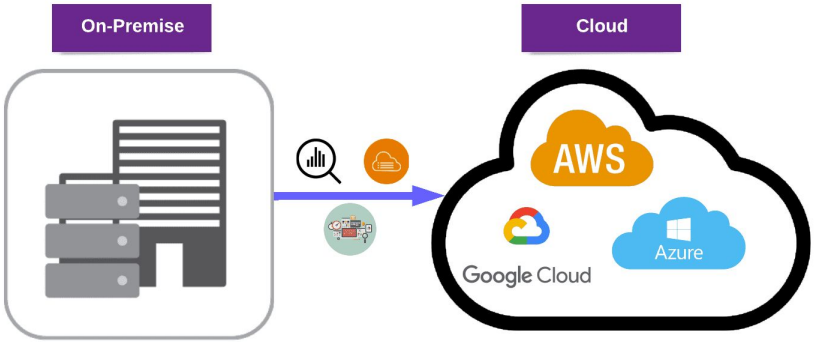
5.Cloud Migration

What is Cloud Migration?

Cloud migration is **the process of moving data, applications, and other digital assets** from an organization's **on-premises infrastructure to cloud** computing environments or **from one cloud environment to another**



What are we Migrating to Cloud?

Example 1: Single Application Migration

A small business moves its on-prem CRM to a cloud SaaS platform (e.g., **Salesforce / Microsoft Dynamics 365**)

Scope:
Application • Data • Integrations • Identity & Access

Benefits:
Lower cost • Faster delivery • Better scalability

What are we Migrating to Cloud?

Example 2: Full Data Center Migration

A large enterprise migrates its entire on-prem data center to **AWS**
(Thousands of servers, petabytes of data)

Scope:
Applications • Databases • Storage • Networking • Security • IAM • Monitoring • Backup & DR

Reality:
Scope will evolve due to unknown dependencies and technical debt

Cloud Migration Principles

- **Business-first, not technology-first**
- **Security by design** (Zero Trust, least privilege, encryption everywhere)
- **Automate everything** (Terraform, CI/CD, policy as code)
- **Incremental migration** – no big-bang
- **Design for resilience and cost optimisation**

Cloud Migration Best Practices

What should we actually do day-to-day to make the migration successful?

- Identify key stakeholders for each activity and plan communications
- Planning for gradual rollout and deployments
- Ensuring that you have a rollback strategy for each step of the migration plan
- Automate manual tasks to save time and costs
- Leverage managed services(e.g:- use RDS)
- Establish accountable leaders & train your teams
- Monitor application performance
- Validate cloud security

Understand Key Business Drivers, Scope, and Timeline of Cloud Migration

- Why you want to migrate?
- What are the key business drivers?
- What is in scope and out of scope?
- What are the compelling events/milestones?

Cloud Migration Phases

1) **Discovery & Assessment** – Understand applications, dependencies, risks, and readiness
2) **Plan** – Define migration strategy, waves, business case, and roadmap
3) **Target Architecture & Landing Zone** – Build the secure cloud foundation
4) **Migration Execution** – Rehost, Replatform, Refactor, Relocate
5) **Optimisation & Modernisation** – Performance, cost, security, and cloud-native evolution
6) **Operate & Govern** – Day-2 operations, FinOps, security, and continuous improvement

Phase 1 – Discovery & Assessment

Application & Infrastructure Discovery

- Application portfolio analysis
- Dependency mapping (apps, databases, integrations)
- Performance baselines
- Compliance & data classification

Outputs:

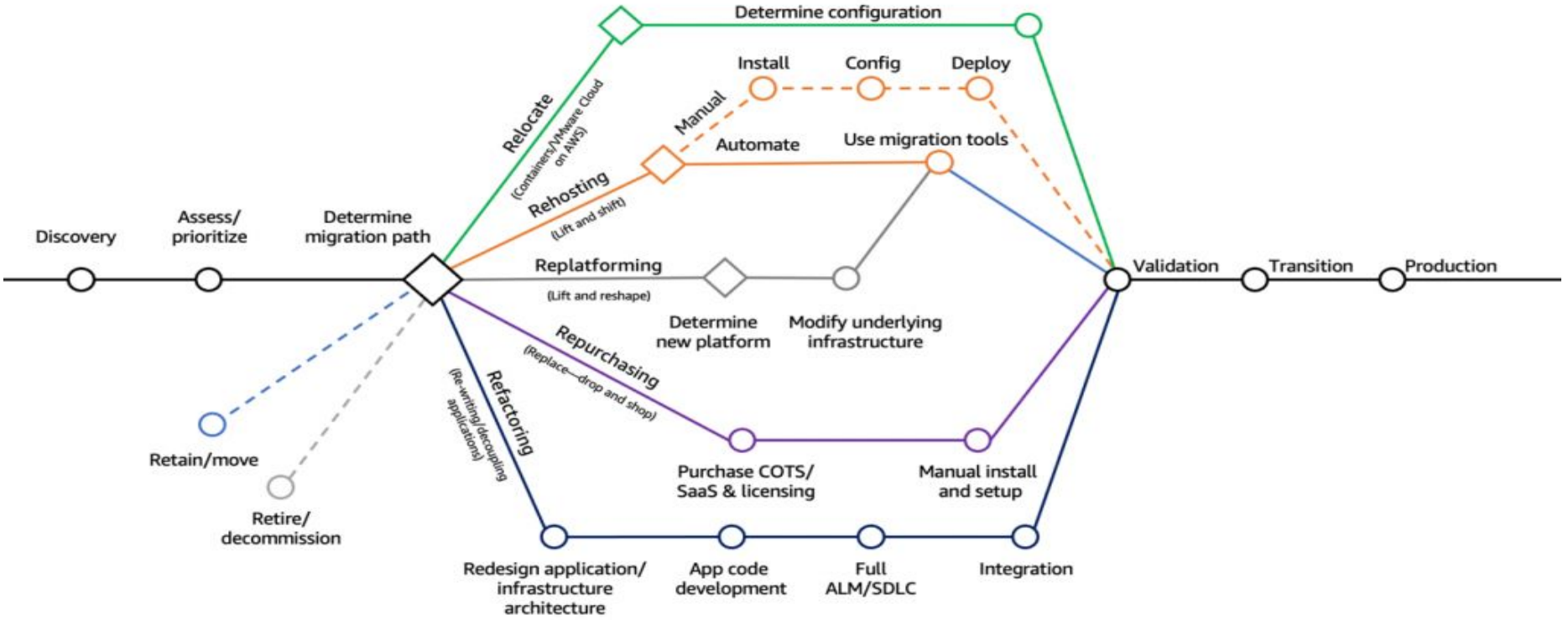
- Application inventory
- Dependency map
- Migration readiness score
- Risk register

Phase 1 – Discovery & Assessment

Migration Categorisation

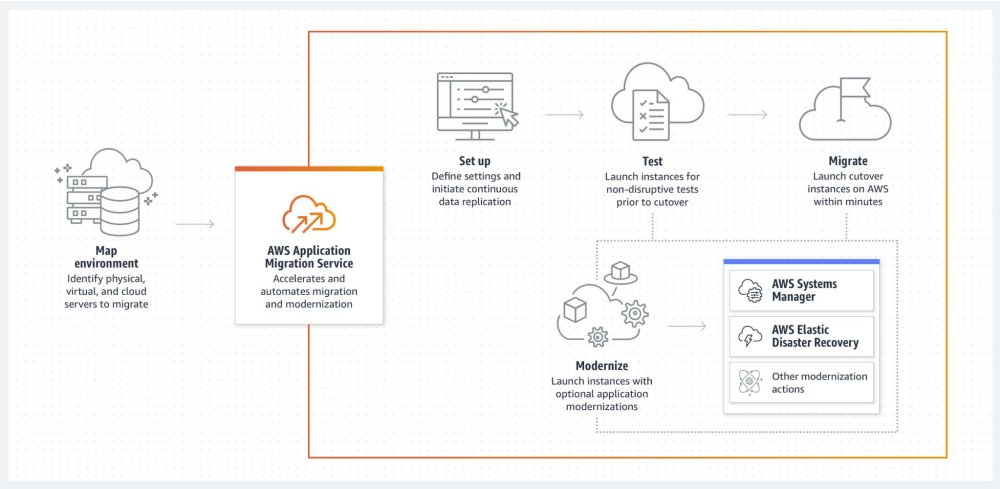
Strategy	When to Use
Rehost (Lift & Shift)	Fast migration, minimal change
Replatform	Minor optimisation
Refactor	Cloud-native transformation
Retire	Decommission
Retain	Keep on-prem
Replace/Repurchase	SaaS/alternative
Relocate	Fast data centre exit with minimal change using managed VMware in the cloud

7R of Migration Strategies



Rehost(Lift and Shift)

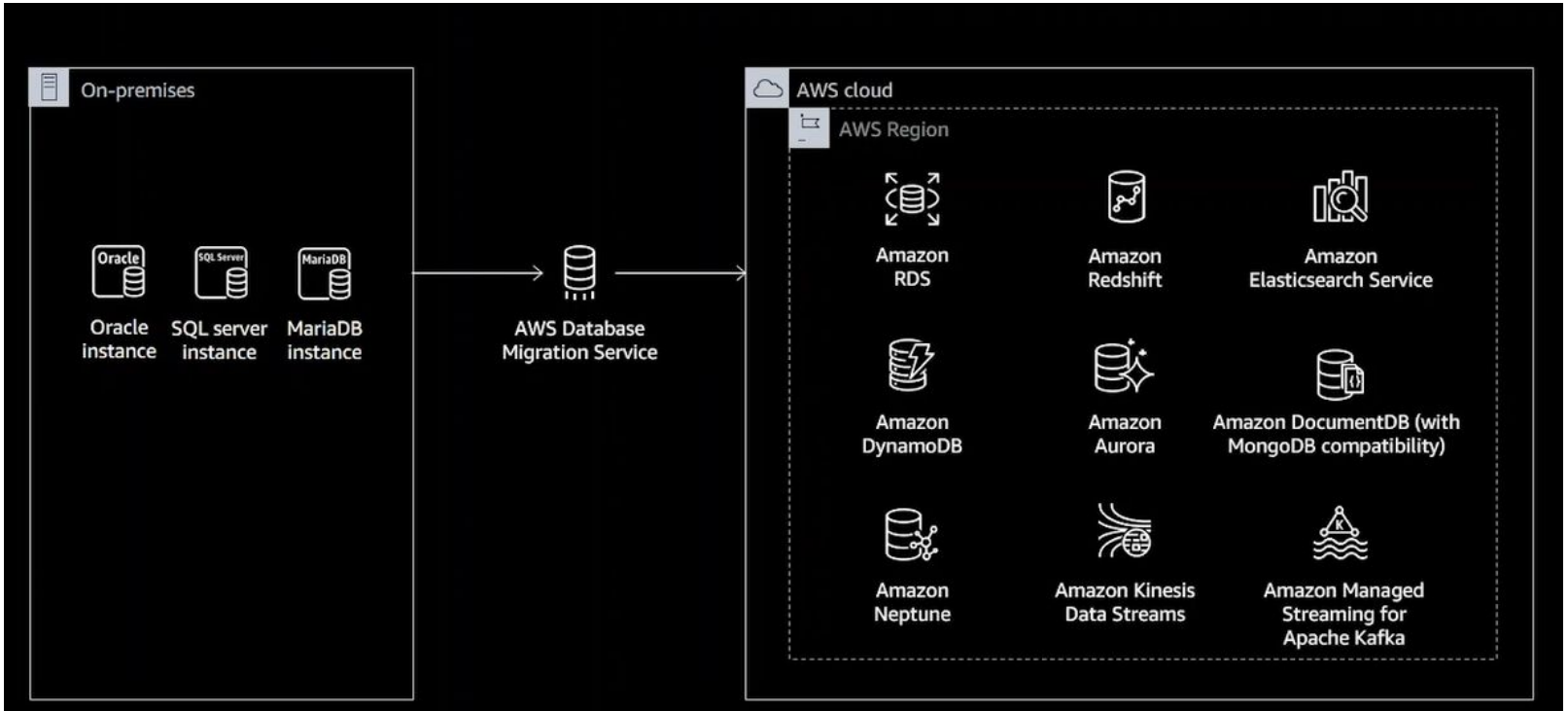
Move applications to the cloud as-is with minimal changes for fast migration and quick wins.



AWS Application Migration Service

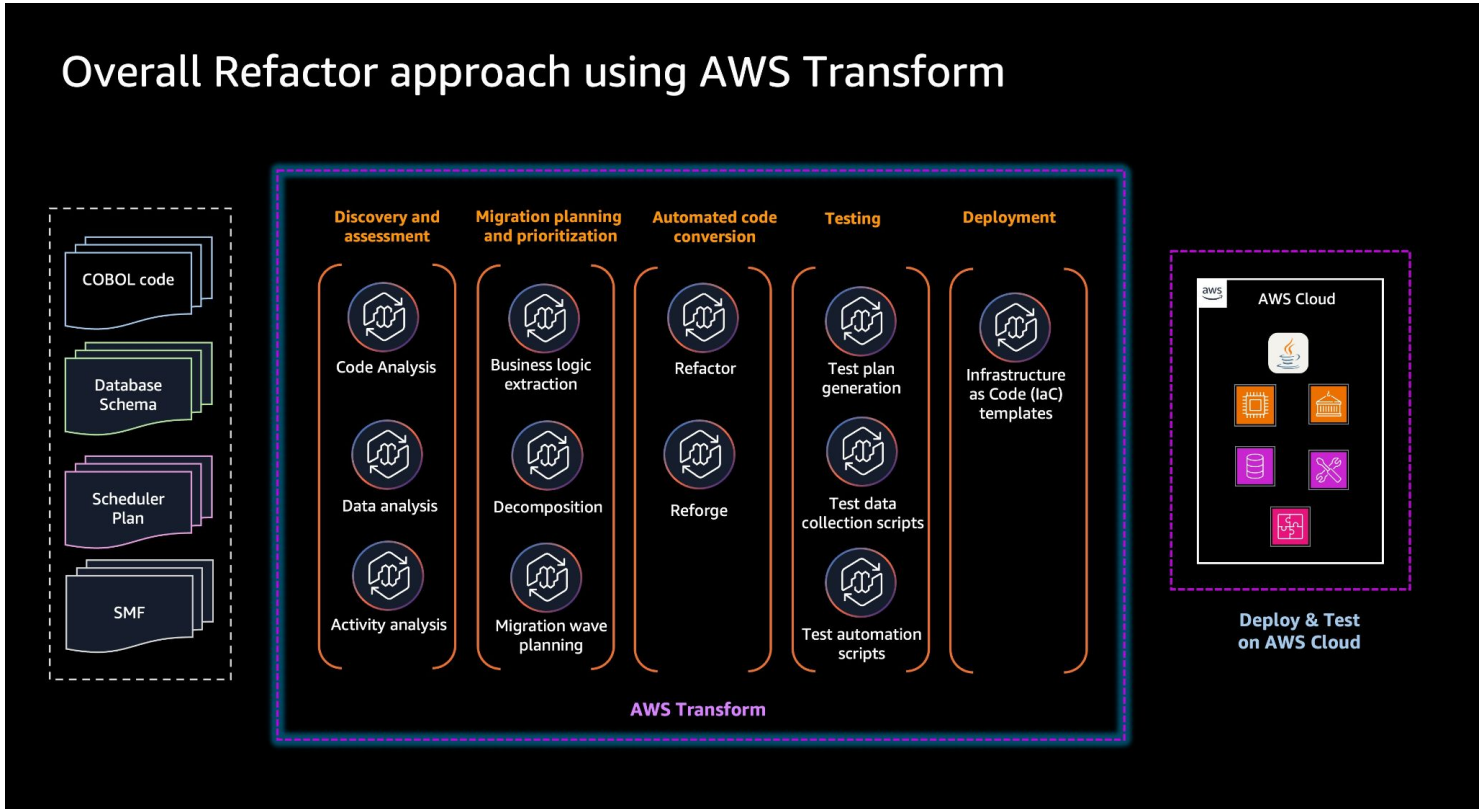
Replatform

Move applications to the cloud with minor optimisations to leverage managed services without changing the core architecture



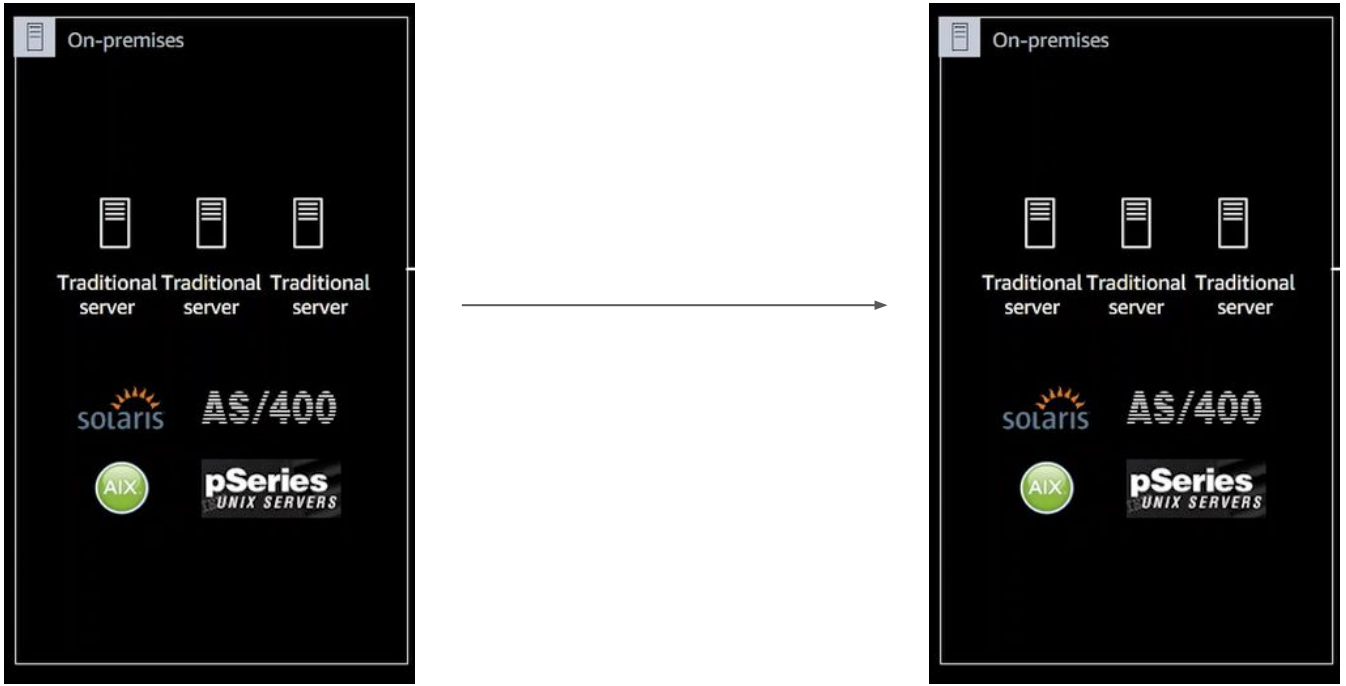
Refactoring

Redesign applications to be cloud-native to maximise scalability, resilience, and long-term innovation



Retain

Usually this means “revisit” or do nothing (for now)



Before Migration

After Migration

Repurchase

”Moving to a different product”

Eg:- Outdated on-premise CRM software → SalesForce Cloud

- Reduce effort/increase speed of migration
- Reduce in-house skills requirements

https://aws.amazon.com/marketplace

Relocate

Move VMware workloads to VMware Cloud on AWS with no application changes using vMotion or HCX for seamless hybrid migration

Retire

This is the migration strategy for the applications that *you want to* ***decommission*** *or* ***archive***.

Retiring the application means that you can shut down the servers within that application stack. The following are common use cases for the retire strategy:

- There is no business value in retaining the application or moving it to cloud.
- You want to eliminate the cost of maintaining and hosting the application.
- There has been no inbound connection to the application for the last 90 days.

Build a Migration Strategy

Migration strategy should define a structured, low-risk approach to move enterprise workloads from on-premises infrastructure to the cloud.

Key goals:

- Reduce infrastructure cost and operational overhead
- Improve security, scalability, and resilience
- Enable faster innovation and DevOps automation
- Minimise business disruption

Phase 2 – Plan

Objective: Turn strategy into an executable plan

Key Activities

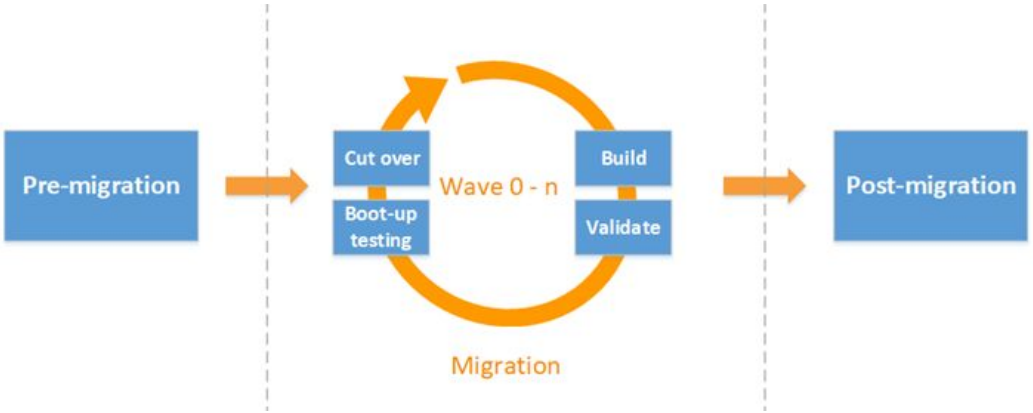
- Wave planning
- Cutover strategy
- Data migration approach
- Testing strategy
- Rollback plans
- Stakeholder communication plan

Outputs

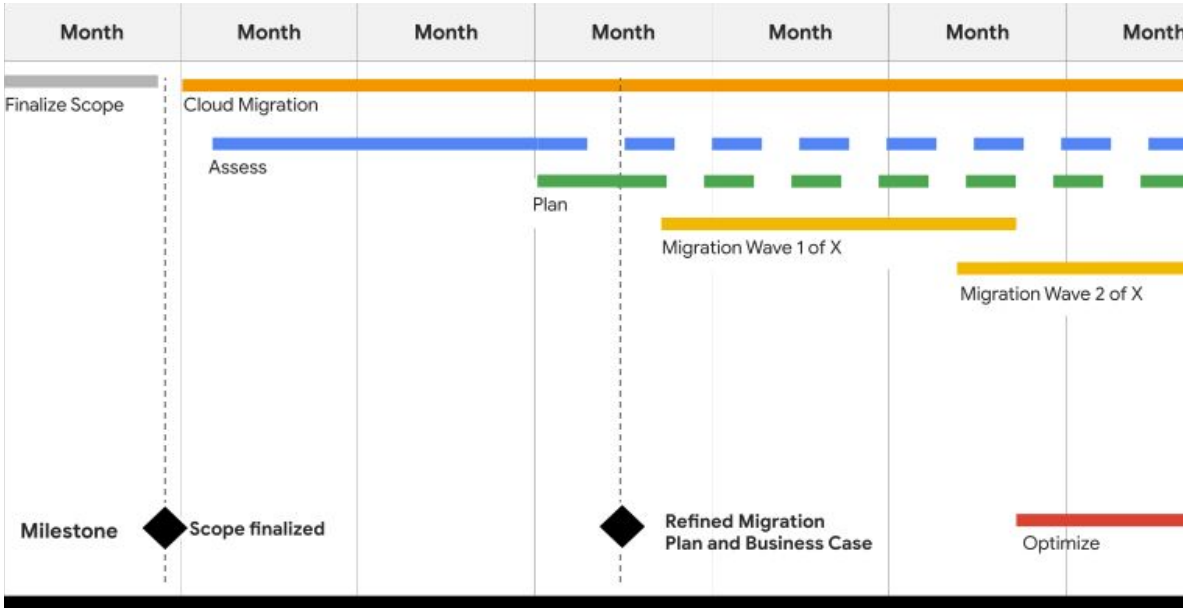
- Migration runbook
- Migration Wave plan
- Cutover & rollback plan
- Communication plan

Migration Waves

- Group applications by business priority, complexity, and risk
- Start with low-risk, high-value workloads for early wins
- Sequence migrations to minimise business disruption
- Align waves with teams, change management, and cutover windows



Create a Migration Plan and Timeline



Phase 3 – Target Architecture & Landing Zone

Objective: Build the secure, compliant cloud foundation before migrating anything

Key Activities

- Cloud account / subscription strategy
- Network hub-and-spoke design
- Identity & access (SSO, IAM, RBAC)
- Security baseline (Zero Trust)
- Logging, monitoring, SIEM
- Backup & DR design
- CI/CD & IaC pipelines

Outputs

- Cloud Landing Zone
- Reference architectures
- Security & governance model
- Operating model

Phase 4 – Migration Execution

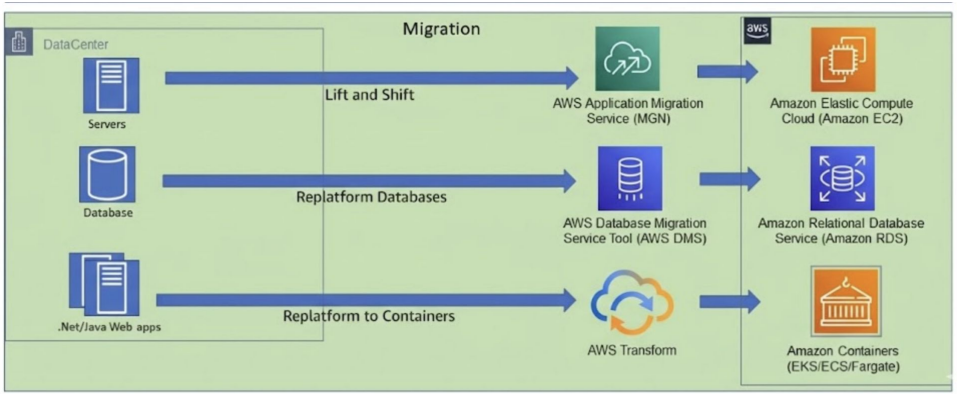
Objective: Move workloads safely

Key Activities

- Migrate data
- Migrate applications
- Integrate security & monitoring
- Validate (functional + performance + security)
- Cutover

Outputs

- Migrated workloads
- Validation reports
- Go-live sign-off



Phase 5 – Optimisation & Modernisation

Objective: Improve cost, performance, and resilience

Key Activities

- Rightsizing
- FinOps optimisation
- Resilience improvements
- DR testing
- Refactoring to cloud-native
- Automation maturity

Outputs

- Cost optimisation report
- Resilience scorecard
- Modernisation roadmap