

INTRODUCTION TO

- CLOUD TECHNOLOGY
- MICROSERVICE ARCHITECTURE
- STANDARD QUERY LANGUAGE



BY:JAYSON SILVERIO
EXCEED PH - DATA ENGINEERING LEAD

CAREER JOURNEY

THAKRAL ONE

ANALYTICS BOOTCAMPER
THAKRAL ONE INC.
2019

ANALYTICS CONSULTANT
THAKRAL ONE INC.
2019



WORKFLOW CONSULTANT
GLOBE TELECOM - DPA
DATA PROFILING AND ACTION
2019

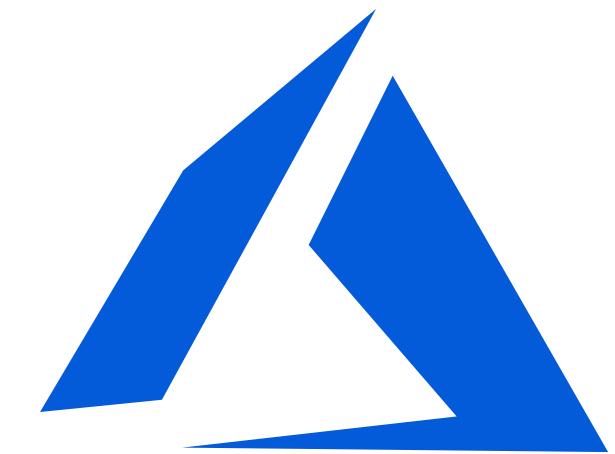
STATISTICAL ANALYSIS SYSTEM DEVELOPER
GLOBE TELECOM - FVT
FEEL VALUED TRIBE
2020

LEAD DATA ENGINEER
GLOBE TELECOM - ARROW
ADVANCE REAL TIME RECOMMENDATION &
OFFER WORKFLOW
2021



SENIOR DATA ENGINEER
E-CLOUD VALLEY DIGITAL TECHNOLOGY INC. -
SOLUTIONS AND DATA TEAM
2022

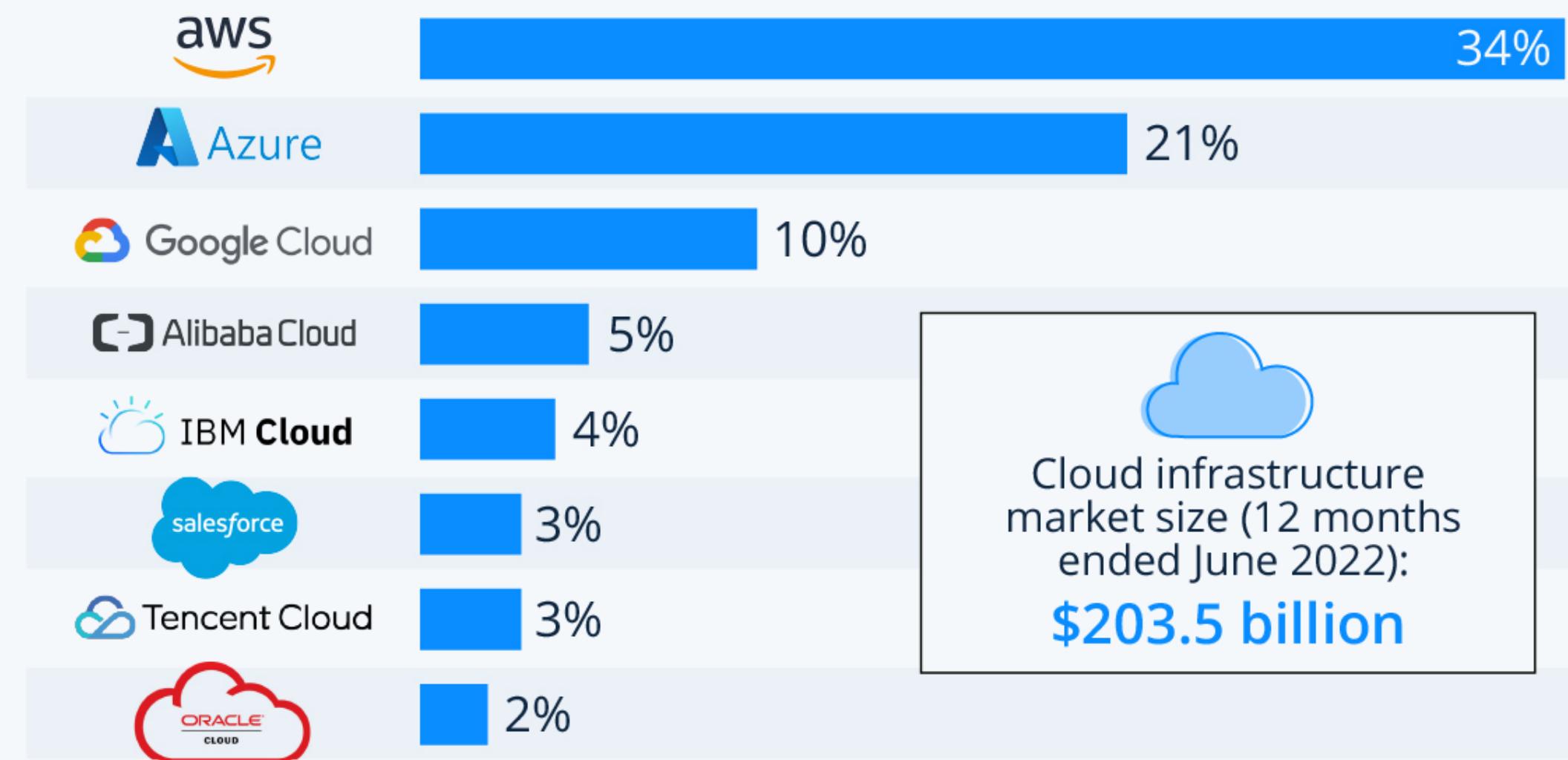
CLOUD TECHNOLOGY



Microsoft
Azure

Amazon Leads \$200-Billion Cloud Market

Worldwide market share of leading cloud infrastructure service providers in Q2 2022*

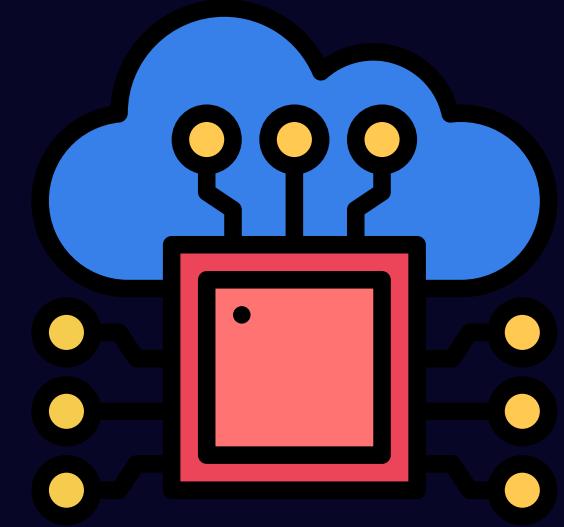
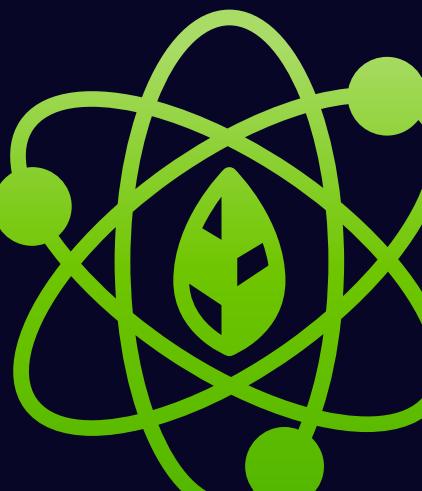


* includes platform as a service (PaaS) and infrastructure as a service (IaaS) as well as hosted private cloud services

Source: Synergy Research Group



WHY AWS CLOUD? BECAUSE OF ITS WELL-ARCHITECTED FRAMEWORK

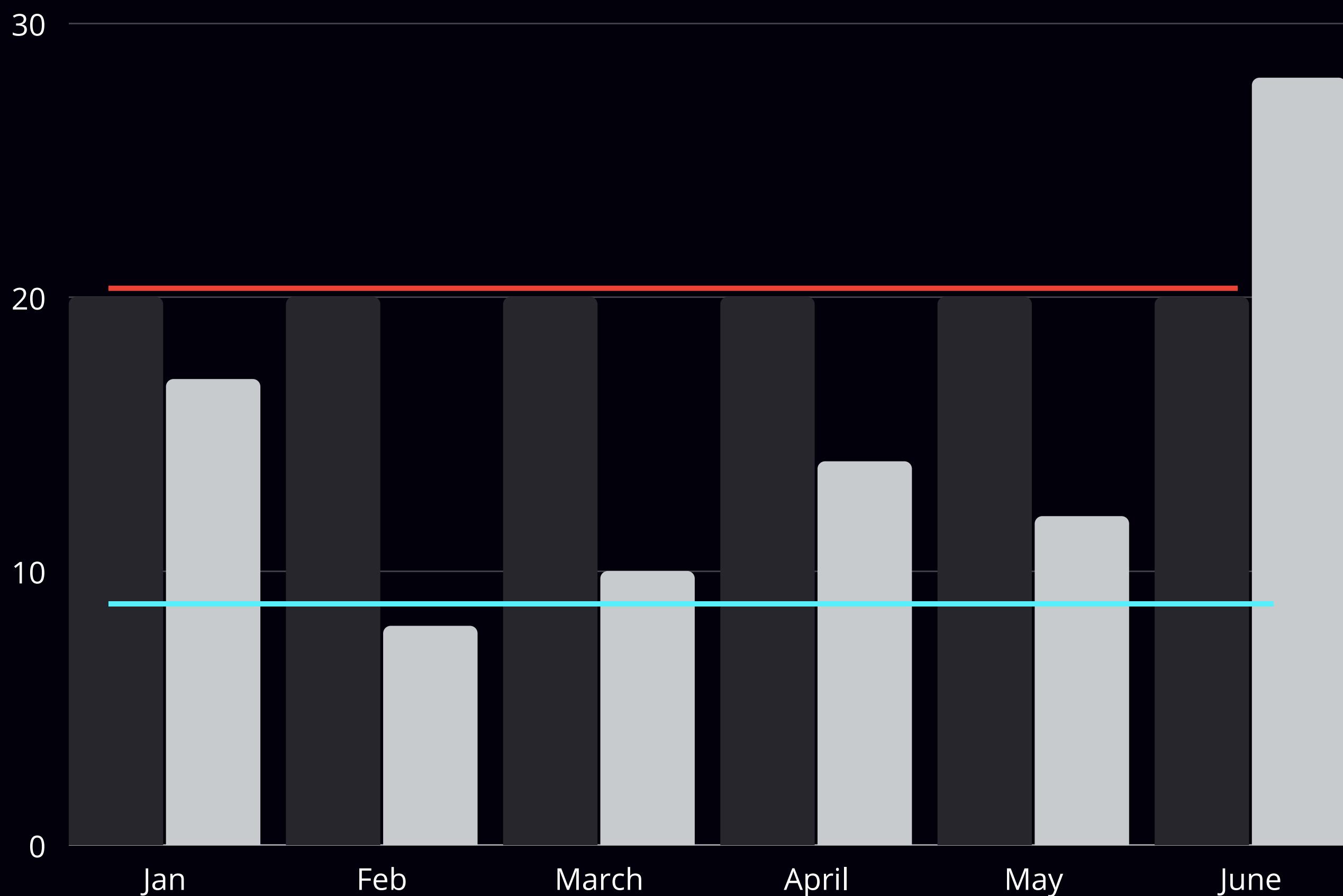
- **1.) COST OPTIMIZED**
- **2.) SECURITY**
- **3.) RELIABILITY**
- **4.) PERFORMANCE
EFFICIENCY**
- **5.) OPERATIONAL
EXCELLENCE**
- **6.) SUSTAINABILITY**



1.) COST OPTIMIZED

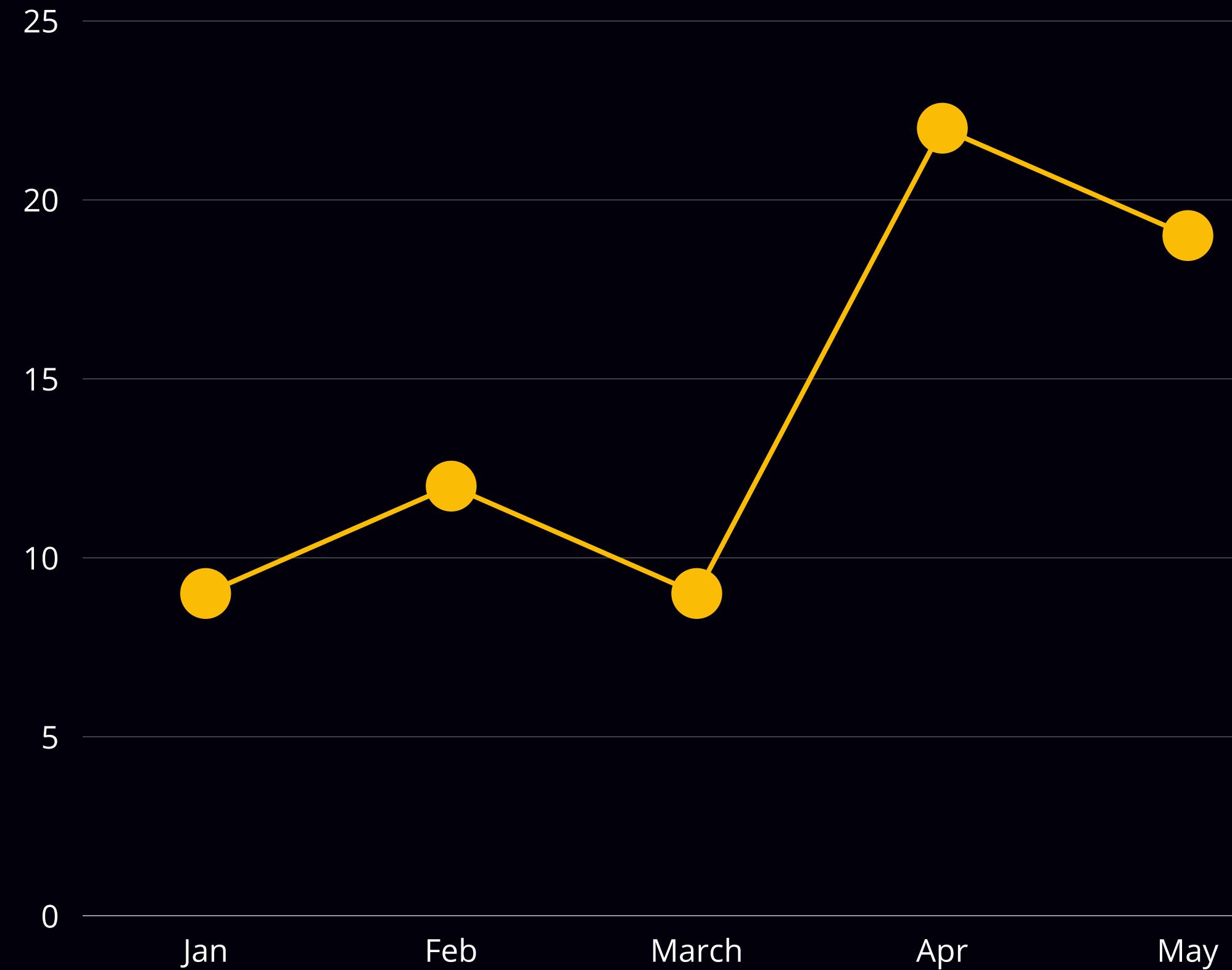
ON PREMISE SERVER

- 20GB CPU & MEMORY : 100\$
- 1.) OVER PROVISIONED
- 2.) UNDER PROVISIONED



CLOUD BASE

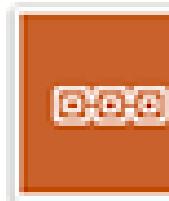
- PAY AS YOU GO -
CAN ADAPT YOUR BUSINESS DEPENDING ON
NEED AND NOT ON FORECASTS, REDUCING
THE RISK OF OVERPROVISIONING OR
MISSING CAPACITY.



- IMPLEMENT A STRONG IDENTITY FOUNDATION
- ENABLE TRACEABILITY
- APPLY SECURITY AT ALL LAYERS
- AUTOMATE SECURITY BEST PRACTICES
- PROTECT DATA IN TRANSIT AND AT REST
- KEEP PEOPLE AWAY FROM DATA
- PREPARE FOR SECURITY EVENTS



2.) SECURITY



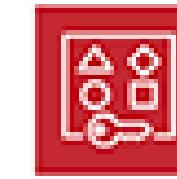
AWS Security, Identity, and Compliance Services

By function type

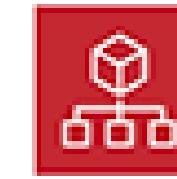
Authorization



IAM



AWS RAM



AWS Organizations

Authentication



Amazon Cognito



AWS SSO



Amazon Directory Service

Protected stores



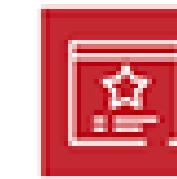
AWS CloudHSM



AWS KMS



AWS Secrets Manager

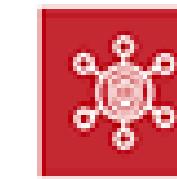


AWS Certificate Manager

Visibility



AWS Artifact



AWS Security Hub

Enforcement



Amazon GuardDuty



Amazon Inspector



Amazon Macie



AWS WAF



AWS Shield

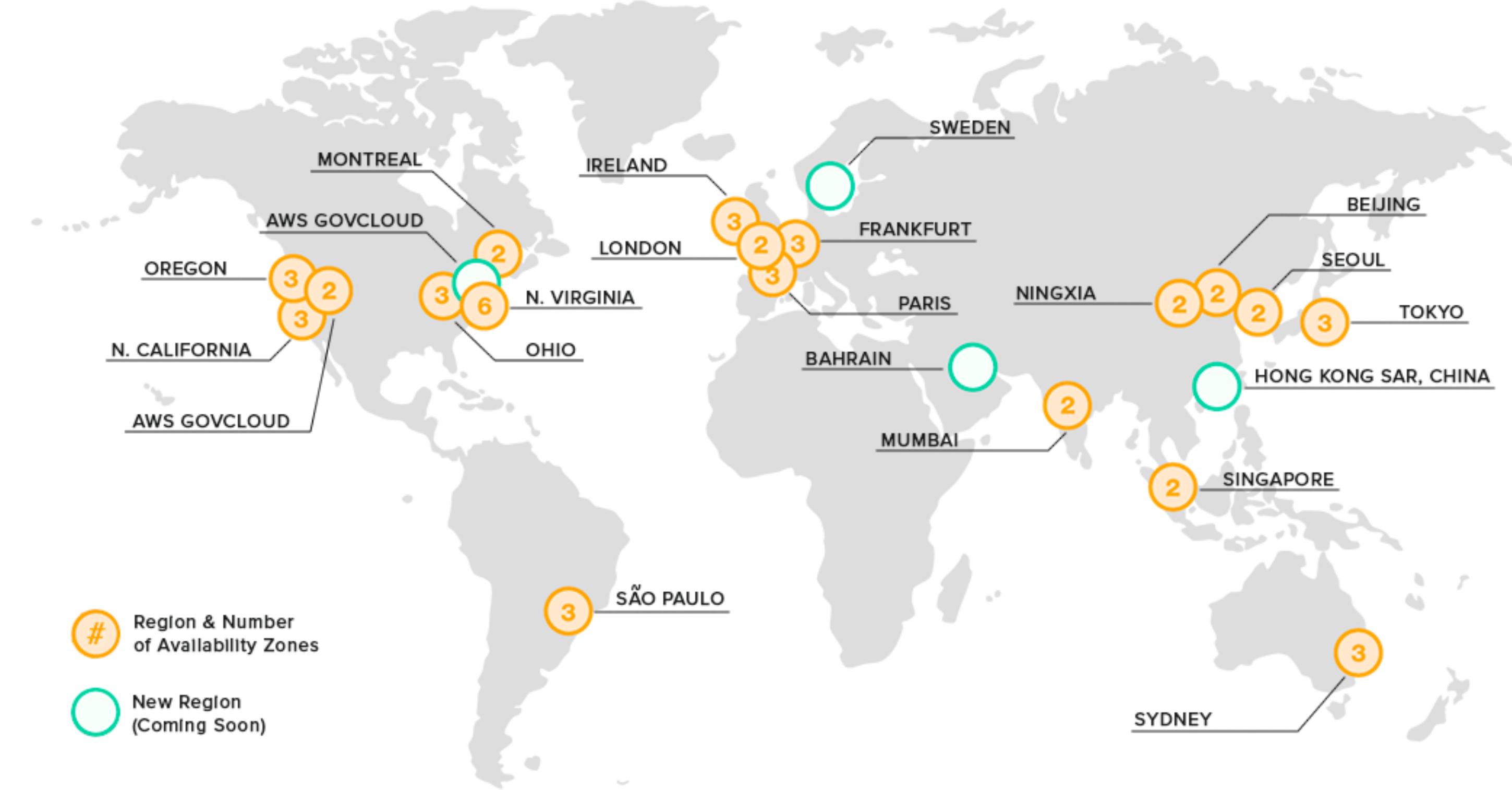


3.) RELIABILITY

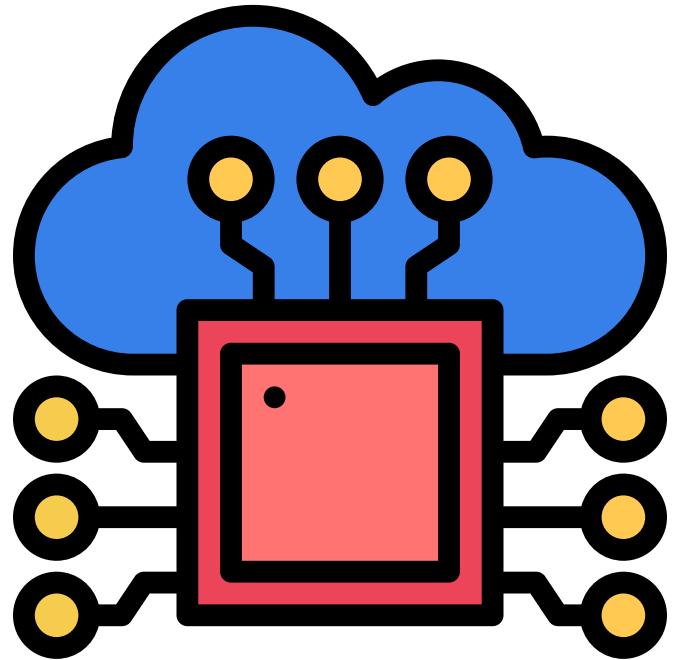
- AUTOMATICALLY RECOVER FROM FAILURE
- TEST RECOVERY PROCEDURES
- SCALE HORIZONTALLY TO INCREASE AGGREGATE WORKLOAD AVAILABILITY
- STOP GUESSING CAPACITY
- MANAGE CHANGE IN AUTOMATION



4.) PERFORMANCE EFFICIENCY

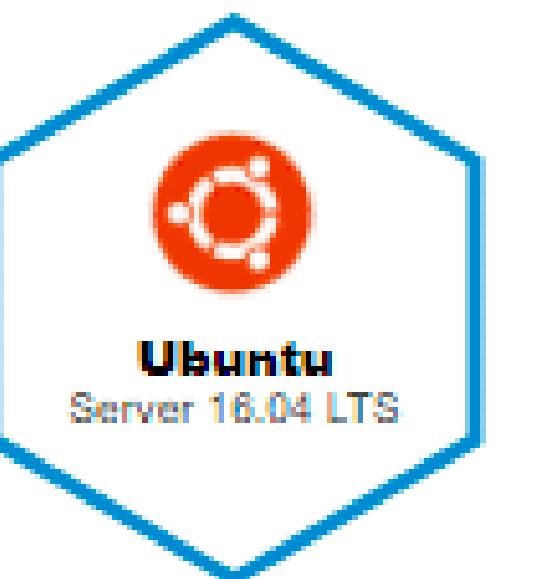


**REGIONS
AVAILABILITY ZONE
EDGE LOCATIONS**

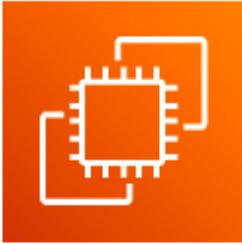
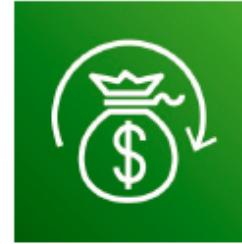
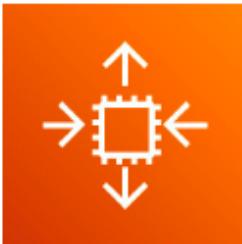
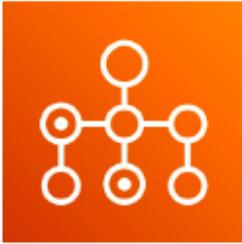
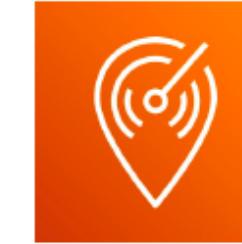
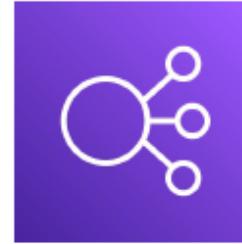


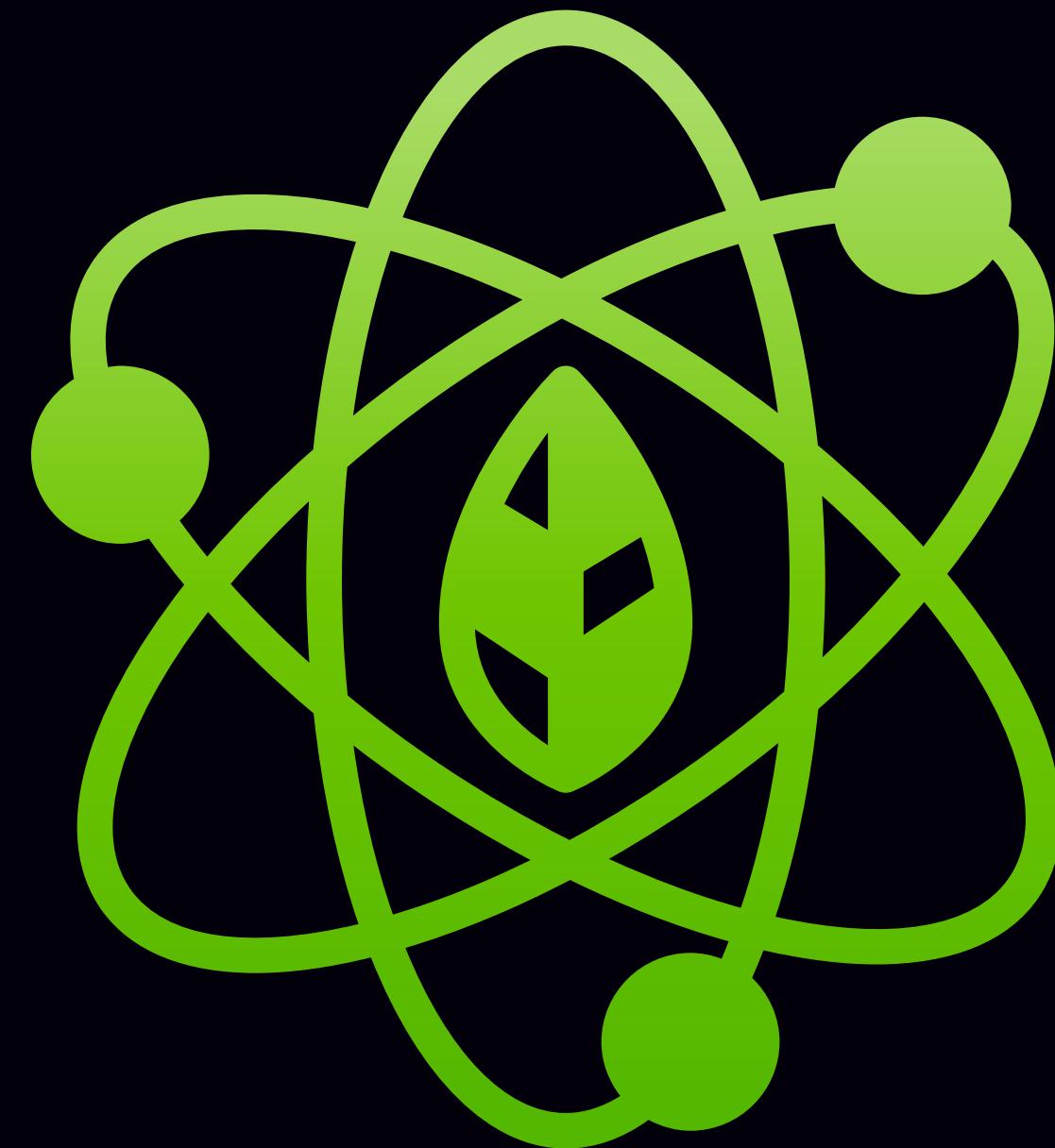
5.) OPERATIONAL EXCELLENCE

Select an Operating System



AWS Compute

Instance	Containers	Serverless	Edge and hybrid	Cost and capacity management
				
				
				
				
				

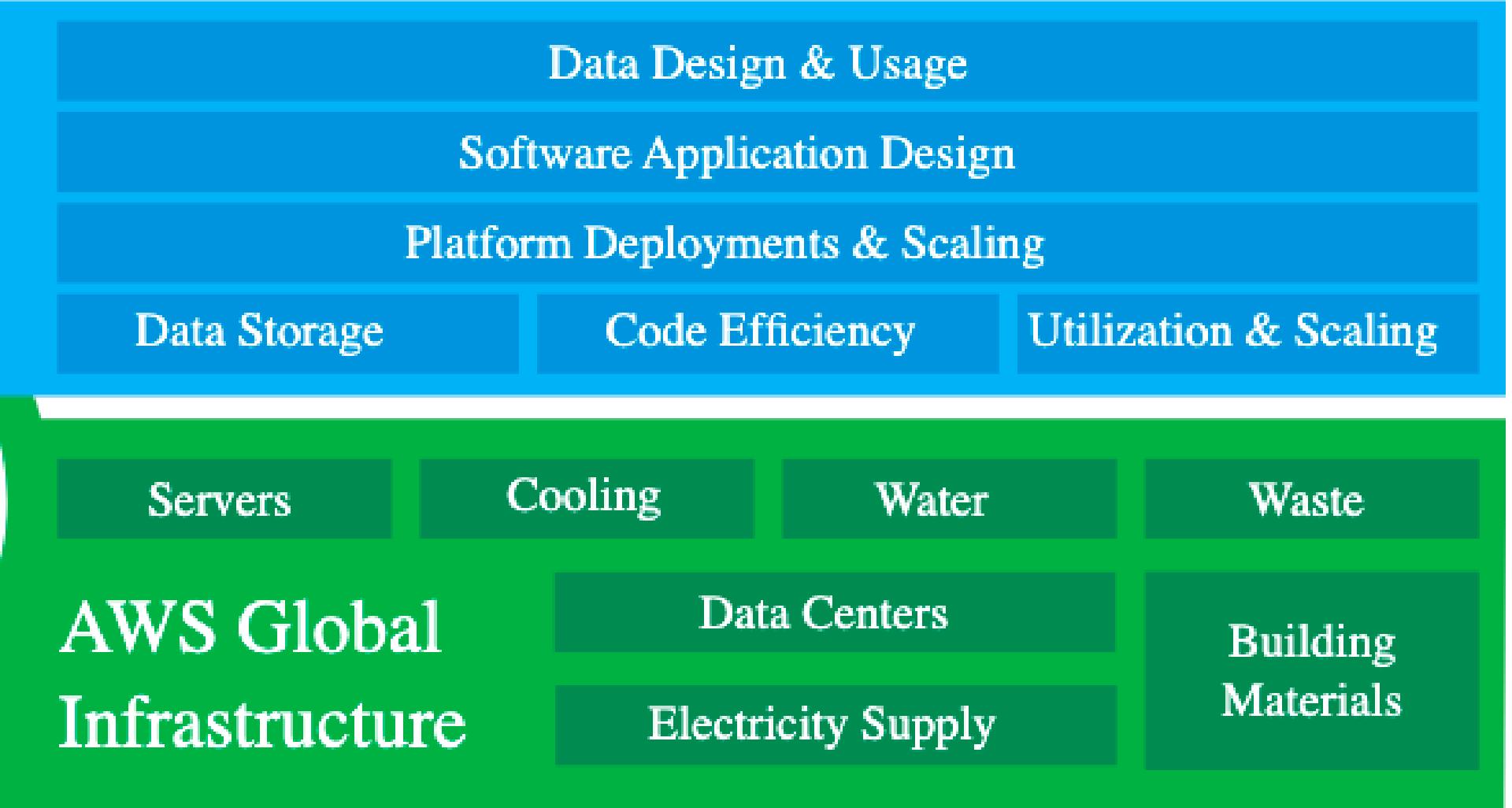


6.) SUSTAINABILITY

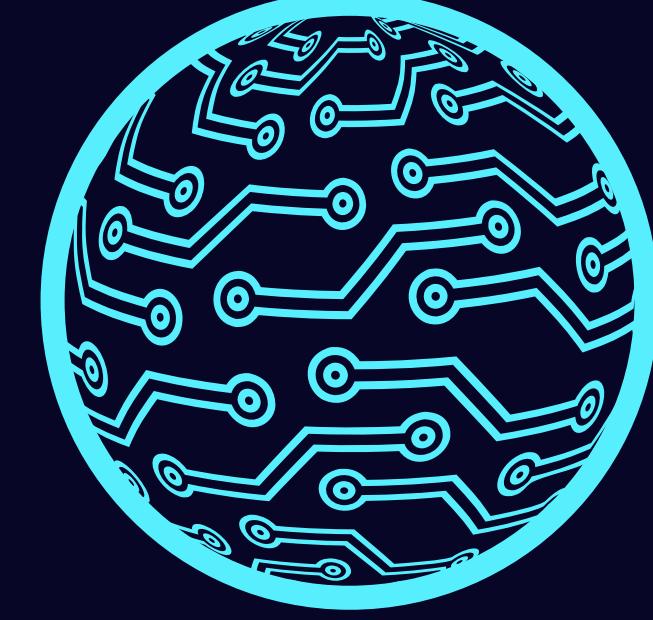
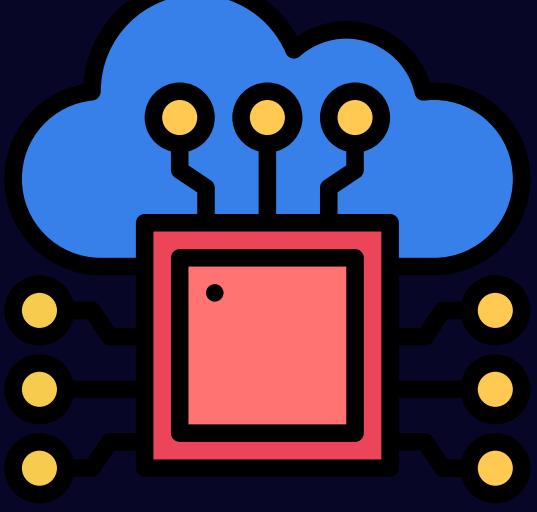
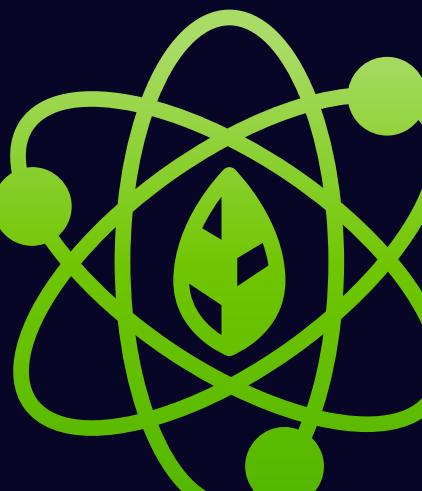
- UNDERSTAND YOUR IMPACT
- ESTABLISH SUSTAINABILITY GOALS
- MAXIMIZE UTILIZATION
- ANTICIPATE AND ADOPT NEW, MORE EFFICIENT HARDWARE AND SOFTWARE OFFERINGS
- USE MANAGED SERVICES
- REDUCE THE DOWNSTREAM IMPACT OF YOUR CLOUD WORKLOADS



AWS is responsible for Sustainability **of** the cloud



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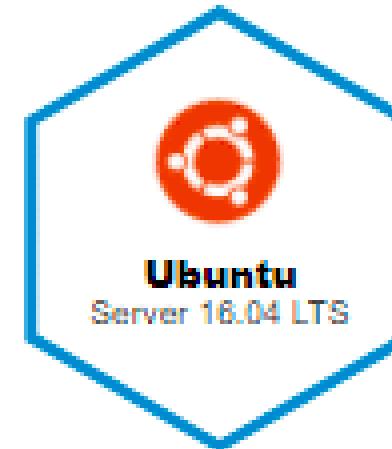
AWS FOUNDATION SERVICES

AMAZON ELASTIC COMPUTE



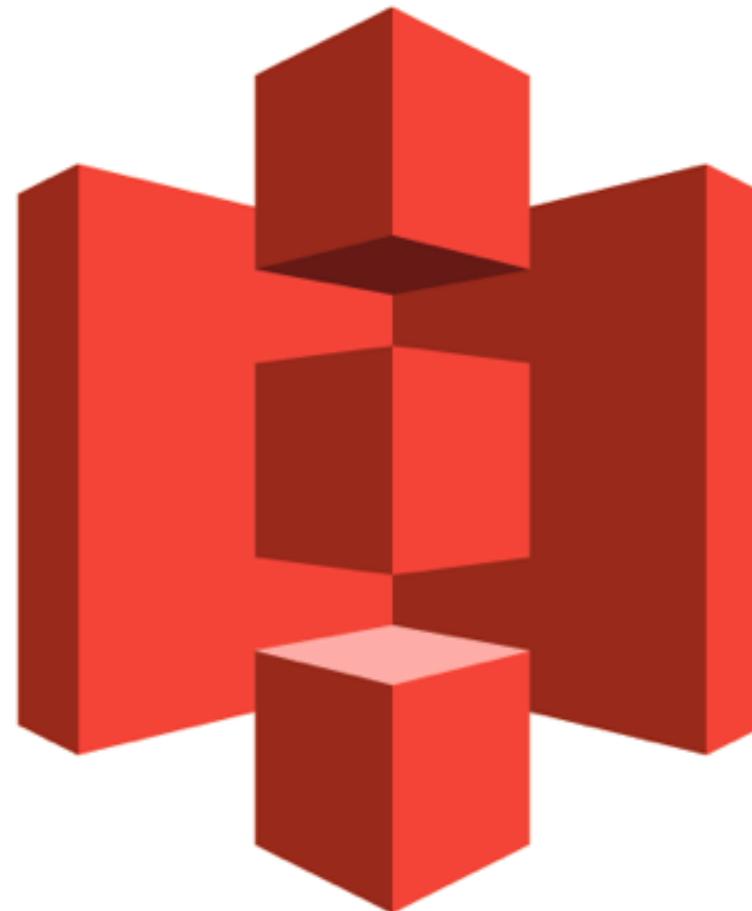
Amazon EC2

Select an Operating System



AWS SIMPLE STORAGE SERVICE

STORAGE DESIGNED FOR
99.99999999% (11 9'S) OF
DURABILITY.



Amazon S3

BUILD A DATA LAKE

BACK UP AND RESTORE CRITICAL DATA

RUN CLOUD-NATIVE APPLICATIONS

PHOTOS, MAIL OR CONTACTS

APPLICATIONS THAT ARE
PREINSTALLED AND
CONFIGURED ON EVERY
COMPUTER.

AWS RELATIONAL DATABASE SERVICE

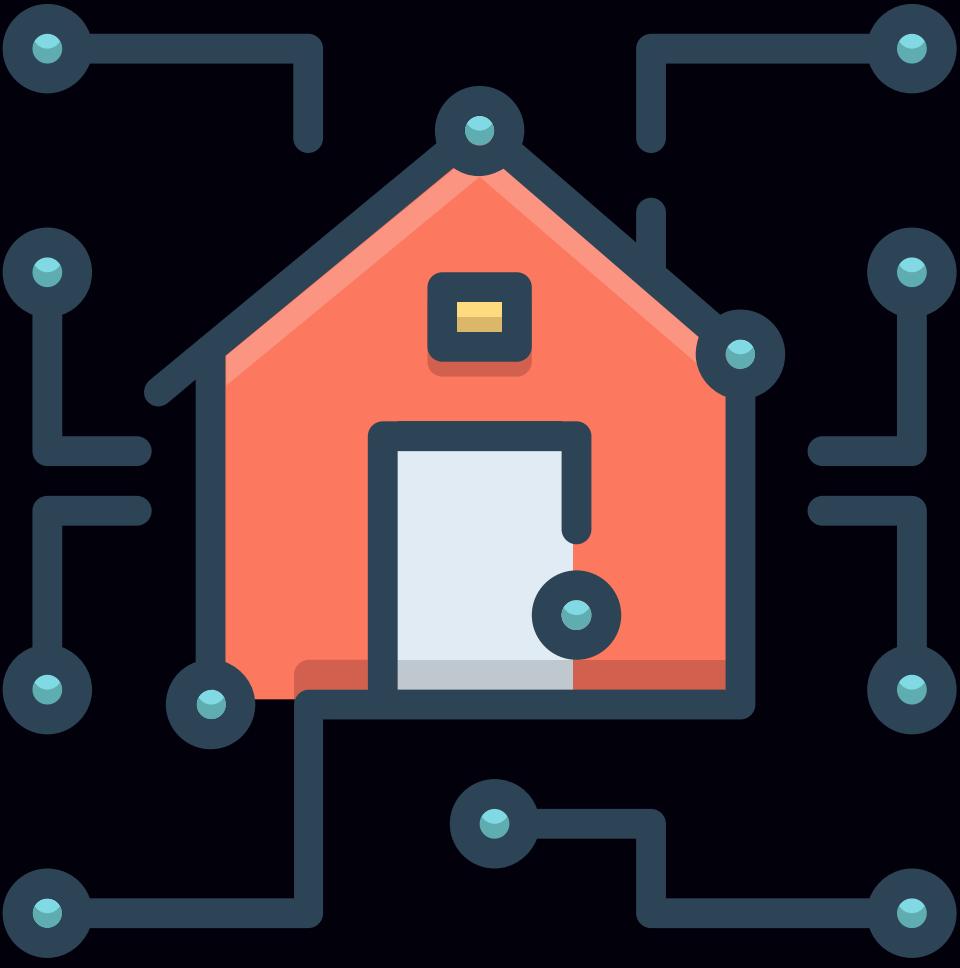
edureka!





DATABASE

V.S



DATA WAREHOUSE

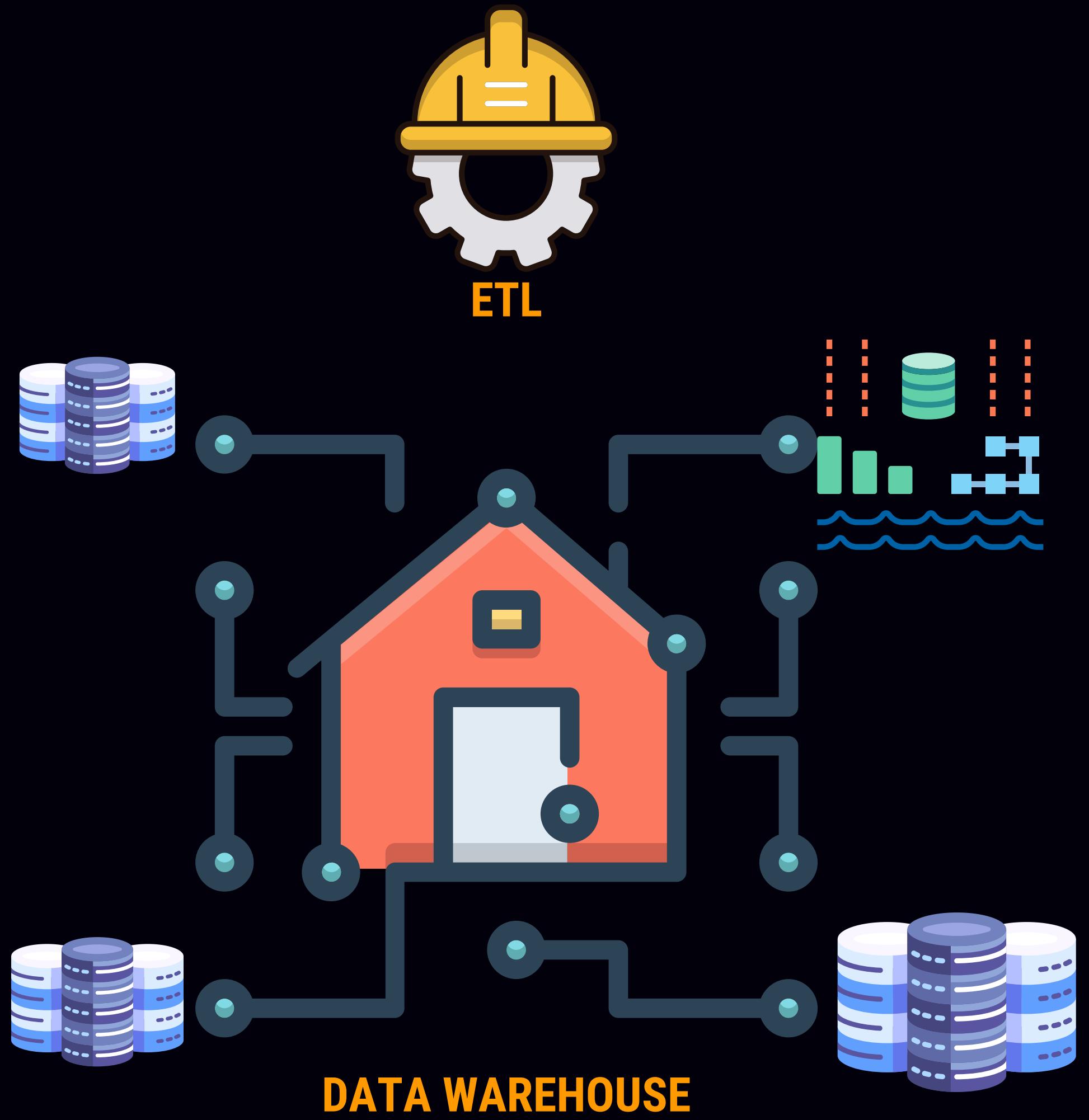
V.S

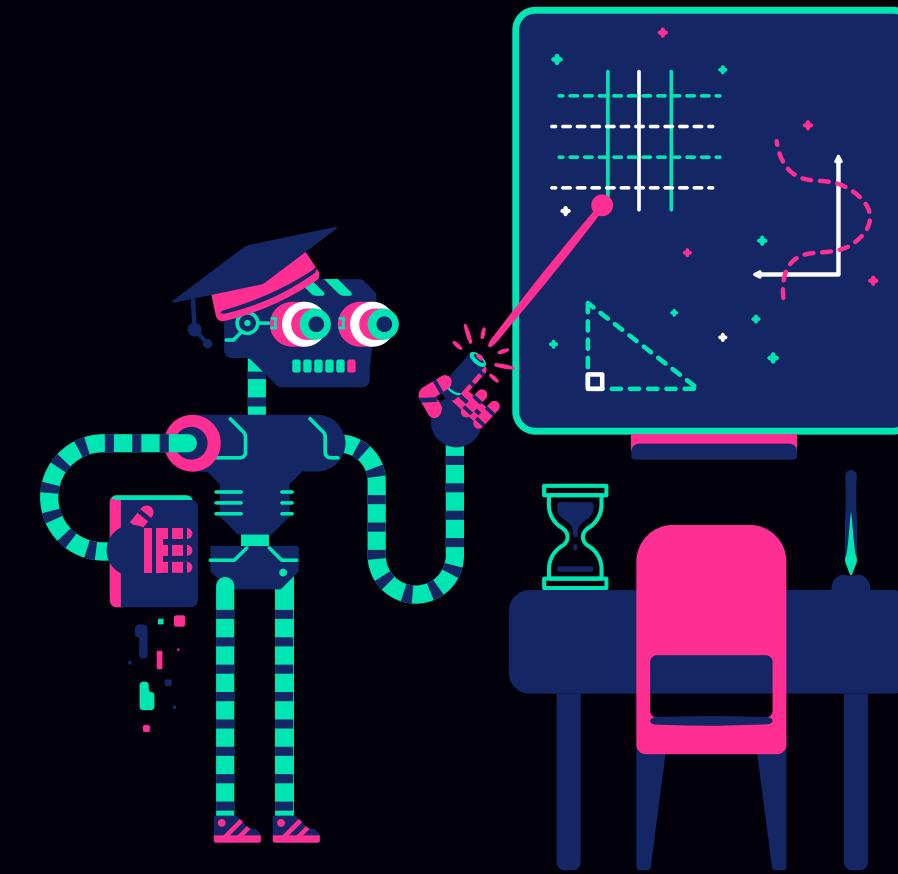
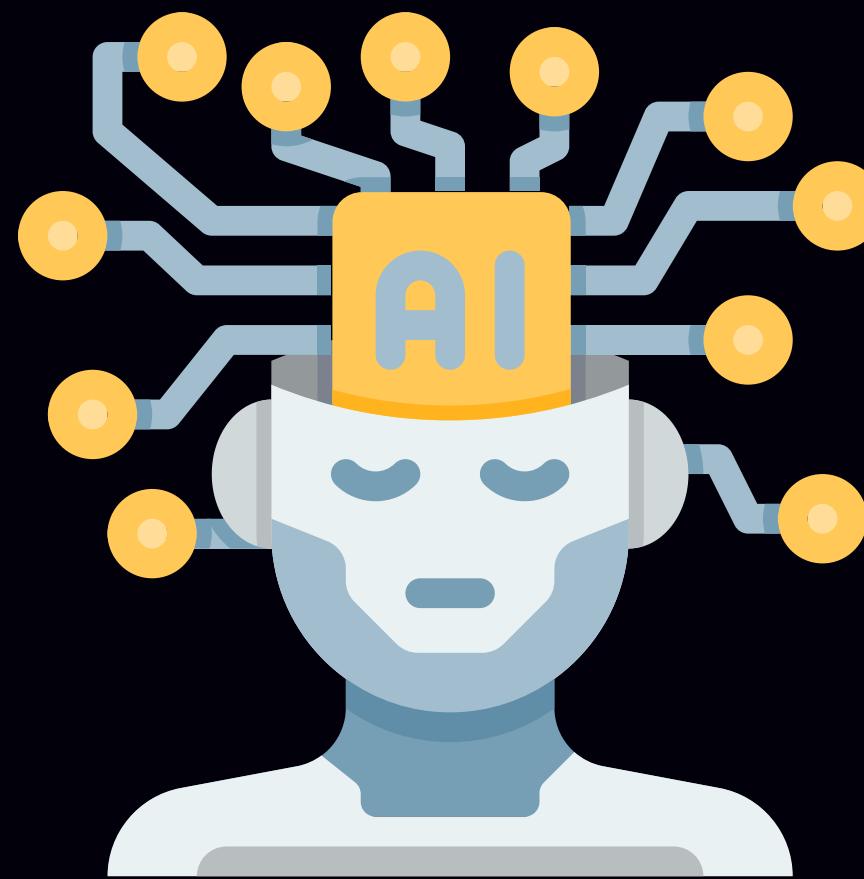
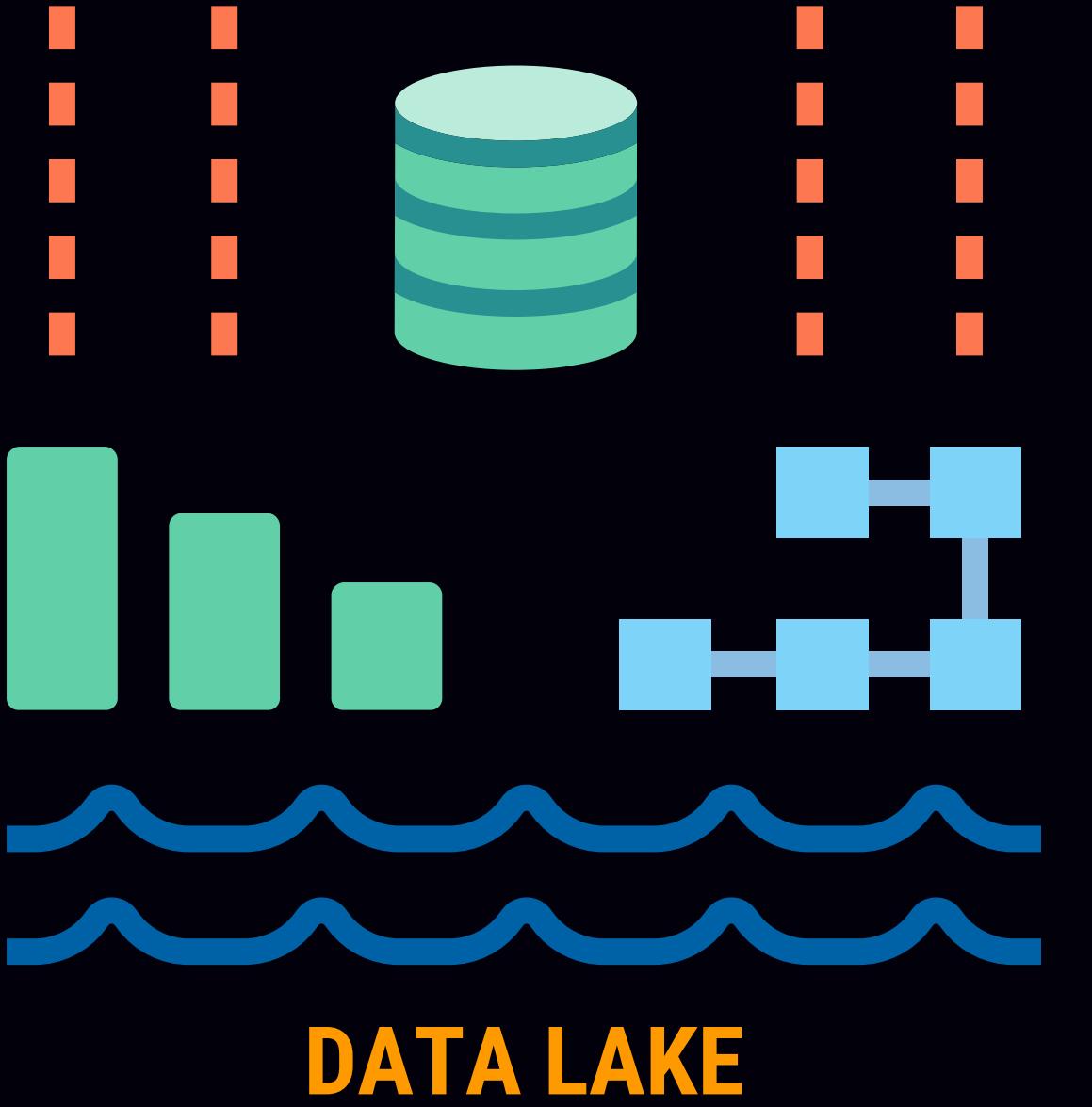


DATA LAKE

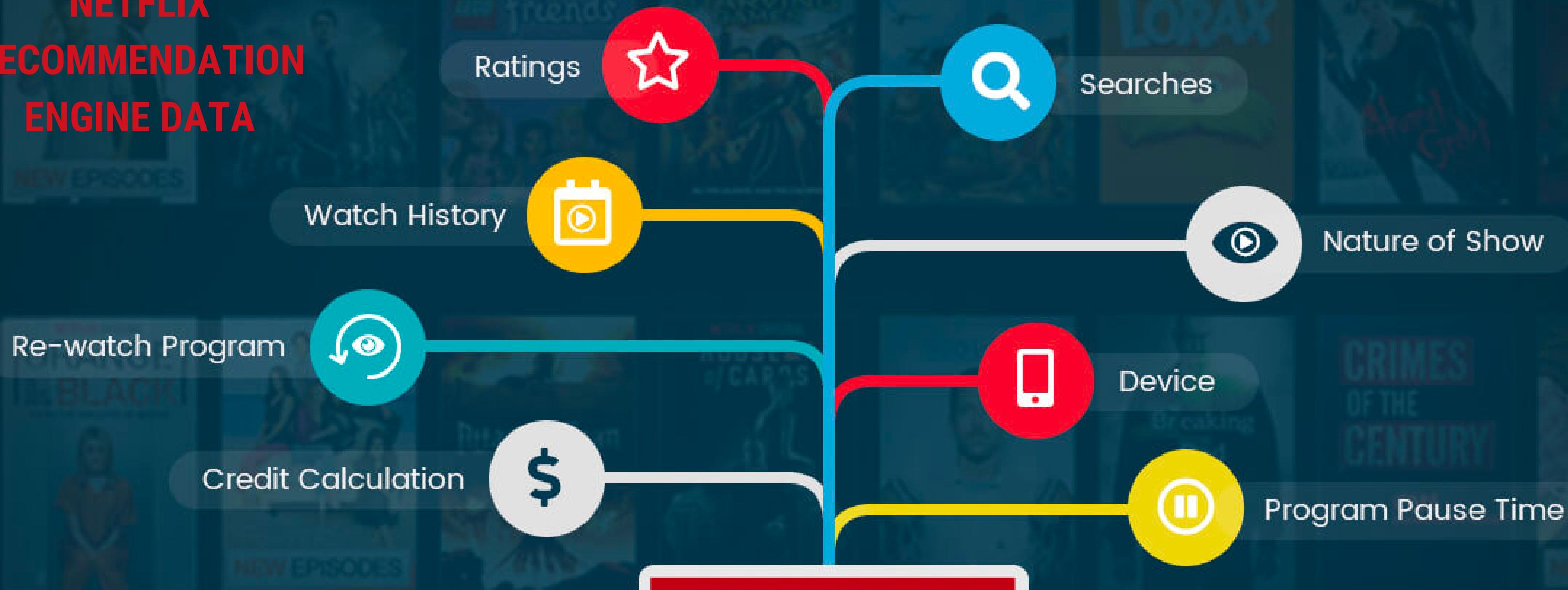


DATABASE





NETFLIX RECOMMENDATION ENGINE DATA



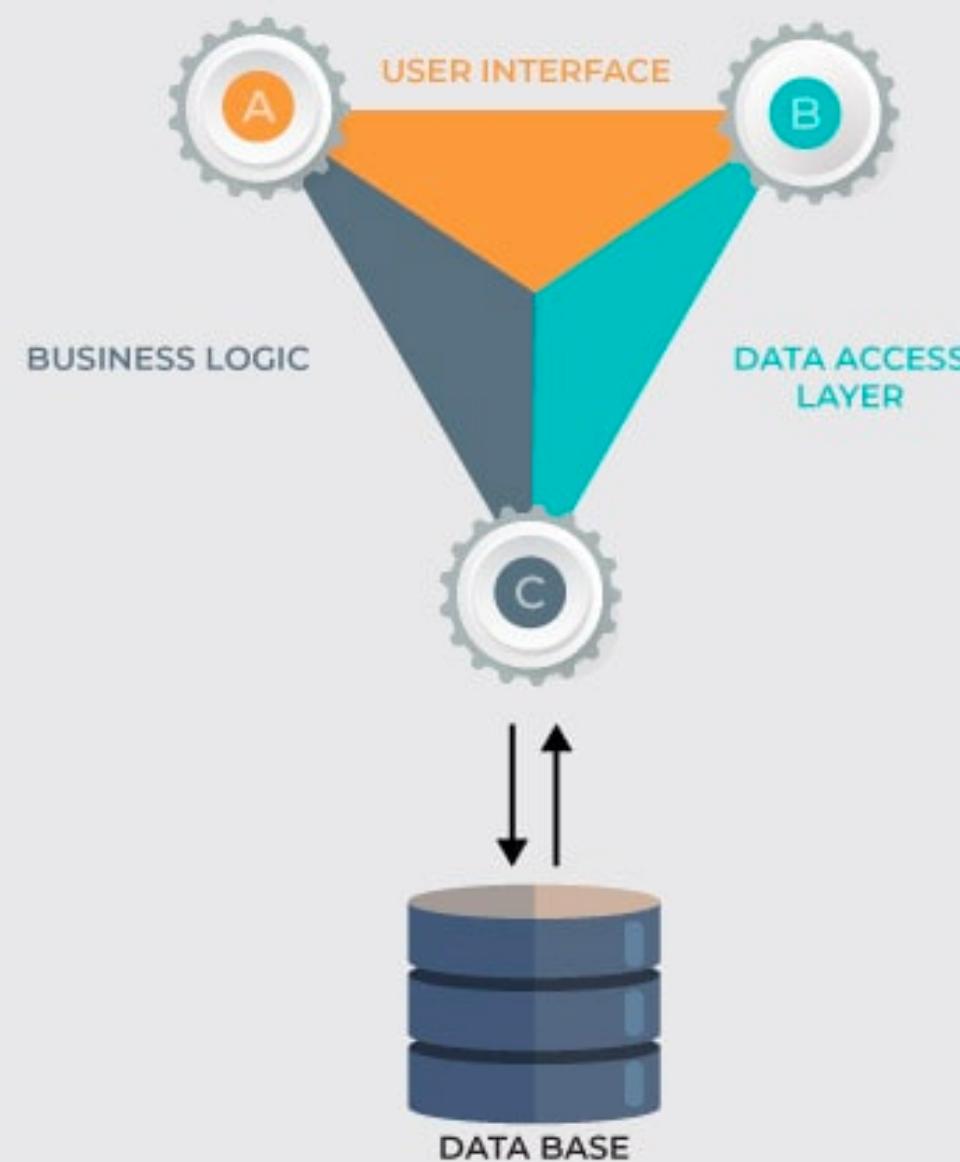
WHY CLOUD OF COMPUTING IS CRITICAL FOR A DATA SCIENTIST?

DATA SCIENCE AND CLOUD COMPUTING ESSENTIALLY GO HAND IN HAND. A DATA SCIENTIST TYPICALLY ANALYZES DIFFERENT TYPES OF DATA THAT ARE STORED IN THE CLOUD. WITH THE INCREASE IN BIG DATA, ORGANIZATIONS ARE INCREASINGLY STORING LARGE SETS OF DATA ONLINE AND THERE IS A NEED FOR DATA SCIENTISTS

MICROSERVICE ARCHITECTURE

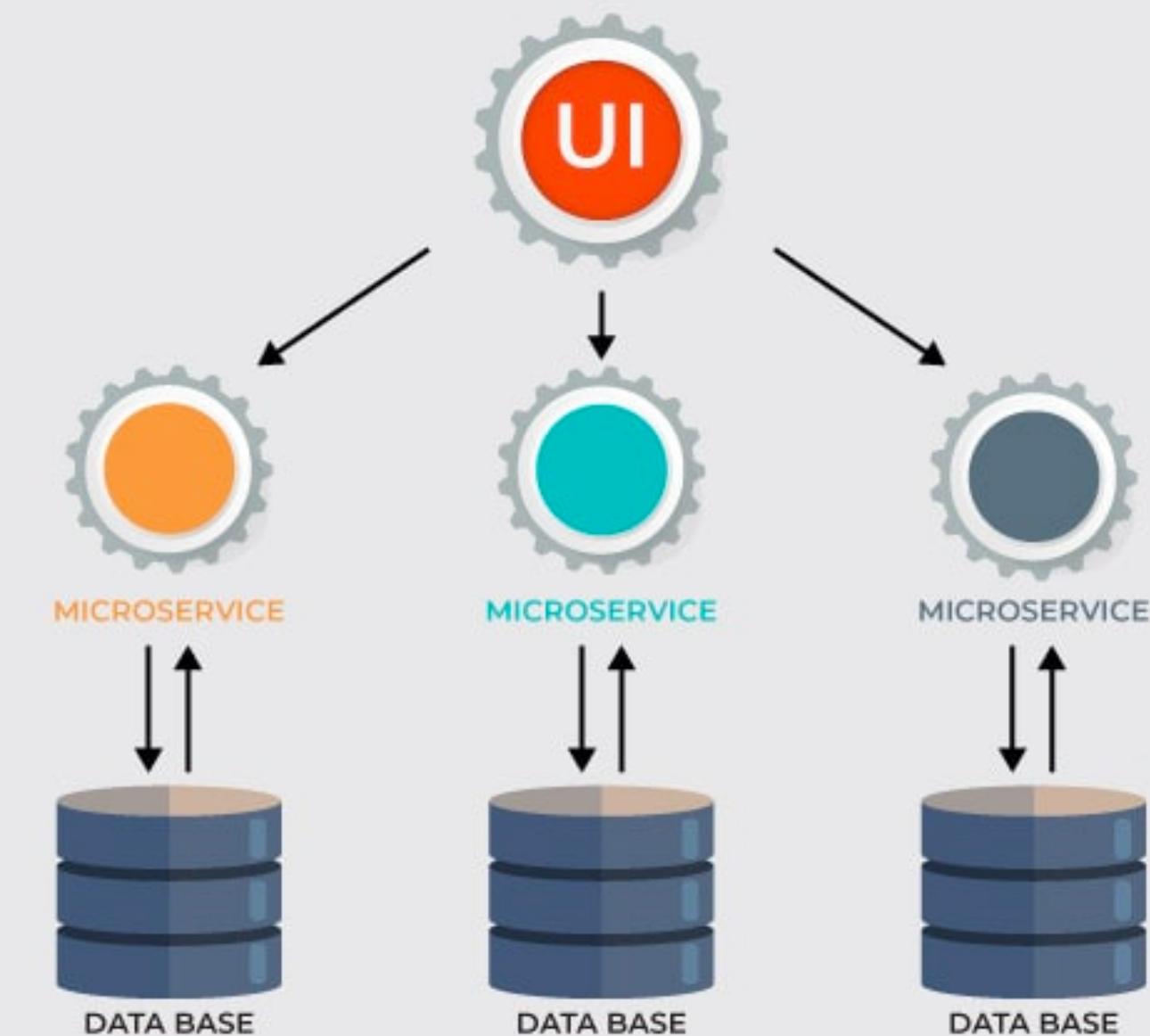
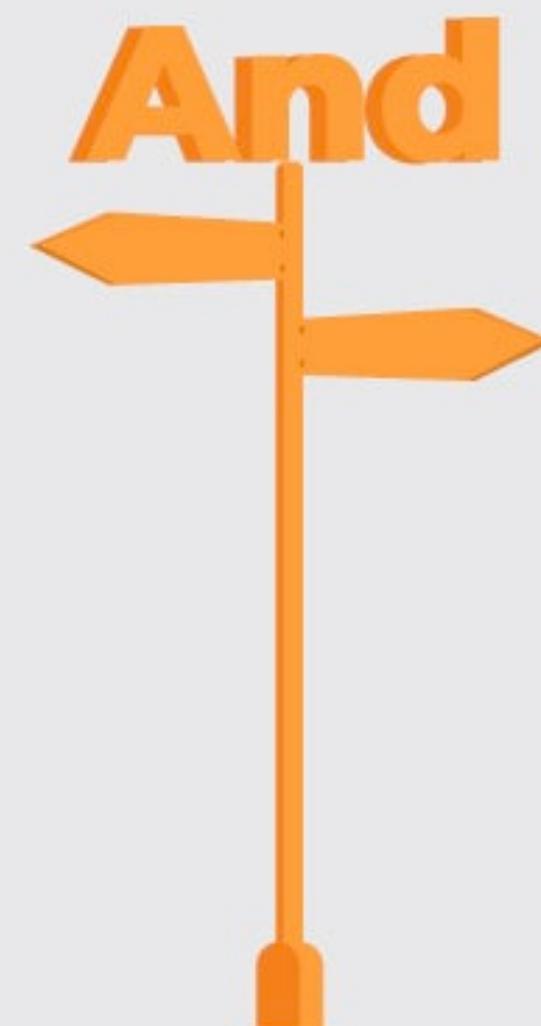
BEFORE

Monolithic Architecture



NOW

Microservice Architecture



BUILT AS A SINGLE UNIFIED UNIT

**FAMOUS COMPANY WHO THAT MIGRATES FROM
MONOLITH TO MICROSERVICE**

Google NETFLIX UBER

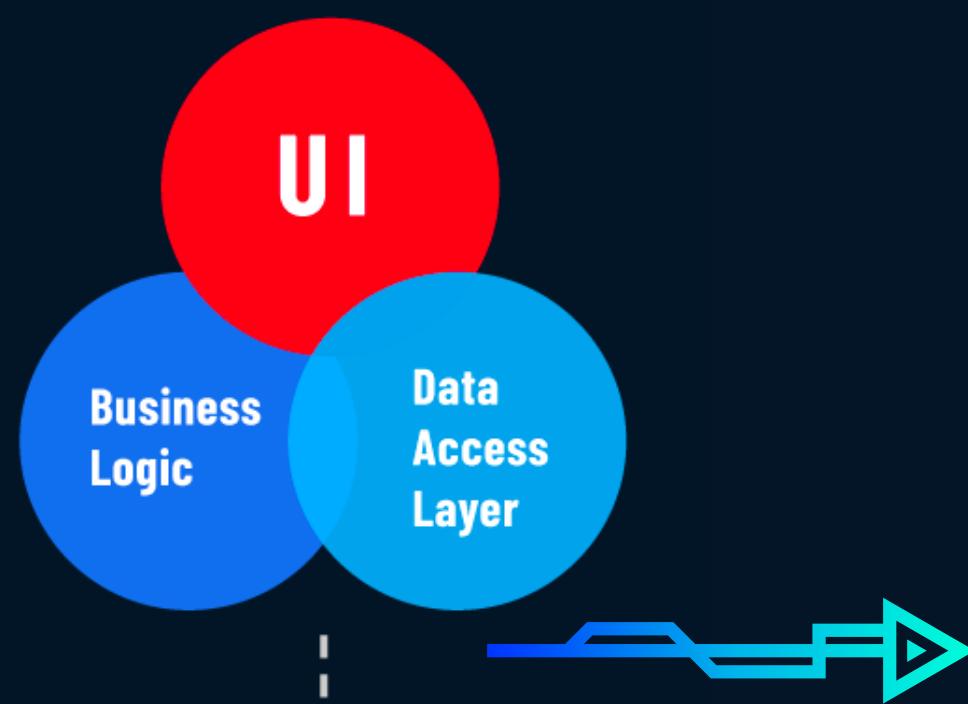


Globe

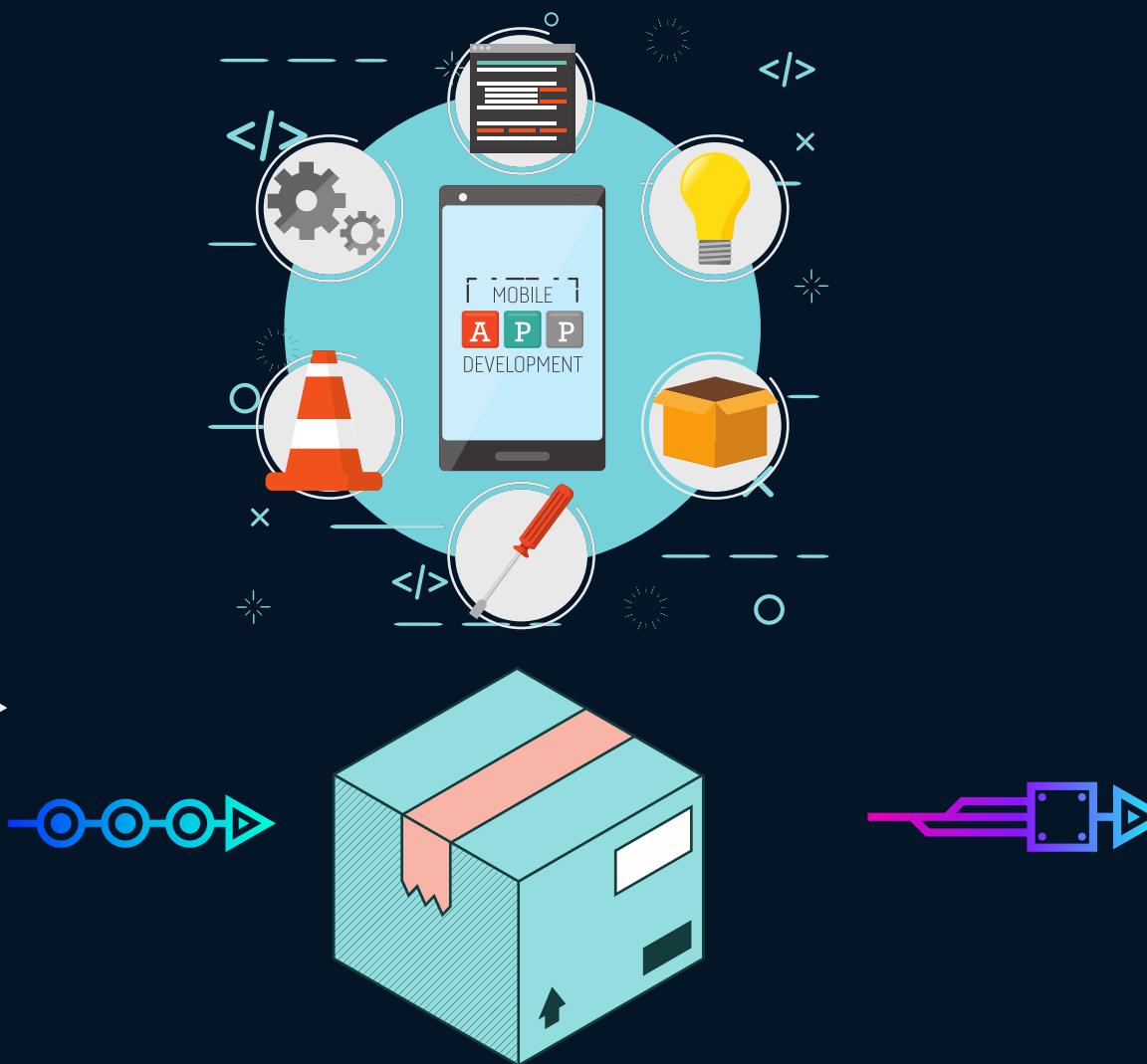
1ST APPROACH

PROTOTYPING USING MONOLITH ARCHITECTURE IN AWS CLOUD

**Monolithic
Architecture**



DEVELOPMENT



DEPLOYMENT

BUILT AS A SINGLE UNIFIED UNIT



APPLICATION

PROBLEMS ENCOUNTERED

SLOWER DEVELOPMENT SPEED – A LARGE, MONOLITHIC APPLICATION MAKES DEVELOPMENT MORE COMPLEX AND SLOWER. **WILL FOLLOWS WATERFALL METHODOLOGY**

SCALABILITY – YOU CAN'T SCALE INDIVIDUAL COMPONENTS.

RELIABILITY – IF THERE'S AN ERROR IN ANY MODULE, IT COULD AFFECT THE ENTIRE APPLICATION'S AVAILABILITY.

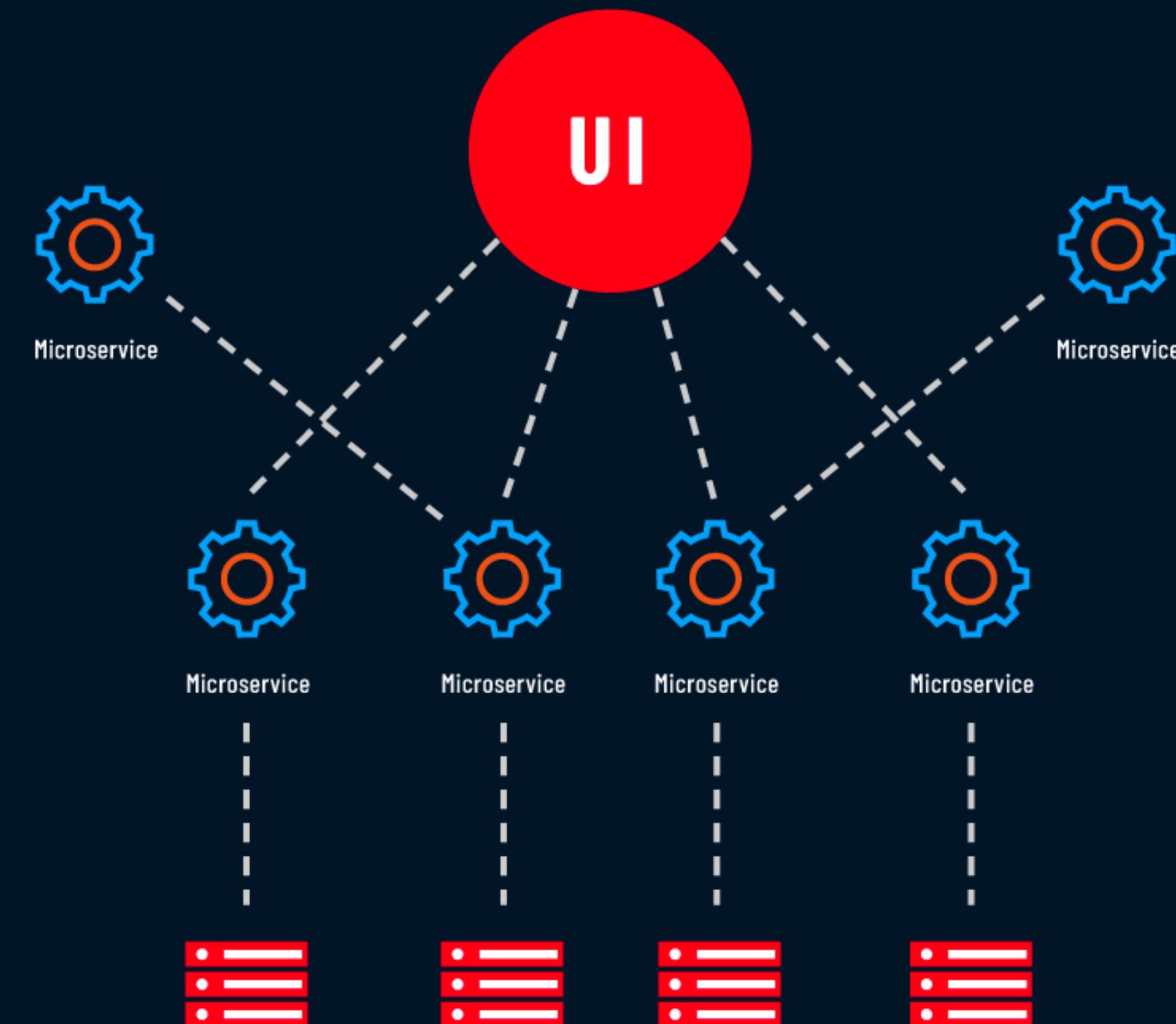
BARRIER TO TECHNOLOGY ADOPTION – ANY CHANGES IN THE FRAMEWORK OR LANGUAGE AFFECTS THE ENTIRE APPLICATION, MAKING CHANGES OFTEN EXPENSIVE AND TIME-CONSUMING.

LACK OF FLEXIBILITY – A MONOLITH IS CONSTRAINED BY THE TECHNOLOGIES ALREADY USED IN THE MONOLITH.

DEPLOYMENT – A SMALL CHANGE TO A MONOLITHIC APPLICATION REQUIRES THE REDEPLOYMENT OF THE ENTIRE MONOLITH.

IMPLEMENTATION USING MICROSERVICE ARCHITECTURE

DEPLOYMENT IN AWS CLOUD



PER MODULE DEV,
TEST AND RELEASE



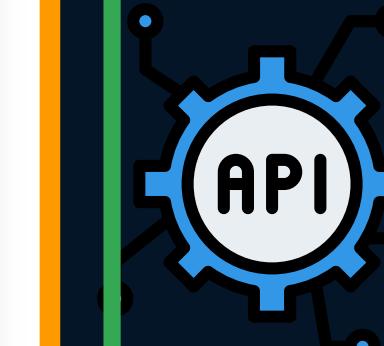
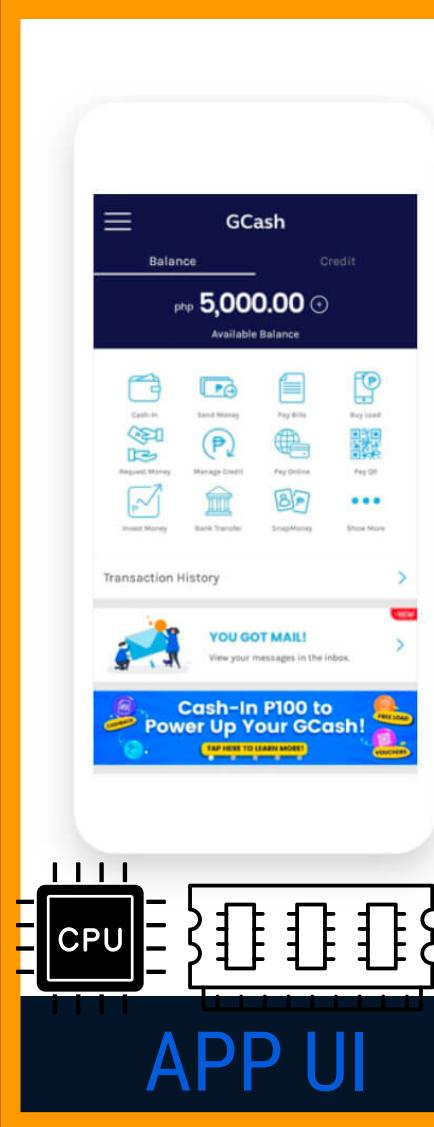


AWS CLOUD



USERS

PUBLIC SUBNET



APP UI

Lifestyle Services

PRIVATE SUBNET



Buy Load



Pay QR



Ang Pao



Financial Services



Borrow Load



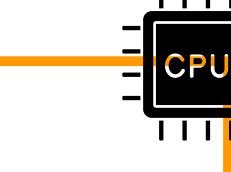
Shop Online



Send Money



KKB



Pay Bills

CLOUD IMPLEMENTATION

&

MICROSERVICE ARCHITECTURE



ONPREMISE IMPLEMENTATION

&

MONOLITH ARCHITECTURE