



# Azure Hosting Project

Presentation for TechUG Community Events

# Presentation Brought to you by :

- Steve Mitchell > Head of IT Infrastructure & IT OPS
- Company currently employ's around 250 staff
- IT Team of 87 – 95% of all work completed in house comprising of >
  - Devs
  - DBA's-Bi
  - Infra support\project\Ops
  - Developer based Architects

# Project Drivers back in 2013 how can we....

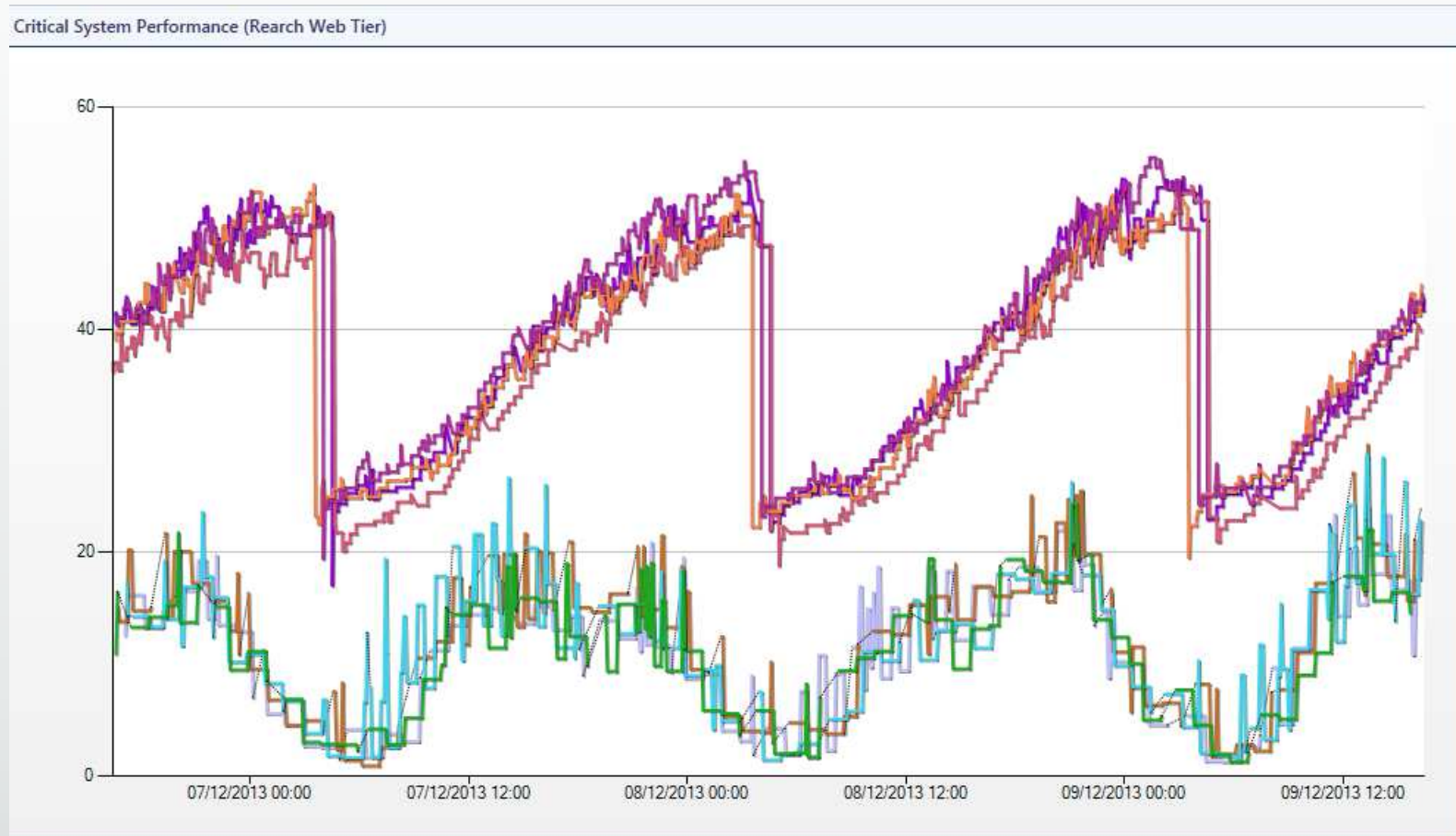
- Reduce production hosting costs?
- Effectively scale infrastructure?
- Remove provisioning constraints?

# Objectives

- **Technical**  
Complete Azure POC and pre-requisite version upgrades  
Identify + implement deployment model for pre-live, production and DR.
- **Scheduling**  
Hosting contract ends July 2014.
- **Costs**  
YOY 2014 = 2013, savings expected from 2015
- **Disruption**  
This project needs to run without negatively impacting other business objectives
- **Out of scope**  
GFH office services, data warehouse and associated MI services.

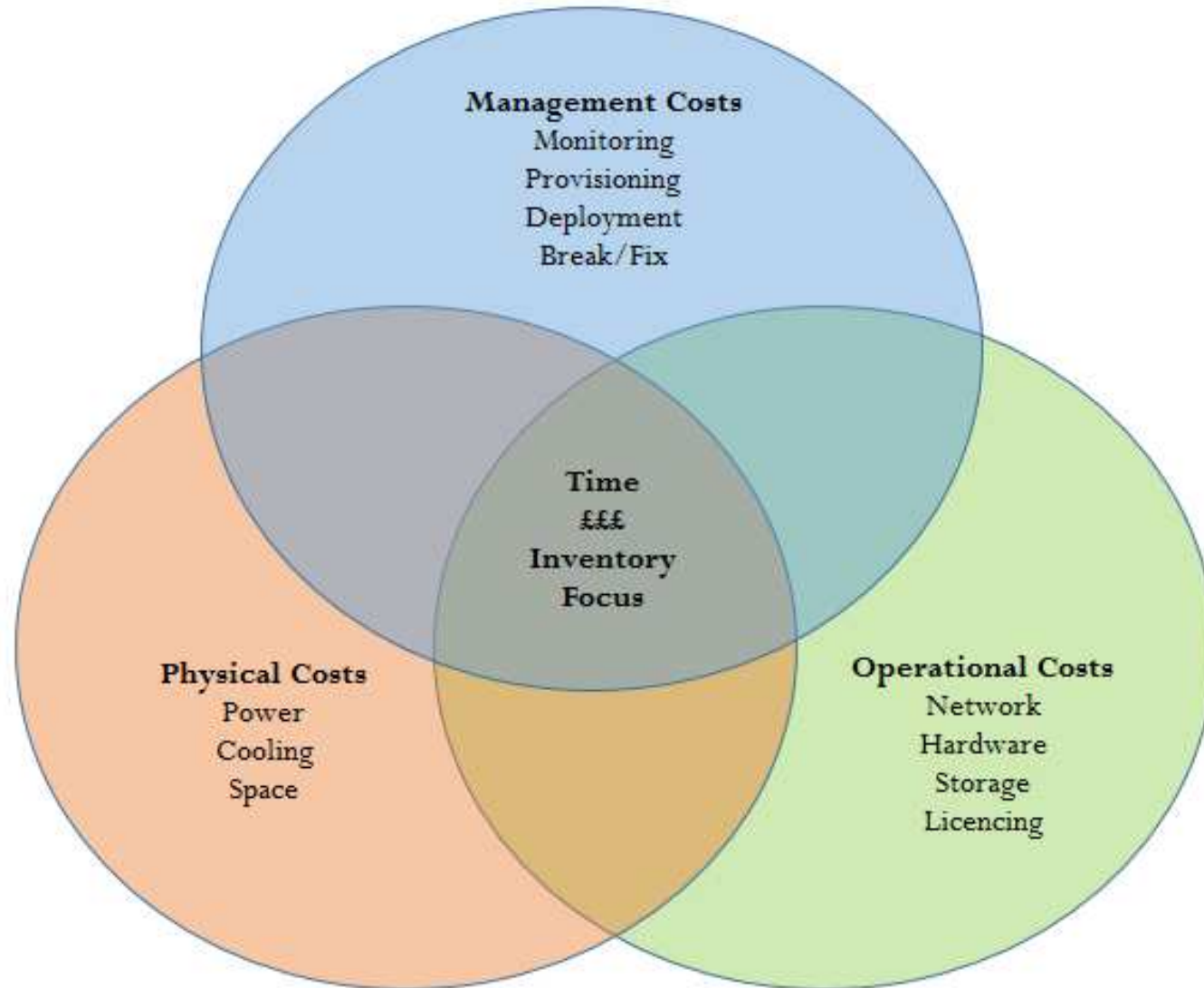
We scale for a peak that occurs 5% of the time.

*Peak CPU + Memory utilisation for Nov/Dec 2013 is ~50%*



*Catch 22 : Despite over provisioning we are exposed if volume surges.*

# Idle infrastructure costs





# Can we remove provisioning constraints?

## *Lead times:*

*New VM = hours*

*New virtual host = days or weeks*



## *Single threaded Load Test Environment:*

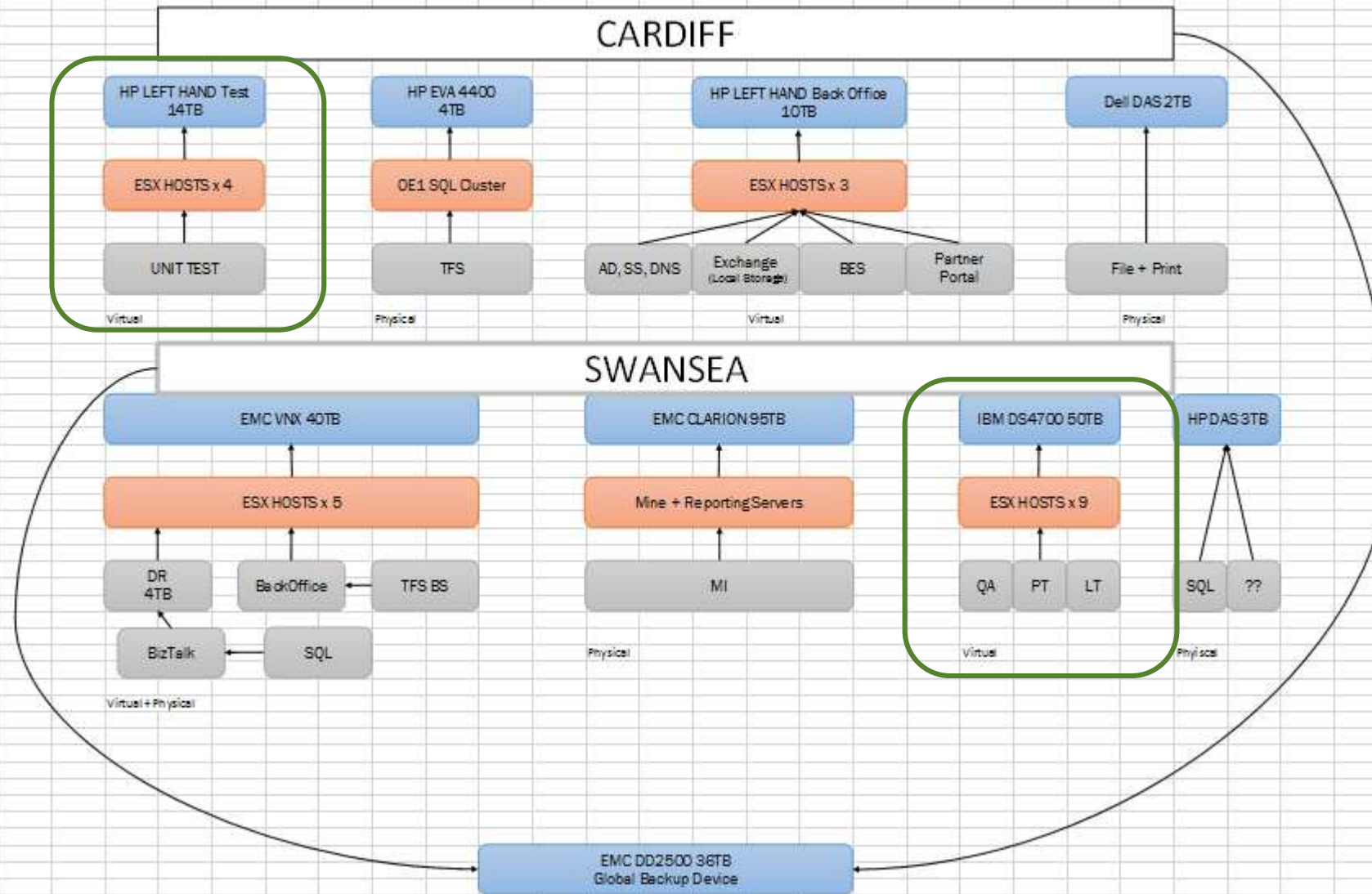
*Capacity testing can take months*

*One team blocks all other teams*



# Can we remove provisioning constraints?

## ON PREMISE STORAGE INFRASTRUCTURE





# What is Azure?



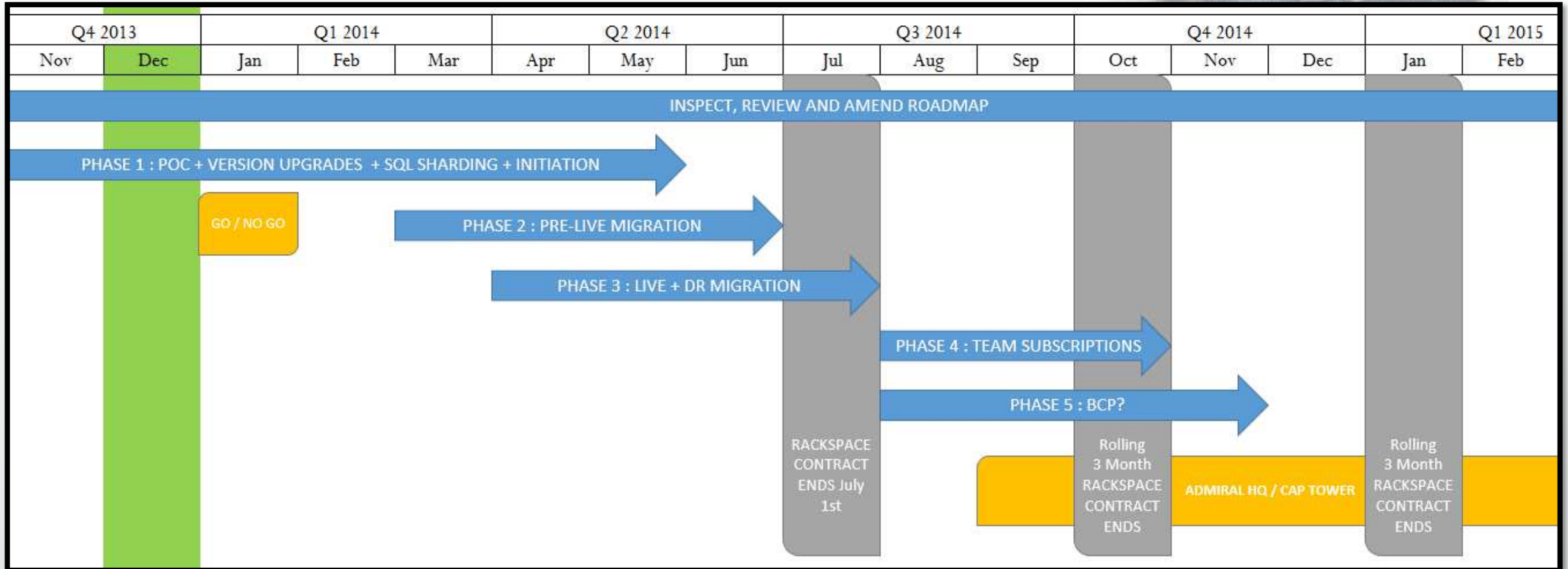
- Hugely scalable public cloud from Microsoft
- EU data centers in Dublin + Amsterdam
- Provides on-demand infrastructure
- Pay as you go / pay by the minute
- Rapid deployment/provisioning through Azure portal or scripting

# Why choose Azure over other cloud providers?



- Our tech stack is Microsoft
- Fits our architecture + integrates with our tool set
- PaaS allows effective scaling with minimal rework to our FE/Service tiers
- Our existing licence agreements can be applied to Azure hosted services

# Project Schedule and Milestones



All of IT will contribute – Azure PoC + Credit Cards are 1<sup>st</sup> phase.

The plan will evolve over time

Confused, Microsoft + Rackspace kept in the loop.

# Where we are now!

- **Subscriptions**

We now have 30 subscriptions running Test, Production\DR, Bi, and DWH

- **IAAS VM's**

We are running 277 VM's across the 30 SUBS.

- **PAAS Instances**

We have 570 PAAS instances.

- **Data Factories**

There are 18 data factories running numerous Bi queries\integrations, ETL's.

- **Virtual Networks**

We have 31 virtual networks in place.

- **Azure SQL Instances**

We have 67 Azure SQL instances running.

# High Availability and Business Continuity

- **Failover**

We can complete partial failover of services between DUB + AMS > full failover in 20-30 mins.

- **Full Azure Outages**

We have suffered 2 major Azure outages since migration one was a Cert deployed to all DC's the second an upgrade of the PAAS platform which again should have been staged but was pushed out to our hosting Azure DC's.

- **BCP**

For full BCP should be across multiple Cloud providers AWS etc > not as yet on the road map.



# Current Projects

## ▪ DWH to Azure

DWH Test, Staging and Production are migrating to Azure, currently to be run on SQL Server Always On availability groups > run in house with SQL DBA team.

## ▪ Machine Learning-Data Science ?

### Azure Machine Learning services

- ✓ Machine learning at big data scale
- ✓ Container based AI deployment from cloud to edge
- ✓ Rapid, scale out, collaborative experimentation
- ✓ AI powered data wrangling
- ✓ Spark, Docker, Cognitive Toolkit, TensorFlow, Caffe, and more

### Azure Machine Learning Studio

- ✓ Serverless, drag and drop development
- ✓ Code free intuitive experimentation
- ✓ Deploy web services in minutes

### Data Science Virtual Machine

- ✓ Pre-configured environments for data scientists
- ✓ Seamless integration with Azure services
- ✓ Any VM size, horizontal scale out with Azure Batch, burst compute
- ✓ Support for GPUs and popular DNN frameworks
- ✓ User extensible