Nano Server und Containers

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O'REILLY
SystemFrontier
ISESteroids
KEMP APPLICATION DELIVERY
MANNING PUBLICATIONS
Microsoft

Agenda

- Nano Server
  - Warum
  - Grundlagen
  - Microsoft Server Journey
  - Installation und Management
- Container
  - Grundlagen
  - Docker Verwaltung
  - Uebungen

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Warum Nano Server?

- Reboots reduzieren
- Server images zu gross für Serverrollen
- Grundinfrastruktur benötigt zu viele Ressourcen

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Security

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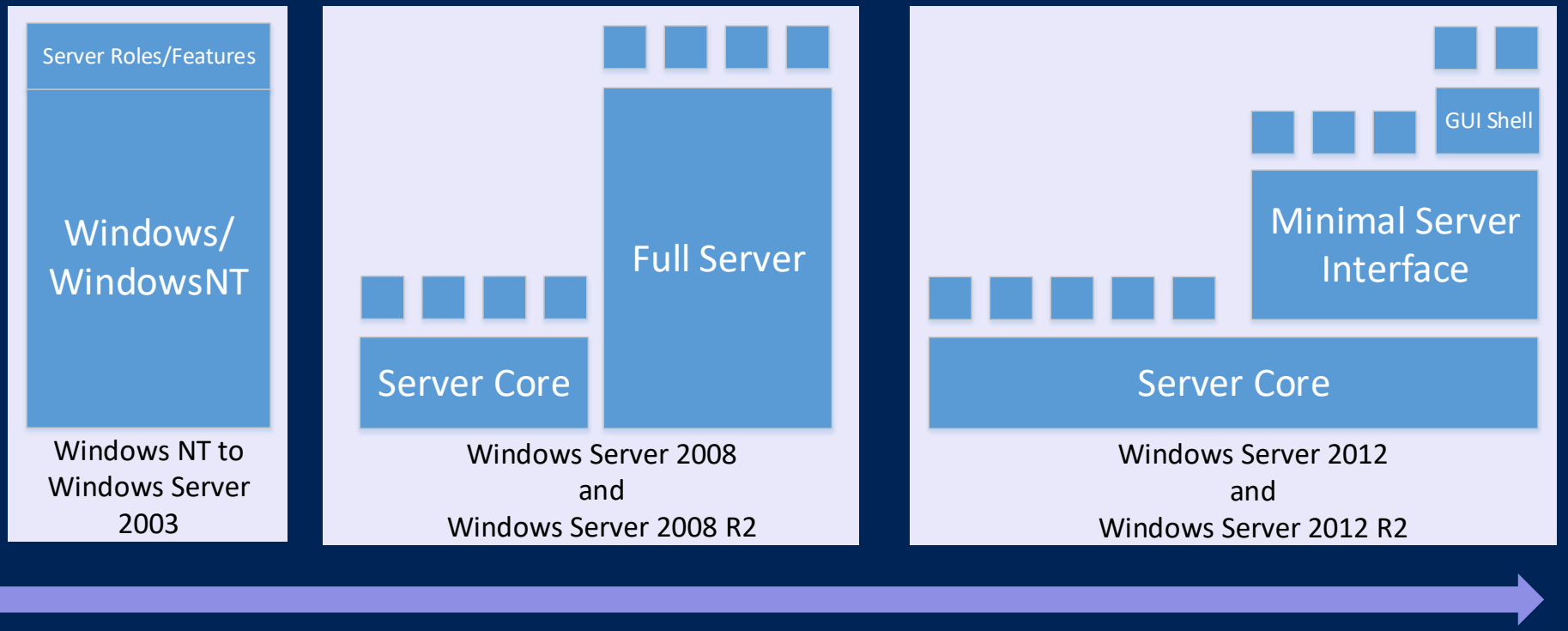
Microsoft Server Journey



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Microsoft Server Journey

Third-party applications

RDS experience

Full GUI

Specialized workloads

Existing VM workloads

Server Core

Lower maintenance server environment

Containers and modern applications

Nano Server

Just Enough OS

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Nano Server Einsatzgebiete

- Compute Deployment
  - Hyper-V
  - Sotrage Server
  - DNS Server
  - Web-Server
  - Container

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Installation - Möglichkeiten

- Deployment
  - VHD auf Hyper-V Host
  - VHD auf Physical Server (Boot VHD)
  - WIM Deployment auf Physical Server
- Images erstellen mit PowerShell
- Images erstellen mit Nano Server Image Builder (ADK)

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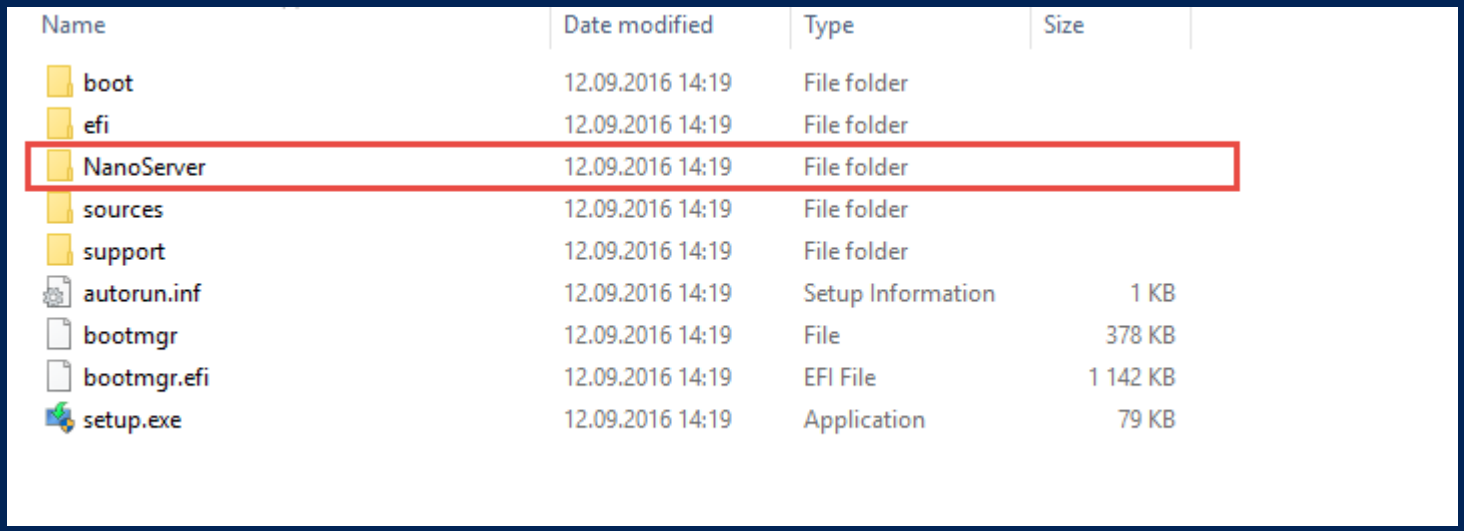
Installation

- Setup Files auf Server 2016 Installationsmedium



Name	Date modified	Type	Size
boot	12.09.2016 14:19	File folder	
efi	12.09.2016 14:19	File folder	
NanoServer	12.09.2016 14:19	File folder	
sources	12.09.2016 14:19	File folder	
support	12.09.2016 14:19	File folder	
autorun.inf	12.09.2016 14:19	Setup Information	1 KB
bootmgr	12.09.2016 14:19	File	378 KB
bootmgr.efi	12.09.2016 14:19	EFI File	1 142 KB
setup.exe	12.09.2016 14:19	Application	79 KB

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Installation – Server Rolle und Features

```
en-US
Microsoft-NanoServer-Compute-Package.cab
Microsoft-NanoServer-Containers-Package.cab
Microsoft-NanoServer-DCB-Package.cab
Microsoft-NanoServer-Defender-Package.cab
Microsoft-NanoServer-DNS-Package.cab
Microsoft-NanoServer-DSC-Package.cab
Microsoft-NanoServer-FailoverCluster-Package.cab
Microsoft-NanoServer-Guest-Package.cab
Microsoft-NanoServer-Host-Package.cab
Microsoft-NanoServer-IIS-Package.cab
Microsoft-NanoServer-OEM-Drivers-Package.cab
Microsoft-NanoServer-SCVMM-Compute-Package.cab
Microsoft-NanoServer-SCVMM-Package.cab
Microsoft-NanoServer-SecureStartup-Package.cab
Microsoft-NanoServer-ShieldedVM-Package.cab
Microsoft-NanoServer-SoftwareInventoryLogging-Package.cab
Microsoft-NanoServer-Storage-Package.cab
```

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Installation – Quick Start

- PowerShell Module und Scripts includiert in NanoServer\NanoServerImageGenerator
  - NanoServerImageGenerator.psm1
  - NanoServerImageGenerator.psd1
  - Convert-WindowsImage.ps1
- Cmdlets
  - New-NanoServerImage
  - Edit-NanoServerImage
  - Get-NanoServerPackage
  - Get-NanoServerOptionalFeature

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Configuration Setting	New-NanoServerImage Switch
Drivers for physical hardware or VM	[-DriverPath <string[]>]
Administrator password	-AdministratorPassword <securestring>
Deployment Type	[-DeploymentType] {Host | Guest}
Edition	[-Edition] {Standard | Datacenter}
Add server roles or features	[-Package <string[]>]
Computer name	[-ComputerName <string>]
IP address	[-InterfaceNameOrIndex <string>] [-Ipv6Address <string>] [-Ipv6Dns <string[]>] [-Ipv4Address <string>] [-Ipv4SubnetMask <string>] [-Ipv4Gateway <string>] [-Ipv4Dns <string[]>]
Domain join	[-DomainName <string>] [-DomainBlobPath <string>] [-ReuseDomainNode]
VHD/VHDX size	[-MaxSize <uint64>]
Unattend and/or Setupcomplete	[-UnattendPath <string>] [-SetupCompleteCommand <string[]>]
Servicing Package	[-ServicingPackagePath <string[]>]
Remote WinRM access	[-EnableRemoteManagementPort]
Debug and/or Enable Emergency Management Services (EMS)	[-DebugMethod {Serial | Net | 1394 | USB}] [-EnableEMS] [-EMSPort <byte>] [-EMSBaudRate <uint32>]

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Installation - Voraussetzungen

- Treiber
- Administrator password
- Deployment Type
- Edition

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Installation - Optional

- Add server roles or features
- Computer name
- IP address
- Domain join
- VHD/VHDX size
- Unattend and/or Setupcomplete
- Remote WinRM access

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Installation – Rollen und Features

- OneGet PowerShell – Repository
  - Install-PackageProvider NanoServerPackage
  - Import-PackageProvider NanoServerPackage
- Arbeiten mit dem Repository
  - Find-NanoServerPackage
  - Save-NanoServerPackage
  - Install-NanoServerPackage

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Installation Agents und Tools

- Kein MSI
- Kopieren von Files über Share / PowerSHell Copy-Item -ToSession
- Windows Server App (WSA) installer
  - Install
  - Uninstall
  - Inventory

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Management

- Kein GUI
- Remote Management
  - PowerShell Core
  - WMI
- PowerShell DSC
- DevOps (Chef,Puppet..)

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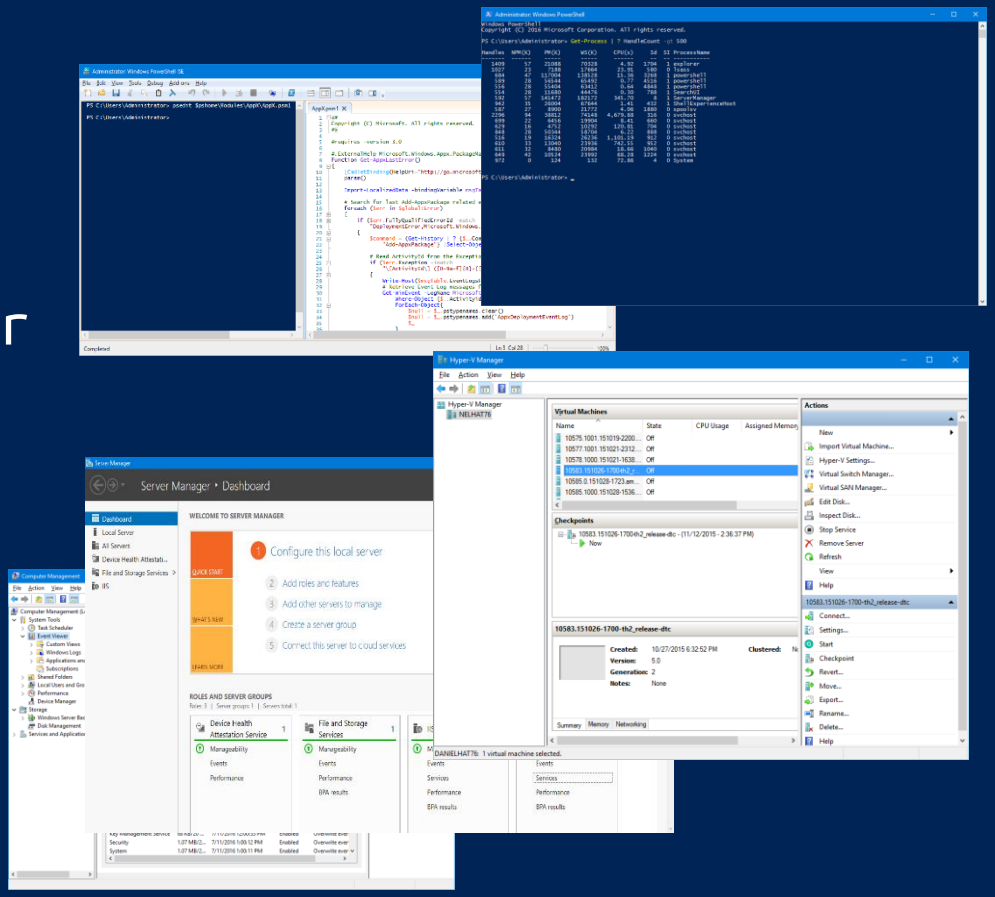
Remote Management Nano Server

- Server Manager
- Hyper-V Manager
- PowerShell Core
- Failover Cluster Manager
- PerfMon, Event Viewer, etc.
- Server Management Tools (SMT)



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Hannover Express

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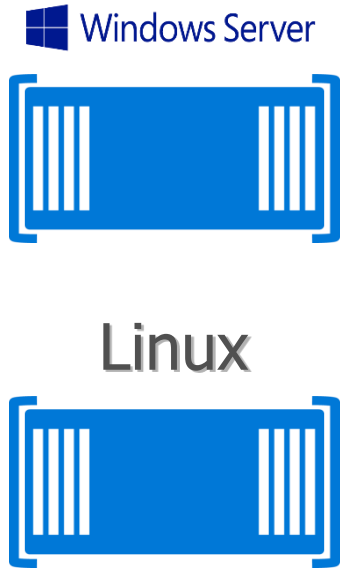
Container Eco-System

Container Run-Time



Container Images

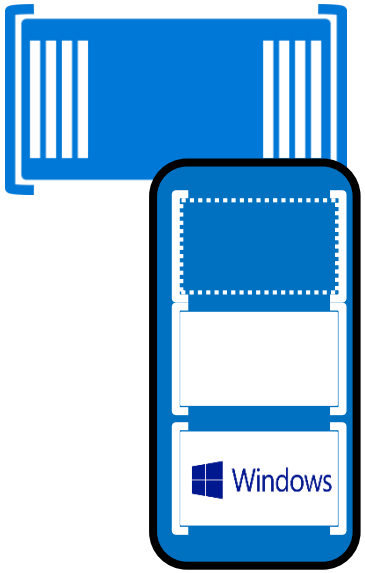
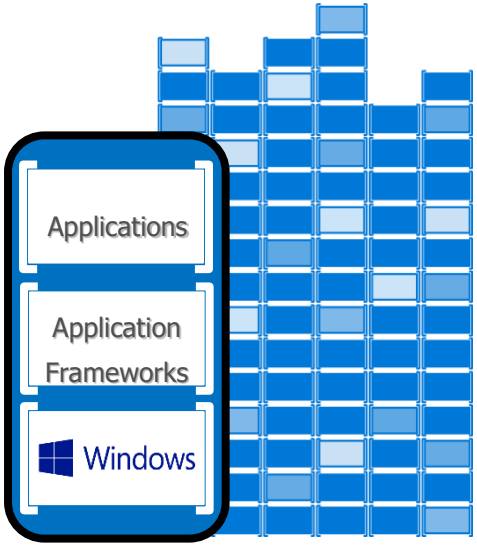


Image Repository



Quelle: Microsoft

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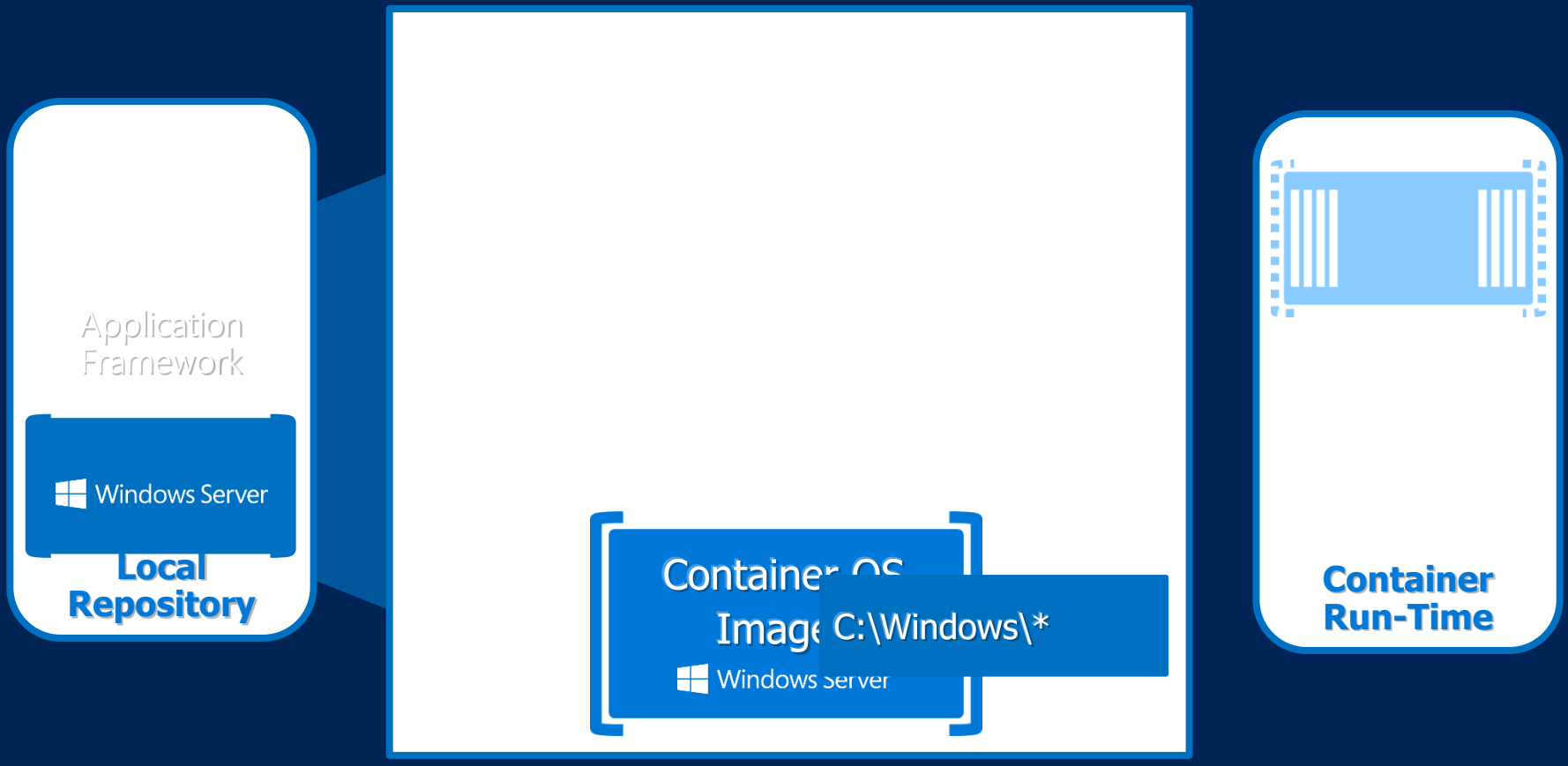
Erstellung Image



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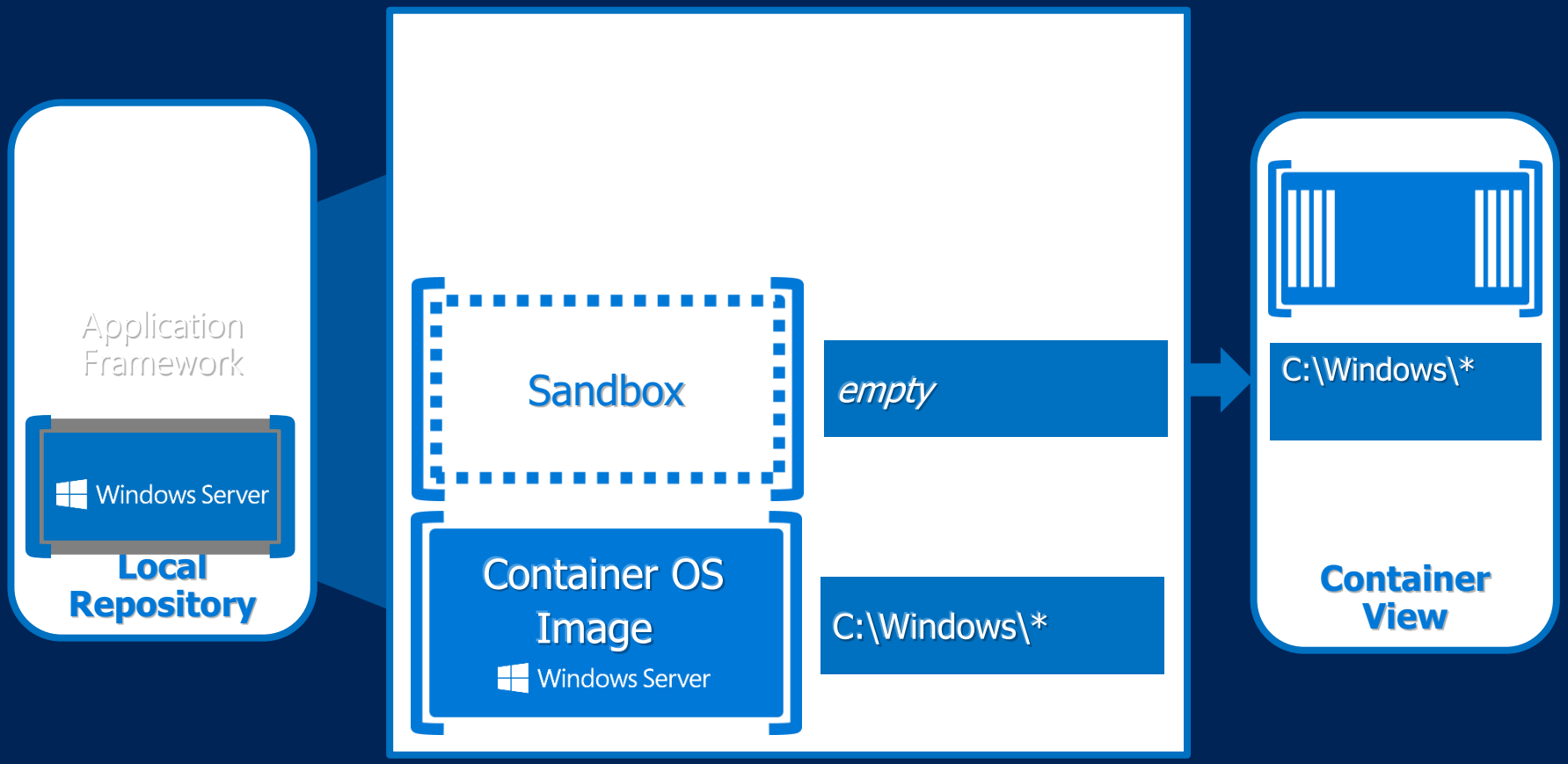

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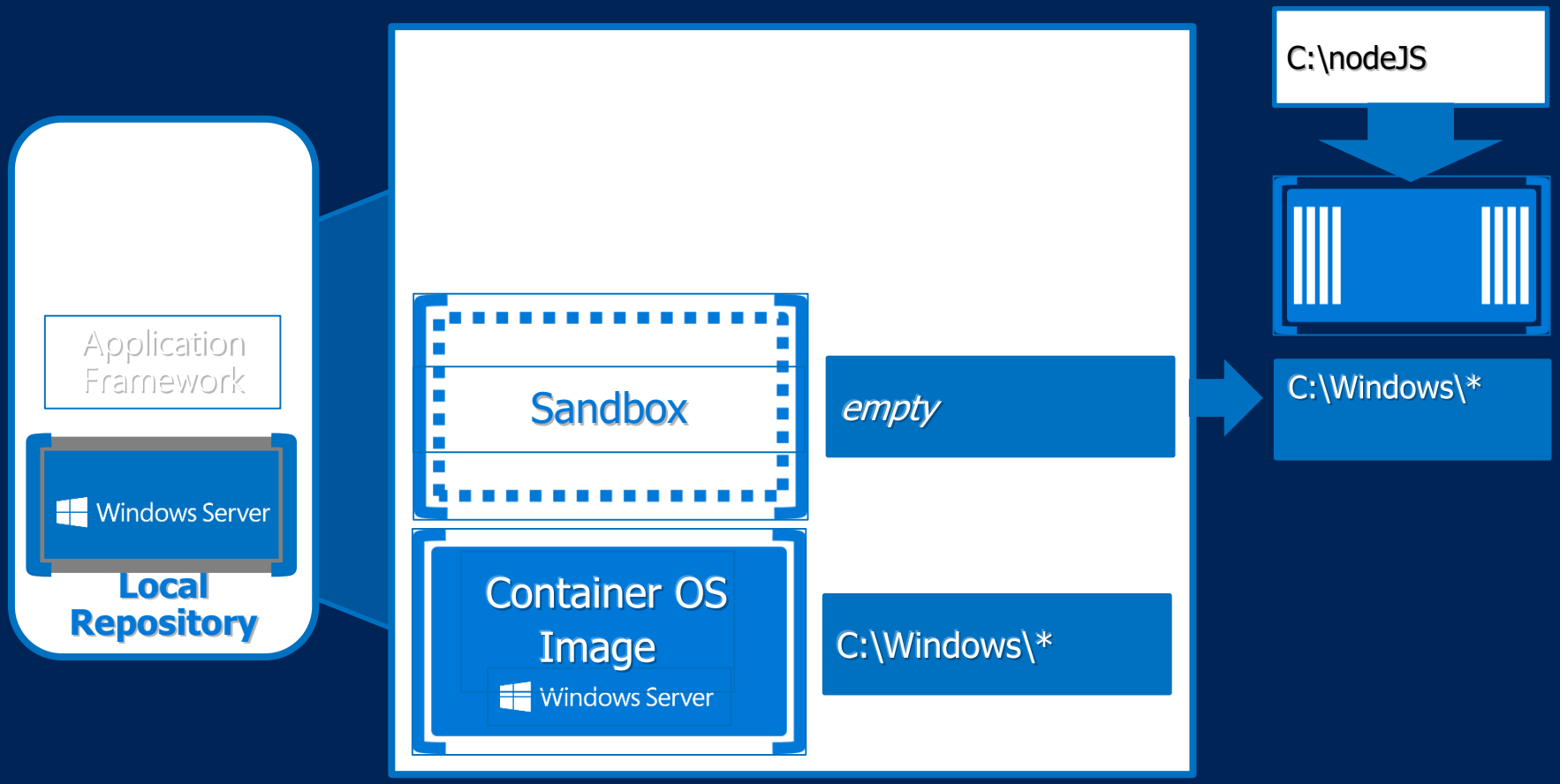

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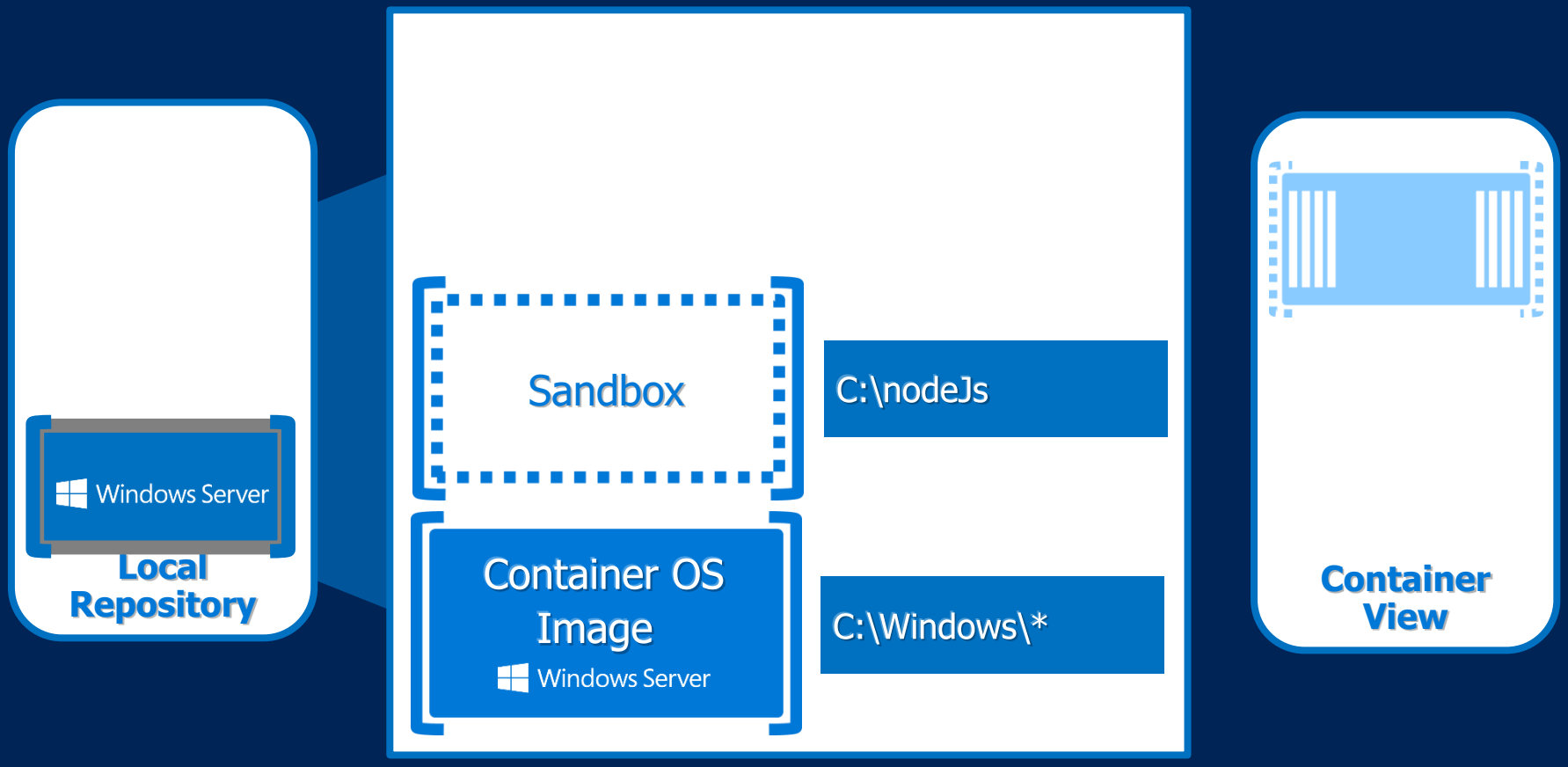

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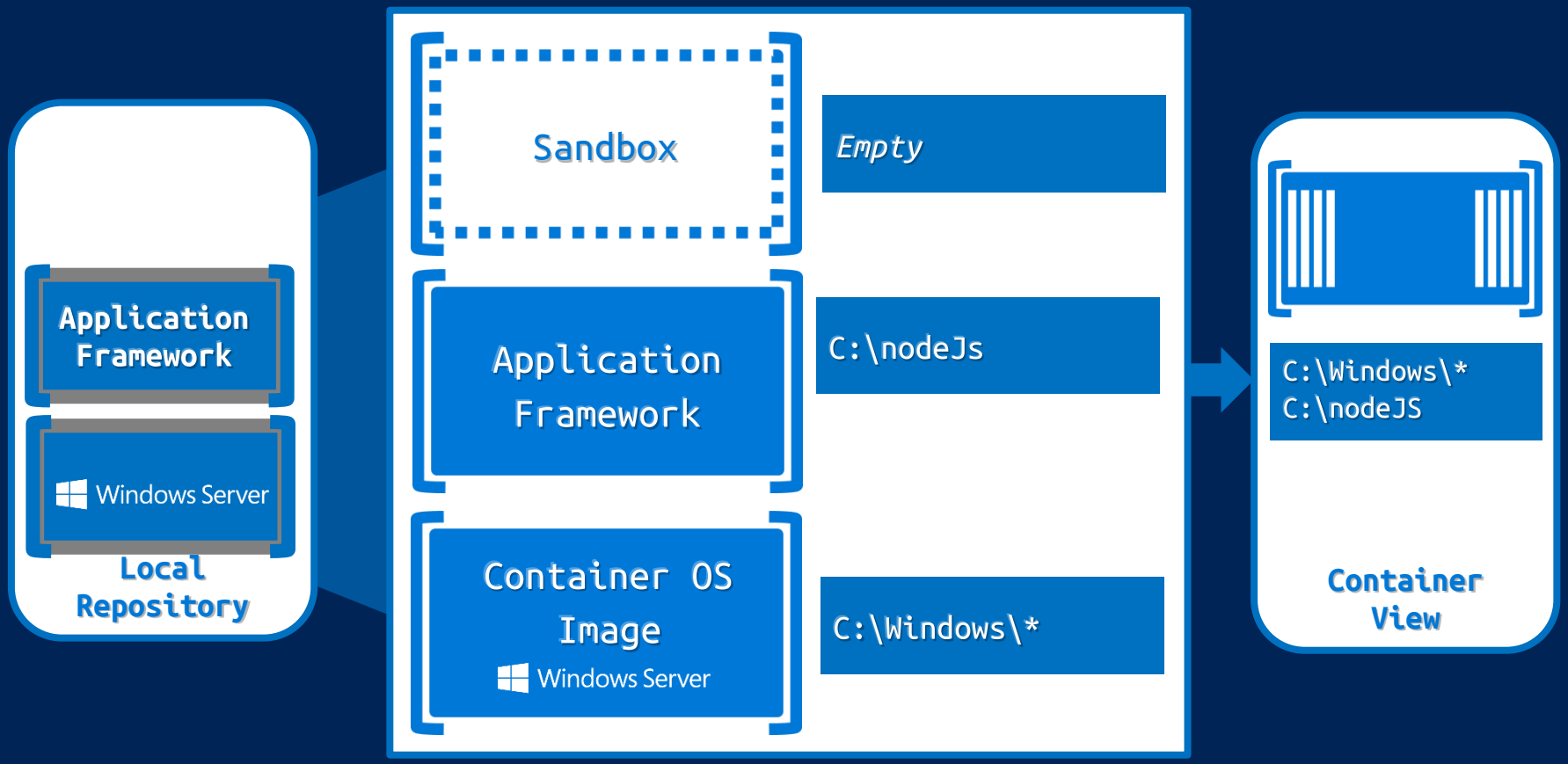

Quelle: Microsoft

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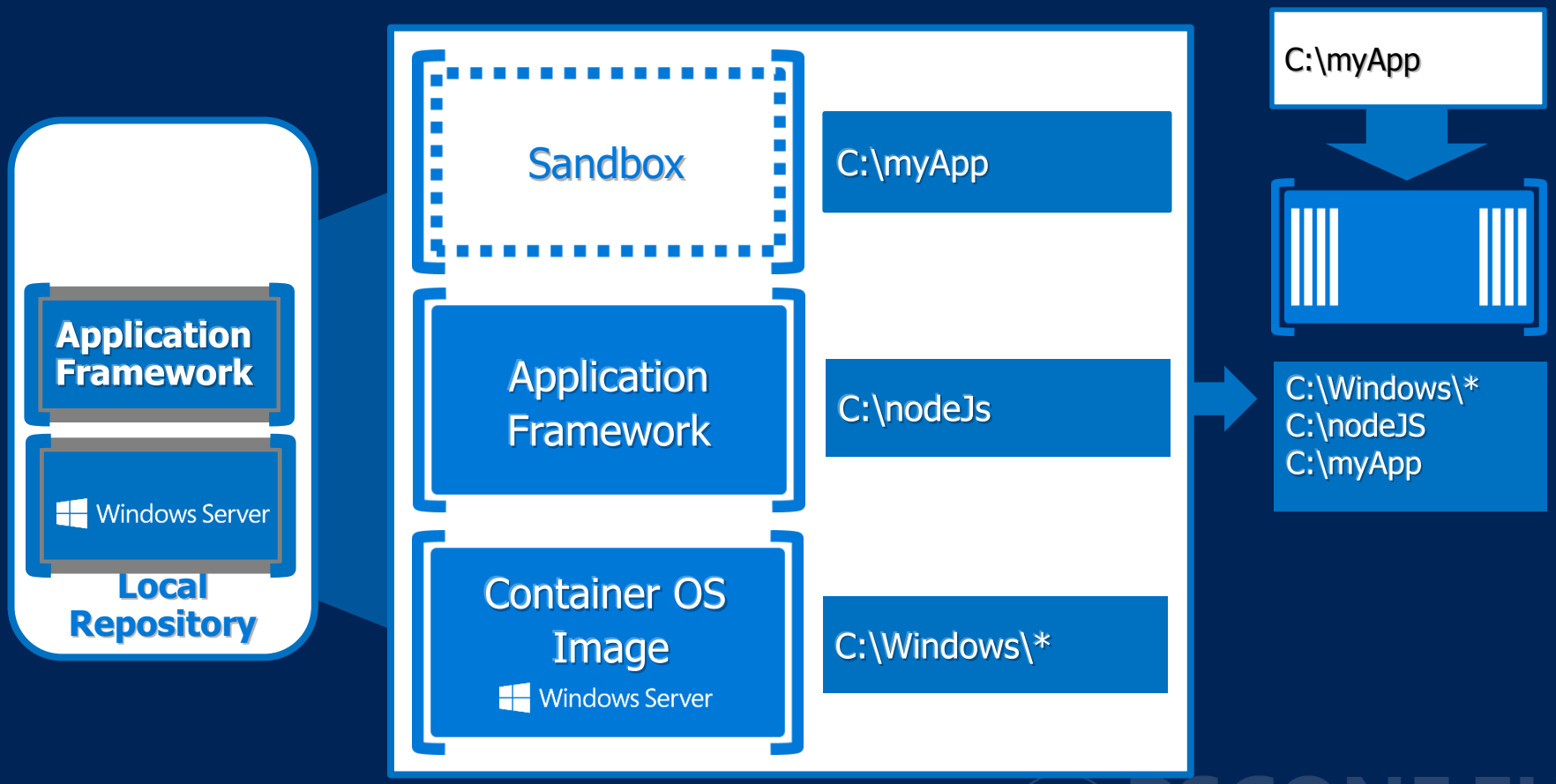

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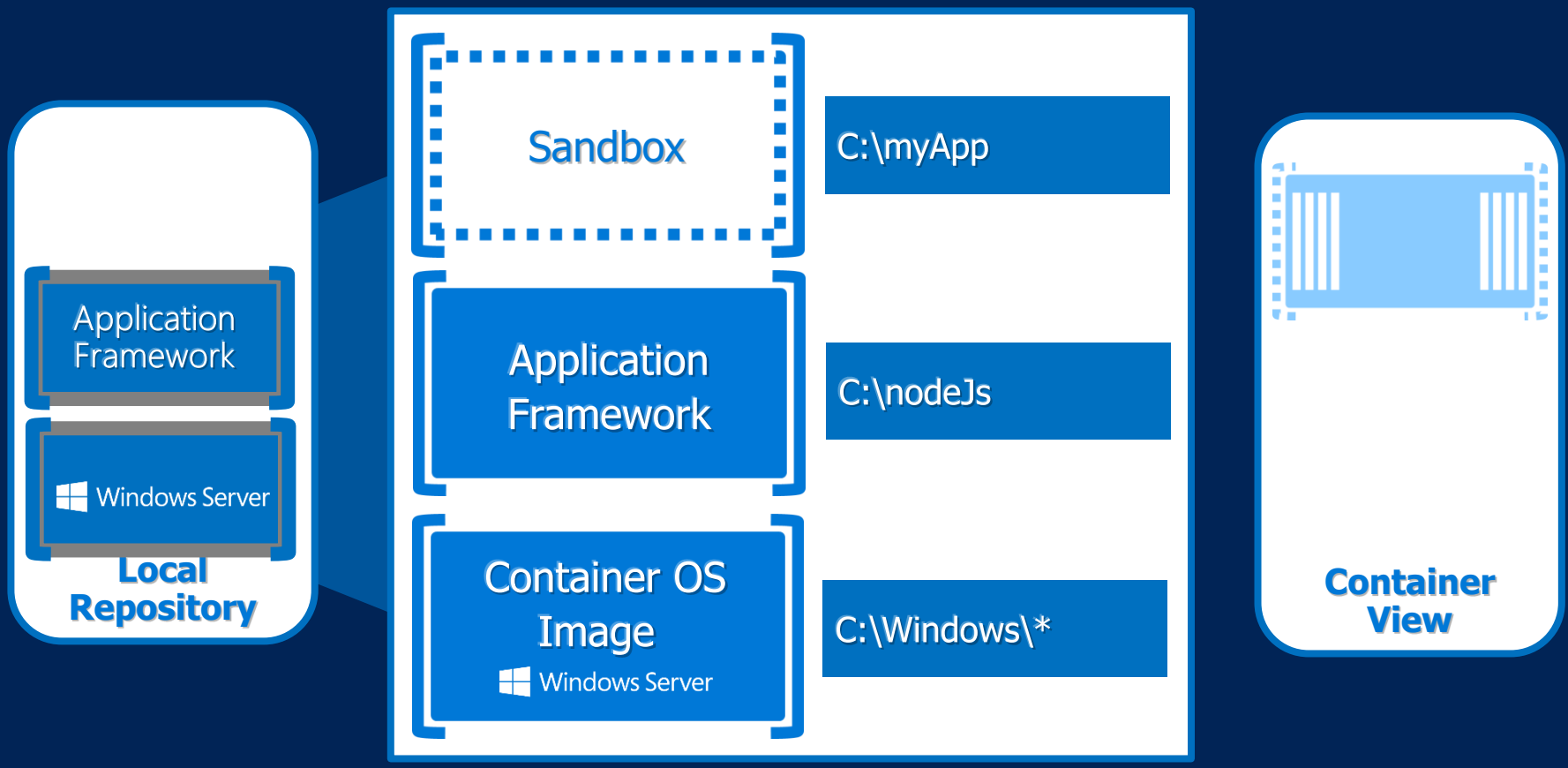

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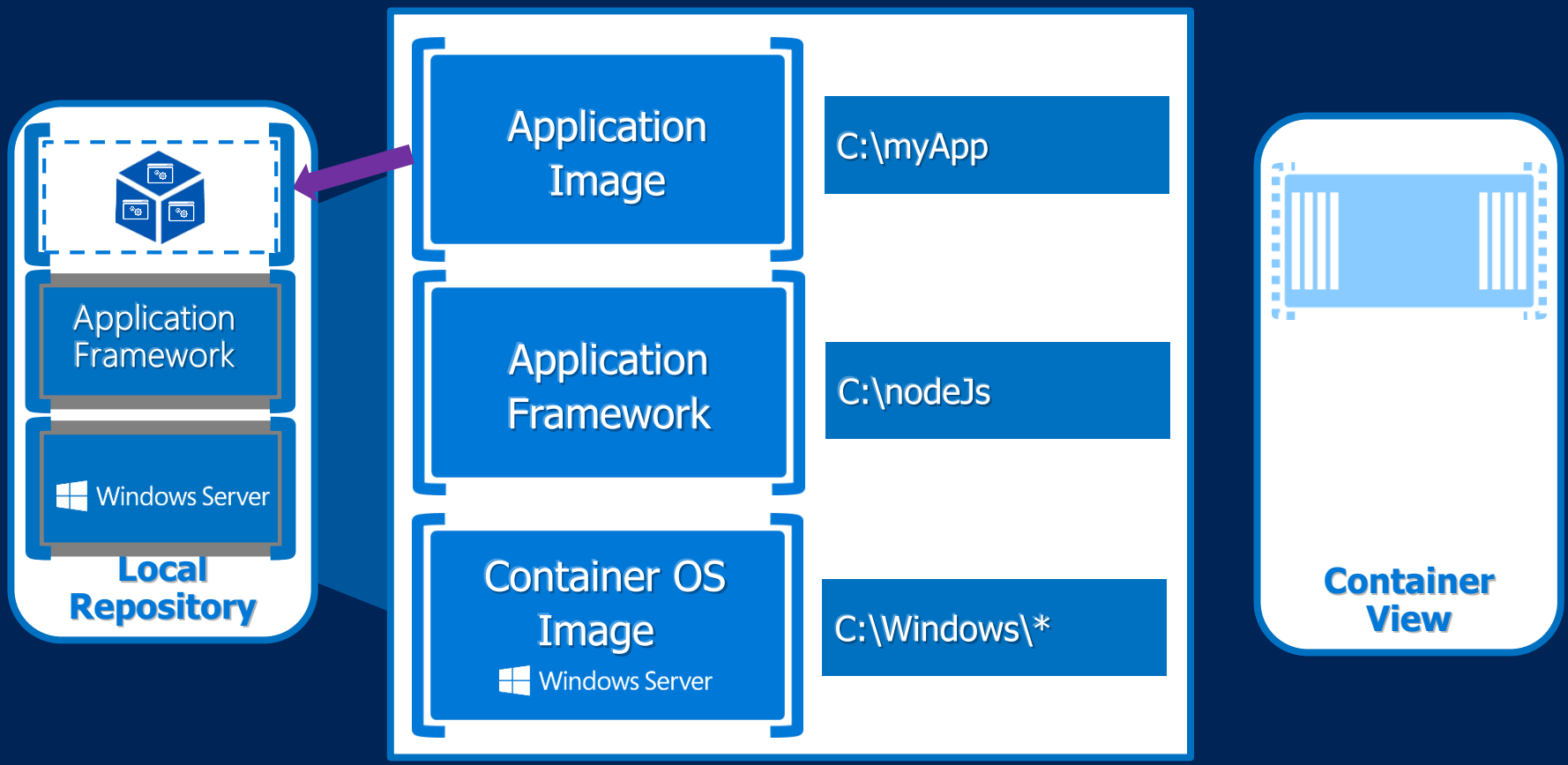

Quelle: Microsoft

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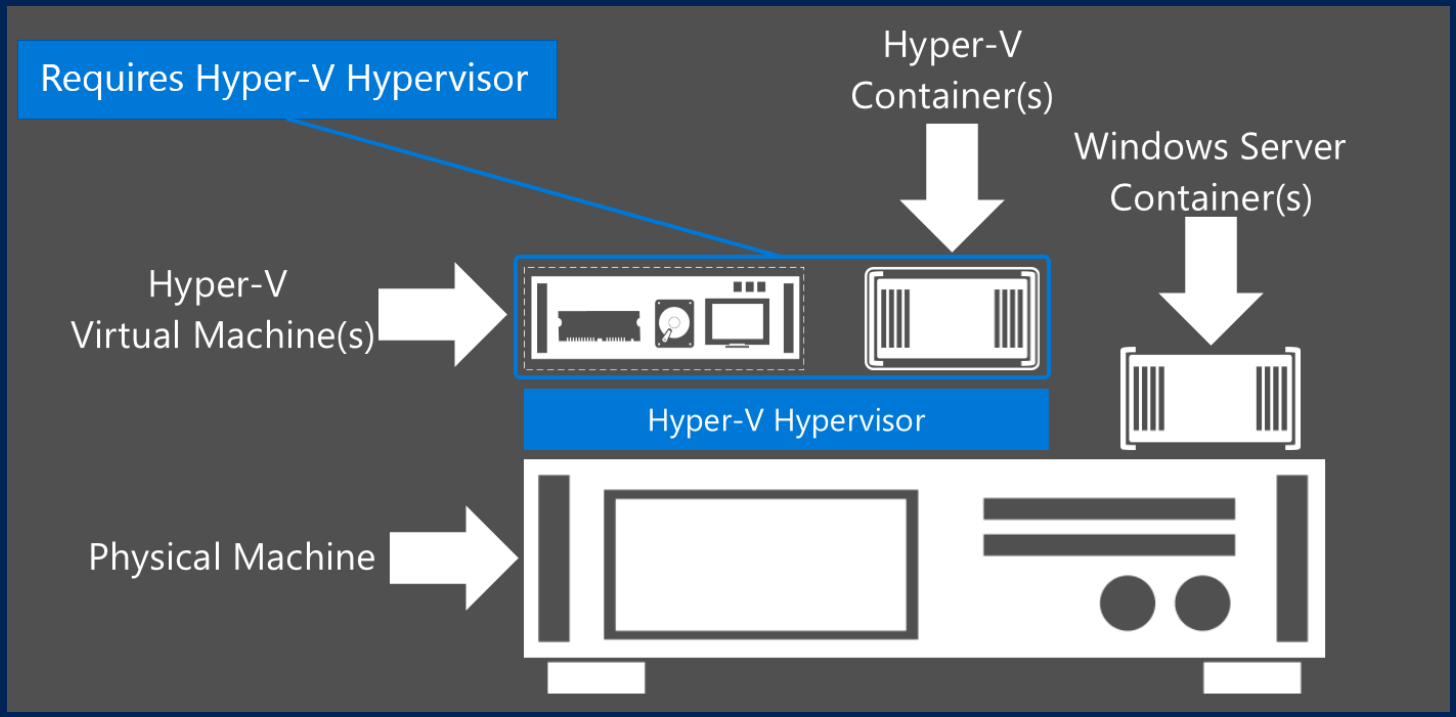
Bereitstellung von Container



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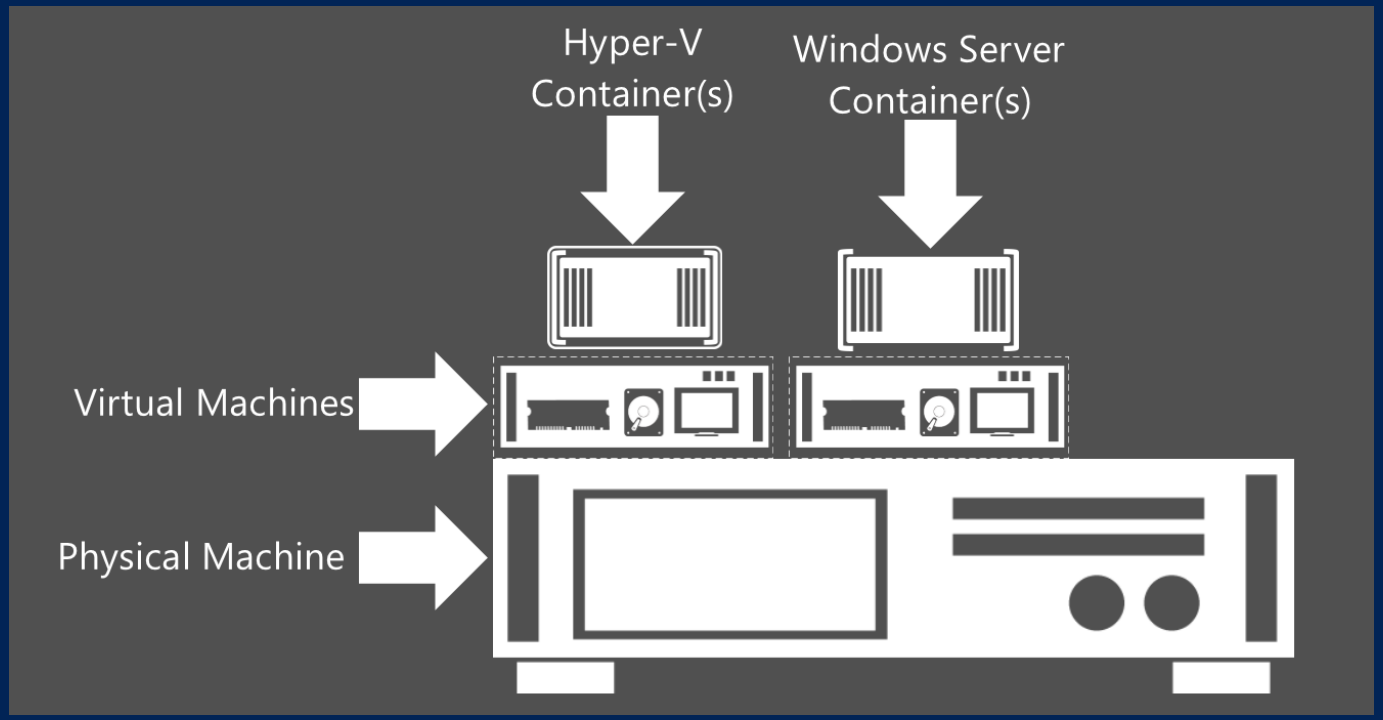
Bereitstellung von Container



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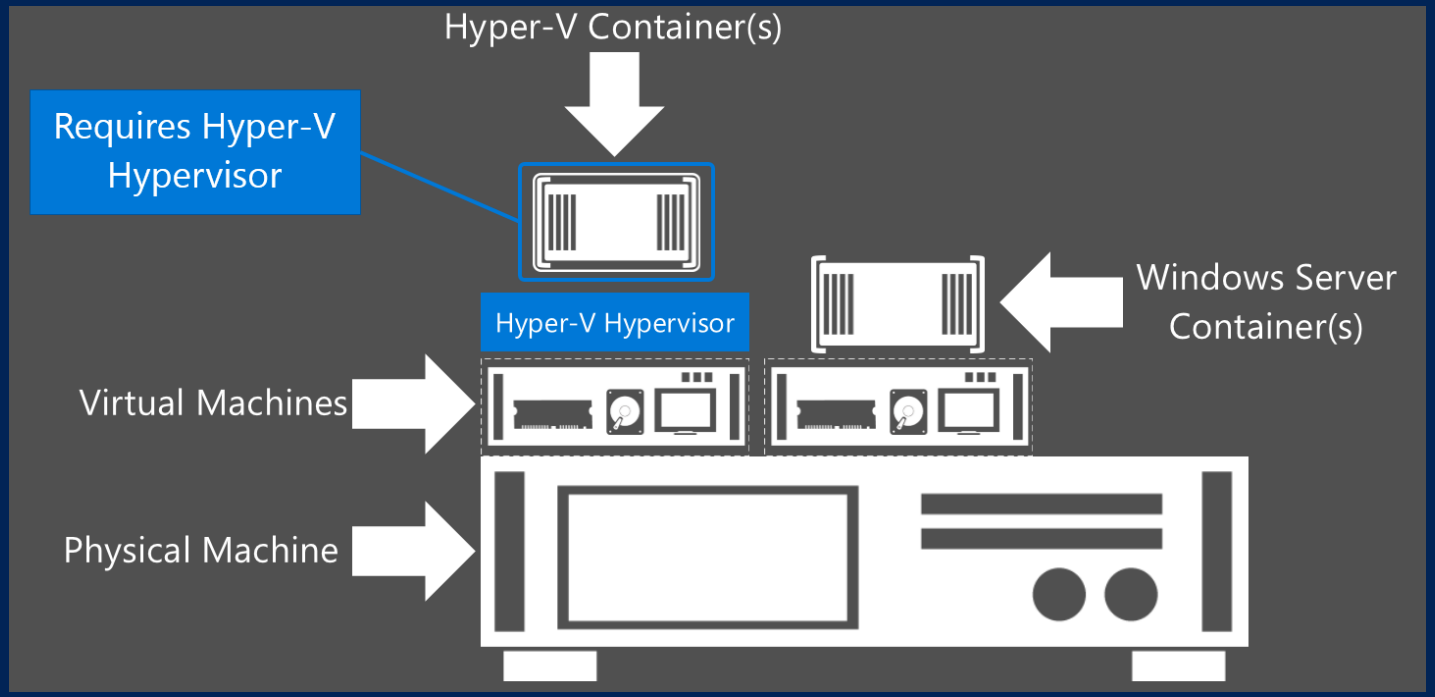

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Windows vs Hyper-V Container

- Windows Server Container teilt Kernel mit Container Host und allen anderen Containern.
- Hyper-V Nicht

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Docker 101

```
# Basis Befehle
Docker info
Docker pull
Docker images
Docker run
Docker ps
Docker Stop
Docker rm
```

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Docker run

```
# Details
Docker run <image>
Docker run -- name =<customname> <Image>
Docker run -- rm <image>
Docker run -- d <image>
Docker run -- d -it <image>
Docker run -- d -p 4000:4000
```

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Demo

```
# PSConf2017 Rockz
# Scripts warden zur Verfuegung gestellt

Start-Demo | Keep-Calm
```

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Zusammenfassung

- Ressourcen schonend
- Einfach zu Verwalten

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Questions?

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About_Author

- Get-Help About_Author
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- Mail: rinon@belegu.ch

- Watch out:
  - www.get-powershell.ch

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psconf.eu 2018

scheduled to be in the week of

April 16-20, 2018

details on www.psconf.eu as they become available

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