



tech.days
2015

AMBIENT INTELLIGENCE

#mstechdays techdays.microsoft.fr



Docker et services .NET

G. Collic – J.P. Gouigoux

@gcollic

@jpgouigoux

■ Qui sommes-nous ?

- Guillaume Collic
 - MVP Application Lifecycle Management
- JP Gouigoux
 - MVP Integration



■ Objectifs

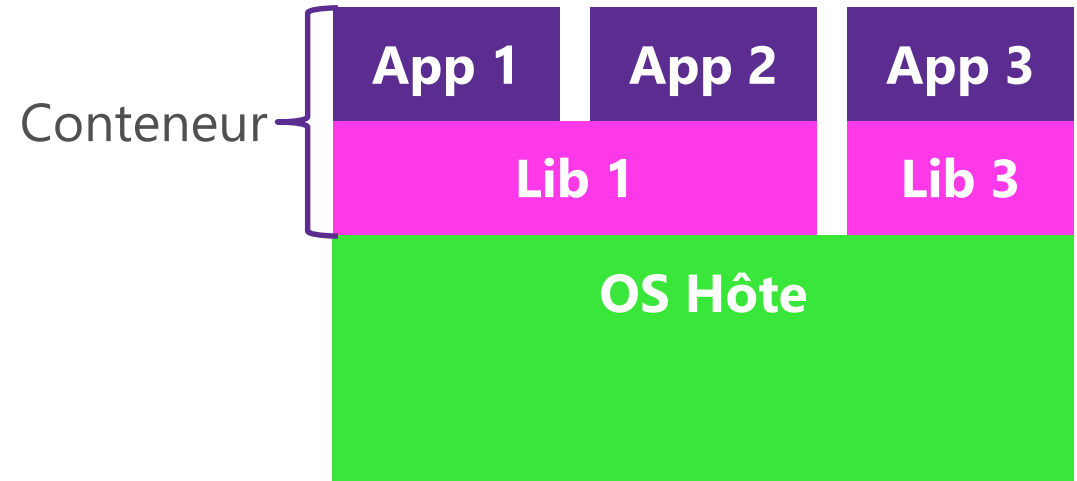
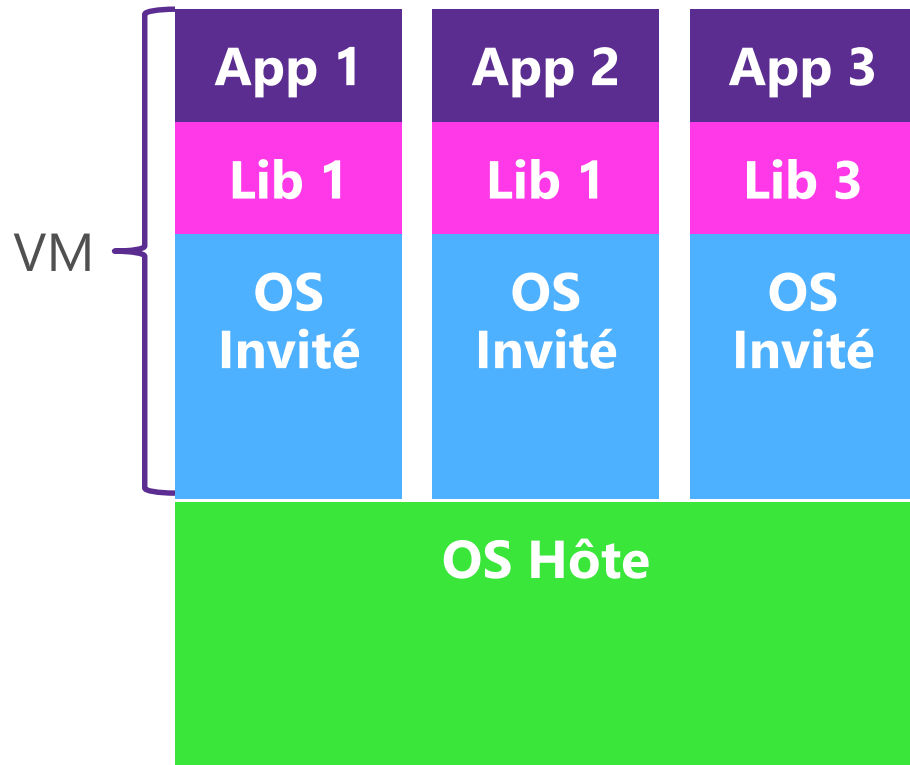
- .NET / Linux / Docker / Cluster CoreOS / Azure
- Approche DevOps
- Autonomie pour rejouer les démos
- Niveau 200



Virtualisation par conteneurs

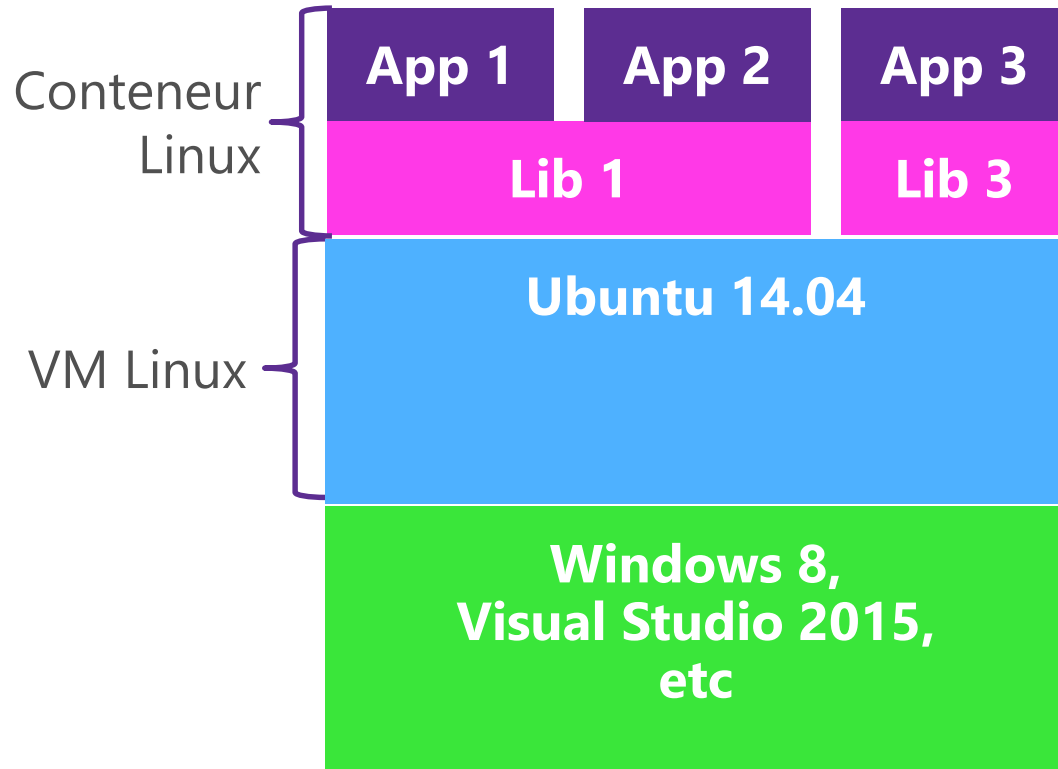
Qu'est ce que Docker ?

Conteneurs versus machine virtuelle

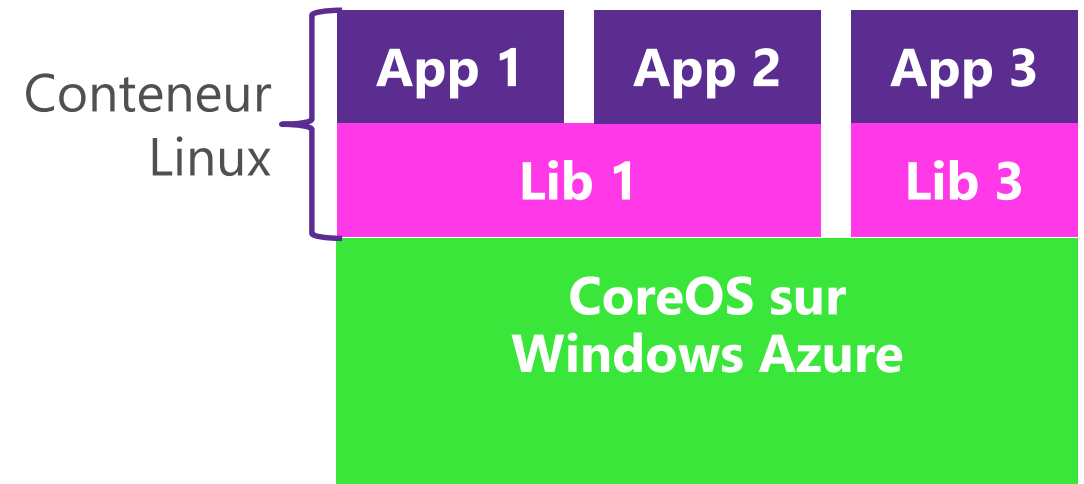


Mix Windows, conteneurs Linux et Azure

Scénario démontré aujourd'hui



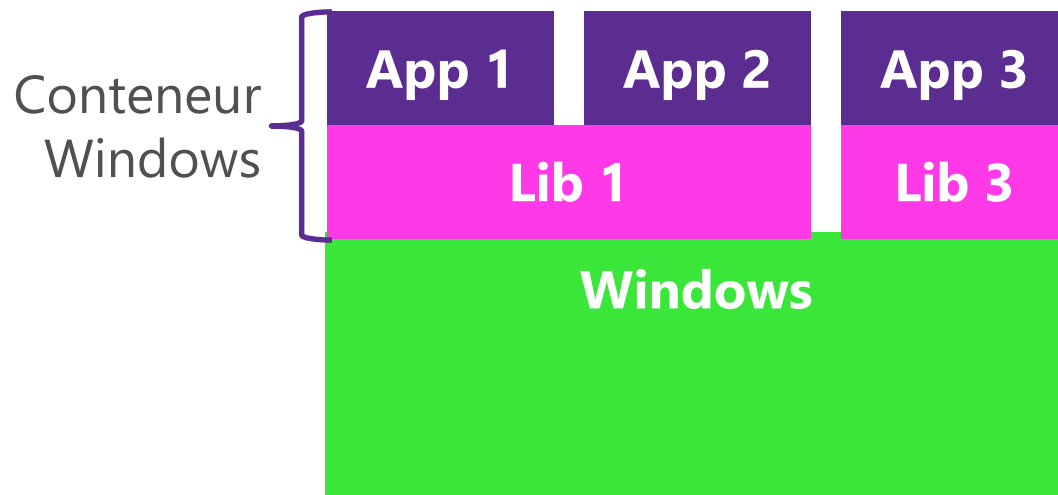
Dev



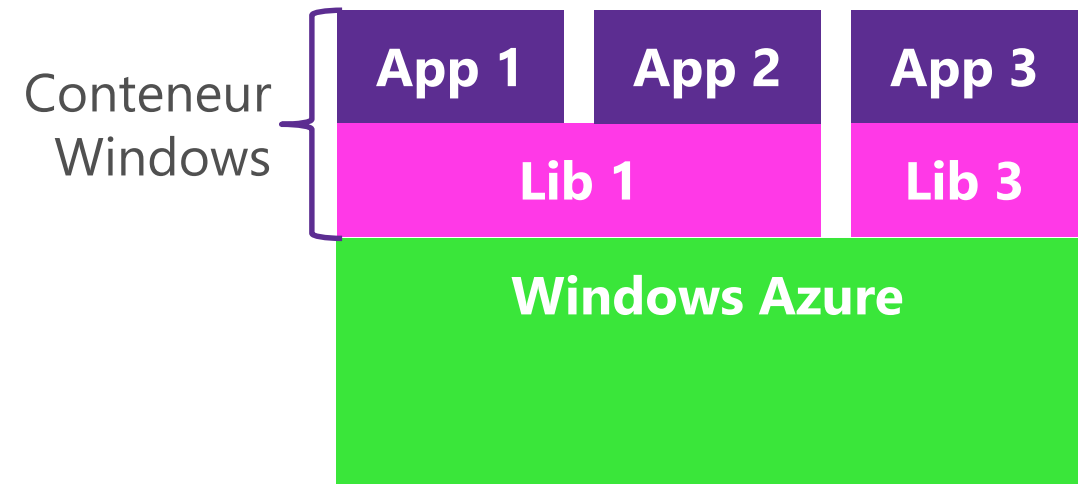
Ops

Conteneurs natifs Windows

Scénario *futur*



Dev



Ops



ASP
.NET

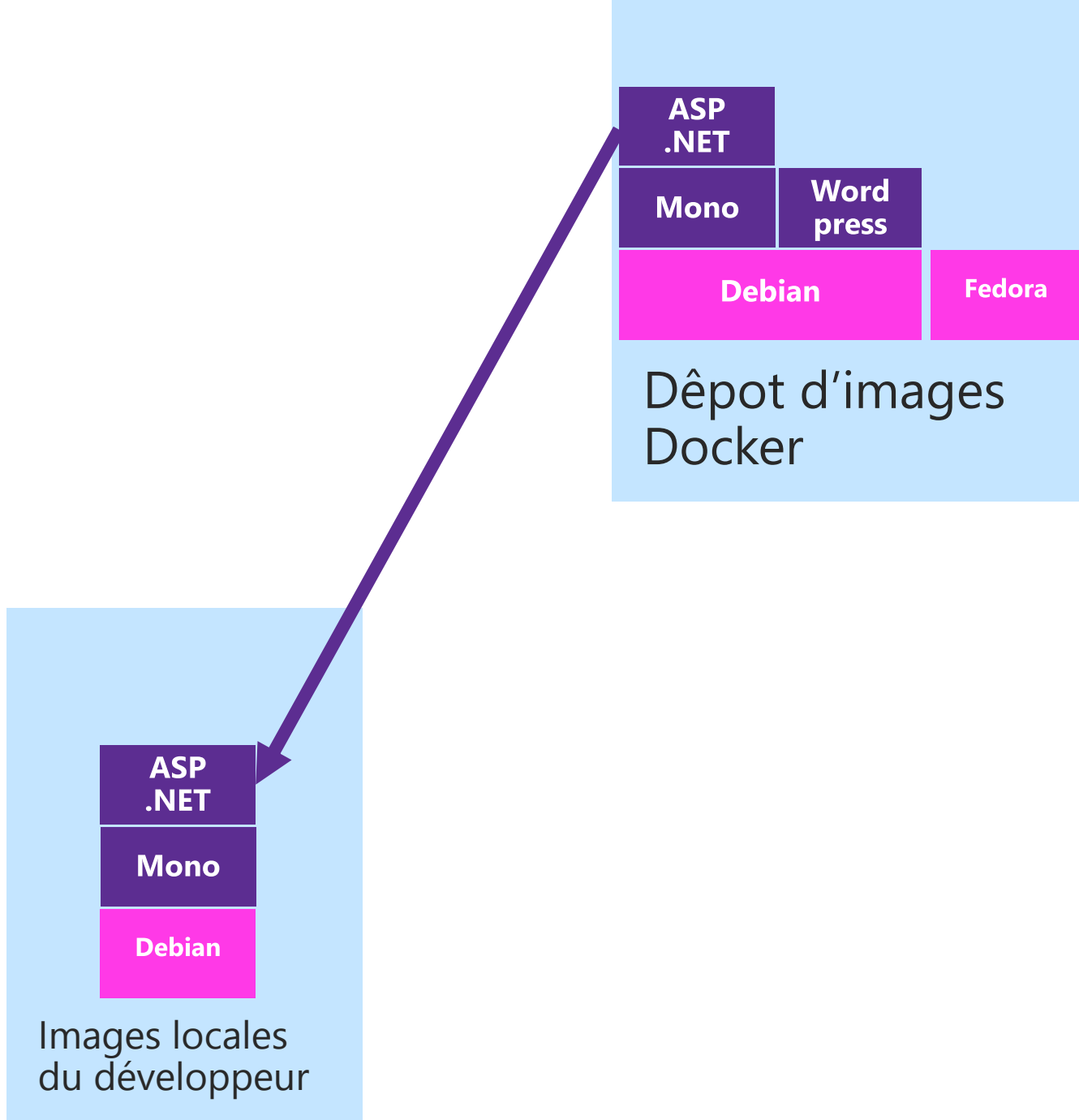
Mono

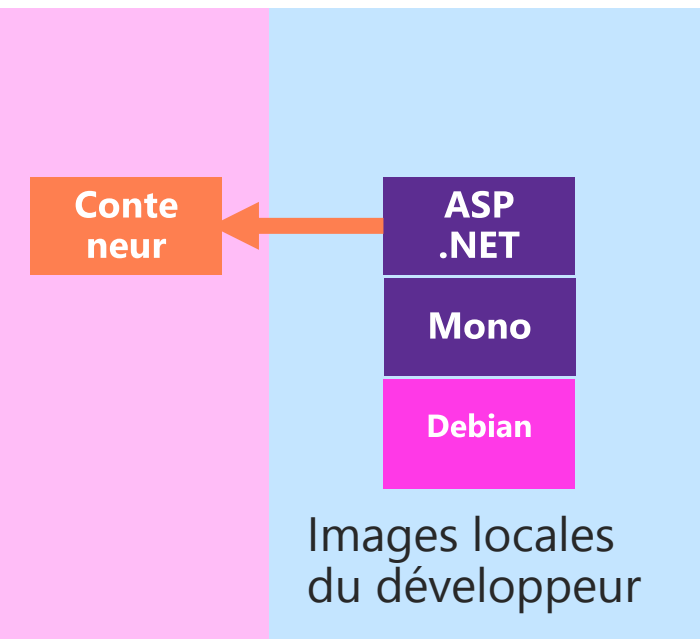
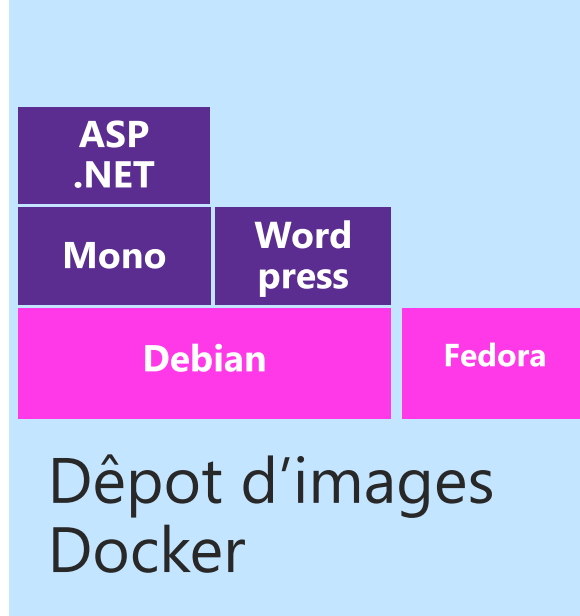
Word
press

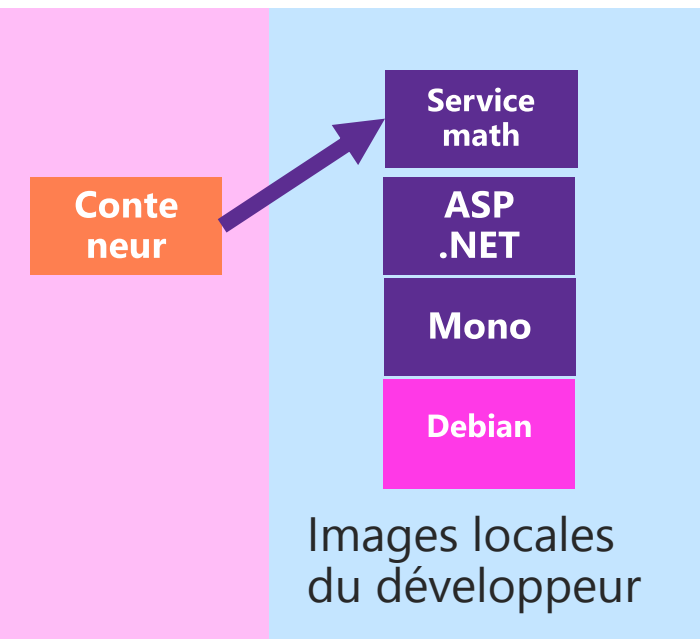
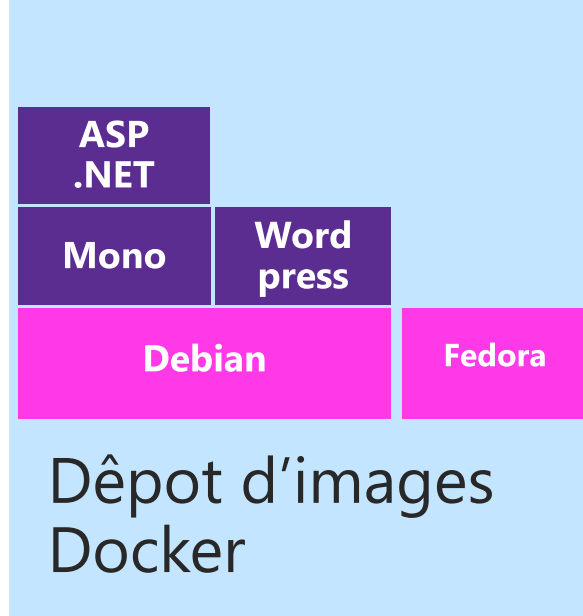
Debian

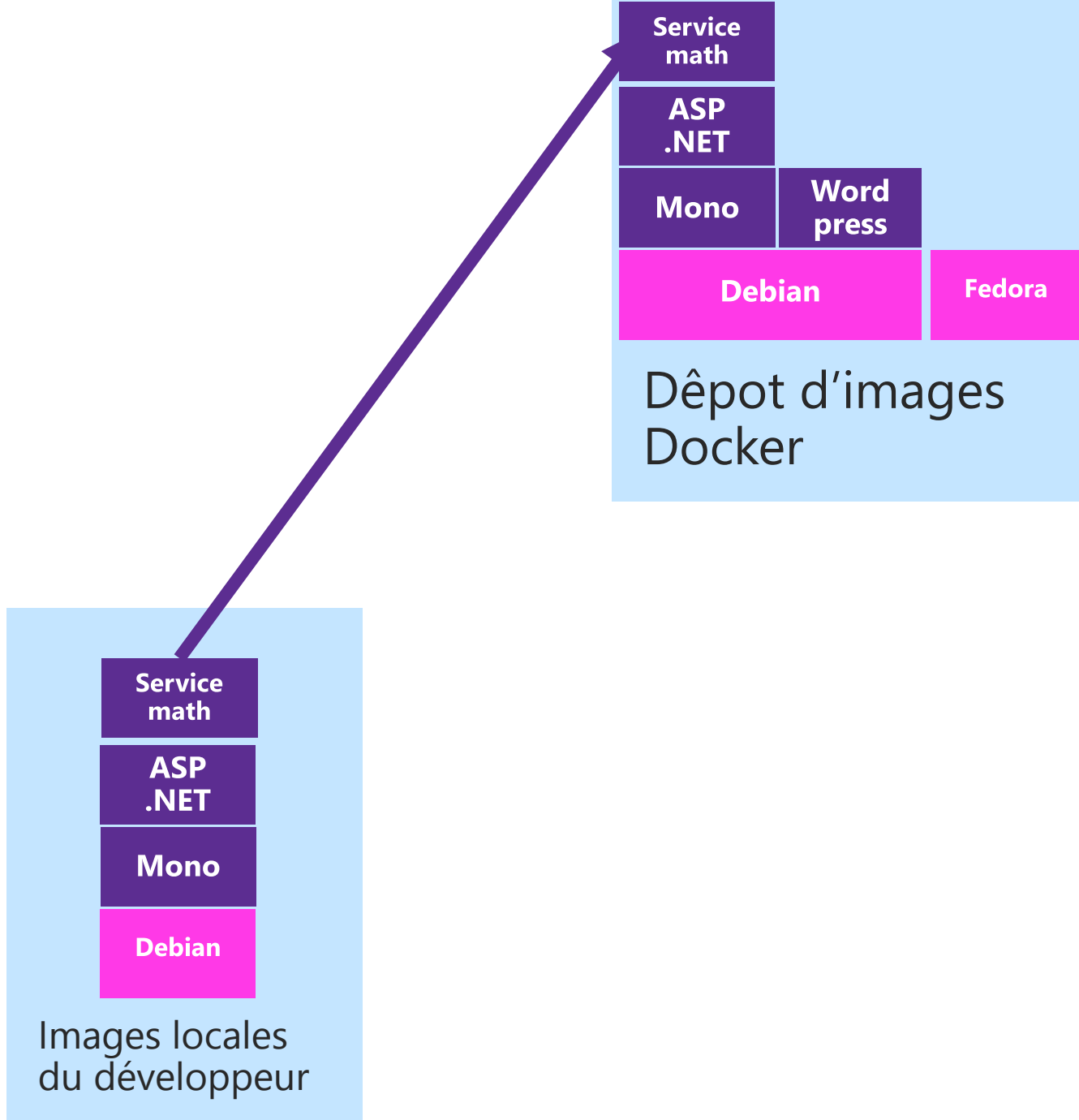
Fedora

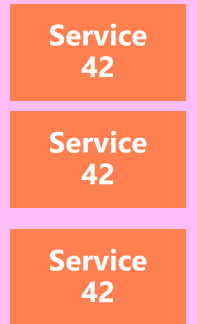
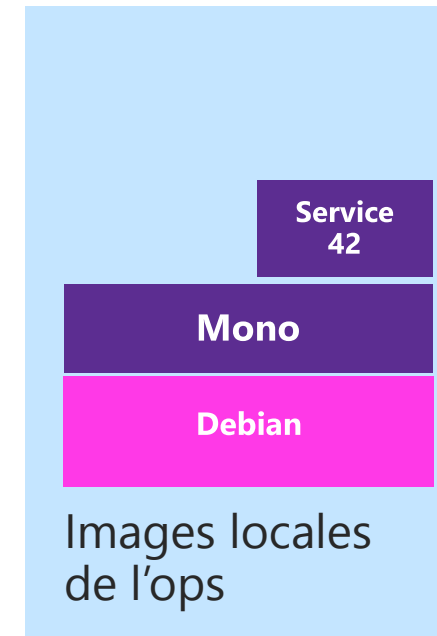
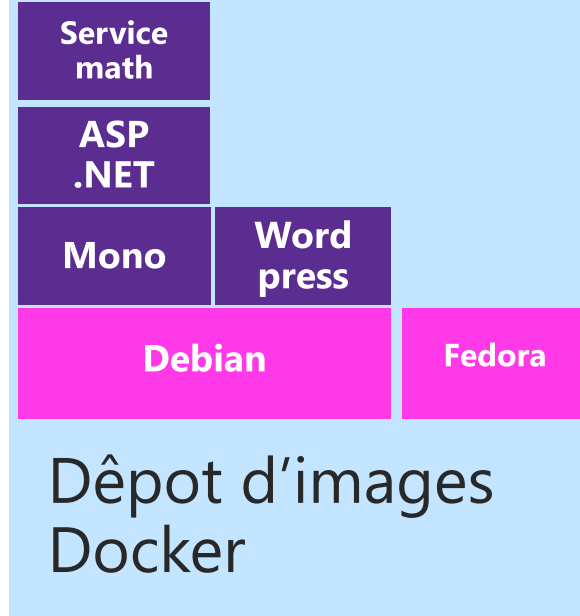
Dépot d'images
Docker

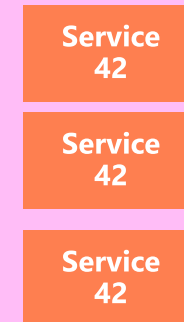
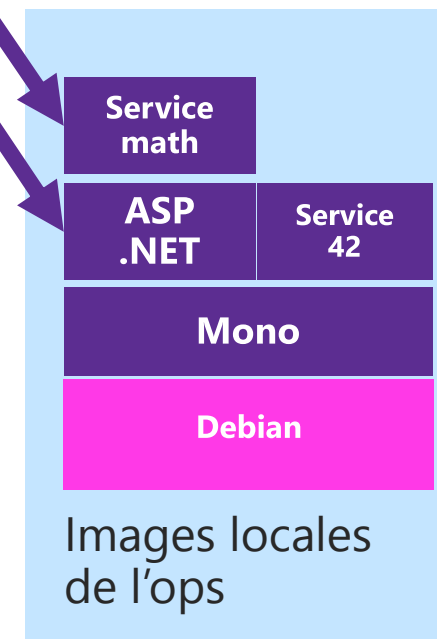
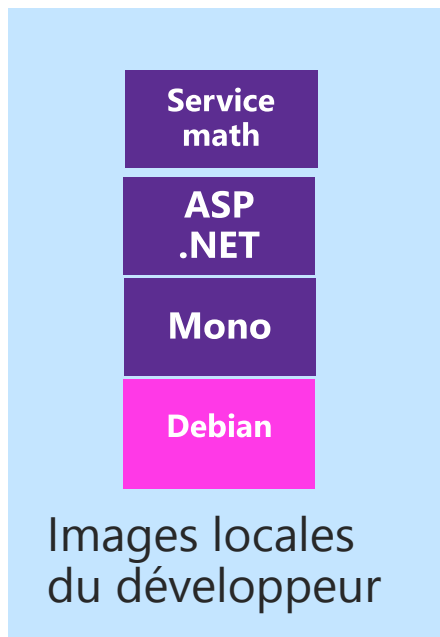
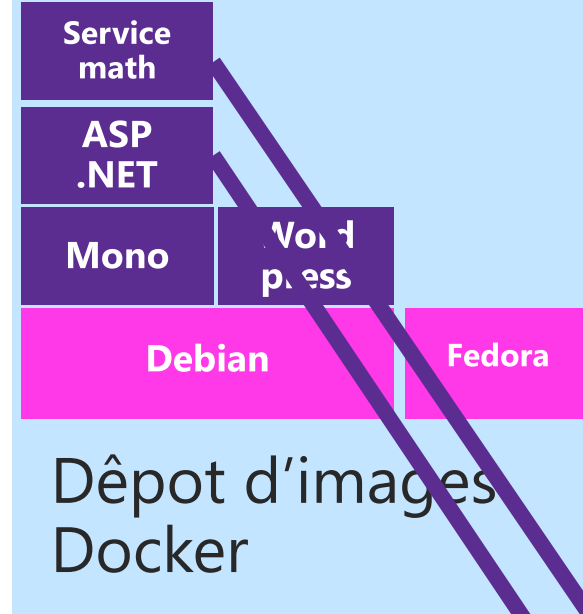


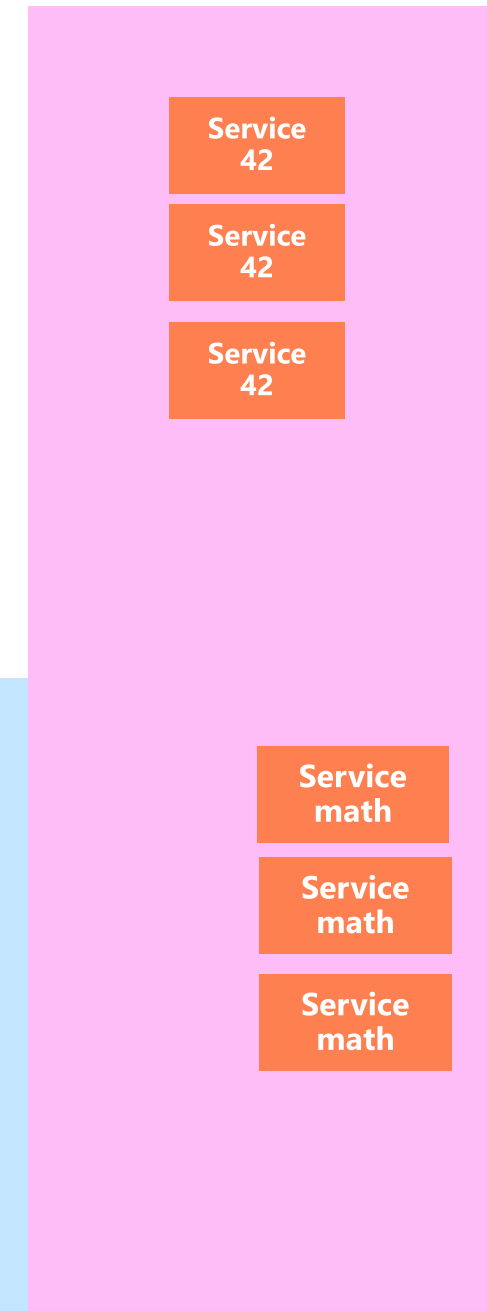
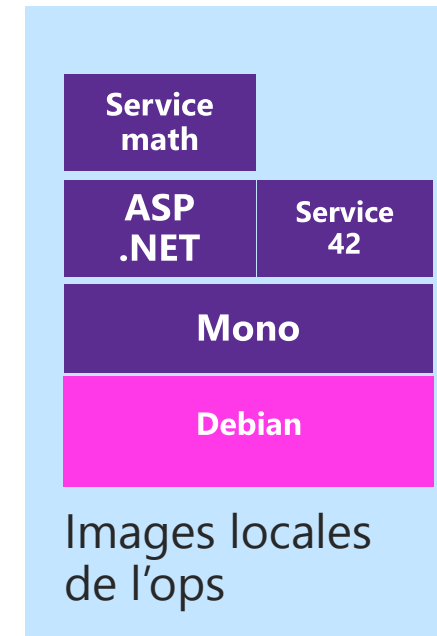
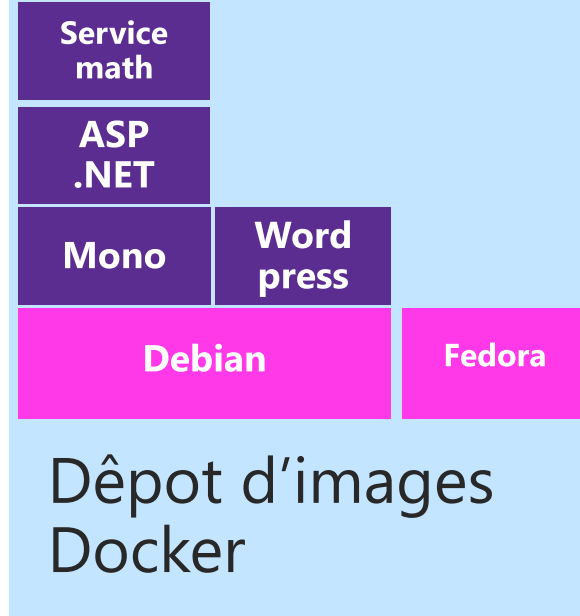


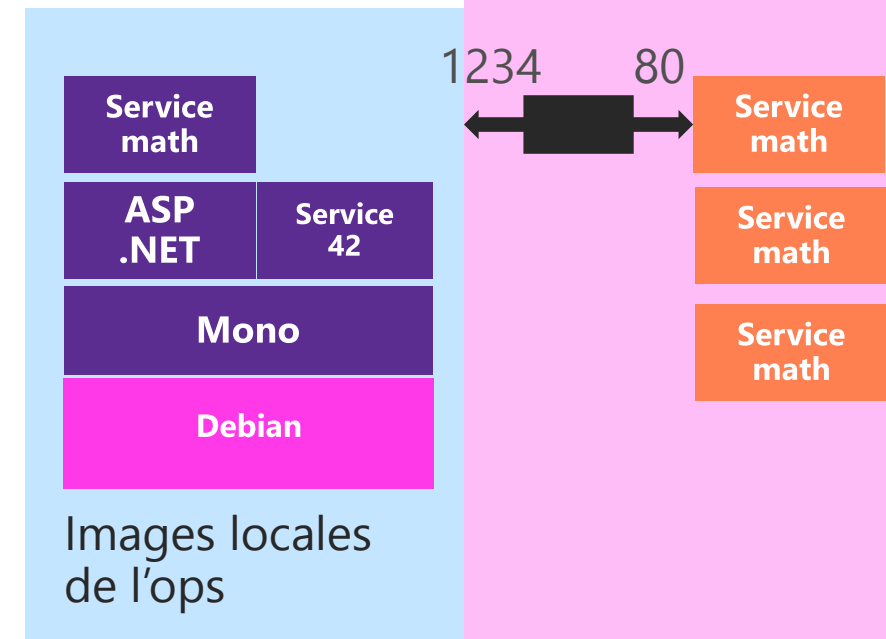
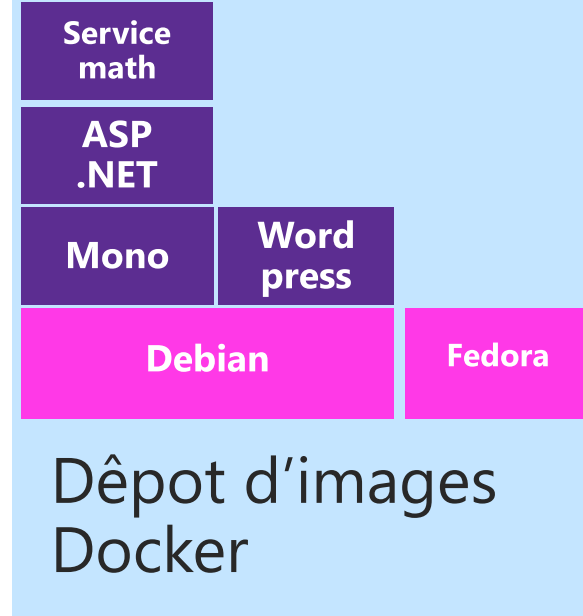














ASP.NET vNext

Tester Visual Studio 2015 ? Azure ☺

Visual Studio

Visual Studio Ultimate 2015 Preview on Windows Serve...

Microsoft

The Visual Studio Ultimate 2015 Preview image enables you to quickly create a development environment to explore the new Visual Studio 2015 capabilities. The image also includes Microsoft Azure SDK 2.5 for Azure development scenarios. By using the image you agree to Microsoft Supplemental Software License Terms for Microsoft Visual Studio 2015 Product Family Preview which can be found on the image desktop.

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. Also see the [privacy statement](#) from Microsoft.

WebApplication1 - Microsoft Visual Studio (Administra... Quick Launch (Ctrl+Q) Sign in

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Internet Explorer - Debug - Any CPU

Server Explorer

- Azure
 - Cloud Services
 - Mobile Services
 - Notification Hubs
 - Service Bus
 - SQL Databases
 - Storage
 - Virtual Machines
 - Websites
 - Data Connections
 - Servers
 - SharePoint Connections

HomeController.cs

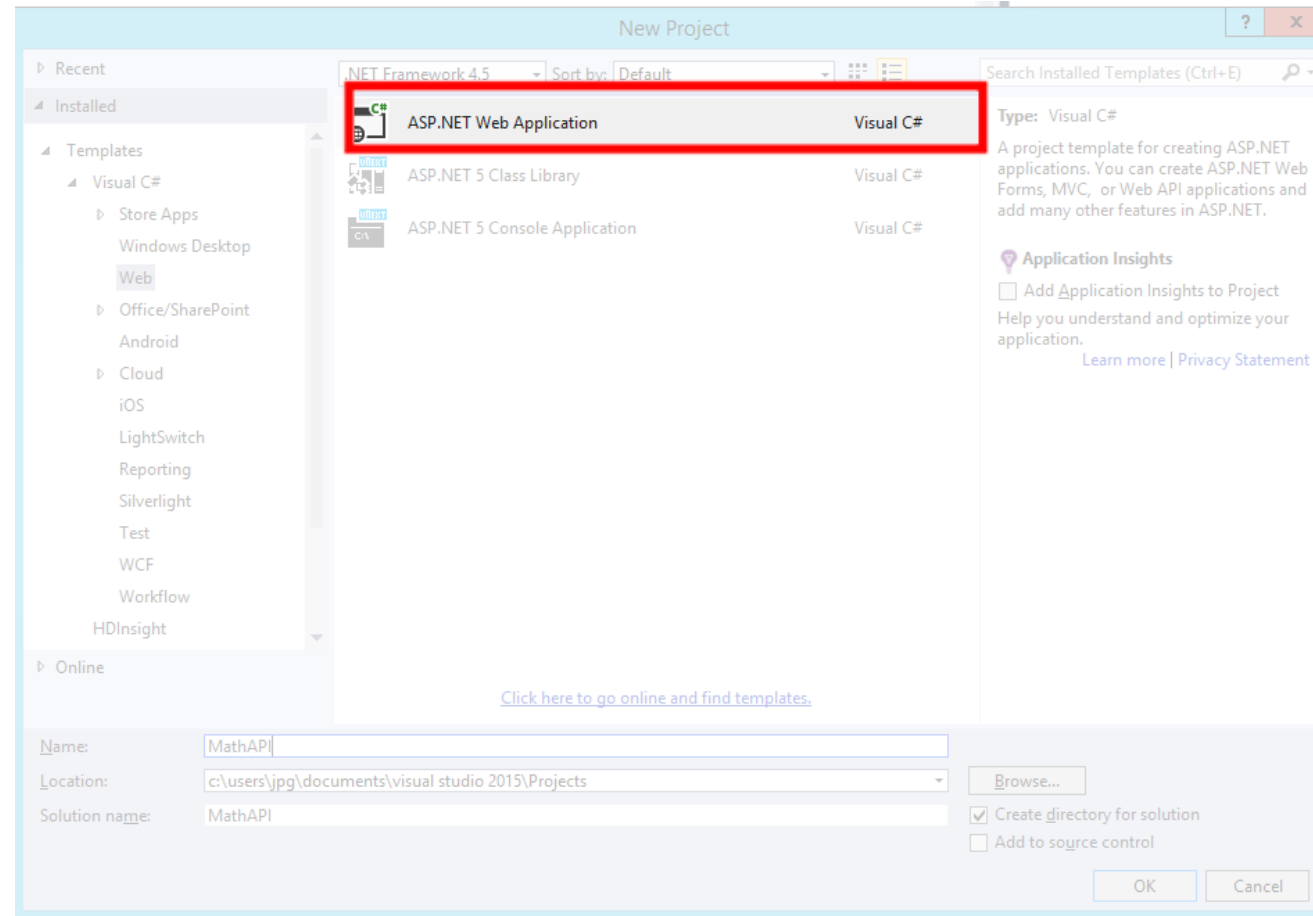
```
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Web;
5 using System.Web.Mvc;
6
7 namespace WebApplication1.Controllers
8 {
9     public class HomeController : Controller
10     {
11         public ActionResult Index()
12         {
13             return View();
14         }
15     }
16 }
```

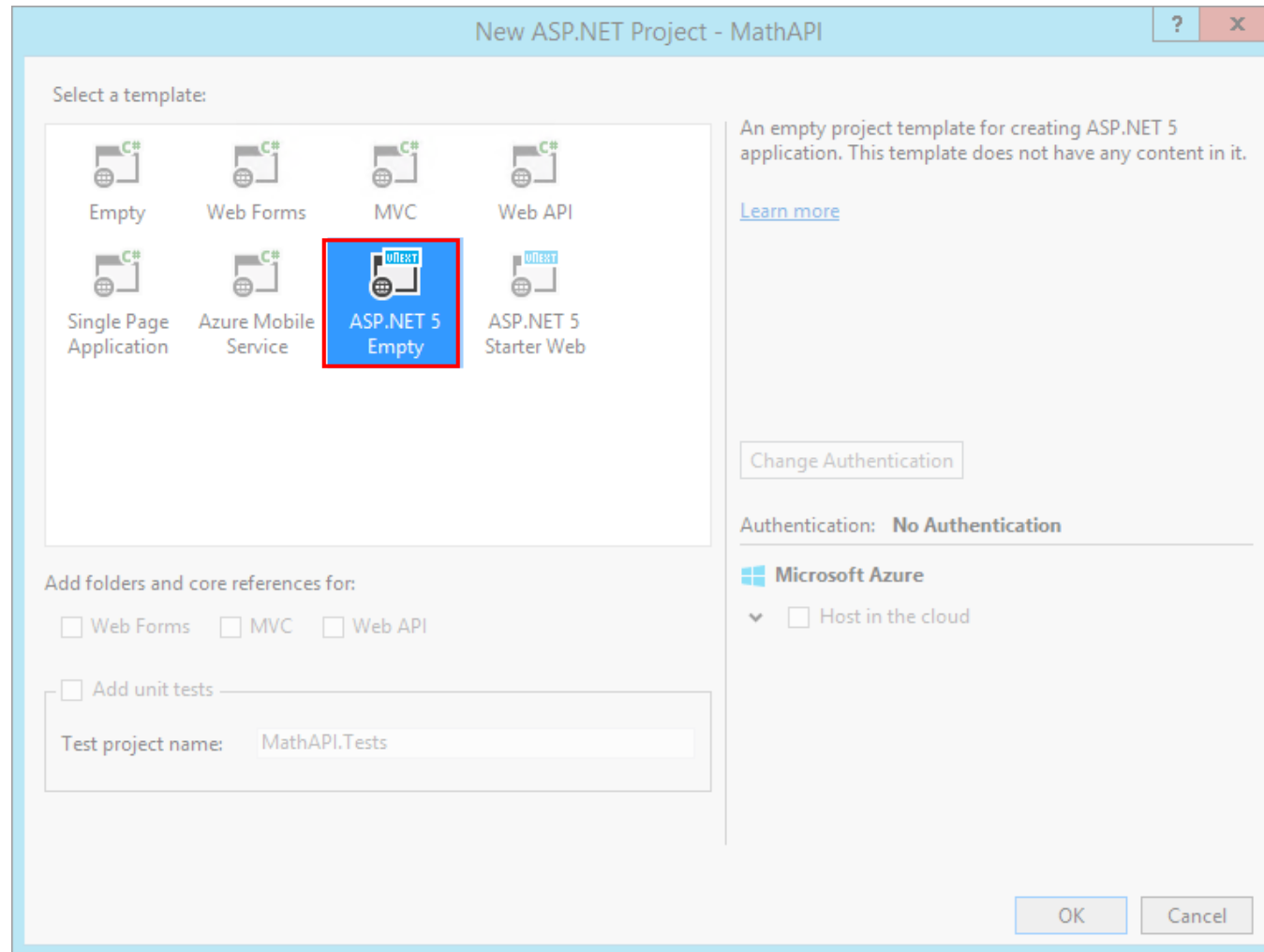
Solution Explorer

Solution 'WebApplication1' (1)

- WebApplication1
 - Properties
 - References
 - App_Data
 - App_Start
 - Content
 - Controllers
 - AccountController.c
 - HomeController.c
 - ManageController.c
 - fonts

Créer





<http://www.asp.net/media/4878834/project.json>

```
{
  "webroot": "wwwroot",
  "version": "1.0.0-*",
  "exclude": [
    "wwwroot"
  ],
  "packExclude": [
    "**.kproj",
    "**.user",
    "**.vspcc"
  ],
  "dependencies": {
    "Microsoft.AspNet.Server.IIS": "1.0.0-beta1"
  },
  "frameworks" : {
    "aspnet50" : { },
    "aspnetcore50" : { }
  }
}
```

http://www.asp.net/media/4878834/project.json

```
{
  "webroot": "wwwroot",
  "version": "1.0.0-*",
  "exclude": [
    "wwwroot"
  ],
  "packExclude": [
    "**.kproj",
    "**.user",
    "**.vspcc"
  ],
  "dependencies": {
    "Microsoft.AspNet.Server.IIS": "1.0.0-beta1",
    "Microsoft.AspNet.Mvc": "6.0.0-beta1"
  },
  "frameworks": {
    "aspnet50": { },
    "aspnetcore50": { }
  }
}
```

- 6.0.0-beta1
- " "
- { } { }
- 3.0.20105.1
- 3.0.50813.1
- 4.0.20505
- 4.0.20710
- 4.0.30506
- 4.0.40804

```
using System;
using Microsoft.AspNet.Builder;
using Microsoft.AspNet.Http;
using Microsoft.Framework.DependencyInjection;

namespace MathAPI
{
    public class Startup
    {
        public void ConfigureServices(IServiceCollection services)
        {
            services.AddMvc();
        }

        public void Configure(IApplicationBuilder app)
        {
            app.UseMvc();
        }
    }
}
```

```
using Microsoft.AspNet.Mvc;
```

```
namespace MathAPI
```

```
{
```

```
    [Route("api/[controller]")]
```

0 references

```
    public class MathController : Controller
```

```
    {
```

```
        [HttpGet("Ajouter")]
```

1 reference

```
        public int GetAddition(int n1, int n2)
```

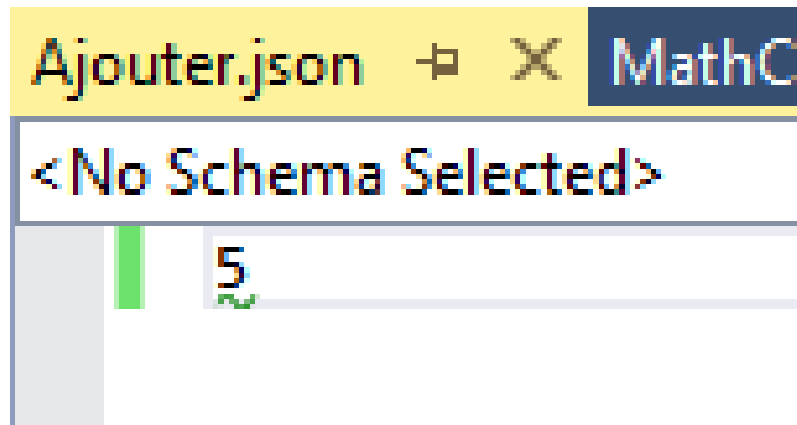
```
        {
```

```
            return n1 + n2;
```

```
        }
```

```
    }
```

```
}
```

http://www.asp.net/media/4878834/project.json

```
{
  "webroot": "wwwroot",
  "version": "1.0.0-*",
  "exclude": [
    "wwwroot"
  ],
  "packExclude": [
    "**.kproj",
    "**.user",
    "**.vspcc"
  ],
  "dependencies": {
    "Microsoft.AspNet.Server.IIS": "1.0.0-beta1",
    "Microsoft.AspNet.Mvc": "6.0.0-beta1",
    "Microsoft.AspNet.Server.WebListener": "1.0.0-beta1",
    "Kestrel" : "1.0.0-beta1"
  },
  "commands": {
    "web": "Microsoft.AspNet.Hosting --server Microsoft.AspNet.Server.WebListener --server.urls http://localhost:5001",
    "kestrel": "Microsoft.AspNet.Hosting --server Kestrel --server.urls http://localhost:5004"
  },
  "frameworks" : {
    "aspnet50" : { },
    "aspnetcore50" : { }
  }
}
```

MathAPI MathController.cs project.json Startup.cs

Application

Configuration:

N/A

Platform:

N/A

Build

Debug

Debug target:

kestrel

IIS Express

Command line arguments:

kestrel

web



C:\Users\jpg\kre\packages\kre-clr-x86.1.0.0-beta1\bin\klr.exe

Started



http://localhost:5004/api/Math/Ajouter?n1=2&n2=5

Ajouter.json MathAPI

<No Schema Selected>





Démo Docker+.NET

Côté dév

Vous
êtes
ICI

Conte
neur

Service
math

ASP
.NET

Mono

Debian

Images locales
du développeur

ASP
.NET

Mono

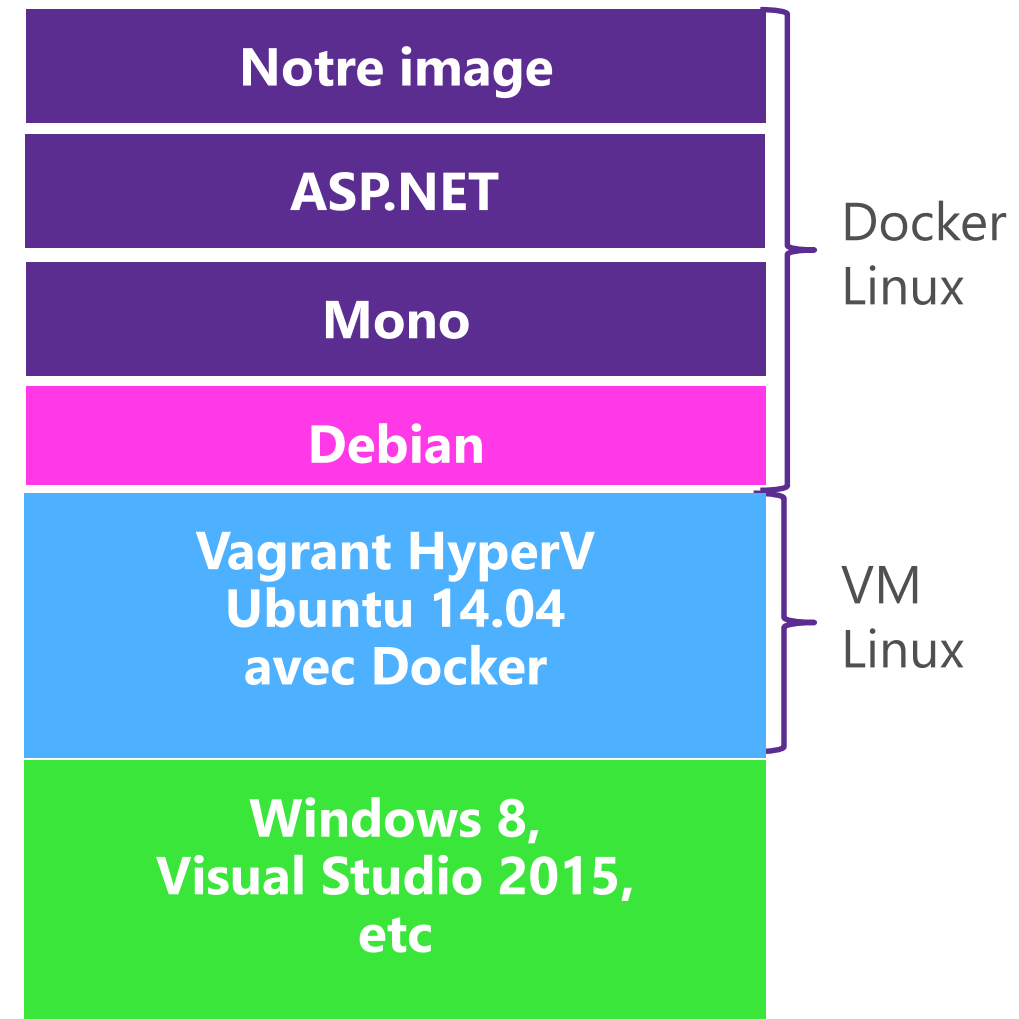
Word
press

Debian

Fedora

Dépôt d'images
Docker

Tester sous Windows un environnement iso-production linux



Dossier source partagé

```
Vagrantfile
1 # -*- mode: ruby -*-
2 # vi: set ft=ruby :
3
4 VAGRANTFILE_API_VERSION = "2"
5
6 Vagrant.configure(VAGRANTFILE_API_VERSION) do |config|
7   # Ubuntu 14.04 + Git + Docker + image docker microsoft/aspnet
8   config.vm.box = "gcollic/DockerAspNet"
9   config.vm.provider "hyperv"
10  config.vm.synced_folder "../demos", "/demos"
11 end
```

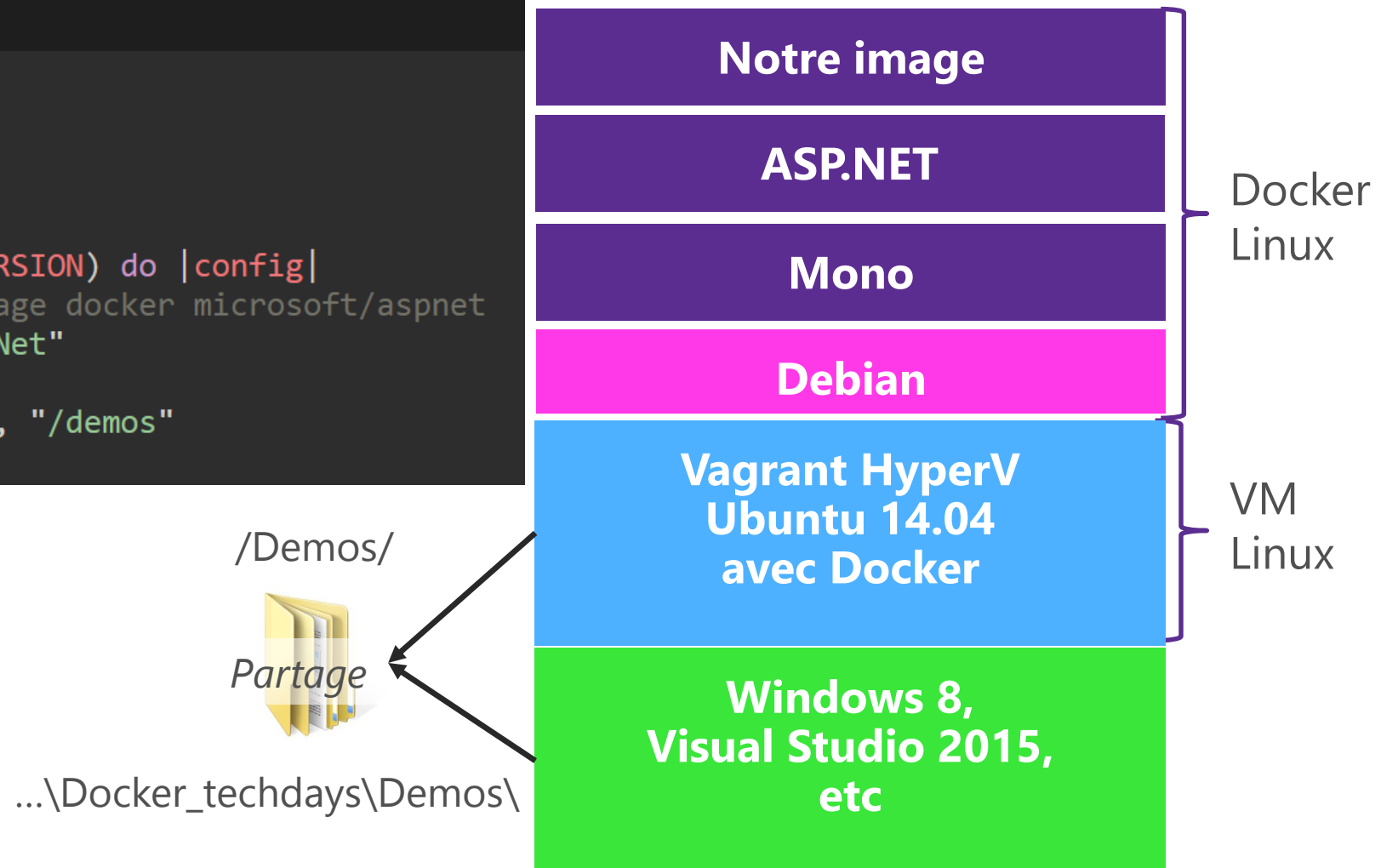
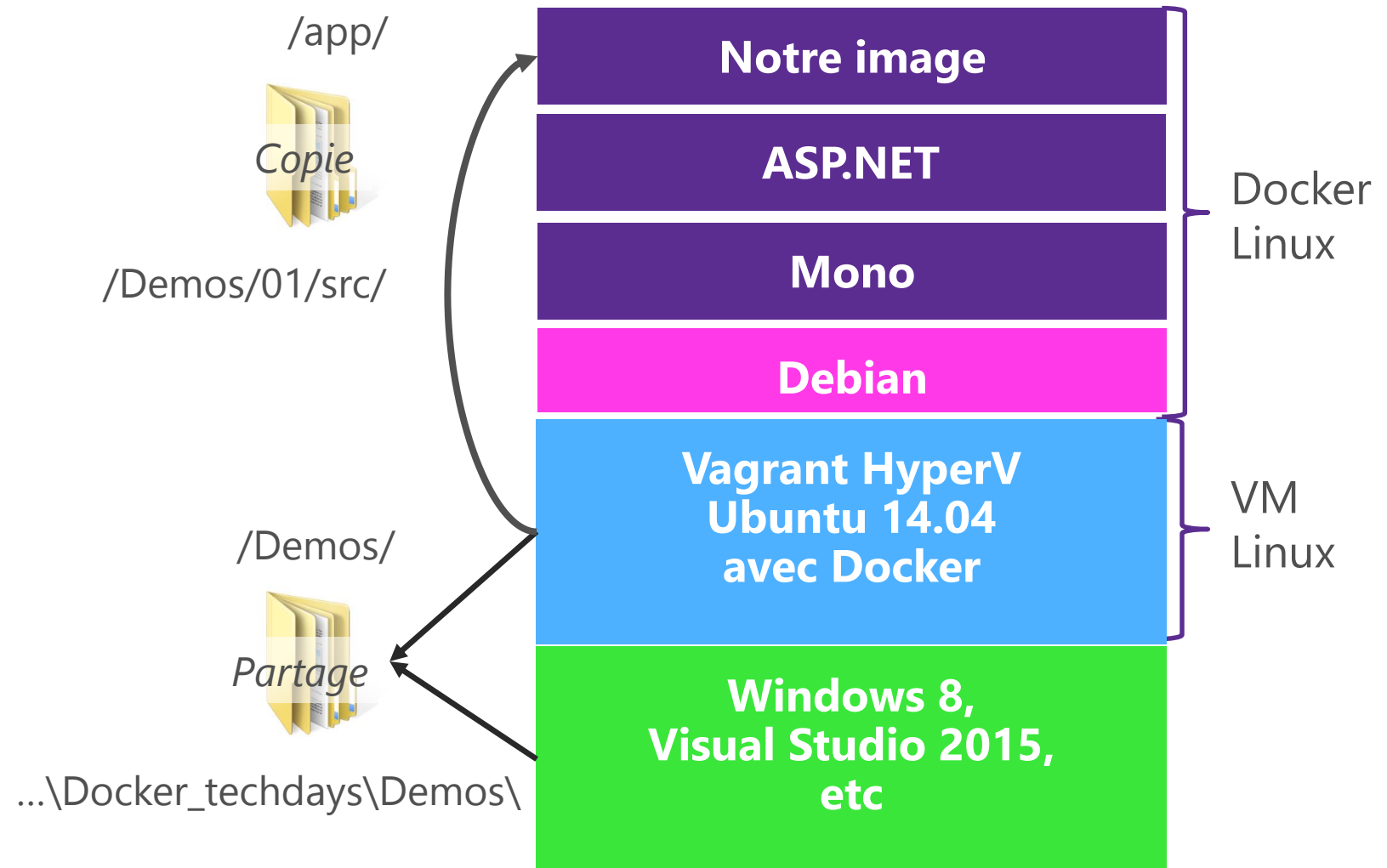
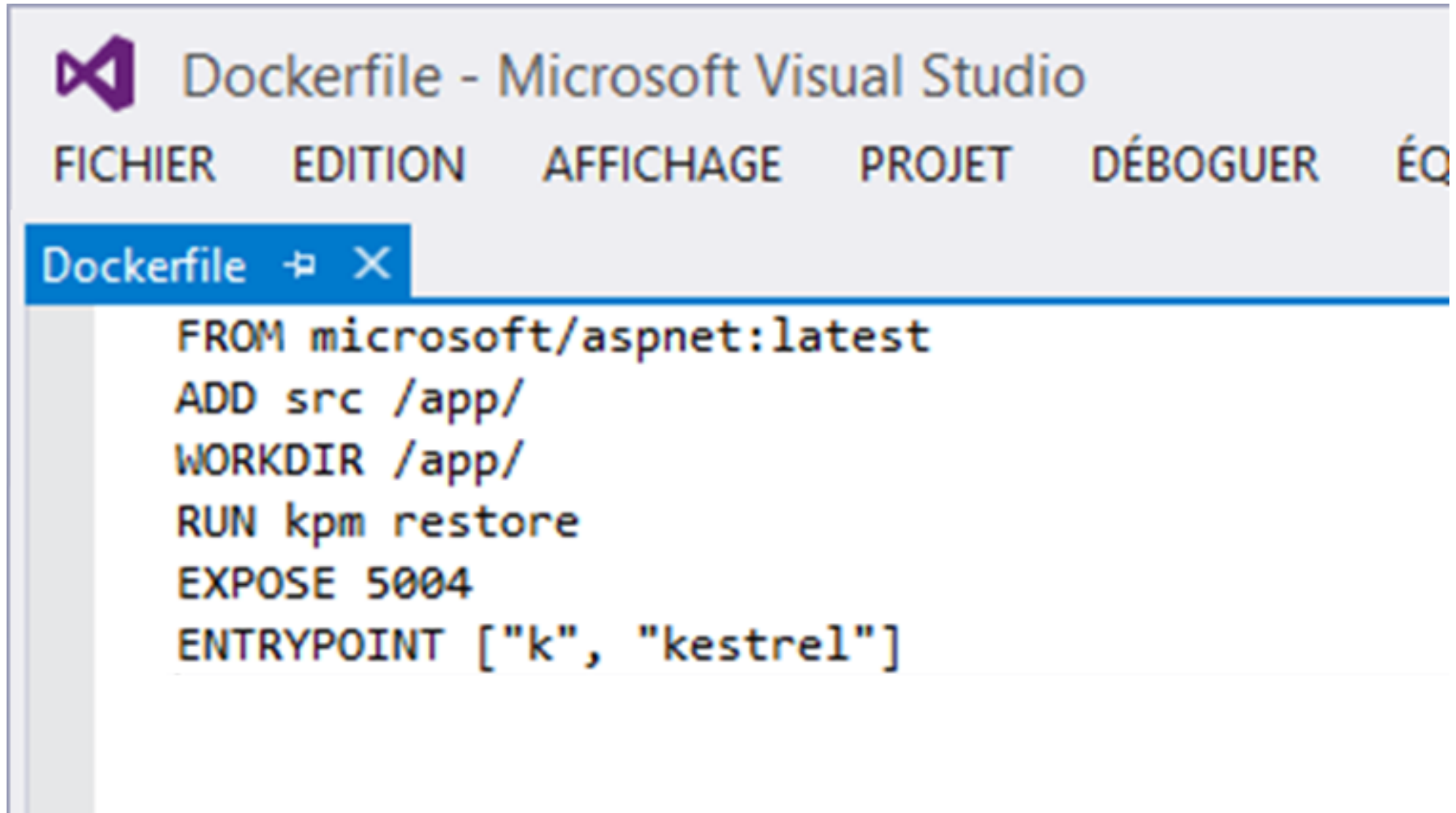


Image docker



01_Hello

A screenshot of a Dockerfile editor in Microsoft Visual Studio. The window title is "Dockerfile - Microsoft Visual Studio". The menu bar includes "FICHIER", "EDITION", "AFFICHAGE", "PROJET", "DÉBOGUER", and "ÉQ". The tab bar shows "Dockerfile" with a pin icon and a close icon. The code content is as follows:

```
FROM microsoft/aspnet:latest
ADD src /app/
WORKDIR /app/
RUN kpm restore
EXPOSE 5004
ENTRYPOINT ["k", "kestrel"]
```

```
01_HelloWorld$ sudo docker build -t demo01 .
Sending build context to Docker daemon 6.144 kB
Sending build context to Docker daemon
Step 0 : FROM microsoft/aspnet:latest
---> 79292df37edc
Step 1 : ADD src /app/
---> 552933f92498
Removing intermediate container 9fe68bea0219
Step 2 : WORKDIR /app/
---> Running in cad80d887820
---> 41070efbfa6b
Removing intermediate container cad80d887820
Step 3 : RUN kpm restore
---> Running in 1f002da4cf77
Restoring packages for /app/project.json
GET https://www.nuget.org/api/v2/FindPackagesById()?Id='Kestrel'.
GET https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Diagnostics'.
GET https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Hosting'.
GET https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Mvc'.
GET https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Server.WebListener'.
OK https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Hosting' 1431ms
GET https://www.nuget.org/api/v2/package/Microsoft.AspNet.Hosting/1.0.0-beta1.
OK https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Server.WebListener' 1639ms
OK https://www.nuget.org/api/v2/FindPackagesById()?Id='Kestrel' 2252ms
OK https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Diagnostics' 8099ms
OK https://www.nuget.org/api/v2/FindPackagesById()?Id='Microsoft.AspNet.Mvc' 8707ms
```

```
Installing System.Threading.Timer 4.0.0-beta-22231
Installing System.Xml.XmlDocument 4.0.0-beta-22231
Installing System.IO.Compression 4.0.0-beta-22231
Installing System.Text.RegularExpressions 4.0.10-beta-22231
Installing System.Xml.XmlSerializer 4.0.0-beta-22231
Installing System.Runtime.Serialization.Xml 4.0.10-beta-22231
Installing System.Runtime.Serialization.Primitives 4.0.0-beta-22231
Installing System.ComponentModel.TypeConverter 4.0.0-beta-22231
Installing System.ComponentModel.Primitives 4.0.0-beta-22231
Installing System.ComponentModel.Annotations 4.0.10-beta-22231
Installing Microsoft.CSharp 4.0.0-beta-22231
Installing System.Dynamic.Runtime 4.0.0-beta-22231
Installing System.ObjectModel 4.0.10-beta-22231
Restore complete, 154772ms elapsed
| ---> 413c4f5e3b9a
Removing intermediate container 1f002da4cf77
Step 4 : EXPOSE 5004
---> Running in 460a68587420
---> b093c3a7d3fc
Removing intermediate container 460a68587420
Step 5 : ENTRYPOINT k kestrel
---> Running in f2da4b1715f2
---> 7a2c0efbc43e
Removing intermediate container f2da4b1715f2
Successfully built 7a2c0efbc43e
01_HelloWorld$
```

```
01_HelloWorld$ sudo docker history demo01
```

IMAGE	CREATED	CREATED BY	SIZE
7a2c0efbc43e	10 minutes ago	/bin/sh -c #(nop) ENTRYPOINT [k kestrel]	0 B
b093c3a7d3fc	10 minutes ago	/bin/sh -c #(nop) EXPOSE map[5004/tcp:{}]	0 B
413c4f5e3b9a	10 minutes ago	/bin/sh -c kpm restore	66.74 MB
41070efbfa6b	12 minutes ago	/bin/sh -c #(nop) WORKDIR /app/	0 B
552933f92498	12 minutes ago	/bin/sh -c #(nop) ADD dir:bfddf0dda5704072c5d	1.404 kB
79292df37edc	3 days ago	/bin/sh -c #(nop) ENV PATH=/usr/local/sbin:/u	0 B
2d08ac086e94	3 days ago	/bin/sh -c LIBUV_VERSION=1.0.0-rc2	1.891 MB
5451b6a9002d	3 days ago	/bin/sh -c apt-get -qq install	107.6 MB
85dfa5a14eb2	3 days ago	/bin/sh -c bash -c "source \$KRE_USER_HOME/kvm	10.79 MB
8125ebca4313	3 days ago	/bin/sh -c curl -sSL https://raw.githubusercontent.co	15.23 kB
c2620ec7cb5a	3 days ago	/bin/sh -c apt-get -qq update && apt-get -qqy	10.43 MB
95a07c98cc61	3 days ago	/bin/sh -c #(nop) ENV KRE_USER_HOME=/opt/kre	0 B
2592a1607f21	3 days ago	/bin/sh -c #(nop) ENV KRE_VERSION=1.0.0-beta2	0 B
6d5034208a17	11 days ago	/bin/sh -c echo "deb http://download.mono-pro	249.4 MB
b5fef56823c6	11 days ago	/bin/sh -c apt-key adv --keyserver pgp.mit.ed	57.47 kB
3b2ff660d029	11 days ago	/bin/sh -c apt-get update	14.12 MB
7e24001dcfba	11 days ago	/bin/sh -c #(nop) MAINTAINER Jo Shields <jo.s	0 B
c90d655b99b2	12 days ago	/bin/sh -c #(nop) CMD [/bin/bash]	0 B
30d39e59ffe2	12 days ago	/bin/sh -c #(nop) ADD file:3f1a40df75bc5673ce	85.01 MB
511136ea3c5a	20 months ago		0 B

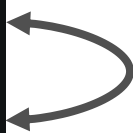

```
01_HelloWorld$ sudo docker history demo01
```

IMAGE	CREATED	CREATED BY	SIZE	
7a2c0efbc43e	10 minutes ago	Notre image	#(nop) ENTRYPOINT [k kestrel]	0 B
b093c3a7d3fc	10 minutes ago		#(nop) EXPOSE map[5004/tcp:{}]	0 B
413c4f5e3b9a	10 minutes ago		kpm restore	66.74 MB
41070efbfa6b	12 minutes ago		#(nop) WORKDIR /app/	0 B
552933f92498	12 minutes ago		#(nop) ADD dir:bfddf0dda5704072c5d	1.404 kB
79292df37edc	3 days ago	ASP.NET	#(nop) ENV PATH=/usr/local/sbin:/u	0 B
2d08ac086e94	3 days ago		LIBUV_VERSION=1.0.0-rc2	1.891 MB
5451b6a9002d	3 days ago		apt-get -qqy install	107.6 MB
85dfa5a14eb2	3 days ago		bash -c "source \$KRE_USER_HOME/kvm	10.79 MB
8125ebca4313	3 days ago		curl -sSL https://raw.githubusercontent.co	15.23 kB
c2620ec7cb5a	3 days ago		apt-get -qq update && apt-get -qqy	10.43 MB
95a07c98cc61	3 days ago		#(nop) ENV KRE_USER_HOME=/opt/kre	0 B
2592a1607f21	3 days ago		#(nop) ENV KRE_VERSION=1.0.0-beta2	0 B
6d5034208a17	11 days ago	Mono	echo "deb http://download.mono-pro	249.4 MB
b5fef56823c6	11 days ago		apt-key adv --keyserver pgp.mit.ed	57.47 kB
3b2ff660d029	11 days ago		apt-get update	14.12 MB
7e24001dcfba	11 days ago		#(nop) MAINTAINER Jo Shields <jo.s	0 B
c90d655b99b2	12 days ago	Debian	#(nop) CMD [/bin/bash]	0 B
30d39e59ffe2	12 days ago		#(nop) ADD file:3f1a40df75bc5673ce	85.01 MB
511136ea3c5a	20 months ago			0 B

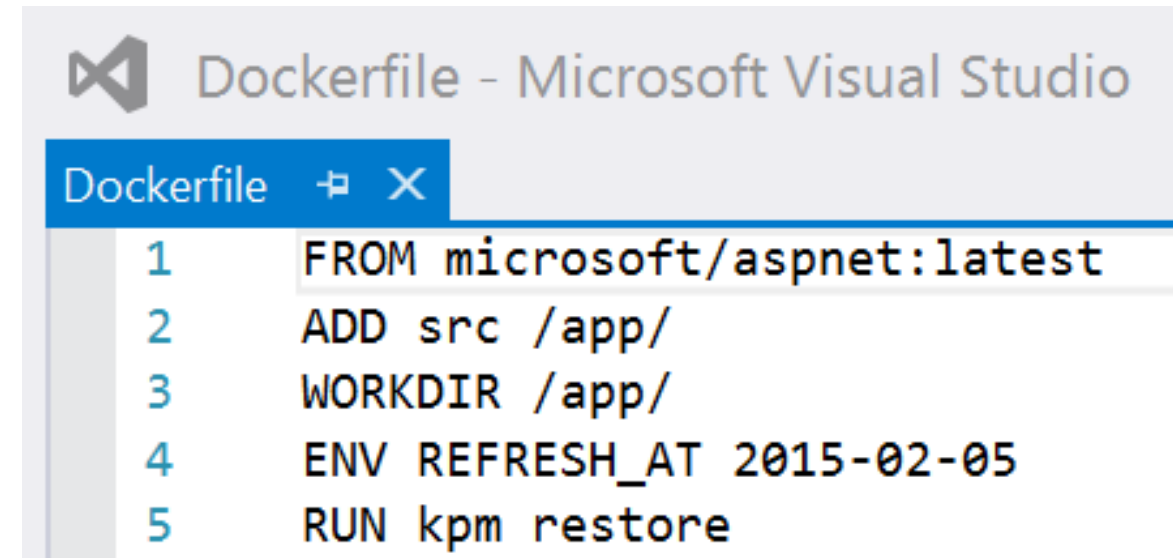
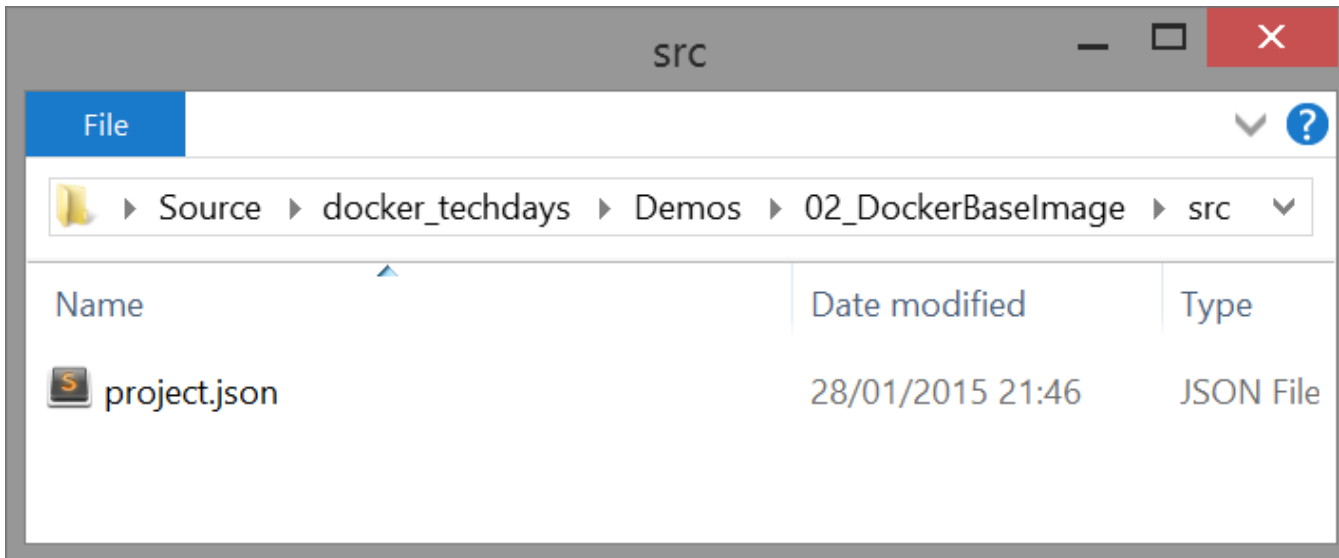
```
01_HelloWorld$ sudo docker run -t -d -p 80:5004 demo01
1efd947719a0c72ec02f1681f915c3a057fe483fa6cedfdacfbaa78d5c8c316b
01_HelloWorld$ curl localhost:80/api/math/ajouter?n1=2\&n2=3
5
```

02 Avec une image intermédiaire

	SIZE
\$(nop) ENTRYPOINT [k kestrel]	0 B
\$(nop) EXPOSE map[5004/tcp:{}]	0 B
kpm restore	66.74 MB
\$(nop) WORKDIR /app/	0 B
\$(nop) ADD dir:bfddf0dda5704072c5d	1.404 kB
\$(nop) ENV PATH=/usr/local/sbin:/u	0 B
LIBUV_VERSION=1.0.0-rc2	1.891 MB
apt-get -qqy install	107.6 MB
bash -c "source \$KRE_USER_HOME/kvm	10.79 MB
curl -sSL https://raw.githubusercontent.com	15.23 kB
apt-get -qq update && apt-get -qqy	10.43 MB
\$(nop) ENV KRE_USER_HOME=/opt/kre	0 B
\$(nop) ENV KRE_VERSION=1.0.0-beta2	0 B
echo "deb http://download.mono-pro	249.4 MB
apt-key adv --keyserver pgp.mit.ed	57.47 kB
apt-get update	14.12 MB
\$(nop) MAINTAINER Jo Shields <jo.s	0 B
\$(nop) CMD [/bin/bash]	0 B
\$(nop) ADD file:3f1a40df75bc5673ce	85.01 MB
	0 B



02 Avec une image intermédiaire



`Docker build -t gcollic/aspnetbase .`

`Docker login`

`Docker push gcollic/aspnetbase`



Dockerfile - Microsoft Visual Studio

Dockerfile

```
1 FROM gcollic/aspnetbase
2 ADD src /app/
3 WORKDIR /app/
4 RUN kpm restore
5 EXPOSE 5004
6 ENTRYPOINT ["k", "kestrel"]
```

```
03_HelloWorld_quick$ sudo docker build -t quick .
Sending build context to Docker daemon 6.144 kB
Sending build context to Docker daemon
Step 0 : FROM gcollic/aspnetbase
---> c93d10dad9f
Step 1 : ADD src /app/
---> 184eac106c5c
Removing intermediate container f97245fde4e3
Step 2 : WORKDIR /app/
---> Running in 4baff0e0fbc9
---> 0b0e45c31f29
Removing intermediate container 4baff0e0fbc9
Step 3 : RUN kpm restore --ignore-failed-sources
---> Running in f549a1ac6d8d
Restoring packages for /app/project.json
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Reflection'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Text.Encoding'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Xml.ReaderWriter'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Globalization'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Threading.Tasks'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Runtime'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.IO'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.Collections'
CACHE https://www.nuget.org/api/v2/FindPackagesById()?Id='System.ObjectModel'
Resolving complete, 365ms elapsed
Restore complete, 369ms elapsed
---> 418d89487680
Removing intermediate container f549a1ac6d8d
Step 4 : EXPOSE 5004
---> Running in fa26b27d1269
---> 270aa052cdb1
Removing intermediate container fa26b27d1269
Step 5 : ENTRYPOINT k kestrel
---> Running in 785b2713a9e1
---> a1713d753fd2
Removing intermediate container 785b2713a9e1
Successfully built a1713d753fd2
```

■ Livraison sur le dépôt pour déploiement

The screenshot shows a web browser window with the URL `https://registry.hub.docker.com/u/jpgougoux/mathapi/`. The page displays the Docker Hub interface for the repository `jpgougoux / mathapi`. At the top, there is a navigation bar with links for Search, Browse Repos, Documentation, Community, and Help. A yellow banner indicates a scheduled downtime for the Hub on 1/14/15. The repository page shows it was updated an hour ago and provides a button to pull the repository with the command `docker pull jpgougoux/mathapi`. The description states it is a test image for a Math API implemented in MVC 6 (ASP.NET 5) using Kestrel. It includes instructions for running the container and a curl command to test the API. The right sidebar contains sections for Properties (creation date and time) and Settings (Description, Webhooks, Collaborators, Mark as unlisted, Make Private, and Delete Repository). The bottom section shows no comments are available.

Hub will be unavailable for a scheduled downtime of 15 minutes on 1/14/15 at 2am UTC for database maintenance . [more...](#)

Updated an hour ago

jpgougoux / mathapi Pull this repository `docker pull jpgougoux/mathapi`

Test Math API (Linux Kestrel .NET vNEXT MVC6)

☆ 0 💬 0 📄 0

Information **Tags**

This is a test image containing a simple Math API implemented in MVC 6 (ASP.NET 5), inside a Kestrel web server. It is created to show the Linux compatibility of the recent .NET Core.

When a container is launched, the API is exposed on port 5004 internally, under /api/Math. Since this image has a simple test purpose, only one operation is available : Ajouter, which takes n1 and n2 as integer parameters.

```
sudo docker run -t -d -p 80:5004 jpgougoux/mathapi
```

```
curl http://127.0.0.1/api/Math/Ajouter?n1=2&n2=3
```

Properties

🕒 2015-01-10 20:01:06

👤 jpgougoux

Settings

- 🔗 Description
- 🔗 Webhooks
- 👤 Collaborators
- ✉ Mark as unlisted
- 🔒 Make Private
- 🗑 Delete Repository

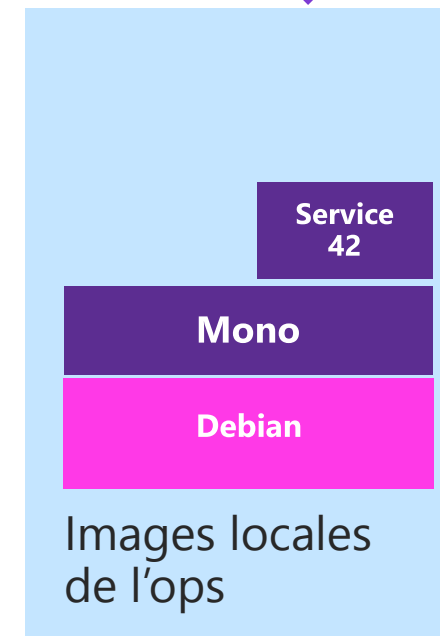
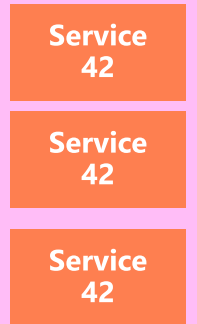
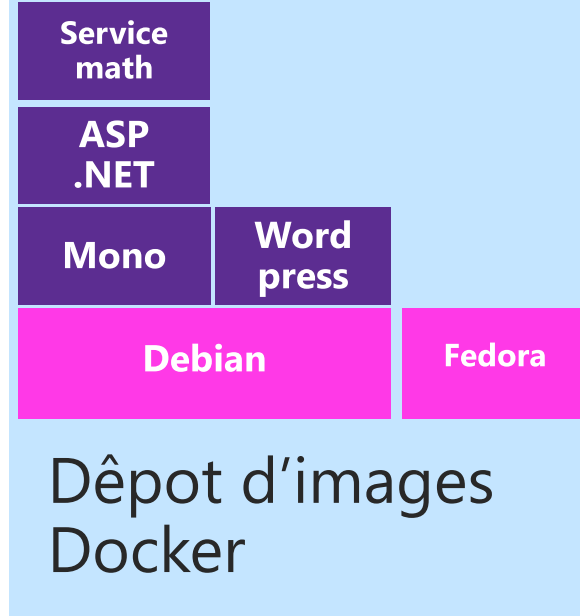
Comments +

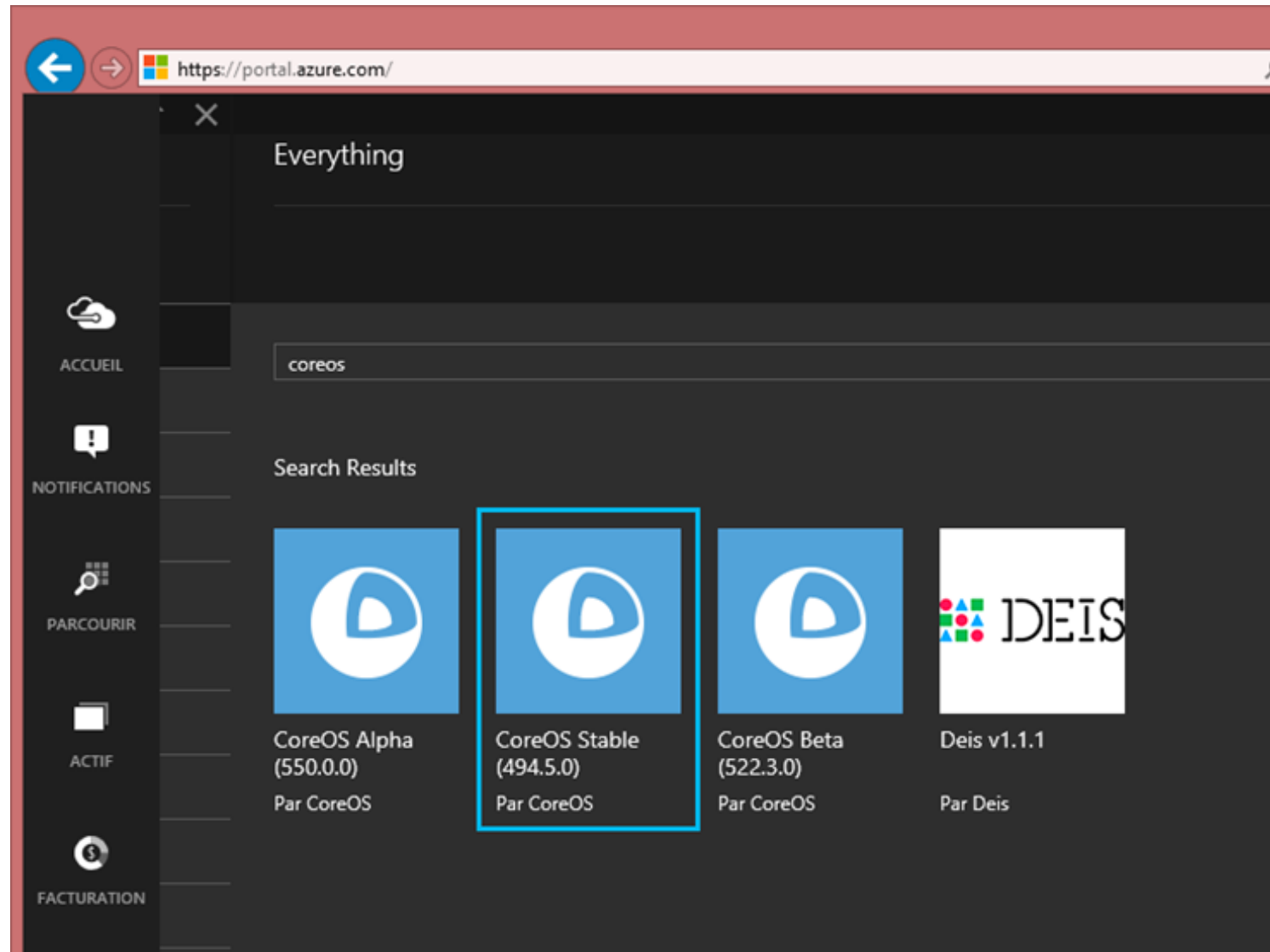
No comments available, be the first to comment.



Démo Docker+.NET

Côté ops – Mono-machine





Microsoft Azure

Paramètres

COREOSJPG3

- Propriétés
- Mettre à l'échelle
- Groupe à haute disponibilité
- Adresses IP
- Points de terminaison**

Points de terminaison

COREOSJPG3

Ajouter

POINT DE TERMINAISON	PROTOCOLE	PORT PUBLIC	PORT PRIVÉ	RÈGLES ACL
AUTONOME				
SSH	TCP	22	22	0
ÉQUILIBRAGE DE CHARGE				
Aucun point de terminaison trouvé				

Ajouter un point de terminaison

Point de terminaison: HTTP ✓

Protocole: TCP ▼

Port public: 80 ✓

Port privé: 80 ✕

IP flottante ⓘ
ACTIVÉ DÉSACTIVÉ

CONFIGURER LE CONTRÔLE D'ACCÈS
Aucune règle

PuTTY Security Alert



The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is.

The server's rsa2 key fingerprint is:

ssh-rsa 2048 56:09:2a:d2:88:92:4e:ed:56:60:1b:db:92:ab:f0

If you trust this host, hit Yes to add the key to

PuTTY's cache and carry on connecting.

If you want to carry on connecting just once, without adding the key to the cache, hit No.

If you do not trust this host, hit Cancel to abandon the connection.

Yes

No

Cancel

jpg@coreosjpg3:~

login as: jpg

Authenticating with public key "imported-openssh-key"

CoreOS (stable)

jpg@coreosjpg3 ~ \$ sudo docker login

Username: jpgougoux

Password:

Email: jp.gougoux@free.fr

Login Succeeded

jpg@coreosjpg3 ~ \$ sudo docker pull jpgougoux/mathapi

Pulling repository jpgougoux/mathapi

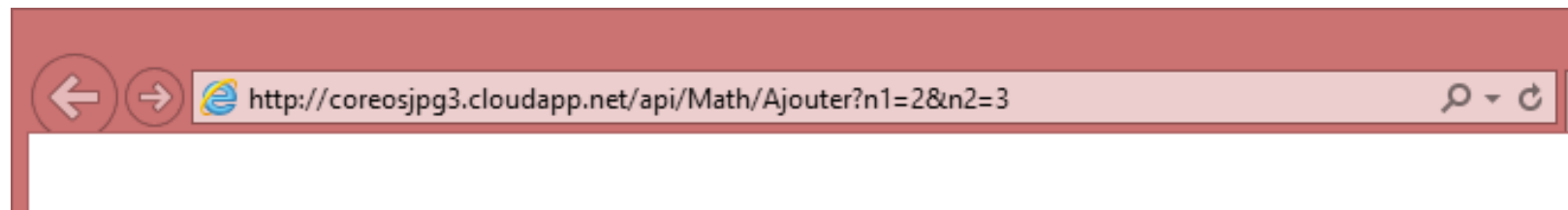
0916ec0bfa84: Pulling image (latest) from jpgougoux/mathapi, endpoint: https://

0916ec0bfa84: Pulling dependent layers

511136ea3c5a: Download complete

f10807909bc5: Downloading 1.884 MB/37.14 MB 24s

```
10b1038c0b34: Download complete
3e5bce911ac1: Download complete
057a711c05e3: Download complete
caaaa4de4960: Download complete
51f15d9b8f66: Download complete
Status: Downloaded newer image for jpgougoux/mathapi:latest
jpg@coreosjpg3 ~ $ sudo docker run -d -t -p 80:5004 jpgougoux/mathapi
b17b8b1bbc8413e2e1d6006cb35fcb86f9dd728776e52c401b0ae279bd73be9b
jpg@coreosjpg3 ~ $
```



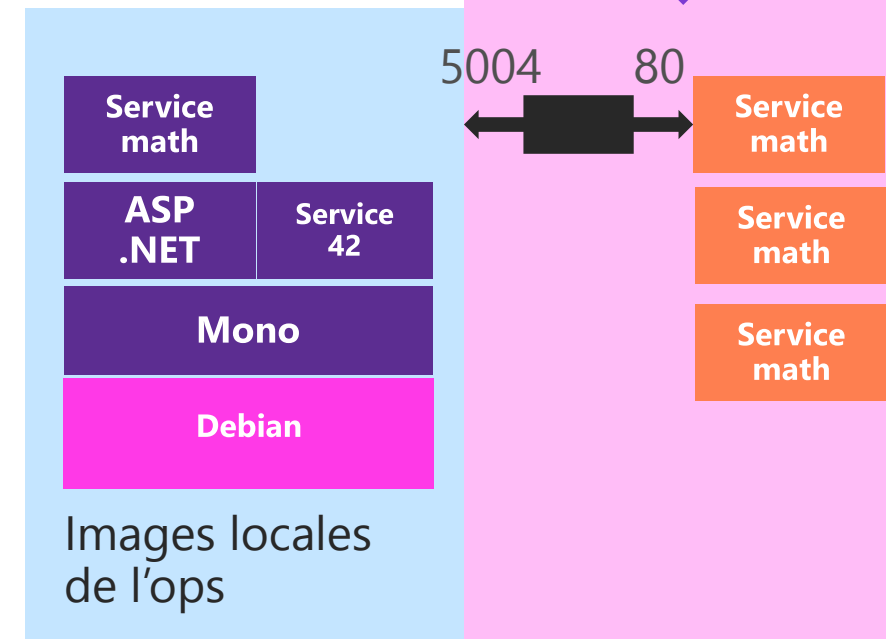
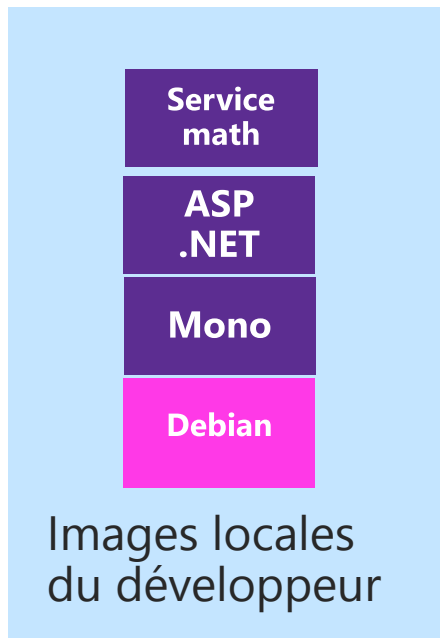
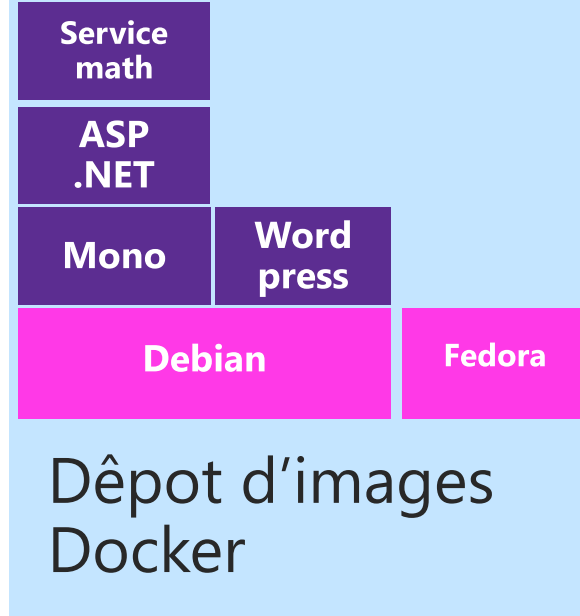
Ajouter.json ✕

<Aucun schéma sélectionné>

5

Démo Docker+.NET

Côté ops – Cluster




```

C:\Users\jpgou_000
λ azure account download
info:      Executing command account download
info:      Launching browser to http://go.microsoft.com/fwlink/?LinkId=254432
help:      Save the downloaded file, then execute the command
help:      account import <file>
info:      account download command OK

C:\Users\jpgou_000
λ azure account import "D:\Technique\Abonnement-1-Visual Studio Ultimate avec MSDN-1-20-2015-credentials.publ
ishsettings"
info:      Executing command account import
info:      account import command OK

C:\Users\jpgou_000
λ azure service list
info:      Executing command service list
+ Getting cloud services
data:      Name          Location    Affinity Group
data:      -----
data:      clusterjpg      West Europe
data:      coreosjpg         West Europe
data:      coreosjpg2        West Europe
data:      coreosjpg3         West Europe
data:      vs2015jpg          West Europe
info:      service list command OK

```

SALES 0800-916-603

MY ACCOUNT

PORTAL

Search

Microsoft Azure

Features

Pricing

Documentation

Downloads

Marketplace

Blog

Community

Support

FREE TRIAL

Documentation







Like 11

Tweet 71

Install and Configure the Azure Cross-Platform Command-Line Interface

Updated: 01/16/2016

By mollybostic and 7 contributors

Contribute to this article on GitHub

PowerShell

Cross-Platform CLI

<http://azure.microsoft.com/en-us/documentation/articles/xplat-cli/>

Créer un service cloud

URL

clusterjpg



.cloudapp.net

RÉGION OU GROUPE D'AFFINITÉS

Europe de l'Ouest



ABONNEMENT

Visual Studio Ultimate avec MSDN



☐ Déployez un package de service cloud.

```
C:\Users\jpgou_000
λ azure service create --location "West Europe" mathcluster
info: Executing command service create
+ Creating cloud service
data: Cloud service name mathcluster
info: service create command OK
```

cloud-config.yaml - Bloc-notes

Fichier Edition Format Affichage ?

#cloud-config

coreos:

etcd:

generate a new token for each unique cluster from https://discovery.etcd.io/new

discovery: https://discovery.etcd.io/aaf584681f931afd7df05078e8edd3f7

deployments across multiple cloud services will need to use \$public_ipv4

addr: \$private_ipv4:4001

peer-addr: \$private_ipv4:7001

units:

- name: etcd.service

command: start

- name: fleet.service

command: start

C:\Users\jpgou_000

```
λ azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conférences\TechDays2015\CoreOS\cloud-config.yaml  
--ssh=22 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos1 --connect=mathcluster  
--location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
```

info: Executing command vm create

warn: --vm-size has not been specified. Defaulting to "Small".

+ Looking up image 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0

+ Looking up cloud service

warn: --location option will be ignored

+ Getting cloud service properties

+ Looking up deployment

+ Retrieving storage accounts

+ Configuring certificate

+ Creating VM

info: OK

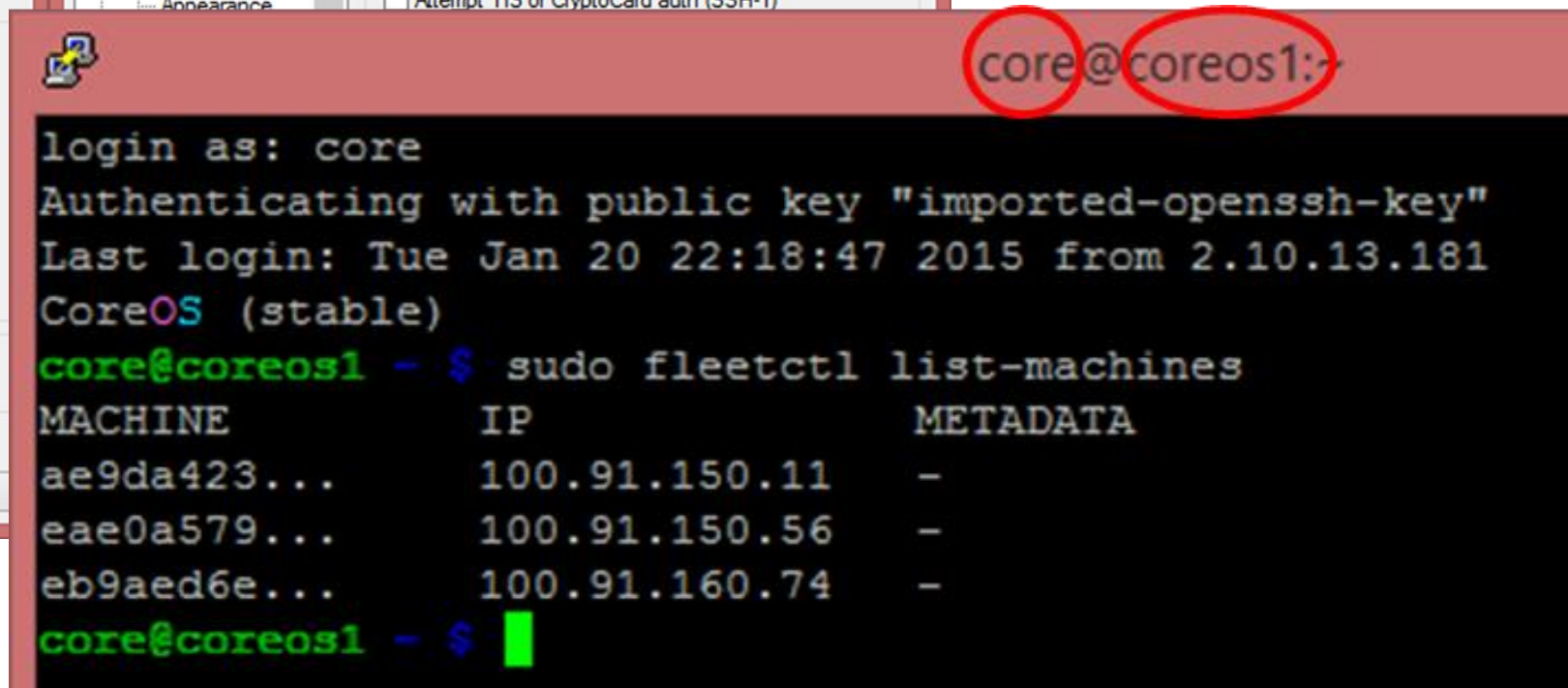
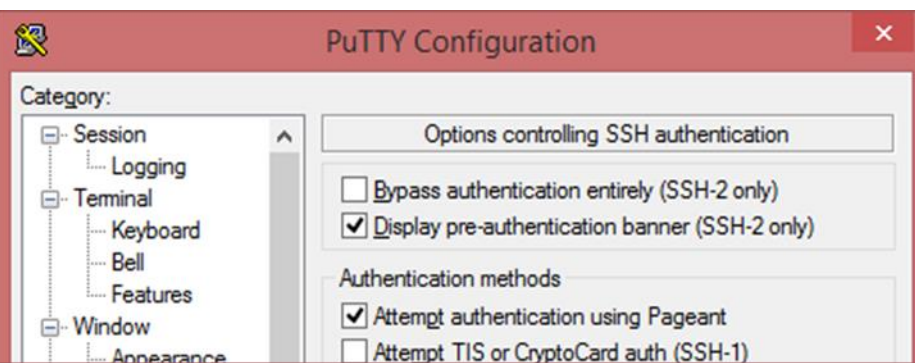
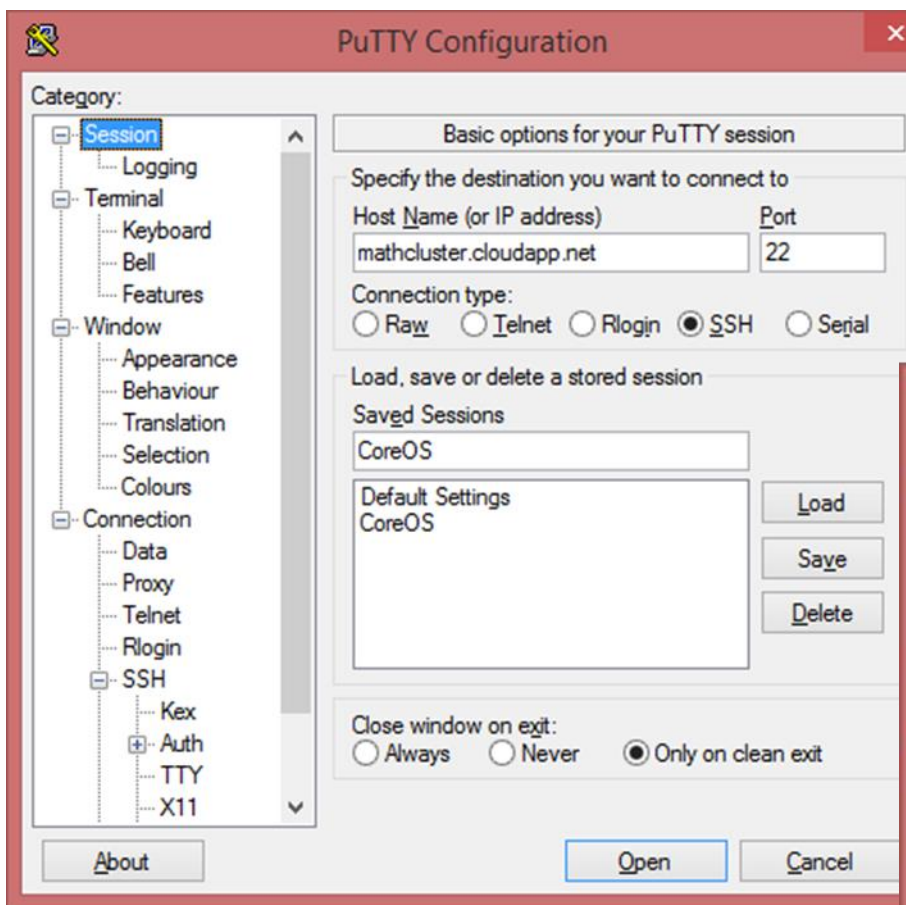
info: vm create command OK

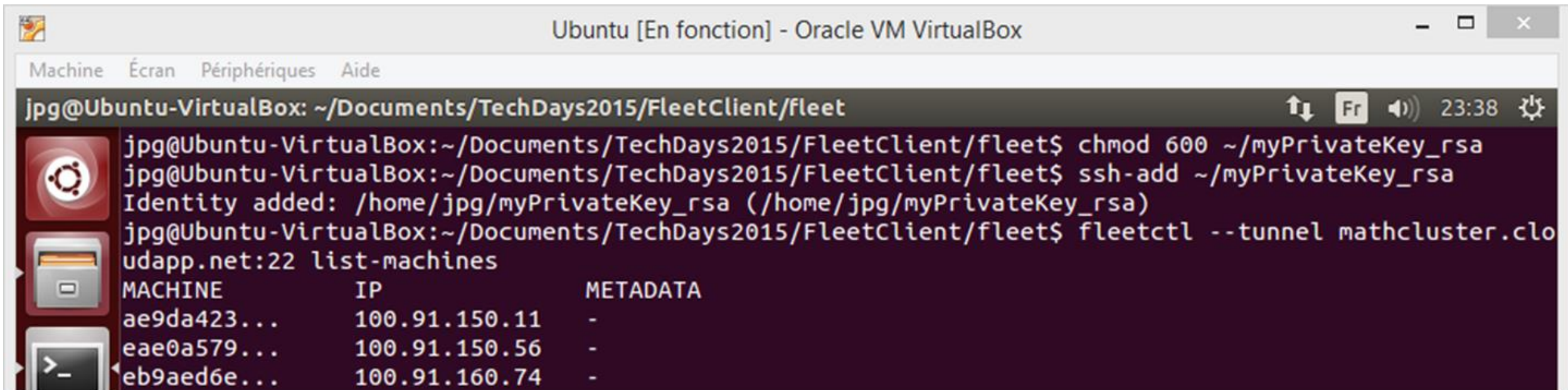
C:\Users\jpgou_000

```
λ azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conférences\TechDays2015\CoreOS\cloud-config.yaml  
--ssh=2202 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos2 --connect=mathcluste  
r --location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
```

C:\Users\jpgou_000

```
λ azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conférences\TechDays2015\CoreOS\cloud-config.yaml  
--ssh=2203 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos3 --connect=mathcluste  
r --location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
```





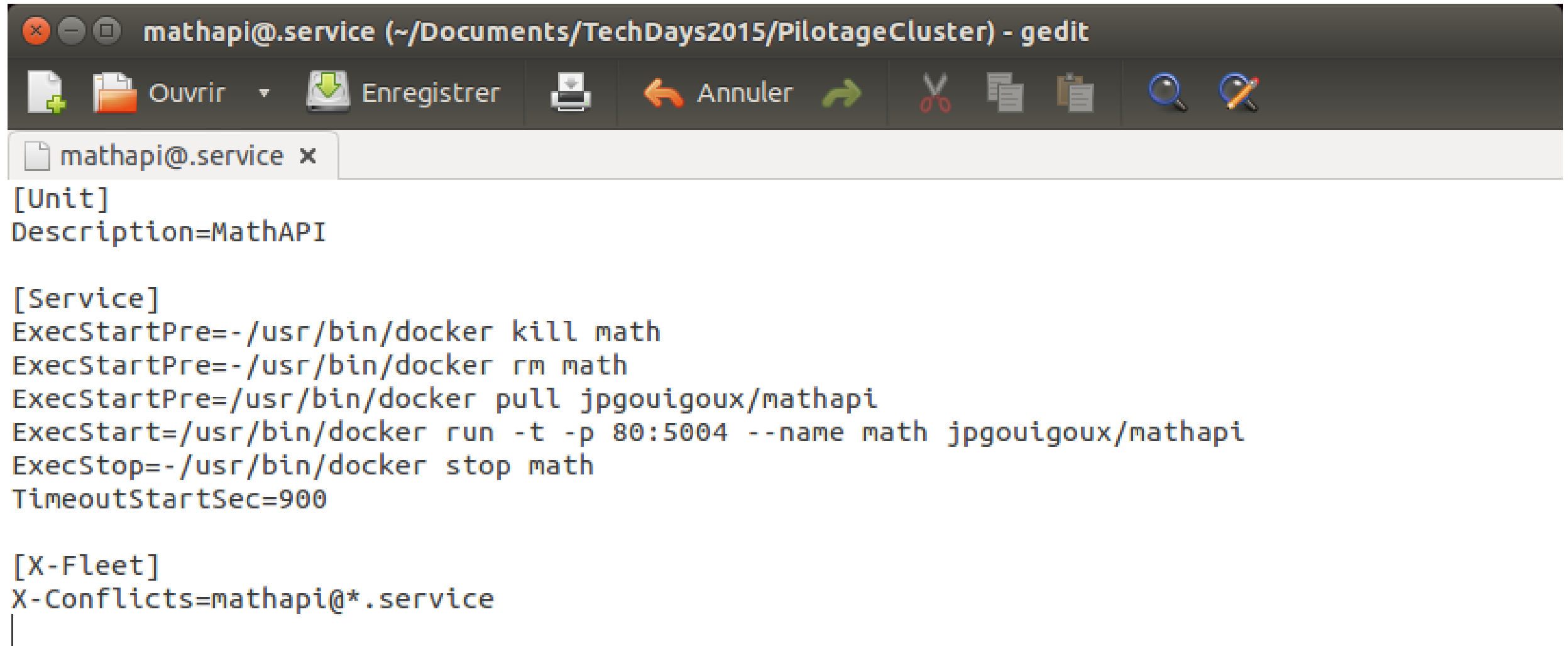
Terminal window titled "Ubuntu [En fonction] - Oracle VM VirtualBox". The terminal shows the following commands and output:

```
jpg@Ubuntu-VirtualBox: ~/Documents/TechDays2015/FleetClient/fleet
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/FleetClient/fleet$ chmod 600 ~/myPrivateKey_rsa
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/FleetClient/fleet$ ssh-add ~/myPrivateKey_rsa
Identity added: /home/jpg/myPrivateKey_rsa (/home/jpg/myPrivateKey_rsa)
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/FleetClient/fleet$ fleetctl --tunnel mathcluster.cloudapp.net:22 list-machines
```

MACHINE	IP	METADATA
ae9da423...	100.91.150.11	-
eae0a579...	100.91.150.56	-
eb9aed6e...	100.91.160.74	-

```
export FLEETCTL_TUNNEL=mathcluster.cloudapp.net:22
fleetctl list-machines
```

Fichier de définition du service



The image shows a gedit editor window titled "mathapi@.service (~/.Documents/TechDays2015/PilotageCluster) - gedit". The window contains a service definition file with the following content:

```
[Unit]
Description=MathAPI

[Service]
ExecStartPre=-/usr/bin/docker kill math
ExecStartPre=-/usr/bin/docker rm math
ExecStartPre=/usr/bin/docker pull jpgougoux/mathapi
ExecStart=/usr/bin/docker run -t -p 80:5004 --name math jpgougoux/mathapi
ExecStop=-/usr/bin/docker stop math
TimeoutStartSec=900

[X-Fleet]
X-Conflicts=mathapi@*.service
|
```

```
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/PilotageCluster$ fleetctl submit mathapi@.service
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/PilotageCluster$ fleetctl list-unit-files
```

UNIT	HASH	DSTATE	STATE	TARGET
mathapi@.service	f9001e5	inactive	inactive	-

```
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/PilotageCluster$ fleetctl start mathapi@{1..3}.service
Unit mathapi@1.service launched on ae9da423.../100.91.150.11
Unit mathapi@2.service launched on eb9aed6e.../100.91.160.74
Unit mathapi@3.service launched on eae0a579.../100.91.150.56
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/PilotageCluster$ fleetctl list-units
```

UNIT	MACHINE	ACTIVE	SUB
mathapi@1.service	ae9da423.../100.91.150.11	activating	start-pre
mathapi@2.service	eb9aed6e.../100.91.160.74	activating	start-pre
mathapi@3.service	eae0a579.../100.91.150.56	activating	start-pre

```
jpg@Ubuntu-VirtualBox:~/Documents/TechDays2015/PilotageCluster$ fleetctl list-units
```

UNIT	MACHINE	ACTIVE	SUB
mathapi@1.service	ae9da423.../100.91.150.11	active	running
mathapi@2.service	eb9aed6e.../100.91.160.74	active	running
mathapi@3.service	eae0a579.../100.91.150.56	active	running

Démo Docker+.NET

Ne pas oublier le load-balancing

Points de terminaison des machines

The image shows two overlapping screenshots of the Microsoft Azure portal. The top screenshot displays the 'mathcluster' resource group, and the bottom screenshot displays the 'coreos1' virtual machine's endpoints.

Top Screenshot: mathcluster Resource Group

Navigation: TABLEAU DE BORD, SURVEILLER, METTRE À L'ÉCHELLE, INSTANCES, RESSOURCES LIÉES, CERTIFICATS

NOM	STATUT	TAILLE	METTRE À JOUR LE DOMAINE	DOMAINE D'ERREUR
coreos1	✓ En cours d'exécution	Standard_A1	0	0
coreos2	✓ En cours d'exécution	Standard_A1	0	0
coreos3	✓ En cours d'exécution	Standard_A1	0	0

Bottom Screenshot: coreos1 Virtual Machine

Navigation: TABLEAU DE BORD, SURVEILLER, POINTS DE TERMINAISON, CONFIGURER

NOM	PROTOCOLE	PORT PUBLIC	PORT PRIVÉ	NOM DU JEU D'ÉQUILIBR...
ssh	TCP	2201	22	-

Footer: + NOUVEAU, AJOUTER, MODIFIER, GÉRER L'ACL, SUPPRIMER, ?

Pour la première

AJOUTER UN POINT DE TERMINAISON

Ajouter un point de terminaison à la machine virtuelle

Le trafic arrivant à ce point de t

AJOUTER UN POINT DE TERMINAISON

Spécifier les détails du point de terminaison

☒ AJOUTER UN POINT DE TERM

☐ AJOUTER UN POINT DE TERM

(Aucune)

NOM

HTTP

PROTOCOLE

TCP

PORT PUBLIC

80

PORT PRIVÉ

80

☒ CRÉER UN JEU D'ÉQUILIBRAGE DE LA CHARGE ?

☐ ACTIVER LE RETOUR AU SERVEUR DIRECT ?

AJOUTER UN POINT DE TERMINAISON

Configurer le jeu d'équilibrage de la charge

Les points de terminaison dont la charge de travail est répartie sur plusieurs machines virtuelles sont ajoutés à un jeu d'équilibrage de la charge.

NOM DU JEU D'ÉQUILIBRAGE DE LA CHARGE

LBCORE

PROTOCOLE DE LA SOND

TCP

PORT DE LA SOND

80

INTERVALLE D'ANALYSE

5

SECONDES

NOMBRE DE SONDES ?

2

1 2



Pour les suivantes

AJOUTER UN POINT DE TERMINAISON

Ajouter un point de terminaison à la machine virtuelle

Le trafic arrivant à ce point de terminaison sera envoyé à la machine virtuelle.

☐ AJOUTER UN POINT DE TERMINAISON AUTONOME

☒ AJOUTER UN POINT DE TERMINAISON À UN JEU D'ÉQUILIBRAGE DE LA CHARGE EXISTANT ?

LBCORE



AJOUTER UN POINT DE TERMINAISON

Spécifier les détails du point de terminaison

NOM

HTTP

PROTOCOLE

TCP



PORT PUBLIC

80

PORT PRIVÉ

80

☐ RECONFIGURER LE JEU D'ÉQUILIBRAGE DE LA CHARGE ?

Vous ne pouvez pas reconfigurer le retour de serveur direct pour les ensembles à charge équilibrée existants.

C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\create-cluster-ATTENTION-CHANGER-GUID.bat - Notepad++

Fichier Édition Recherche Affichage Encodage Langage Paramétrage Macro Exécution Compléments Documents ?

create-cluster-ATTENTION-CHANGER-GUID.bat

```
1 call azure account import C:\Users\jpgou_000\AbonnementAzure.publishsettings
2 call azure vm delete -b -q coreos1
3 call azure vm delete -b -q coreos2
4 call azure vm delete -b -q coreos3
5 call azure service create --location "West Europe" mathcluster
6 call azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml
  --ssh=2201 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos1 --connect=mathcluster
  --location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
7 call azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml
  --ssh=2202 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos2 --connect=mathcluster
  --location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
8 call azure vm create --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml
  --ssh=2203 --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos3 --connect=mathcluster
  --location "West Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Stable-522.5.0 core
9 REM call azure vm create
  --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml --ssh=2201
  --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos1 --connect=mathcluster --location "West
  Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Alpha-561.0.0 core
10 REM call azure vm create
  --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml --ssh=2202
  --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos2 --connect=mathcluster --location "West
  Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Alpha-561.0.0 core
11 REM call azure vm create
  --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml --ssh=2203
  --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos3 --connect=mathcluster --location "West
  Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Alpha-561.0.0 core
12 REM call azure vm create
  --custom-data=C:\Users\jpgou_000\SkyDrive\Conferences\TechDays2015\CoreOS\cloud-config.yaml --ssh=2201
  --ssh-cert=C:\Users\jpgou_000\myCert.pem --no-ssh-password --vm-name=coreos1 --connect=mathcluster --location "West
  Europe" 2b171e93f07c4903bcad35bda10acf22__CoreOS-Beta-557.0.0 core
13 REM call azure vm create
```

Batch file length : 3055 lines : 15 Ln : 1 Col : 1 Sel : 0 | 0 Dos\Windows UTF-8 w/o BOM INS

■ Conclusion

- On peut aller beaucoup plus loin avec Docker
 - Canaux entre conteneurs, Hosts, Volumes, etc.
- On peut aller beaucoup plus loin avec Fleet
 - Multi-cloud, Desired State Configuration, etc.
- Vous pouvez tout rejouer chez vous
 - PowerPoint sur site Tech Days
 - Code sur GitHub

Questions ?

- https://github.com/gcollic/docker_techdays15
- <http://www.asp.net/vnext/overview/aspnet-vnext/create-a-web-api-with-mvc-6>
- <http://blogs.msdn.com/b/scicoria/archive/2014/11/23/using-the-docker-client-from-windows-and-getting-aspnet-vnext-running-in-a-docker-container.aspx>
- <http://azure.microsoft.com/en-us/documentation/articles/virtual-machines-linux-use-ssh-key/>
- <https://coreos.com/docs/running-coreos/cloud-providers/azure/>
- <http://azure.microsoft.com/fr-fr/documentation/articles/virtual-machines-linux-coreos-how-to/>
- <https://github.com/timfpark/coreos-azure>
- <https://coreos.com/docs/launching-containers/launching/launching-containers-fleet/>
- <https://coreos.com/docs/launching-containers/launching/fleet-using-the-client/>
- <https://www.digitalocean.com/community/tutorials/how-to-use-fleet-and-fleetctl-to-manage-your-coreos-cluster>
- <https://msdn.microsoft.com/fr-fr/library/azure/dn655055.aspx>

■ Notez maintenant ma session



Merci



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