

An abstract graphic on the left side of the slide. It features a blue silhouette of a person in a climbing pose, with arms and legs extended. The person is surrounded by several thick, curved lines in shades of blue and green, which resemble ropes or data cables. The lines are dynamic, with some looping around the figure and others extending towards the right.

Cloud Trends

„Microsoft IT Professional“ Edition



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Everything goes CLOUD

Are ITPros still needed?

Git, GitHub, TFS

Automation kills jobs

C#, Ruby, Python, .NET Core

It's all about DEVELOPERS

LINUX & Open Source

Machine Learning

Shadow IT

Docker

The business is bypassing IT

Source Control & Versioning

Far too high release cadence

Are you afraid of the future?



Windows Server



History

- New version released approx. every 2-4 years
 - 2003, 2008, 2008 R2, 2012, 2012 R2, 2016
- Is that still sufficient in today's world?
 - We need new features at cloud speed
 - For cloud/modern features





Windows As A Service

- Today you can choose how to service your Windows OS



Long-time Servicing
Channel (LTSC)



Semi-Annual
Channel





Long-Time Servicing Channel



Long-time Servicing
Channel (LTSC)

- Major version of Windows Server
 - This is what we had with Windows Server 2012, 2016 etc.
 - Current version: "Windows Server 2016"
- 5 years of mainstream support, 5 years of extended support
- Cumulative updates available monthly (no change)





Semi-Annual Channel



Semi-Annual
Channel

- Delivers new functionality to the OS at cloud cadence
 - **Current version "Windows Server, Version 1709"**
- No more waiting for important functionality updates
- New releases available twice a year (spring and fall)
- Support 18 months from initial release
 - **No upgrade possible → Re-Install!**
- Cumulative updates available monthly (no change)





Make Your Decision

- Use LTSC for legacy app servers
 - System Center, legacy LOB apps
 - Server with GUI
 - Server Core
- Use SAC for modern workloads
 - Hyper-V, container hosts or container images
 - Server Core
 - Nano Server (container images)



| | SAC (Windows Server, Version x) | LTSC (Windows Server 2016) |
|---|--|----------------------------------|
| Nano Server (container only) | Yes | No |
| Server Core | Yes | Yes |
| Server with Desktop Experience (GUI) | No | Yes |



Linux & Open Source



Times Are Changing



“Linux is a cancer that
attaches itself in an
intellectual property sense to
everything it touches”

Steve Ballmer, Microsoft CEO





Times Are Changing



“Microsoft loves Linux”

Satya Nadella, Microsoft CEO





Microsoft & Linux

Linux runs on Windows

Windows Subsystem for Linux, WSL (Bash)

Linux Containers on Windows

Linux Shielded VMs

Etc.

Microsoft Apps run on Linux

.NET Core

PowerShell incl. DSC

SQL Server

Skype client

Visual Studio Code

SCOM agent

OMS agent

Etc.

Microsoft services run on Linux

LinkedIn

Skype

HDInsight

Office 365

Etc.

Azure Features for Linux

Azure Container Service

Azure Virtual Machines

Azure Recovery Services

Azure Management

Azure Log Analytics

Etc.



Demo

Microsoft & Linux





Containers



Apps Have Changed

| 5+ years back | Today+ |
|--|--|
| Long lived | Development is iterative and constant |
| Monolithic and built on a single stack | Built from loosely coupled components (Microservices) |
| Deployed to a single server | Deployed to a multitude of servers and cloud platforms |



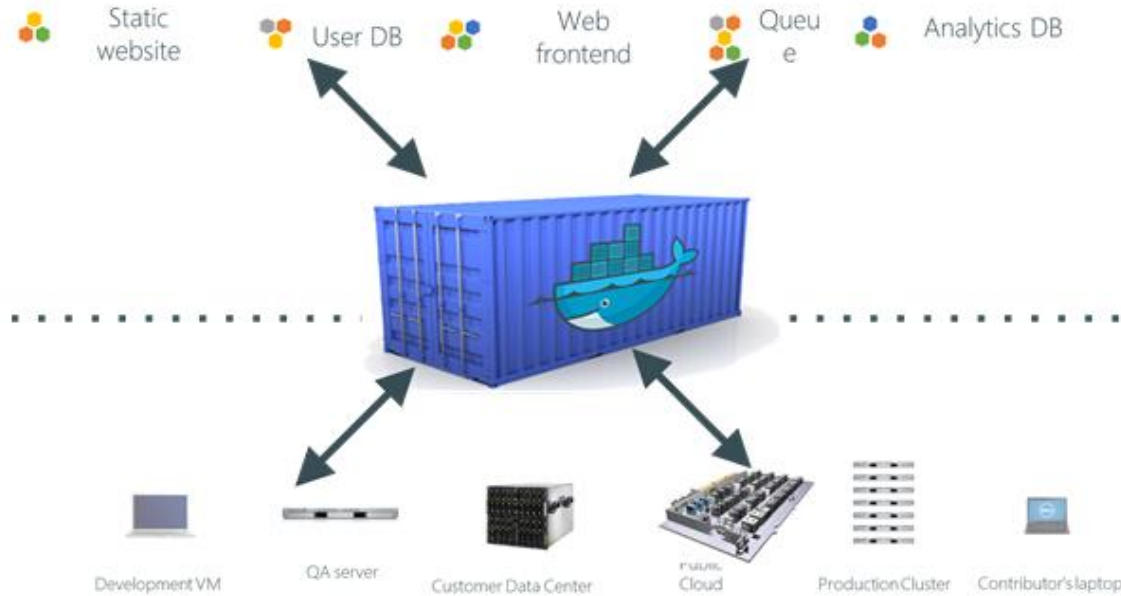
Apps Have Changed



Multiplicity of
components and
services

Multiplicity of
environments

Containerized Apps



Container to encapsulate any workload and can be executed in virtually any environment



Docker

- Windows containers & Docker
 - Windows containers is a Windows Server 2016 role
 - Docker is a management platform for containers
 - Windows containers are managed with Docker
 - Windows Containers
 - Hyper-V Containers → Isolated

Application



Container Runtime










Container Services On Azure

- Azure Container Instance
- Azure Container Services
 - Docker Swarm, Kubernetes, DC/OS
- Azure Container Registry



| NAME | PUBLISHER |
|---|-----------------------|
|  Docker for Azure CE VM | Docker, Inc. |
|  Docker EE for Azure (Basic) - [17.06] | Docker, Inc. |
|  Docker on Ubuntu Server | Canonical + Microsoft |
|  Docker EE for Azure (Standard/Advanced) - [17.06] | Docker, Inc. |
|  Docker EE for Azure (Standard/Advanced) - [17.03] | Docker, Inc. |



Demo Containers

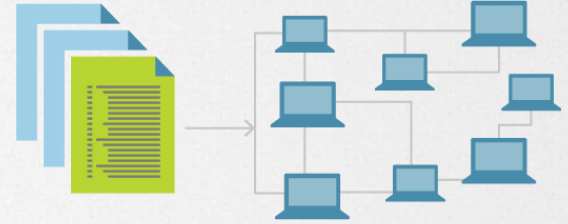




Infrastructure As Code



Infrastructure As Code



- Infrastructure deployment as code
- Fully automate deployment of servers and application components
 - Declarative approach
 - Simple testing, portability, re-deployment etc.
- Full lifecycle management
 - Deploy, document and update





Microsoft Offerings

- Azure Resource Manager
 - Describe how Azure resources are deployed
 - Azure and Azure Stack
- Desired State Configuration
 - Describe configuration of servers (Windows, Linux)
- Containers
 - Describe how container images are built
 - Describe how complex container apps are deployed





Demo

Infrastructure As Code

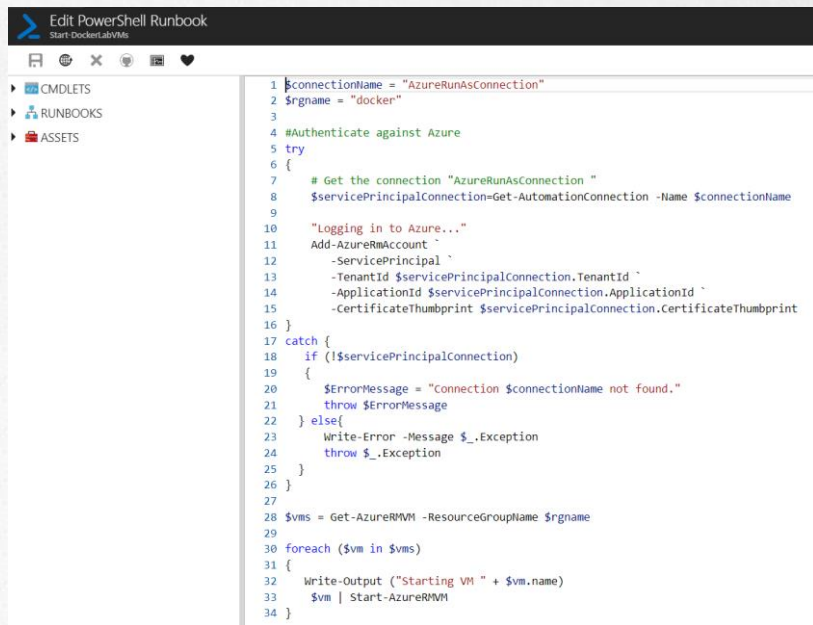




Automation

Azure Automation

- Runbooks to orchestrate complex processes
- PowerShell scripts/workflows, graphical or Python
- Central assets store
- Hybrid worker for on-premise execution
 - Windows & Linux hybrid workers



The screenshot displays the 'Edit PowerShell Runbook' interface in the Azure portal. The left sidebar contains navigation links for 'CMDLETS', 'RUNBOOKS', and 'ASSETS'. The main area shows a PowerShell script for authenticating and running a runbook. The script includes comments and error handling.

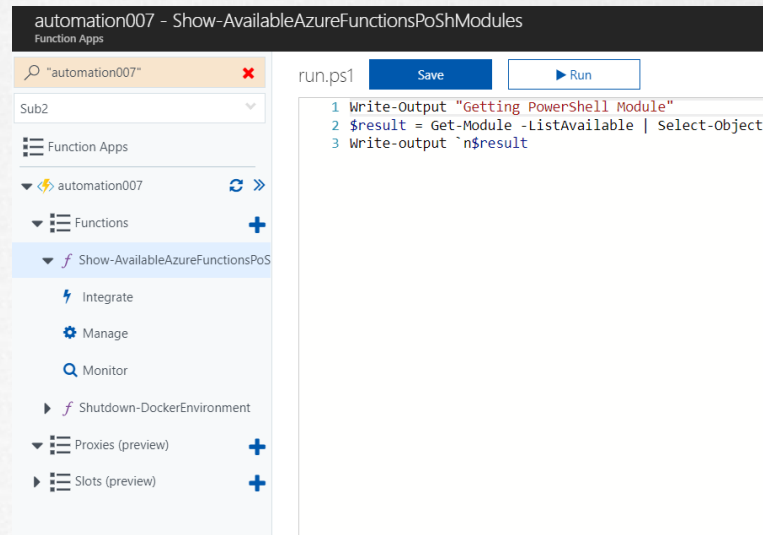
```
1 $connectionName = "AzureRunAsConnection"
2 $rgname = "docker"
3
4 #Authenticate against Azure
5 try
6 {
7     # Get the connection "AzureRunAsConnection "
8     $servicePrincipalConnection=Get-AutomationConnection -Name $connectionName
9
10    "Logging in to Azure..."
11    Add-AzureRmAccount `
12        -ServicePrincipal `
13        -TenantId $servicePrincipalConnection.TenantId `
14        -ApplicationId $servicePrincipalConnection.ApplicationId `
15        -CertificateThumbprint $servicePrincipalConnection.CertificateThumbprint
16 }
17 catch {
18     if (!$servicePrincipalConnection)
19     {
20         $errorMessage = "Connection $connectionName not found."
21         throw $errorMessage
22     } else{
23         Write-Error -Message $_.Exception
24         throw $_.Exception
25     }
26 }
27
28 $vms = Get-AzureRmVM -ResourceGroupName $rgname
29
30 foreach ($vm in $vms)
31 {
32     Write-Output ("Starting VM " + $vm.name)
33     $vm | Start-AzureRmVM
34 }
```





Azure Functions

- Functions as a Service
- Flexible choice of language (PowerShell, C#, Ruby etc.)
- To run small pieces of code in the cloud
- Function runtime is open-source





Azure Logic Apps

- Easy workflow generation with triggers and actions
- Connects apps, services and data
 - Lots of connectors
- Graphical workflow designer



When a resource event occurs (Preview)

| | |
|-----------------|------------------------------------|
| * Subscription | Sub2 |
| * Resource Type | Microsoft.Resources.resourceGroups |
| * Resource Name | docker |

Show advanced options

Connected to live.com#zehner@itnetx.ch. [Change connection.](#)

Send an email

New Event from Logic App (marcelzehner.ch)

| | |
|-----------|---|
| * Body | <div>Event Type x</div> <div>Event Time x</div> <div>ID x</div> |
| * Subject | Subject x |
| * To | zehner@itnetx.ch |

Show advanced options

Connected to marcel.zehner@itnetx.ch. [Change connection.](#)

+ New step

SCM: Git in 1 Minute

- Open Source SCM
- Files live in repositories
 - Different states
 - Untracked
 - Tracked → Modified, Unmodified, Committed
 - Supports branching
 - Master, Dev etc.
 - Branch merging
 - Always use Dev, merge into Master
- Can run on your desktop (standalone, integrated in tools)





Release Pipeline



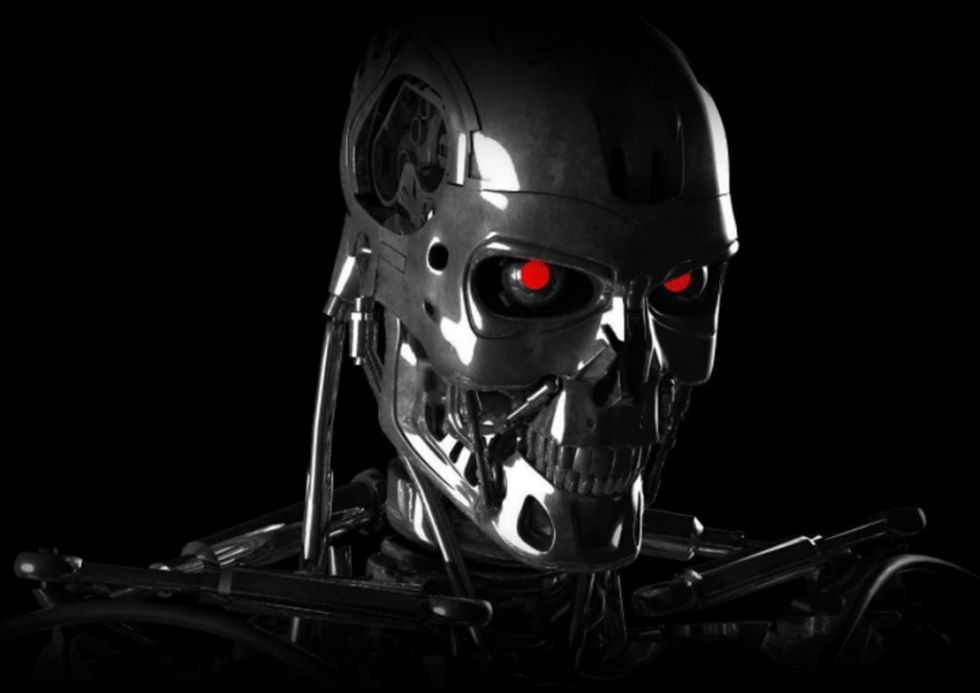
- Use a staged deployment process
 - Deploy artifacts automatically to different environments
 - Test deployed components automatically
 - Follows a pre-defined process
- Continuous Integration/Deployment (CI/CD)
 - Microsoft Visual Studio Team Services (VSTS)
 - Others available (non-Microsoft)





Demo Release Pipelines





Conclusion



Conclusion

- Adapt new technologies and platforms
 - Cloud solutions
 - Azure & Azure Stack
 - Prefer SaaS, Paas and Serverless over IaaS
 - Microsoft and non-Microsoft solutions
- Become agile
 - More releases of your IT Pro artifacts
 - Use SCM, Release Pipelines etc.
 - Use Infrastructure as Code
 - Automate where possible





Conclusion

- No need to fear anything, but prepare for a change!
 - Adopt developer's patterns
 - Be open for new concepts and approaches
 - Give up old habits
- Focus on where you can bring real value to your business and customers – get the rest from the somewhere else!



An abstract graphic on the left side of the slide. It features a blue silhouette of a person climbing a rope. The rope is represented by several thick, curved lines in shades of blue and green. The person is positioned on the left, with their arms and legs extended as if climbing. The background is a light gray.

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