SQL PASS Berlin

Microsoft

IT Regeln auf den Kopf gestellt – mein Cloud Arbeitsplatz

Patrick Heyde
Technical Evangelist
http://aka.ms/patrickheyde
DX

Microsoft

Me – *"SharePoint is a pet, it's a hardware monster and it's hungry."*

- Since 2007 at Microsoft
- 4 roles:
  - Partner Technical Consultant
  - SharePoint Support Escalation Engineer
  - Premier Field Engineer
  - Evangelist

SharePoint 2001 - 2003 - 2007 – 2010 – 2013 – Office 365

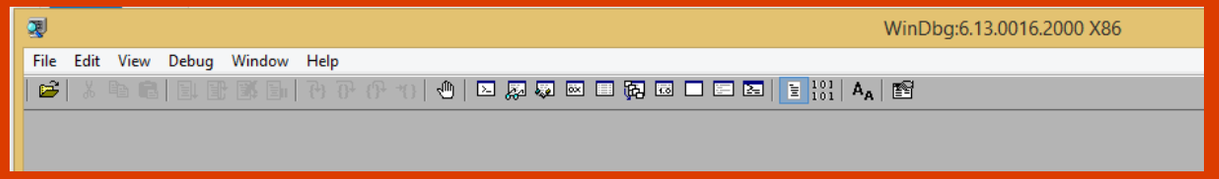
Customization | **Optimization** | **Upgrade**

Visual Studio

SQL Server Profiler

SharePoint Manager

Microsoft SQL Server



Some self-made helper-tools

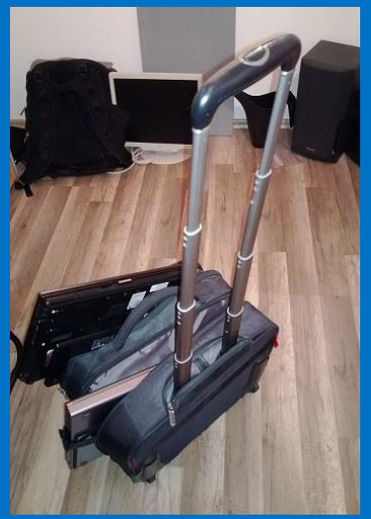
Powershell

My Last Environments

For Productivity Demos, Samples & Projects I need:

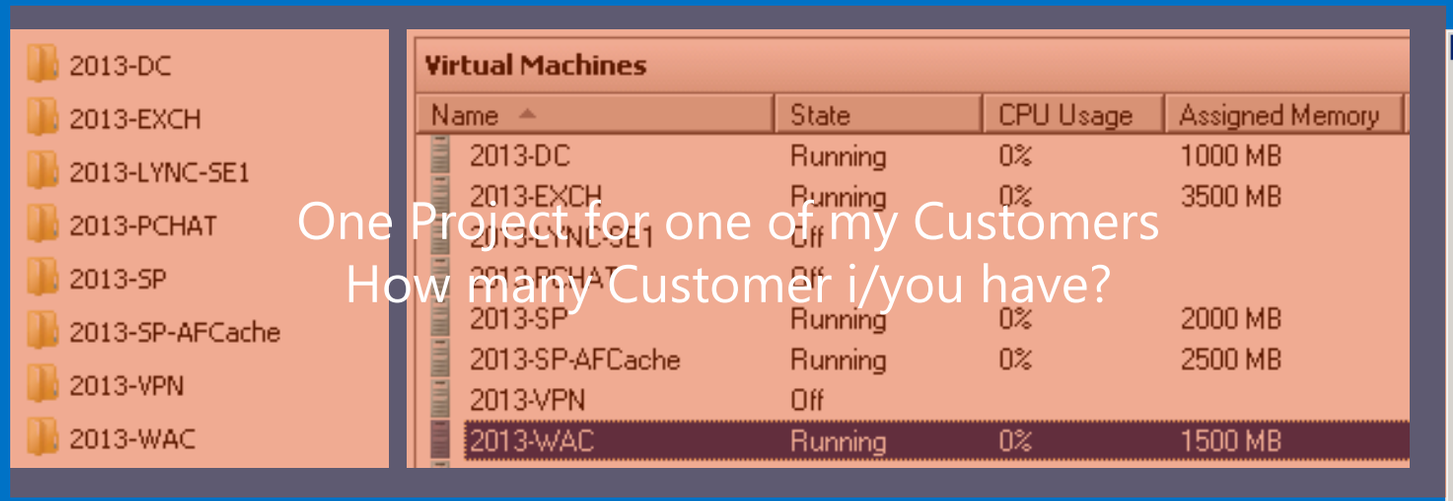
- Demo/Dev Images –> Several VM's (SharePoint, Exchange, Lync, …) + Snapshots
  - SharePoint 2007/2010/2013
- My Device = Powerful, mobile ***and heavy***
  - You take as much Cores, RAM and Disk-Space as you can get on market

But anyway, you will run to limits. Over time you got the feeling that hardware becomes smaller.

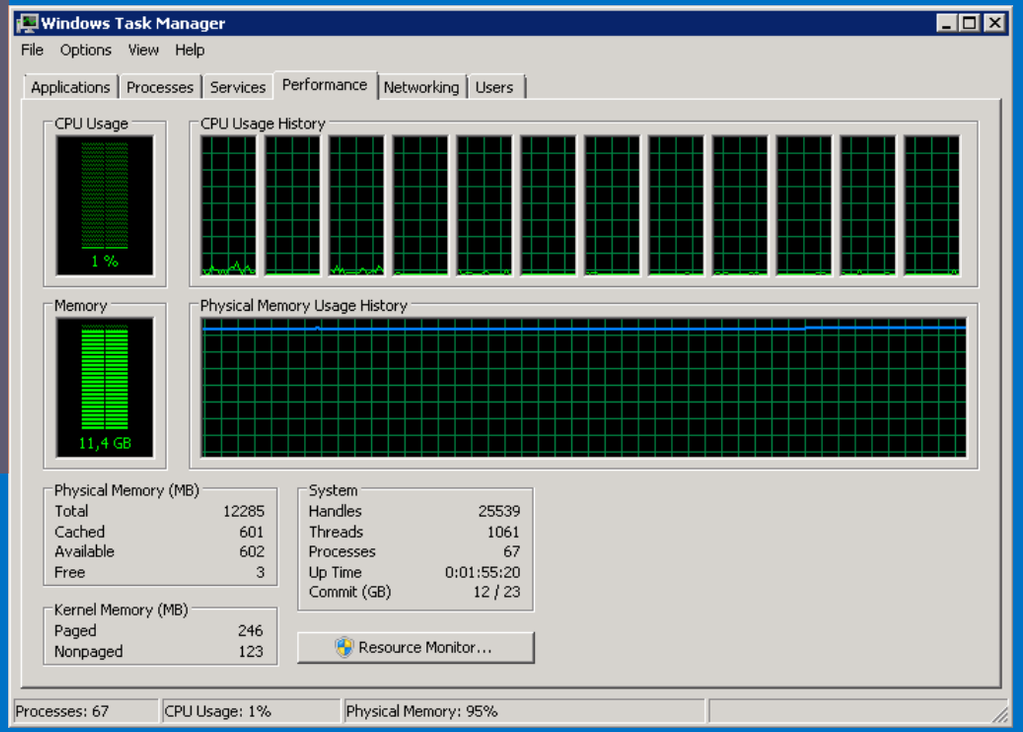


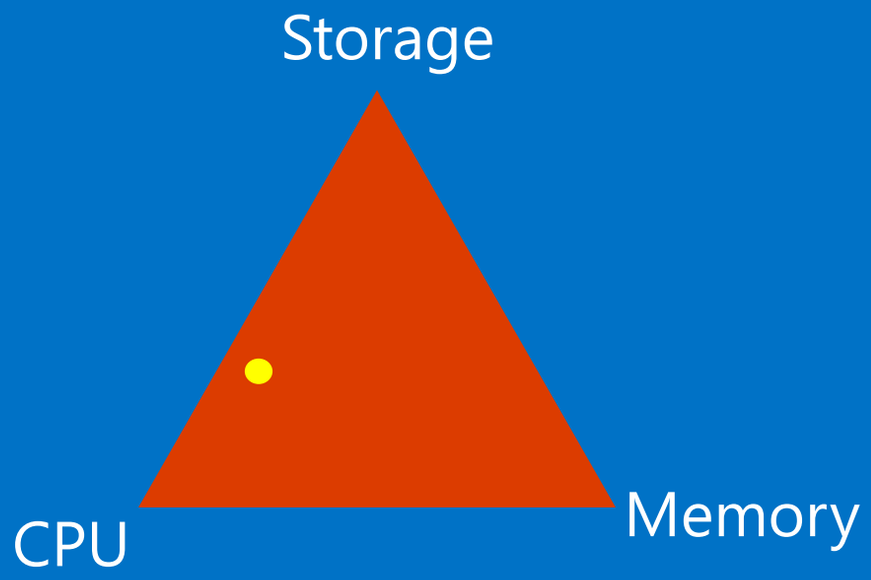
Travel-Equipment
>10 kg (>22lb)

One Work-Environment

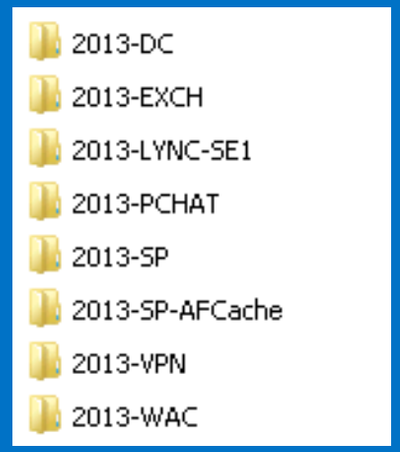


One Project for one of my Customers
How many Customer i/you have?

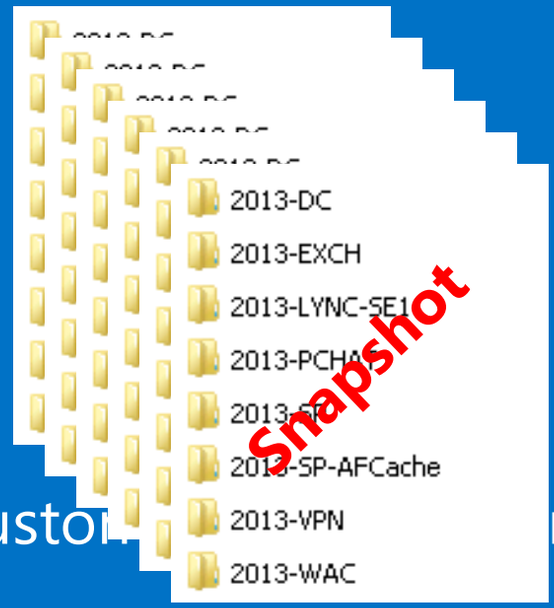




What i did: (onpremise)



Updates/Post-Config



Master Environment

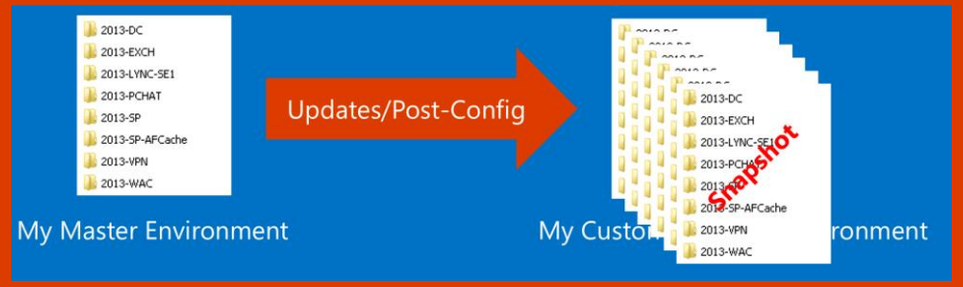
My Custo ronment

Disk: out of space, DISC IO is a Challenger

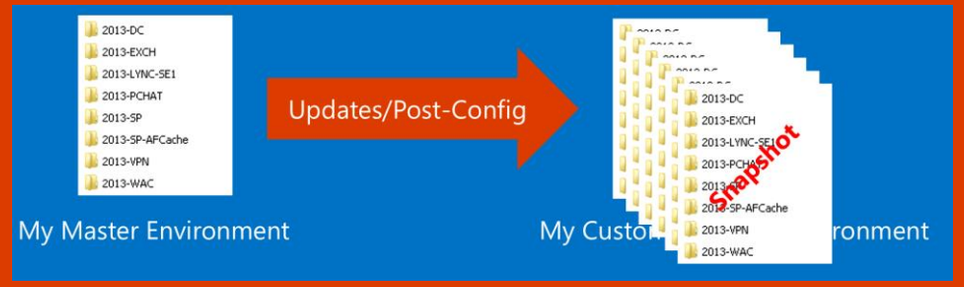
It's hard to migrate the HyperV-Host into next Versions

Real Life

Customer 1



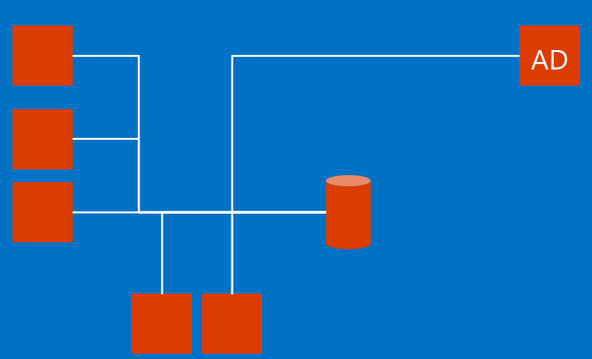
Customer 2



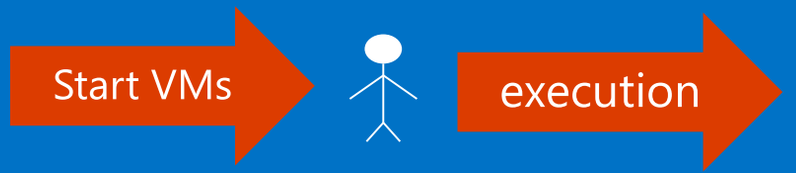
External USB-Drive 1-2 TB

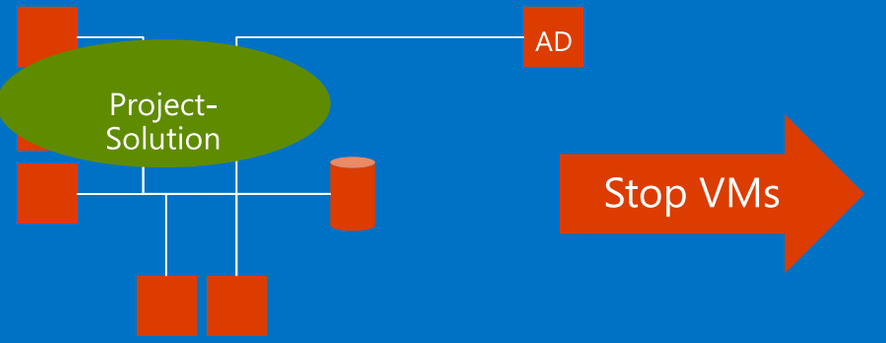
How long takes the copy?

Working in Projects



Work-Environment





Work-Environment for Project

Visual Studio
Team Foundation Server

Visual Studio Online

Can we do this easy with something….without being an HyperV Expert?

How I worked & How do I work now

SharePoint 2007

SharePoint 2003

SharePoint Support

Virtual Server/ HyperV

3 core, 1 TB, 16 GB RAM

SharePoint 201

SharePoint 2007

8 Cores, 0,5 TB,
16 GB RAM
5,5 kg / 194oz/
12,1 lb

PFE

op &
perV Server
under my Desk

12 core, 2 TB, 32 GB RAM

SharePoint 2013

SharePoint 2010

SharePoint 2007

Big Data, BI, PDW

DX

Linux

UMTS/
LTE /
WLAN /
LAN

4 GB,
250 GB,
8 Cores
6+ h Battery

Touch Device

200 Cores
Unlimited
RAM&Disk

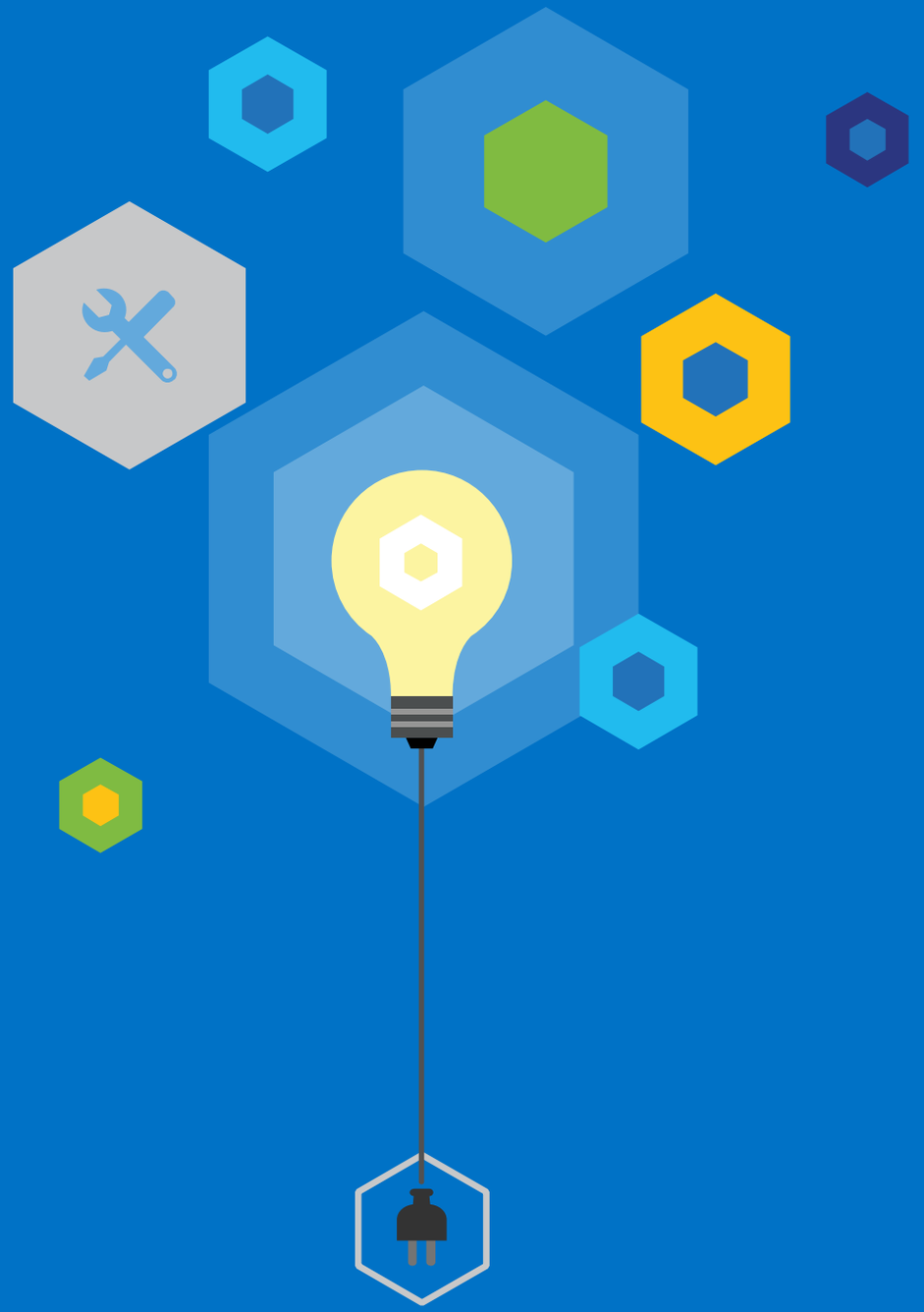
Azure
Subscription

I run out of hardware capacity

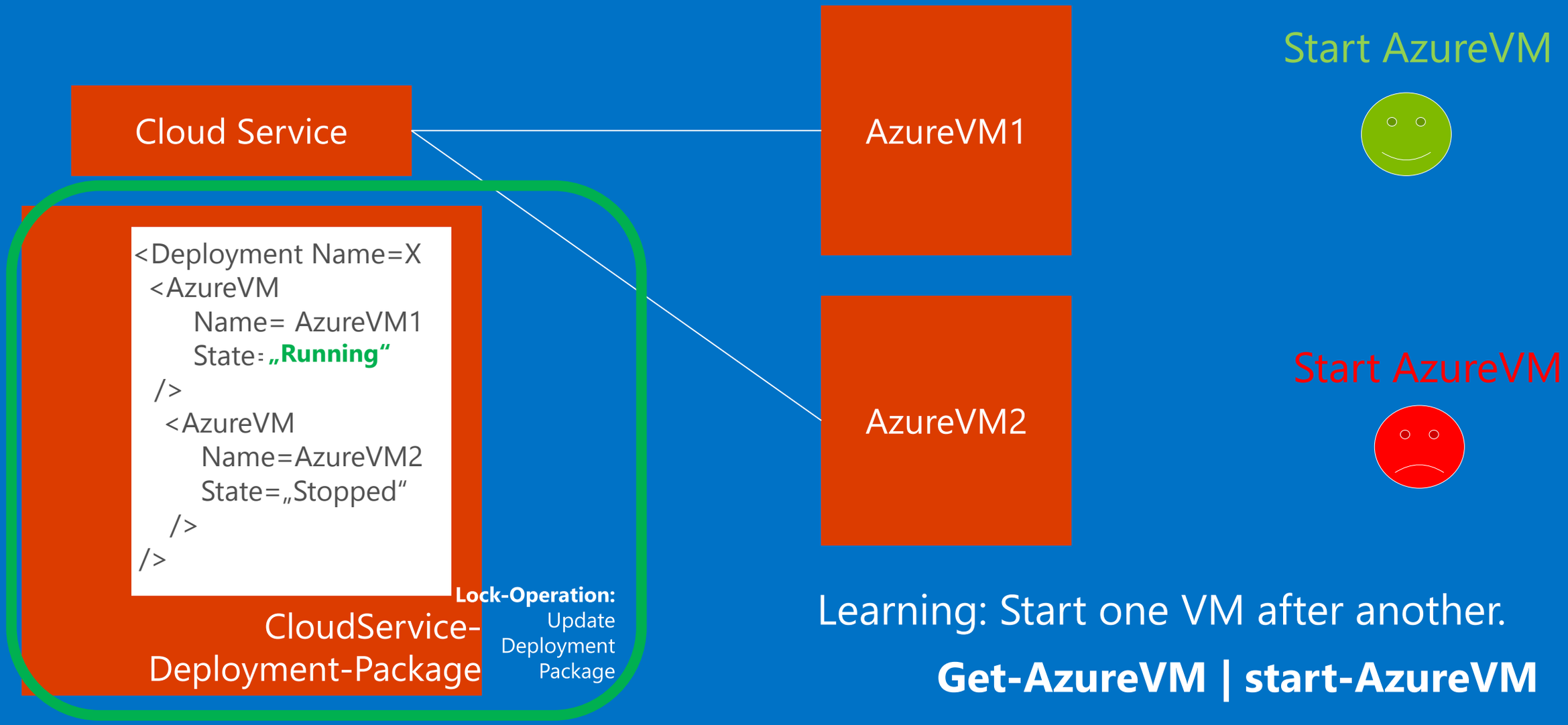
How? Now lets have a look in my Cloud Workplace!

My First fault with Azure…

Start AzureVM / Stop AzureVM
„Thinking in Boxes/VMs“



Using Azure like HyperV



Learning: Start one VM after another.

Get-AzureVM | start-AzureVM

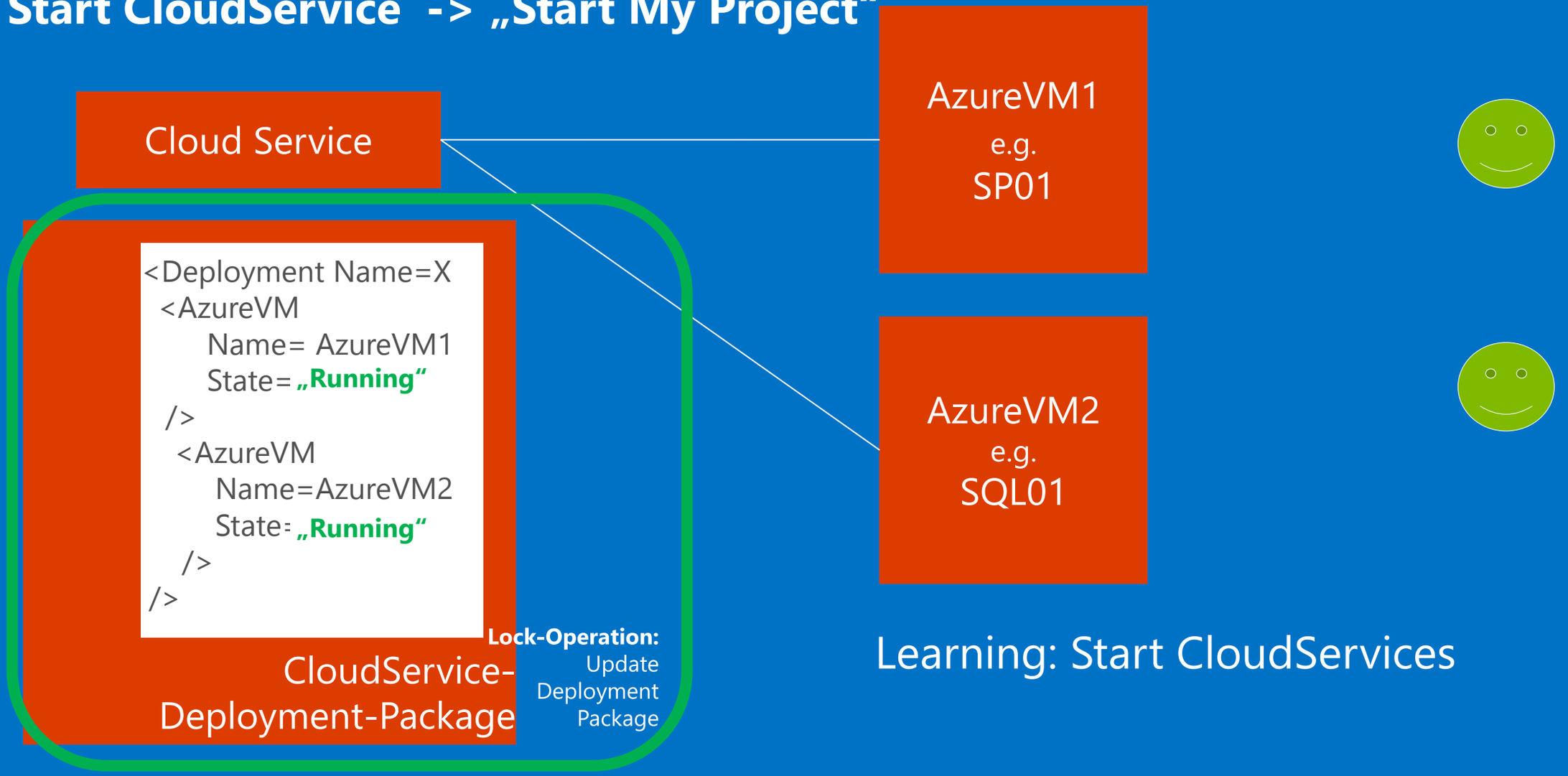
OR?

Thinking Cloud…. What is my real goal…. „Start my whole Project Environment

Why we think in VMs?

Using Azure like HyperV

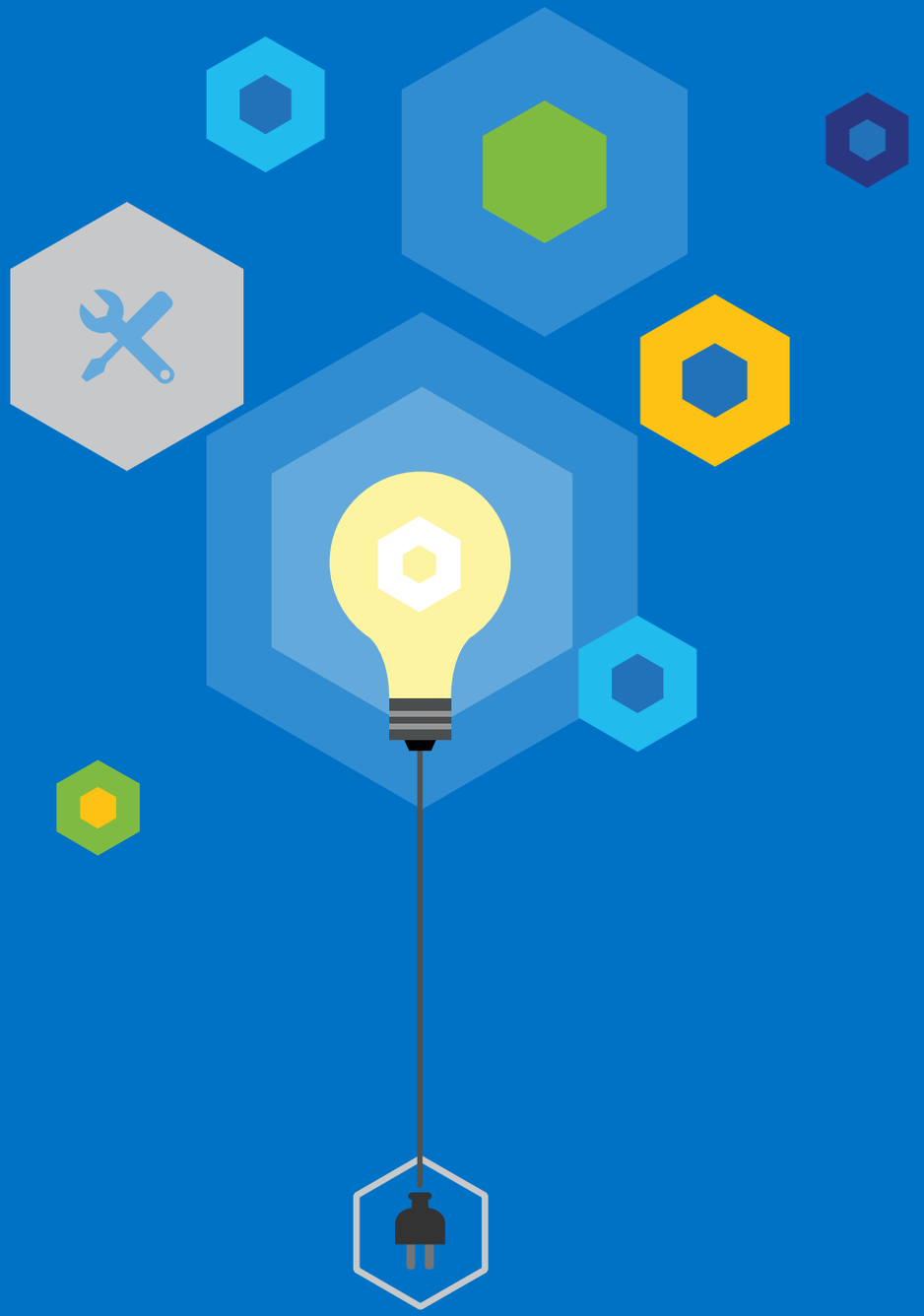
Start CloudService -> „Start My Project“



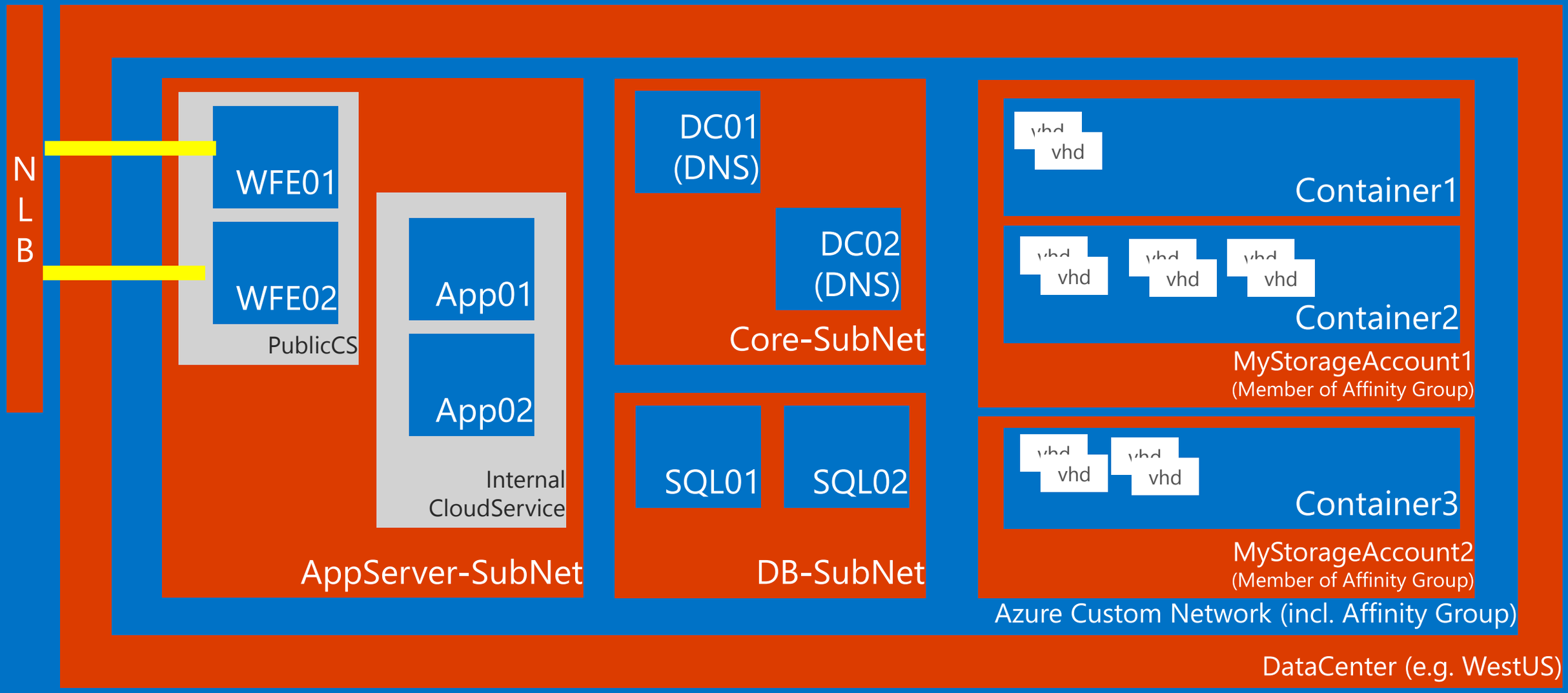
Learning: Start CloudServices

Using Azure like HyperV

Do it right ☺

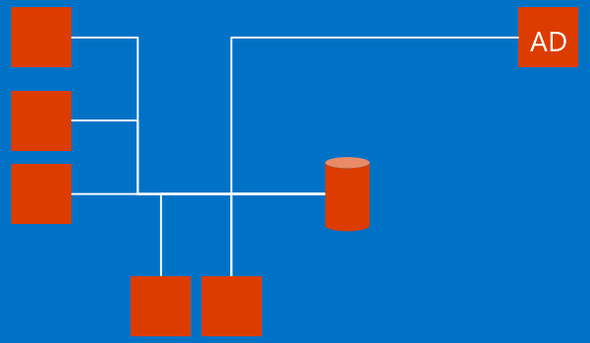


Complex Infrastructure: Azure Network & VMs



My Work Style History with using Azure – lession learned

Cloud / Azure change my Workstyle: V1.0



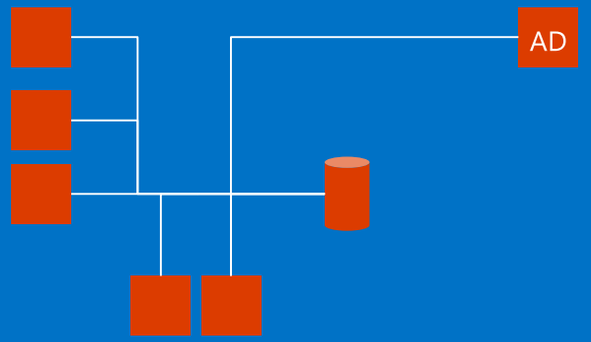
SharePoint/SQL Farm
Reference Env.

1. Create Azure Network manually
2. Create Each VM in Azure manually
3. Install Software on Each VM (SQL, SharePoint, …)
4. Start with my real Task…

Pro:
- 20 Cores is fine, more is better e.g. 200 Cores ☺
- My Azure Subscription solve my „Out of Hardware“ Problem

Contra:
- Manually Installation takes time (~4-8+ hours)
- Working over RDP

Cloud / Azure change my Workstyle: V2.0



SharePoint/SQL Farm
Reference Env.

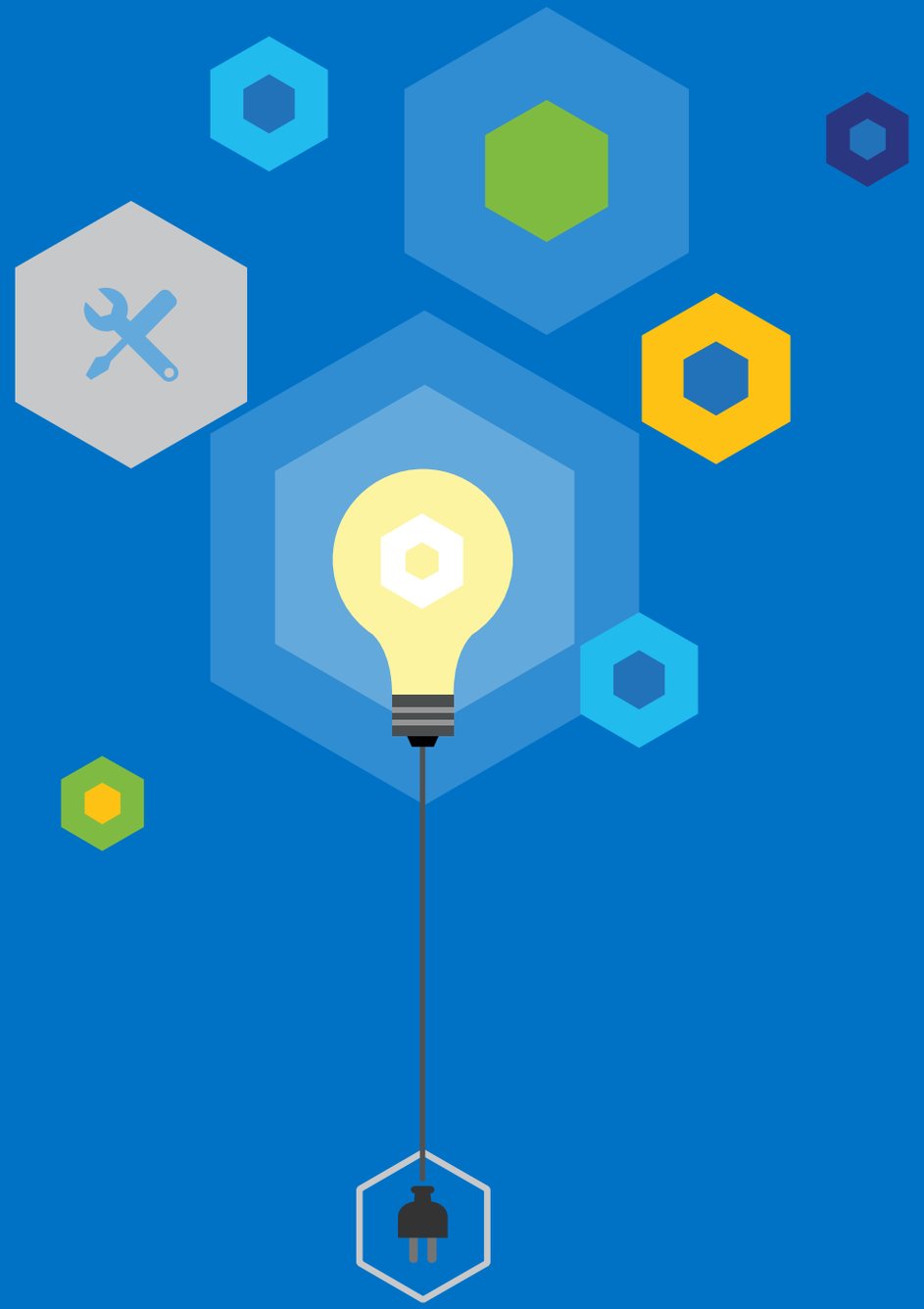
1. Create Network
2. Create Each VM in Azure – **using Azure PowerShell cmdlets** **using** "GitHub Azure SDK Tools Samples"
2.1. Install Software on Each VM (SQL, SharePoint) – **using Remote PowerShell**
3. Start with my real Task…

Pro:
- My Azure Subscription solve my Out of Hardware Problem
- Automatic installation take time but not my worktime ☺
(now available in the new Portal)

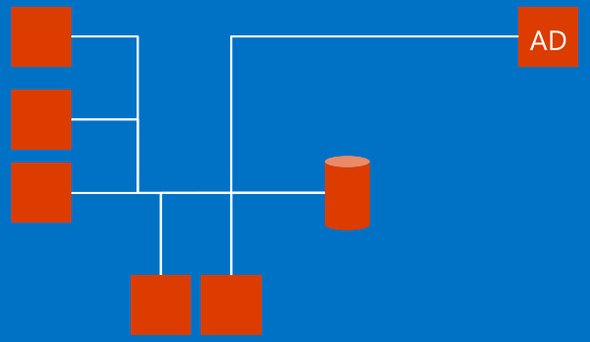
Contra:
- Automatic installation takes time(~1-4 hours)
- Create an auto-deployment script takes time,
- Updates on auto-deployment scripts can be time consuming

Create a SharePoint Environment

automatically



Cloud / Azure change my Workstyle: V3.0



SharePoint/SQL Farm
Reference Env.

1. Clone a Project Environment based on my Environment Library

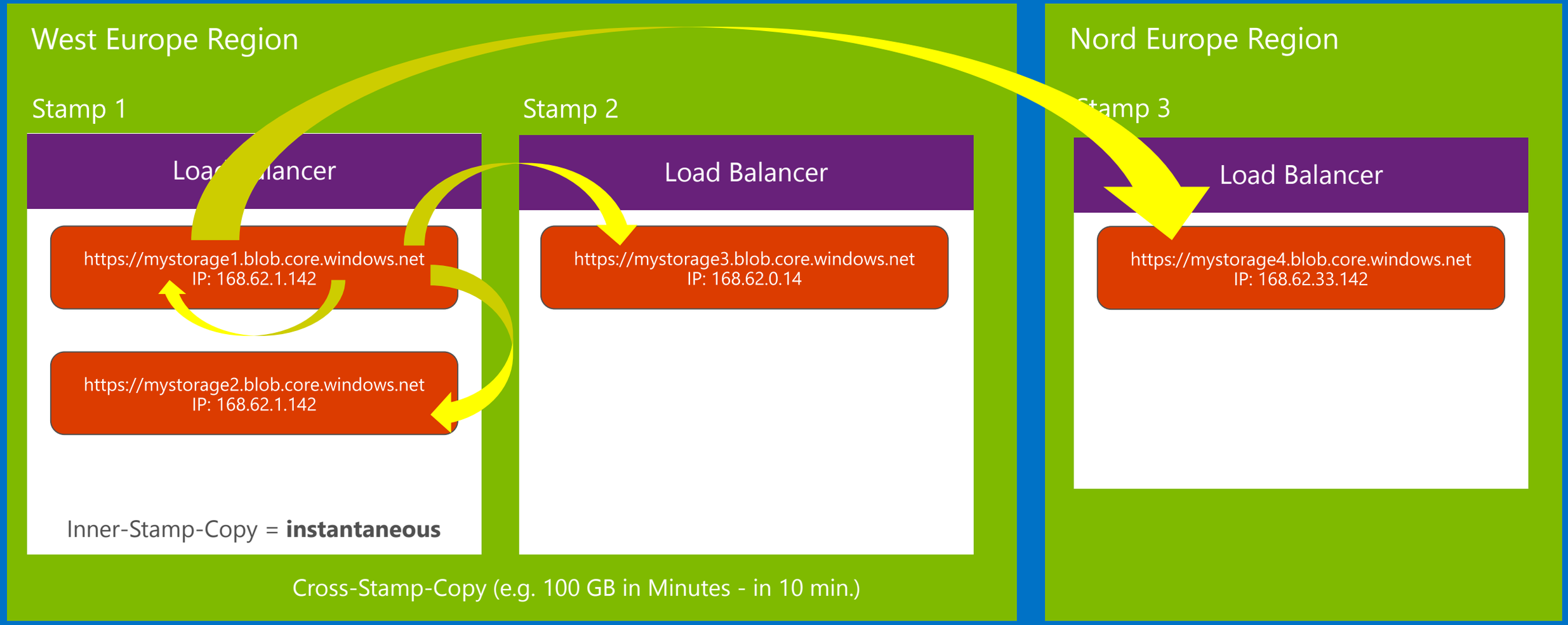
2. Start with my real Task…

Pro:
- Project Env.-Library can be shared to all Team members
- Very Fast
- No installation necessary
- Perfect for workshop delivery, projects tasks and temporary requirements

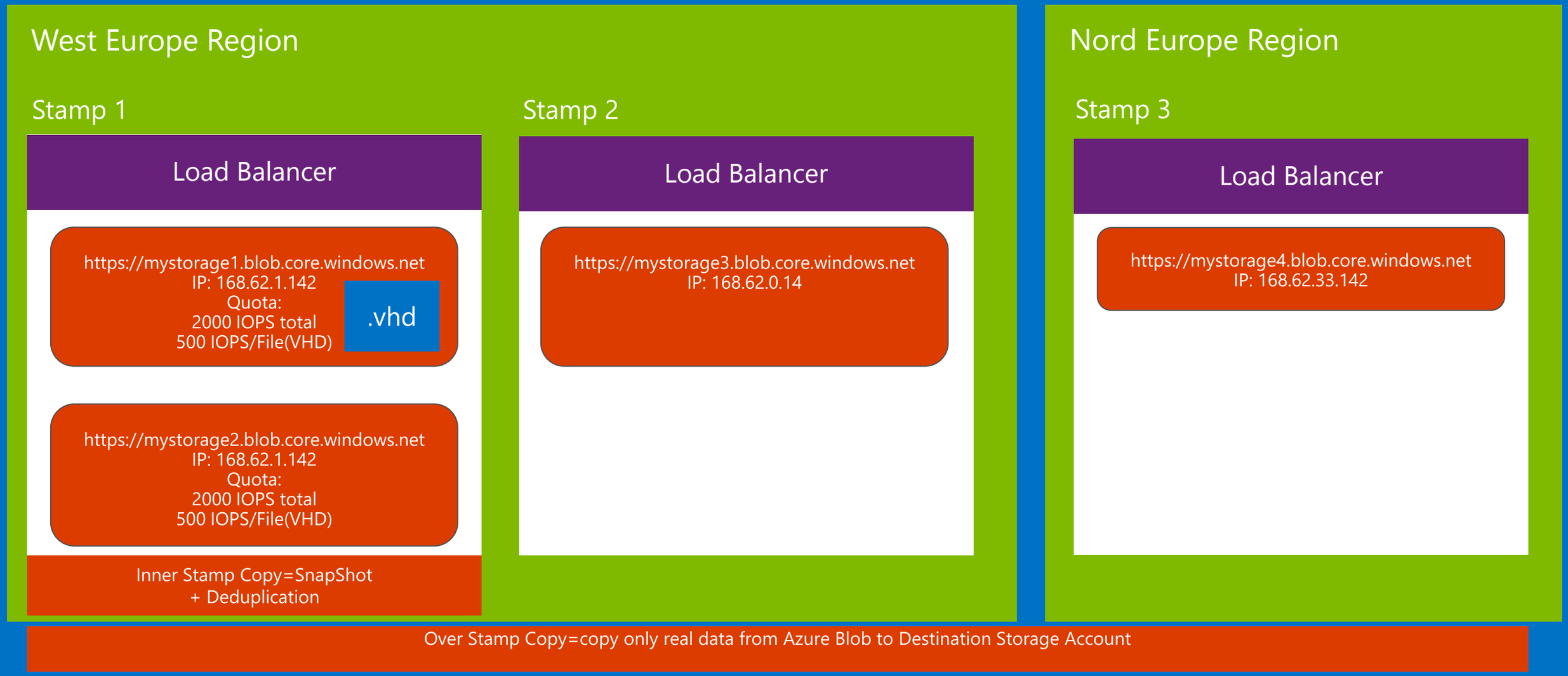
Contra:
- Requires a Project Env.-Library
- Merge Clone environment will be dangerous with duplicate SIDs

Clone – SharePoint/SQL Farm

How fast is cloning in Azure?

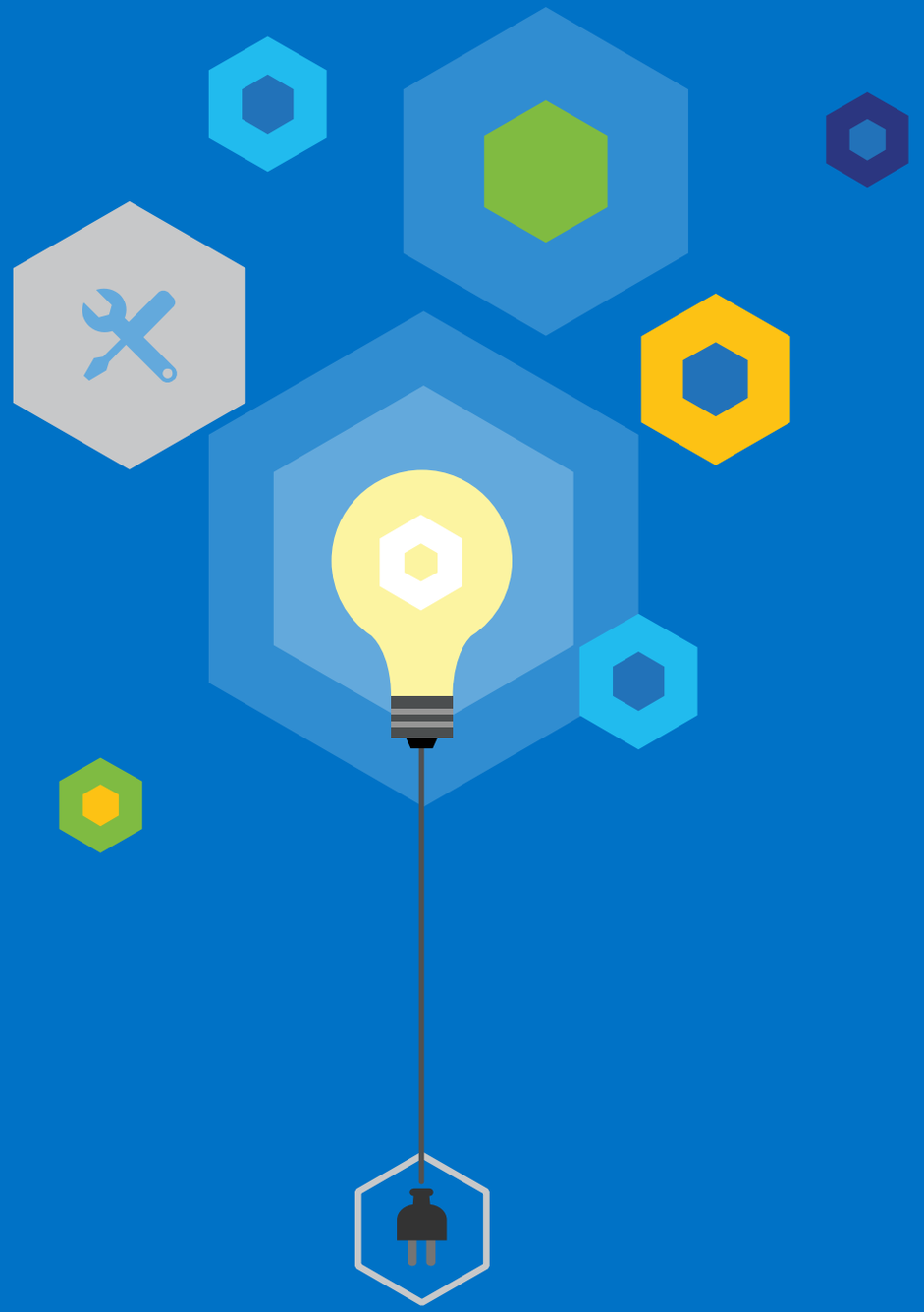


A deep Look


West Europe Region
Stamp 1
Load Balancer
https://mystorage1.blob.core.windows.net
IP: 168.62.1.142
Quota:
2000 IOPS total
500 IOPS/File(VHD)
.vhd
https://mystorage2.blob.core.windows.net
IP: 168.62.1.142
Quota:
2000 IOPS total
500 IOPS/File(VHD)
Inner Stamp Copy=SnapShot
+ Deduplication
Stamp 2
Load Balancer
https://mystorage3.blob.core.windows.net
IP: 168.62.0.14
Nord Europe Region
Stamp 3
Load Balancer
https://mystorage4.blob.core.windows.net
IP: 168.62.33.142
Over Stamp Copy=copy only real data from Azure Blob to Destination Storage Account

Demo- Cloning Project Environment

Over StorageAccount and Azure Subscriptions

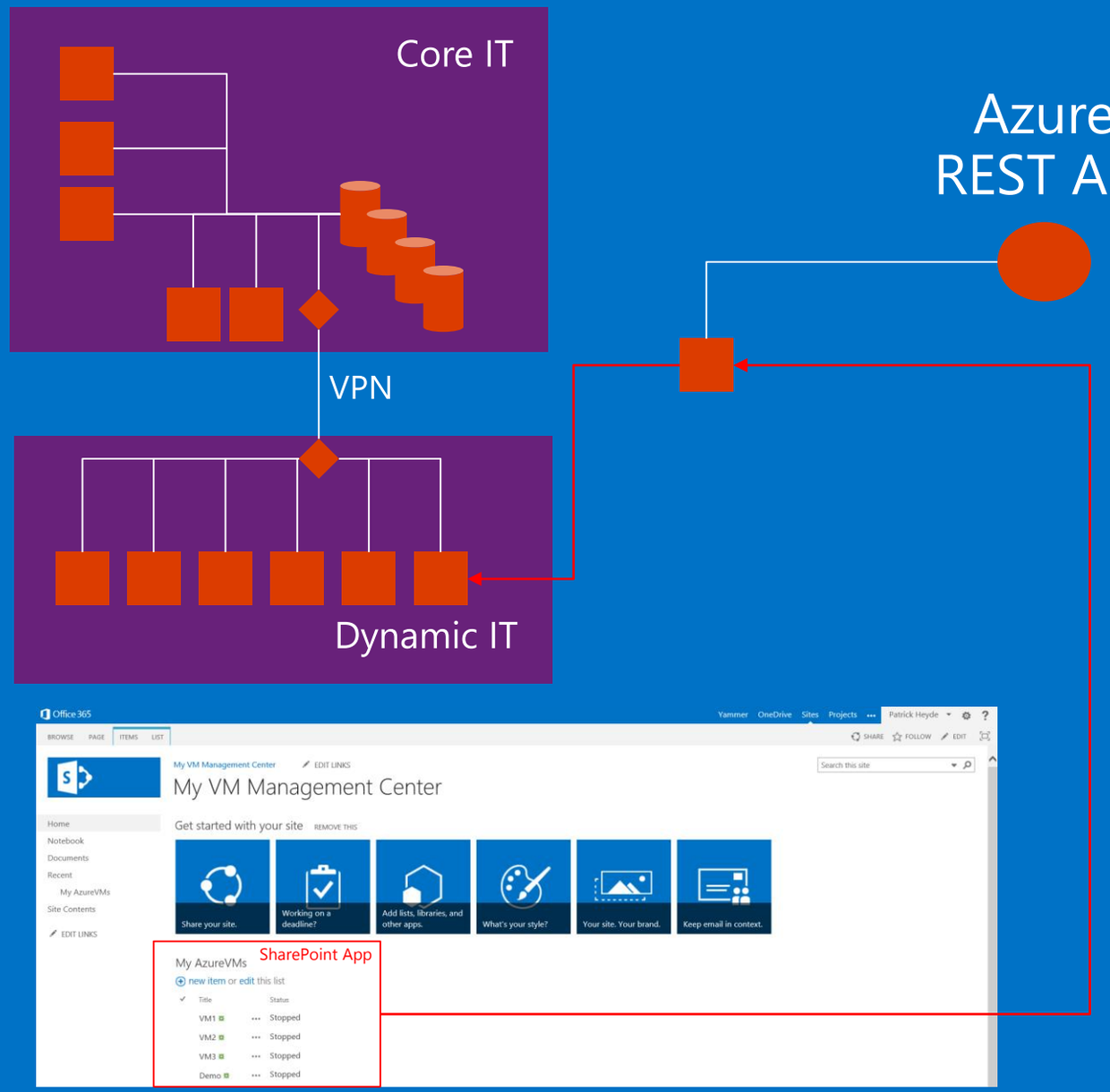


Lession learned – IT4Tomorrow Option 1

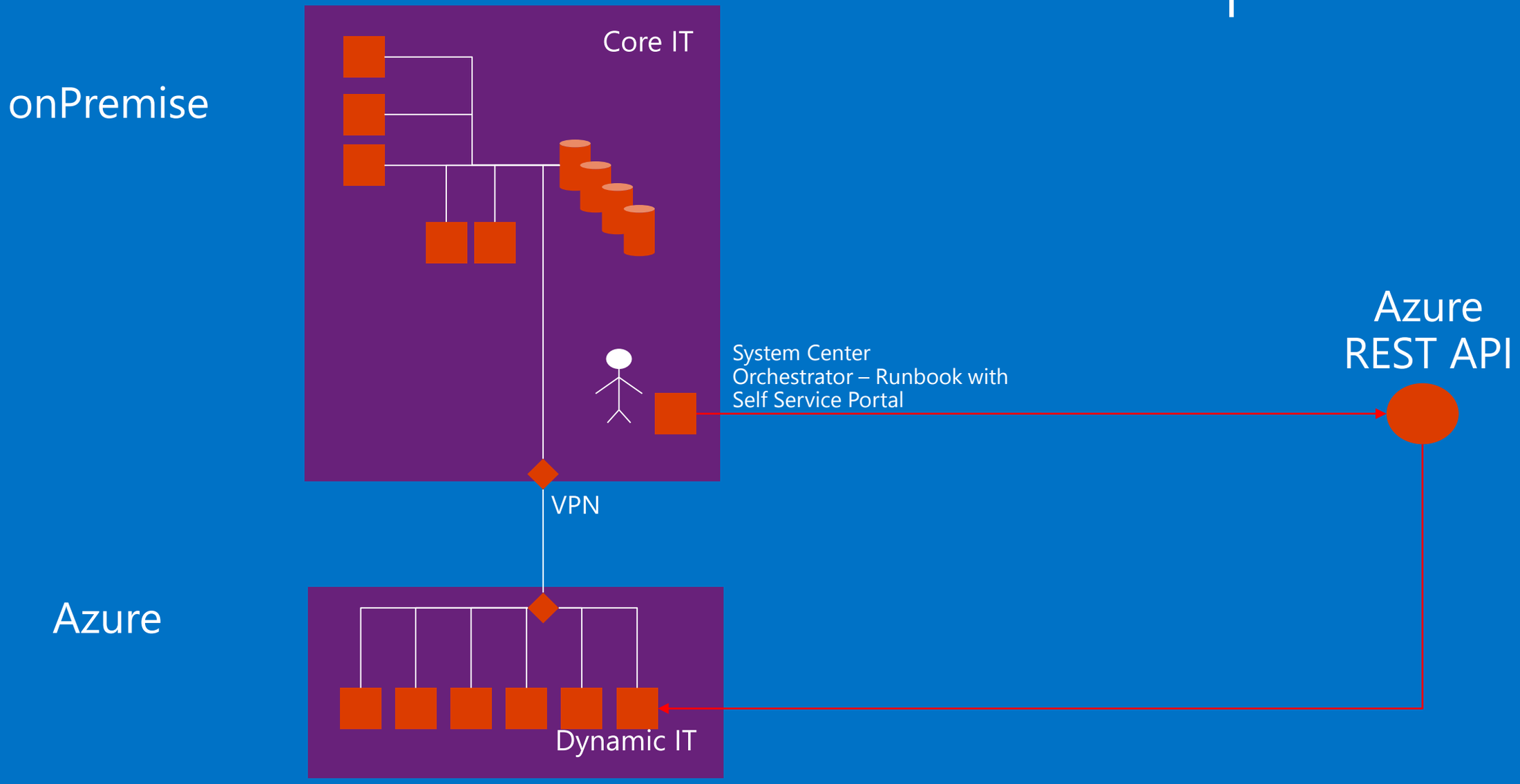
onPremise

Azure

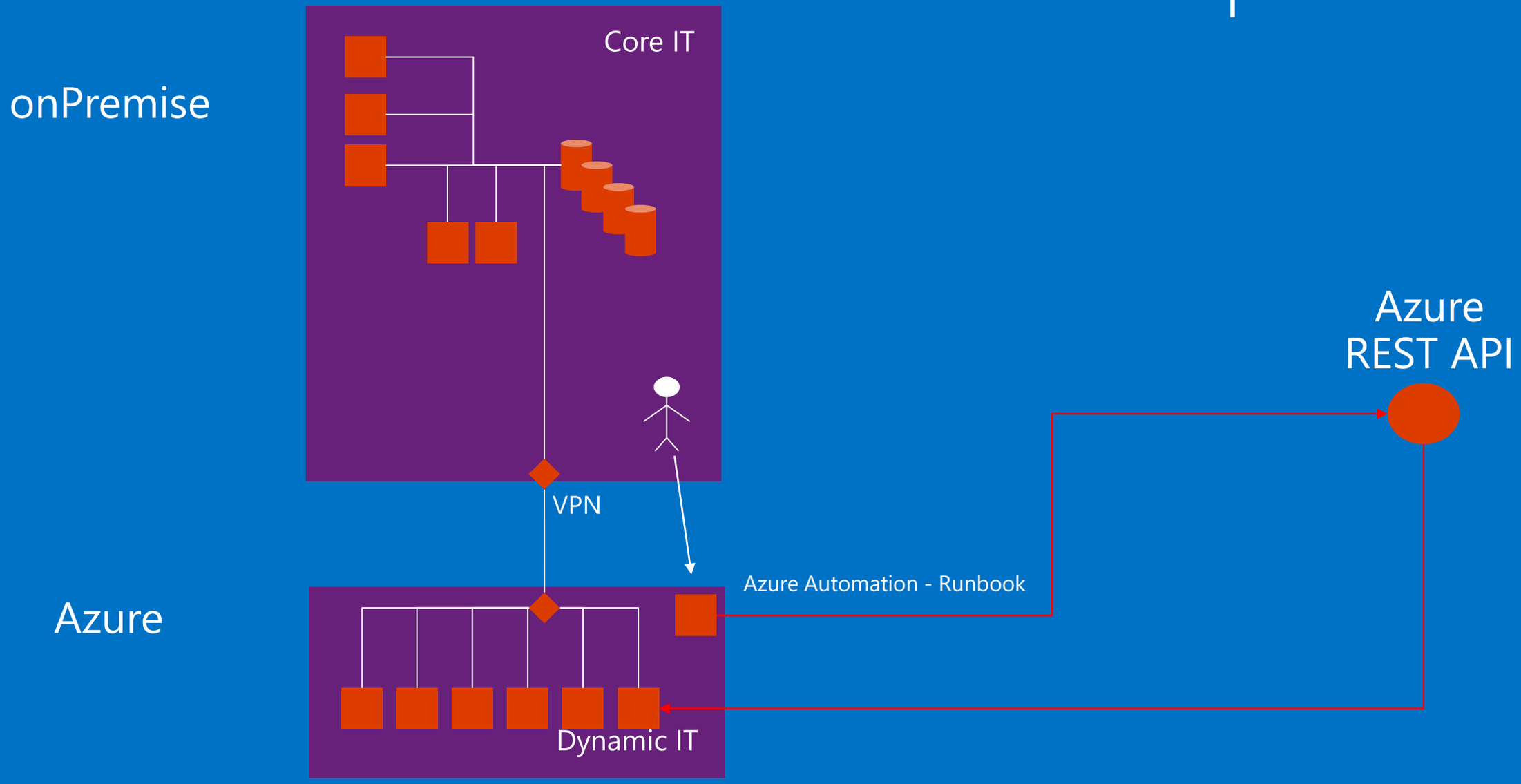
Office365



Lession learned – IT4Tomorrow Option 2



Lession learned – IT4Tomorrow Option 3



Session Objectives And Takeaways

Session Objective:

Cloud change main rules of IT thinking.

“Copy/Clone large Environments in minutes is real.”

Team collaboration include now environment sharing in minutes

What's new and important

Scale up / Down of license cost in minutes is real.

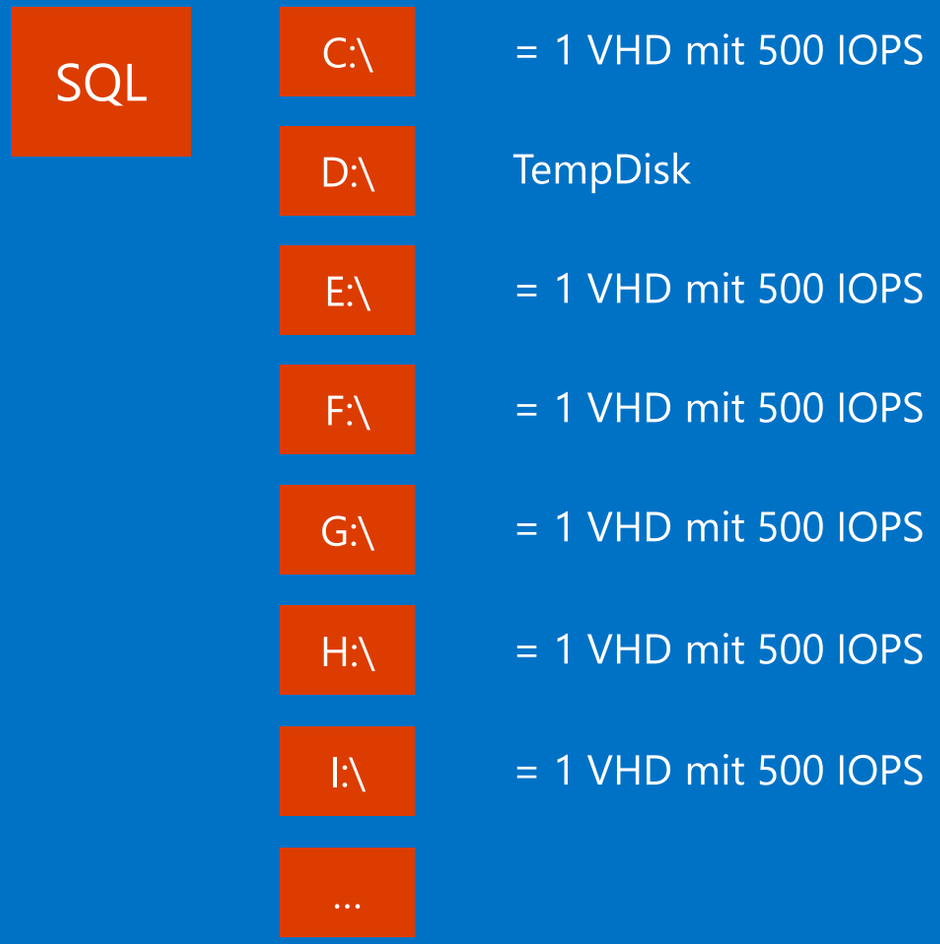
Azure Files vs. Blobs

Description	Azure Blobs	Azure Files
Durability Options	LRS, ZRS, GRS (and RA-GRS for higher availability)	LRS, GRS
Accessibility	REST APIs	**SMB 2.1 (standard file system APIs)** REST APIs
Connectivity	REST – Worldwide	SMB 2.1 - Within region REST – Worldwide
Endpoints	http://myaccount.blob.core.windows.net/mycontainer/myblob	\\myaccount.**file**.core.windows.net\myshare\myfile.txt http://myaccount.**file**.core.windows.net/myshare/myfile.txt
Directories	Flat namespace however prefix listing can simulate virtual directories	True directory objects
Case Sensitivity of Names	Case sensitive	Case **insensitive**, but case **preserving**
Capacity	Up to 500TB containers	5TB file shares
Throughput	Up to 60 MB/s per blob	Up to 60 MB/s per **share**
Object size	Up to 1 TB/blob	Up to 1 TB/file
Billed capacity	Based on bytes written	Based on file size

Azure Files vs. Blobs

Description	Disk	Azure Files
Relationship with Azure VMs	Required for booting (OS Disk)	
Scope	Exclusive/Isolated to a single VM	Shared access across multiple VMs
Snapshots and Copy	Yes	No
Configuration	Configured via portal/Management APIs and available at boot time	Connect after boot (via net use on windows)
Built-in authentication	Built-in authentication	Set up authentication on net use
Cleanup	Resources can be cleaned up with VM if needed	Manually via standard file APIs or REST APIs
Access via REST	Can only access as fixed formatted VHD (single blob) via REST. Files stored in VHD cannot be accessed via REST.	Individual files stored in share are accessible via REST
Max Size	1TB Disk	5TB File Share 1TB file within share
Max 8KB IOps	500 IOps	**1000 IOps**
Throughput	Up to 60 MB/s per Disk	Up to 60 MB/s per File Share

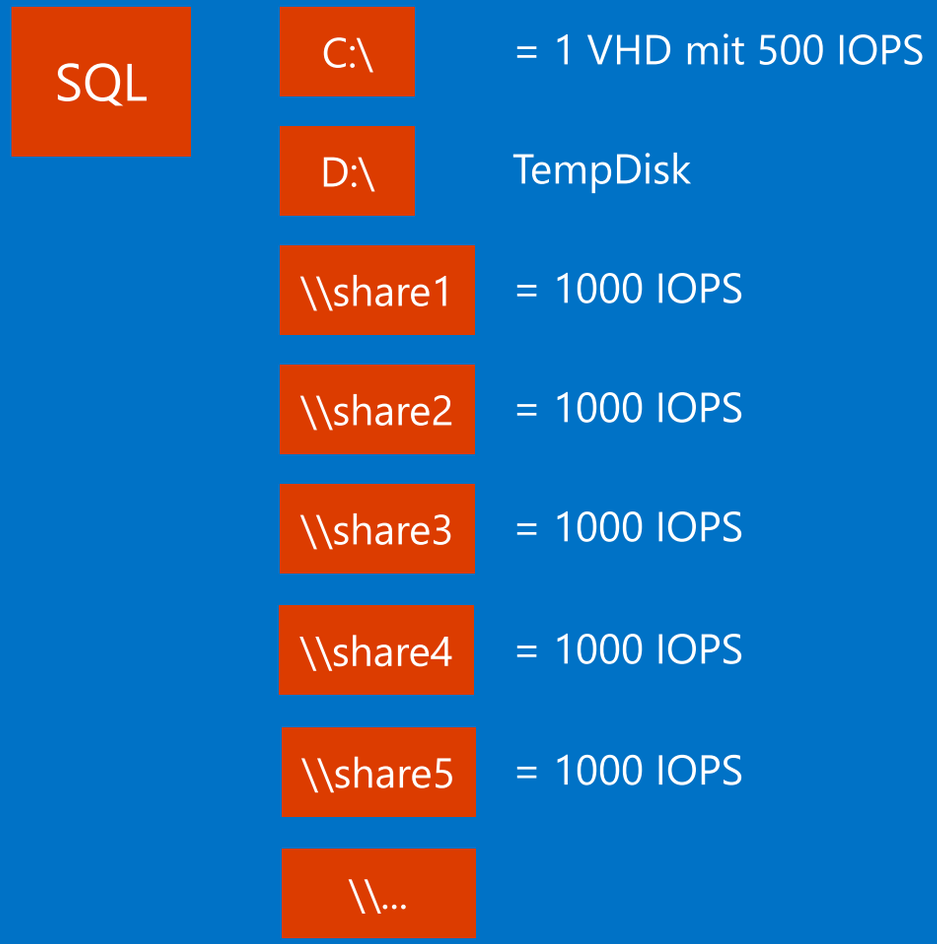
Scaling SQL Server + Lizenz in Minutes



Size	Core	RAM	Bandwith	DataDisk Count	TempDisk Size
A0 - XS	1/3	768 MB	5 Mbps	1	20 GB
A1 - S	1	1,75 GB	100 (1x100Mbps)	2	70 GB
A2 - M	2	3,5 GB	200 (2x100Mbps)	4	135 GB
A3 - L	4	7 GB	400 (4x100Mbps)	8	285 GB
A4 - XL	8	14 GB	800 (8x100Mbps)	16	605 GB
A5 - High Memory of A2	2	14 GB	200 Mbps	4	135 GB
A6 - High Memory of A3	4	28 GB	400 Mbps	8	285 GB
A7 - High Memory of A4	8	56 GB	800 Mbps	16	605 GB
A8 - High Memory	8	56 GB	40 Gbit/s InfiniBand	16	382 GB
A9 - High Memory	16	112 GB	40 Gbit/s InfiniBand	16	382 GB

max IOPS = 16 * 500 = 8000 IOPS

SQL as Azure VM with Azure Files



max IOPS = <shares> * 1000

Size	Core	RAM	Bandwith	DataDisk Count	TempDisk Size
A0 - XS	1/3	768 MB	5 Mbps	1	20 GB
A1 - S	1	1,75 GB	100 (1x100Mbps)	2	70 GB
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A8 - High Memory	8	56 GB	40 Gbit/s InfiniBand	16	382 GB
A9 - High Memory	16	112 GB	40 Gbit/s InfiniBand	16	382 GB

SQL IO-Monster VM

-SQL mit 1 Core + many Shares

In A5 mit TempDisk = Ramdisc