MVP Dagen 2018

Norske MVPer på farten igjen

http://mvpdagen.no

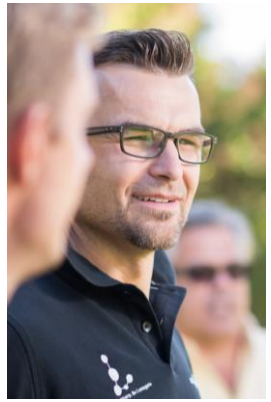
#MVPdagen

MODERN ADMINISTRATION WITH MICROSOFT AZURE, WINDOWS ADMIN CENTER AND AZURE AD

MORGAN SIMONSEN

#adminsneedlovetoo

INNOFACTOR®



Microsoft® MVP Most Valuable Professional

About Your Speaker: Morgan Simonsen

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AGENDA

- Administration patterns in a cloud world
- Windows Admin Center
- Cloud resources administration
- Modern server deployment and management

Bonus: Lots of book tips…

ADMINISTRATION PATTERNS IN A CLOUD WORLD

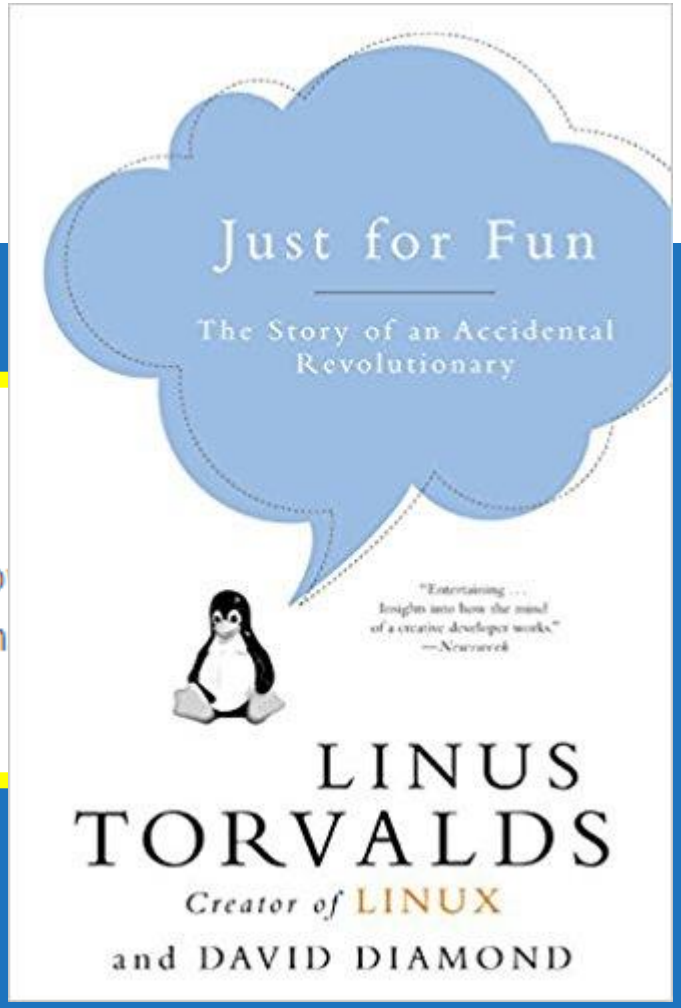
OPEN SOURCE

- The Internet runs on open source

Consistent Tool Availability

To ensure the best command-line tools experience while using Azure Cloud Shell, the Po
switching to a Linux container running PowerShell Core 6. This change will enable a con
across the PowerShell and Bash experiences in Cloud Shell.

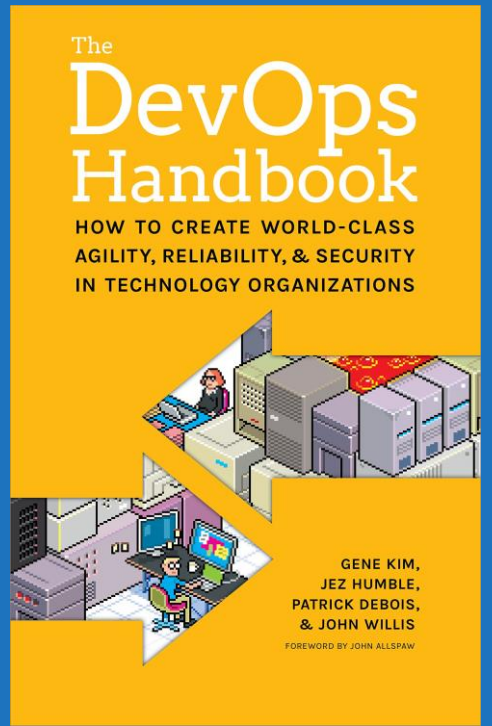
- Windows Subsystem for Linux
  - Windows port of Docker, including LCOW (Linux containers on Windows)
  - Azure Services (Morgan's unofficial poll…)
- Microsoft now is fully a "services company"



Microsoft ♥ OpenSource

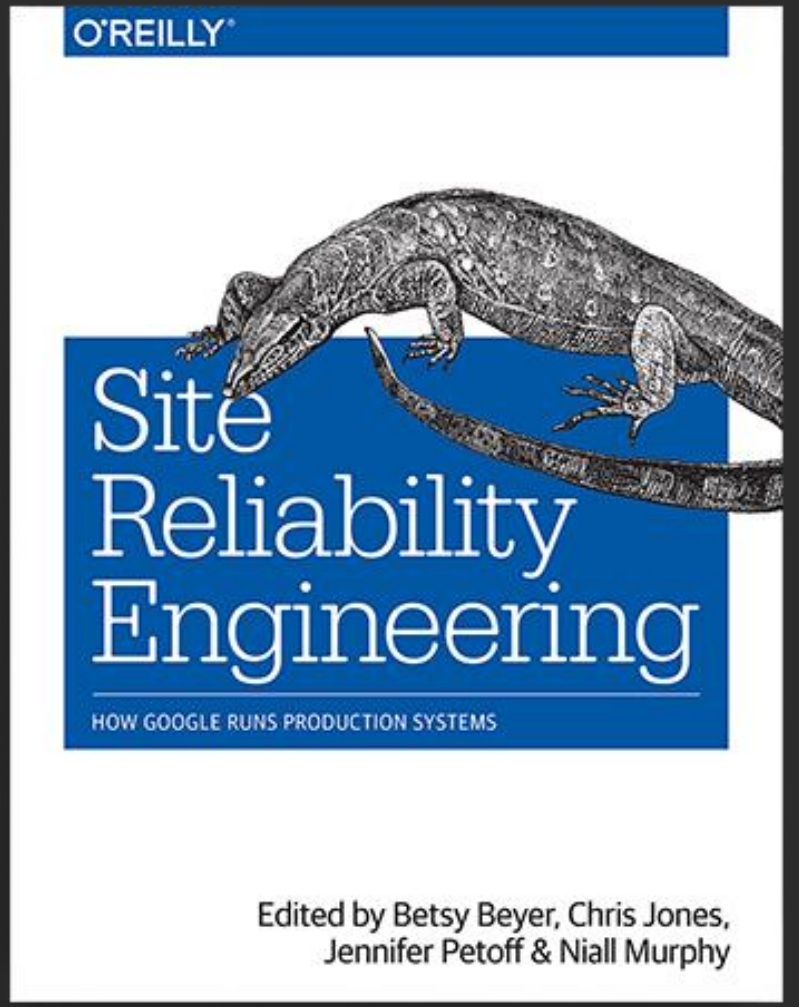
DEVELOPERS AND DEVOPS

- The DevOps revolution continues
- Ballmer was right!
- Infrastructure-as-code
- Ways of working



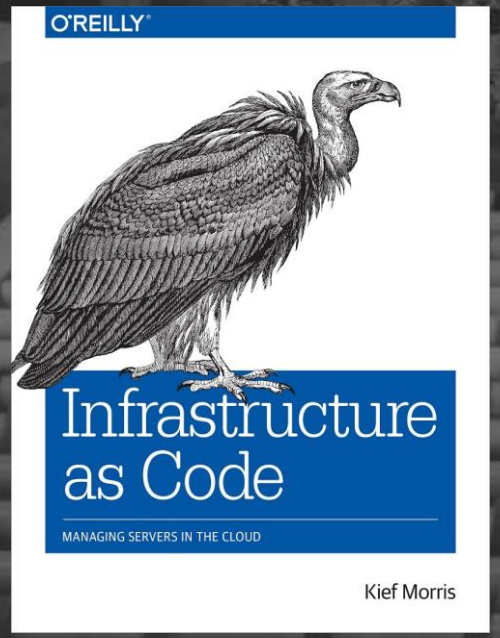
SITE RELIABILITY ENGINEERING

- Applying development skills and ways-of-working to operations tasks
- Spearheaded by Google
- Developers perform operations; writing code to solve tasks and challenges
- Automation
- Understands software development
- No hand-offs (which reduce quality)
- Feedback to development teams
- https://landing.google.com/sre/



AUTOMATION AND TOOLS

- Deployment Pipelines
  - Continuous Integration
  - Continuous Deployment
- Automation

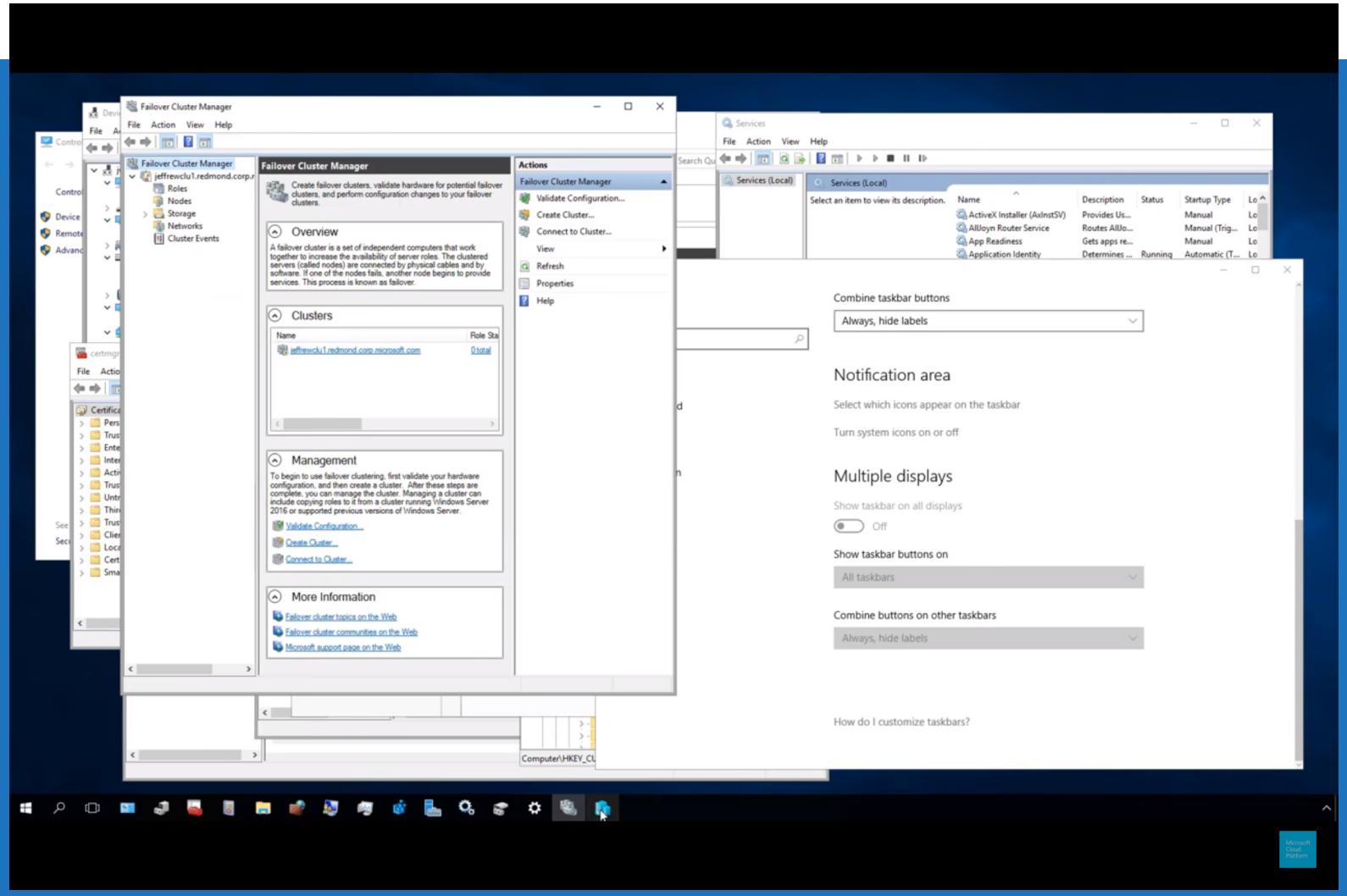


- Code management and version control:
  - Git
  - GitHub
  - BitBucket
  - GitLab
- Infrastructure-as-code authoring
  - VS Code
  - Atom
  - VI(?)
- Deployments:
  - Ansible
  - Terraform
  - Saltstack
  - VSTS
  - TeamCity
  - Octopus deploy

WINDOWS ADMIN CENTER (WAC)

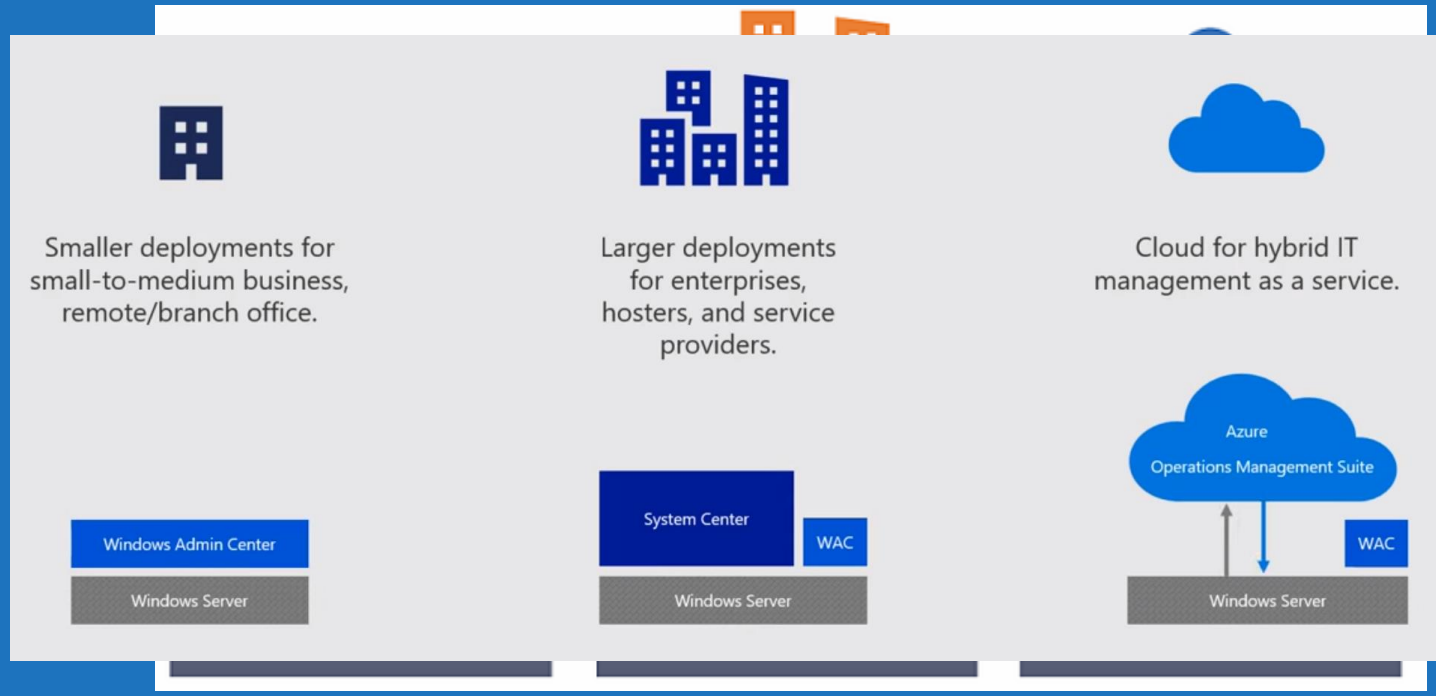
REMOTE MANAGEMENT TODAY

- Large number of tools without unification



INTRODUCING WINDOWS ADMIN CENTER (WAC)

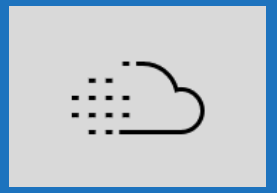
- WAC is a new locally-deployed, browser-based management tool set
- No Azure or cloud dependency
- Modern evolution of "in-box" management tools, like Server Manager and MMC
- Complements SC and OMS – not a replacement
- Free! No cost beyond Windows



INTRODUCING WINDOWS ADMIN CENTER (WAC)

Simple & lightweight
Familiar tools are streamlined to make management tasks a breeze. Install in under 5 minutes and manage servers in your environment immediately, no target configuration required.

Built for the future
Integration with Azure services helps you leverage the power of the hybrid world. Manage Hyper-Converged clusters with powerful yet simple tools.



Secure management
Control who can manage servers and get insight into the actions administrators perform in your environment.

INTRODUCING WINDOWS ADMIN CENTER (WAC)

- Manages (targets):
  - Windows Server 2012, 2012 R2, 2016, 2019*
  - Windows Server 2012, 2012 R2, 2016, 2019 Clusters
  - Hyper-converged infrastructure
  - Windows 10
- Runs on:
  - Windows Server 2016 (gateway)
  - Windows Server 1709 (gateway)
  - Windows 10 (desktop)

DEPLOY WAC VM IN AZURE WITH ANSIBLE AND AZURE CLOUD SHELL

ARCHITECTURE

- Gateway server
- Web (HTLM5 portal) that we publish
- Supported Operating Systems for Installation:

Version	Installation Mode
Windows 10 (1709)	Desktop mode (SmeDesktop.exe Interactive)
Windows Server, version 1709	Gateway mode (sme.exe Windows Service)
Windows Server 2016	Gateway mode (sme.exe Windows Service)

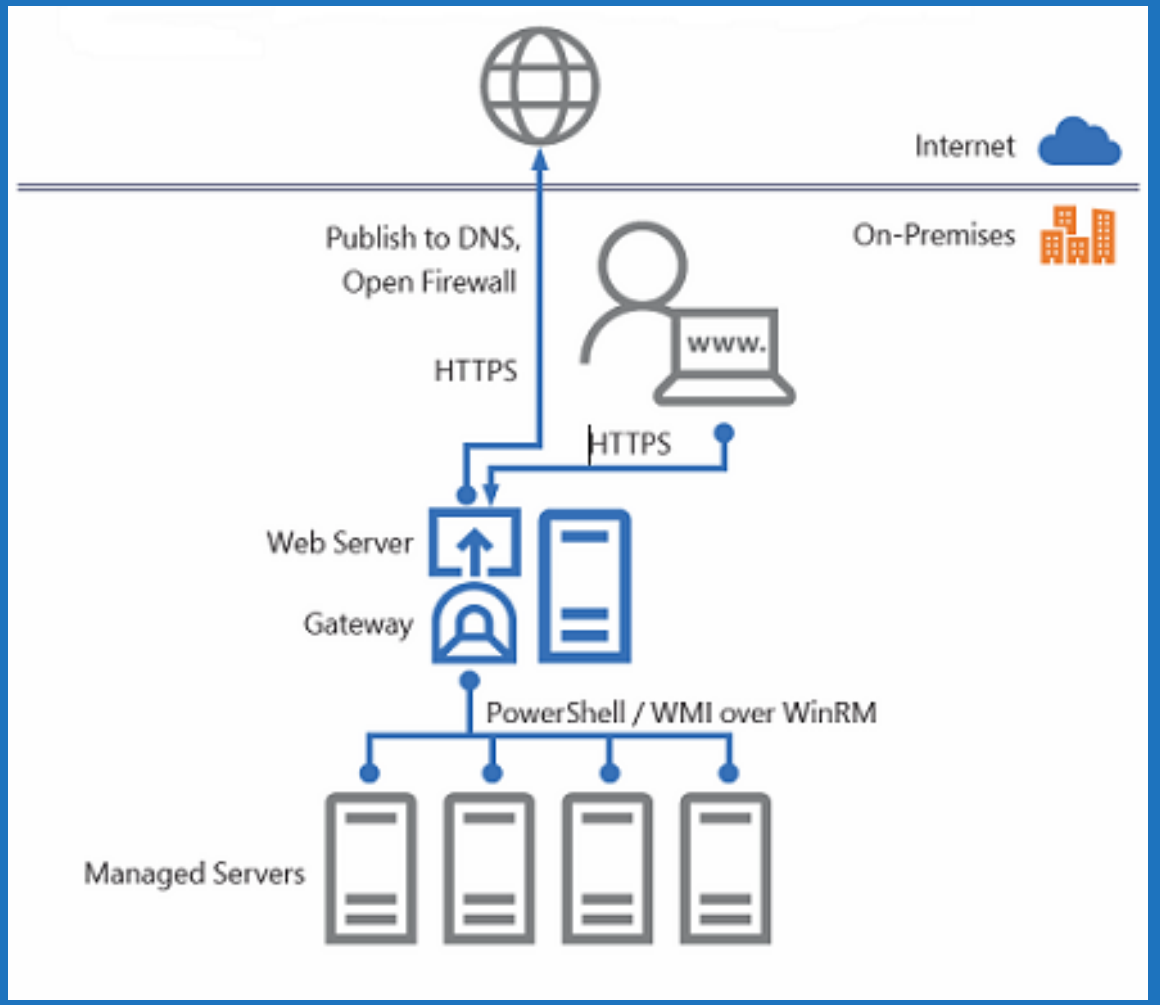
ARCHITECTURE

- Supported Operating Systems for Management (targets):

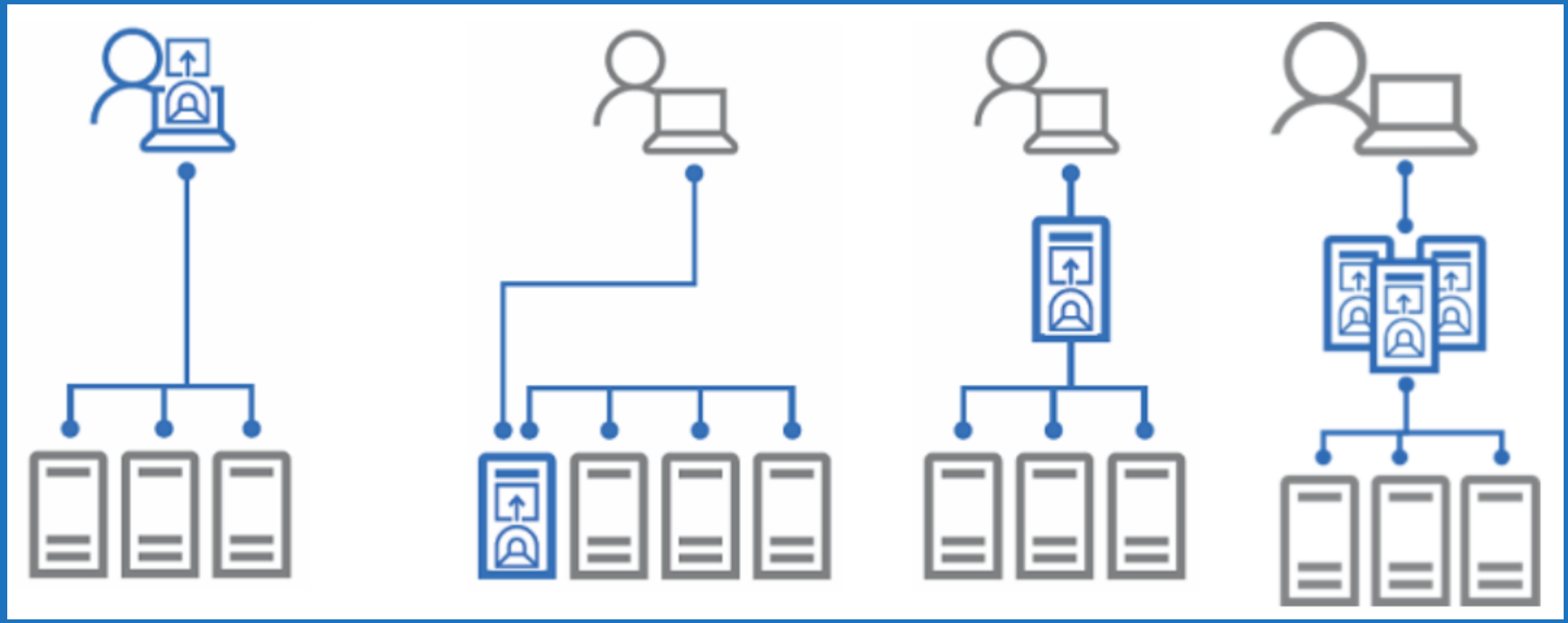
Version	Managed node via Server Manager	Managed cluster via Failover Cluster Mgr	Managed HCI cluster via HCI Cluster Mgr (preview)
Windows 10 Fall Creators Update (1709) or newer	Yes (via Computer Management)	N/A	N/A
Windows Server 2019 (insider builds)	Yes	Yes	Yes
Windows Server, version 1709	Yes	Yes	No
Windows Server 2016	Yes	Yes	Yes, with latest cumulative update
Windows Server 2012 R2	Yes	Yes	N/A
Windows Server 2012	Yes	Yes	N/A

DEPLOYMENT TOPOLOGIES

- Single, scriptable MSI
- Local install (on your client)
- Single server
- Highly Available on Failover Cluster (active/passive)
- **Desktop Mode**: https://localhost:6516
- **Gateway Mode**: https://servername



DEPLOYMENT OPTIONS



Windows 10

Managed Server

Dedicated gateway server

Failover Cluster

CONNECTION SECURITY

- WAC uses remote PowerShell and WMI over WinRM (http) to manage other machines
- Credentials:

Scenario	Setup
Domain; domain credentials	SSO
Domain; local admin credentials	Edit TrustedHosts
Workgroup	Edit TrustedHosts

ACCESS CONTROL

Gateway Access:

- Gateway users
- Gateway administrators
  - Local administrators on the gateway machine are always administrators of the Windows Admin Center gateway service

Target Access:

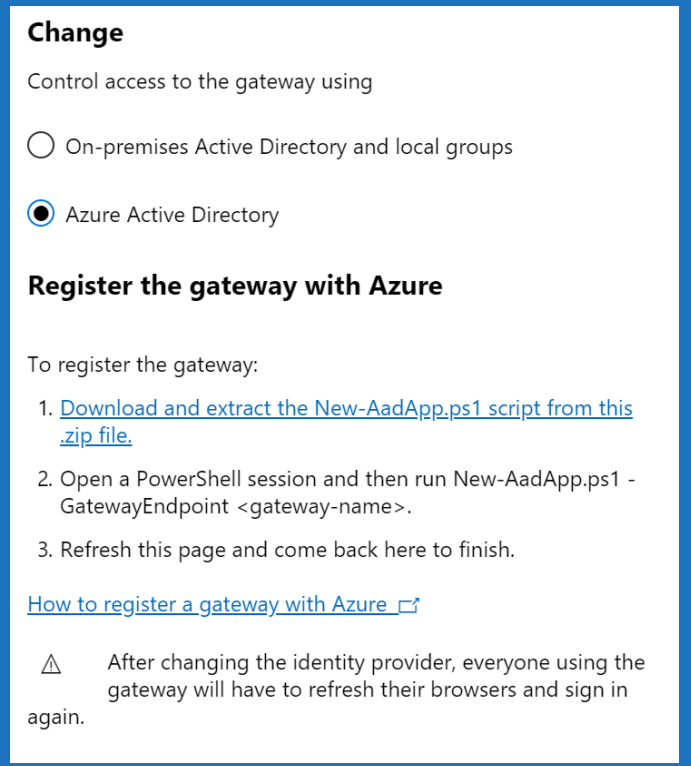
- Login credentials
- WAC **Manage As** credentials
- WAC RBAC using PowerShell JEA endpoints on targets

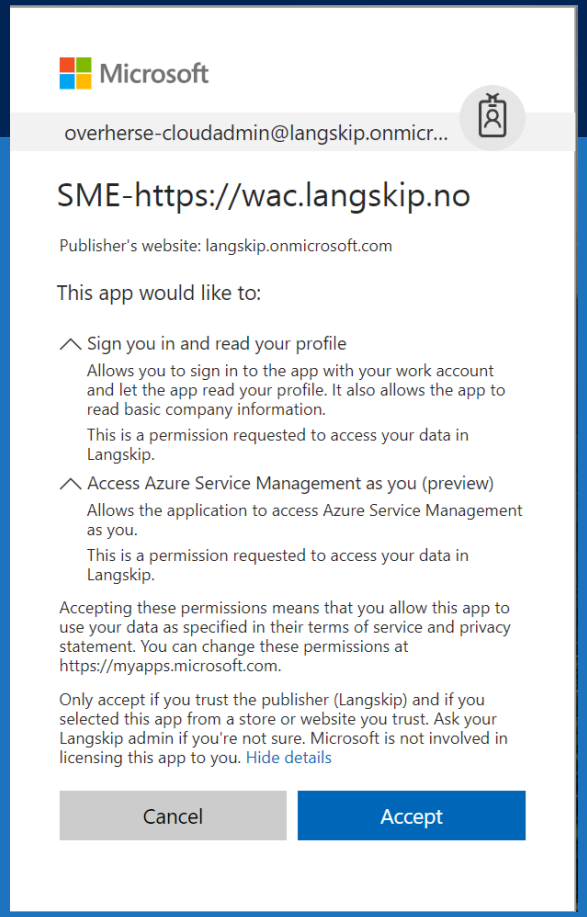
WAC AZURE INTEGRATIONS

- Integration with Azure AD
  - Multi-factor Authentication (MFA)
  - Identity Protection
- Azure Site Recovery
  - Protect Hyper-V VMs running on targets

```
PS C:\Users\morga\git\morgansimonsen\MVPDagen2018\wac\WindowsAdminCenterAzureConnectScript-1804-4> .\New-AadApp.ps1 -Ga
tewayEndpoint "https://wac.langskip.no" -Credential (Get-Credential)

cmdlet Get-Credential at command pipeline position 1
Supply values for the following parameters:
Credential
Creating AAD Application SME-https://wac.langskip.no ...
Successfully created AAD Application SME-https://wac.langskip.no
AadClientId: e1d26789-d4db-4440-9873-4f531902f1cd
AadTenantId: 8fec7cb8-30e7-4d8a-98ae-6e64853af4a3
```





MISCELLANEOUS

- Extensibility
  - WAC has its own SDK
- Audit management actions on target servers with Windows Event Log:
  - Microsoft-ServerManagementExperience
    - EventID 4000
    - Source SMEGateway
- .NET Framework 4.7.2 is required on gateway
  "Windows PowerShell terminated with the following error: The type initializer for System.Management.Automation.Tracing.PSEtwLog' threw an exception."
  - https://docs.microsoft.com/en-us/dotnet/framework/install/on-windows-10
- Windows Management Framework 5.1 required on targets
- WebSockets in Google Chrome do not work
  - Events, PowerShell, Remote Desktop do not work

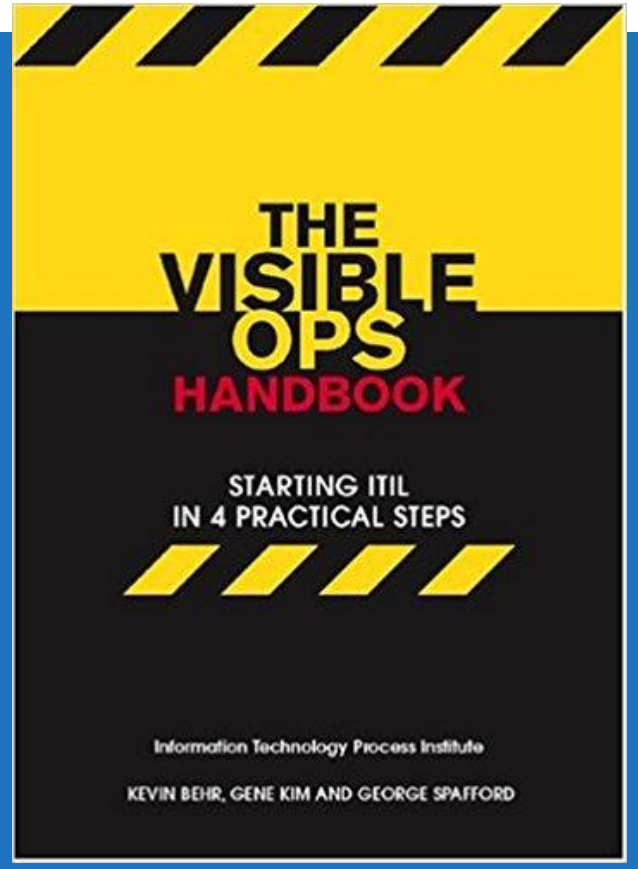
SERVER MANAGEMENT

PETS VS. CATTLE

- No one-off server management
- Cloud Service Provider Management Plane should be your primary tool!
  - GUI: Portal
  - CLI: PowerShell/bash/CLI
  - API: REST
- No keyboard, don't log into servers
- Don't troubleshoot; kill and respawn
- Stateless servers/instances
- State in database or storage (SA, Azure DB)
- Always deploy behind a Load Balancer

IMMUTABLE SERVERS

- Changes in production are bad
- Traditional Server Configuration Management causes server entropy to grow
- Snowflake servers vs. immutable servers
- HashiCorp Packer
  - Written in GO, single executable, compiles on all architectures from one source
- Rollbacks: switch back to previously running instance through LB/DNS. (Green/Blue, A/B deployments)



PACKER 101

- Single cross-platform binary coded in Go
- Simultaneous multi-cloud image creation
- JSON file with image details
  - Builders
  - Provisioners
- Azure: VHD or Managed Disk Image
- AWS: AMI

HashiCorp

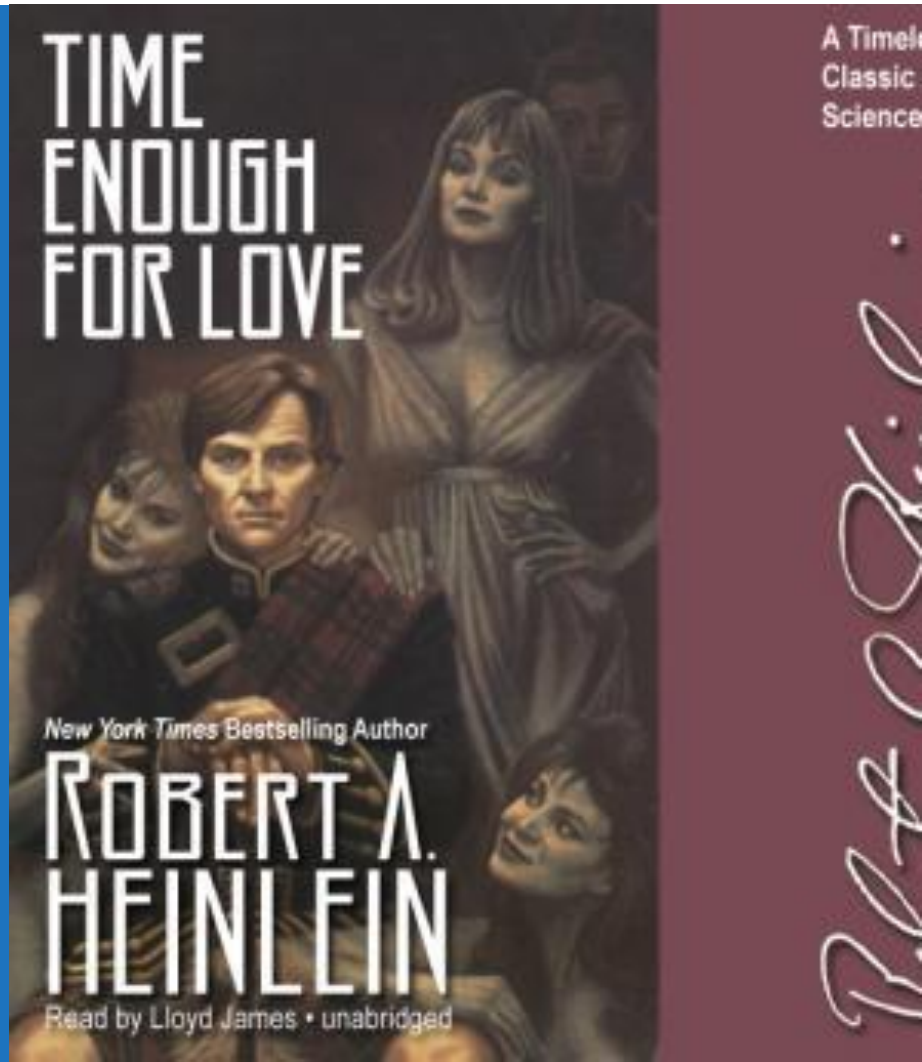
Packer

PACKER DEMO

Q & A

MORE INFORMATION

- WAC: https://docs.microsoft.com/en-us/windows-server/manage/windows-admin-center/overview
- WAC Download: https://aka.ms/WACDownload
- Packer: https://www.packer.io/
- WSL: https://docs.microsoft.com/en-us/windows/wsl/about
- Bttn: https://bt.tn/



The Story of the Man Who Was Too Lazy to Fail
a study in "constructive laziness"

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Tusen Takk for oss!

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Microsoft

http://mvpdagen.no

WAC Settings

- Web: C:\ProgramData\Server Management Experience
- Binaries: C:\Program Files\Windows Admin Center
- Registry:
  - HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\ServerManagementGateway
  - HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ServerManagementGateway
- Database: C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\Microsoft\ServerManagementExperience