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# Optimizing Benefits and Mitigating Risks through Intelligent Cloud Adoption

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Minerva House, London  
Grindlays Bank HQ (1980s)



Canary Wharf, London  
J.P. Morgan Chase Headquarters



Prime Computer  
Minicomputer platform 1980s



Elastic Kubernetes Service  
Amazon Web Services

# Single Codebase

# Intelligent Cloud adoption

WHAT DOES IT MEAN?

Optimize Benefits  Avoid Risks

During our cloud Journey we learned the recipe to success is focus on details.

We also learned details are difficult to figure out for 3 main reasons.

- 1 Cloud offers too many options.
- 2 Cloud offers more options at an accelerated pace.
- 3 Adopt Cloud while staying compatible with on-premise.

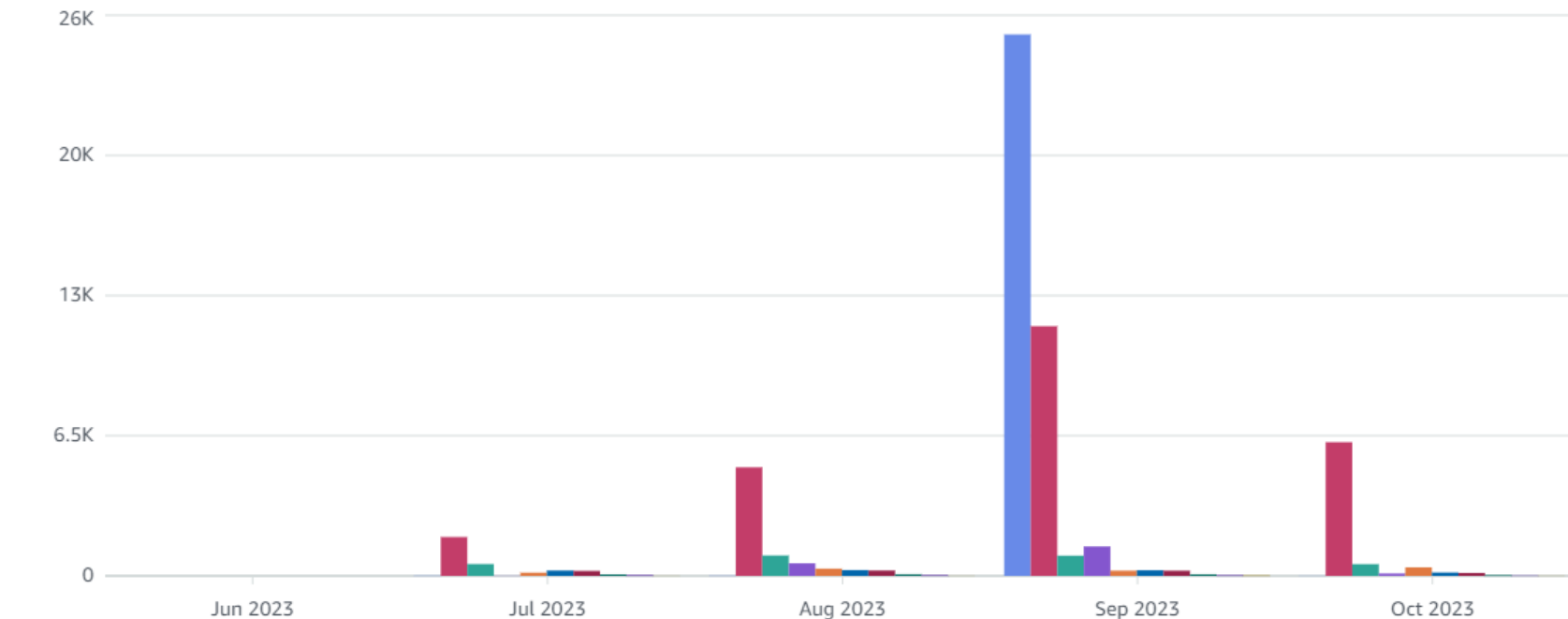
# DynamoDB vs Amazon Aurora

Total cost  
**\$58,166.85**

Average monthly cost  
**\$11,633.37**

Service count  
**15**

Costs (\$)



DynamoDB Relational Database Service Managed Streaming for Apache Kafka Lambda Kinesis EC2-Instances MQ  
Elastic Container Service for Kubernetes Elastic Load Balancing Others

Example #2



Azure Functions



AKS



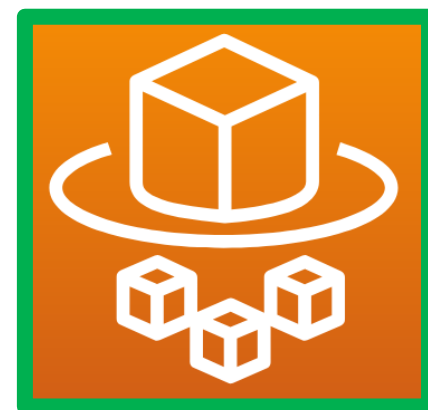
Azure Container Apps



AWS Lambda



EKS



AWS Fargate

Cloud offers more options at an accelerated pace.

Example #2



Azure Functions



AKS

**In 2019 Azure Container Apps did not exist**



AWS Lambda



EKS



AWS Fargate

Cloud offers more options at an accelerated pace.

Example #2

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Azure Functions



AKS



Azure Container Apps



AWS Lambda



EKS

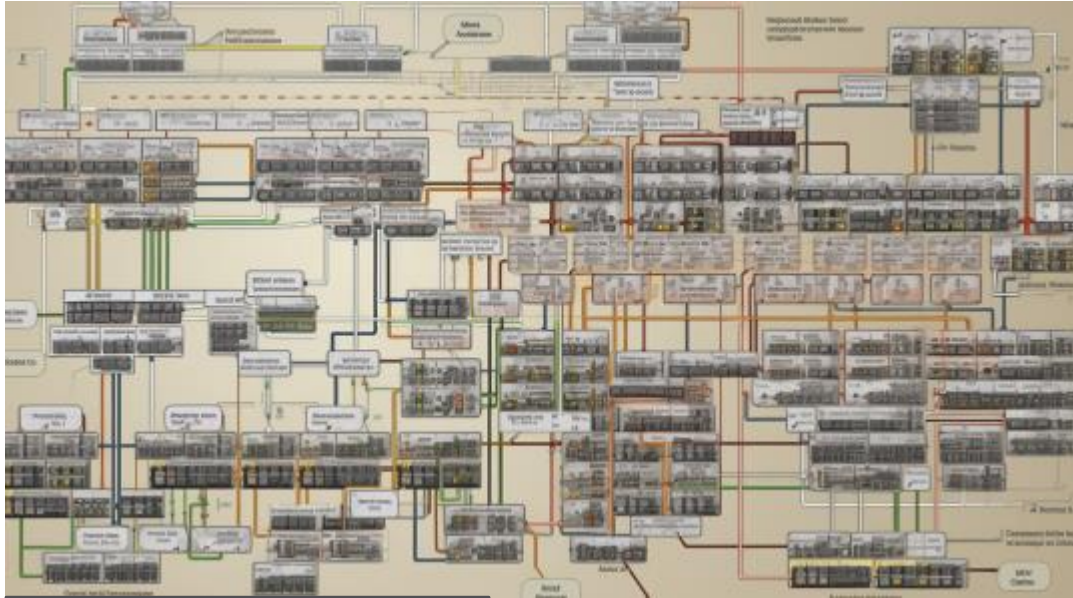


AWS Fargate

Cloud offers more options at an accelerated pace.

## Example #3

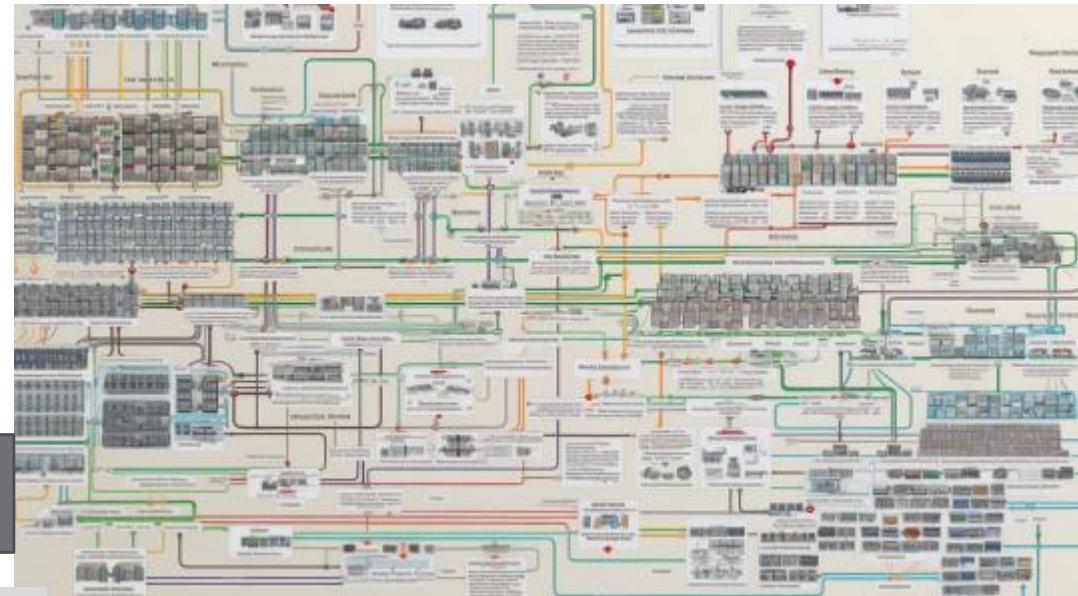
On premise components



It took us several years to understand only option 2 works (reasons: ownership, troubleshooting, security and many more)

We have still not figured out when the MQ broker needs to be on premise or in the Cloud.

Cloud components



MQ endpoint

Option 1

Option 2

MQ broker

MQ endpoint

Adopt Cloud while staying compatible with on-premise.





The tip of the iceberg

Engineers will ensure sufficient attention to detail to make you successful

Moving everything to the cloud is too expensive for large institutions.  
Small institutions have everything to gain from being entirely in the cloud.  
The endgame is Hybrid deployment models for all institutions. The paths to hybrid are opposite for large & small institutions.  
Cloud is more attractive when elasticity makes sense. Retail/Wealth has likely more to gain compared to Corporate.

## Bank Size / Vertical



**Architecture** Moving to the cloud from on-premise requires capability to follow distributed architecture.

A mature bank-owned integration Capability is a pre-requisite before moving your first application

To gain the full benefits of the cloud, you need to build some applications/components from scratch following cloud native approaches

An established business cannot simply build from scratch. Some of your applications need to be refactored to work in the cloud.

Applications that move to the cloud need to work sufficiently well with Elasticity technologies (e.g.: containers, autoscaling, IaC)

Applications that move to the cloud need to have layering capability and be able to externalize/outsouce technology functions (e.g.: security, integration)

There will be a lot of intermediate/temporary states during cloud adoption. Disposable interfaces need to become a habit.

If your application is old and crappy, it is better to refactor it on premise before going to the cloud. Don't lift and shift, you will waste your precious money/resources.

If you are for some reason in a hurry to go to the cloud, go first with new/modernized applications and integrate on-premise.

Software design needs to consider some concepts very early on. The AWS Well-Architected Framework is a good starting point. Bake the 6 pillars in early stages of SDLC.

Security in the cloud is usually better but also much more complex to implement properly.



Ways of working on premise will not work well in the cloud. All business processes need to be adapted. **Mindset**

You need to be prepared for failure and wasted money. Immediate ROI is not possible.

There are very few quick wins when adopting the cloud. Prepare for pain and suffering on the road to success.

Despite the pain and suffering on the road, there are huge benefits to reap at the end of the journey. Others have done it.

When reading the point above, consider there is no real end. Cloud adoption means constant evolution/adjustment.

Understand what level of outsourcing you choose and its implications. SaaS/PaaS/IaaS have huge implications.

Build a spine team that understands the cloud foundation concepts before attempting to move an application.

**Cloud Services** Serverless technologies are good for experiments – low volume stuff.

When going for serverless, you have to design for the eventuality of refactoring

Even after refactoring, serverless is good for running non-production/test environments and sandboxes

You will go bankrupt if you plan to run the entire bank serverless. Either shortly before go live or on Black Friday

Managed services are the way to go when you start. You will pay more, but it is still cheaper than managing open source.

Managed services take away the need of having experts to maintain infra/platform/application. This is how you calculate the ROI.

When a managed service starts to become extremely expensive, it is time to explore an open source, self-managed alternative.

**Traps** Be careful of vendors and cloud providers promising an easy ride.

There is a lot of marketing bullshit out there. Beware of buzzwords.

Not all services offered by cloud providers are good/efficient. Cloud provider will not advertise this.

In fact, the cloud provider is likely to recommend you choose their expensive and inefficient service.

In the past there was vendor locking. Today this is shifting to cloud locking. This can be avoided (agnostic)

Explore carefully what a managed service offers exactly. Do not trust labels by the vendor.



“Cloud adoption success is achieved by attention to detail”

Thank you



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**me**