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Cloud Migration

Petra KAFERLE DEVISSCHERE

Why migrate from on-prem to cloud?

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- **Scalability and flexibility**
  - scalable storage and compute
  - flexible infra and services
- **Cost reduction (?)**
  - no electricity bill
  - less in-house maintenance costs
  - licences (?)
- **Improved performance**
  - load balancing
  - regional data centers
- **Automated security and compliance**
  - certain level of security and compliance provided by cloud providers
- **Simplified and reliable resource management**
  - backup and recovery tools
  - high availability
  - UI to manage resources and budget

https://duplocloud.com/blog/on-premise-to-cloud-migration/

Why NOT migrate from on-prem to cloud?

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- Sensitive data
    - Data localisation defines compliance rules (RGPD, CLOUD act)
- Downtime issues with cloud/service providers
    - You cannot do anything about it
- Certain applications run better locally
    - apps that cannot be fully migrated (will still need to connect to on-prem resources)
    - apps that are not scalable
- Long term costs are higher (?)

Different cloud models

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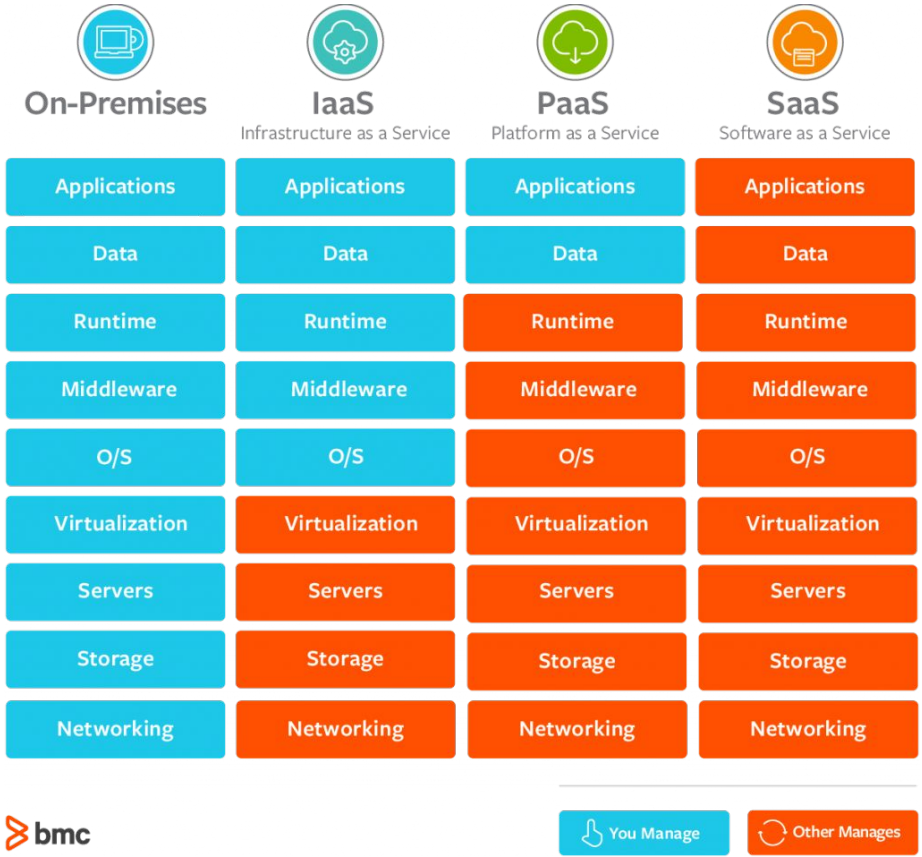

Migration strategies (6 Rs)

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- **Rehost** (lift-and-shift):
  - create an image with virtualization service
  - export it
  - imported into a cloud compute service. We can containerize things.
  - The process is relatively simple; it doesn't require a lot of technology, and it doesn't require a lot of expertise.
- **Replatform** (modified lift and shift):
  - making some optimizations to the application during the migration stage
  - example: replace your DB with cloud-provider's DB
  - requires some level of expertise
- **Repurchase** (drop-and-shop):
  - move to another product

Migration strategies (6 Rs)

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- **Refactor**:
  - re-architecting the solution
  - better adaptation to cloud environment
  - requires time and expertise
- **Retain**:
  - retain some applications on-prem (compliance)
- **Retire**
  - identify assets and services that can be turned off

Migration strategies

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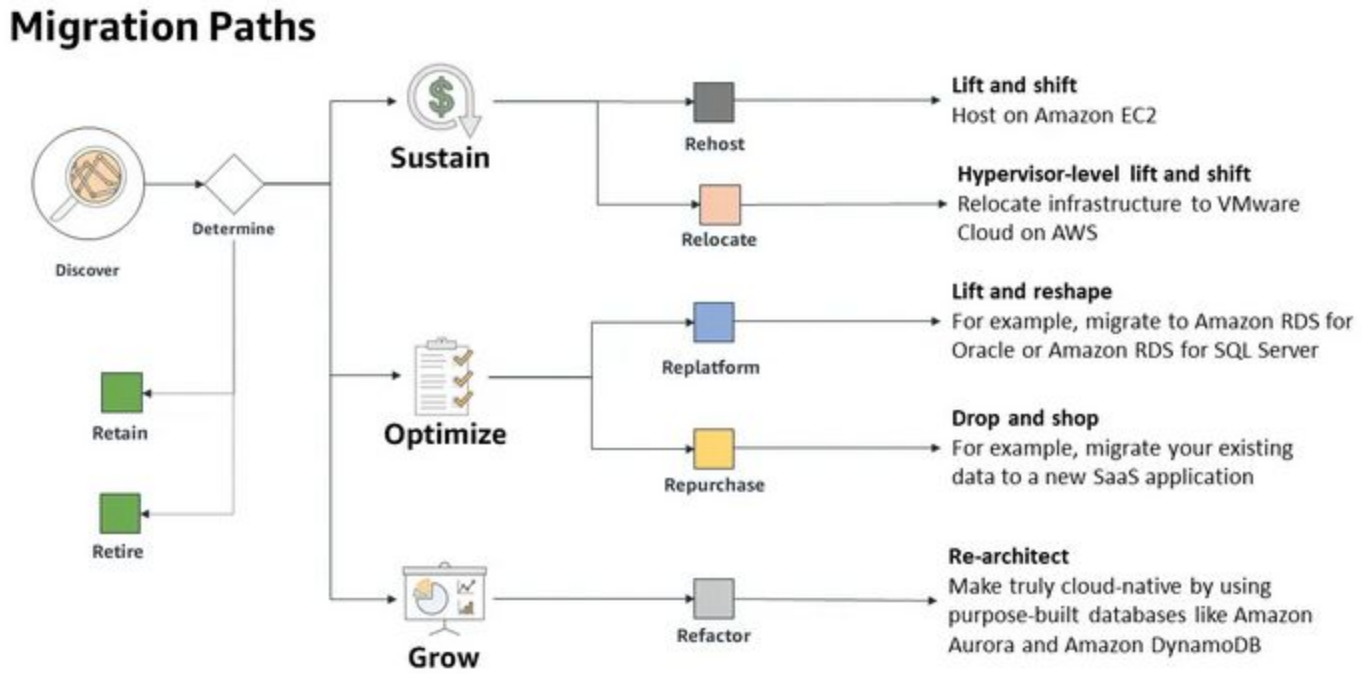

Credit: Database migration path in AWS

Migration steps

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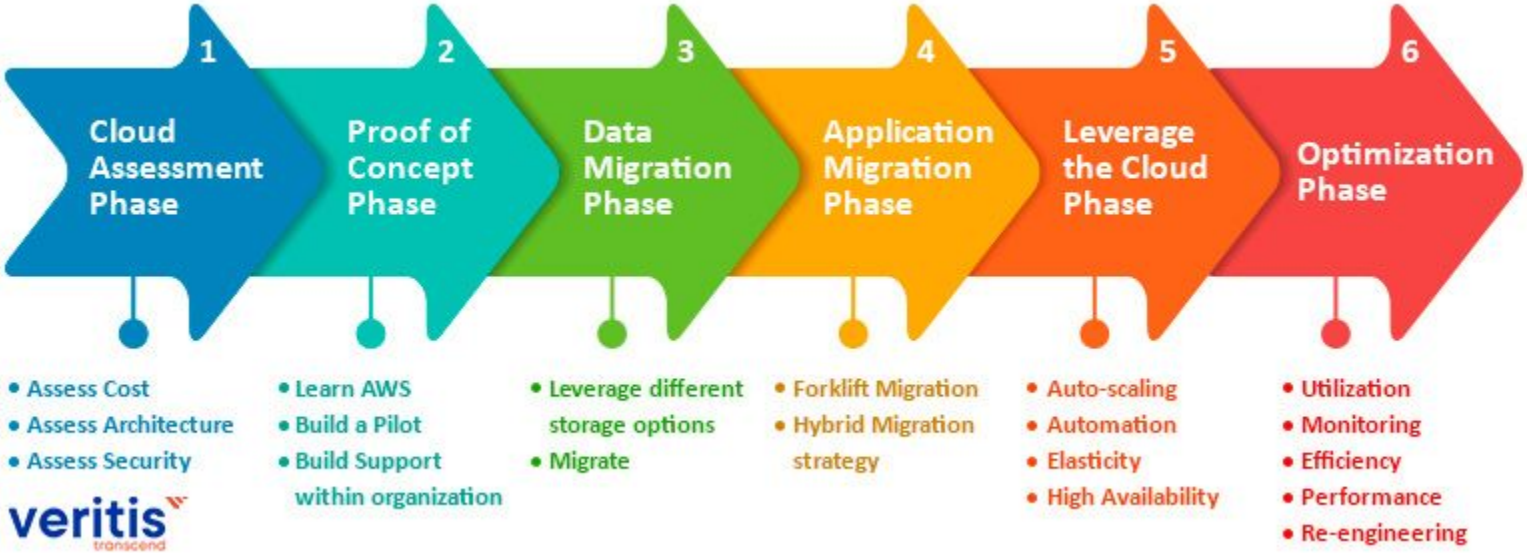

Choosing cloud provider

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AWS

Pros	Cons
• Most services available, from networking to robotics • Most mature • Considered the gold standard in cloud reliability and security • More compute capacity vs Azure & GCP • All major software vendors make their programs available on AWS	• Dev/Enterprise support must be purchased • Can overwhelm newcomers with the sheer number of services and options • Comparatively limited options for hybrid cloud

MICROSOFT AZURE

Pros	Cons
• Easy integration and migrations for existing Microsoft services • Many services available, including best-in-class AI, ML, and analytics services • Relatively cheaper for most services vs AWS & GCP • Great support for hybrid cloud strategies	• Fewer service offerings vs AWS • Particularly geared towards enterprise customers

GCP

Pros	Cons
• Plays nicely with other Google service and products • Excellent support for containerized workloads • Global fiber network	• Limited services vs AWS & Azure • Limited support for enterprise use cases

https://www.bmc.com/blogs/aws-vs-azure-vs-google-cloud-platforms/