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Introduction Windows Nano Servers

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1º Encontro

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Nano Server

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18:30



About Ricardo Cabral

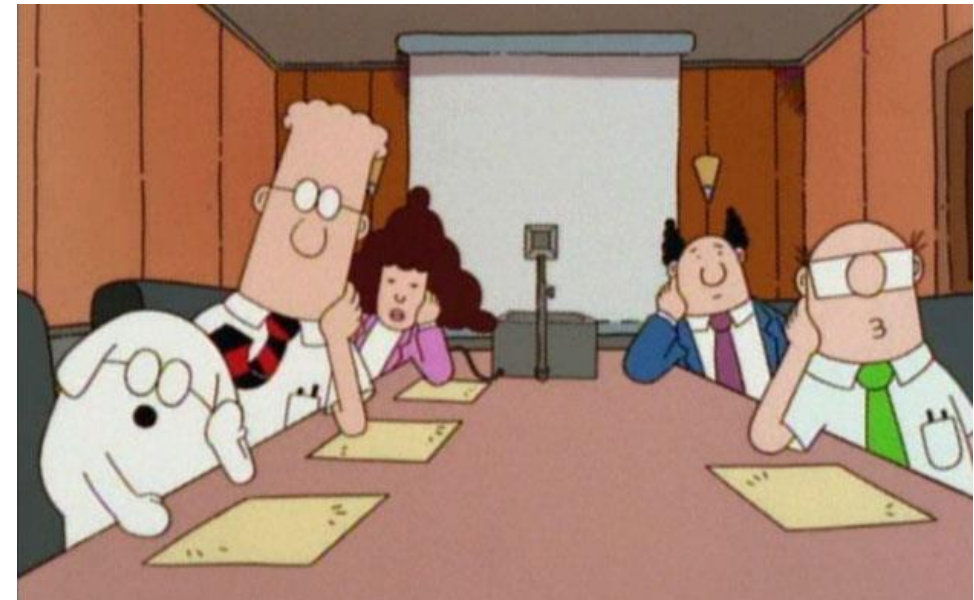
- ➔ Degree in Computer Engineering from the Universidade Autónoma de Lisboa.
- ➔ IT Manager at Globaltemp S.A.
- ➔ Founder IT PRO PORTUGAL
- ➔ The first computers in which I am proud to have had was the Sinclair ZX Spectrum +3 Hail the king and Unisys with a less than 1 Mb of Ram.





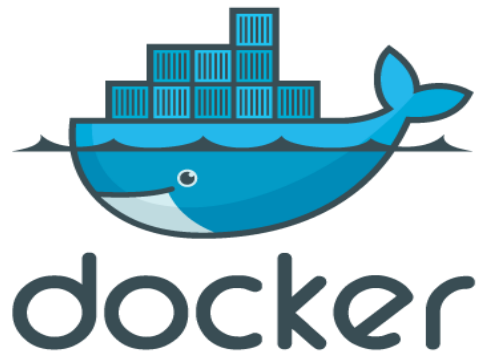
Agenda

- ➔ Windows Server 2016
- ➔ Virtual machines VS Containers
- ➔ Nano Servers
 - ➔ Nano Server challenges
 - ➔ Windows Server installation evolution
 - ➔ Where can we install
 - ➔ What can we do
 - ➔ Remote Server management tools
- ➔ Licensing
- ➔ Q&A



Windows Server 2016

At the heart of the Microsoft Cloud Platform, Windows Server brings Microsoft's experience delivering global-scale cloud services into your infrastructure.



Microsoft ITPAC





Windows Server 2016

Configure AD FS to authenticate users stored in LDAP directories
Configure AD FS to Send Password Expiry Claims
AD FS support for alternate hostname binding for certificate authentication
Auditing Enhancements to AD FS in Windows Server 2016
Customizing user sign-in for AD FS relying parties
Windows 10 Sign on – enabling device authentication with AD FS
Enabling OpenId Connect with AD FS 2016
Enabling OAuth Confidential Clients with AD FS 2016

Network Controller. Hyper-V Virtual Switch Network
Function Virtualization (NFV)
Software Load Balancer (SLB) and Network Address
Translation (NAT). Datacenter Firewall RAS Gateway

New features in Windows PowerShell Desired State
Configuration
New features in Windows PowerShell ISE
New features in Windows PowerShell Web Services
(Management OData IIS Extension)
Notable bug fixes in Windows PowerShell 5.0

Cluster Operating
Storage Replica
Cloud Witness
Virtual Machine Resiliency
Diagnostic Improvements in
Site-aware Failover Clusters
Workgroup and Multi-domain



Source: What's New in Windows Server 2016, Pedro Custódio (Microsoft)



Windows Server 2016

How can we try Windows Server 2016 ?

Windows Server 2016 Technical Preview 4 expires on July 15, 2016.

The screenshot shows the TechNet Evaluation Center interface. At the top, there is a Microsoft logo and the text "TechNet Evaluation Center". Below this, there are navigation links: "My Evaluations", "Evaluate Now", "Tech Journeys", "Explore", "Try", and "Learn". A search bar with the placeholder "Type Keyword here..." is visible. The main content area is titled "Windows Server Evaluations" and features three cards: "Learn" (TechNet Virtual Conference 2016: March 1-3), "Learn" (New SQL. No equal. Save the date to watch it live.), and "Explore" (Watch the Ops Team show for latest in IT news). Below these cards, there is a section for "Windows Server 2016 Technical Preview 4" with a "Download" button. The download process is shown as completed, with the message "Your download has started." and a link to the ISO file: "10586.0.151029-1700.TH2_RELEASE_SERVER_OEMRET_X64FRE_EN-US.ISO".



Windows Server 2016

How can we try Windows Server 2016 ?

Microsoft Azure Virtual machines > Compute > Windows Server 2016 Technical Preview 4

Windows Server 2016 Technical Preview 4

At the heart of the Microsoft Cloud Platform, Windows Server brings the breadth and depth of Microsoft's experience delivering global-scale cloud services to your datacenter infrastructure. Windows Server Technical Preview provides a range of new and enhanced capabilities and features spanning server virtualization, storage, networking, server management and automation, web and application platform, access and information protection, remote desktop infrastructure, and more. By clicking the Create button, I acknowledge that this VHD contains a preview release and should strictly be used for testing purposes. The VHD won't be serviced or supported for production use and the trial period expires on July 15th, 2016.

Legal Terms

By clicking the Create button, I acknowledge that I am getting this software from Microsoft and that the [legal terms](#) of Microsoft apply to it. Microsoft does not provide rights for third-party software.

PUBLISHER: Microsoft

USEFUL LINKS: [Learn more](#), [Documentation](#)

Select a deployment model: Classic

Create



Windows Server 2016

How can we try Windows Server 2016 ?

United States (English) Sign out

Ricardo Ramos Cabral

TechNet Virtual Labs

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Hot Labs

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IT Pro

Developer

▼ Lab Type

Virtual Hands on labs

Guided Experiences

► Events

▼ Windows Servers



OMS-Hybrid-Management



Windows Server 2016:
Configuring Storage Spaces
Direct, Storage Quality of ...



Installing and Managing
Nano Server

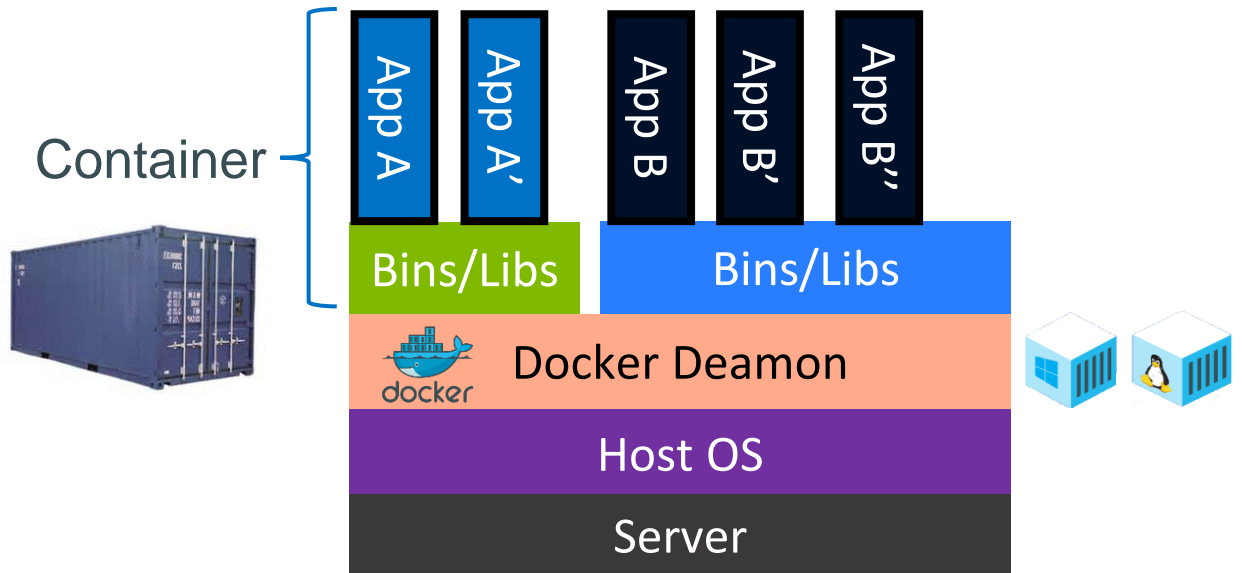
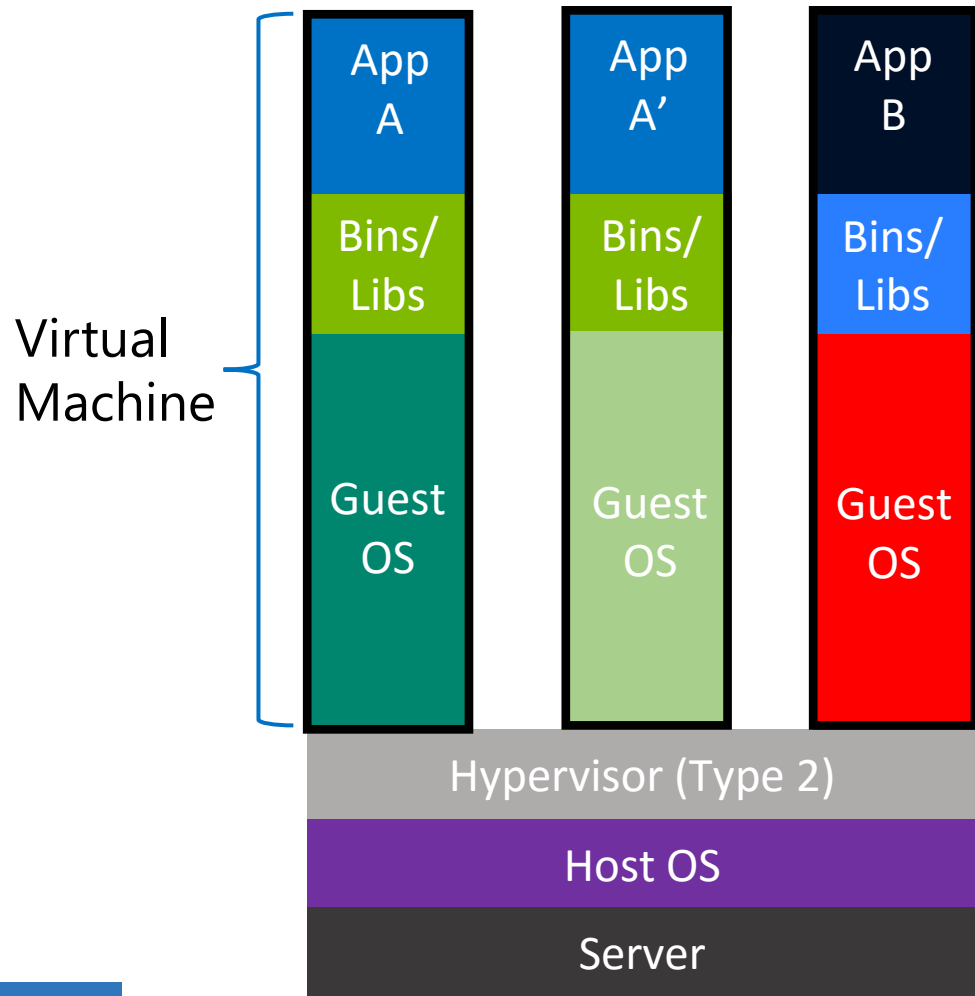


Managing Windows Server
Containers with Docker





Virtual machines VS Containers





Nano Server

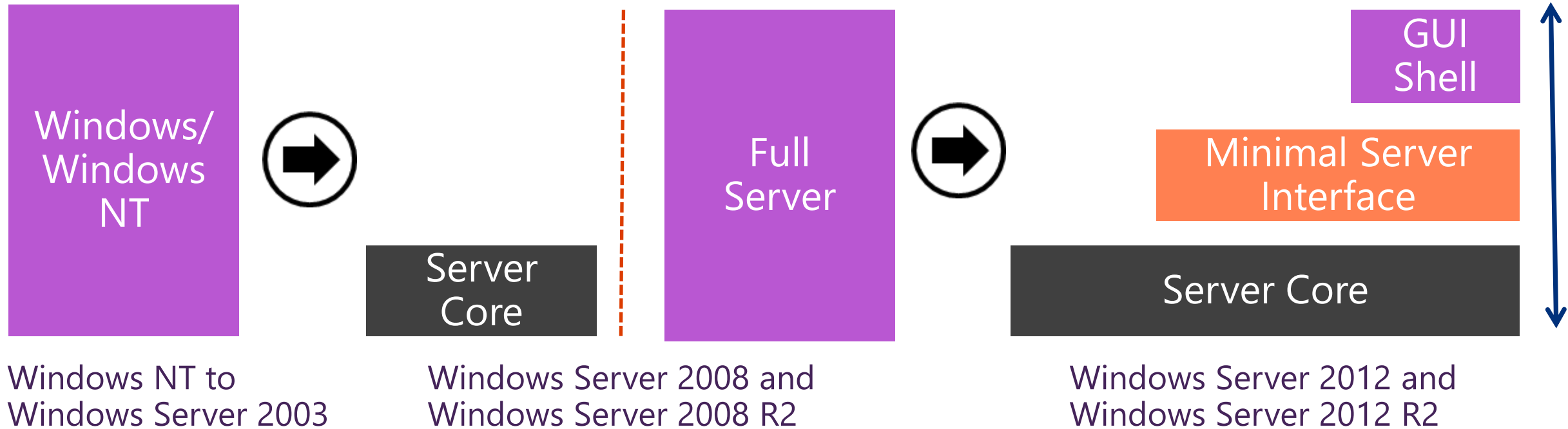
Nano Server challenges





Nano Server

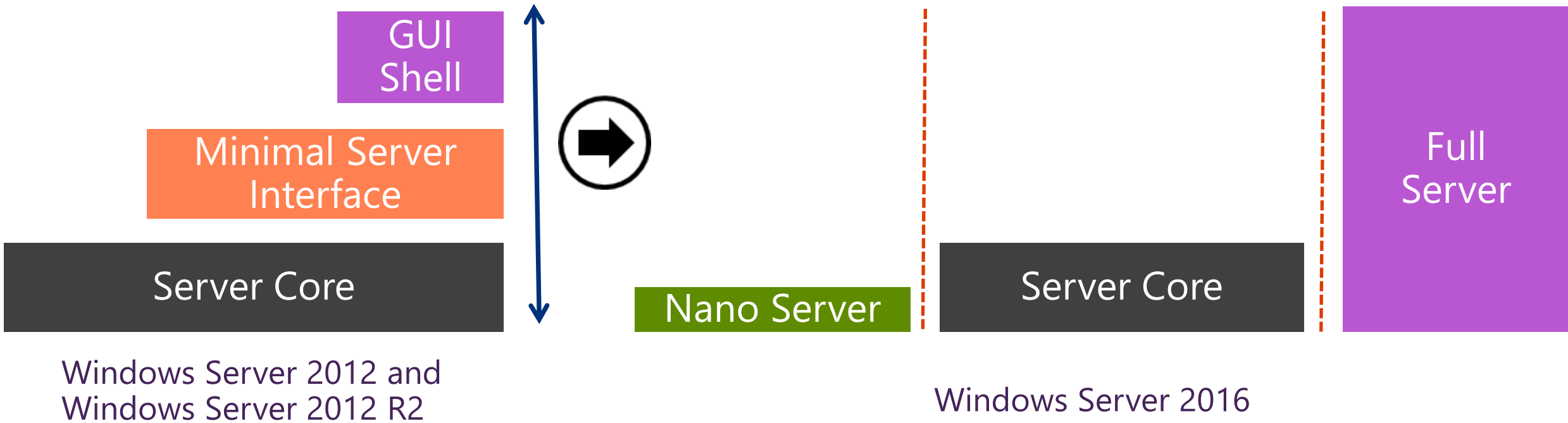
Windows Server installation evolution





Nano Server

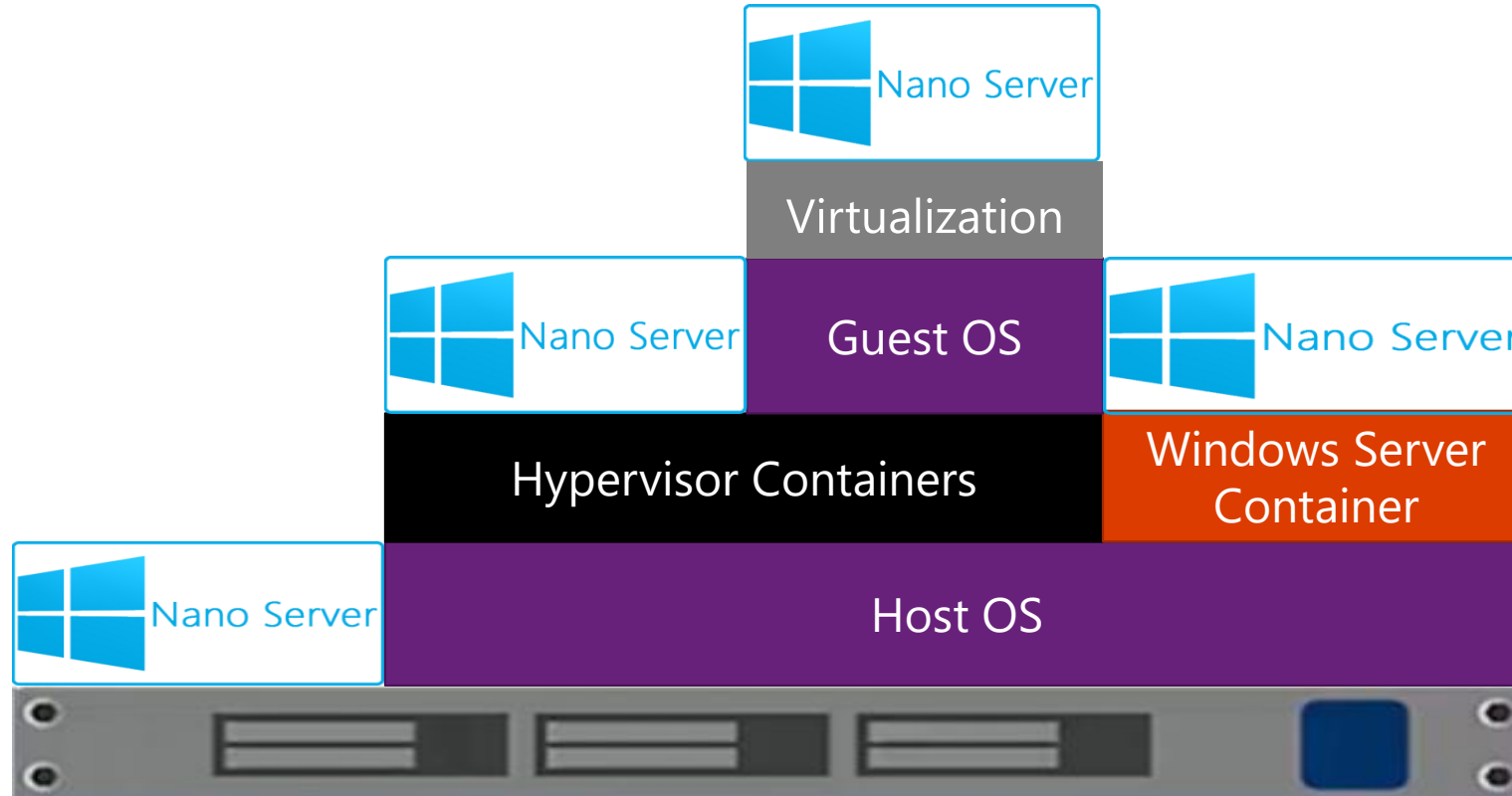
Windows Server installation evolution





Nano Server

Where we can install



The use of the physical machines can be used for data infrastructure.
Virtual machines for application containers.



Nano Server

What can we do

Role or features:

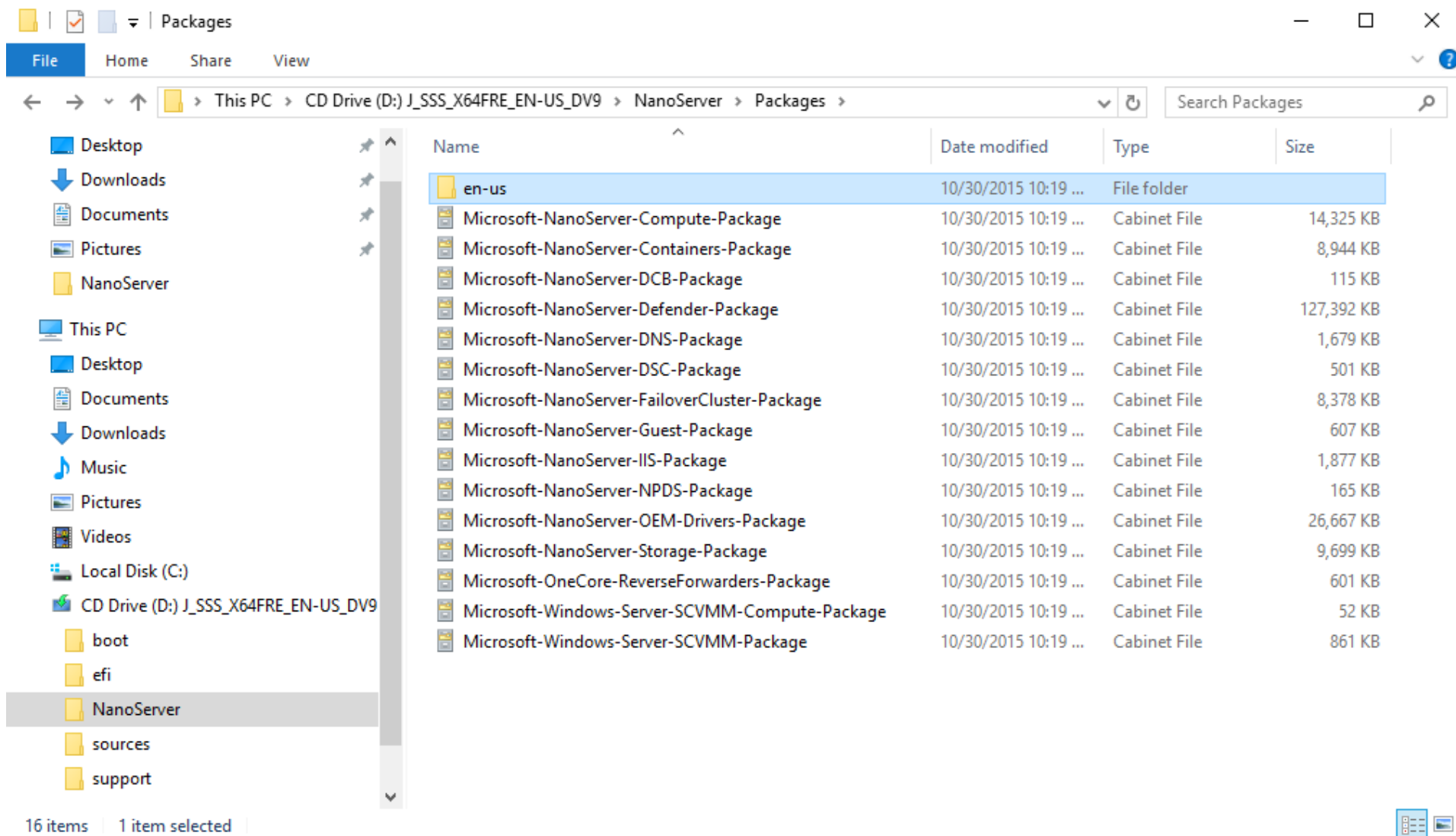
- Basic drivers for a variety of network adapters and storage controllers;
- Data Center Bridging;
- PowerShell Desired State Configuration (DSC);
- DNS Server role;
- File Server role and other storage components;
- Host support for Windows Containers;
- Hyper-V guest drivers for hosting Nano Server as a virtual machine;
- Hyper-V role;
- Internet Information Server (IIS);
- Network Performance Diagnostics Service (NPDS);
- Reverse forwarders for application compatibility frameworks such as Ruby, Node.js, etc;
- System Center Virtual Machine Manager agent;
- Windows Defender Antimalware, including a default signature file.





Nano Server

What can we do



The screenshot shows a Windows File Explorer window titled "Packages" with the address bar set to "This PC > CD Drive (D:) J_SSS_X64FRE_EN-US_DV9 > NanoServer > Packages". The left sidebar shows the "NanoServer" folder selected under "CD Drive (D:) J_SSS_X64FRE_EN-US_DV9". The main pane displays a list of 16 items in a table format:

Name	Date modified	Type	Size
en-us	10/30/2015 10:19 ...	File folder	
Microsoft-NanoServer-Compute-Package	10/30/2015 10:19 ...	Cabinet File	14,325 KB
Microsoft-NanoServer-Containers-Package	10/30/2015 10:19 ...	Cabinet File	8,944 KB
Microsoft-NanoServer-DCB-Package	10/30/2015 10:19 ...	Cabinet File	115 KB
Microsoft-NanoServer-Defender-Package	10/30/2015 10:19 ...	Cabinet File	127,392 KB
Microsoft-NanoServer-DNS-Package	10/30/2015 10:19 ...	Cabinet File	1,679 KB
Microsoft-NanoServer-DSC-Package	10/30/2015 10:19 ...	Cabinet File	501 KB
Microsoft-NanoServer-FailoverCluster-Package	10/30/2015 10:19 ...	Cabinet File	8,378 KB
Microsoft-NanoServer-Guest-Package	10/30/2015 10:19 ...	Cabinet File	607 KB
Microsoft-NanoServer-IIS-Package	10/30/2015 10:19 ...	Cabinet File	1,877 KB
Microsoft-NanoServer-NPDS-Package	10/30/2015 10:19 ...	Cabinet File	165 KB
Microsoft-NanoServer-OEM-Drivers-Package	10/30/2015 10:19 ...	Cabinet File	26,667 KB
Microsoft-NanoServer-Storage-Package	10/30/2015 10:19 ...	Cabinet File	9,699 KB
Microsoft-OneCore-ReverseForwarders-Package	10/30/2015 10:19 ...	Cabinet File	601 KB
Microsoft-Windows-Server-SCVMM-Compute-Package	10/30/2015 10:19 ...	Cabinet File	52 KB
Microsoft-Windows-Server-SCVMM-Package	10/30/2015 10:19 ...	Cabinet File	861 KB

At the bottom of the window, it indicates "16 items" and "1 item selected".



Nano Server

DEMO Create Nano Server VHD

```
Import-Module d:\nanoserver\NanoServerImageGenerator.psm1
New-NanoServerImage -MediaPath D:\ `
  -BasePath C:\NanoServer `
  -TargetPath C:\NanoServer\NanoServerISS2.VHD `
  -ComputerName "NanoServerISS" `
  -Guestdrivers `
  -Ipv4Address 10.0.2.20 `
  -Ipv4SubnetMask 255.255.255.0 `
  -Ipv4Gateway 10.0.2.2 `
  -Package Microsoft-NanoServer-OEM-Drivers-Package, Microsoft-NanoServer-IIS-Package `
  -Language en-us `
  -AdministratorPassword (ConvertTo-SecureString -String 'P@ssw0rd' -AsPlainText -Force) `
  -Verbose
```





Nano Server

- 64 bits only.
- There is no graphical user interface.
- Does not include MSI as an installation technology, Nano Server has a new declarative Appx-based installer called Windows Server App (WSA) Installer.



Nano Server

Remote server management tools

Remote graphical & Web tools	PowerShell remoting	VM & container management	Deployment & monitoring	Partners & frameworks
<ul style="list-style-type: none">• Server manager• Azure Portal tools• Task manager• Registry editor• File explorer• Server configuration• Event viewer• Disk manager• Device & driver management• Performance• Users & groups	<ul style="list-style-type: none">• Core PowerShell engine, language, and cmdlets• Windows Server cmdlets (network, storage, etc.)• PowerShell DSC• Remote file transfer• Remote script authoring & debugging• PowerShell Web access	<ul style="list-style-type: none">• Hyper-V manager• Hyper-V cmdlets• PowerShell Direct over PSRP• CimSession support• Docker• SCVMM agent & console• 3rd-party agents & consoles	<ul style="list-style-type: none">• DISM online & VHD support• Unattended setup• Visual Studio integration• DSC Local Config Manager• Setup & boot eventing• SCOM agent• VSO App Insights• Azure Op Insights	<ul style="list-style-type: none">• Chef integration• .NET Core and CoreCLR• ASP.NET 5• Python, PHP, Ruby, Node.js• PowerShell Classes• PS Script Analyzer• PowerShell Gallery• PowerShellGet





Nano Server

DEMO Powershell Remote Connection

```
# Start the WinRM Service
```

```
net start WinRM
```

```
Set-Item WSMan:\localhost\Client\TrustedHosts -Value "servername or IP"
```

```
Set-Item WSMan:\localhost\Client\TrustedHosts -Value "servername or IP, servername or IP"
```

```
Set-Item WSMan:\localhost\Client\TrustedHosts -Value "*"
```

```
Enter-PSSession -ComputerName "servername or IP" -Credential servername\Administrator
```

```
Enter-PSSession -VMName "VMName" -Credential servername\Administrator
```





Nano Server

Feedback

http://windowsserver.uservoice.com

https://windowsserver.uservoice.com/forums/295068-nano-server

Windows Server

General Feedback

Do you have an idea or suggestion based on your experience with Windows Server? We would love to hear it! Please take a few minutes to submit your idea in the one of the forums available on the right or vote up an idea submitted by another Windows Server customer. All of the feedback you share in these forums will be monitored and reviewed by the Microsoft engineering teams responsible for building Windows Server. Suggestions can apply to both released and Technical Preview versions of Windows Server.

This forum (General Feedback) is used for any broad feedback related to Windows Server. If you have feedback on a specific aspect of Windows Server, for example Storage, Networking, Virtualization, Nano Server, etc., please submit your feedback in one of the forums available on the right.

Remember that this site is only for feature suggestions and ideas!

If you have technical questions or need help with Windows Server, please visit our [TechNet Forums](#).

To see our work in progress, please go ahead and install the [Windows Server Technical Preview](#). More information on what's new in the Technical Preview can be found [here](#). You can join the conversation about the Technical Preview and swap advice with others at [Technical Preview Forums](#).

To improve Windows Server I suggest you ...

Enter your idea

Hot Top **New ideas** Category Status My feedback



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New age operating system. What i designed is a operating system where Kids have their own platform Olderen and adults. Easy to use

New age operating system.
What i designed is a operatino system where Kids have their own platform

Windows Server

Nano Server

How can we improve Nano Server?

Enter your idea

Hot Top **New ideas** Category Status My feedback

5 votes

Nano Server as RODC in SMB3 scenario

When the storage for a Hyper-V cluster only consists of SMB3, a circular dependency occurs. For example, in case of a power outage the SMB3 share cannot be brought up when all DCs for the domain are located on the SMB3 share. A workaround would be to use Nano Server as an RODC on local storage, so that authentication for the SMB3 share can take place and the storage share can be brought up.

0 comments · Roles & features · Flag idea as inappropriate...

2 votes

Start-Transcript support

Please support PowerShell Transcript noun. Since Nano Server is designed to be managed remotely, it would make it easier to debug scripts executing remotely if the PowerShell transcript capability were supported. Right now, Start-Transcript is not supported, so one can't see the results of simple PowerShell scripts executed remotely without building significant error handling and logging into the script.



Licensing

[It is available for consult Windows Server 2016 and System Center 2016 Standard and Datacenter Editions Pricing and licensing FAQ de December 2015](#)

Nano Server is a deployment option within Windows Server 2016. It is included as part of the licensing of the edition from which it is deployed. There is no unique or separate licensing for Nano Server.

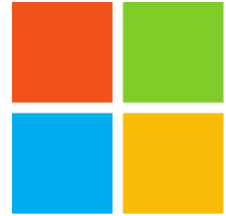
Licensing is by the number of cores in the server, similar to the Microsoft SQL Server licensing. Minimum license requirements: 8 cores per processor, 16 cores per server.

Questions?





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References

Windows Server 2016 Technical Preview 4

<https://technet.microsoft.com/en-us/library/mt126143.aspx>

Getting Started with Nano Server

<https://msdn.microsoft.com/en-us/library/mt126167.aspx>

Nano Server Technet Blog

<https://blogs.technet.com/b/nanoserver/>

Windows Server Technet Blog

<https://blogs.technet.microsoft.com/windowsserver/>





More references

Windows Containers Documentation

https://msdn.microsoft.com/virtualization/windowscontainers/containers_welcome

Microsoft GitHub Virtualization Documentation

<https://github.com/Microsoft/Virtualization-Documentation/tree/master/windows-server-container-samples>

Ben Armstrong's Virtualization Blog

https://blogs.msdn.microsoft.com/virtual_pc_guy/

Matt McSpirir Infravangelist

<http://www.mattmcspirit.com/author/mattmcspirit/>



Thank you for your attention!

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