CSCI 5902 - Fall 23 - Azure Tutorial

Designed under guidance of Dr. Lu Yang

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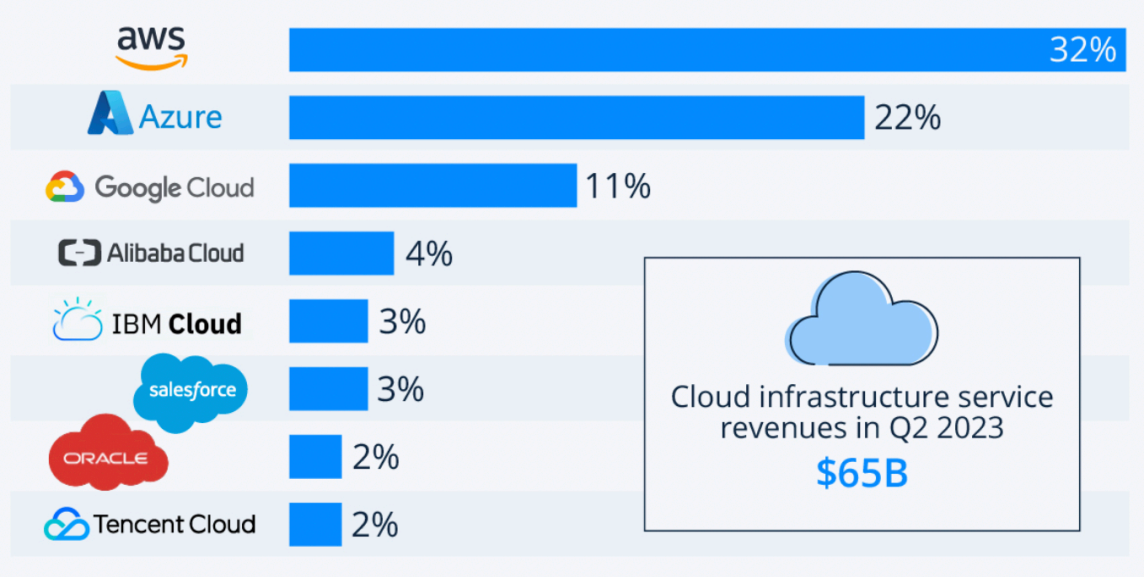
Why Azure?

Cloud Provider Market Share

- AWS is the major Cloud Provider followed by Azure and GCP.
- As per Gartner Forecast, End user spending on Public Cloud would reach nearly $600B by 2023.

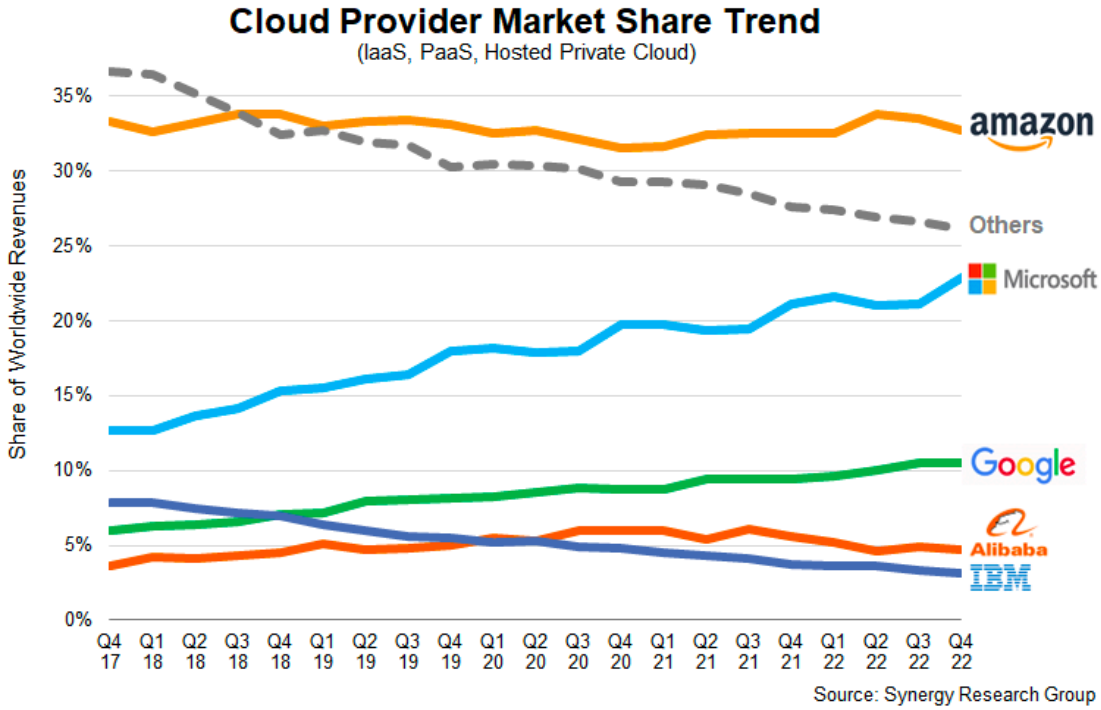
https://www.gartner.com/en/newsroom/press-releases/2023-04-19-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-reach-nearly-600-billion-in-2023



Cloud Provider Market Share
Sourced from [1]

AWS vs Azure Growth

- YoY Azure's marketshare is increasing compared to stagnant growth of AWS.
- AWS spans over 32 regions and 102 AZs[3], in contrast Azure has 60+ regions worldwide with a minimum of 3 AZs in each region[4].



Sourced from [2]

AGMC

AIRBUS

Who is using Azure?

IRVING

SAWMILL DIVISION

BANK OF CANADA
BANQUE DU CANADA

All logos have been sourced from Microsoft's customer success stories

Introduction

Harmit Narula

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Dalhousie University

Cloud Solution Architect, Freelancer
5 year hands-on professional experience as Cloud Architect.

Azure Tutorial TA for CSCI5902 F23
Contact: hr451834@dal.ca (Email/Teams)
Weekly TA hour: Wednesdays 6-7 PM Atlantic Time

Certification Pathways

https://learn.microsoft.com/en-us/certifications/

How do I practice my Azure learning?

Syllabus

Tentative List of Topics and Tutorials			
W	**Lecture**	**Guided Lab & Azure Tutorial**	
1	Course overview	**No lab**	**No Tutorial**
2	M 1 – AWS Cloud Architecting	**No lab**	Intro to Azure
3	M 2 – Intro to Cloud Architecting & M 3 – Storage	M 3 – Hosting a Static Website	Azure Storage Services
4	M 3 – Storage & M 4 – Compute	M 4 – Amazon Elastic File System	Static website on Azure, Azure File Share
5	M 4 – Compute & M 5 – Database	M5 – Creating an Amazon RDS DB	Azure Compute Services
6	M 5 – Database & M 6 – Creating Networks	M 6 & 7 – Creating a Virtual Private Cloud; Creating a VPC Peering Connection	Azure Database Services
7	M 6 – Creating Networks & M 7 – Connecting Networks	M 8 – EC2 Instance Profile	Azure Networking Services
8	**In-class midterm (Oct 27)** M 7 – Connecting Networks &	M 9 – Creating a Highly Available Environment	Networking Contd. , Network Creation and Peering
9	M 8 – Security & M 9 – Availability & Scalability	M 11 – Implementing a Serverless Architecture with AWS Lambda	Azure IAM, RBAC, Security, HA in Azure
10	M 10 – Decoupled Architectures & M 11 – Microservices & Serverless	M 12 – Hybrid Storage and Data Migration with AWS Storage Gateway File Gateway (no assignment)	Serverless Architecture in Azure, Designing decoupled architecture in Azure
11	**Study Break (No Class)**		
12	M 11 – Microservices & Serverless & M 12 – Disaster Recovery	**No lab**	Microservices Architecture on Azure, DR Strategy in Azure
13	M 13 – Caching & Industry talk	**No lab**	**No Tutorial**
14	Open topics	**No lab**	**No Tutorial**

Sourced from [5]

Is Azure going to be included in exam?

Probably Yes??

Disclaimer

- This tutorial series assumes you have basic understanding of Cloud concepts through other courses.
- The series would follow a comparison method approach for learning.
- The series is intended for collaborative learning and expects bidirectional communication.
- You won’t be equiped to take Azure Admin/Developer/Architect certification with the content covered in this series.
- For any doubts/clarification/service features Microsoft’s documentation would be considered as single trusted source.
- This series would be running in follow-up mode for CSCI5902 AWS course material/lab.

T1: Introduction to Azure

Well Architected Framework

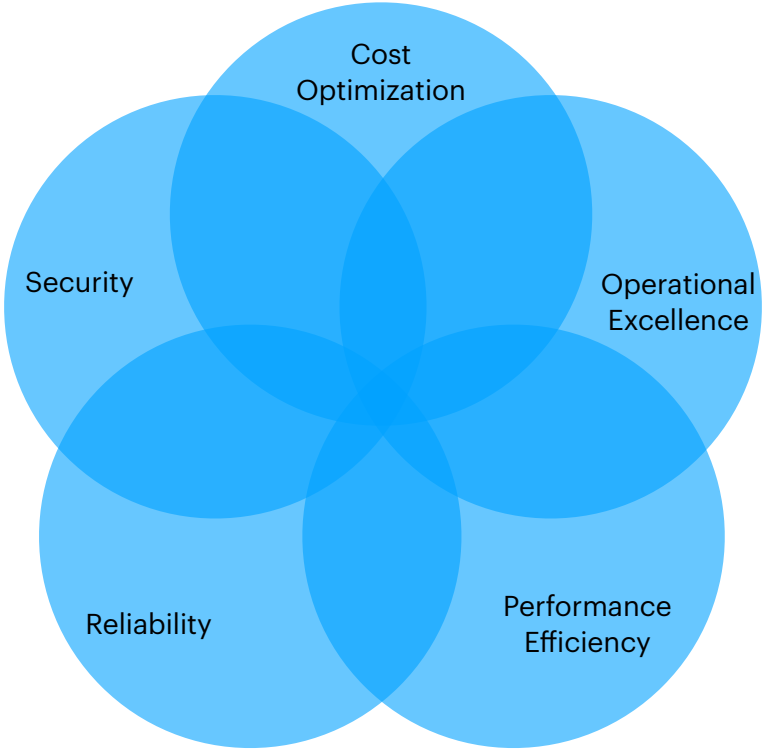
Well Architected Framework

AWS Well Architected Framework?

Sourced from CSCI5902 course material

Azure Well Architected Framework

- The Azure Well-Architected Framework is a set of guiding principles that can be used to improve quality of workload. The framework has five pillars:



- Reliability: Ability of system to recover from failure
- Security: Protecting applications and data from threats
- Cost Optimization: Managing costs to maximize the value delivered
- Operational Excellence: Operations that keep live system running
- Performance Efficiency: The ability to adapt to changes in load

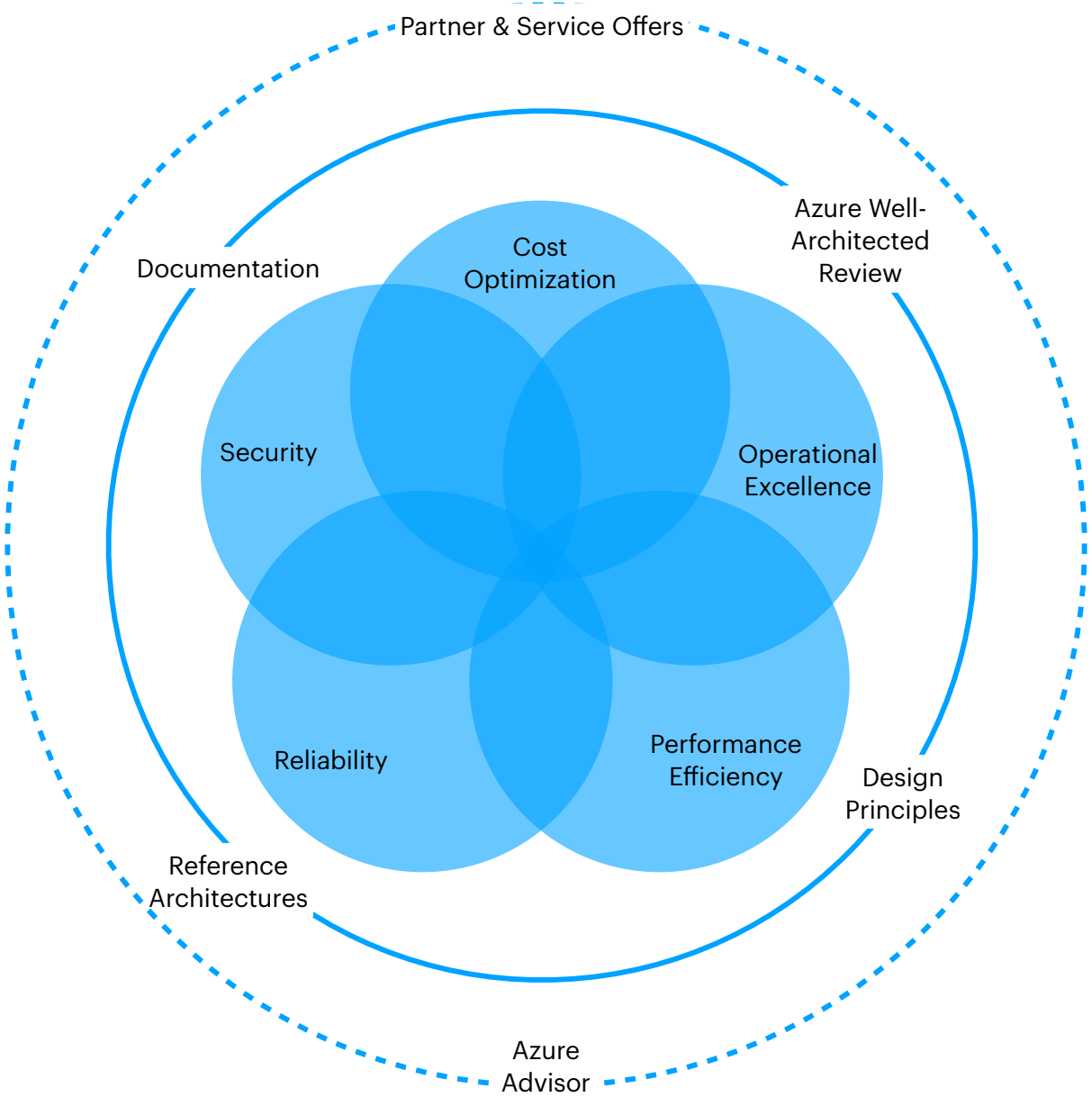
Is this only Architect's job?

No - It's for entire team who is working on project

2 years ago, I designed my Architecture using Well Architected Framework. Am I still following best practice?

Not necessarily - The Well Architected framework practices need to be evaluated throughout the application lifecycle.

I started with Well Architected framework.
What if I get stuck somewhere?


Partner & Service Offers
Azure Well-Architected Review
Design Principles
Azure Advisor
Reference Architectures
Documentation
Cost Optimization
Operational Excellence
Performance Efficiency
Reliability
Security

- You can get your environment reviewed using Microsoft Azure Well-Architected Review tool.
- Azure Advisor and Azure Advisor Score are free for all users and they help you identify and prioritize opportunities to improve overall posture of your workload.

Azure Global Infrastructure

- Azure provides 60+ regions across the globe, more than any other cloud provider.
- Azure is available in 140+ countries

https://datacenters.microsoft.com/globe/the-building-blocks-of-azure

Azure Portal

It’s a wrap

References

[1] https://www.statista.com/chart/18819/worldwide-market-share-of-leading-cloud-infrastructure-service-providers/

[2] https://www.theregister.com/2023/02/07/big_three_cloud_market/

[3] https://aws.amazon.com/about-aws/global-infrastructure/?p=ngi&loc=1

[4] https://azure.microsoft.com/en-us/explore/global-infrastructure#:~:text=60%2B%20regions%2C%20more%20than%20any%20other%20cloud%20provider.

[5] https://dal.brightspace.com/d2l/le/content/287428/viewContent/3880531/View