

Nano Server und Container mit PowerShell



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Head of Products

AppSphere AG

Technical Summit 2016

connecting.technologies.

#msts2016 

Agenda

Kurzes Intro

Nested Hyper-V und PowerShell Direct

Nano Server 2016

Windows Server 2016 Container / Docker

Kurzes Intro

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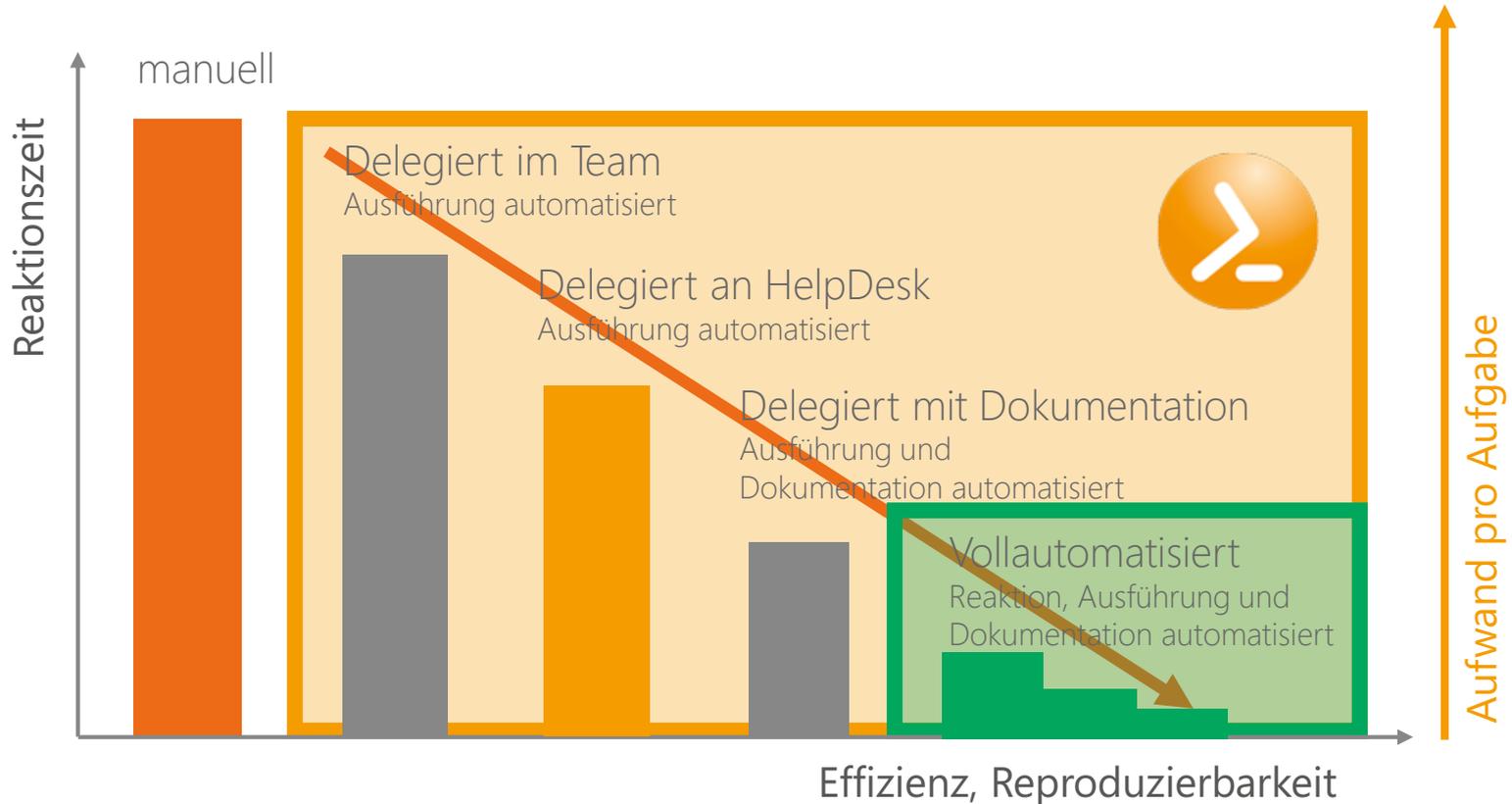
www.scriptrunner.com

Reaktionszeit ↓

Aufwand ↓

Effizienz ↑

Sicherheit ↑



- › Produktivität
- › Effizienz
- › Ressource-Sharing



Wie kann ich schnell
mit PowerShell
automatisieren?



Wie kann ich mit
PowerShell
sicher delegieren?

- › Reproduzierbarkeit
- › Sicherheit
- › Nachvollziehbarkeit



Wie kann ich Risiken
mit PowerShell
vermeiden?



Wie kann ich
nachvollziehen,
was passiert ist ?

- › Zusammenarbeit
- › Rollen, Verantw.
- › Skills, Erfahrungen



Wie können wir
PowerShell im Team
gemeinsam nutzen?



Wie können wir
Skripte optimal
entwickeln?

PowerShell ist die Antwort von Microsoft auf die komplexen Herausforderungen für Management und Automatisierung in Private, Hybrid und Public Cloud.



ScriptRunner ist die Antwort auf die neuen Herausforderungen mit PowerShell.

Mit **ScriptRunner** automatisieren und delegieren Sie schnell und einfach ab dem ersten Skript - hohe Sicherheit und transparente Nachvollziehbarkeit inklusive.

ScriptRunner bringt alles mit, was für den professionellen Einsatz von PowerShell im Team benötigt wird, ohne zusätzlichen Projektaufwand.

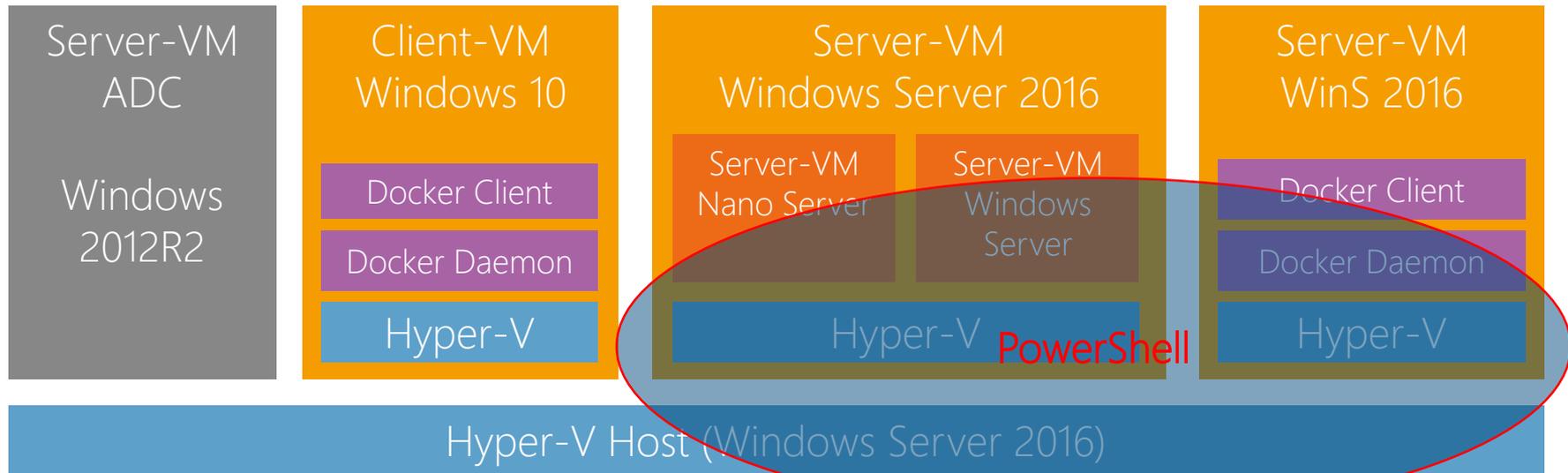
Demoumgebung

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Nested Hyper-V & Container Infrastructure

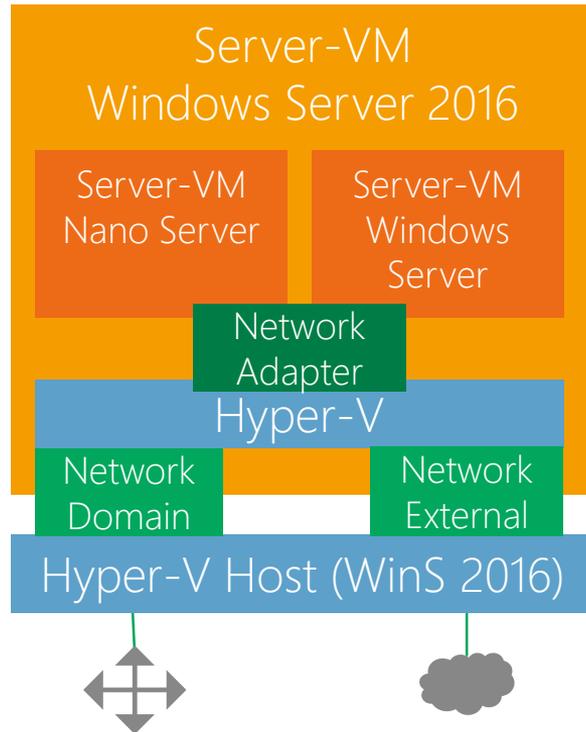


Nested Hyper-V

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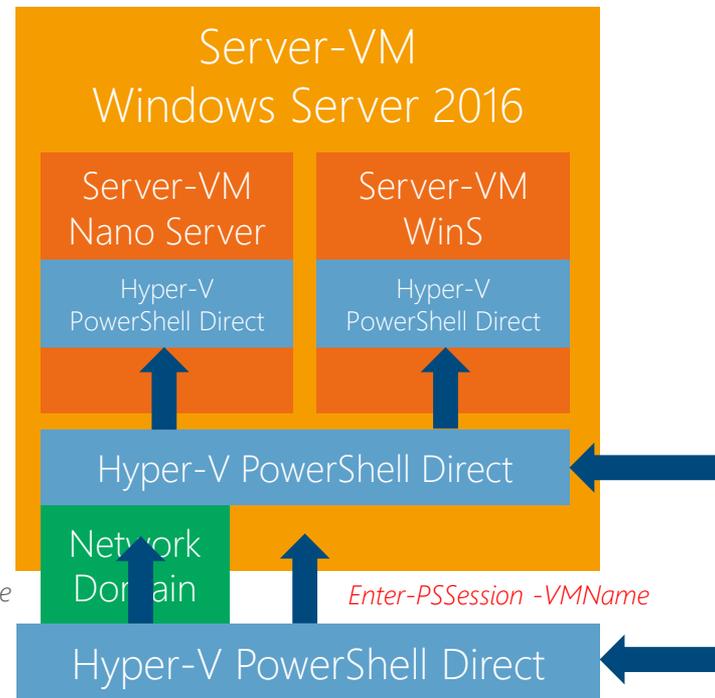
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- Standard & Data Center Edition (Lizensierung)
- mind. 2 virtuelle CPUs für die VM auf dem Basis-Hyper notwendig
- Enabling der VM für Nested Hyper-V
 - CPU
 - Network
- Hyper-V Rolle auf der VM einrichten
- Storage für Hyper-V einrichten
- VMs erstellen, einrichten

- › Management über Hyper-V (Bridging-Funktion)
 - › Adressierung der VM, nicht des Computernamens
 - › Bridging-Funktion ohne Netzwerk
 - › nur einstufig mit Enter-PSSession -VMName
- › verwendet Hyper-V PowerShell Direct Service
- › PowerShell Module müssen auf dem Zielsystem vorhanden bzw. importiert sein
- › Man kann sich NICHT von Hyper-V zu Hyper-V zu VM hangeln
- › PowerShell 5.1 für Nano Server erforderlich

Enter-PSSession -ComputerName



Demo

Nested Hyper-V



Nano Server 2016

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Eigenschaften

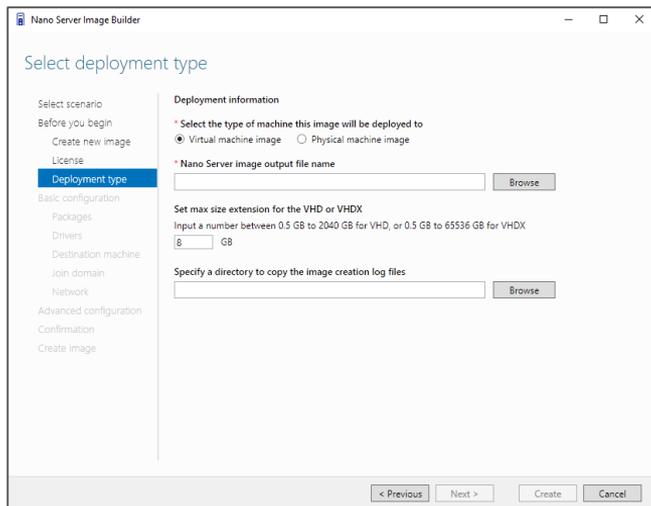
- › Reduzierter Windows Server Core, keine UI
- › PowerShell Core
- › .NET Core
- › Diverse Packages für Rollen und Features
 - › DNS, DHCP
 - › File & Print
 - › Hyper-V
 - › IIS

Erstellen und Managen

- › Erstellen
 - › PowerShell: New-NanoServerImageGenerator
 - › Grafisch: NanoServer Image Builder (nutzt auch nur New-NanoServerImageGenerator)
 - › ScriptRunner
- › Managen
 - › Remote Management über PowerShell Direct
 - › Remote Management über PowerShell
 - › Azure Server Management Tools
 - › Grafische Tools mit Remoting

Nano Server Image Generator

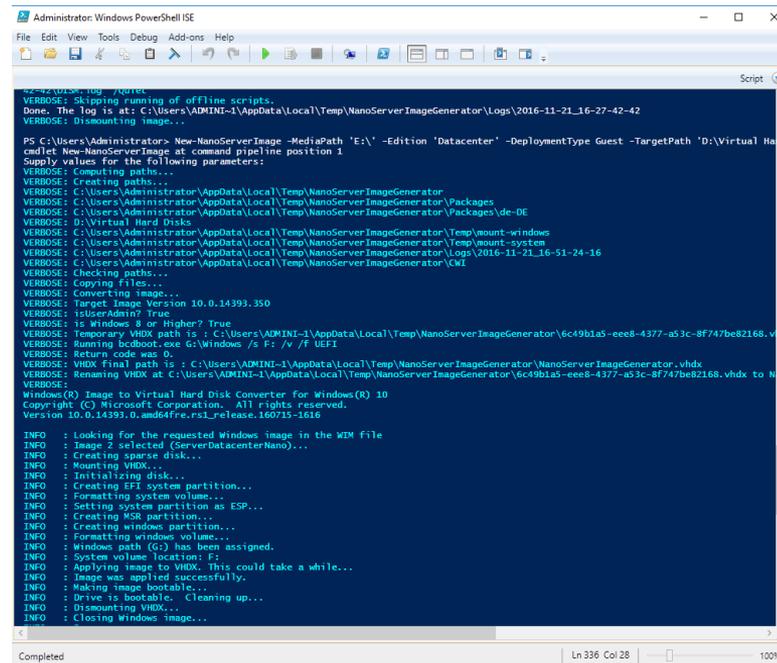
Nano Server Image Builder



The screenshot shows the 'Nano Server Image Builder' application window. The title bar reads 'Nano Server Image Builder'. The main content area is titled 'Select deployment type'. On the left, there is a sidebar with navigation options: 'Select scenario', 'Before you begin', 'Create new image', 'Licenses', 'Deployment type' (highlighted in blue), 'Basic configuration', 'Packages', 'Drivers', 'Destination machine', 'Join domain', 'Network', 'Advanced configuration', 'Confirmation', and 'Create image'. The 'Deployment type' section contains the following information:

- Deployment information**
- Select the type of machine this image will be deployed to:
 - Virtual machine image
 - Physical machine image
- * Nano Server image output file name: [Empty text box] [Browse]
- Set max size extension for the VHD or VHDX:
Input a number between 0.5 GB to 2040 GB for VHD, or 0.5 GB to 65536 GB for VHDX
[8] GB
- Specify a directory to copy the image creation log files: [Empty text box] [Browse]

At the bottom, there are four buttons: '< Previous', 'Next >', 'Create', and 'Cancel'.



The screenshot shows a Windows PowerShell ISE window titled 'Administrator: Windows PowerShell ISE'. The command prompt shows the execution of the 'New-NanoServerImage' cmdlet. The output is a series of verbose messages and informational messages from the Nano Server Image Generator.

```
PS C:\Users\Administrator> New-NanoServerImage -MediaPath 'E:\' -Edition 'Datacenter' -DeploymentType Guest -TargetPath 'D:\Virtual Ha
cmdlet New-NanoServerImage at command pipeline position 1
Supply values for the following parameters:
VERBOSE: Creating paths...
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\Packages
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\Virtual Hard Disks
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\Temp\mount-windows
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\Temp\mount-system
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\Logs\2016-11-21_16-51-24-16
VERBOSE: C:\Users\Administrator\AppData\Local\Temp\NanoServerImageGenerator\CWI
VERBOSE: Checking paths...
VERBOSE: Copying files...
VERBOSE: Converting image...
VERBOSE: Target Image Version 10.0.14393.350
VERBOSE: IsUserAdmin? True
VERBOSE: Is Windows 8 or Higher? True
VERBOSE: Temporary VHDX path is : C:\Users\ADMINI-1\AppData\Local\Temp\NanoServerImageGenerator\6c49b1a5-eee8-4377-a53c-8f747be82168.v
VERBOSE: Running bcdboot.exe G:\Windows /s F: /f /f UEFI
VERBOSE: Returns code was 0.
VERBOSE: VHDX Final path is : C:\Users\ADMINI-1\AppData\Local\Temp\NanoServerImageGenerator\NanoServerImageGenerator.vhdx
VERBOSE: Renaming VHDX at C:\Users\ADMINI-1\AppData\Local\Temp\NanoServerImageGenerator\6c49b1a5-eee8-4377-a53c-8f747be82168.vhdx to N
VERBOSE:
Windows(R) Image to Virtual Hard Disk Converter for Windows(R) 10
Copyright (C) Microsoft Corporation. All rights reserved.
Version 10.0.14393.0 and later. _rnlc.exe-160715-1616

INFO : Looking for the requested Windows image in the WIM file
INFO : Image 2 selected (ServerDatacenterNano)...
INFO : Creating sparse disk...
INFO : Mounting VHDX...
INFO : Initializing disk...
INFO : Creating EFI system partition...
INFO : Formatting system volume...
INFO : Setting system partition as ESP...
INFO : Creating MSR partition...
INFO : Creating windows partition...
INFO : Formatting windows volume...
INFO : Windows path (G:) has been assigned.
INFO : System volume location: F:
INFO : Applying image to VHDX. This could take a while...
INFO : Image was applied successfully.
INFO : Making image bootable...
INFO : Drive is bootable. Cleaning up...
INFO : Dismounting VHDX...
INFO : Closing Windows image...
```

Demo Nano Server

Nano Server Image mit ScriptRunner erstellen

ScriptRunner Admin App

ScriptRunner® by AppSphere AG

ASR\Administrator(NTLM)

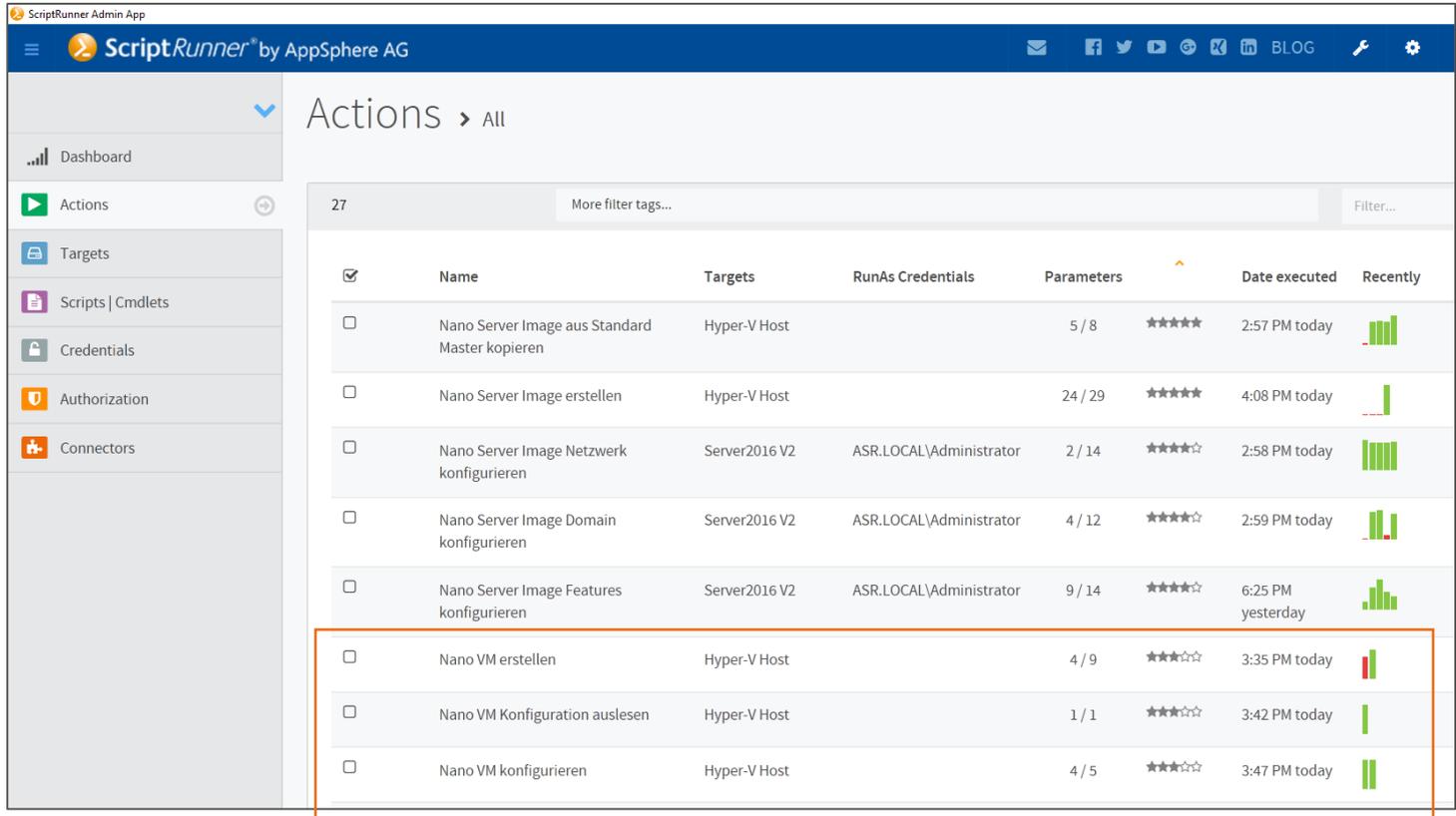
Actions > All

Filter: 32 -> 10 More filter tags... nano server

<input type="checkbox"/>	Name	Targets	RunAs Credentials	Parameters	Date executed	Recently	Status	
<input type="checkbox"/>	Nano Server Image Netzwerk konfigurieren	Hyper-V Host		2 / 14	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Get Services on Server			-	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Nano Server Image aus Standard Master kopieren	Hyper-V Host		3 / 8	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Nano Server Image Domain konfigurieren	Server2016 V2	ASR.LOCAL\Administrator	5 / 12	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Nano Server Image erstellen	Hyper-V Host		24 / 29	☆☆☆☆☆	Nov 24, 2016		
<input type="checkbox"/>	Nano Server Image Features konfigurieren	Hyper-V Host		9 / 14	☆☆☆☆☆	Nov 28, 2016		
<input type="checkbox"/>	Nested Nano Server image Domain konfigurieren	Nested Hyper-V Host	ASR.LOCAL\Administrator	5 / 12	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Nested Nano Server Image erstellen	Nested Hyper-V Host	ASR.LOCAL\Administrator	12 / 29	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Start Services on Nano Server			1 / 1	☆☆☆☆☆	Dec 2, 2016		
<input type="checkbox"/>	Stop Services on Nano Server			1 / 1	☆☆☆☆☆	Dec 2, 2016		

+ NEW Reload Create Edit Delete Copy Schedule Authorize Run Cancel Reports Dashboard Help

Nano VM mit ScriptRunner erstellen



The screenshot displays the ScriptRunner Admin App interface. The top navigation bar includes the ScriptRunner logo and the text "by AppSphere AG". A sidebar on the left contains navigation items: Dashboard, Actions, Targets, Scripts | Cmdlets, Credentials, Authorization, and Connectors. The main content area is titled "Actions > All" and shows a list of 27 actions. The actions are displayed in a table with columns for Name, Targets, RunAs Credentials, Parameters, Date executed, and a bar chart representing execution status. The last three actions are highlighted with a red box:

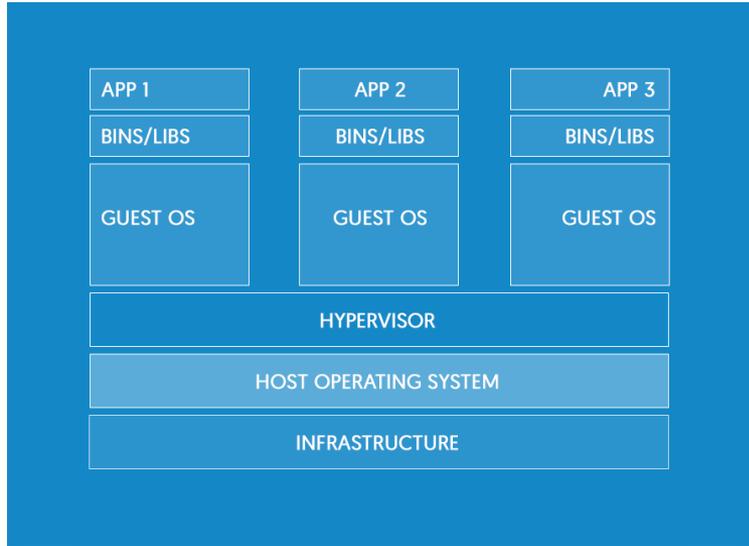
<input type="checkbox"/>	Name	Targets	RunAs Credentials	Parameters	Date executed	Recently
<input type="checkbox"/>	Nano Server Image aus Standard Master kopieren	Hyper-V Host		5 / 8	★★★★★	2:57 PM today
<input type="checkbox"/>	Nano Server Image erstellen	Hyper-V Host		24 / 29	★★★★★	4:08 PM today
<input type="checkbox"/>	Nano Server Image Netzwerk konfigurieren	Server2016 V2	ASR.LOCAL\Administrator	2 / 14	★★★★☆	2:58 PM today
<input type="checkbox"/>	Nano Server Image Domain konfigurieren	Server2016 V2	ASR.LOCAL\Administrator	4 / 12	★★★★☆	2:59 PM today
<input type="checkbox"/>	Nano Server Image Features konfigurieren	Server2016 V2	ASR.LOCAL\Administrator	9 / 14	★★★★☆	6:25 PM yesterday
<input type="checkbox"/>	Nano VM erstellen	Hyper-V Host		4 / 9	★★★★☆	3:35 PM today
<input type="checkbox"/>	Nano VM Konfiguration auslesen	Hyper-V Host		1 / 1	★★★★☆	3:42 PM today
<input type="checkbox"/>	Nano VM konfigurieren	Hyper-V Host		4 / 5	★★★★☆	3:47 PM today

Container & Docker

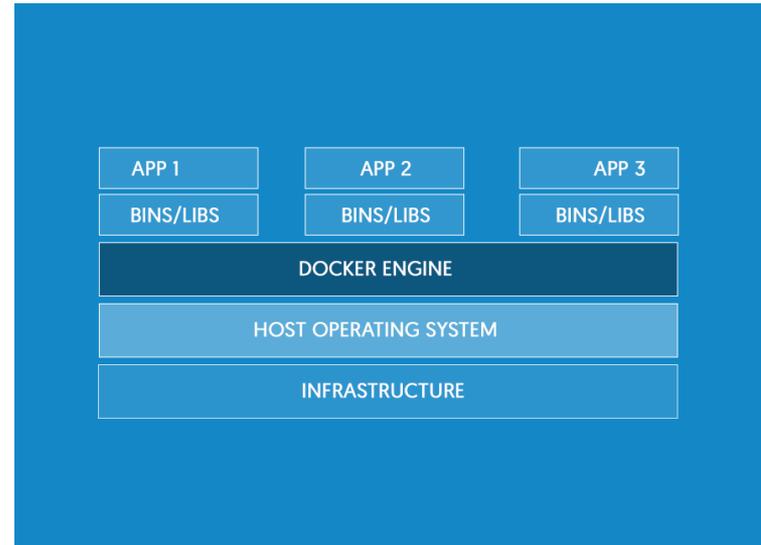
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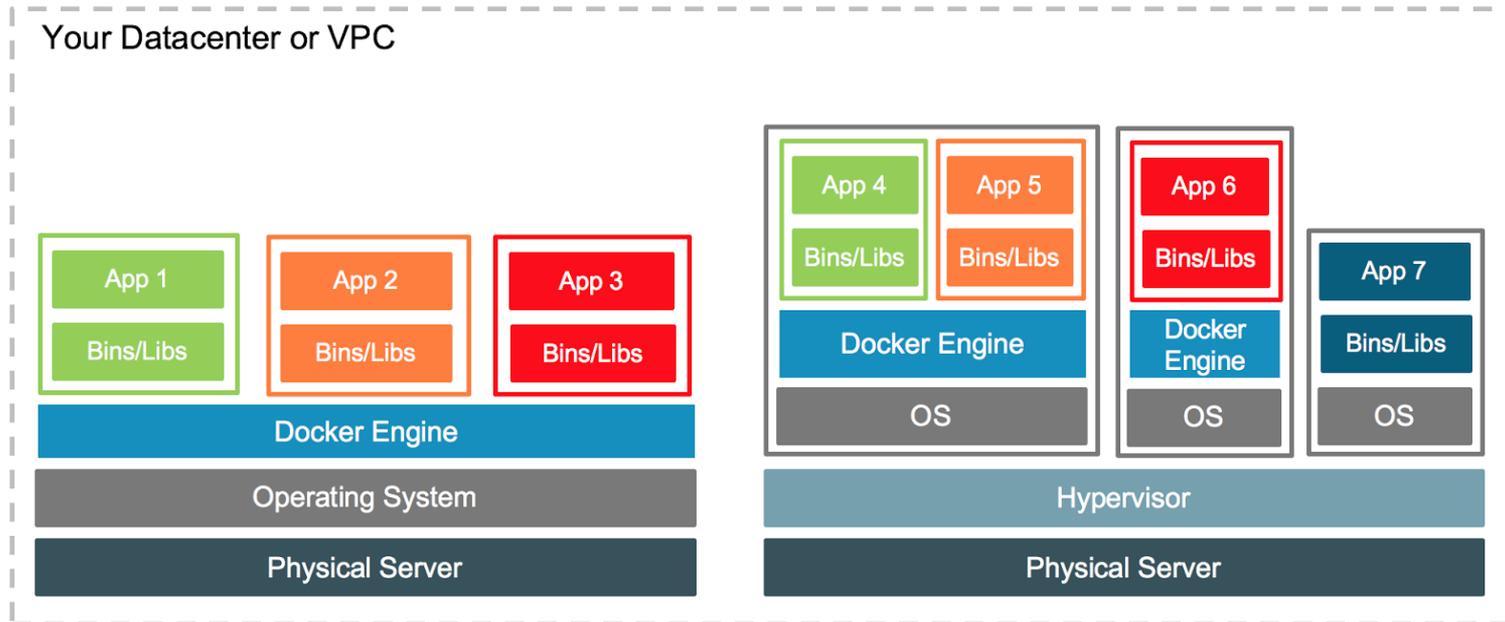


Virtuelle Maschinen



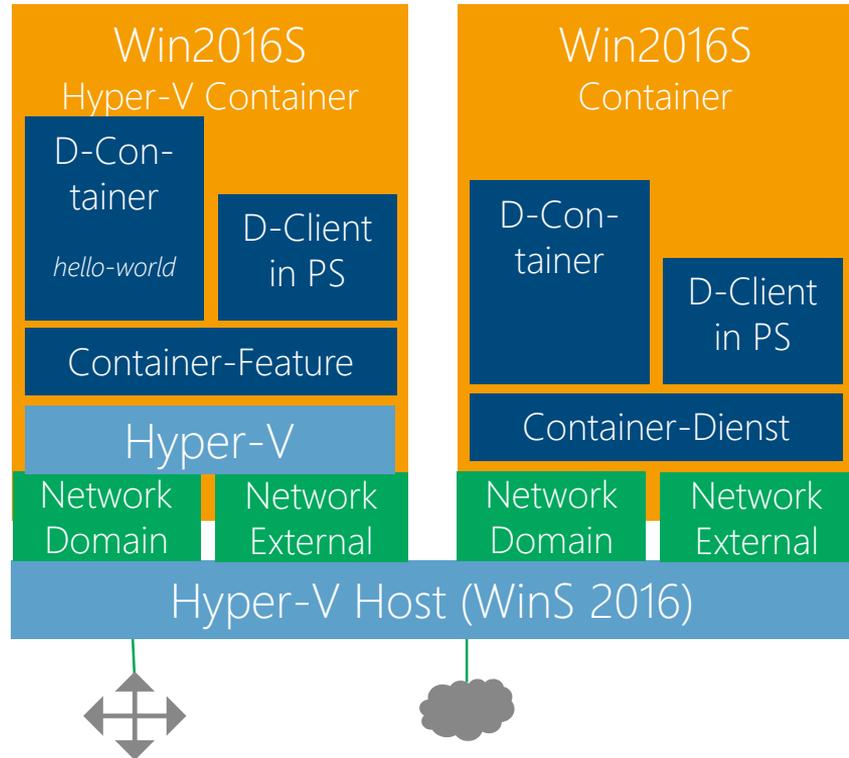
Laufzeitumgebung:
Inhalt des Container:
Struktur des Image:

Container
Image
Layer



Demo Windows 10 Docker

Demo WinServer 2016 Docker



- 2 Containertypen
 - Windows Server Container
 - Hyper-V Container
- Docker-Daemon als Windows Dienst
- Powershell-Erweiterung als Docker-Client zur Konfiguration
 - Netzwerk
 - Container
 - Images ...
- Images mit verschiedenen Layern als kann in einem Container gestartet werden
- Images bzw. untere Layer sind abhängig vom Betriebssystem

Demo Container

- › Windows Feature Container aktivieren
- › NuGet Provider installieren
 - › `Install-PackageProvider -Name NuGet -MinimumVersion 2.8.5.201 -Force`
- › Microsoft Docker PS Modul und Docker Package laden und installieren
 - › `Install-Module -Name DockerMsftProvider -Repository PSGallery -Force -Verbose`
 - › `Install-Package -Name docker -ProviderName DockerMsftProvider -Force -Verbose`
 - › `Restart-Computer`
- › Dockerverfügbarkeit testen
 - › `Docker version, Docker info`
- › Dockerimage laden und ausführen
 - › `Docker pull Microsoft/sample-dotnet`
 - › `Docker run Microsoft/sample-dotnet -> Ausführung als Windows Server Container`
 - › `Docker run -it -isolation=hyperv Microsoft/sample-dotnet cmd`

Vielen Dank

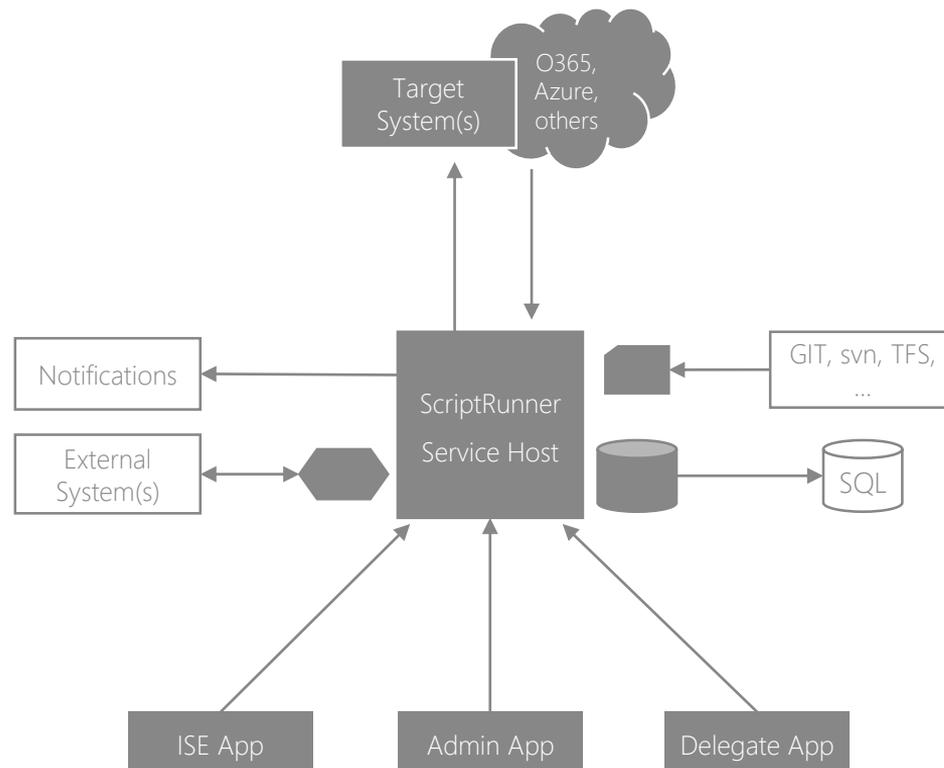
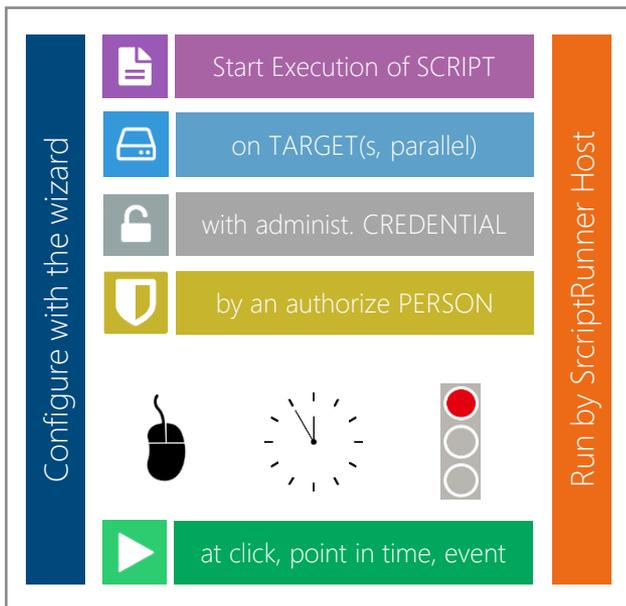
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Das Produkt

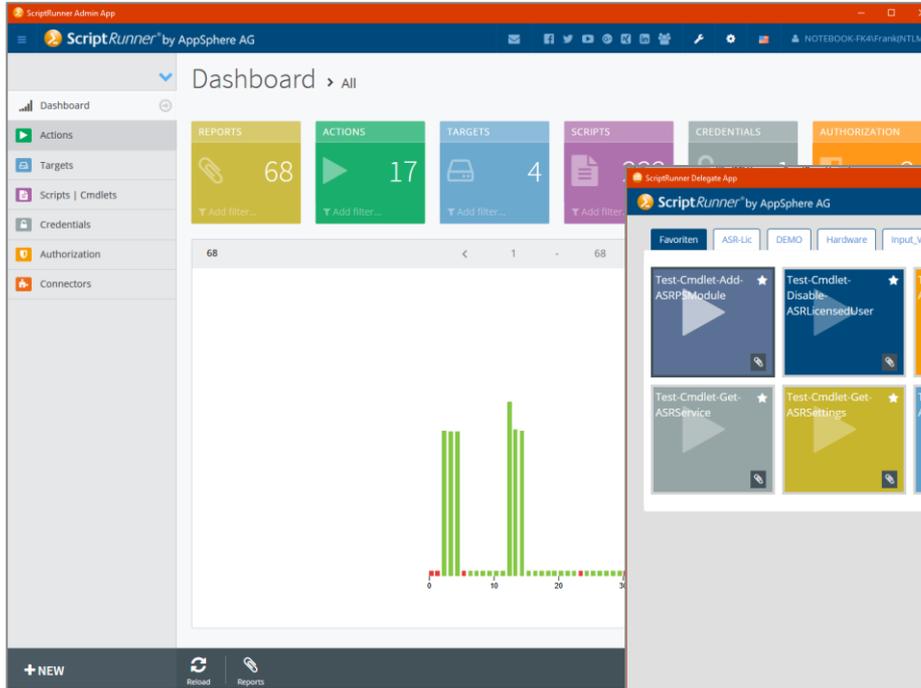
Smart. Simple. Secure.

ScriptRunner Execution Policies

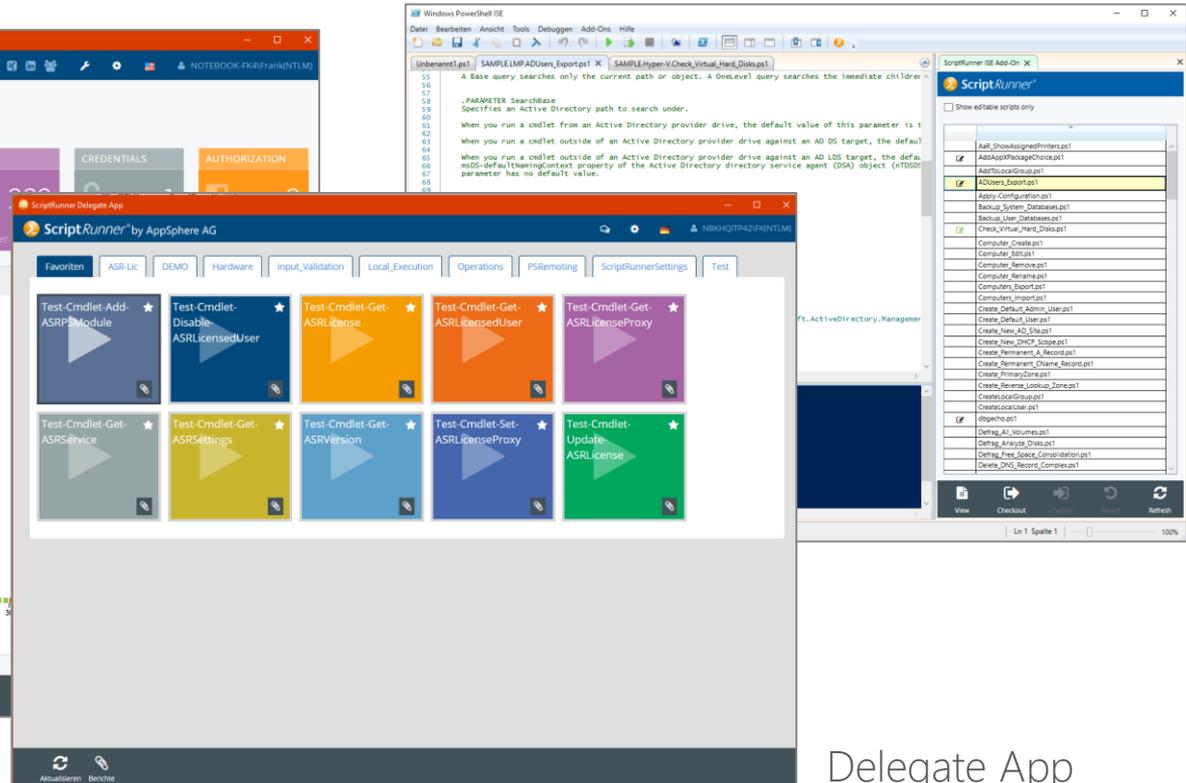


ScriptRunner Apps

ISE App

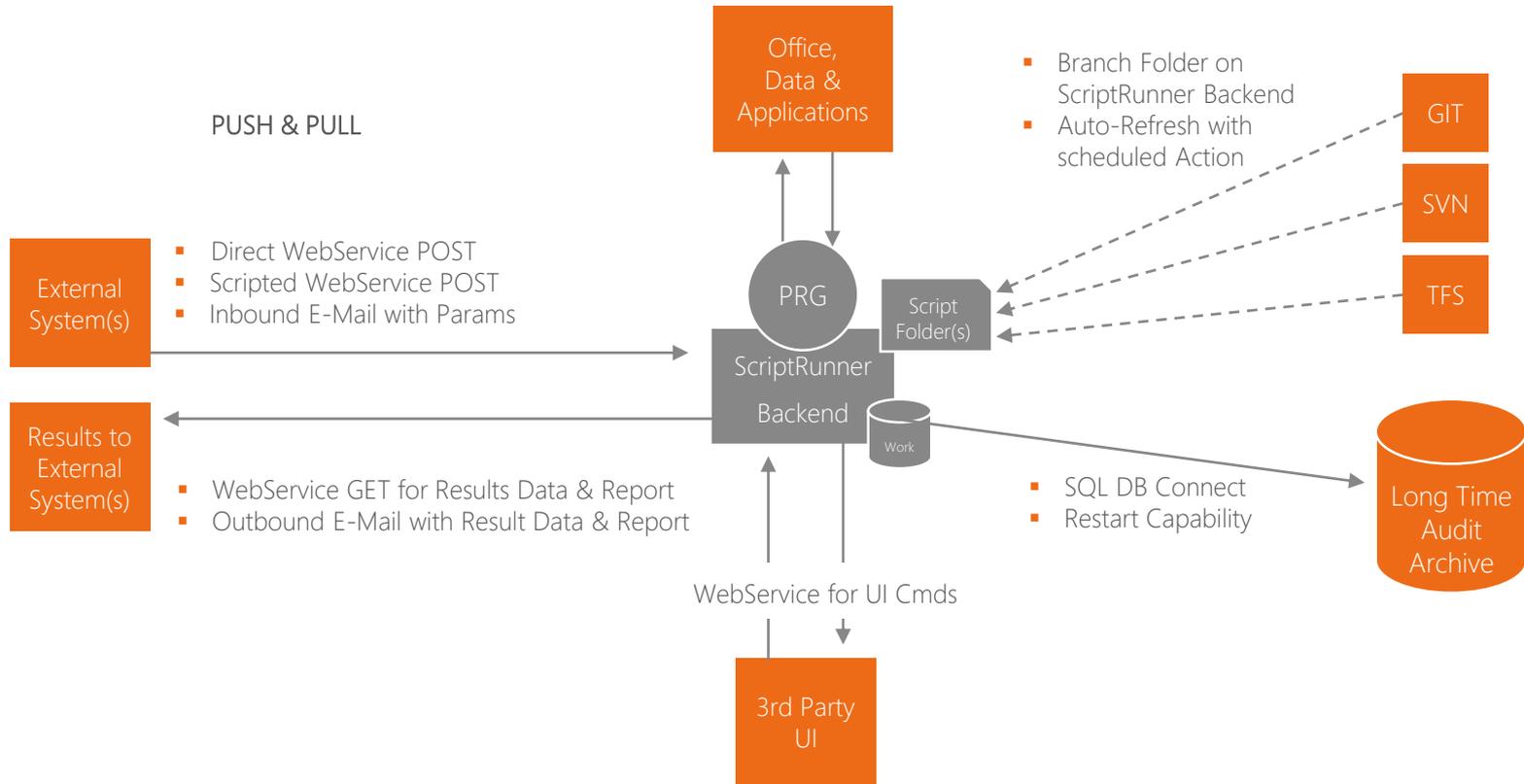


Admin App



Delegate App

ScriptRunner Integration Technologies



Delegation und Automation

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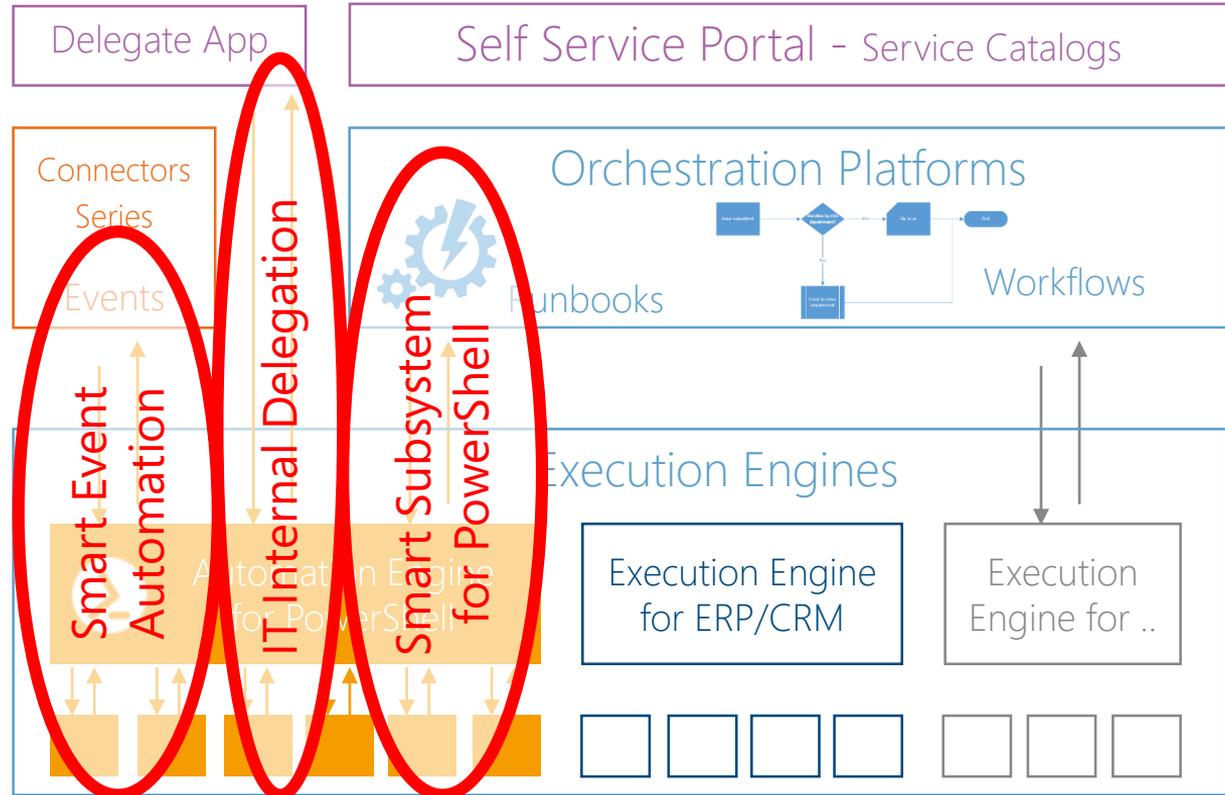
Interaktions-Ebene

Logik-Ebene

- zentrales Team
- IT-Prozessdesign
- IT-Frameworks

Technische Ebene

- Dezentrale IT-Teams
- Produkt/Themen-Spezialisten
- HelpDesk/Support
- Automation und Delegation auch direkt nutzbar
- Reproduzierbarkeit über alle Ebenen und Nutzungsarten



Herzlichen Dank für Ihre Aufmerksamkeit!

Smart. Simple. Secure.

Für weitere Informationen besuchen Sie unsere Website!
www.scriptrunner.com



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