

Migrating to Azure

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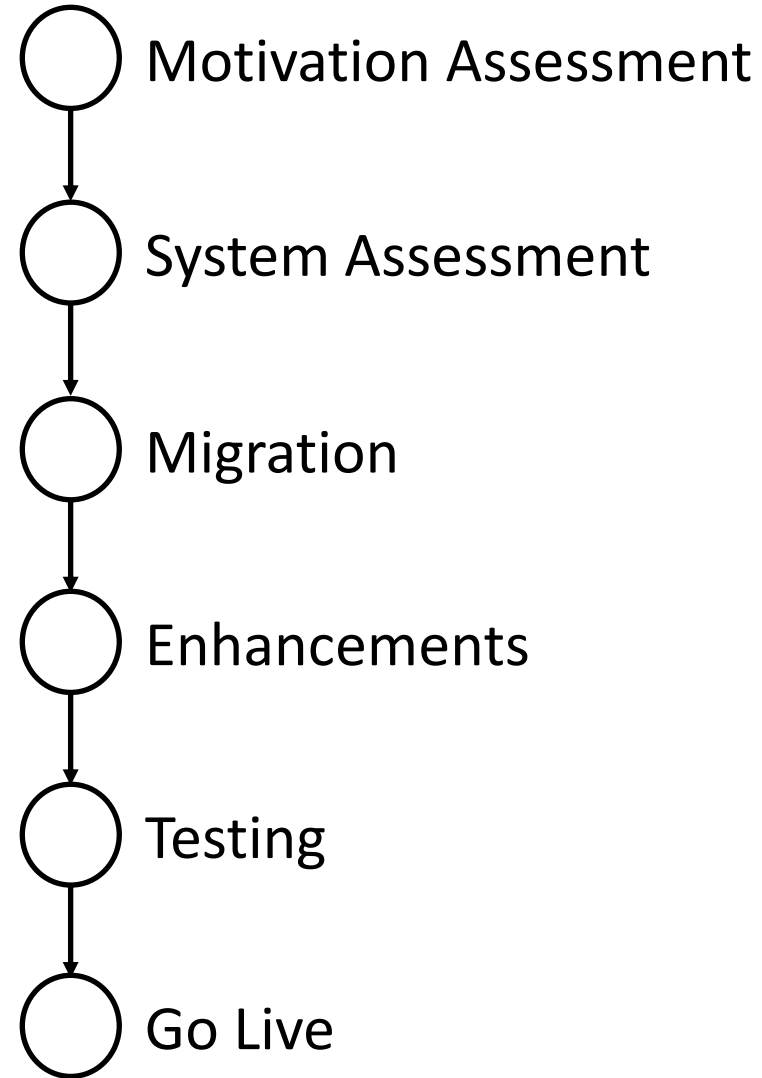
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Migrating to Azure

- Many organizations want to migrate their apps to the cloud
- Various motivations
- Has to be planned ahead, and done methodically
- Rushing to the cloud could end up badly
- There's a well defined process that should be followed in order for the migration to complete successfully

The Migration Process



Motivation Assessment

- Answer the grand question:

Why?

(do we want to migrate to the
cloud)

Possible Answers

- To save costs
- To take advantage of cloud capabilities (services, redundancy, scalability, etc)
- To modernize the system
- To attract new employees

Saving Costs

- Not always the case
- Sometimes cloud system can cost MORE than on-premises system
- CapEx vs OpEx
- A very thorough cost estimation should be conducted

Take Advantage of Cloud Capabilities

- Great motivation! (probably the best...)
- Make sure the migrated system can actually use cloud capabilities
- Example: Legacy, single-session app that cannot be scaled will end up on a single VM, just like on-prem

Modernize the System

- Usually, Modernization = Rewrite
- Why?
- Possible answers:
 - Not supported platforms
 - Difficult to hire employees
 - Licensing costs

Attract New Employees

- Not a very good motivation, but it works...
- The organization has to be part of the cloud trend in order to attract new employees

Migration Strategies

Lift & Shift



Install the app in the cloud “as-is”, without any changes, usually on a VM

Refactoring



Modify the app a bit so it can run on managed services (ie. App Services)

Rewrite



Rewrite the app from scratch, usually in a modern platform, and take advantage of all cloud services

Lift & Shift

On-Premise



VM
Java App



VM
Oracle DB

Cloud

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Refactor

On-Premise



VM
nodeJS App



VM
MySQL DB

Cloud



App Service
nodeJS App

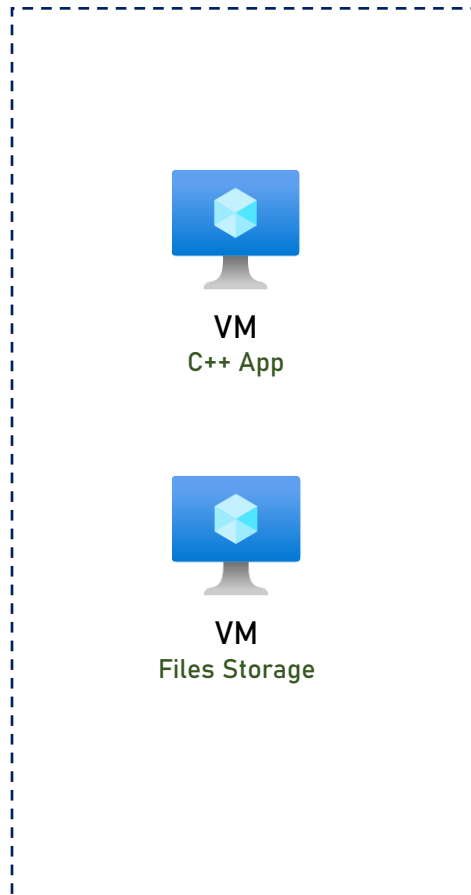


Azure MySQL

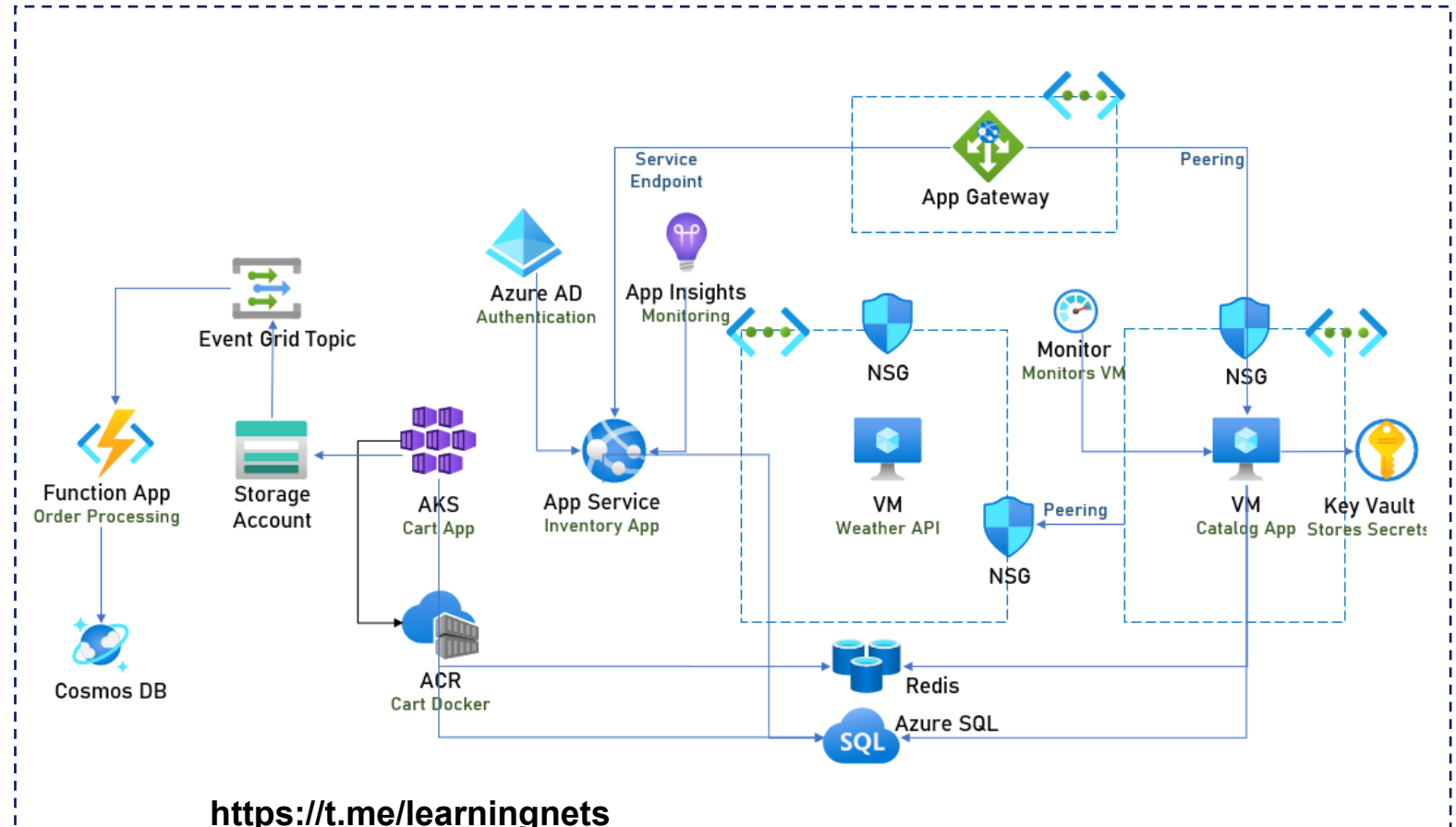
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Rewrite

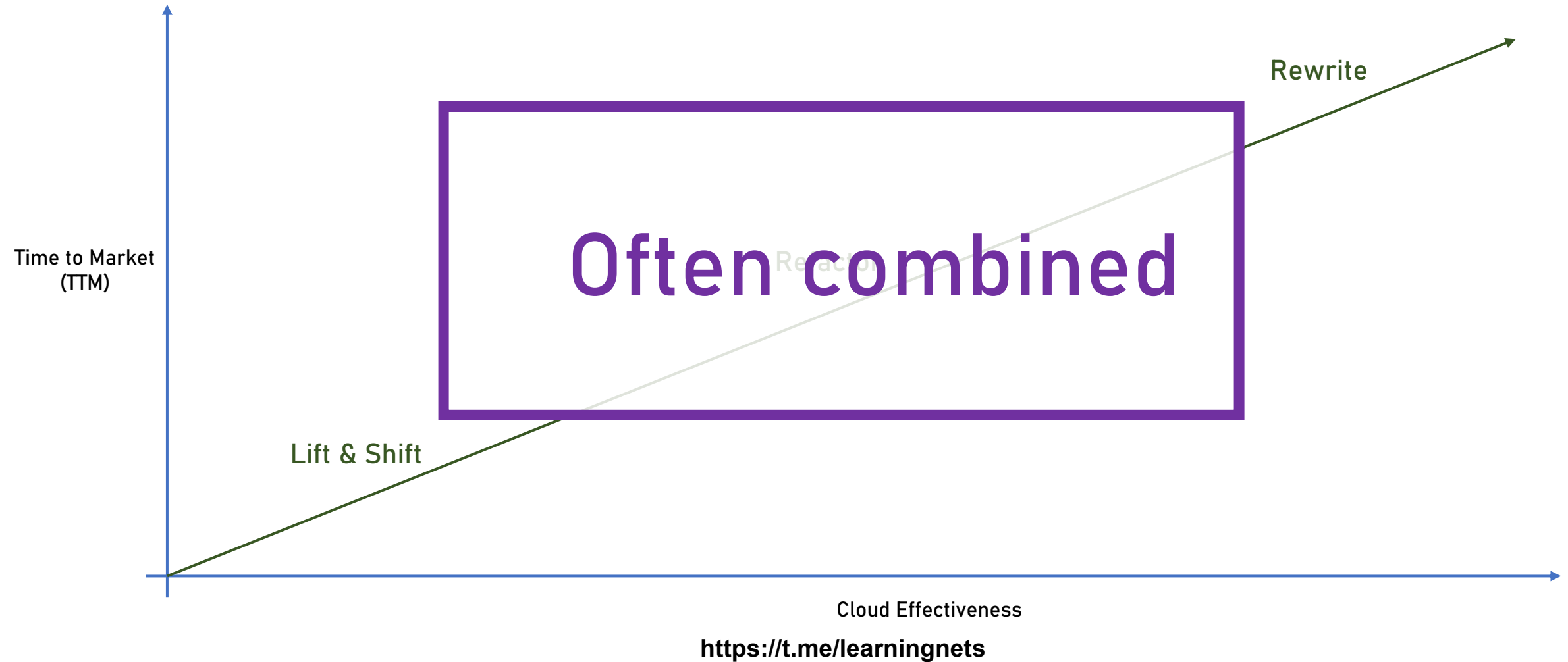
On-Premise



Cloud



Comparing Cloud Migration Strategies



System Assessment

- Goal:
 - To find out what is the best way to migrate the system to the cloud
 - Doing this by asking the right questions

System Assessment

- Questions we need to ask:

What is the runtime platform of the system and on which OS? (.NET, Java, C++ etc.)

How is it deployed today? (VM, Docker...)

What database(s) is used?

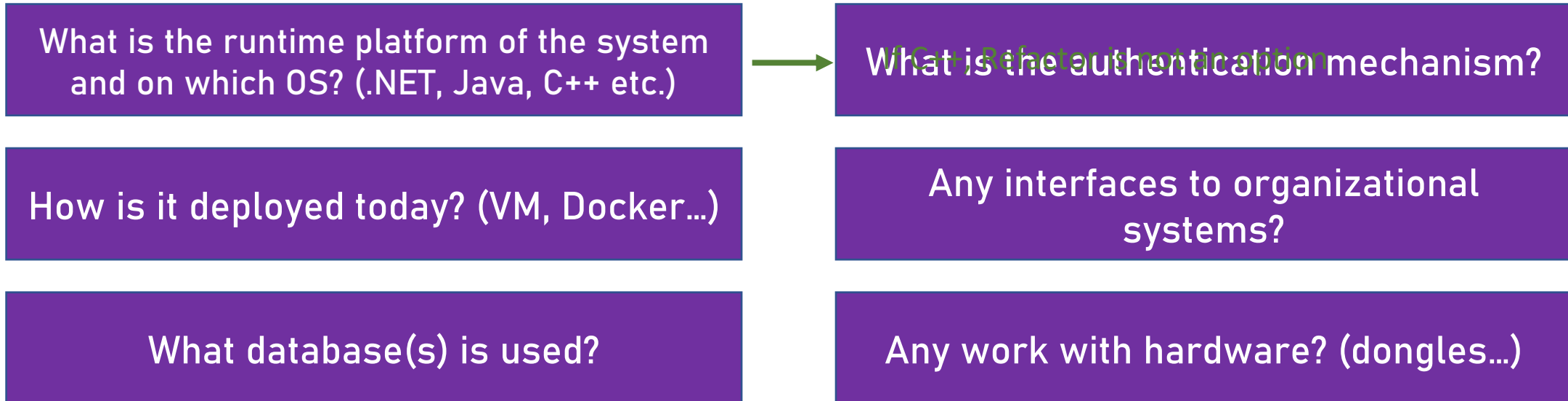
What is the authentication mechanism?

Any interfaces to organizational systems?

Any work with hardware? (dongles...)

System Assessment

- Answers dictate migration strategy, if possible at all:



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Azure Migrate

- A central hub for assessing and migrating various resources
- Uses platform-specific agents to discover the resources that can be migrated
- Provides migration recommendations
- Free

Azure Migrate

Microsoft Azure

Search resources, services, and docs (G+I)

Home >

Azure Migrate

Microsoft

Search (Ctrl+I)

<< Get started Explore more

Overview

Migration goals

Servers

Databases

VDI

Web Apps

Data Box

Manage

Discovered items

Support + troubleshooting

New support request

Migrate your on-premises datacenter to Azure

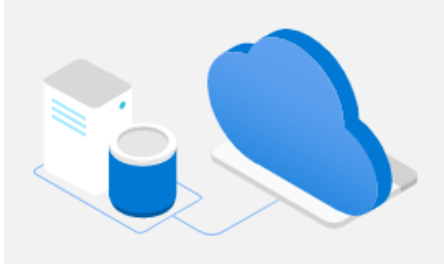
Discover, assess and migrate your on-premises applications using Microsoft or third-party tools, or [find an expert](#) to help with your migration. [Learn more](#)



Windows and Linux servers

Discover, assess and migrate your on-premises VMware and Hyper-V virtual machines or Physical servers to Azure.

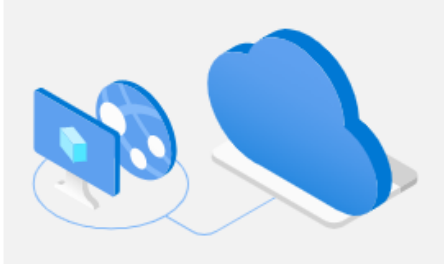
Assess and migrate servers



SQL and other databases

Assess and migrate your on-premises databases to Azure SQL Database Managed Instance or Azure SQL Database.

Assess and migrate databases



Explore more scenarios

Assess and migrate web apps, migrate data and assess virtual desktop infrastructure (VDI). Find guidance on various migration activities

Explore more

<https://t.me/learningnets>

Azure Migrate

- Good for low-level assessment (platforms used etc.) but won't deal with other considerations
 - ie. Interfaces with organizational systems
- Can be used as a first-step, but must perform manual assessment afterwards

Migration

- Time for actual migration...
- Migration strategy depends on the system assessment results

Lift & Shift

- The easiest strategy
- Simply create VM images and build new VMs in the cloud
- Don't forget to put VMs in appropriate VNet and define NSG

Refactor

- Should be done in two phases:
 - Lift & Shift – Make sure the app works in the cloud as-is
 - Refactor – gradually improve the system and integrate cloud services
- Don't try shortcuts!

Rewrite

- Not really a migration...
- Design the system from the ground up to be cloud native
- Use as many cloud services as possible

DB Migration

- In general:
 - Prefer the managed version of the DB (and not on a VM)
 - Migration is better done using the DB's own tools and not via Azure migration services

App Enhancements

- After migration, enhance the system
- Not necessarily requires code changes
- Main areas for improvements:
 - Logging and Monitoring using Azure Monitor
 - Network protection using Application Gateway

Lift & Shift Example

On-Premise



VM
Java App



VM
Oracle DB

Cloud



Monitor



**Application
Gateway**

Testing

- Testing in cloud is similar to on-prem
- Put strong emphasis on logging and monitoring
- Make sure you have access to system's data
- If system is auto-scaled or DRed – test these scenarios
- Check performance – might vary from the on-prem figures

Go Live

- Congratulations!
- Keep an eye on the costs
 - Set up budget alerts
 - Define tags
 - Look at the data at least once a month