and 'Welcome to Azure'; 'Subscriptions' with a key icon; 'Browse all' with a magnifying glass icon; 'What's new' with an information icon; 'Marketplace' with various service icons; 'Billing' showing 'INFRASTRUCTURE DOMAIN SETUP', 'CURRENT CHARGES' (indicated by a dashed line), and 'SUBSCRIPTIONS 7'; 'Help + support' with a headset icon; 'Portal settings' with a gear icon; 'FEEDBACK' with a heart icon; and 'AZURE PORTAL' with a monitor icon.

Why Azure?

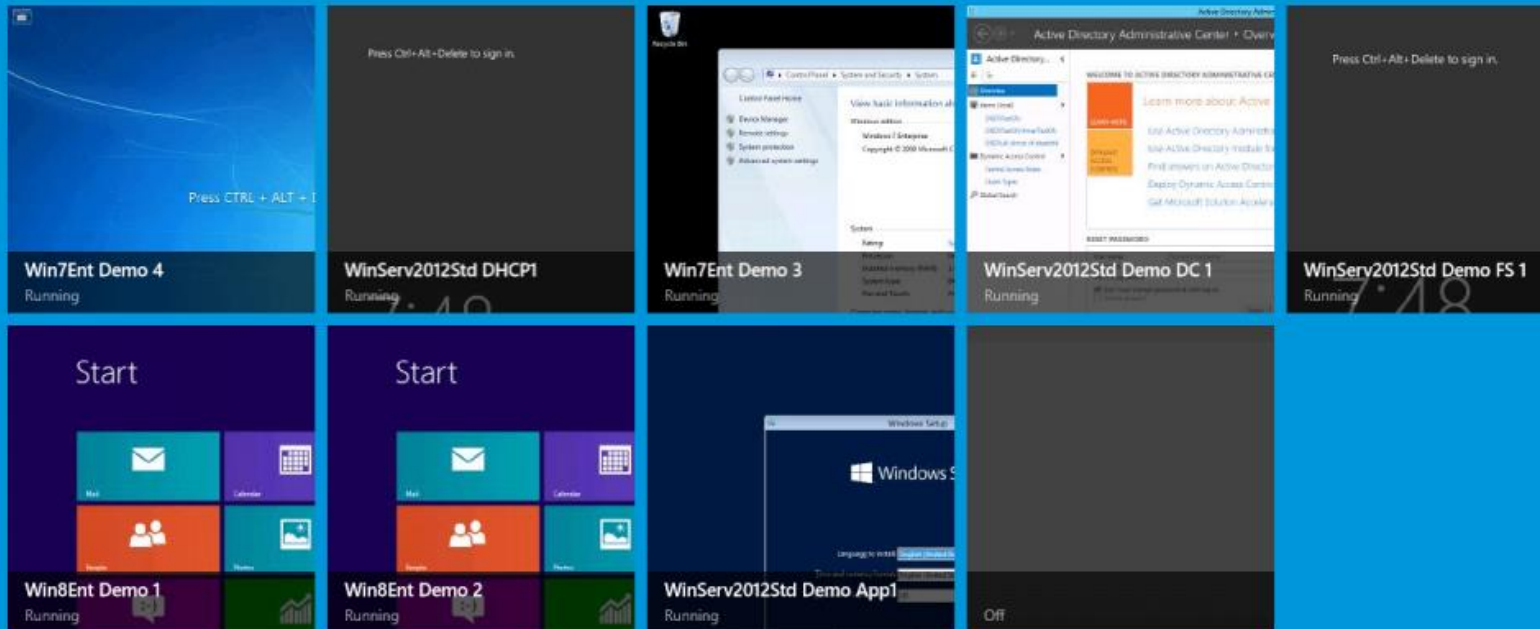
Why Azure?



Why Azure?

Hyper-V Manager








Virtual Machines



Why Azure?



Why Azure?

Quad core					
 Quad core: Core i7 950	4 x 3.06 GHz +HT	12 GB (DDR3)	2 x 500 GB SATA	2 op voorraad	€ 89, ⁰⁰ BESTEL NU
  Quad core: Core i7 950	4 x 3.06 GHz +HT	12 GB (DDR3)	4 x 500 GB SATA	1 op voorraad	€ 109, ⁰⁰ BESTEL NU
 Quad core: Xeon E3-1270	4 x 3.4 GHz +HT	16 GB (DDR3)	2 x 500 GB SATA	4 op voorraad	€ 109, ⁰⁰ BESTEL NU
 Quad core: Xeon E3-1270	4 x 3.4 GHz +HT	16 GB (DDR3)	4 x 1 TB SATA	3 op voorraad	€ 119, ⁰⁰ BESTEL NU
  Quad core: Xeon E5-1410 v2	4 x 2.8 GHz +HT	32 GB (DDR3)	2 x 1 TB SATA + Hardware RAID	1 op voorraad	€ 139, ⁰⁰ BESTEL NU

Why Azure?

General purpose compute: Standard tier

Offers the most flexibility. Supports all virtual machine configurations and features.

INSTANCE	CORES	RAM	DISK SIZES	PRICE
A0	1	0.75 GB	20 GB	€0.0149/hr (~€12/mo)
A1	1	1.75 GB	70 GB	€0.0671/hr (~€50/mo)
A2	2	3.5 GB	135 GB	€0.1341/hr (~€100/mo)
A3	4	7 GB	285 GB	€0.2681/hr (~€200/mo)
A4	8	14 GB	605 GB	€0.5362/hr (~€400/mo)
A5	2	14 GB	135 GB	€0.2532/hr (~€189/mo)
A6	4	28 GB	285 GB	€0.5064/hr (~€377/mo)
A7	8	56 GB	605 GB	€1.0128/hr (~€754/mo)

Why Azure?

	DATABASE THROUGHPUT UNITS	DATABASE SIZE	POINT IN TIME RESTORE	PRICE
B	5	2 GB	7 Days	€0.005/hr (~€4/mo)
S0	10	250 GB	14 Days	€0.0151/hr (~€12/mo)
S1	20	250 GB	14 Days	€0.0301/hr (~€23/mo)
S2	50	250 GB	14 Days	€0.0751/hr (~€56/mo)
S3	100	250 GB	14 Days	€0.1502/hr (~€112/mo)

Why Azure?

Estimated usage costs for a developer

A3 VM	€ 0,2681 / hour	S2 DB	€ 0,0751 / hour	S0 DB	€ 0,005 / hour
	~€ 2 / day		~€ 0,6 / day		~€ 0,04 / day
	~€ 11 / week		~€ 3 / week		~€ 0,2 / week
	~€ 43 / month		~€ 12 / month		~€ 0,8 / month

Why Azure?

SQL Server on Azure VM's

- As if it runs in your data center
- Fast provisioning of own or Microsoft images
 - OLAP templates
 - OLTP templates
 - AlwaysOn template
 - SharePoint
- Pay per use
 - take into account uptime & cores
- Elasticity
- Security, patching, monitoring,... still needs to be managed

Why Azure?

Azure SQL Database

Service Tier / Performance Level	DTU*	MAX DB Size	Max Worker Threads	Max Sessions	Benchmark Transaction Rate
Basic	1	2 GB	20	100	3,467 transactions per hour
Standard/S1	5	250 GB	50	200	283 transactions per min
Standard/S2	25	250 GB	100	500	1,470 transactions per min
Premium/P1	100	500 GB	200	2	98 transactions per sec
Premium/P2	200	500 GB	400	4	192 transactions per sec
Premium/P3	800	500 GB	1,6	16	730 transactions per sec

*Database Throughput Unit (DTU):

Combines CPU, memory, physical reads, and transaction log writes into a single unit.

Demo

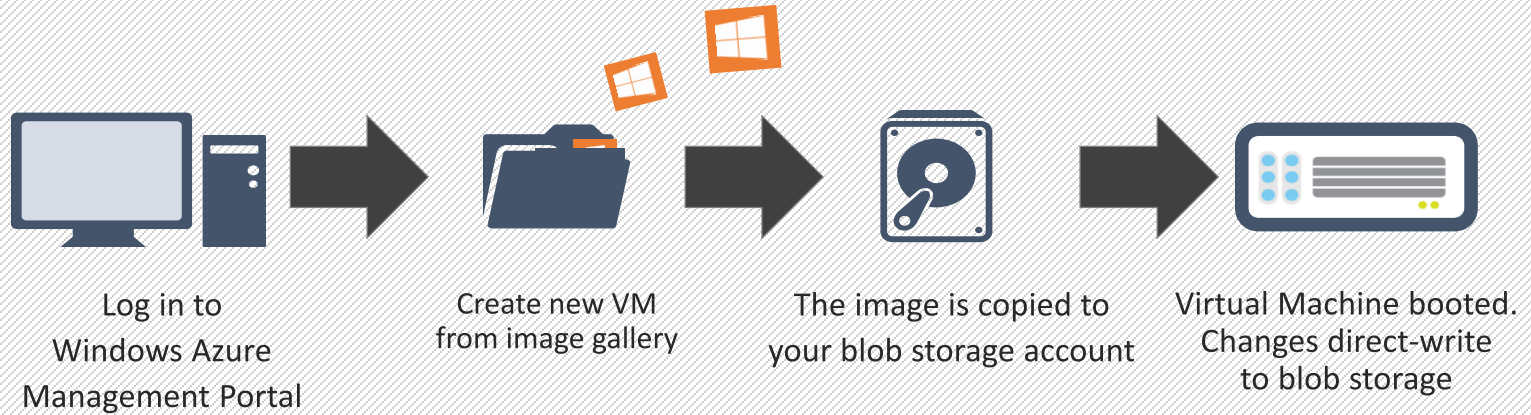
Pricing calculator

Azure Free Trial

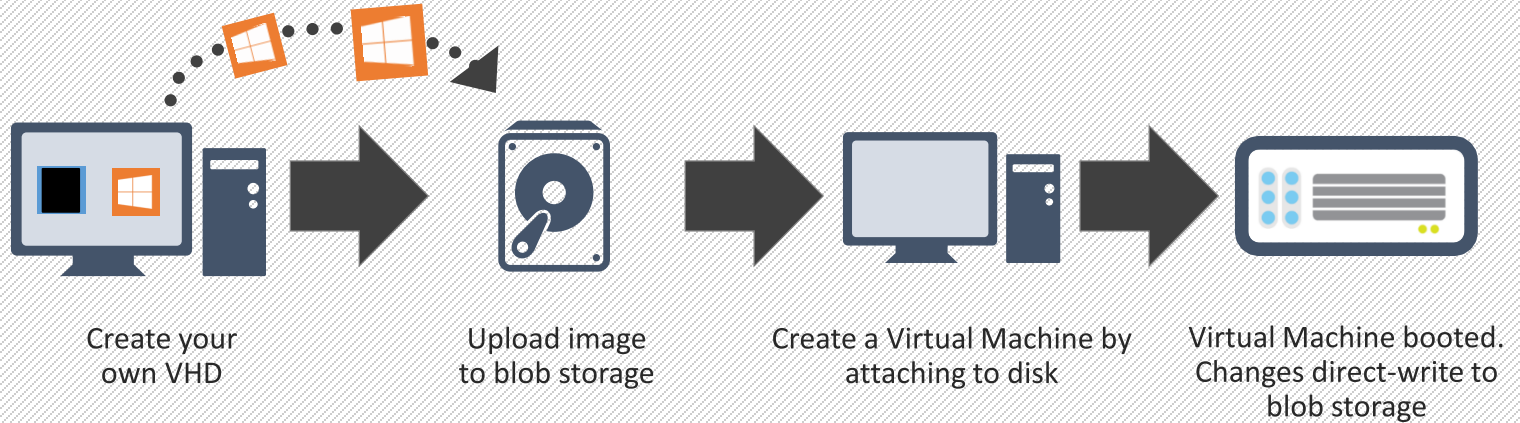
Working with Azure

As a developer, setting up your development environment

Azure Images



Own Images



Demo

Subscriptions

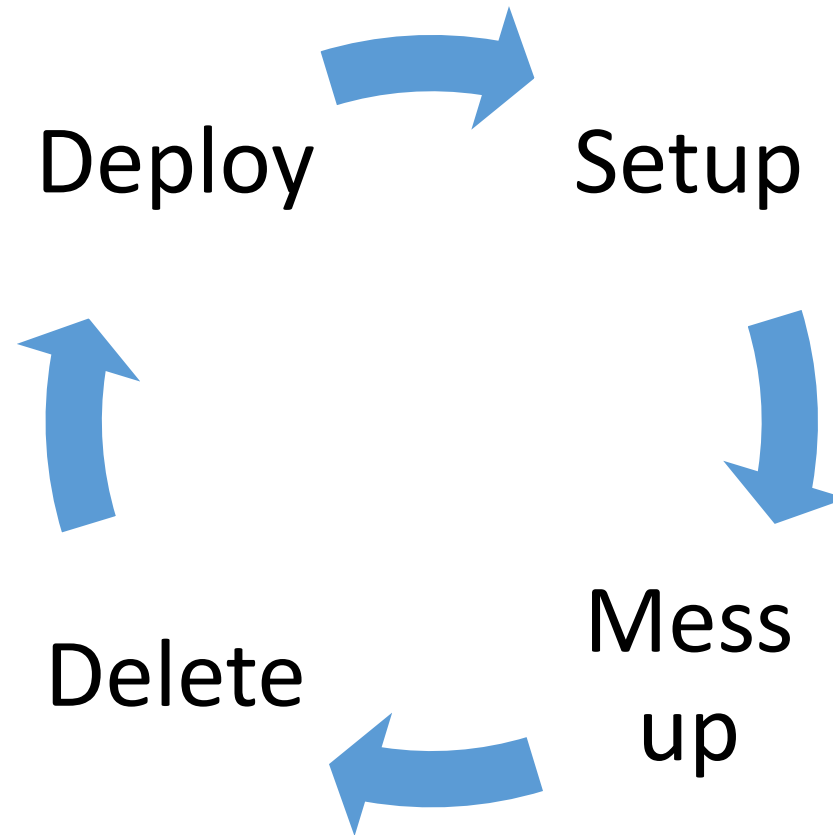
Portal Usage

- VM Creation
- DB Creation

Office 365 Enterprise E3 Demo

Why PowerShell?

Why PowerShell?



Why PowerShell?

Scripting language

Very simple

Extremely powerfull

- Built on .NET
- Access to COM and WMI

Endless possibilities

```
PS C:\> Get-ChildItem -Path C:\
```

```
PS C:\> Get-Service w*
```

Status	Name	DisplayName
-----	----	-----
Stopped	W32Time	Windows Time
Stopped	wbengine	Block Level Backup Engine Service
Stopped	WbioSrv	Windows Biometric Service
Running	Wcmsvc	Windows Connection Manager
Stopped	wcncsvc	Windows Connect Now - Config Registrar
Stopped	WcsPlugInService	Windows Color System
Running	WdiServiceHost	Diagnostic Service Host
Running	WdiSystemHost	Diagnostic System Host
Running	WdNisSvc	Windows Defender Network Inspection...
Stopped	WebClient	WebClient
Stopped	Weccsvc	Windows Event Collector

Why PowerShell?

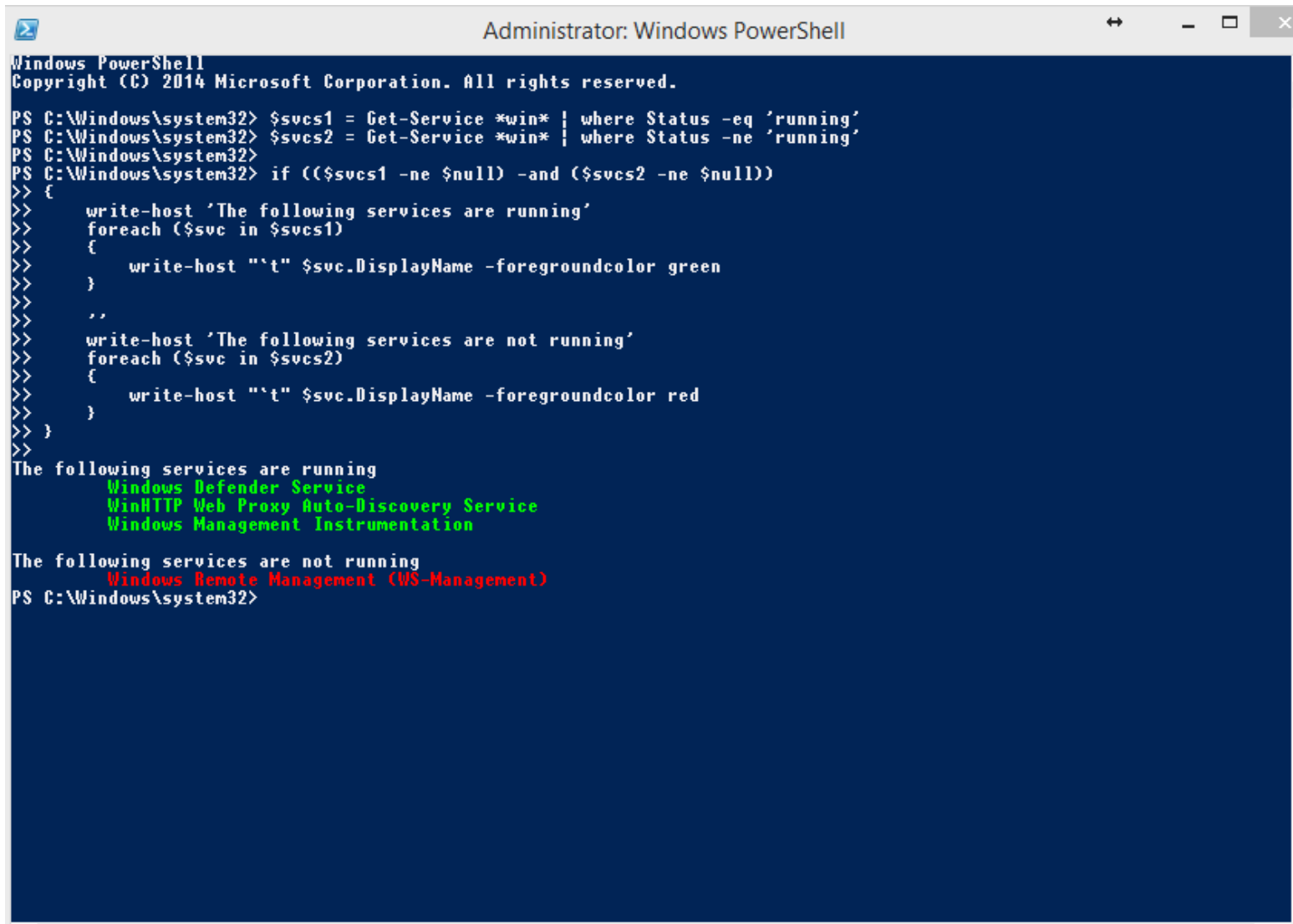
What

- Scripting language
- Extremely powerfull
- Users .NET object models
- Yet very simple to grasp

Purpose

- Enable tasks impossible with a GUI
(However NOT a replacement for a GUI)
- Automate tasks

Why PowerShell?



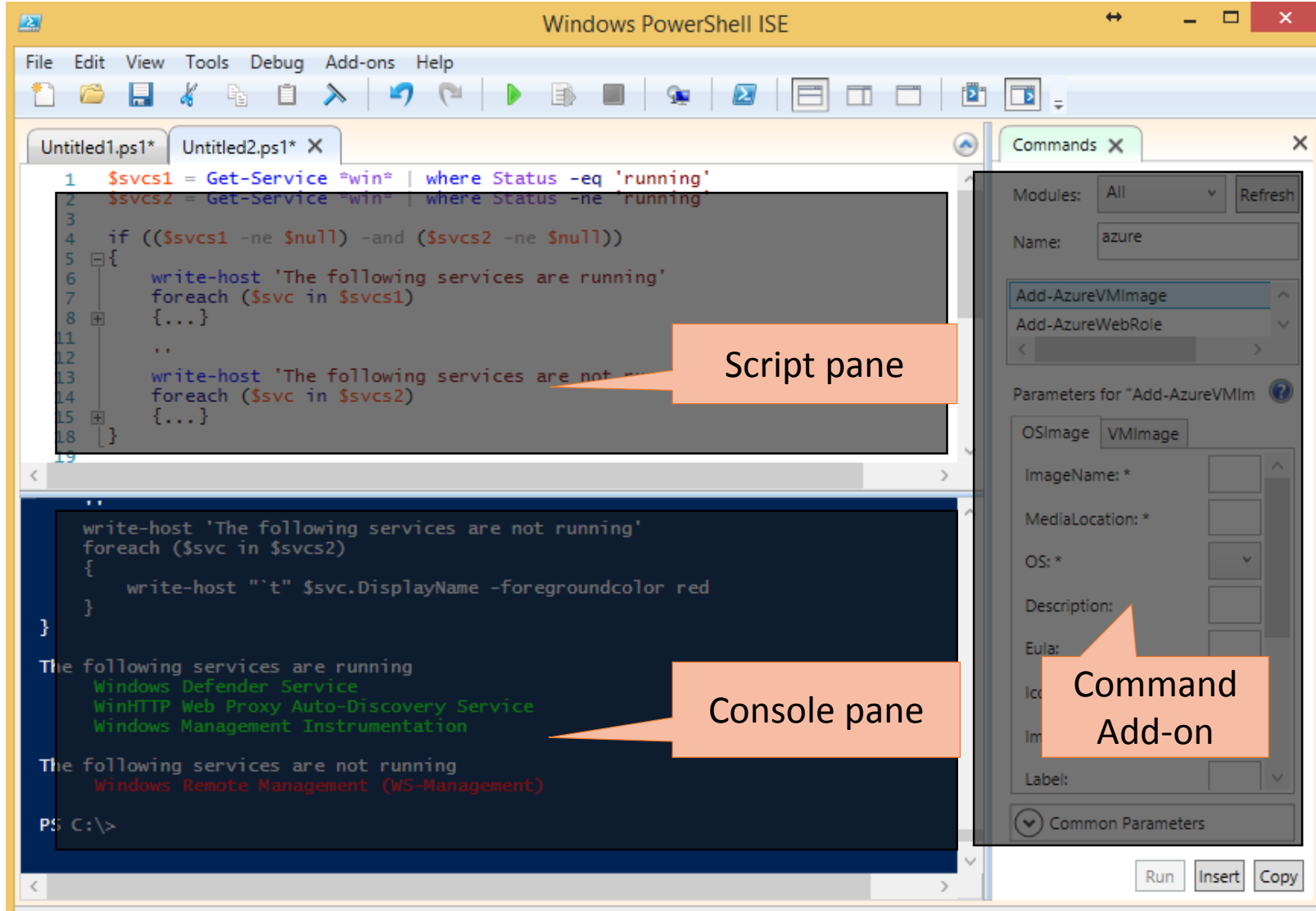
```
Administrator: Windows PowerShell

Windows PowerShell
Copyright (C) 2014 Microsoft Corporation. All rights reserved.

PS C:\Windows\system32> $svcs1 = Get-Service *win* | where Status -eq 'running'
PS C:\Windows\system32> $svcs2 = Get-Service *win* | where Status -ne 'running'
PS C:\Windows\system32>
PS C:\Windows\system32> if (($svcs1 -ne $null) -and ($svcs2 -ne $null))
>> {
>>     write-host 'The following services are running'
>>     foreach ($svc in $svcs1)
>>     {
>>         write-host "`t" $svc.DisplayName -foregroundcolor green
>>     }
>>     ''
>>     write-host 'The following services are not running'
>>     foreach ($svc in $svcs2)
>>     {
>>         write-host "`t" $svc.DisplayName -foregroundcolor red
>>     }
>> }
>>
The following services are running
    Windows Defender Service
    WinHTTP Web Proxy Auto-Discovery Service
    Windows Management Instrumentation

The following services are not running
    Windows Remote Management (WS-Management)
PS C:\Windows\system32>
```

Why PowerShell?



Why PowerShell?

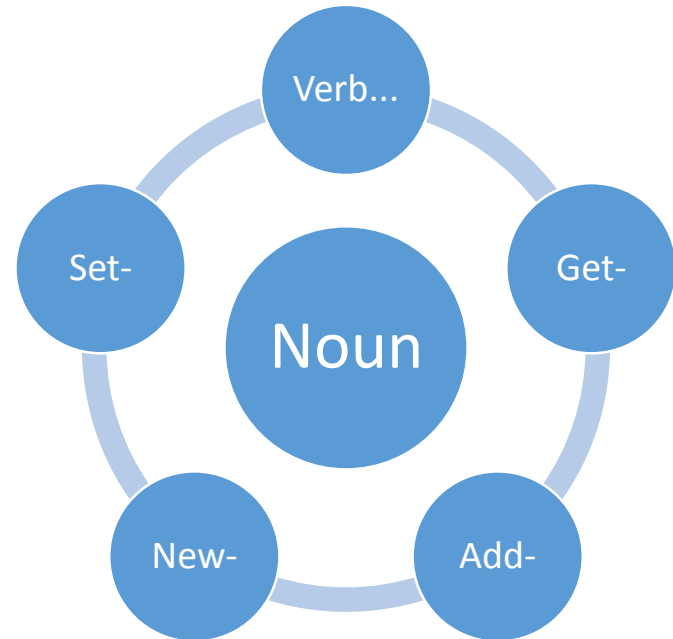
Must know Cmdlets

- Get-Command
- Get-Help

```
PS C:\> Get-Help disk
```

Name	Category	Module
----	-----	-----
Add-PhysicalDisk	Function	Storage
Add-VirtualDiskToMaskingSet	Function	Storage
Clear-Disk	Function	Storage
Connect-VirtualDisk	Function	Storage
Disable-PhysicalDiskIndication	Function	Storage

Remember the pattern



More info

- See slide with external resources

Demo

Where can this magic happen?

Get-Command

Get-Help

Making it all work for you

Making it all work for you

1. Sign up for Azure
2. Install Azure PowerShell
3. Install extra modules
 1. MSOnline
 2. SharePoint Online
4. Reboot!
5. Start scripting

DEMO

Create SQL Database using PowerShell

Deploy database to cloud using SSMS

Making it all work for you

The Power in PowerShell

Connect

- Set-AzureSubscription
- Select-AzureSubscription
- New-AzureSqlDatabaseServerContext

Create

- New-AzureSqlDatabaseServer
- New-AzureSqlDatabaseServerFirewallRule
- New-AzureSqlDatabase

Resources

Resources

Microsoft Virtual Academy

- Azure
 - [Get Started with Windows Azure Today Jump Start](#)
 - [Establish Microsoft Azure IaaS Technical Fundamentals](#)
 - [Microsoft Azure IaaS Deep Dive Jump Start](#)
- PowerShell
 - [Getting Started with PowerShell 3.0 Jump Start](#)

TechNet

Powershell.org

QUESTIONS?

