

French PowerShell User Group

2017/01/11

Agenda

- French PowerShell User Group
- Présentation
- Windows Containers
 - Qu'est ce que c'est?
 - Hyper-V Containers
 - Windows Server Containers
 - Docker-Compose
 - Container sur Nano Server
- Image2Docker
- Comment se servir de tous ça?
- Démonstration
- Questions
- Conclusion

French PowerShell User Group

- Site <http://frpsug.github.io>
- Twitter [@frpsug](#)
- Chat
 - Pendant les meetings: **Skype**
 - En tout temps: **Slack**, sur le channel **#French**
 - PowerShell.slack.com
 - Enregistrement sur: <http://slack.poshcode.org/>
- Principaux Organisateurs
 - Francois-Xavier Cat (MVP Cloud and Datacenter Management)
 - Fabien Dibot
 - Stephane Van Gulick
 - Micky Balladelli
- Enregistrement du meeting sera par la suite mis sur Youtube.
- Future meetings
- Nous recherchons des presentateurs



Débuter avec les Windows Containers

Florent Appointaire

Florent Appointaire



- Belgique depuis 2014
- Oliléo depuis Janvier 2017
- MVP Cloud DataCenter Management (CDM)
- Membre du System Center User Group Belgique
- Membre de la communauté CMD
- Twitter: @florent_app
- Blog: <http://microsofttouch.fr/default/b/florent/>

Windows Containers

Qu'est ce que c'est?

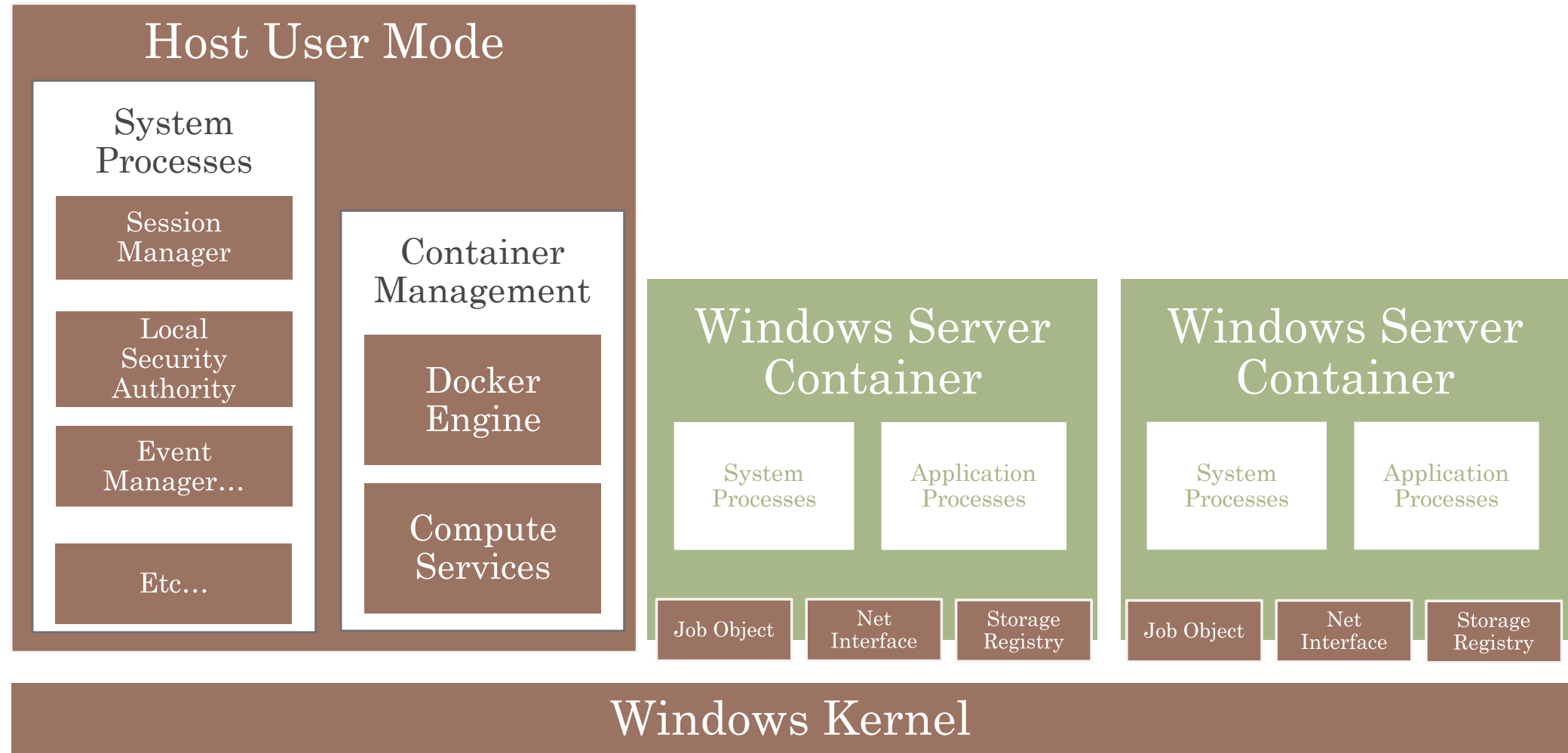
- Exactement comme les containers Linux, mais pour Windows
 - Seulement le containers Windows tournent sur un serveurs Windows et vice-versa
- Niveau d'isolation différent entre les Windows Servers Containers et les Hyper-V Containers

Windows Server Containers, qu'est ce que c'est?

- **Conteneurs Windows Server** : plusieurs instances de conteneurs peuvent s'exécuter simultanément sur un hôte avec une isolation assurée par le biais des technologies des espaces de noms, du contrôle des ressources et de l'isolation des processus. Les conteneurs Windows Server partagent le même noyau avec l'hôte ainsi qu'entre eux.

Source: https://msdn.microsoft.com/fr-fr/virtualization/windowscontainers/management/hyperv_container?f=255&MSPPErr=-2147217396

Windows Server Containers

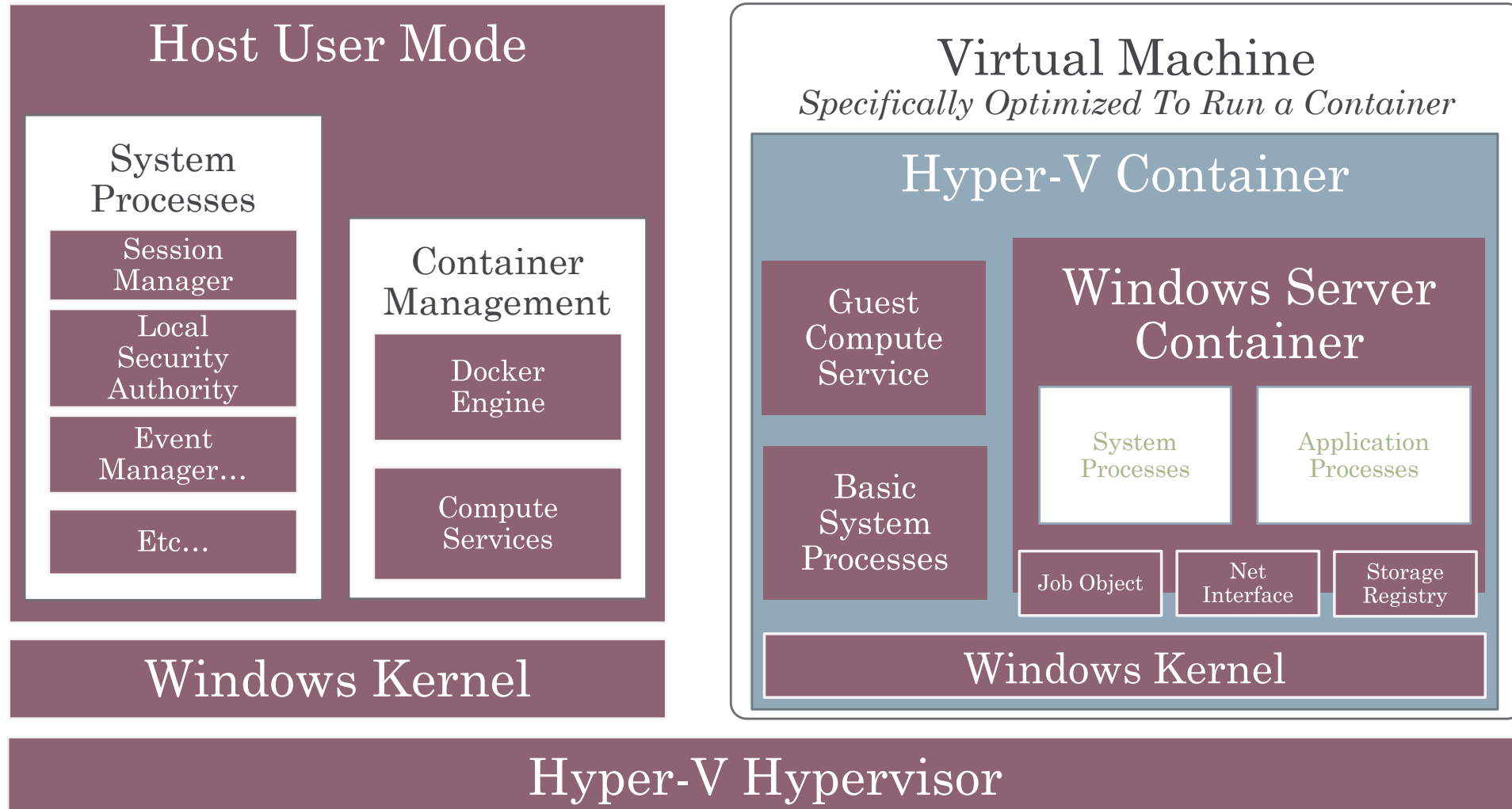


Hyper-V Containers, qu'est ce que c'est?

- **Conteneurs Hyper-V** : plusieurs instances de conteneurs peuvent s'exécuter simultanément sur un hôte. Cependant, chaque conteneur s'exécute à l'intérieur d'une machine virtuelle spéciale. Ceci fournit une isolation de niveau noyau entre chaque conteneur Hyper-V et l'hôte des conteneurs.

Source: https://msdn.microsoft.com/fr-fr/virtualization/windowscontainers/management/hyperv_container?f=255&MSPPErr=-2147217396

Hyper-V Containers



Docker-Compose

- Un fichier pour déployer des applications multi-tier
 - Base de données
 - Queues
 - Serveurs Web front end
- Ne fonctionne pas (encore) sur Windows 10

Containers sur Nano Server

- Installation sur un Nano Server
- Image de base: 500MB
- PowerShell pour l'installation des containers
 - Administration à distance obligatoire

Image2Docker

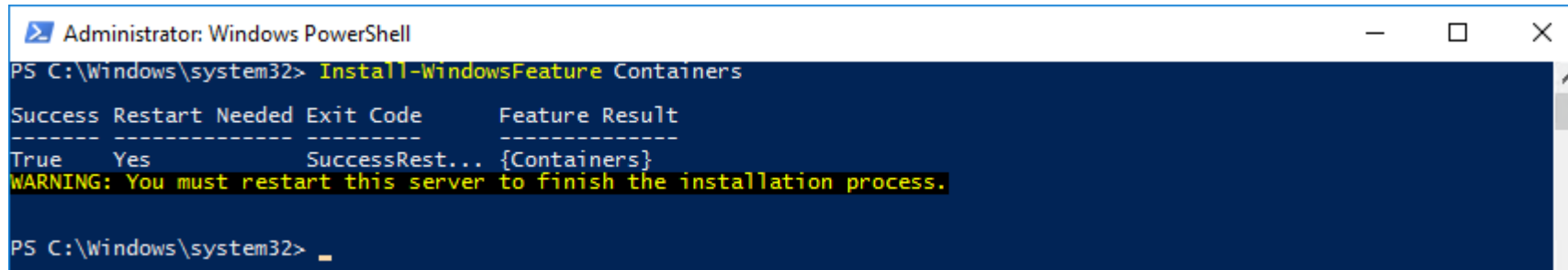
Image2Docker

- Permet de convertir des services Windows Server en Windows Containers
 - IIS & ASP.NET apps
 - MSMQ
 - DNS
 - DHCP
 - Apache
 - SQL Server
- Images supportées: VHD, VHDX, WIM
- <https://github.com/docker/communitytools-image2docker-win>

Comment se servir de
tous ça?

Installation sur Windows Server 2016

- PowerShell:
 - Install-WindowsFeature Containers
 - Restart-Computer
- Possible de le faire via le Server Manager



```
Administrator: Windows PowerShell
PS C:\Windows\system32> Install-WindowsFeature Containers

Success Restart Needed Exit Code      Feature Result
-----
True      Yes          SuccessRest... {Containers}
WARNING: You must restart this server to finish the installation process.

PS C:\Windows\system32> _
```

Installation sur Windows Server 2016

- Install-PackageProvider ContainerImage
- Get-Command -Module ContainerImage
- Find-ContainerImage | Install-ContainerImage

```
PS C:\Windows\system32> Get-Command -Module ContainerImage
```

CommandType	Name	Version	Source
Function	Find-ContainerImage	0.6.4.0	ContainerImage
Function	Install-ContainerImage	0.6.4.0	ContainerImage
Function	Save-ContainerImage	0.6.4.0	ContainerImage

```
PS C:\Windows\system32> Find-ContainerImage
```

Name	Version	Source	Summary
NanoServer	10.0.14300.1016	ContainerImag...	Container OS Image of Windows Server 2016 Technical...
WindowsServerCore	10.0.14300.1000	ContainerImag...	Container OS Image of Windows Server 2016 Technical...

```
PS C:\Windows\system32> _
```

```
PS C:\Program Files\docker> Find-ContainerImage | Install-ContainerImage
```

Install-ContainerOSImage : The term 'Install-ContainerOSImage' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the spelling of the name, or if a path was included, verify that the path is correct and try again.

At C:\Program Files\WindowsPowerShell\Modules\ContainerImage\0.6.4.0\ContainerImage.psm1:502 char:5

```
+ Install-ContainerOSImage -WimPath $Destination
+ ~~~~~
+ CategoryInfo          : ObjectNotFound: (Install-ContainerOSImage:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException
```

```
PS C:\Program Files\docker> _
```

Installation de Docker sur Windows Server 2016

- Invoke-WebRequest "
https://master.dockerproject.org/windows/amd64/docker-1.14.0-dev.zip" -
OutFile "\$env:TEMP\docker.zip" -UseBasicParsing
- Expand-Archive -Path "\$env:TEMP\docker.zip" -DestinationPath
\$env:ProgramFiles
- [Environment]::SetEnvironmentVariable("Path", \$env:Path + ";C:\Program
Files\Docker", [EnvironmentVariableTarget]::Machine)
- C:\ProgramFiles\docker\dockerd.exe --register-service
- Start-Service Docker

```
PS C:\Program Files\docker> get-Service Docker
```

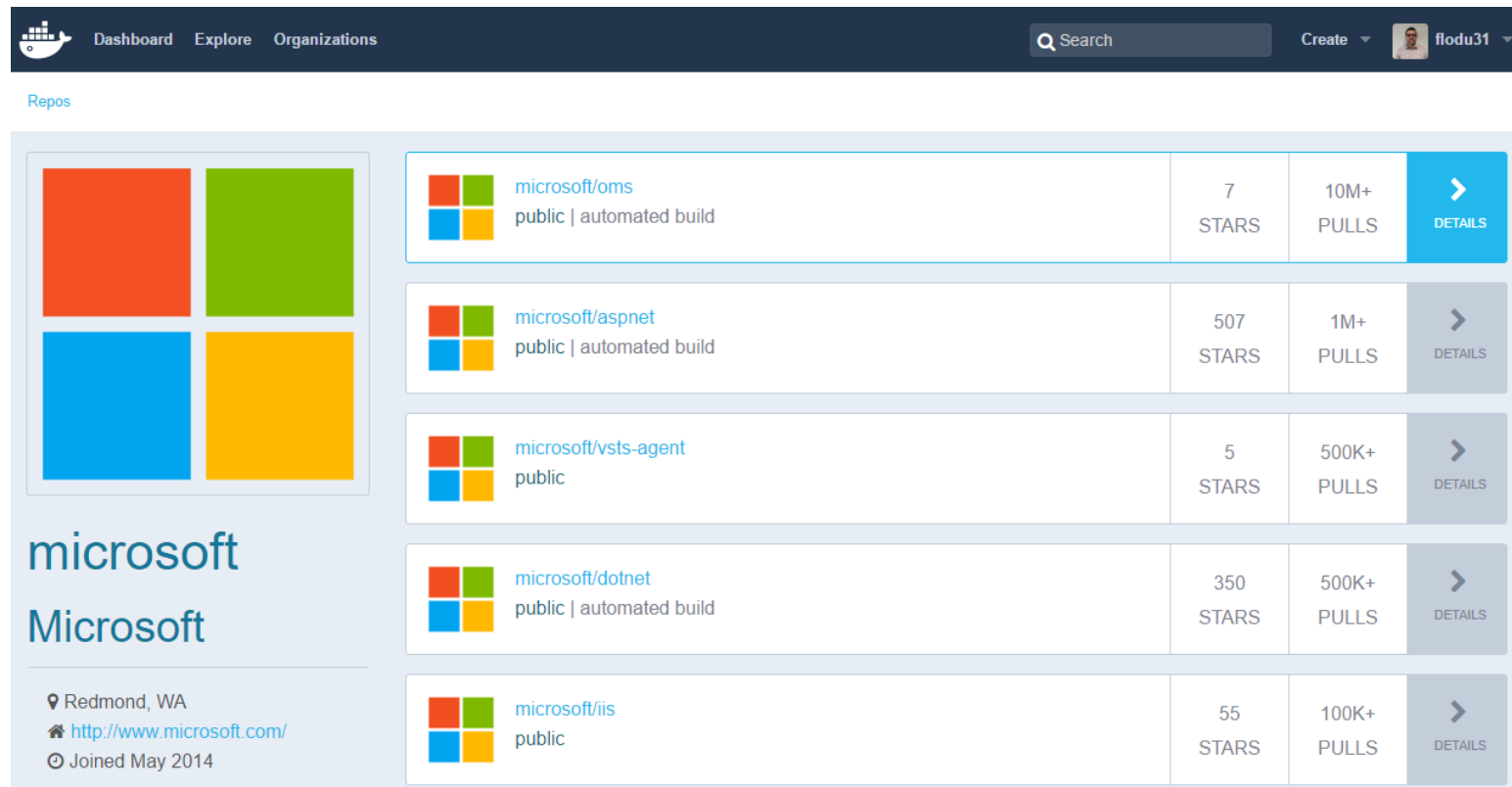
Status	Name	DisplayName
Running	Docker	Docker Engine

```
PS C:\Program Files\docker> _
```






Source: https://msdn.microsoft.com/en-us/virtualization/windowscontainers/docker/configure_docker_daemon?f=255&MSPPErrors=-2147217396

Docker Images

- Un seul lien: <https://hub.docker.com/>
- Images Docker Microsoft: <https://hub.docker.com/u/microsoft/>



The screenshot shows the Docker Hub interface for the Microsoft organization. The top navigation bar includes links for Dashboard, Explore, and Organizations, along with a search bar and a user profile for 'fiodu31'. The main content area displays a list of Docker images under the 'microsoft' organization. On the left, there is a sidebar with the Microsoft logo and location information (Redmond, WA).

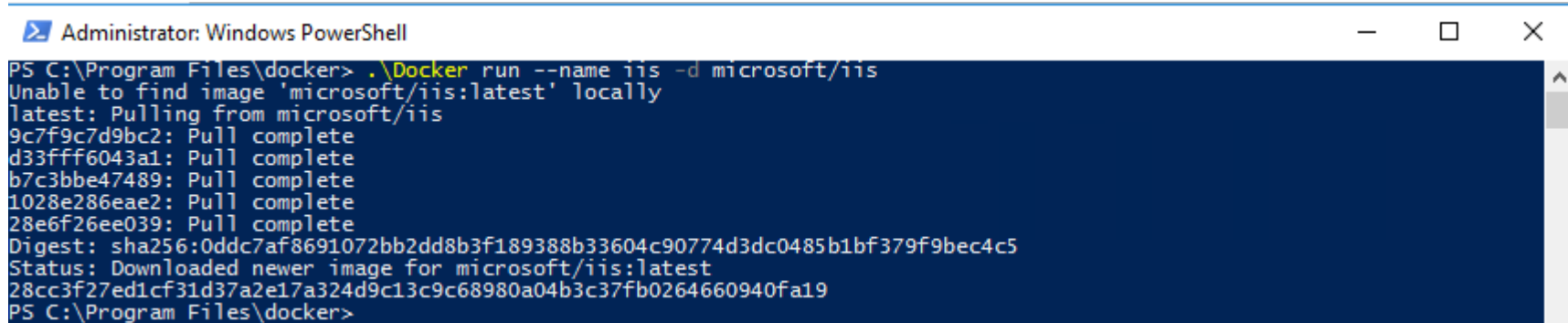
Repository	Stars	Pulls	Action
 microsoft/oms public automated build	7 STARS	10M+ PULLS	DETAILS
 microsoft/aspnet public automated build	507 STARS	1M+ PULLS	DETAILS
 microsoft/vsts-agent public	5 STARS	500K+ PULLS	DETAILS
 microsoft/dotnet public automated build	350 STARS	500K+ PULLS	DETAILS
 microsoft/iis public	55 STARS	100K+ PULLS	DETAILS

microsoft
Microsoft

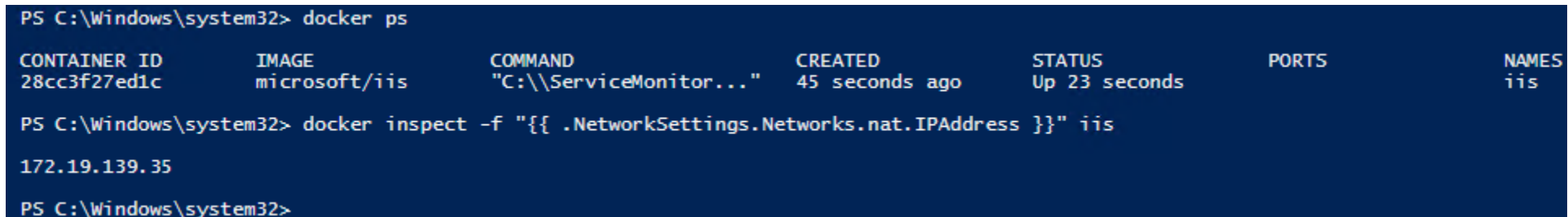
📍 Redmond, WA
🌐 <http://www.microsoft.com/>
🕒 Joined May 2014

Premier container

- Docker run --name iis -d microsoft/iis -p 8080:80



```
Administrator: Windows PowerShell
PS C:\Program Files\docker> .\Docker run --name iis -d microsoft/iis
Unable to find image 'microsoft/iis:latest' locally
latest: Pulling from microsoft/iis
9c7f9c7d9bc2: Pull complete
d33fff6043a1: Pull complete
b7c3bbe47489: Pull complete
1028e286eae2: Pull complete
28e6f26ee039: Pull complete
Digest: sha256:0ddc7af8691072bb2dd8b3f189388b33604c90774d3dc0485b1bf379f9bec4c5
Status: Downloaded newer image for microsoft/iis:latest
28cc3f27ed1cf31d37a2e17a324d9c13c9c68980a04b3c37fb0264660940fa19
PS C:\Program Files\docker>
```



```
PS C:\Windows\system32> docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
28cc3f27ed1c	microsoft/iis	"C:\\ServiceMonitor..."	45 seconds ago	Up 23 seconds		iis

```
PS C:\Windows\system32> docker inspect -f "{{ .NetworkSettings.Networks.nat.IPAddress }}" iis
172.19.139.35
PS C:\Windows\system32>
```

Seulement les containers de type Windows fonctionnent sur Windows Server à l'heure actuelle

Utiliser votre propre site web dans un container IIS

- Docker build -t floappwebsite .
- Docker run --name floappwebsite -d floappwebsite -p 8888:8080
- Docker inspect -f "{{ .NetworkSettings.Networks.nat.IPAddress }}" floappwebsite

```
PS C:\Windows\system32> docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
980d1c0b93dd	floappwebsite	"C:\\ServiceMonitor..."	16 seconds ago	Up 12 seconds	0.0.0.0:8000->8080/tcp	floappwebsite

```
PS C:\Windows\system32> docker inspect -f "{{ .NetworkSettings.Networks.nat.IPAddress }}" floappwebsite
```

```
172.19.137.20
```

```
PS C:\Windows\system32>
```



Hello Florent Appointaire

You are running this container from Docker Datanceter in Azure.

Hyper-V Container

- `docker run -it --isolation hyperv microsoft/nanoserver:latest powershell`

```
PS C:\Windows\system32> docker run -it --isolation hyperv microsoft/nanoserver:latest powershell
```

```
docker : C:\Program Files\Docker\docker.exe: Error response from daemon: container 1bbeccd478ef6e444681c9b397e7ce617fc8ad02be174844b3500c02f436370a encountered an error during
CreateContainer: failure in a Windows system call: No hypervisor is present on this system. (0xc0351000) extra info: {"SystemType":"Container","Name":"1bbeccd478ef6e444681c9b397e7ce617fc8
ad02be174844b3500c02f436370a","Owner":"docker","IsDummy":false,"IgnoreFlashesDuringBoot":true,"LayerFolderPath":"C:\\ProgramData\\docker\\windowsfilter\\1bbeccd478ef6e444681c9b397e7ce617f
c8ad02be174844b3500c02f436370a","Layers":[{"ID":"40964e36-b896-5564-bf88-89b431b44e82","Path":"C:\\ProgramData\\docker\\windowsfilter\\c20a0beba31f86b22bc0f39bdb3c2372c79c614709b14d73a647
6b359ee22fc6"}],{"ID":"5ce8f287-671f-5dfb-a04f-cad354f992b7","Path":"C:\\ProgramData\\docker\\windowsfilter\\71649561a3cef31cfc85d6ebc7c64591a37d5c3e960a2efbeedf5d4c21d9b097"}]}, {"HostName":
"1bbeccd478ef","MappedDirectories":[],"SandboxPath":"C:\\ProgramData\\docker\\windowsfilter","HvPartition":true,"EndpointList":["1cbc5e90-81b5-46cd-a22d-df19e7ff6607"],"HvRuntime":{"Image
Path":"C:\\ProgramData\\docker\\windowsfilter\\c20a0beba31f86b22bc0f39bdb3c2372c79c614709b14d73a6476b359ee22fc6\\UtilityVM"},"Servicing":false,"AllowUnqualifiedDNSQuery":true}.
```

```
At line:1 char:1
```

```
+ docker run -it --isolation hyperv microsoft/nanoserver:latest powersh ...
```

```
+
```

```
+ CategoryInfo          : NotSpecified: (C:\Program File...NSQuery:String) [], RemoteException
+ FullyQualifiedErrorId : NativeCommandError
```

```
PS C:\Windows\system32>
```

Démonstration

Questions

Conclusion

Prochain meetings

- **DSC + Test-Kitchen**

- Presentateur: **Gael Colas**
- Quand: 2016/02/15 à 19h (heure de Paris)
- S'inscrire: <http://bit.ly/2hflt8D>

- **???**

- Presentateur: **Stijn Callebaut**
- Quand: 2016/03/15 à 19h (heure de Paris)
- S'inscrire: <http://bit.ly/2gvXy5u>

Merci!

- Rester en contact avec la communauté via
 - Chat: Slack, channel #french
 - Twitter @frpsug
- Notre site: <https://frpsug.github.io/>