
A CLOUD GURU


AWS
BUSINESS
ESSENTIALS

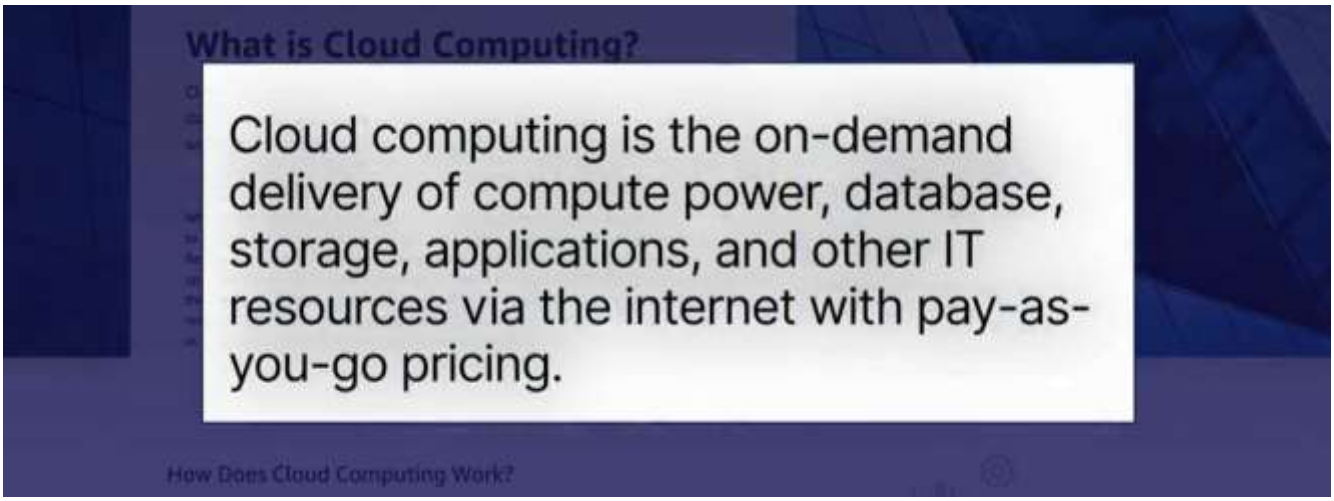

Ideal for:
Non-technical decision makers
Executives
Product Managers
Program Managers


This course will cover:
The cloud and how it will help grow your business
The basic economics of cloud computing
How security and compliance work in the cloud
An overview of the cloud migration process so you can make IT decisions that align with your business goals


MARK NUNNIKHOVEN
A CLOUD GURU

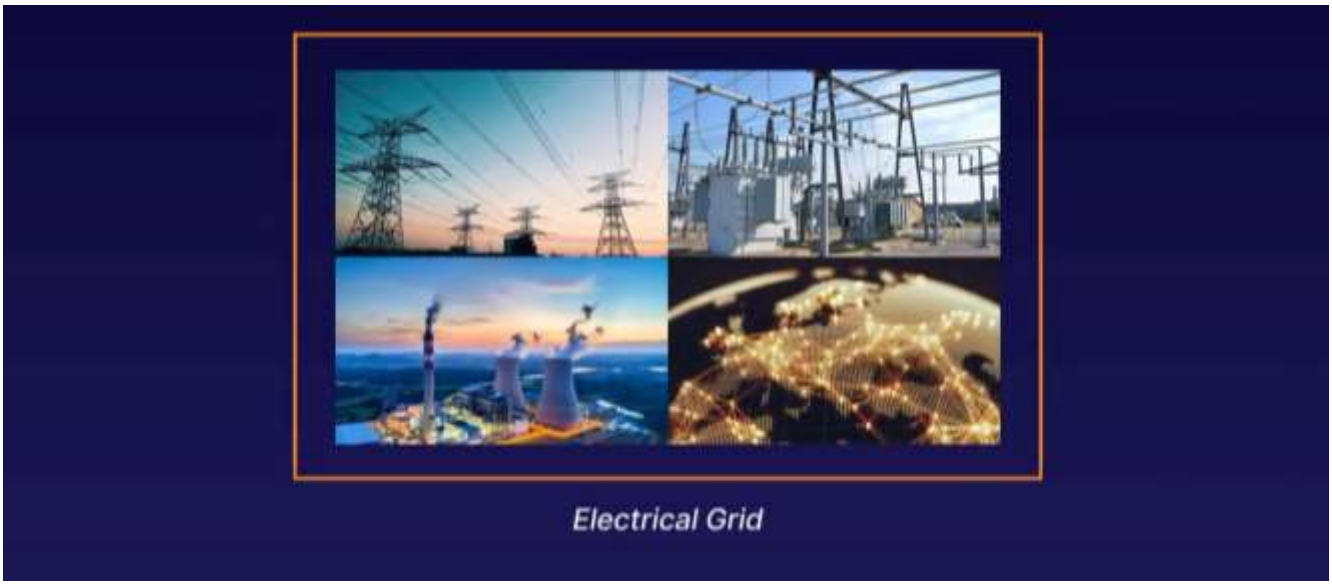

A CLOUD GURU
The First Question You Should Ask
Mark Nunnikhoven


What is the cloud?

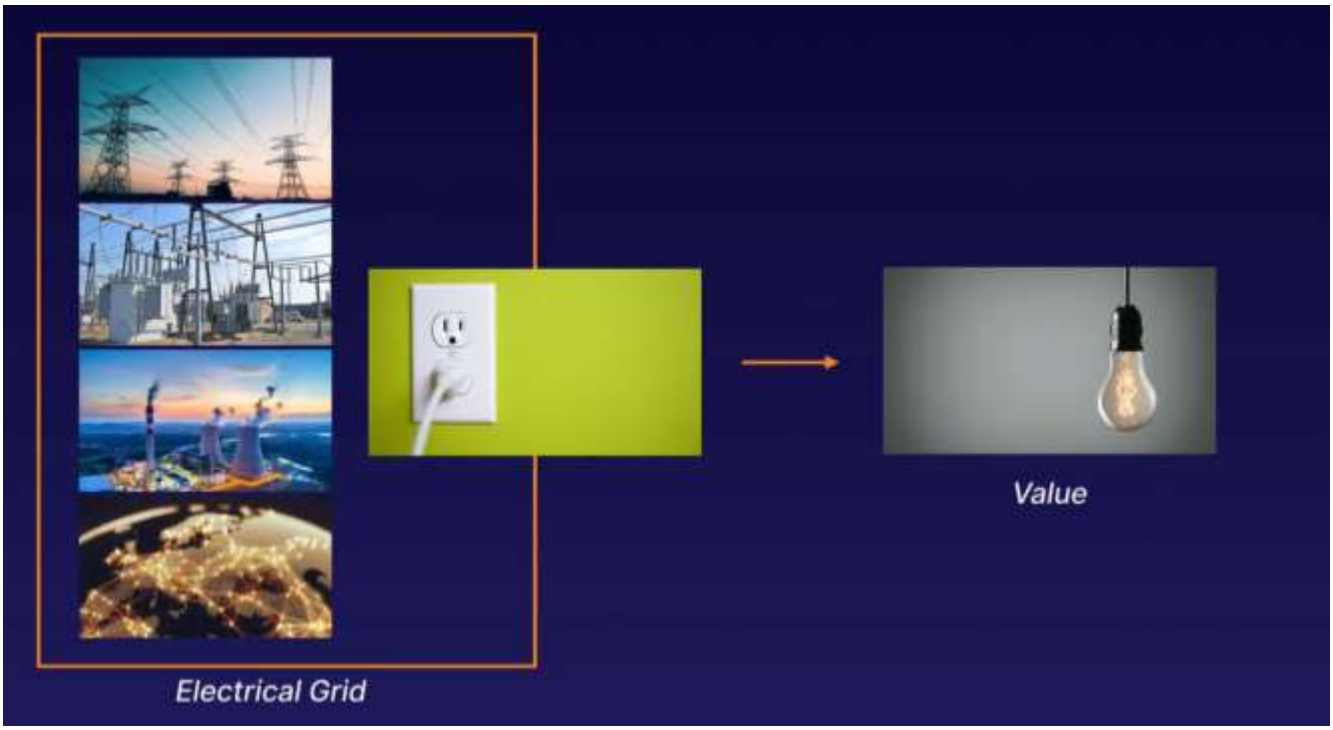


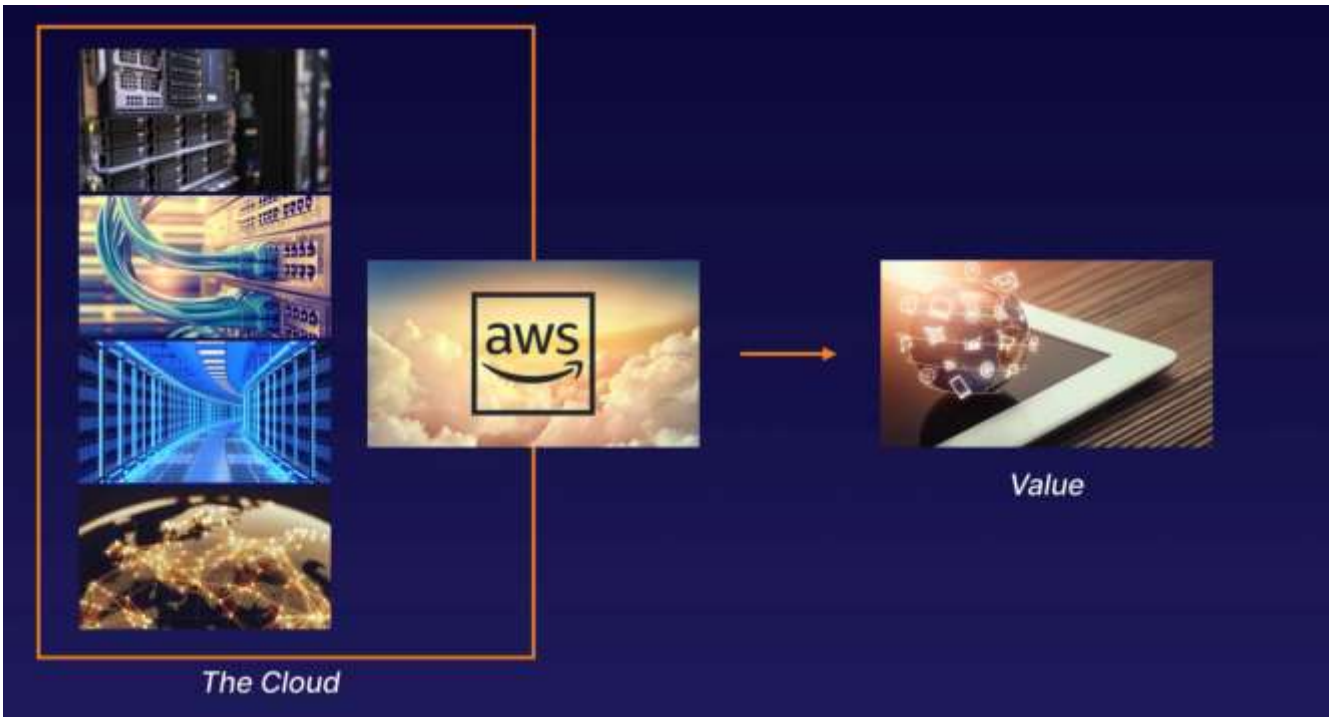
If you need light in a room, what do you do? You simply

But there are a lot of things going on behind the scenes that make the plug simply work



This is the electrical grid or the network that abstracts away a lot of the things we should not be worrying about





We simply have an interface to plug into the network for different IT resources that we need

But AWS is not a one-size fits all, AWS has different technology stacks that we can use similar to having different plug ins

We can simply focus on the value we want to add to our customers or business

But let us see what used to happen in the past for traditional IT

TRADITIONAL IT

Server

Data Center

...1000s of questions later.

TRADITIONAL IT

TRADITIONAL IT

Data Center

- Is the data centre physically close to our target users?
- Redundant routes available to the majority of target users?
- Enough bandwidth available?
- Can teams troubleshoot easily?
- ...

Users

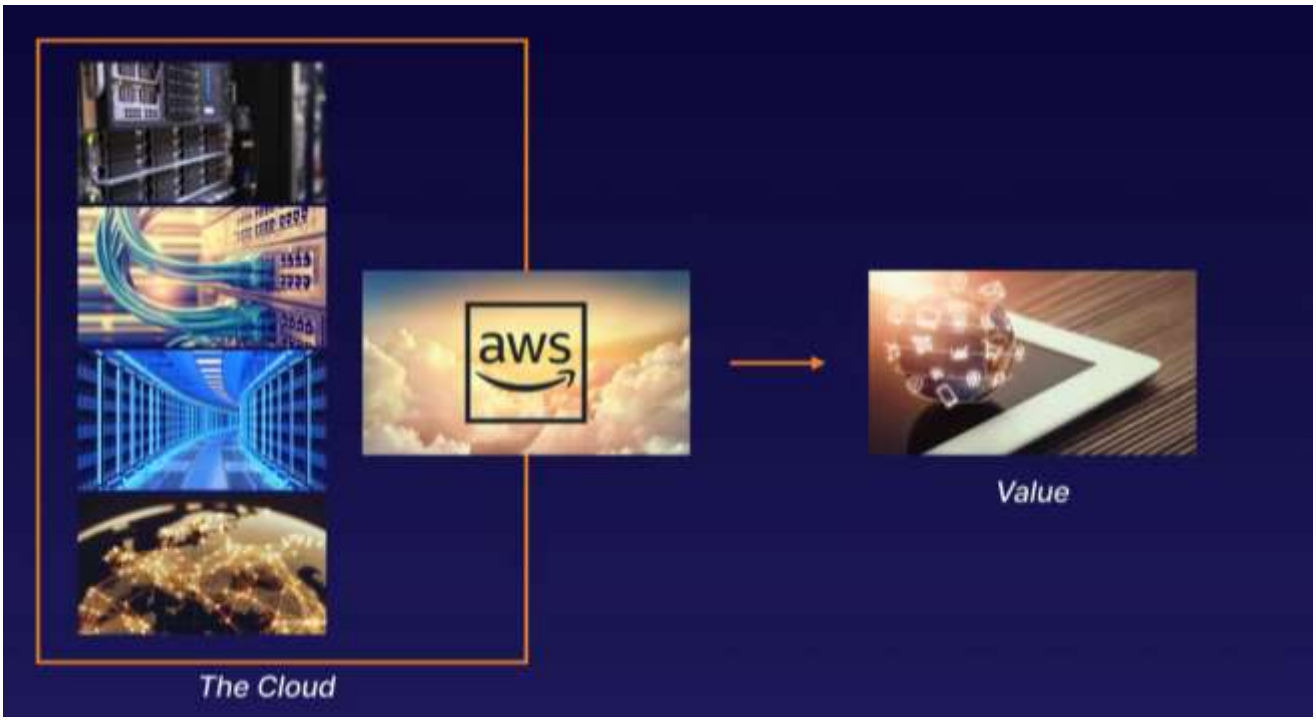
- Can the users access our content?
- Is the user access consistent?
- Is the customer experience sufficient? Delightful?
- Is failover transparent to the user?
- ...

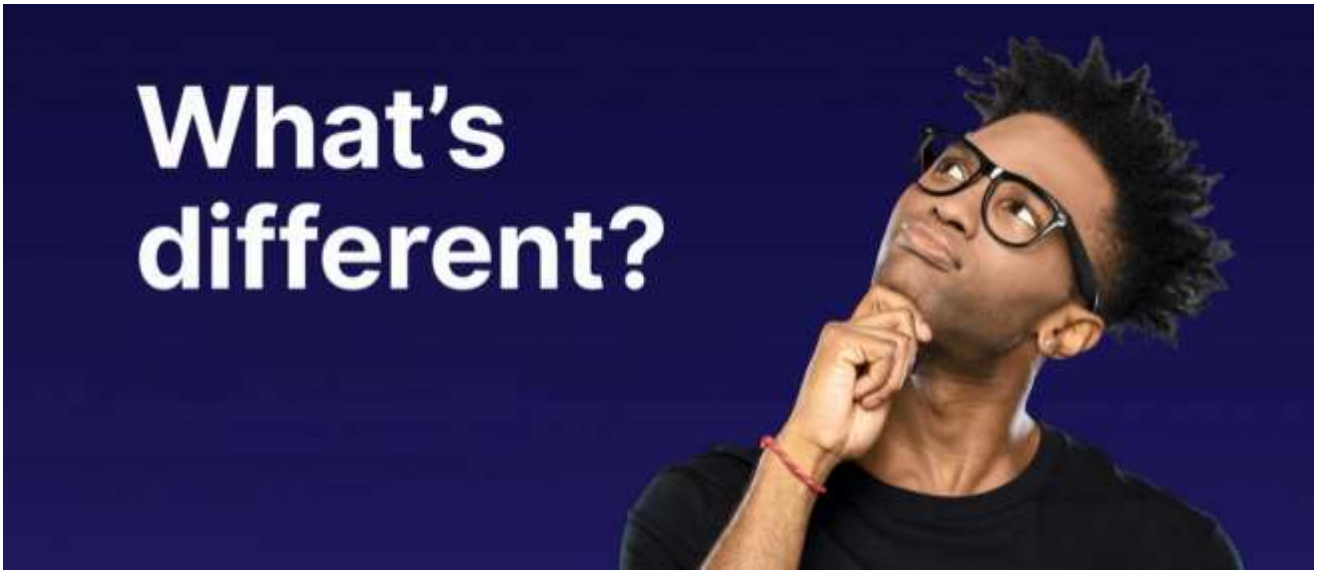
TRADITIONAL IT

Data Center

Users

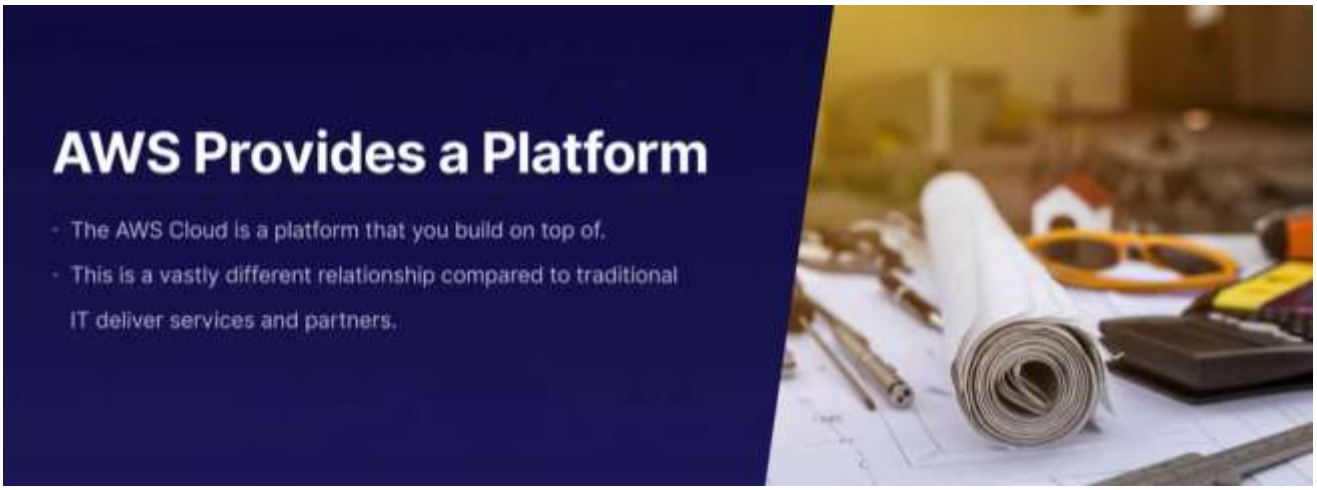
...1000s of questions later.

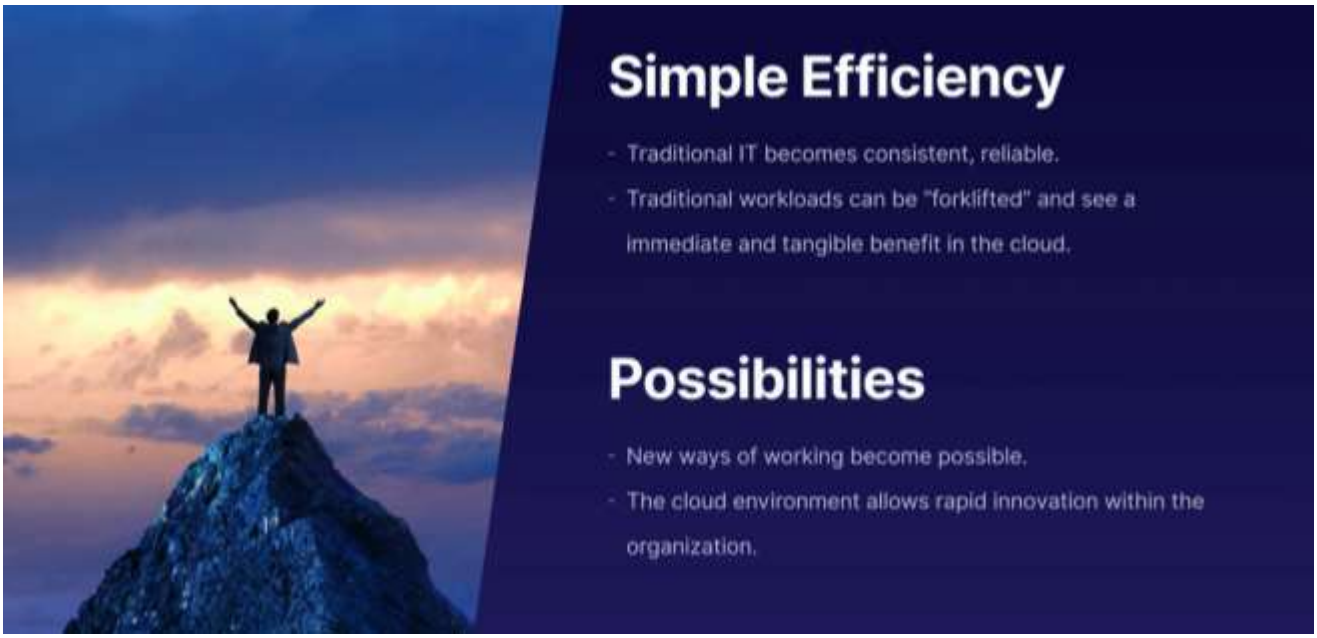




The old system relies on a ticketing system where you submit what you need and what for your partner to get back to you.

This is a technical contract where you make a request and get the system to get it for you. Consistently and fast.





A CLOUD GURU

The Four Benefits of the AWS Cloud

Mark Nunnikhoven

AWS Community Hero

The AWS Cloud

- Is a platform that works like a vending machine for IT.
- Acts as a foundational layer for our business.
- Enables new innovations through modern IT delivery.

FOUR BENEFITS OF CLOUD COMPUTING

Agility

Go Global

Elasticity

Cost Savings

Agility

- Focus on business value, not managing infrastructure.
- Quickly access new technologies.
- Try out new ideas with minimal effort.

Go Global

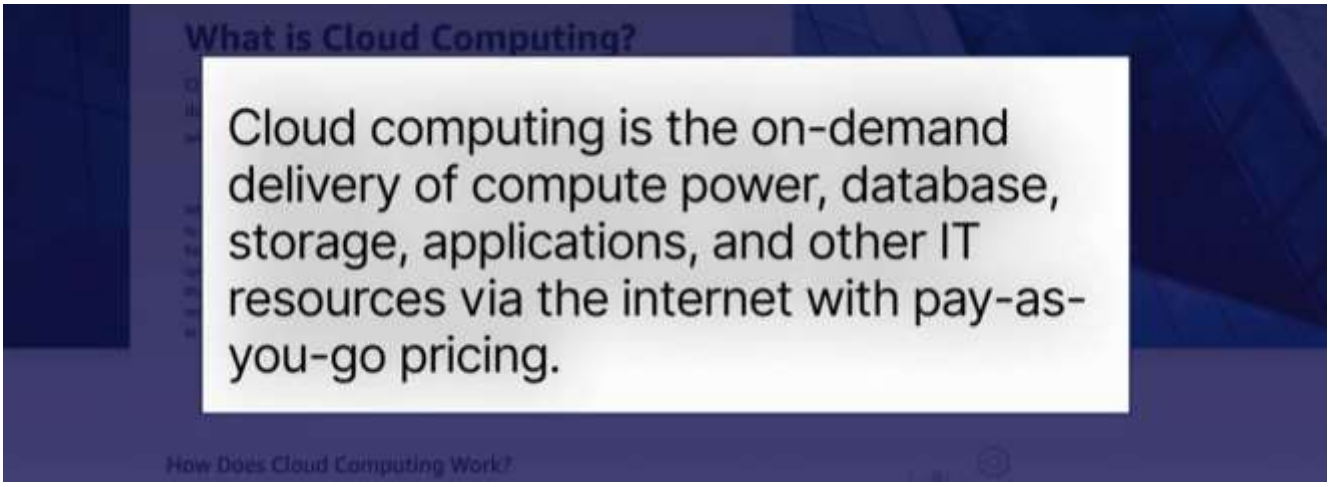
- Improve response time for users around the world.
- Increase application resilience with global deployments.
- Simplify disaster recovery plans.

Elasticity

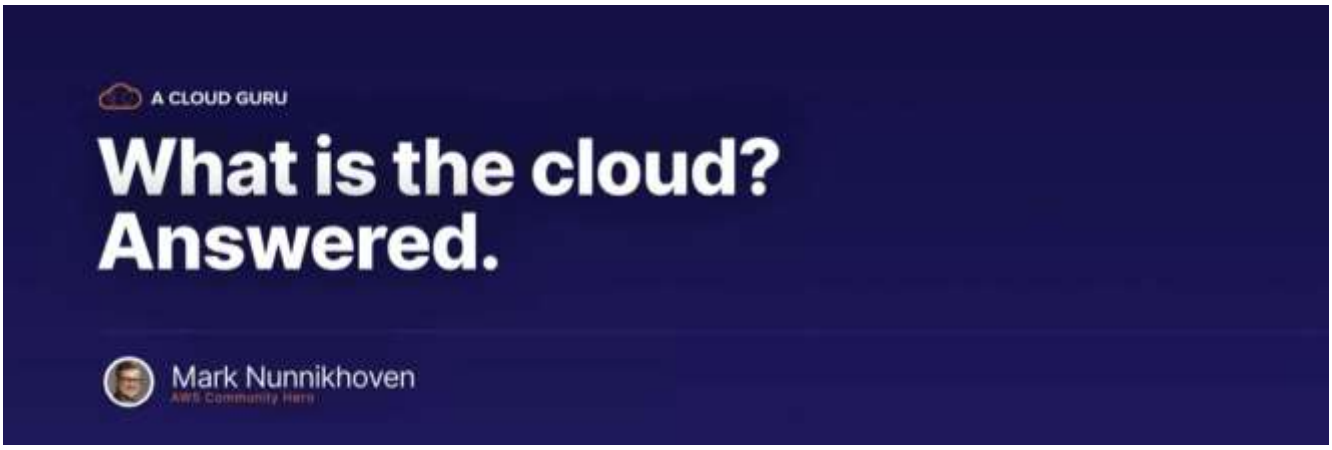
- Scale up and down as business requirements change.
- Automate provisioning entirely.
- Increase operational efficiency.

Cost Savings

- Pay only for what you consume.
- No up-front costs.
- Leverage unprecedented economies of scale.


What is Cloud Computing?
Cloud computing is the on-demand delivery of compute power, database, storage, applications, and other IT resources via the internet with pay-as-you-go pricing.
How Does Cloud Computing Work?


The cloud delivers IT resources via the internet with pay-as-you-go pricing.


A CLOUD GURU
What is the cloud? Answered.
Mark Nunnikhoven
AWS Community Hero

A CLOUD GURU

What Agility Does For Your Business

Mark Nunnikhoven
AWS Community Hero

Agility

- Focus on business value, not managing infrastructure.
- Quickly access new technologies.
- Try out new ideas with minimal effort.

Change direction quickly and easily.

Traditional IT

- You own and build the foundation.
- Foundations are built to support specific services.
- Any service not supported requires time consuming and expensive changes to the foundation.

IT Is Slow

15% of organizations need up to six months to incorporate changes to an application.

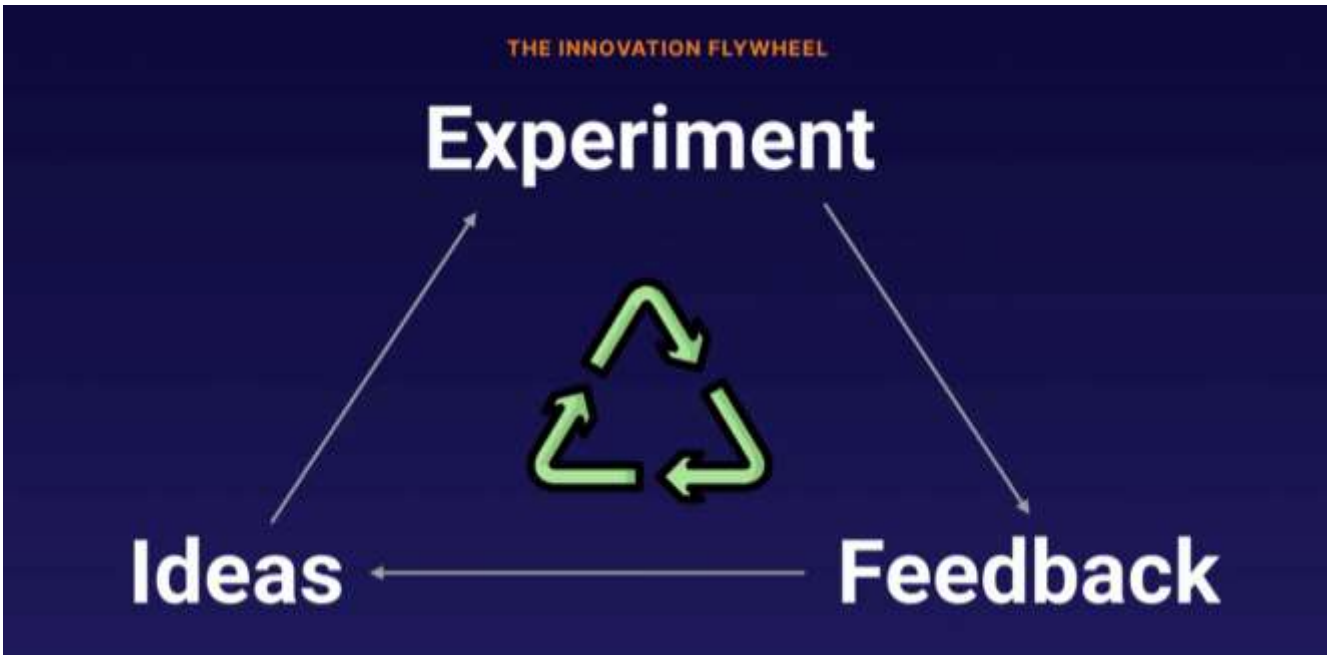
As per DORA's 2018, "State of DevOps" global survey. Worse, these 15% have a failure rate of 46-60% for each change.

The AWS Cloud

- AWS is responsible for the foundation.
- Exposes many pre-built options and allows for customization.
- Pick and choose what's needed and start building!

Provides an increase in speed.

Provides the tools for experiments.



This is a core part of modern application development for agile development for going faster

KEY TERMS

API An Application Programming Interface is a set of actions that can be requested and fulfilled automatically by a user, code, or other tool.

For example, asking for a new server is one API call to AWS, specifically to the EC2:RunInstances endpoint.

You can put different tool on top of the AWS API

A CLOUD GURU

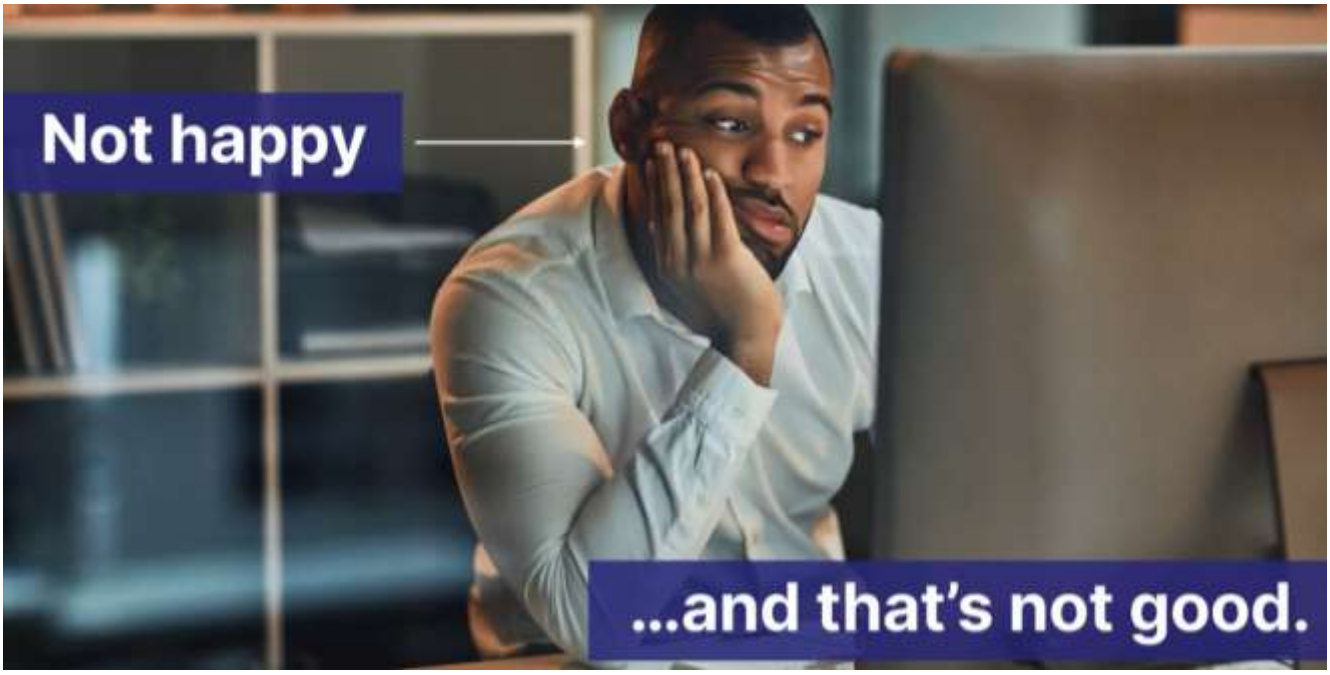
Why Going Global Changed The Game

Mark Nunnikhoven

AWS Community Hero

Go Global

- Improve response time for users around the world.
- Increase application resilience with global deployments.
- Simplify disaster recovery plans.



It affects how far an app responds to you due to its distance and packet travel

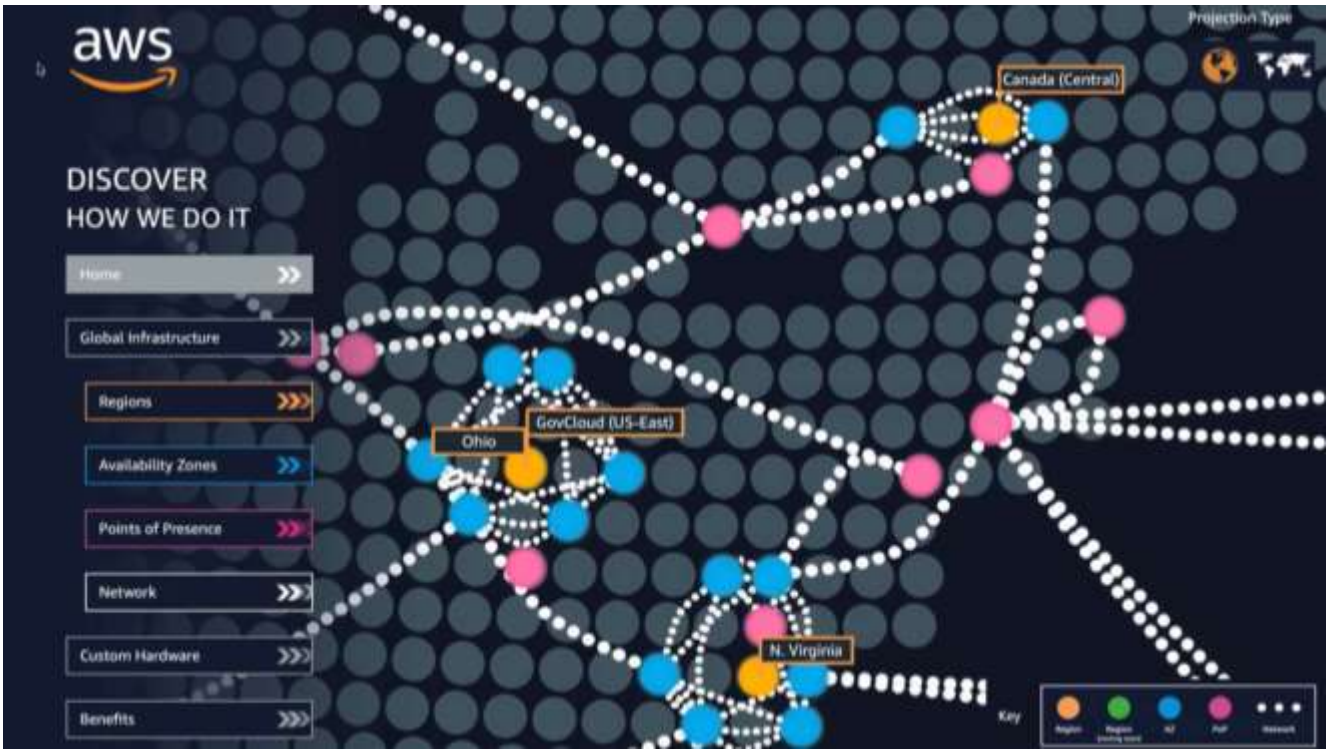
This is why you need to be thinking about going global and reducing response times for your app

This helps us reduce our failure blast radius for application resiliency

This is an active-active deployment that allows us to have smooth failovers when deployed globally


AWS Global Infrastructure
REGION
COMING SOON


aws
The Most Extensive, Reliable and Secure Global Cloud Infrastructure Available
SEE HOW WE DO IT
The Amazon Web Services (AWS) Global Infrastructure delivers a cloud infrastructure companies can depend on—no matter their size, changing needs, or challenges. The AWS Global Infrastructure is designed and built to deliver the most flexible, reliable, scalable, and secure cloud computing environment with the highest quality global



These are components of the AWS cloud using globally physically, distributed infrastructure components and services

A CLOUD GURU

How Elasticity Transforms IT

Mark Nunnikhoven
AWS Community Hero

Elasticity

- Scale up and down as business requirements change.
- Automate provisioning entirely.
- Increase operational efficiency.

Scale to meet changing business demands.

Using a capacity graph as above, demand and capacity are in lock step when using the AWS Cloud. Capacity can be automatically provisioned if needed

Provisioning is mostly automated in the AWS Cloud.

You only do an initial automated configuration of your AWS Cloud setup and things will automatically scale up in future

Automated provisioning works to scale up and scale down when needed in the AWS Cloud

Traditional

FAILURE

Systems fail while trying to meet demand. Teams are 🔥 fighting.

WASTE

Unused systems still need to be maintained and monitored.

CAPACITY

DEMAND

KEY TERMS

Auto Scaling

A feature of various AWS services to automatically scale capacity **up** and **down** as demand changes.

Elasticity

- Scale up and down as business requirements change.
- Automate provisioning entirely.
- Increase operational efficiency.

A CLOUD GURU

How Pay-as-you-go Creates Opportunity

Mark Nunnikhoven
AWS Community Hero

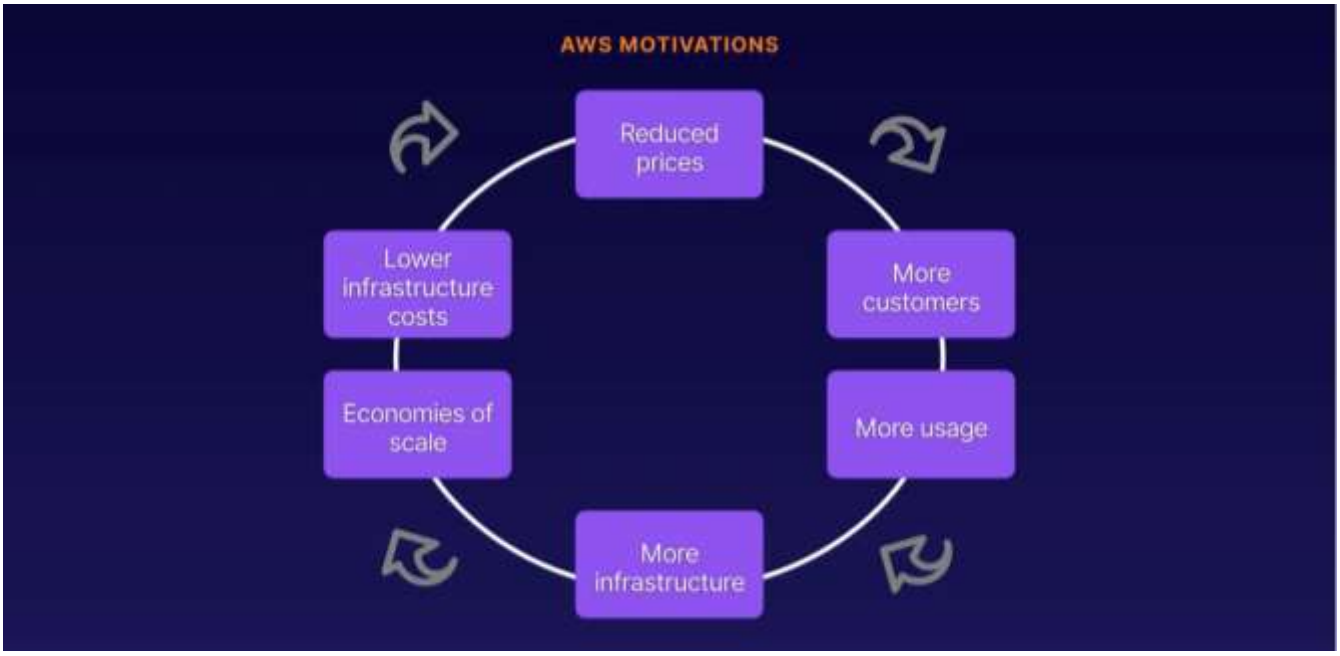
Cost Savings

- Pay only for what you consume.
- No up-front costs.
- Leverage unprecedented economies of scale.

Pricing is based on consumption.

Variable pricing aligns more for variable workloads, there are tools in AWS to help you figure which pricing model to adopt

AWS' per unit costs are lower than every other business and they pass those gains to their customers



KEY TERMS

Consumption-based Pricing Costs are linked 1:1 to usage. If you store 1 GB of data, you are billed for 1 GB of data.

Tiered Pricing Lower prices made available as a result of increased usage.

Cost Savings

- Pay only for what you consume.
- No up-front costs.
- Leverage unprecedented economies of scale.

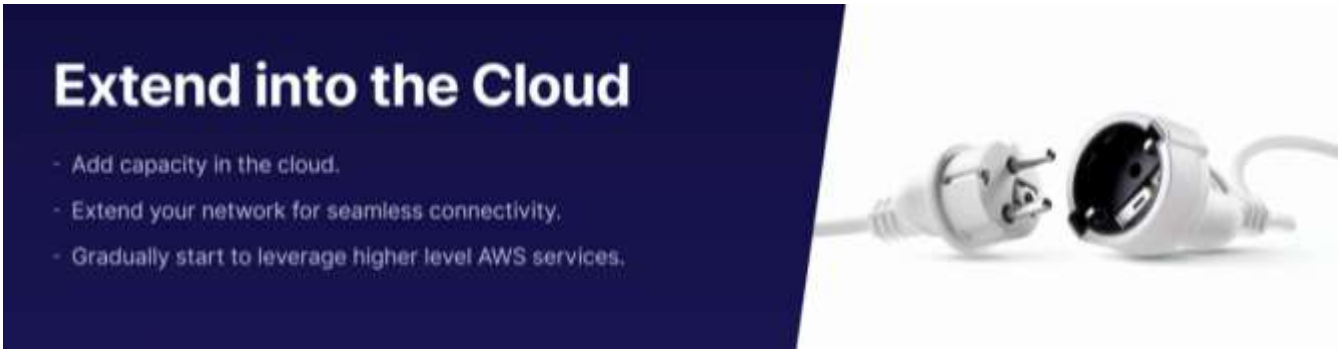
A CLOUD GURU

Adding the AWS Cloud to Your Current Deployment

Mark Nunnikhoven
AWS Community Hero

The AWS Cloud is not an all-or-nothing approach

You can start by building a bridge that extends your current deployments into the cloud as a starter.



Add more systems and capacity in the cloud instead. You can also extend your network into the cloud.

Forklift Friendly

By using AWS as an extension of your existing network, it's easy to forklift applications into the cloud one at a time.

This may seem like a baby step into the cloud but for some organizations, this is a wonderful first step. It allows teams to come up to speed on what the AWS Cloud offers without having to disrupt the current level of operations.

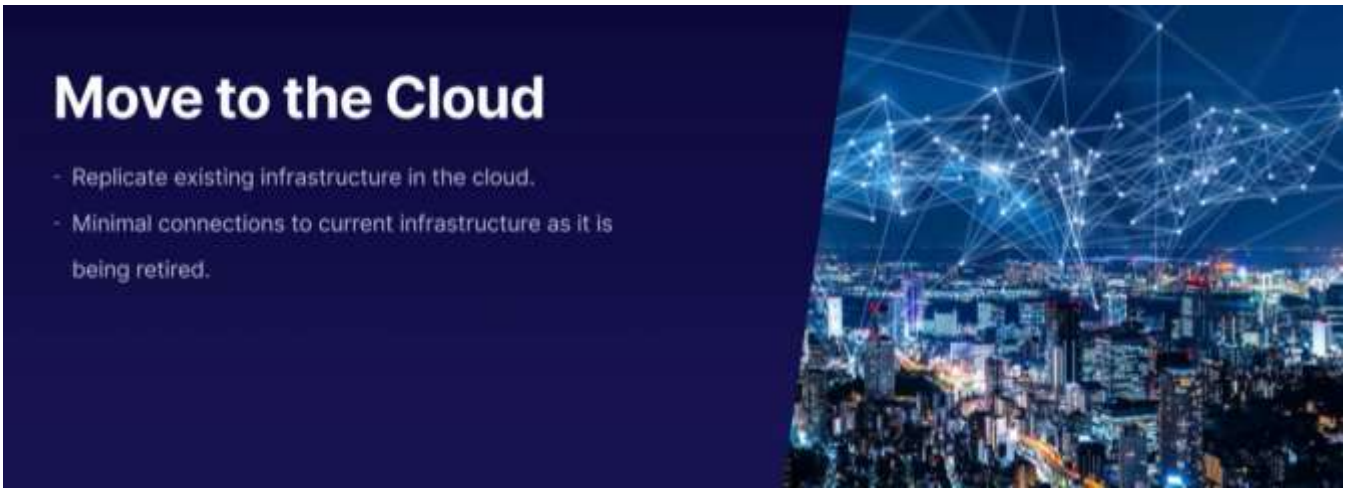
A CLOUD GURU

Migrating Everything to the AWS Cloud

Mark Nunnikhoven
AWS Community Hero

What You Have Is Outdated

- Existing investments are end-of-life or very close.
- Current infrastructure is preventing you from deploying the solutions that your business requires.
- Financial motivator to move to a new solution.



This is about MOVING your entire systems into the AWS Cloud, you are not bridging or linking the old environment in this case.

You can then gradually change your application designs to be cloud-native once you are into the AWS Cloud.

Starting “from now on...”

From This Day Forward...

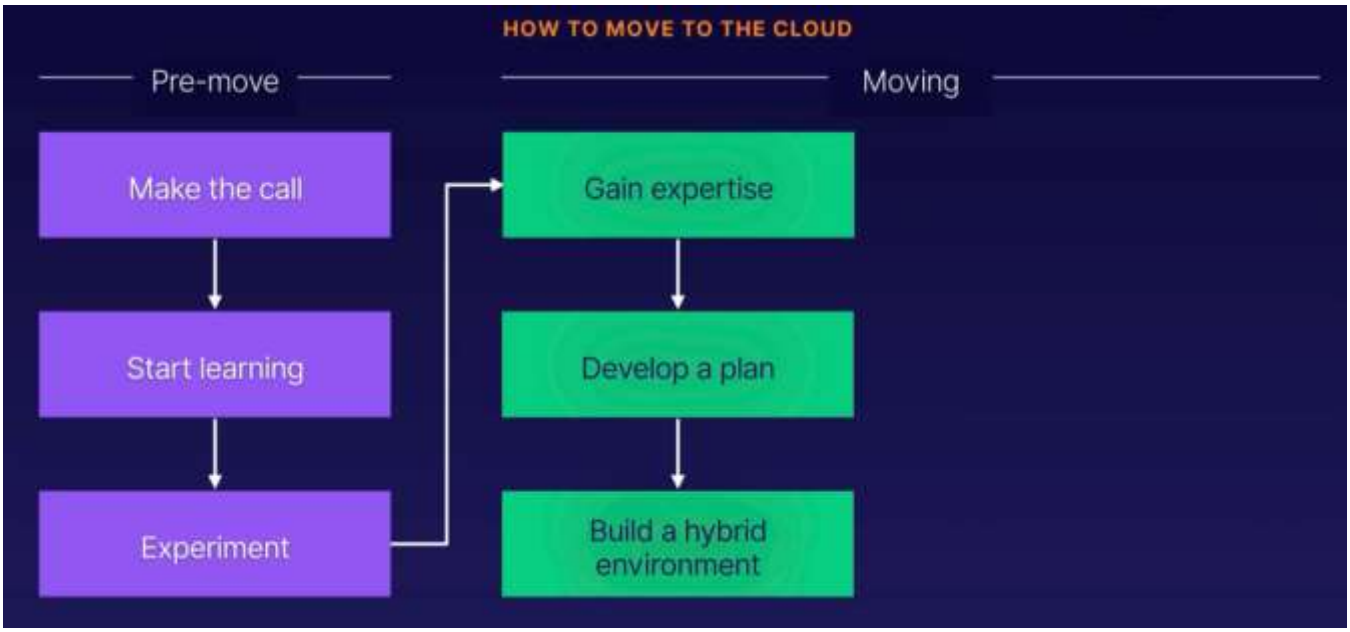
- Any new project will be built cloud-native from the stated point in time.
- Current infrastructure is maintained with existing solutions and processes.
- Balances need for new solutions while continuing to meet business needs.

Building New in the Cloud

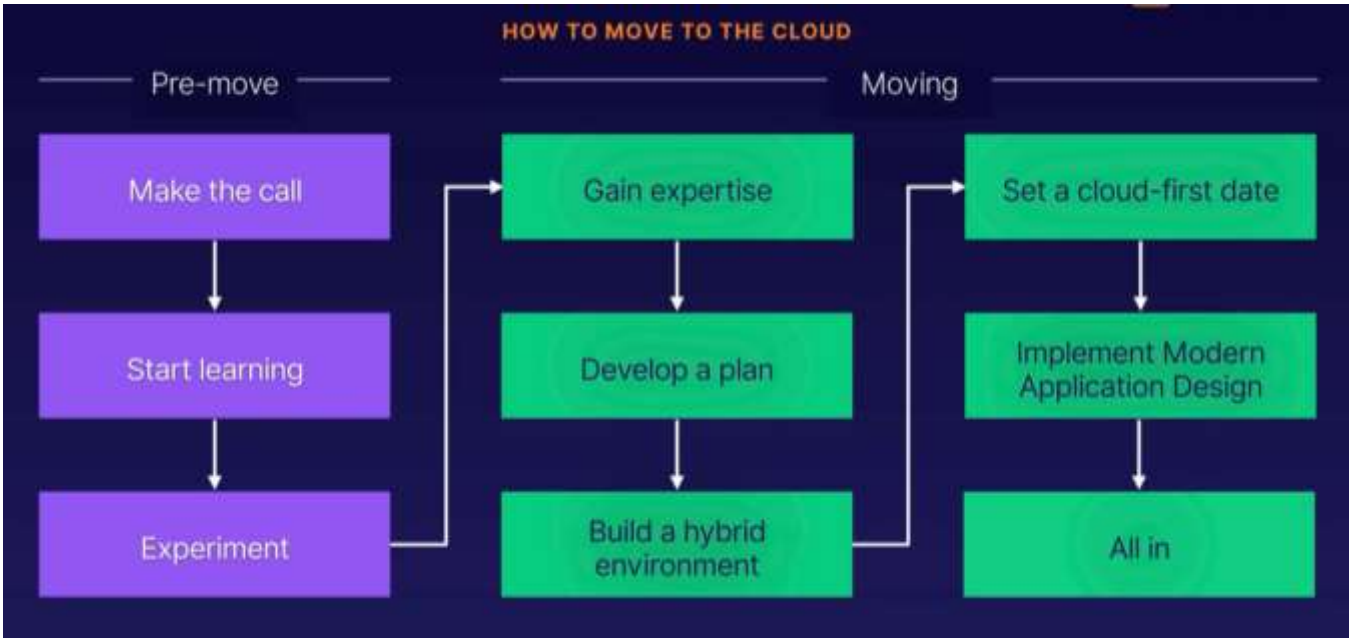
- Logical way to transition to the cloud.
- AWS provides a suite of tools to help manage hybrid infrastructures.
- Challenges with teams over who gets to build with newer tools and with powerful new services.

Regardless of which strategy you use, there are no upfront costs. There might also be situations with multiple mix of strategies in your company's cloud adoption

AWS has the Cloud Adoption Framework to help you map out your stakeholders, solutions and give you a strategy to follow



Develop a plan is about using the cloud adoption framework from AWS



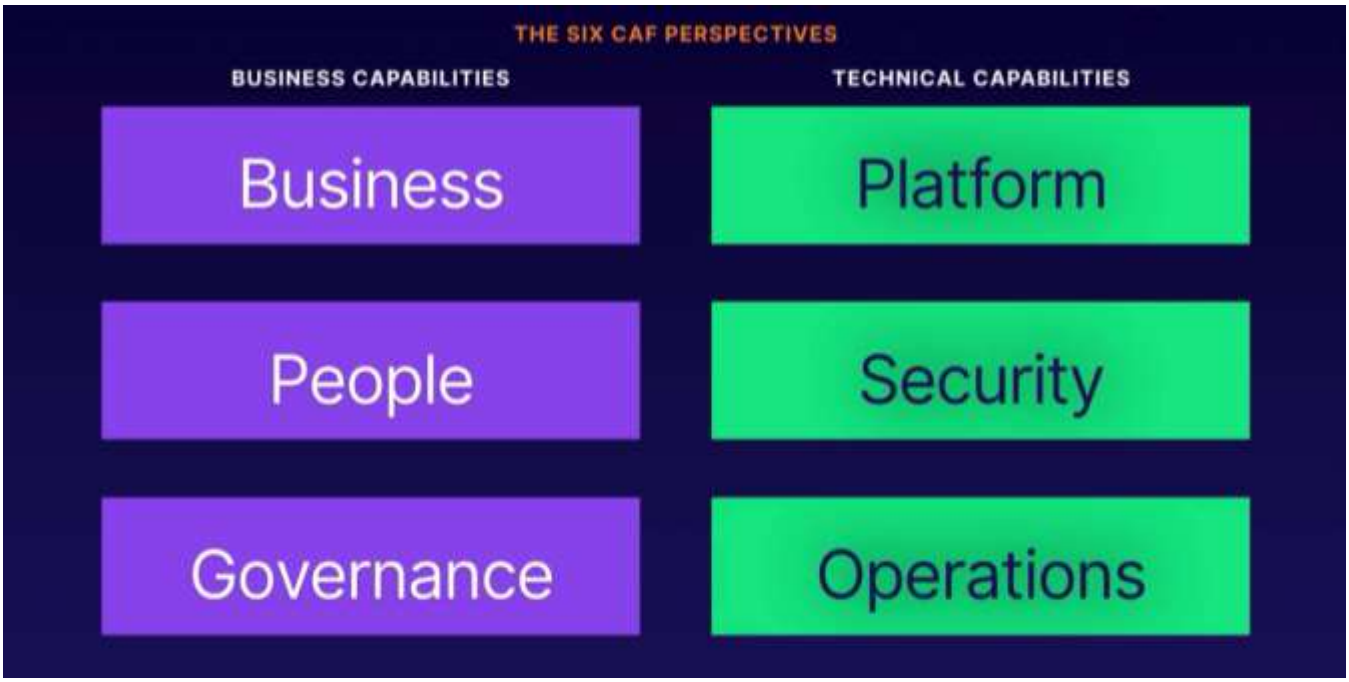
This involves refactoring, re-platforming and redesigning your old systems for the cloud.

Let us see how the cloud adoption framework can help you and your business move to the cloud.

Cultural, technology, skillset changes as you move into the cloud

This is a master document that will help you map out action steps to help you on your digital transformation cloud journey in a practical way. They involve 6 parts for the different parts that you need to focus on.

These are the softer/people side of the 6 parts and are mainly focused on process



The platform refers to the AWS Cloud, features and managed services being used within it.

This is a master document to provide clarity for teams within your organization on their role and how these might change as you move into the cloud.

KEY TERMS

Action plan The output of an organization working through the Cloud Adoption Framework.

Perspective An area of focus for culture and technology within the framework with defined stakeholders.

A CLOUD GURU

The Well-Architected Framework

Mark Nunnikhoven
AWS Community Hero

The Well-Architected Framework is all about how to make good technology choices when building in the AWS Cloud

Make the Right Trade-off

- Framework helps you evaluate pros and cons of the choices you make while building.
- Intended to help you apply technical best practices.
- Goal is resilient, applications that deliver business value.

Core Principles

- Scale up and down as required.
- Automated systems ensure consistency and reliability.
- Test at scale for accuracy.
- Adapt the architecture as needed to meet new challenges.
- Drive decisions through data.
- Use "game days" to practice operations and validate architectural choices.

THE FIVE PILLARS

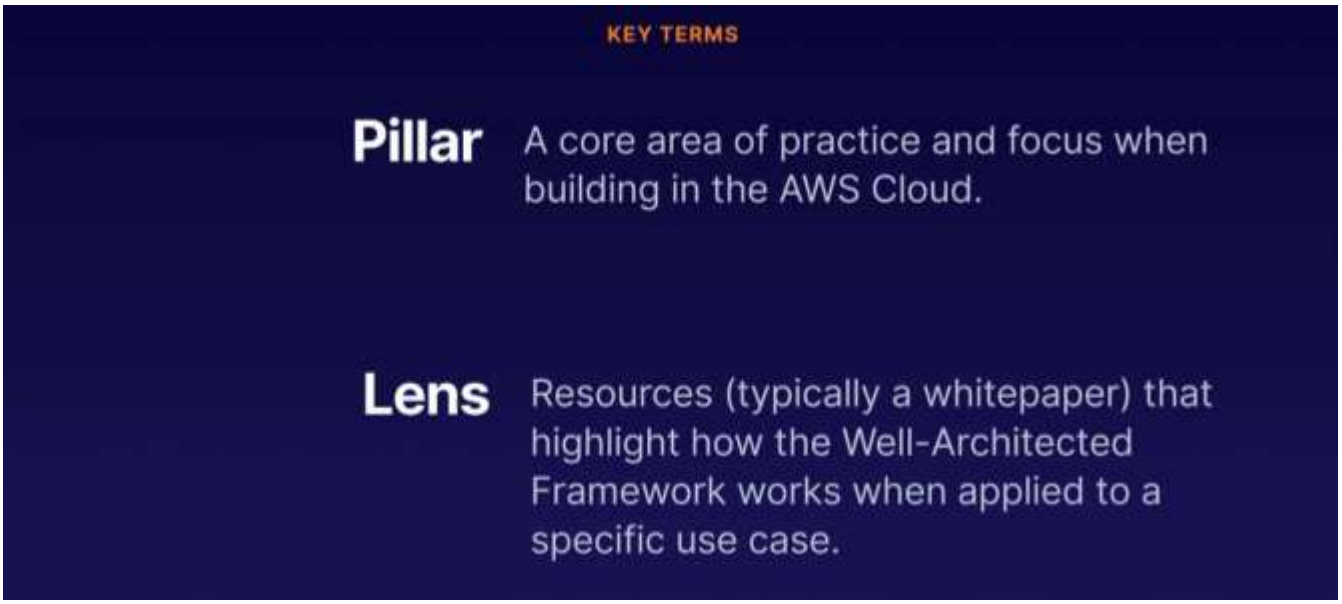
Operational Excellence

Cost Optimization

Reliability

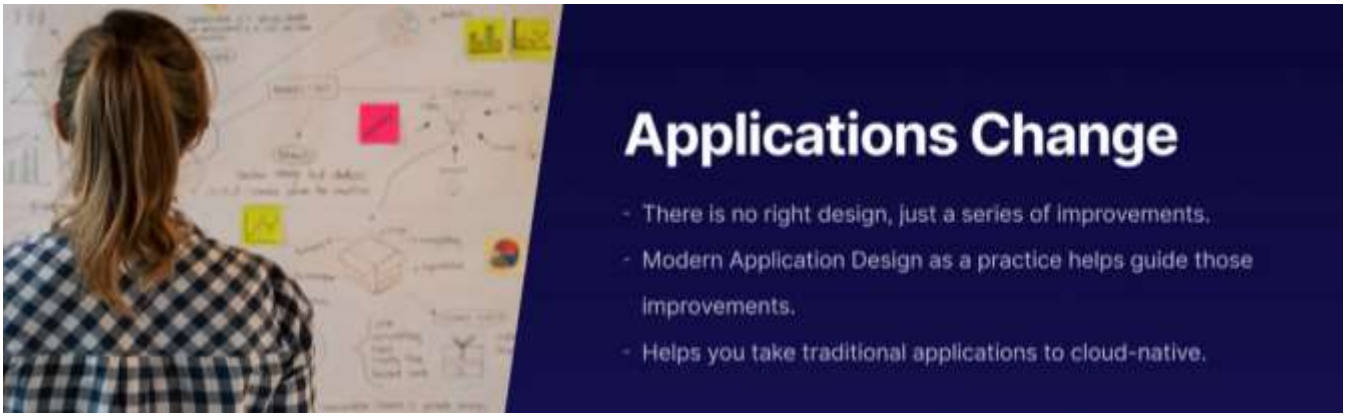
Performance Efficiency

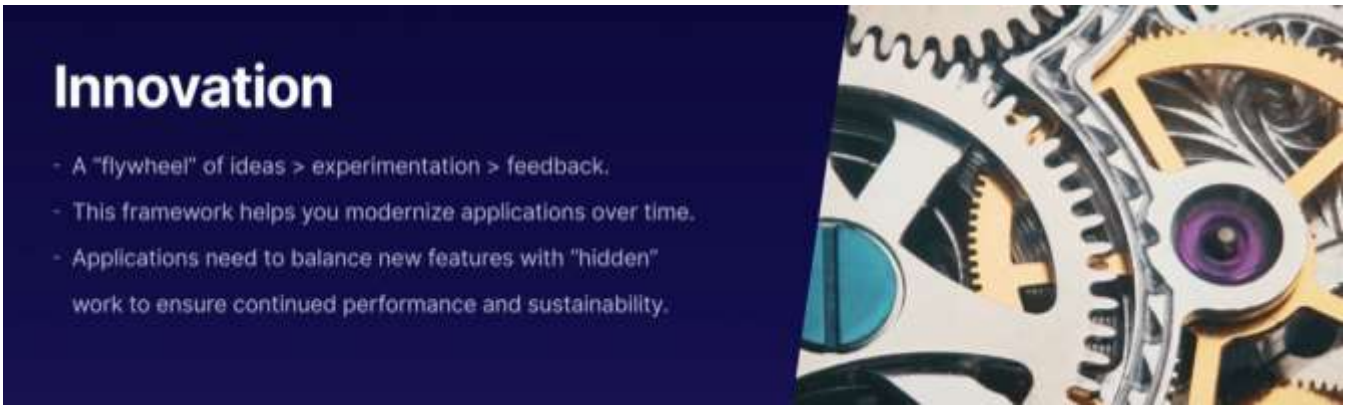
Security

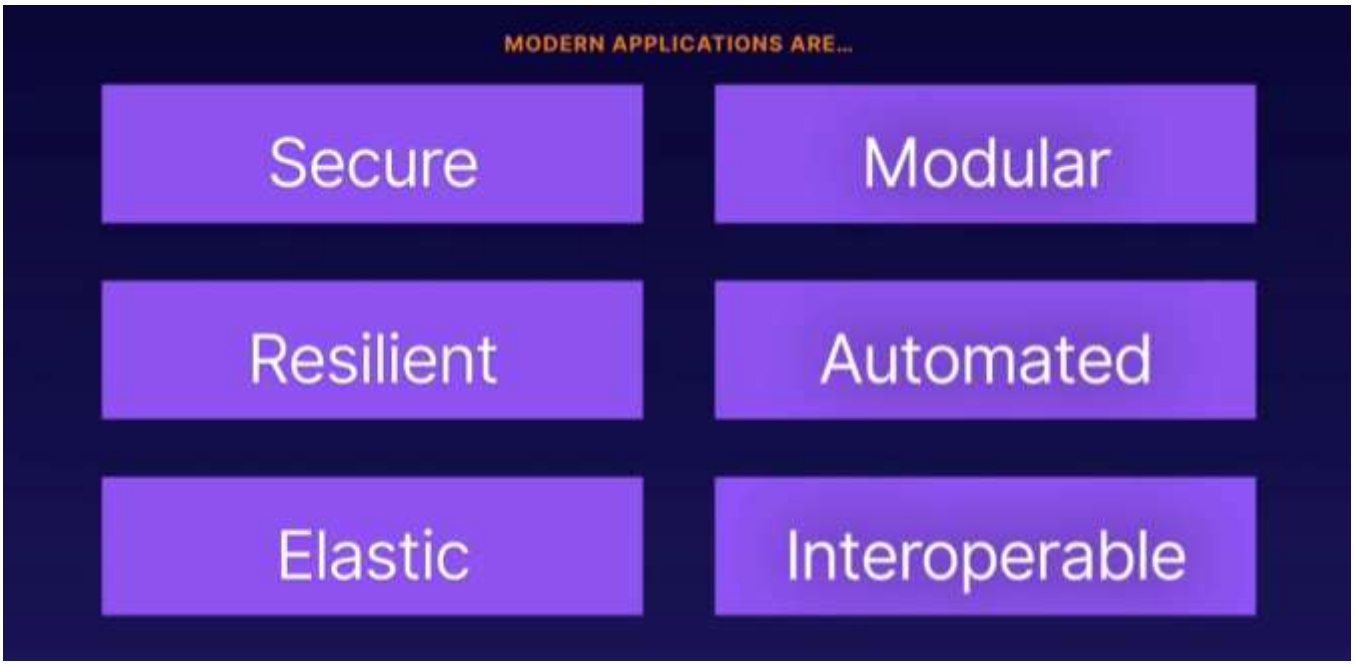


There are 5 Pillars or major concerns and 3 Lenses as whitepapers in the Well Architected Framework.

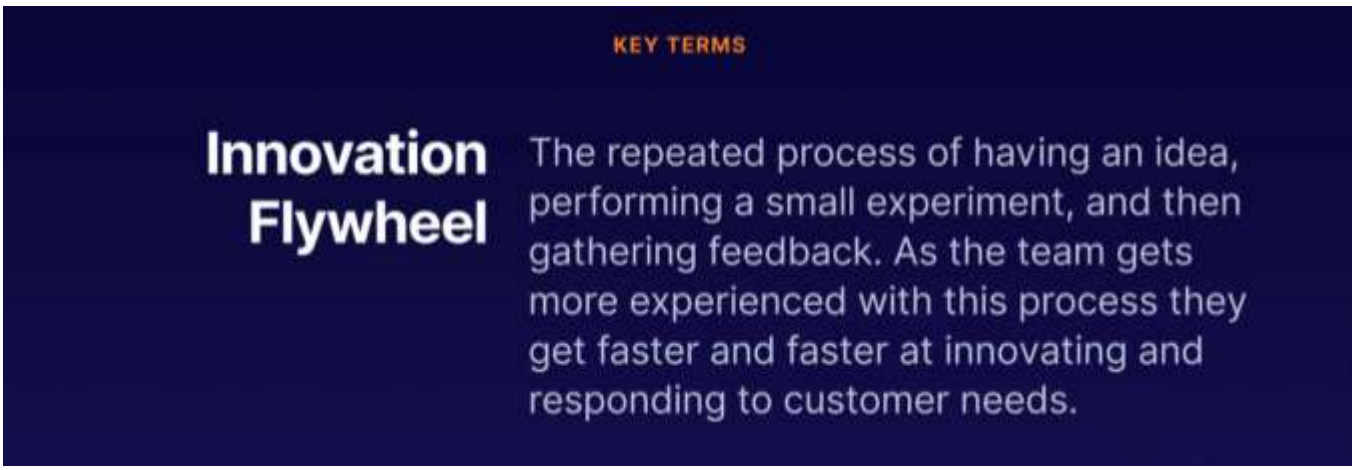
These are a set of ideas on how to modernize existing applications







These attributes define flexibility for a modern application



A CLOUD GURU

The AWS Partner Network

Mark Nunnikhoven
AWS Community Hero

Getting help from the experts.

Proven Expertise

- From technology products, services, or consulting expertise, the AWS Partner Network (APN) is a great place to start looking for qualified help.
- 5 levels of partners: registered, select, advanced, premier, and MSP/competency.
- Each level requires a higher commitment from the partner.

Marketplace

- A digital catalog of AWS Partner solutions.
- Quickly launch offers with a few clicks.
- Pay for third-party services directly on your AWS bill, greatly simplifying procurement.

Competencies

- Validation by AWS that a partner has met specific goals around a speciality.
- Helps you filter through the AWS Marketplace and available vendors.
- Wide range of categories from DevOps to education to security.

A CLOUD GURU

Calculating Total Cost of Non-Ownership

Mark Nunnikhoven
AWS Community Hero

Am I seeing value?

TCO

- Total cost of ownership is an estimate of the financial cost of all aspects (direct and indirect) of running a solution.
- When applied to IT, the goal is to calculate the cost of power, cooling, maintenance, connectivity, etc. in addition to initial costs so you can compare approaches.

Cheaper In the Cloud?

- Building in the AWS Cloud is a more efficient use of your budget, not necessarily a less expensive one
- AWS removes almost all of the maintenance and infrastructure costs.
- Total cost of ownership comparisons are the only fair way to compare.

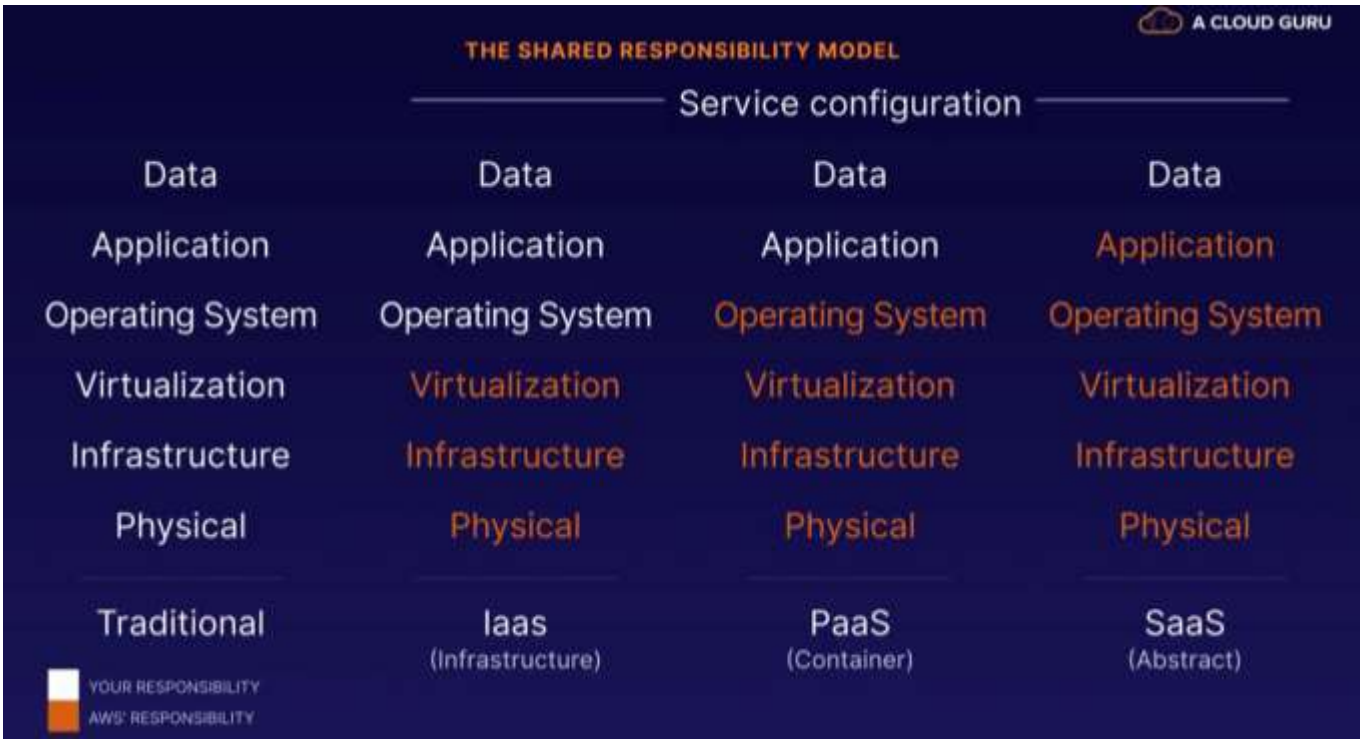
It's Complicated

- Paying for actual usage better aligns IT with business value.
- Keeping track of usage and billing is difficult and can be a full time job.
- This is a subject you should be paying attention to constantly.


A CLOUD GURU
Courses
Products
For Business
Pricing
About Us
Sign In
Sign Up
AWS Cost Control
Drive down your cloud costs. Learn how to be cost effective when using AWS services, design for cost, get free AWS credits and much more.
START THIS COURSE
23
4.5
AWS Cost Control by Paul Wakeford


A CLOUD GURU
How Everything Works in the AWS Cloud
Mark Nunnikhoven


Working together to deliver business value.



There are 6 main areas where something has to be done every day. In a traditional environment, your business is responsible for all the 6 parts. Moving into AWS Cloud and using the infrastructure services allow you to delegate 3 parts to AWS to make good choices and you will make good choices too. In SaaS e.g. S3, you only worry about the Data.

Verify AWS' Work

- You are also responsible for verifying that AWS is fulfilling their part of the Shared Responsibility Model.
- Third-party compliance framework validation provides proof that they are.

A CLOUD GURU

Who Owns The Data?

Mark Nunnikhoven

AWS Community Hero

Your data is always under your control.

Privacy Policy

- AWS has a crystal-clear privacy policy: your data is yours.
- You "...maintain full control of your content and responsibility for configuring access..."
- "You choose how your content is secured" which aligns with the Shared Responsibility Model.

Where Is My Data?

- You choose the AWS Region where your data is stored.
- Data will not be moved out of the region without your explicit consent except as legally required.
- AWS does provide tools to easily replicate data across regions that are entirely at your disposal.

Easy Encryption

- Encryption puts your data under lock and key.
- AWS provides a number of services and features to encrypt your data in transit and at rest.
- The critical aspect of encryption is managing the keys. AWS helps here as well but it is still your responsibility.

A CLOUD GURU

How Secure is the AWS Cloud?

Mark Nunnikhoven
AWS Community Hero

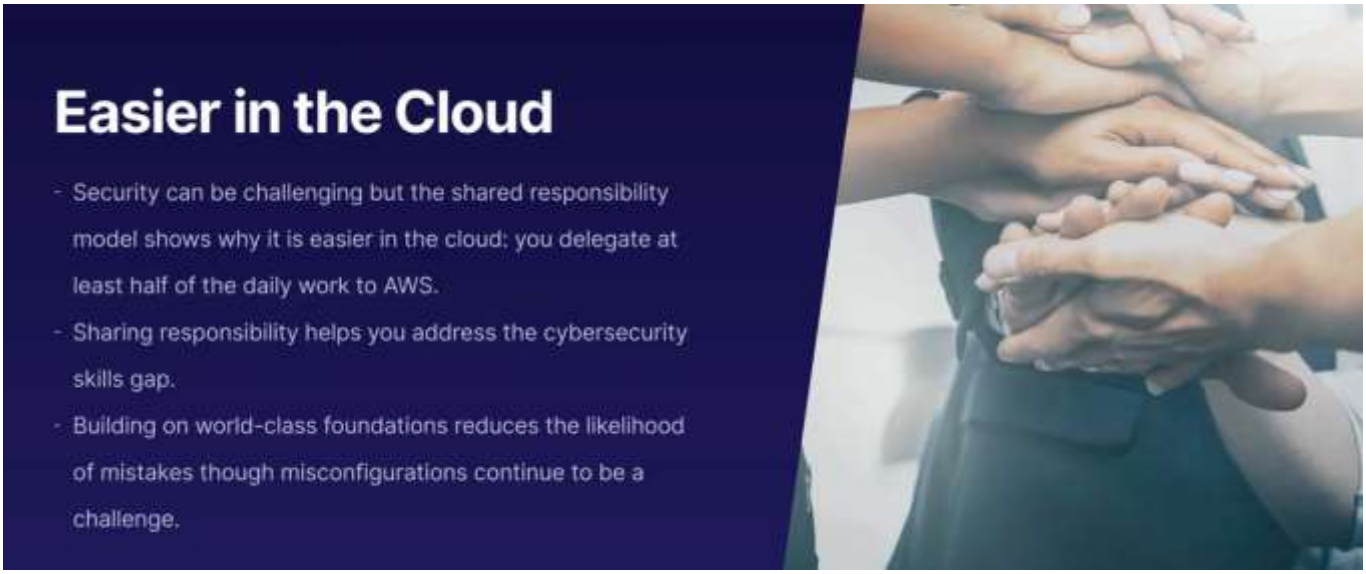
Security is relative.

The Goal

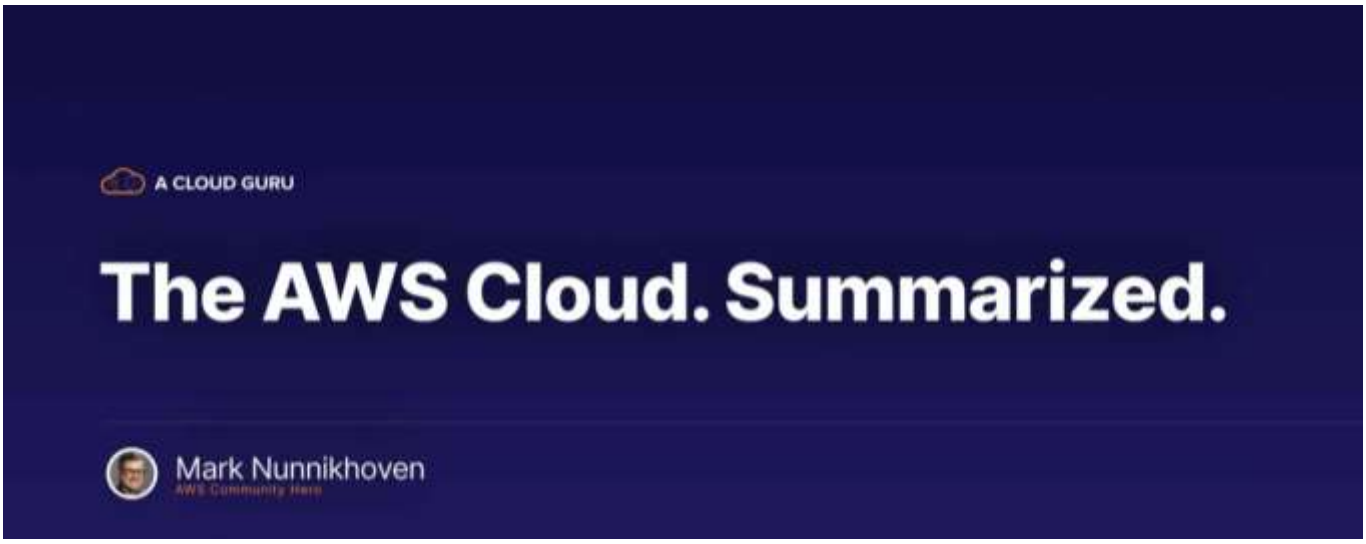
- Cybersecurity is often misunderstood.
- There is no such thing as "secure". It's not a binary state.
- The goal is very simple: to make sure whatever you've built works as intended...and only as intended.

In and of the Cloud

- Security **OF** the cloud refers to all of the security controls, processes, and effort that AWS puts into the services they offer.
- Security **IN** the cloud refers to the work you have to do to secure your builds.
- This breakdown aligns directly with the Shared Responsibility Model.



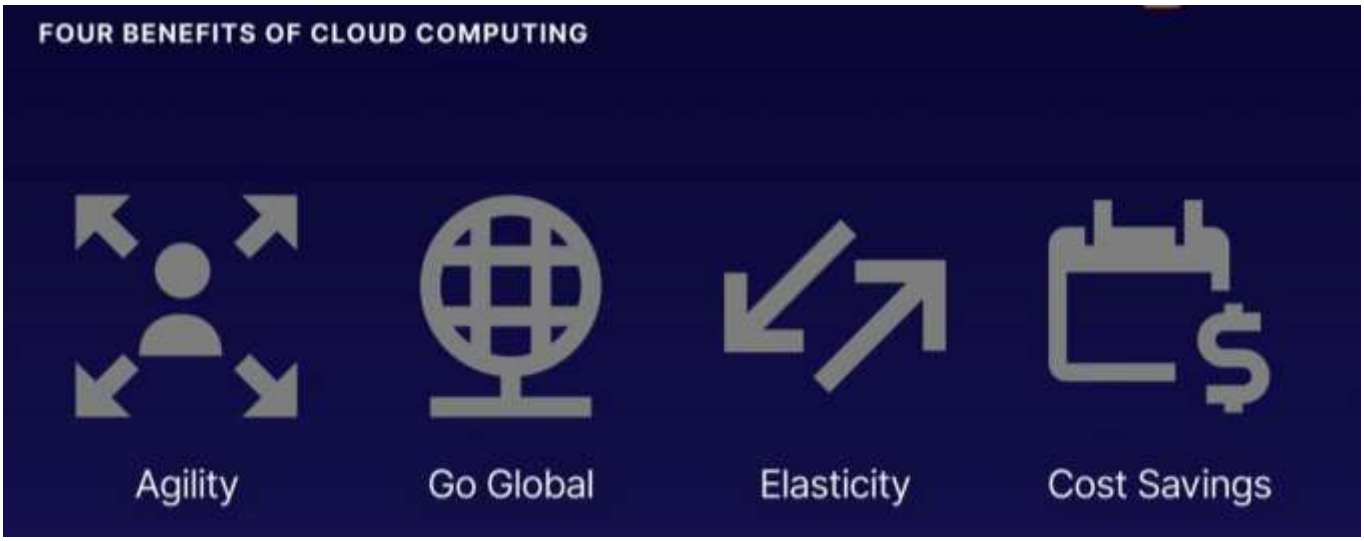
You need to focus on your service configurations, including the roles and responsibilities assigned to your users and services.



The AWS Cloud is massive.

Working together to deliver business value.

Your data is always under your control.


FOUR BENEFITS OF CLOUD COMPUTING
Agility
Go Global
Elasticity
Cost Savings


Traditional IT
vs
The Cloud
Agile
Global
Elastic
Pay-as-you-go


The cloud delivers IT resources via the internet with pay-as-you-go pricing.

A CLOUD GURU

AWS Terms You Need to Know

Mark Nunnikhoven
AWS Community Hero

The AWS Cloud

The collection of constantly evolving services that make up the AWS platform.

API

An Application Programming Interface is a set of actions that can be requested and fulfilled automatically by a user, code, or other tool.

For example, asking for a new server is one API call to AWS, specifically to the EC2:RunInstances endpoint.

Region

A geographic area where AWS services are physically hosted from. Regions contain multiple availability zones (usually 3).

Availability Zone

A set of data centers (usually 3) operating together to deliver fault-tolerant service to customers.

Auto Scaling A feature of various AWS services to automatically scale capacity **up** and **down** as demand changes.

Consumption-based Pricing Costs are linked 1:1 to usage. If you store 1 GB of data, you are billed for 1 GB of data.

Tiered Pricing Lower prices made available as a result of increased usage.

KEY TERMS—CLOUD ADOPTION FRAMEWORK

Action Plan The output of an organization working through the Cloud Adoption Framework.

Perspective An area of focus for culture and technology within the framework with defined stakeholders.

KEY TERMS—WELL-ARCHITECTED FRAMEWORK

Pillar An core area of practice and focus when building in the AWS Cloud.

Lens Resources (typically a whitepaper) that highlight how the Well-Architected Framework works when applied to a specific use case.

KEY TERMS—MODERN APPLICATION DESIGN

Innovation Flywheel

The repeated process of having an idea, performing a small experiment, and then gathering feedback. As the team gets more experienced with this process they get faster and faster at innovating and responding to customer needs.

Amazon EC2

A service that provides servers (known as "instances") on demand. Instances can be configured with a variety of different performance profiles.

Amazon VPC

A Virtual Private Cloud provides an isolated network for your AWS assets. Referred to simply as a VPC, this service allows you to logically group your workloads.

An account can host multiple VPCs.

Amazon S3

The Amazon Simple Storage Service (see what they did there?) was the first ever generally available AWS service.

It allows you to store files in a collection called a "bucket". Its ease of use and low cost have made it the go-to for cloud storage.

Amazon DynamoDB

A "NoSQL" database service that allows unprecedented scale. NoSQL means it breaks away from traditional database structures.

This enables some high performance applications that were previously extremely difficult to engineer.

AWS IAM

The Identity and Access Management service is the cornerstone for security in the AWS Cloud.

It helps you confirm the identity of users and services (authentication) and set what they are allowed to do (authorization).

Serverless

An architecture for solutions that only uses SaaS-level services to create a customized solution.

These solutions are truly cloud-native and allow developers to focus almost entirely on delivering business value.

Next Course to take: