Elkhan Yusubov
Speaker | Author | Cloud Architect
Founder at #cloudmarathoner

Elkhan is a Cloud Architect Manager, Microsoft Azure MVP and 16+ MCT with experience in cloud solutions, enterprise healthcare systems and healthcare data, and API standards (HL7 FHIR, EDI X12).

He is an active Microsoft Tech Community Contributor, Cloud Lunch and Learn Speaker and Co-Organizer, and LinkedIn instructor with interests in Architecture, DevOps & Security.

He is a frequent speaker at tech meetups and has volunteered for Give Camps, Azure Data Fest, SQL Saturdays and Microsoft community events, like this one.
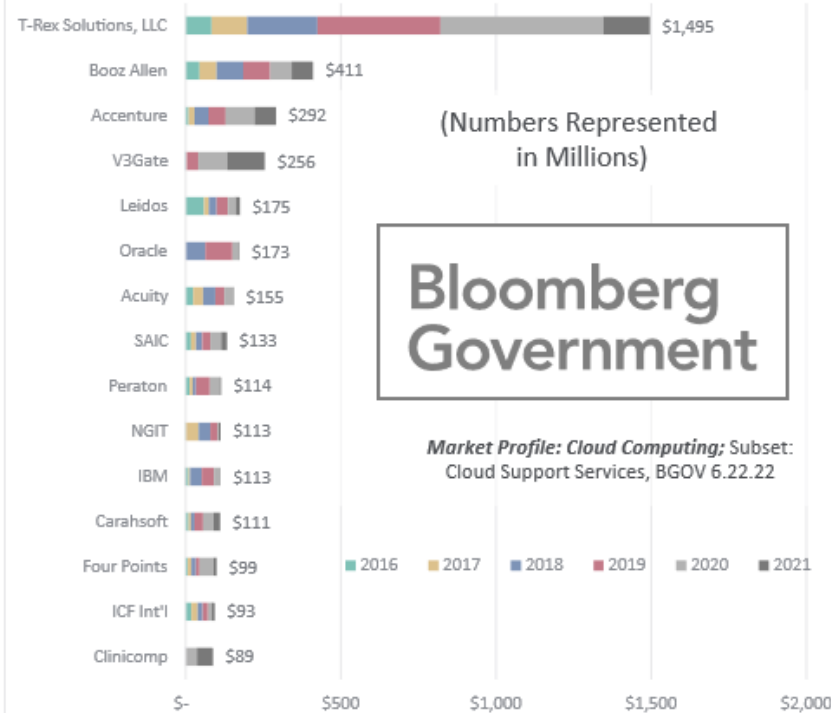
Please, checkout the blog posts at Cloud Marathoner site below.

https://theCloudMarathoner.com

@ElYusubov

What we do; where we do it; how it relates

T-REX
Industry's Leading Solutions Provider

Core Capabilities

- Cloud Adoption & Infrastructure Optimization
- Cybersecurity
- Data Engineering & Analytics
- Agile Transformation
- Mission Critical Services

Top Cloud Support Services Vendors

(Numbers Represented in Millions)

Vendor	Value
T-Rex Solutions, LLC	$1,495
Booz Allen	$411
Accenture	$292
V3Gate	$256
Leidos	$175
Oracle	$173
Acuity	$155
SAIC	$133
Peraton	$114
NGIT	$113
IBM	$113
Carahsoft	$111
Four Points	$99
ICF Int'l	$93
Clinicomp	$89

Legend: ■ 2016 ■ 2017 ■ 2018 ■ 2019 ■ 2020 ■ 2021

Axis: $- $500 $1,000 $1,500 $2,000

Bloomberg Government

Market Profile: Cloud Computing; Subset: Cloud Support Services, BGOV 6.22.22

Company Info

- **Established:** 1999
- **Legal Structure:** LLC
- **Headquarters:** Greenbelt, MD
- **8(a)/HUBZone & SDVOSB Joint Ventures**
- **CMMI-DEV & SVC Level 3 v2.0**
- **ISO 9001; ISO27001; ISO20000**

Prime Vehicles/BPAs:

- GSA MAS HACS SIN
- GSA MAS Cloud SIN
- GSA MAS IT Svcs SIN
- COBRA OTA
- CIO-SP3 Small Business
- STARS III via MPJV
- GSA MAS HACS SB & Cloud SIN SB via MPJV

Silver
Microsoft Partner
Silver Datacenter
Silver Data Analytics
Silver Data Platform
Silver App Dev
Silver App Integration

aws partner network
Advanced
Consulting Partner
Government Competency
Public Sector Partner

T-REX *Cares*
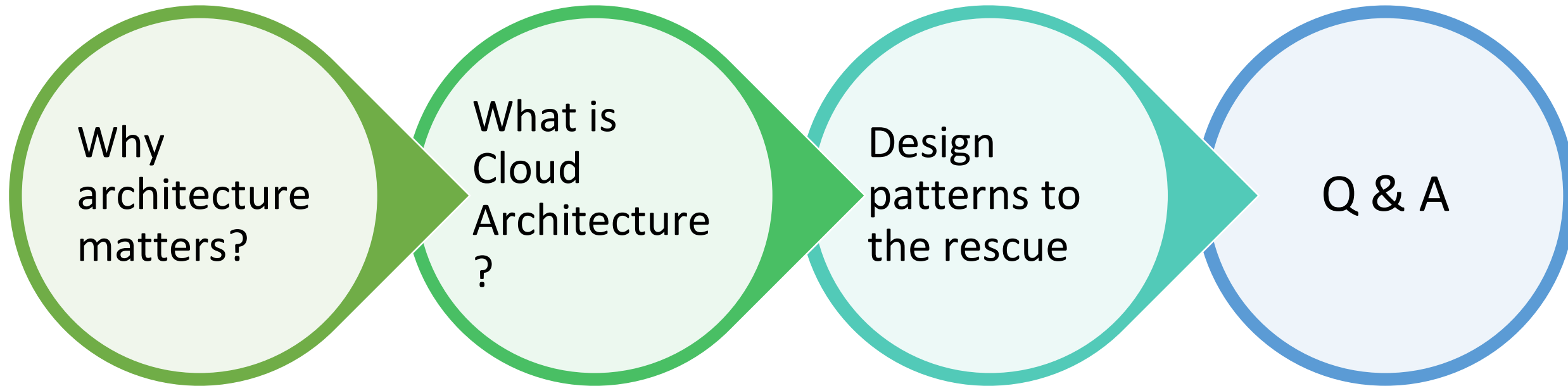T-Rex has donated **over $3.5M** in support of underserved youth, veterans, and local organizations.

TOP WORK PLACES 2020 — The Washington Post

1st Place Gameday 2020 — aws Public Sector

Top Cloud Vendor 2017-2019 GovWin From Deltek Federal Market

#1 Bloomberg Government Cloud Support Services PROVIDER 2016-21

T-REX

What we will cover

Why architecture matters?
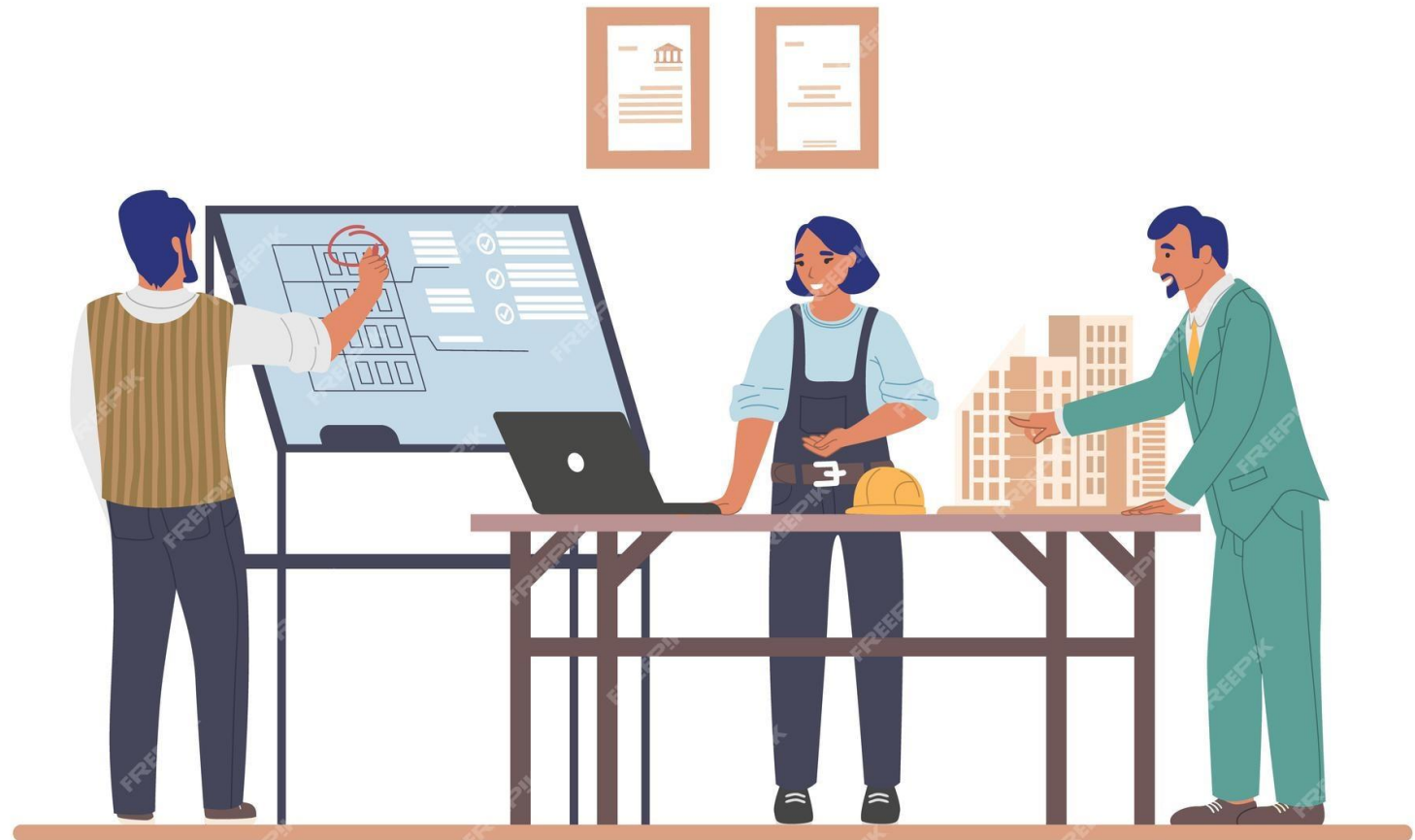
What is Cloud Architecture ?
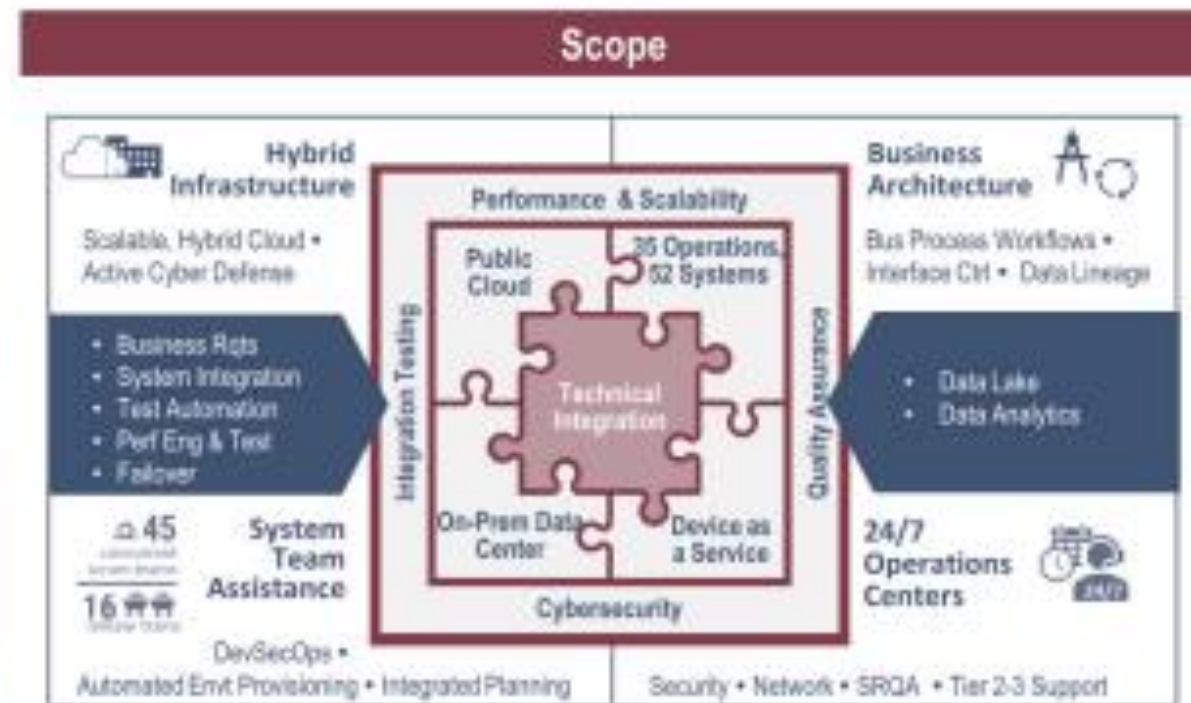
Design patterns to the rescue

Q & A

Why architecture matters

- Process and steps
- Stakeholders
- Identifying Scope
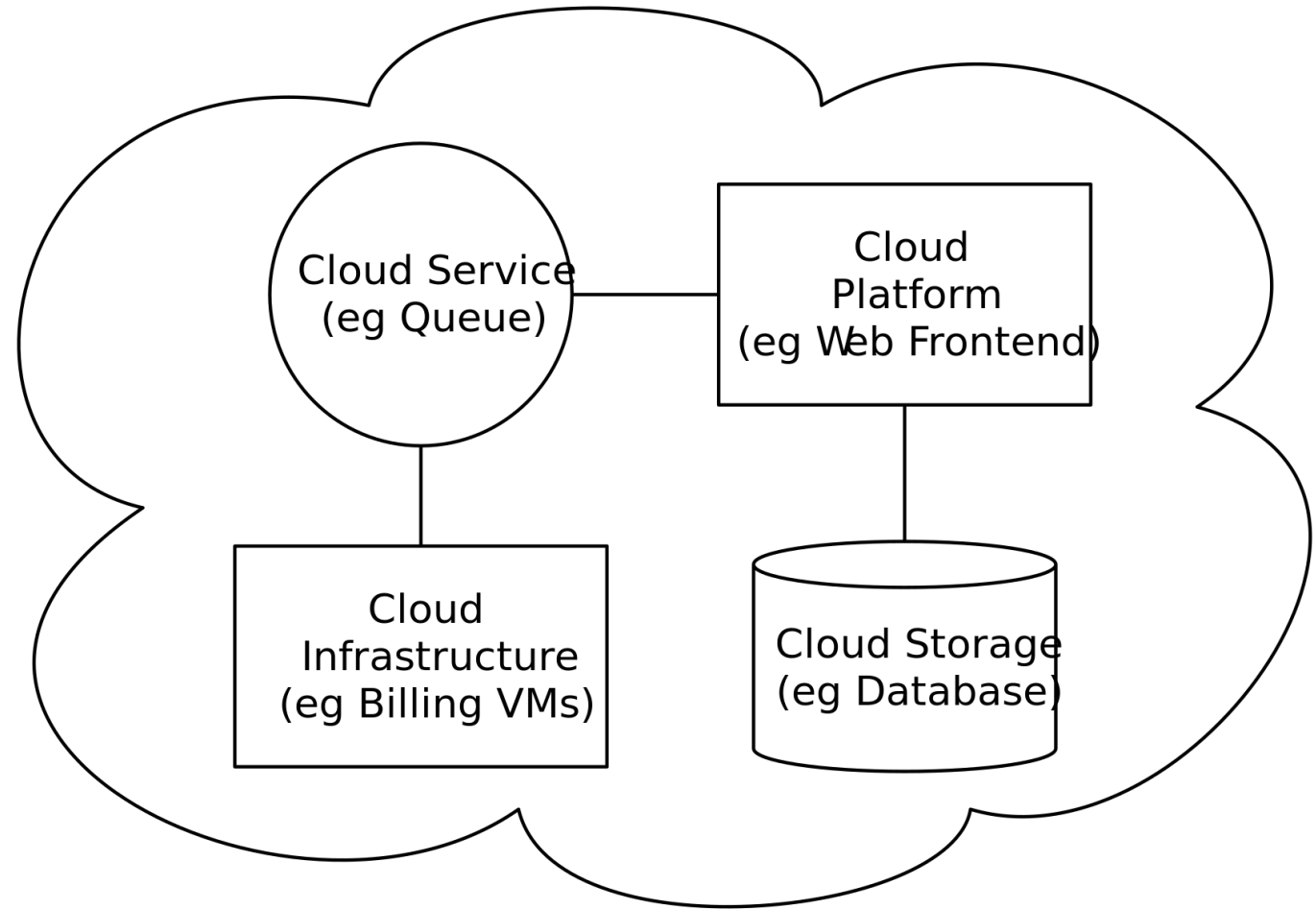- Identifying Reqs
- Building PoC
- Building Team
- Etc.

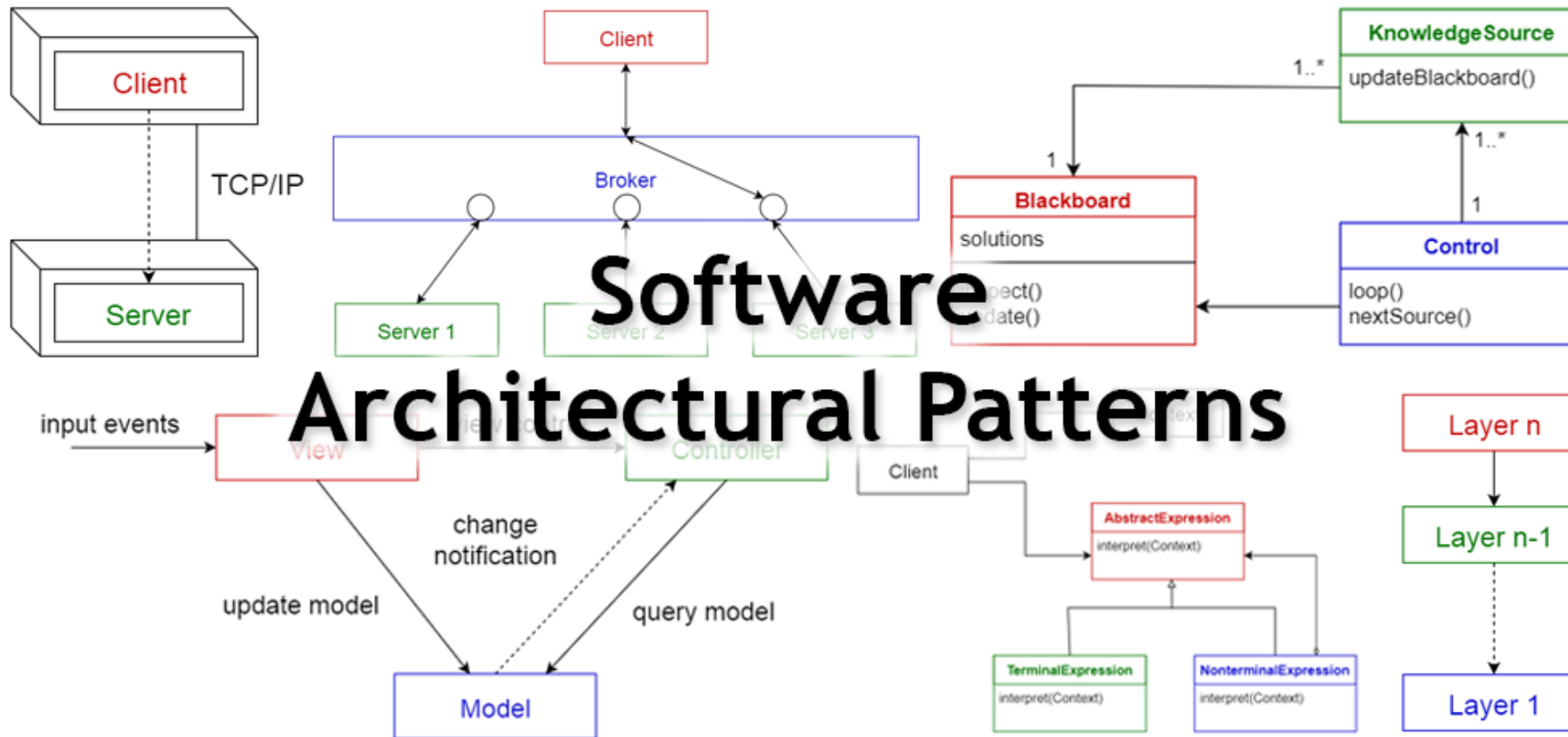# What it takes to build an enterprise scale solution?

The 2020 Census TI Program in a Nutshell

What is Cloud Architecture?

- Front-end
- Back-end
- Cloud based services
- Network & connectivity

Design patterns in Software Development

Client

Client

TCP/IP

Server

input events

Broker

Server 1   Server 2   Server 3

Software
Architectural Patterns

View   Controller

Client

change
notification

update model   query model

Model

KnowledgeSource

updateBlackboard()

1..*

1

Blackboard

solutions

pect()
date()

Control

loop()
nextSource()

1..*

1

AbstractExpression

interpret(Context)

TerminalExpression

interpret(Context)

NonterminalExpression

interpret(Context)

Layer n

Layer n-1

Layer 1

Grouping the Design Patterns

Creational

Structural

Behavioral

The Software Design & Architecture Stack

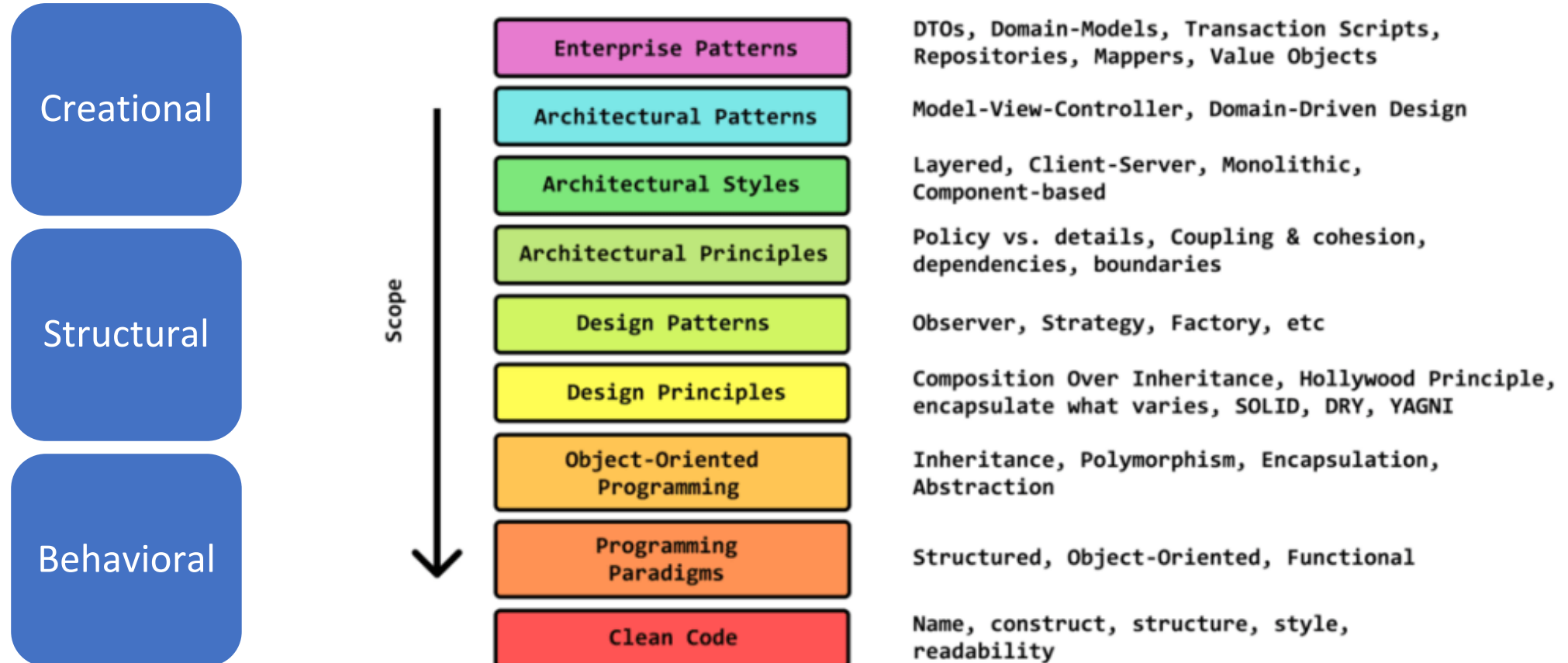| Layer	Examples
Enterprise Patterns	DTOs, Domain-Models, Transaction Scripts, Repositories, Mappers, Value Objects
Architectural Patterns	Model-View-Controller, Domain-Driven Design
Architectural Styles	Layered, Client-Server, Monolithic, Component-based
Architectural Principles	Policy vs. details, Coupling & cohesion, dependencies, boundaries
Design Patterns	Observer, Strategy, Factory, etc
Design Principles	Composition Over Inheritance, Hollywood Principle, encapsulate what varies, SOLID, DRY, YAGNI
Object-Oriented Programming	Inheritance, Polymorphism, Encapsulation, Abstraction
Programming Paradigms	Structured, Object-Oriented, Functional
Clean Code	Name, construct, structure, style, readability

Scope

Image Credits: Khalil Stemmler

Cloud Design patterns

Common Cloud Design patterns

Anti-corruption layer

Circuit breaker
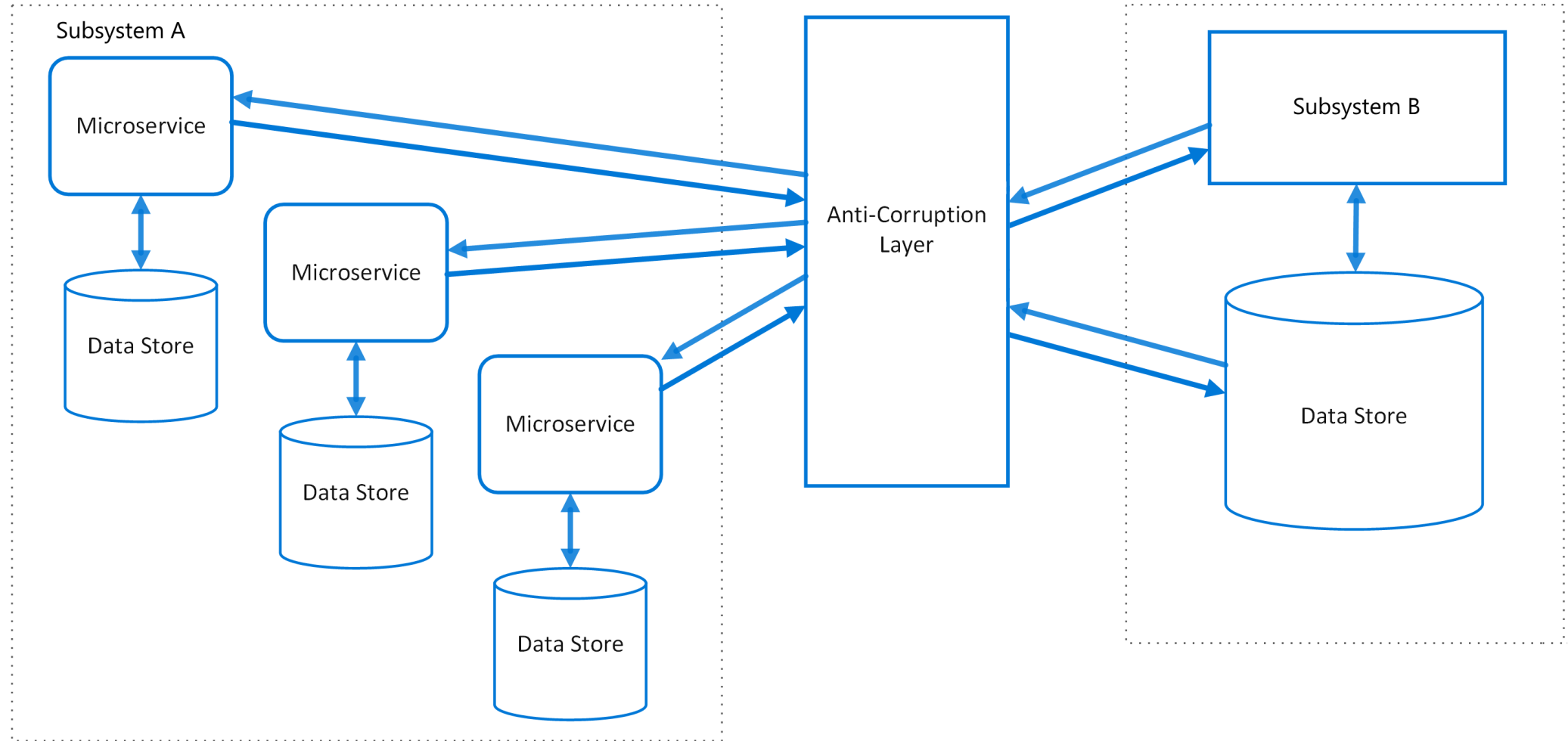
Claim Check

Retry with backoff

Saga orchestration

Strangler fig

Transactional outbox

Choreography

Cloud Design pattern: Anti-corruption Layer pattern

Cloud Design pattern: Claim-Check pattern
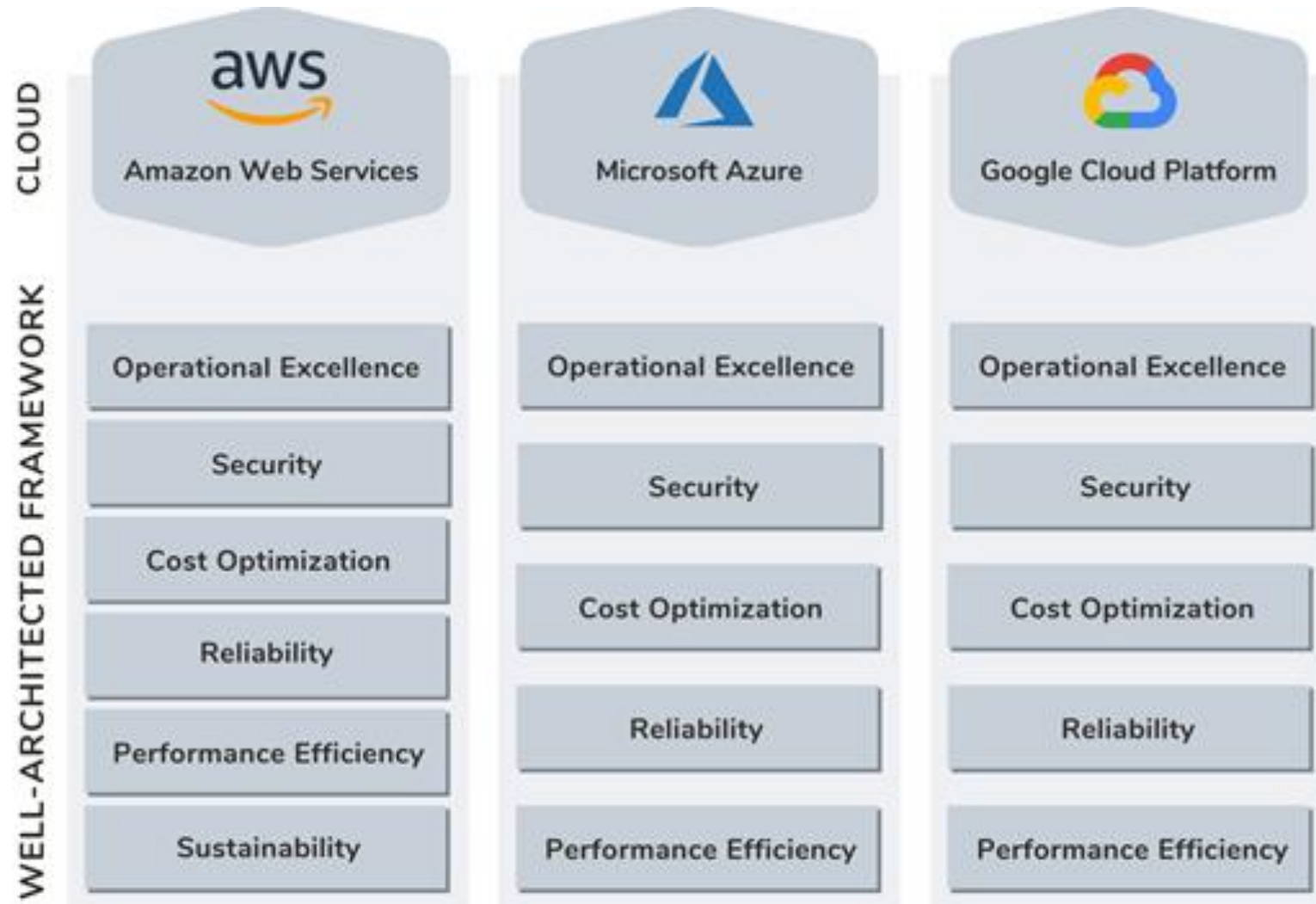
Message with Claim Check

Message with Data

1 → Sending Application

3 →

🔑 ✉️

4 → Receiving Application

6 → Message with Data

2

Data Store

5
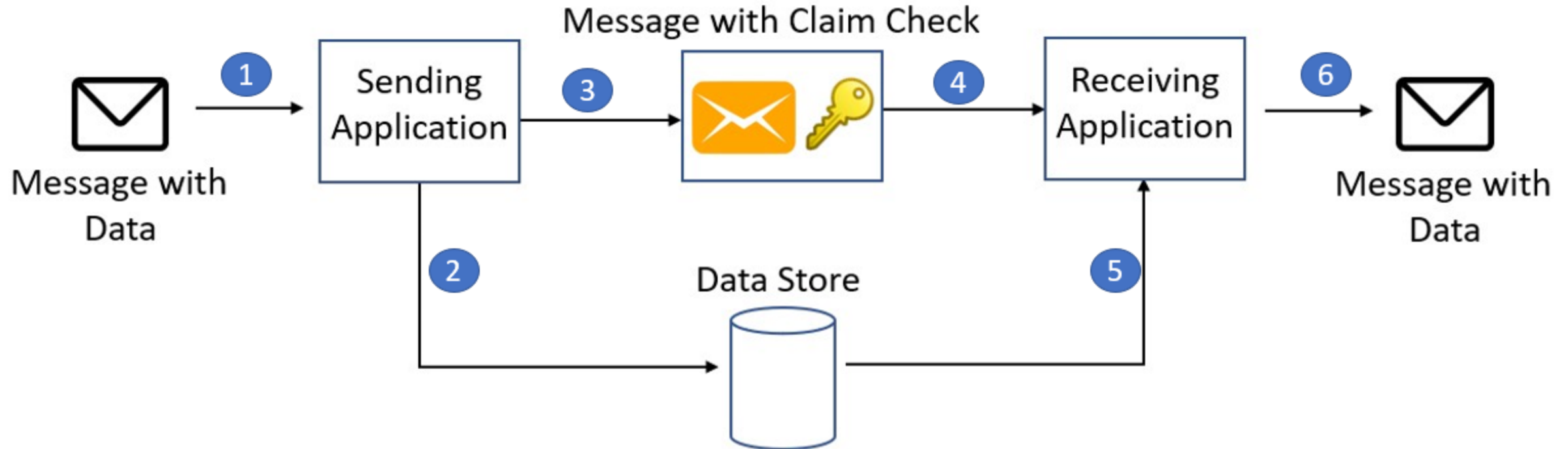
Well-Architected Frameworks for your Cloud

CLOUD

aws Amazon Web Services	Microsoft Azure	Google Cloud Platform

WELL-ARCHITECTED FRAMEWORK

Amazon Web Services	Microsoft Azure	Google Cloud Platform
Operational Excellence	Operational Excellence	Operational Excellence
Security	Security	Security
Cost Optimization	Cost Optimization	Cost Optimization
Reliability	Reliability	Reliability
Performance Efficiency	Performance Efficiency	Performance Efficiency
Sustainability		

References: Cloud architecture design patterns

- [Architecture Center – Design Guides (Google)](#)

- [Prescriptive Guidance - Cloud design patterns, architectures, and implementations (AWS)](#)

- [Data management patterns (Azure)](#)

- [Design and implementation patterns (Azure)](#)

- [Messaging patterns (Azure)](#)

https://theCloudMarathoner.com

References: Cloud Architect Learning resources

- [Microsoft Learn modules](#)
- [Cloud Marathoner – Study Guide](#)
- [Thomas Maurer – Study Guide](#)
- [Official practice tests](#)
- [John Savill's Study Cram](#)
- [Labs and exercises](#)
- [Azure Architect center](#)
- [Microsoft Exam emulator](#)
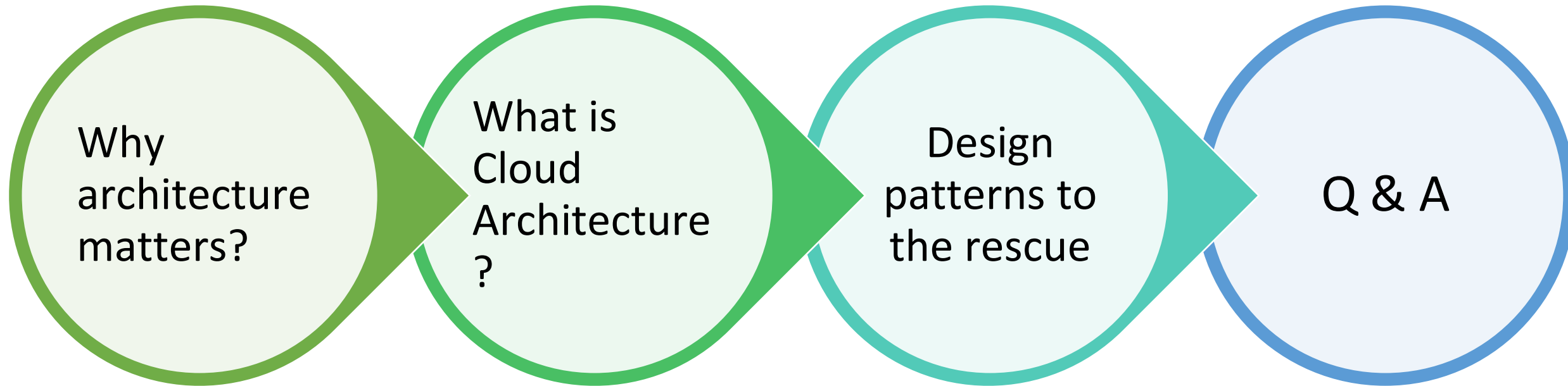- [Free Practice Assessment](#)

Azure Solutions Architect Expert (AZ-305) Cert Prep:
Design Infrastructure Solutions🎥

3h 10m

What we covered

Why architecture matters?

What is Cloud Architecture ?

Design patterns to the rescue

Q & A

What is next?

#CloudMarathoner 's Study Guide

Microsoft Lean AZ-305 modules

AWESOME Azure Architect - GitHub

LinkedIn AZ-305 Cert Prep:
Design Infrastructure Solutions

Thank you !

AZURE
BACK TO
SCHOOL

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https://azurebacktoschool.github.io/

https://theCloudMarathoner.com