# Migrating to Azure

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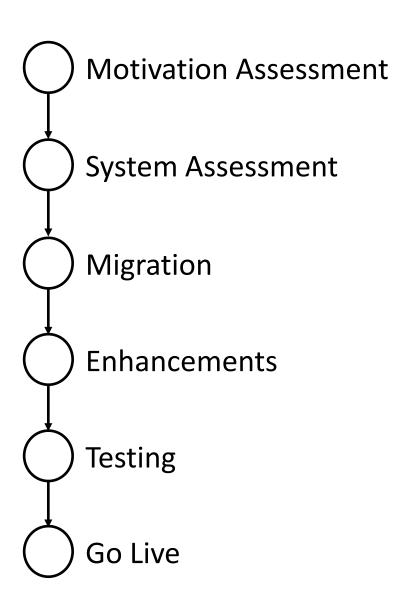


#### Migrating to Azure

- 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

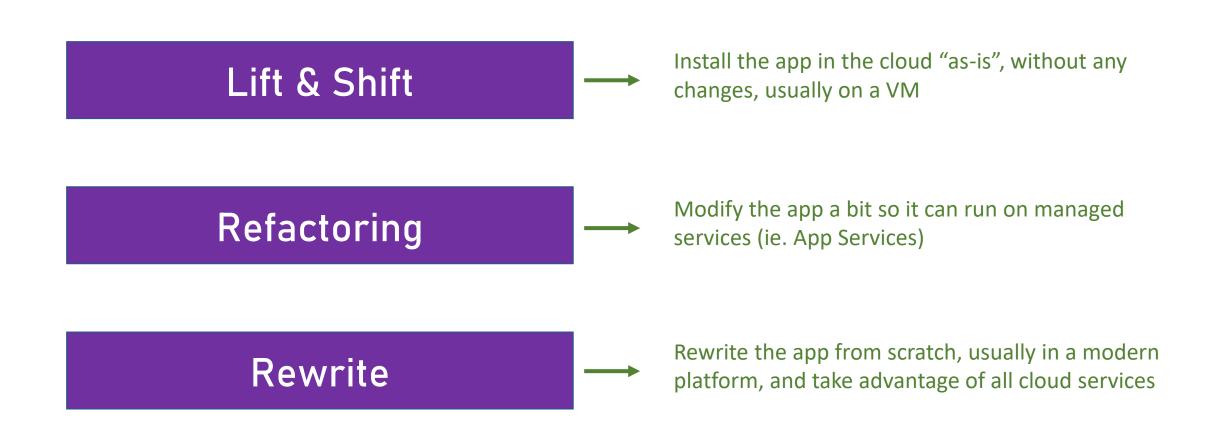
## Modernize the System

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

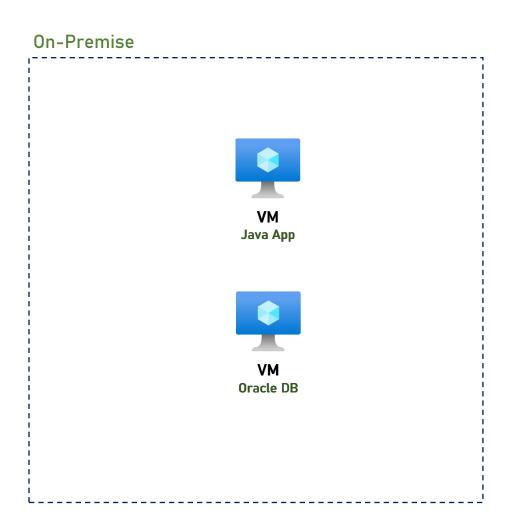
#### Attract New Employees

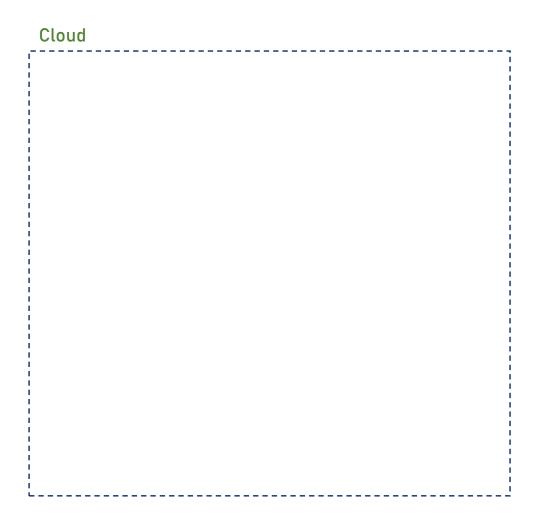
- Not a very good motivation, but it works...
- The organization has to be part of the cloud trend in order to attract new employees

#### Migration Strategies



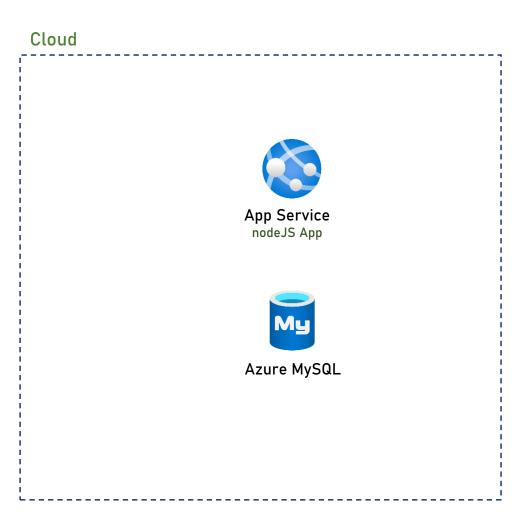
#### Lift & Shift



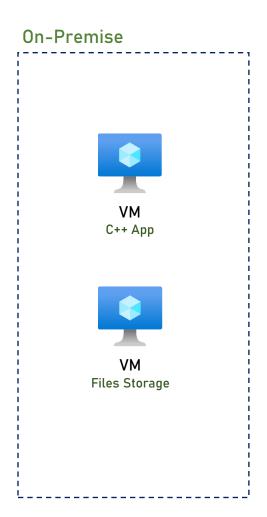


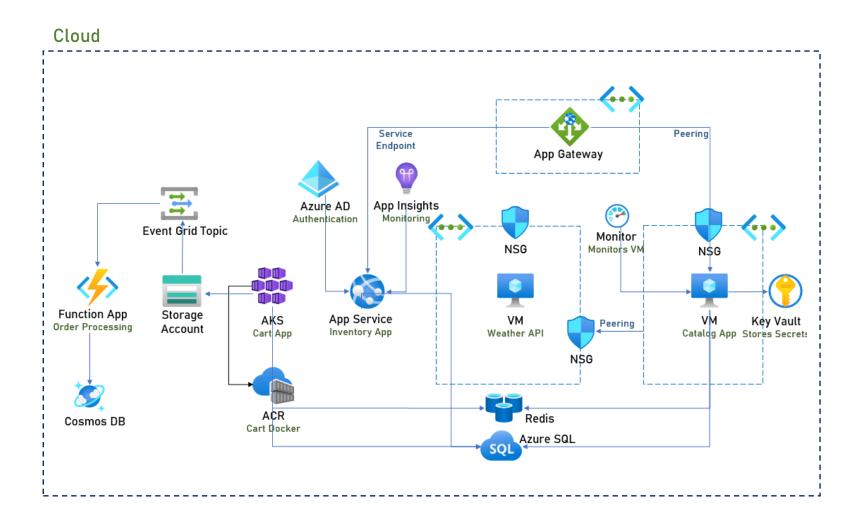
#### Refactor

# On-Premise VM nodeJS App VM MySQL DB



#### Rewrite





#### Comparing Cloud Migration Strategies



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

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...)

Answers dictate migration strategy, if possible at all:

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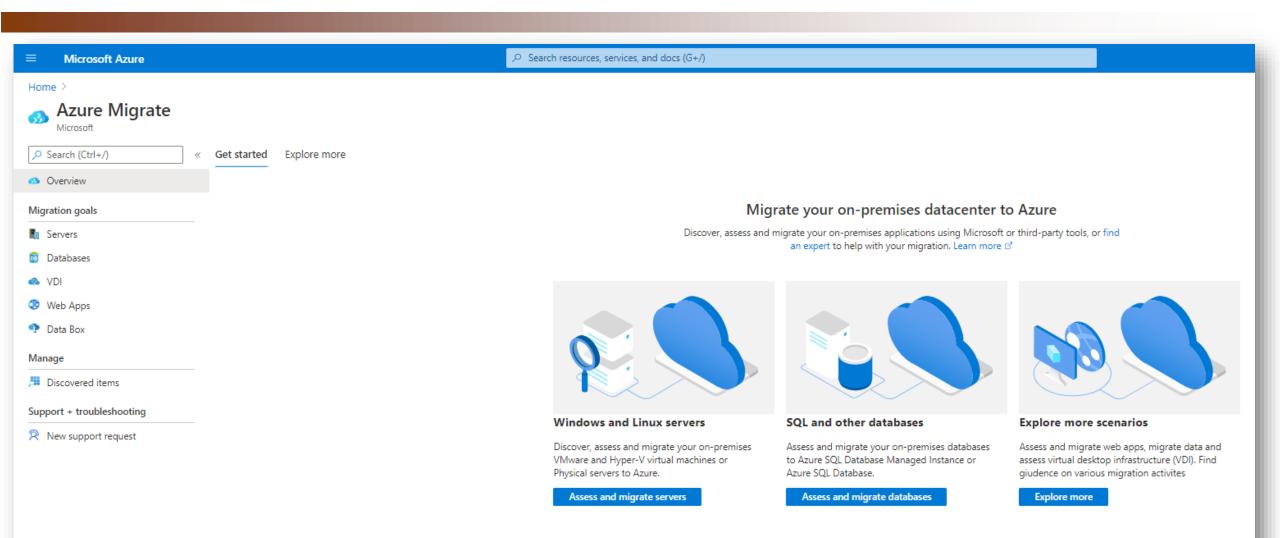
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#### Azure Migrate

- 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



## 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

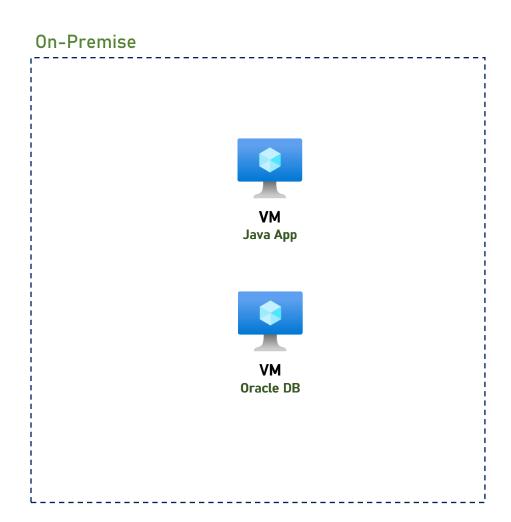
- In general:
  - Prefer the managed version of the DB (and not on a VM)
  - Migration is better done using the DB's own tools and not via

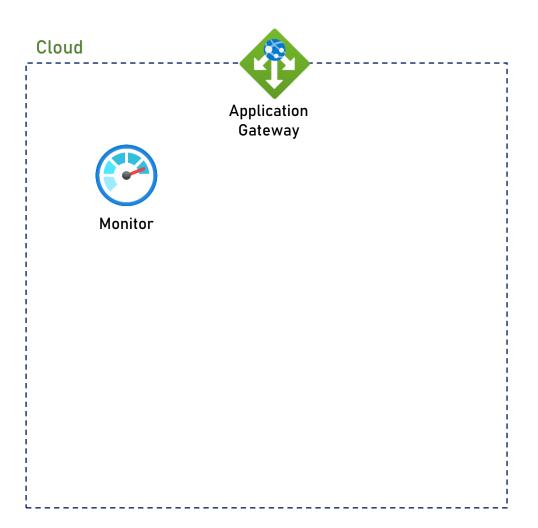
Azure migration services

#### 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





# 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