

MikroTik's CHR

on



- setup and use cases -



by Werner Liebetegger

WWW.MIKROTIK - ACADEMY.EU
Training provider in Central Europe

@ MUM UK, 11/2016

topics



Microsoft Azure

- as platform

CHR deployment

- prerequisites
- deploying on Azure

some use cases



Microsoft Azure as platform



Microsoft Azure

DEVELOPER + APP PLATFORM	Visual Studio Family + Azure App Service			
DATA + ANALYTICS	Cortana Analytics Suite			
INTERNET OF THINGS	Azure IoT Suite			
CLOUD INFRASTRUCTURE	<div><div>Compute</div><div><div>Virtual Machines</div><div>Containers</div><div>Remote App</div><div>Batch</div></div><div>Storage</div><div><div>Blob Storage</div><div>Azure Files</div><div>Premium Storage</div></div></div>	<div><div>Security + Management</div><div><div>Active Directory</div><div>Multi-Factor Auth</div><div>Automation</div><div>Key Vault</div></div></div>	<div><div>Networking</div><div><div>Express Route</div><div>Virtual Network</div><div>Load Balancer</div><div>DNS</div><div>Traffic Manager</div><div>VPN Gateway</div><div>Application Gateway</div></div></div>	<div><div>Hybrid Operations</div><div><div>Azure AD Connect Health</div><div>AD Privileged Identity Mgmt</div><div>Backup</div><div>Operational Insights</div><div>Import/Export</div><div>StorSimple</div><div>Site Recovery</div></div></div>

Source: Azure presentation by Shahed Chowdhuri

34 Azure regions

2x the amount of regions as AWS



Azure – subscription options



- Trial for 1-month
worth €170 (credit card info only needed for verification, no charge !)
- Pay-as-you-go
on monthly basis, payment via credit card
- MS Enterprise Agreement
within annual contract
- MSDN subscription
up to €130 per month
- MS Dreamspark for students
up to ten Azure Webapps (hosted projects – html, js, node, php, python and more)
- MS Partner Network

Azure – costs (indication)



Pricing Calculator available: <https://azure.microsoft.com/en-us/pricing/calculator/>

Virtual Machines

Storage

REGION:
West Europe

TYPE:
Page Blob and Disk

PRICING TIER:
Basic

DATA REDUNDANCY:
LRS

Capacity
1 GB

= €0.04/mo

Storage transactions
5 Transaction units (100,000 transactions)

× €0.0030 Per unit

= €0.02/mo

Sub-total

€0.06/mo

€0.015/hr

= €11.29/mo

Your estimate

Euro (€)

Storage €0.06

Virtual Machines €11.29

Support Options €0.00

€11.35
Estimated monthly cost

Purchase options

Export estimate

Prices are estimates and are not intended as actual price quotes.

deployment, 'the extra mile'



CREATE A VIRTUAL MACHINE

Choose an Image

ALL

MICROSOFT

WINDOWS SERVER

SHAREPOINT

SQL SERVER

BIZTALK SERVER

VISUAL STUDIO

DYNAMICS

UBUNTU

COREOS

CENTOS-BASED

SUSE

ORACLE


PUPPET LABS

MY IMAGES


MY DISKS

MSDN ?

FEATURED




BizTalk Server 2016 Community Technology Preview 2



HPC Pack Technical Preview

Windows Server 2012 R2



BizTalk Server 2016 Community Technology Preview 2

Microsoft BizTalk Server 2016 Community Technology Preview 2 on Windows Server 2016 Technical Preview 4. This release focuses on a number of important improvements. Support for SQL Server 2016 AlwaysOn Availability Groups makes production high availability (HA) workloads in Azure a reality. We have also made numerous improvements and enhancements to BizTalk based on your feedback, we hope you like them. See [documentation at https://msdn.microsoft.com/en-US/library/mt670742.aspx](https://msdn.microsoft.com/en-US/library/mt670742.aspx) for more information.

OS FAMILY Windows

PUBLISHER Microsoft BizTalk Server Group

PRICING INFORMATION

Pricing varies based on the subscription you select to provision your virtual machine.

→

2 3 4



deployment, prerequisites























- CHR-VM image
- Azure-account and active Azure subscription
- Azure Management tool
GUI: up-to-date browser required
or
command line: MS Powershell and Azure Powershell Enhancement
available via <https://github.com/Azure/azure-powershell>
alternatively for multiple platforms <https://github.com/Azure/azure-cli/>

CHR, available VM images



Cloud Hosted Router

	6.36.4 (Bugfix only)	6.37.1 (Current)	5.26 (Legacy)	6.38rc29 (Release candidate)
Images	vmdk, vhdx, vdi, img			
VHDX image			-	
VMDK image			-	
VDI image			-	
Raw disk image			-	
Extra packages			-	
The Dude server			-	
The Dude client			-	
Changelog			-	
MD5			-	

as of mid-November 2016

CHR-virtual machine converted into VHD is needed, since VHD is (currently) the only supported VM format on Azure !

deployment, preparation



Converting any downloadable CHR-image to a pre-allocated VHD

- Freeware : Oracle's Virtualbox GUI / vboxmanage (command line) and a lot more ...
- MS HyperV Manager (if avail.), MS Powershell

Hint: Check VHD-filesize after conversion, must be larger than 130 megabytes to serve as pre-allocated VHD

CHR deployment on Azure



1. Setup Azure blob storage and container
2. Upload CHR VHD-image into container as page blob
3. Setup disk, Azure Virtual Machine and Cloud Service
4. Setup CHR

Hint: When using Azure CLI, setup account, access and environment variables first

deployment, setup storage



storage

NEW

COMPUTE	SQL DATABASE	QUICK CREATE
DATA SERVICES	STORAGE	
APP SERVICES	HDINSIGHT NOT AVAILABLE	
NETWORK SERVICES	RECOVERY SERVICES	
MARKETPLACE PREVIEW	MACHINE LEARNING	
	STREAM ANALYTICS	
	STORSIMPLE MANAGER NOT AVAILABLE	

URL
chrrcblob
*.core.windows.net

LOCATION
West Europe

SUBSCRIPTION

REPLICATION
Locally Redundant

CREATE STORAGE ACCOUNT

deployment, setup container



storage

NAME	STATUS	LOCATION
chrrcblob	Online	West Europe

chrrcblob

DASHBOARD MONITOR CONFIGURE **CONTAINERS** IMPORT/EXPORT

This storage account has no containers.

[CREATE A CONTAINER](#)

New container

NAME
chr-rcs

ACCESS ?
Private

+ NEW

+ NEW ADD EDIT DELETE

deployment, upload check

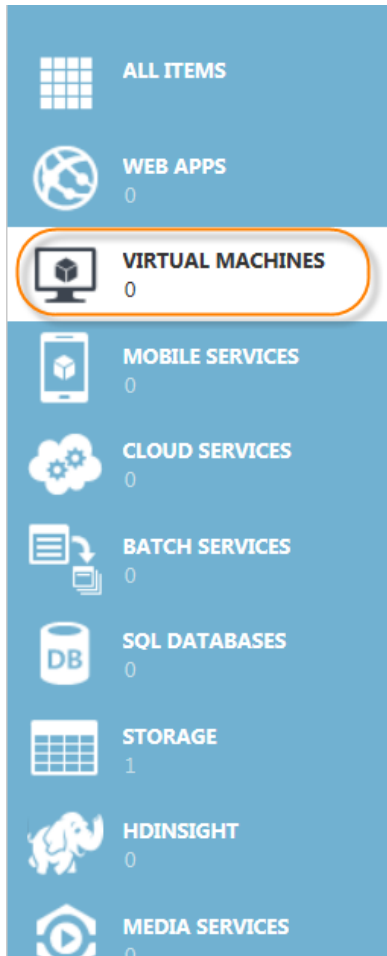


chr-rcs

NAME	URL	LAST MODIFIED	SIZE
chr-6.38rc25.vhd	https://chrrcblob.blob.core.windows.net/chr-rcs/chr-6.38rc25.vhd	11/10/2016 9:56:20 PM	128 MB

+ NEW DOWNLOAD EDIT DELETE ?

deployment, setup disk



virtual machines

INSTANCES IMAGES **DISKS**

No disks have been created. To get started, click Create a disk.

CREATE A DISK →

Create a disk from a VHD

NAME

CHR-RC25

VHD URL

 <https://chrrcblob.blob.core.windows.net/chr-rccs/>

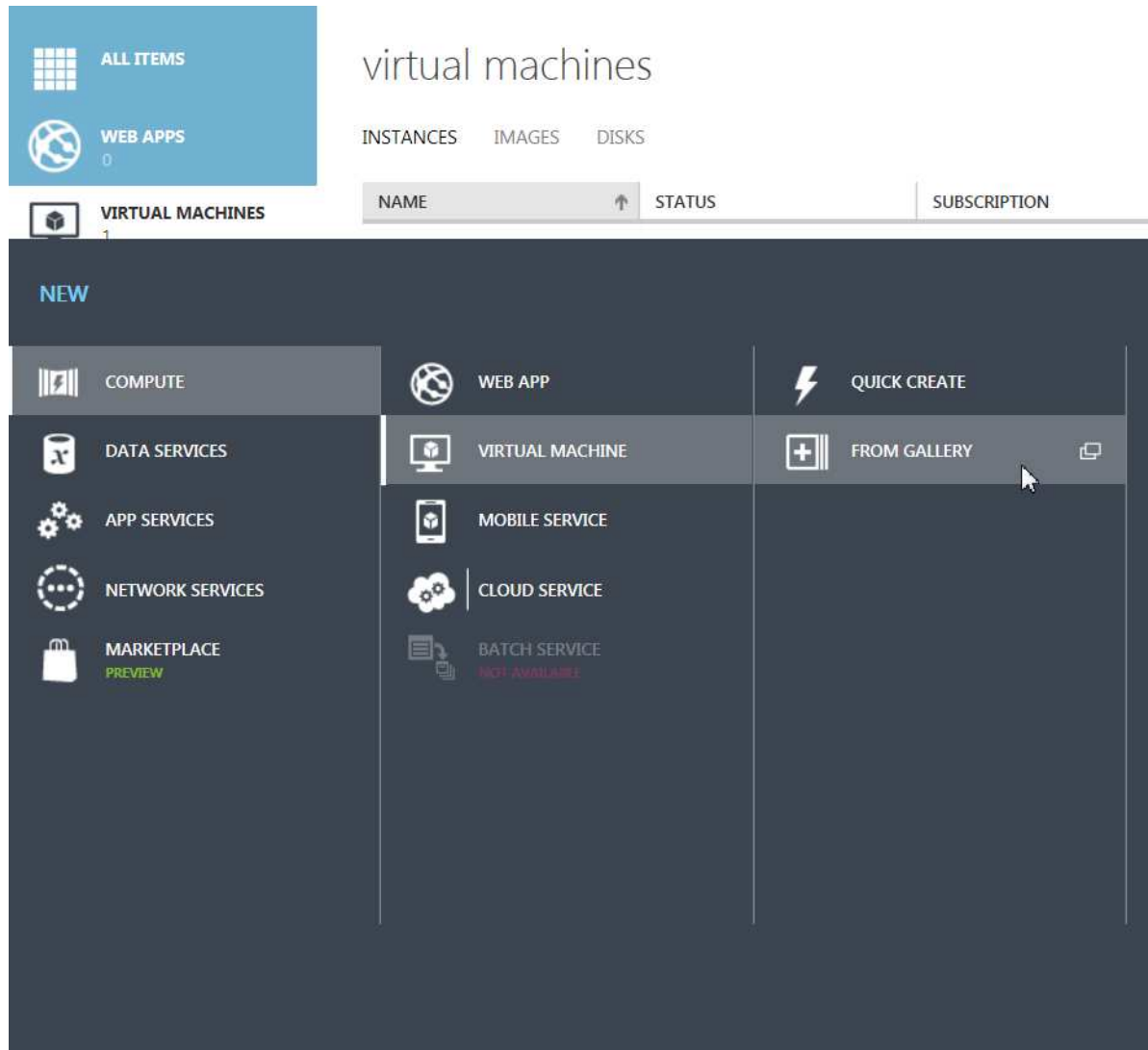
☒ The VHD contains an operating system. ?

OPERATING SYSTEM FAMILY

Linux



deployment, setup VM I



CREATE A VIRTUAL MACHINE

Choose an Image

ALL

MICROSOFT
WINDOWS SERVER
SHAREPOINT
SQL SERVER
BIZTALK SERVER
VISUAL STUDIO
DYNAMICS
UBUNTU
COREOS
CENTOS-BASED
SUSE
ORACLE
PUPPET LABS

MY IMAGES
MY DISKS

☐ MSDN

FEATURED



CHR-RC25



OS FAMILY
NUMBER OF
DISKS
SUBSCRIPTION
LOCATION

PRICING INFORMATION
Pricing varies based on
provision your virtual m

deployment, setup VM II



CREATE A VIRTUAL MACHINE

Virtual machine configuration

VIRTUAL MACHINE NAME ?

CHR-RC25

TIER

BASIC

STANDARD

SIZE ?

A0 (shared core, 768 MB memory)

CREATE A VIRTUAL MACHINE

Virtual machine configuration

CLOUD SERVICE ?

⚠ You will not be able to select a cloud service below if it is deployed to an affinity group.

Create a new cloud service

CLOUD SERVICE DNS NAME

CHR-RC25



.cloudapp.net

SUBSCRIPTION

REGION/VIRTUAL NETWORK ?

West Europe

AVAILABILITY SET ?

(None)

ENDPOINTS

NAME	PROTOCOL	PUBLIC PORT	PRIVATE PORT
SSH	TCP	30022	22
Winbox	TCP	38291	8291
ENTER OR SELECT A VALUE			



CHR-RC25

OS FAMILY
Linux

NUMBER OF
DISKS
1

SUBSCRIPTION

LOCATION
West Europe

PRICING INFORMATION

Pricing varies based on the subscription you select to provision your virtual machine.

1

1 2

4



deployment, setup VM III



123

CREATE A VIRTUAL MACHINE

Virtual machine configuration

VM AGENT ?

☐ The VM agent that supports extensions is already installed.

LEGAL TERMS

If any third-party extensions have been selected for installation, I acknowledge that I am getting such software from the third-party publishers identified above and that such publishers' legal terms and privacy statements apply to it.

LINUX

CHR-RC25

OS FAMILY

Linux

NUMBER OF DISKS

1

SUBSCRIPTION

LOCATION

West Europe

PRICING INFORMATION

Pricing varies based on the subscription you select to provision your virtual machine.

←

✓

deployment, finish & get Info



CHR-RC25

CHR-RC25

usage overview

1 CORE(S)

CHR-RC25 3 of 20 CORE(S)

disks

DISK	TYPE	HOST CACHE	VHD
CHR-RC25	OS disk	Read/Write	https://chrrcblob.blob.core.windows.net/chr-rs/c

extensions

No extensions are installed.

services

Reset password (new portal)

Reset remote configuration (new portal)

Learn more about backup and restore

STATUS

Running

DNS NAME

chr-rc25.cloudapp.net

HOST NAME

-

PUBLIC VIRTUAL IP (VIP) ADDRESS

40.68.209.124

INTERNAL IP ADDRESS

100.109.192.74

SSH DETAILS

chr-rc25.cloudapp.net : 30022

SIZE

Basic_A0 (shared core, 768 MB memory)

SSH CERTIFICATE THUMBPRINT

-

LOCATION

West Europe

+ NEW

CONNECT

RESTART

SHUT DOWN

ATTACH

DETACH DISK

CAPTURE

DELETE

Setting up CHR



- Secure your CHR-VM immediately after deployment by
 - issuing admin passwords,
 - closing service ports/limiting access
 - and applying firewall rules
- Make sure that every port, which needs to be publicly available, is configured in the VM Endpoints menu of your Azure CHR-VM

Some use cases



- Testing and solution development
IoT, RADIUS - Microsoft Active Directory auth.
- Training support
Linux-Server with RADIUS, Wireshark, .. installed
- Network management support
for distant networks via tunnels
- CAPsMAN
- Dude server for remote routers
- Deployment of endpoints in different data centers worldwide

key take-aways



- Deploying and using CHR on Azure cloud infrastructure is simple and enhances on-premise-services
- Easy configurable, scalable resources
- Perfect platform for R & D, testing (not only in Windows environment)

and managing remote network infrastructure

Stayin' connected ...

- <http://www.mikrotik-academy.eu>
- office@mikrotik-academy.eu

