AWS Migration Strategy

Defining Migration To AWS

- Migration to AWS environment is a combination of strategy, best practices, processes and AWS migration services
- Moving resources from an organization's On-Premises (Source Environment) to AWS environment (Target Environment) usually involves migration of the below type of resources to AWS
  - Server
  - Application
  - Database
  - Data
- A Well-defined strategy and Well-Architected framework is necessary to carry out a successful Migration.

Business Cases for Migrating to AWS

- Migrating On-Premise resources to Cloud provides lots of benefits as given below.
  - **Trade capital expense for variable expense**
  - **Benefit from massive economies of scale**
  - **Stop guessing about capacity**
  - **Increase speed and agility**
  - **Stop spending money to maintain data centers**
  - **Go global in minutes**

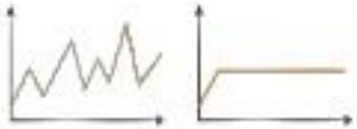
AWS Advantage – Continuous Cost Reduction

Cost Savings and Flexibility

Replace up-front capital expense with low variable cost

Economies of scale allow AWS to continually lower costs

Continual Price Reductions



Pricing model choice to support variable & stable workloads

Save more money as you grow bigger

Tiered Pricing

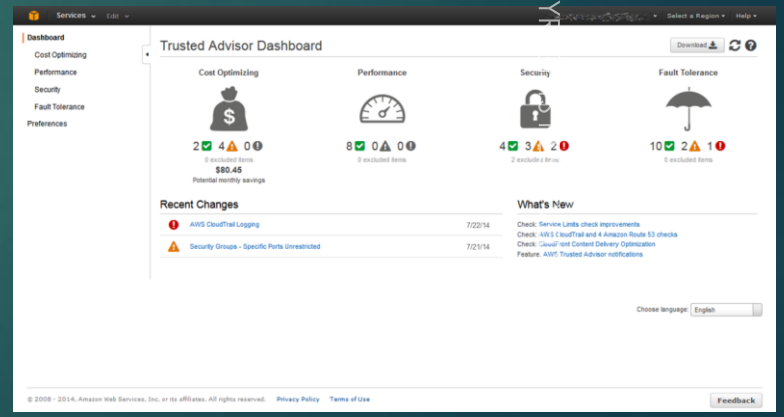
Volume Discounts

Custom Pricing

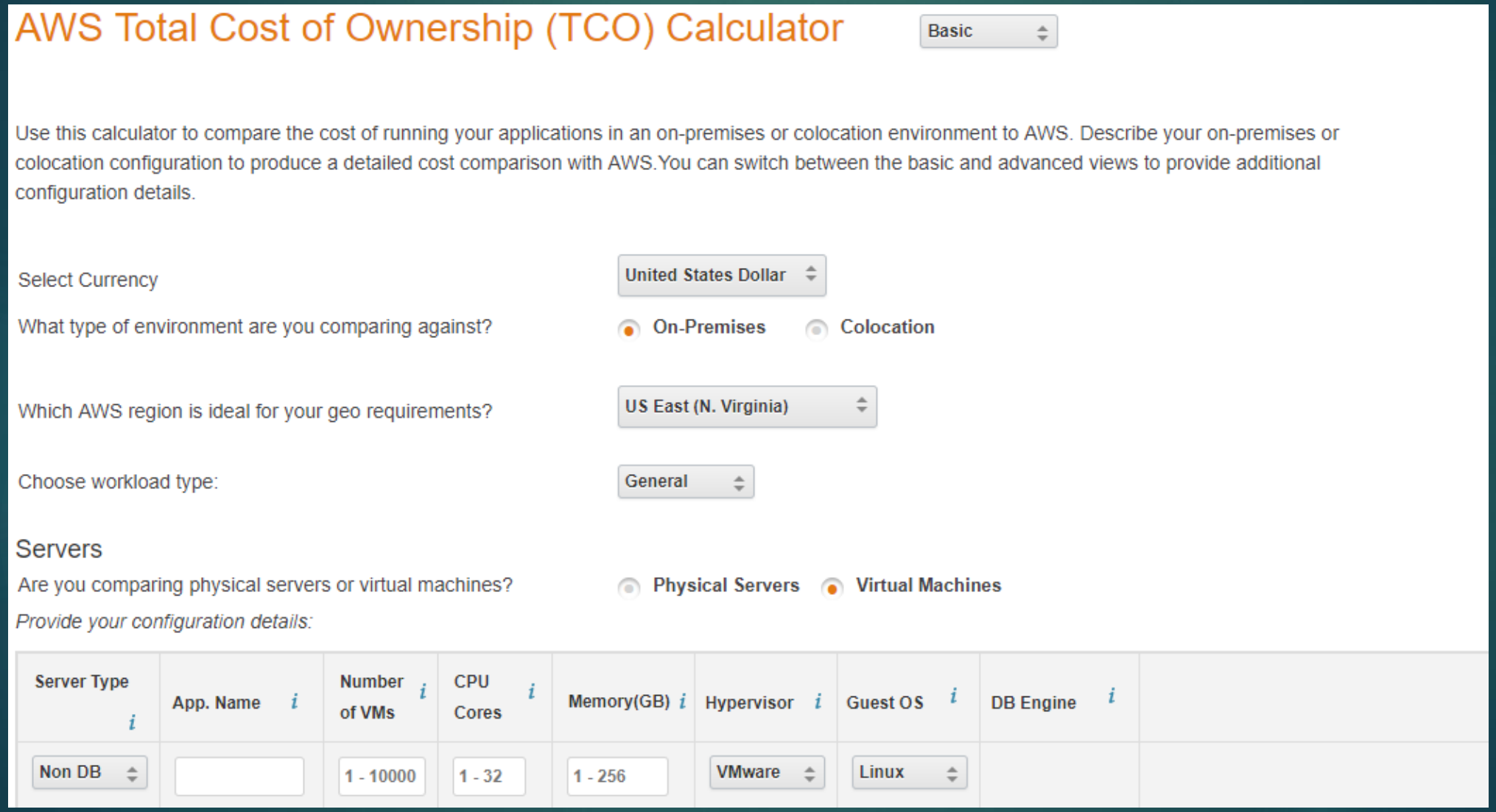
AWS Economics Center

The AWS Economics Center provides access to tools , information and resources to compare the costs of AWS Services which could be used by business leaders and Architects quantify The economic benefits of Cloud Computing

- AWS TCO Calculator
- AWS Simple Calculator
- AWS Cost Explorer
- AWS Trusted Advisor



AWS Total Cost Of Ownership(TCO) Calculator



AWS Total Cost of Ownership (TCO) Calculator

Basic

Use this calculator to compare the cost of running your applications in an on-premises or colocation environment to AWS. Describe your on-premises or colocation configuration to produce a detailed cost comparison with AWS.You can switch between the basic and advanced views to provide additional configuration details.

Select Currency: United States Dollar

What type of environment are you comparing against? On-Premises Colocation

Which AWS region is ideal for your geo requirements? US East (N. Virginia)

Choose workload type: General

Servers

Are you comparing physical servers or virtual machines? Physical Servers Virtual Machines

Provide your configuration details:

Server Type	App. Name	Number of VMs	CPU Cores	Memory(GB)	Hypervisor	Guest OS	DB Engine
Non DB		1 - 10000	1 - 32	1 - 256	VMware	Linux	

AWS TCO Reports

AWS Total Cost of Ownership (TCO) Calculator

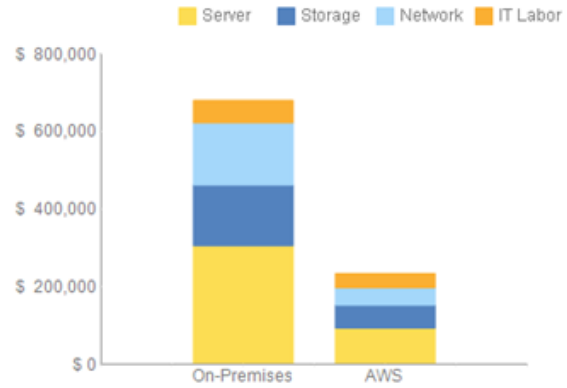
« Change Input

On-Premises vs. AWS Summary

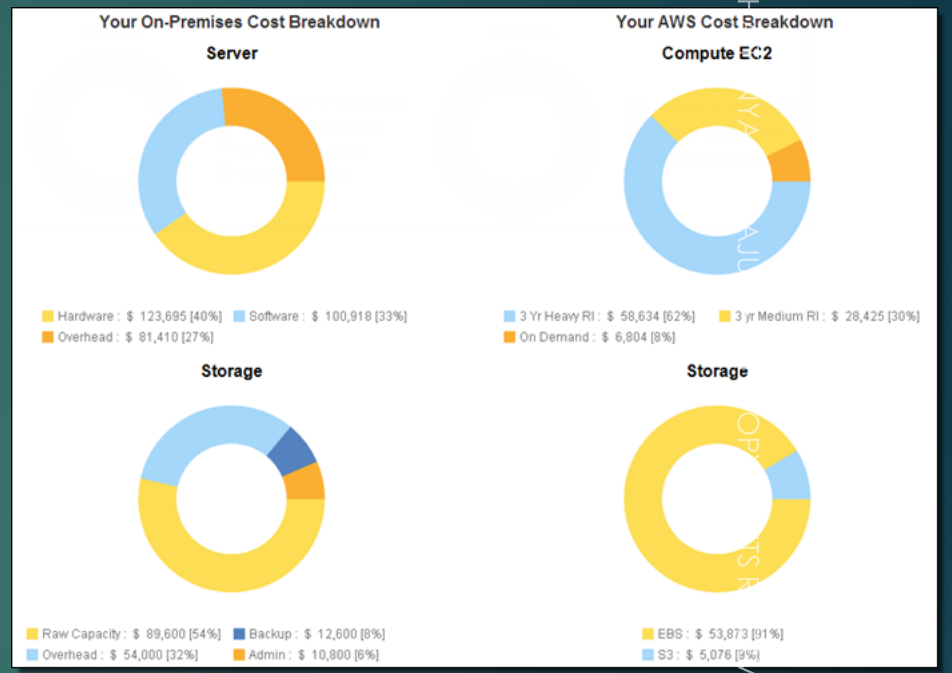
You could save **66%** a year by moving your infrastructure to AWS.

Your three year total savings would be **$ 446,263**.

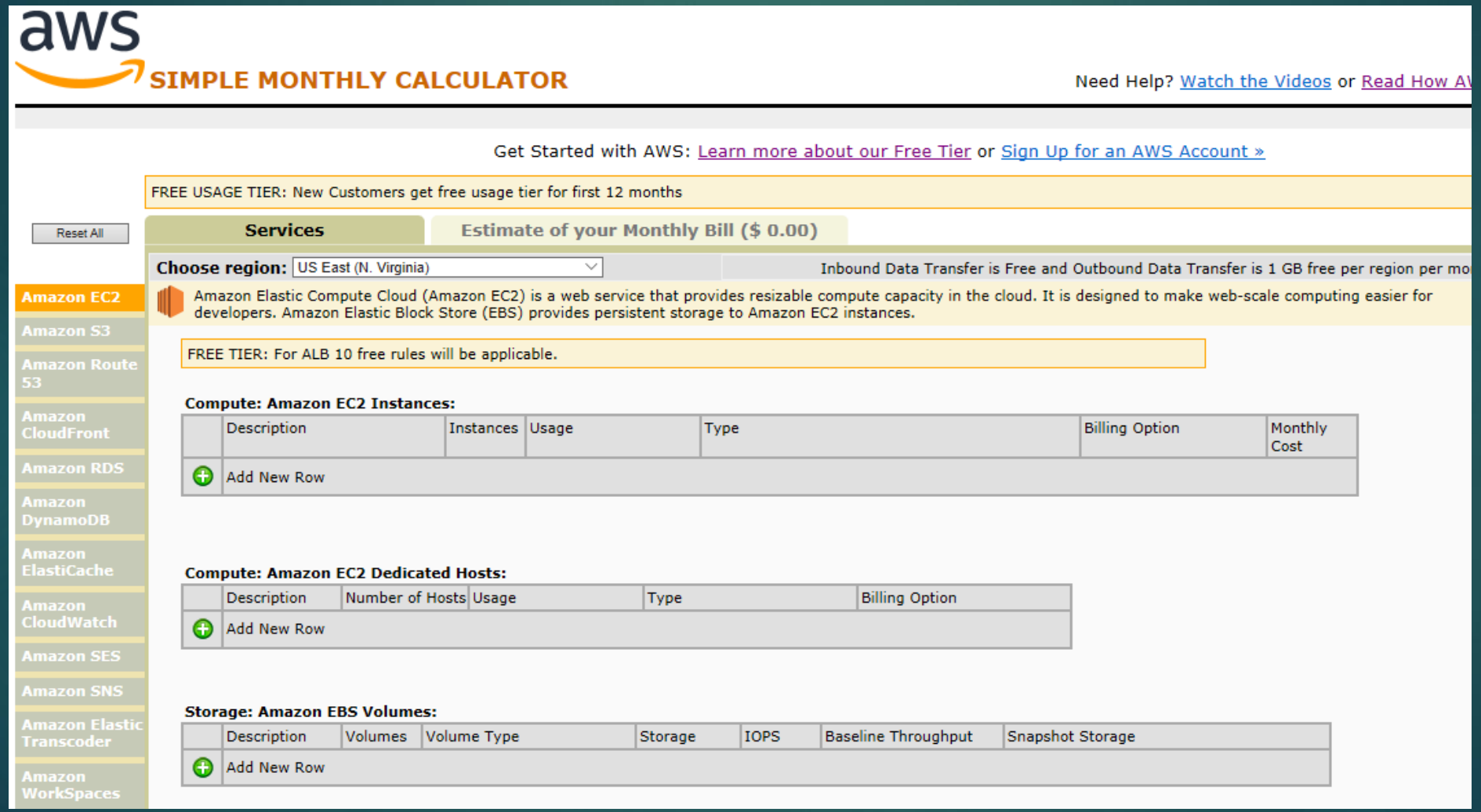
3 Years Cost Breakdown



3 Yr. Total Cost of Ownership		
	On-Premises	**AWS**
Server	$ 306,023	$ 93,863
Storage	$ 156,200	$ 58,949
Network	$ 160,480	$ 45,228
IT-Labor	$ 57,600	$ 36,000
Total	**$ 680,303**	**$ 234,039**

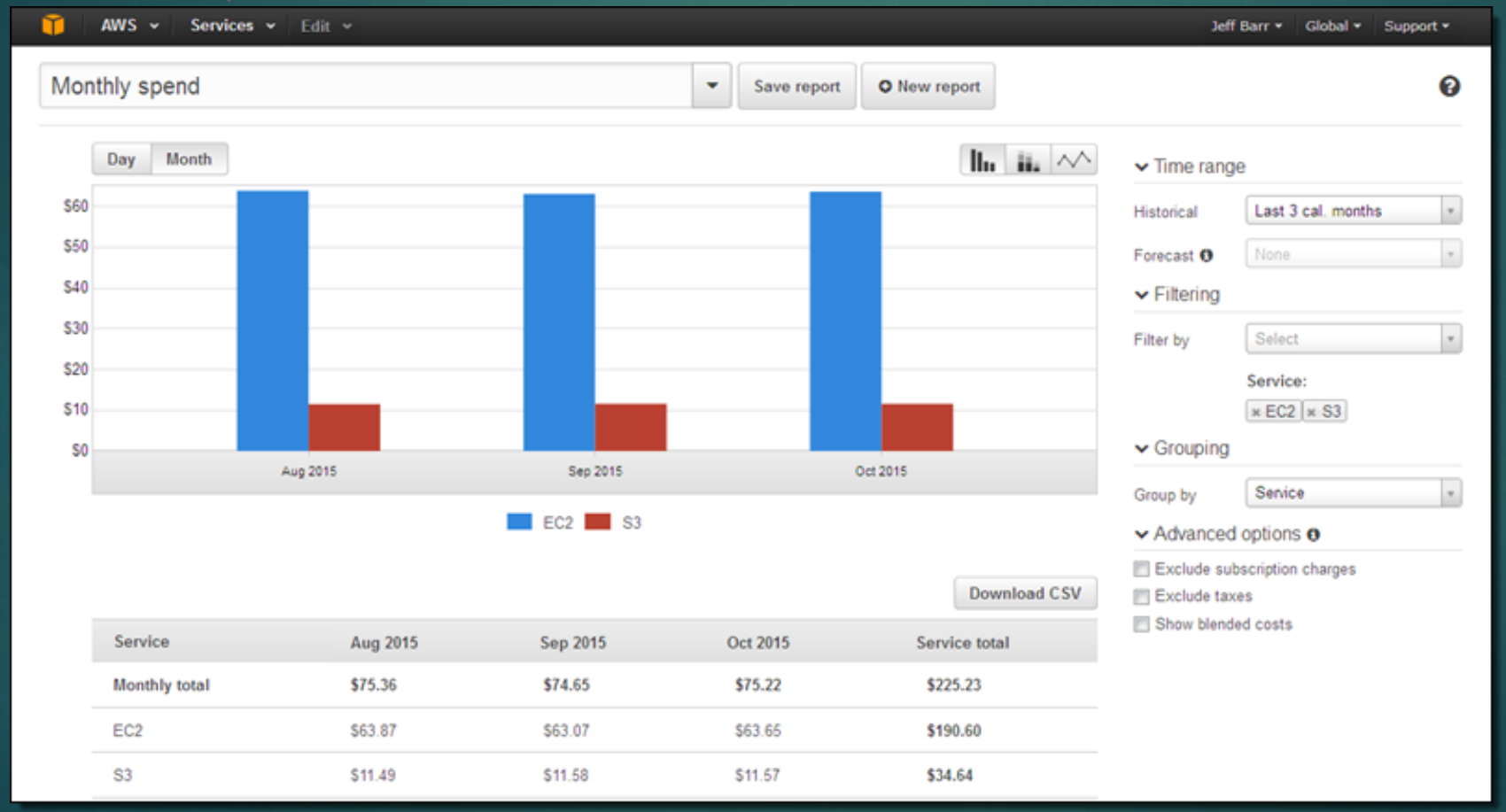


AWS Simple Monthly Calculator



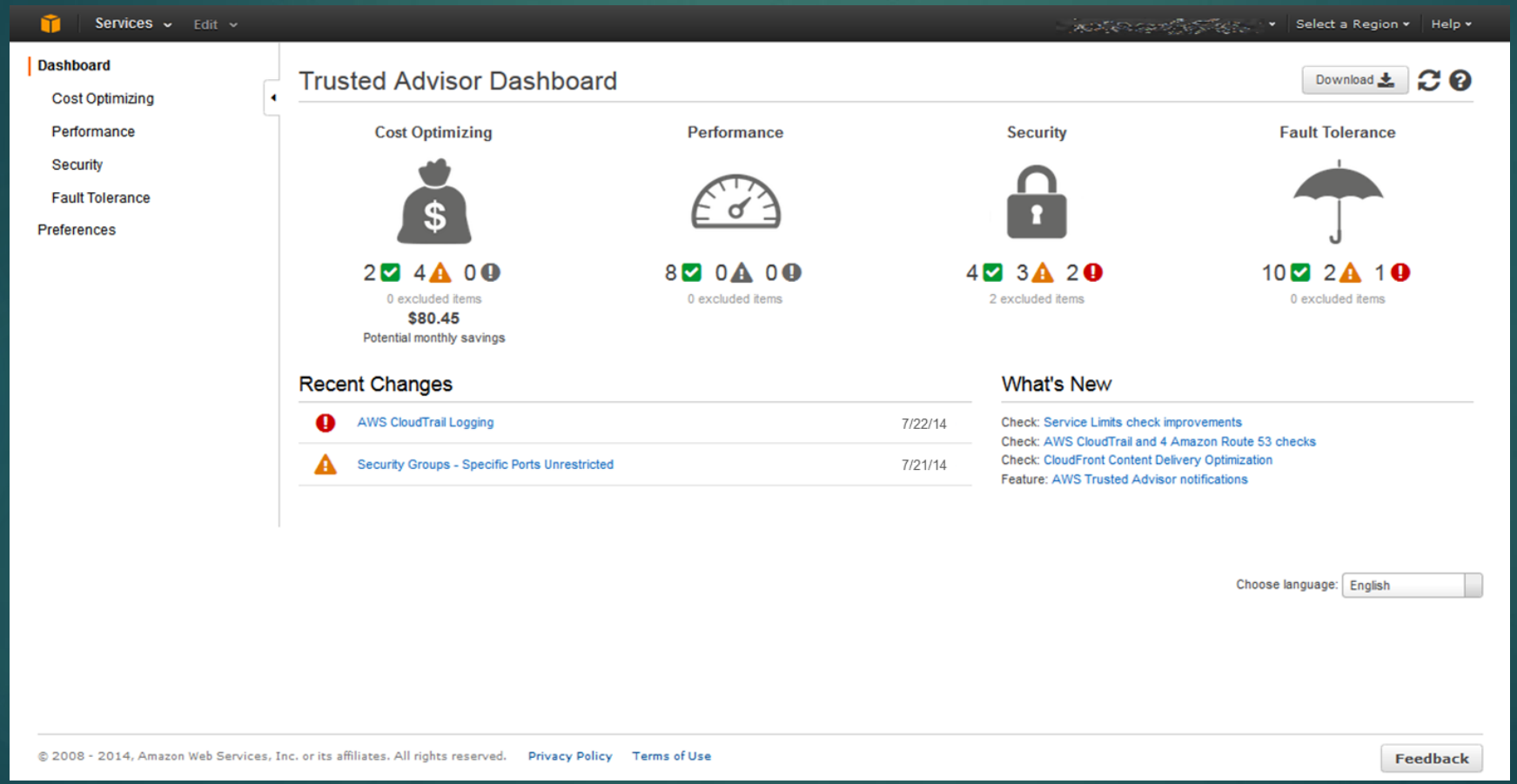
AWS Cost Explorer

AWS Cost Explorer allows you to explore and forecast your AWS costs. You can use Cost Explorer's built-in filtering and grouping facilities to analyze your expenditures by Account, Service, Tag, Availability Zone, Purchase Option, and API Operation.



AWS Trusted Advisor

AWS Trusted Advisor inspects your AWS environment and makes recommendations for saving money, improving system performance and reliability, or closing security gaps.



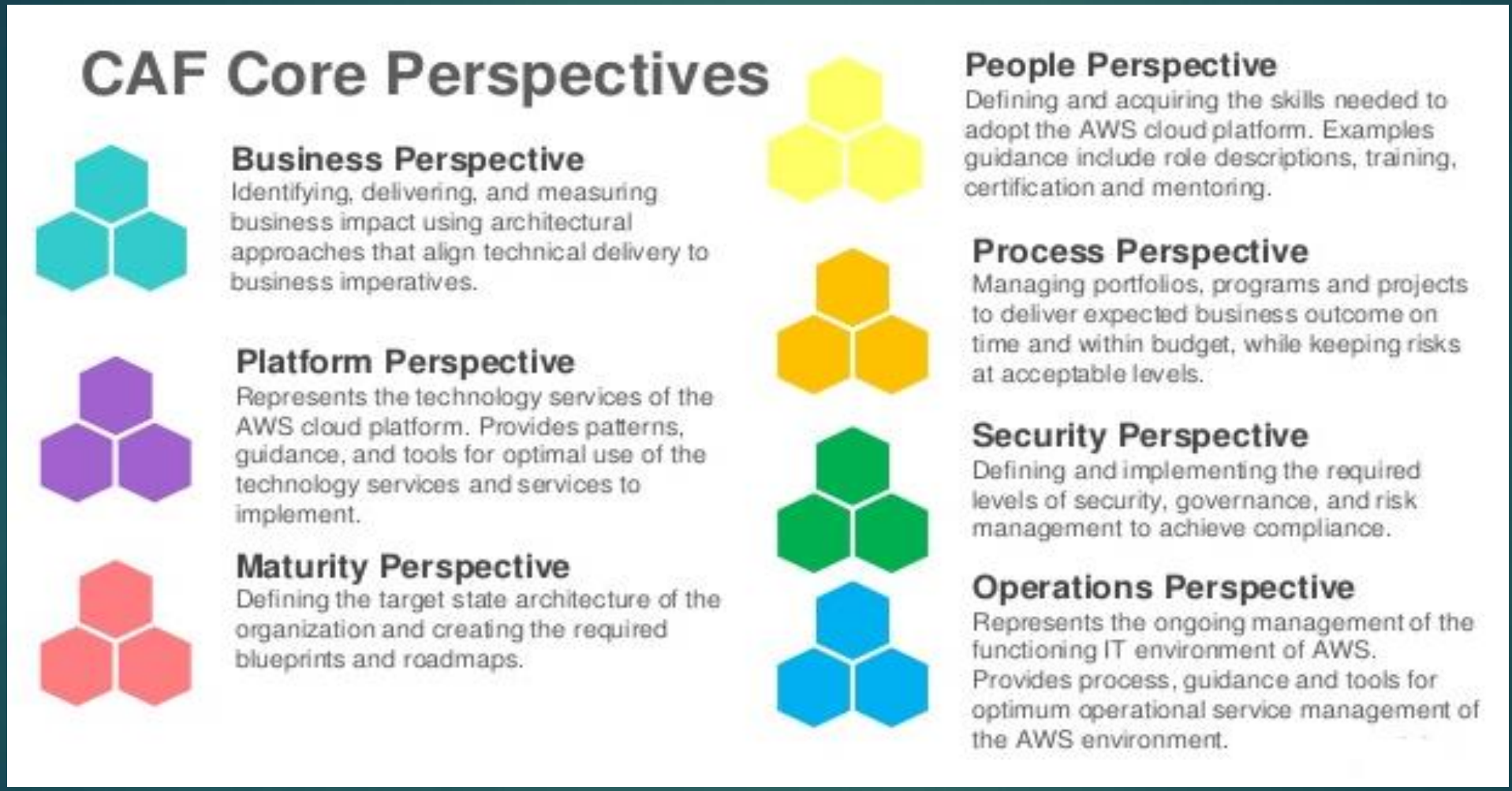
AWS CAF and CLOUD ADOPTION PROCESS

What is Cloud Adoption Framework (CAF)

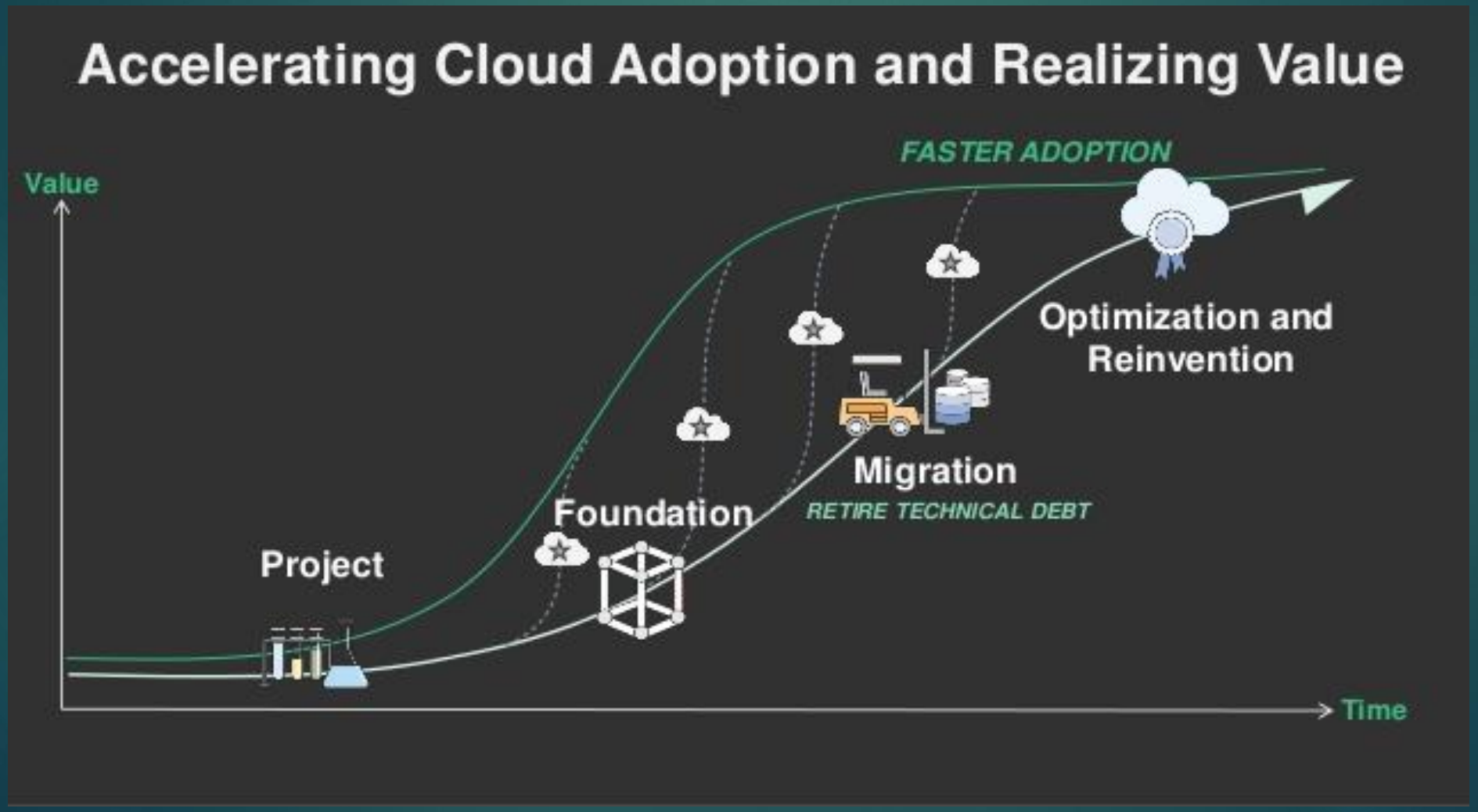
- Helps Organizations understand how cloud adoption transforms the way they work and it provides structure to identify and address gaps in skills and processes .

Ref : https://aws.amazon.com/whitepapers/#framework-and-methodologies

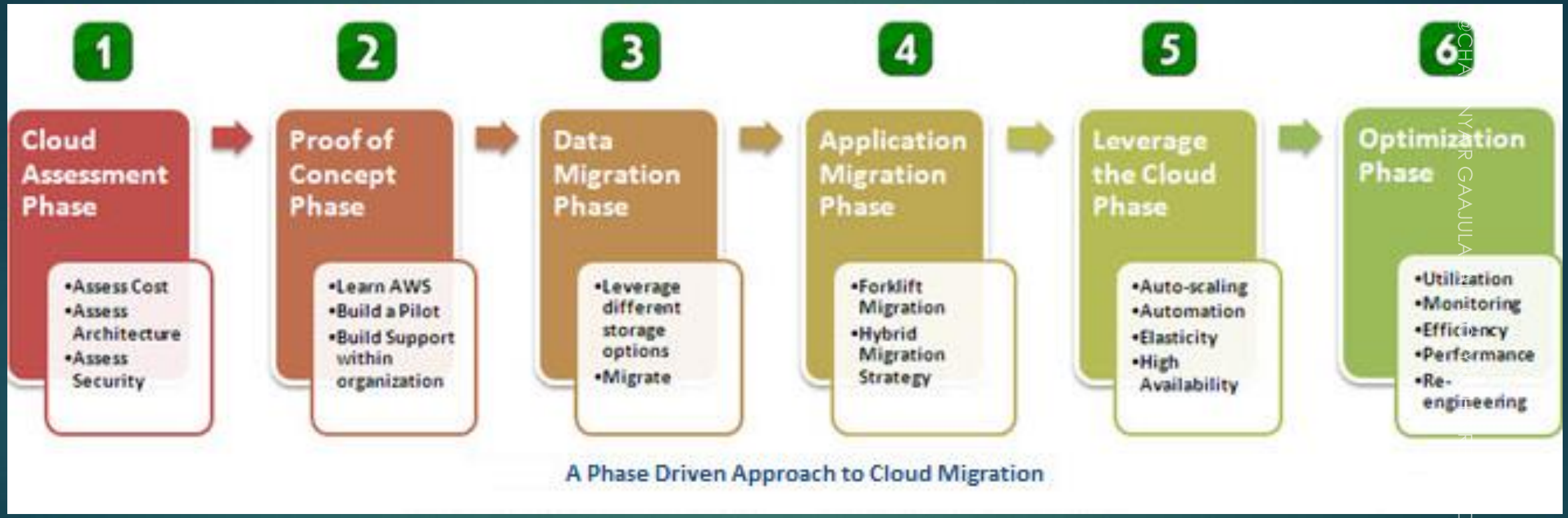
CAF Core Perspectives



AWS Cloud Adoption Journey (4 Phases)



AWS Cloud Adoption Process



A Phase Driven Approach to Cloud Migration

6 Strategies

The 6R's in Cloud Migrations

- Customers will keep host / application in their source environment
- Minimal analysis/validation of scope and application affinity
- Dependency on integrating service management

Retain

- Up-Version of the OS and/or Database onto the target cloud
- Some level of application changes
- Application reinstallation on the target
- Database to AWS RDS

Replatform

- Application and host decommission on source
- No migration to target
- Application owner approvals needed

Retire

- OS and/or Database porting
- Middleware and application change to cloud service offering
- Data conversion; Database transition to MySQL, Aurora, etc.

Refactor

- Like for Like application migration to target cloud
- Minimal effort to make the application work on the target cloud infrastructure (Minimal application layout change)
- Storage migration will be needed (without conversion)

Rehost

- Use SaaS-based offerings, application architecture changes may require Porting
- Middleware, data modernisation; application consolidation / stacking

Repurchase

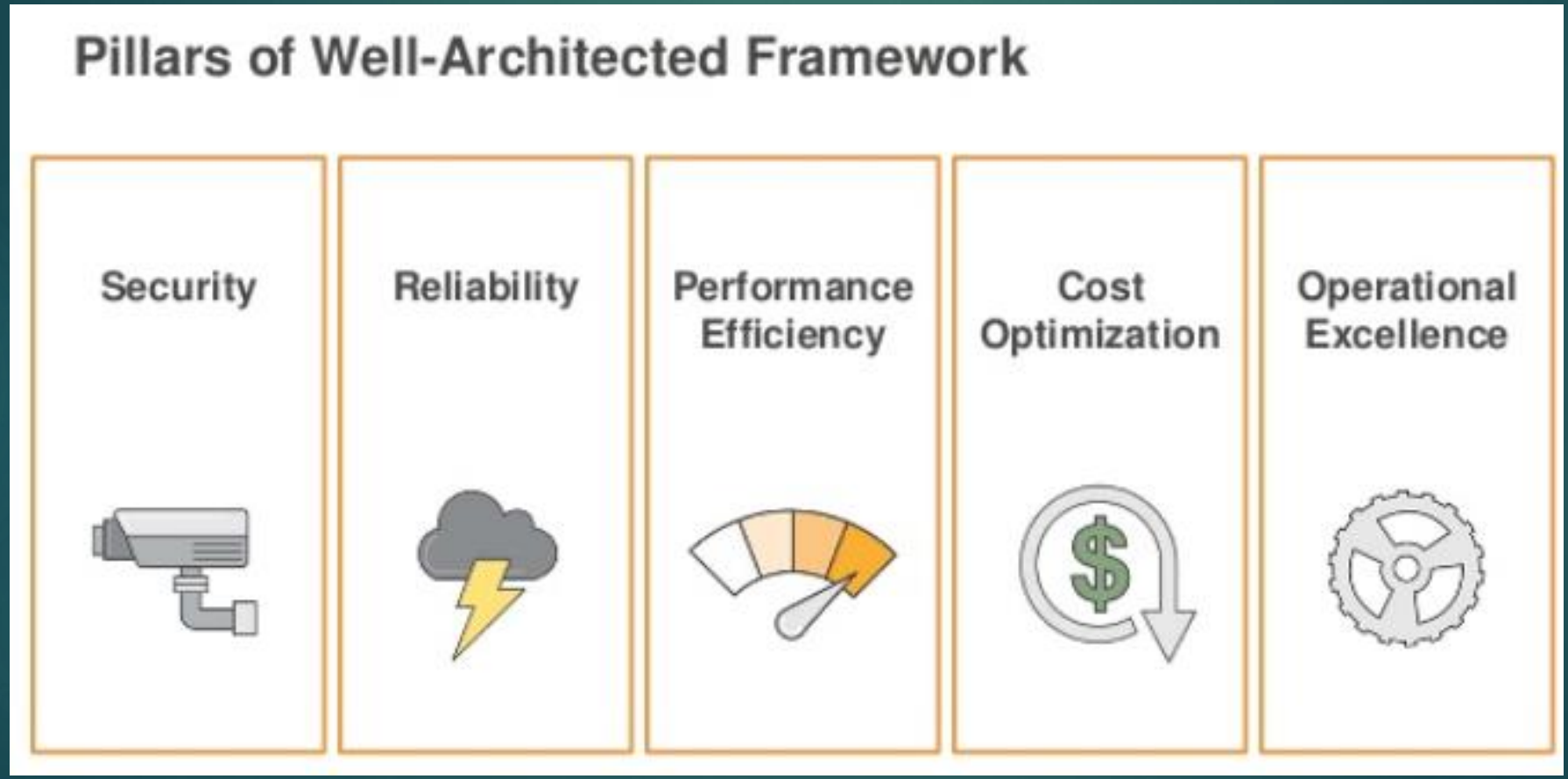
AWS Well-Architected Framework

AWS Well-Architected Framework

- AWS Well-Architected framework helps cloud architects to build the most secure , high-performing, resilient, and efficient infrastructure possible for their applications
- Framework helps Customers and partners a consistent approach to evaluate architectures.
- Provides guidance to customer to help implement designs which allows scalability.
- Well-Architected Framework provides the below benefits
  - Build and deploy faster
  - Lower / Mitigate Risks
  - Make Informed Decisions
  - Learn AWS Best Practices

You can access AWS Well Architecture framework via this link https://aws.amazon.com/whitepapers/#framework-and-methodologies

5 Pillars of Well-Architected Framework



5 Pillars of Well-Architected Framework

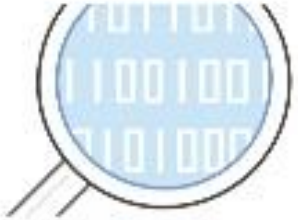
Pillar Name	Description
Security	The ability to protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies.
Reliability	The ability of a system to recover from infrastructure or service failures, dynamically acquire computing resources to meet demand, and mitigate disruptions such as misconfigurations or transient network issues.
Performance Efficiency	The ability to use computing resources efficiently to meet system requirements, and to maintain that efficiency as demand changes and technologies evolve.
Cost Optimization	The ability to avoid or eliminate unneeded cost or suboptimal resources.
Operational Excellence	The ability to run and monitor systems to deliver business value and to continually improve supporting processes and procedures.

Principles of Security Pillar

Security pillar

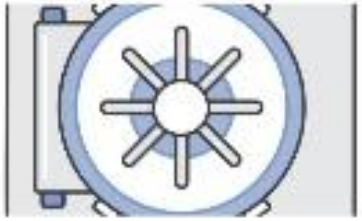
Protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies

Security at all layers



Enable traceability

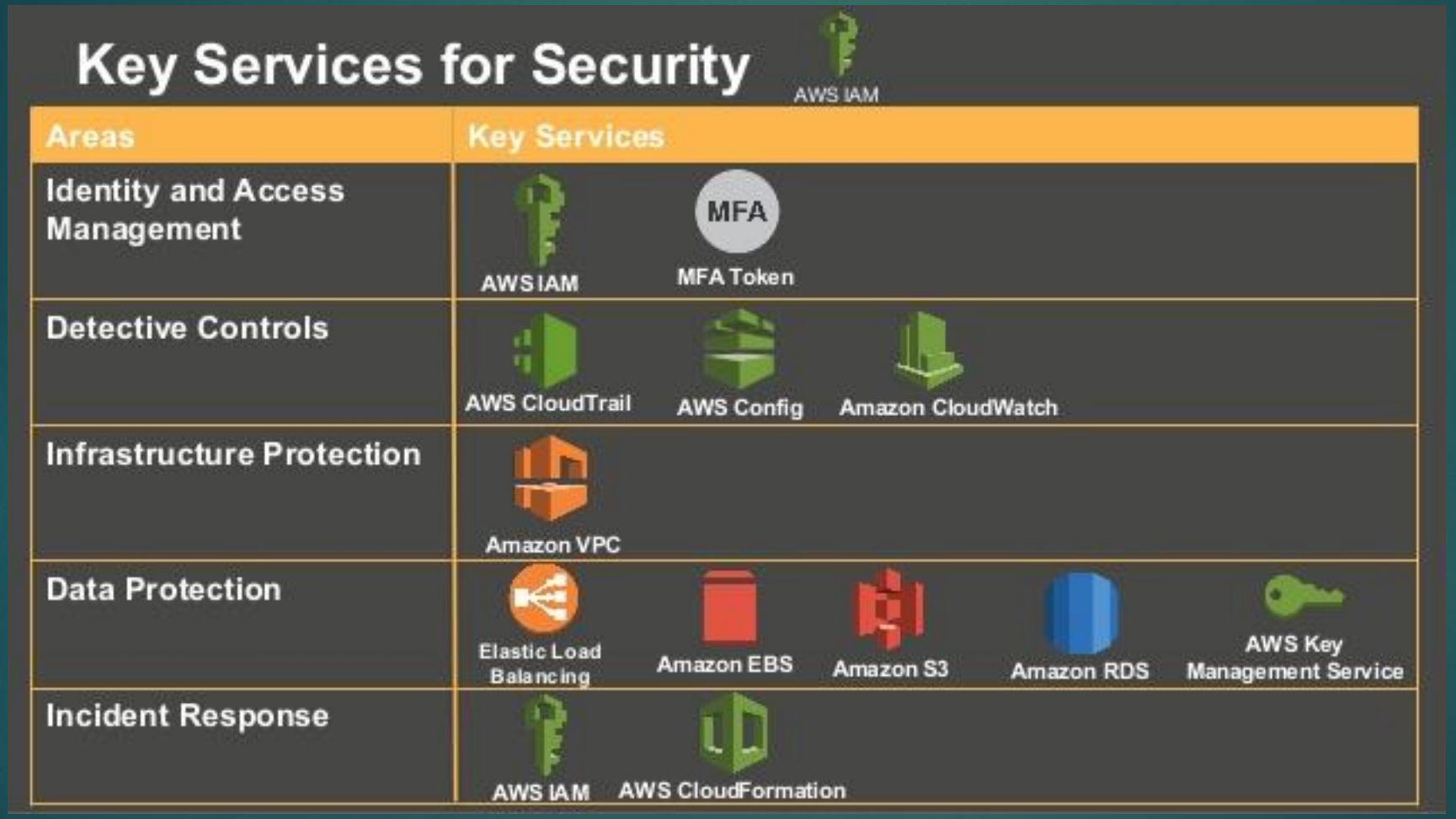
Implement a principle of least privilege



Focus on securing system

Automate security best practices

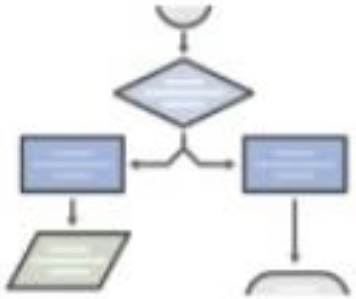
Key Services for Security



Principles of Reliability Pillar

Reliability pillar

Ability of a system to recover from infrastructure or service disruptions, dynamically acquire computing resources to meet demand, and mitigate disruptions such as misconfigurations or transient network issues



Test recovery procedures

Automatically recover from failure

Scale horizontally to increase availability

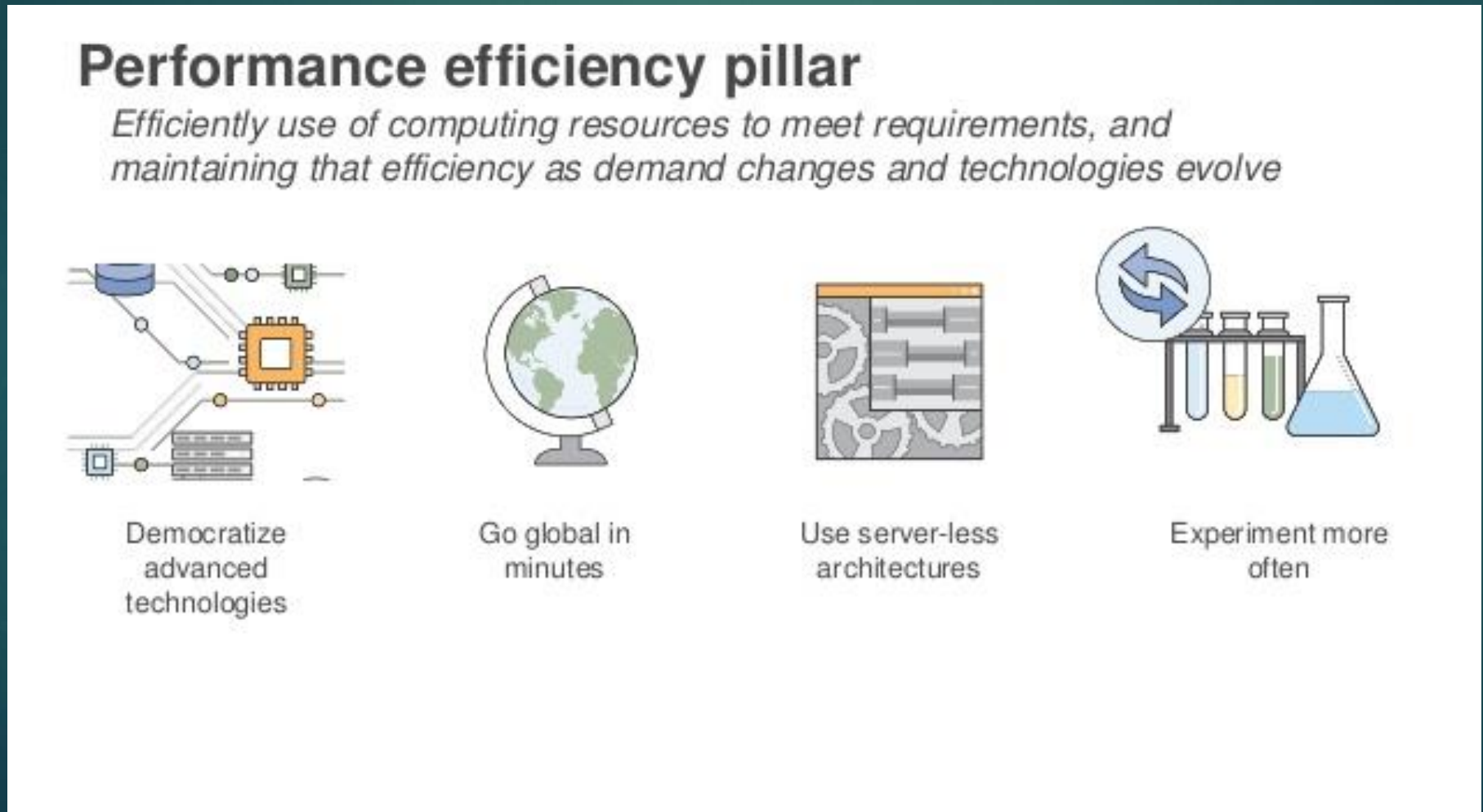
Stop guessing capacity

Key Services for Reliability

Key Services for Reliability

Areas	Key Services
Foundations	AWS IAM, Amazon VPC
Change management	AWS CloudTrail, AWS Config
Failure management	AWS CloudFormation

Principles of Performance Efficiency Pillar



Key Services for Performance Efficiency

Principles of Cost Optimization Pillar

Key Services For Cost Optimization

Key Services for Cost Optimization

Areas	Key Services
Cost-effective resources	Reserved Instances; AWS Trusted Advisor
Matched supply and demand	Auto Scaling
Expenditure awareness	Amazon CloudWatch; Amazon SNS
Optimizing over time	AWS Blog & What's New

Principles of Operational Excellence Pillar

Operational excellence pillar

Operational practices and procedures used to manage production workloads

Perform operations with code

Align operations processes to business objectives

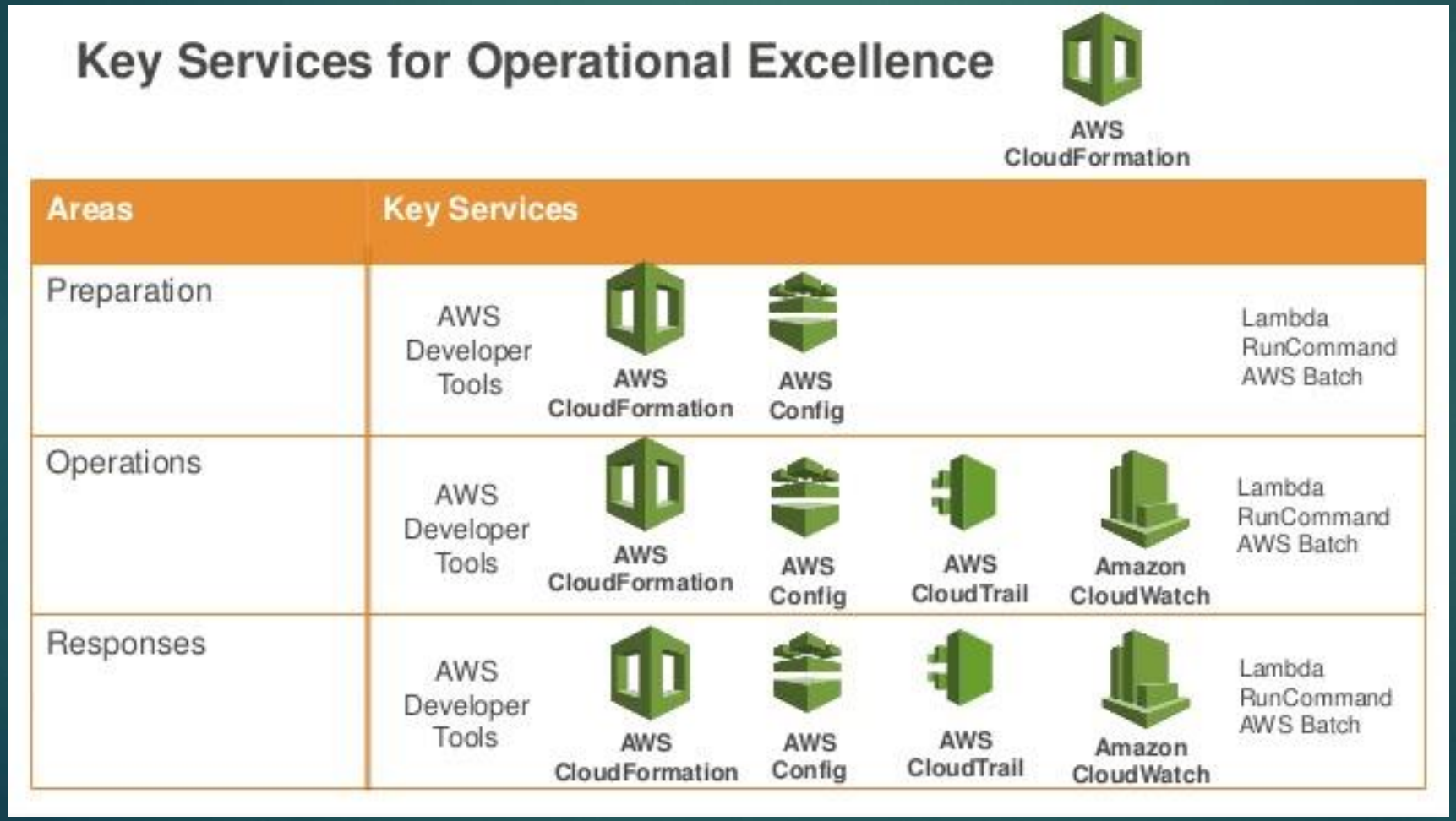
Make regular, small, incremental changes

Test for responses to unexpected events

Learn from operational events and failures

Keep operations procedures current

Key Services for Operational Excellence



AWS Migration Strategy – Summary

- We need to use Migration Strategies for Migrating from On-Premises to AWS
- Understood your journey and Migration Process to AWS Cloud
- Identified 6R Migration Patterns for each application which needs to be migrated
- Various Principles & Key Services of using AWS Well- Architected framework on your AWS target environment