

Module 5: Pricing models, cloud application support & Architecting

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Developer Advocate
AWS

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Module goals

- Fundamentals of pricing
- Getting help with AWS
 - Plans
 - Technology
 - Programs
- The AWS Well-Architected Framework
- Reference architectures

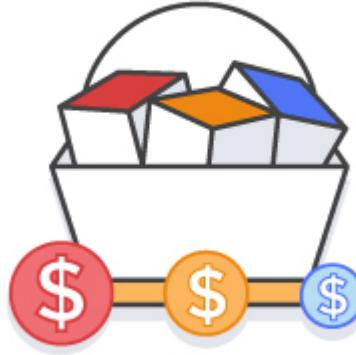
Fundamentals of pricing

How do you pay for AWS?

Pay as you go



Save when you reserve



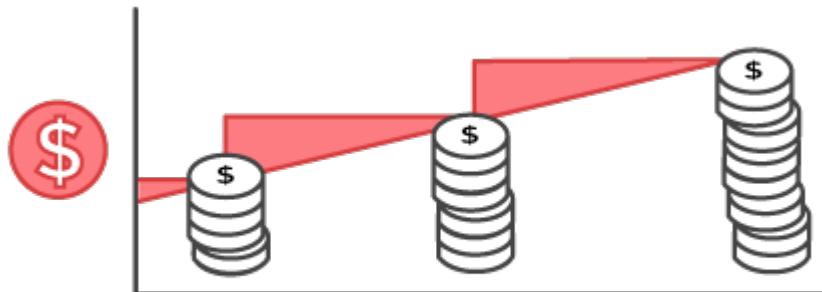
Use more, save more



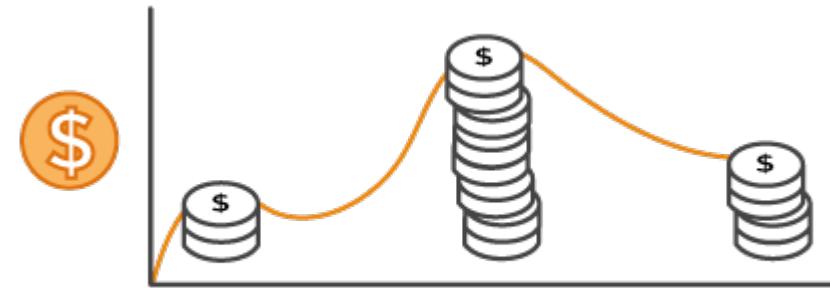
Pay as you go

Only pay for what you use

On premises/colocation



AWS



Save when you reserve: Savings Plans



Compute Savings Plans

Offer the greatest flexibility, up to 66% off (same prices as Convertible RIs)

FLEXIBLE ACROSS

- Instance family: E.g. move from C5 to M5
- Region: E.g. change from EU (Ireland) to EU (London)
- Operating System (OS): E.g. Windows to Linux
- Tenancy: E.g. switch Dedicated tenancy to Default tenancy
- Compute options: E.g. move from EC2 to Fargate



EC2 Instance Savings Plans

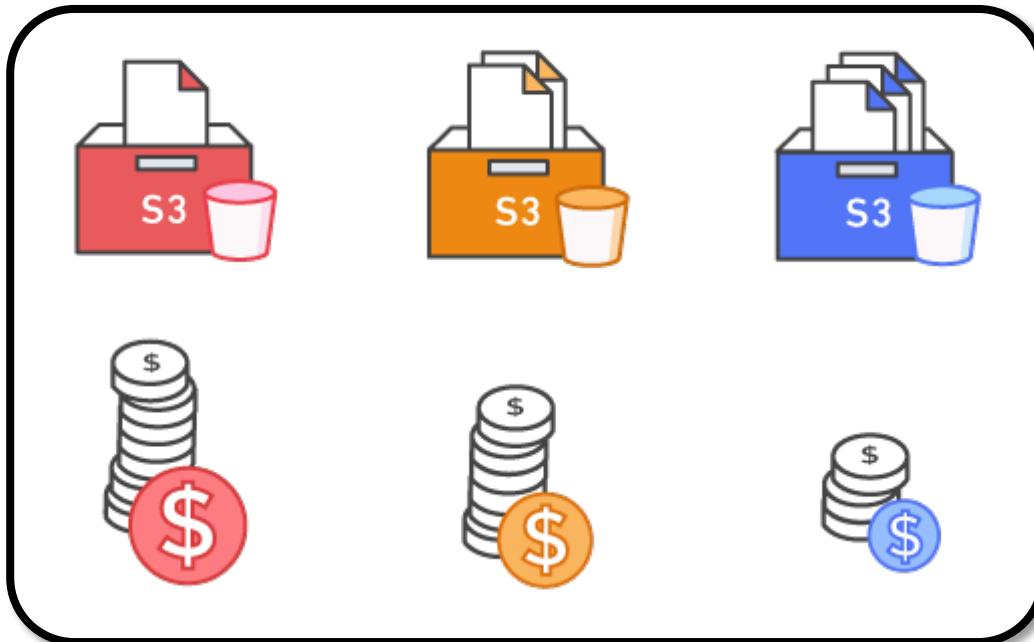
Provide the lowest prices, up to 72% off (same as Standard RIs) on the selected instance family (e.g. C5 or M5), in a specific AWS region

FLEXIBLE ACROSS

- Size: E.g. move from m5.xl to m5.4xl
- OS: E.g. change from m5.xl Windows to m5.xl Linux
- Tenancy: E.g. modify m5.xl dedicated to m5.xl default tenancy

Use more, save more

Automatic volume-based discounts



Pricing concepts

Compute

Storage

Data transfer

Pricing concepts

Compute

- Charged per hour/second*
- Varies by instance type

*Linux only

Storage

Data transfer

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Storage

- Charged typically per GB

Data transfer

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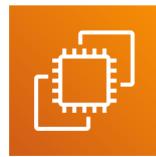
Storage

- Charged typically per GB

Data transfer

- Outbound is aggregated and charged
- Inbound has no charge (with some exceptions)
- Charged typically per GB

Different services are priced differently



Amazon EC2



Amazon EBS



Amazon S3



AWS CloudFormation

Amazon EC2: Five purchase types

On-Demand Instances

- Charged per hour/second*
- Short-term
- Unpredictable workloads

Dedicated Hosts

Reserved Instances

Savings Plans

Spot Instances

Amazon EC2: Five purchase types

On-Demand Instances

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Dedicated Hosts

- Physical server dedicated to you
- Applications with specific compliance requirements

Reserved Instances

Savings Plans

Spot Instances

Amazon EC2: Five purchase types

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Reserved Instances

- Discount for 1 to 3 year commitments
- Applications with steady state usage

Savings Plans

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Savings Plans

- Discount on EC2 and Fargate for 1 - 3 year commitments
- Applications with steady state usage
- Savings similar to RIs but with added flexibility

Spot Instances

Amazon EC2: Five purchase types

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Savings Plans

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Spot Instances

- Spare AWS capacity for up to 90% discount
- Applications with flexible start and end times
- Urgent computing needs for large capacity

Amazon EBS pricing model

Volumes

- Charged by GB provisioned/month
- Varies by volume type

Snapshots

Data transfer

Amazon EBS pricing model

Volumes

- Charged by GB provisioned/month
- Varies by volume type

Snapshots

- Charged by space consumed in Amazon S3
- Charged for volume copied across regions

Data transfer

Amazon EBS pricing model

Volumes

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- Varies by volume type

Snapshots

- Charged by space consumed in Amazon S3
- Charged for volume copied across regions

Data transfer

- Inbound data transfer is free
- Outbound data transfer charges are tiered

Amazon S3 pricing model

- Amount of storage used
- Region
- Storage class
- Number and type of requests (GET, PUT, COPY)
- Amount of data transferred out of the region

AWS services with no additional charge



Amazon VPC



Elastic Beanstalk



Auto Scaling



AWS CloudFormation



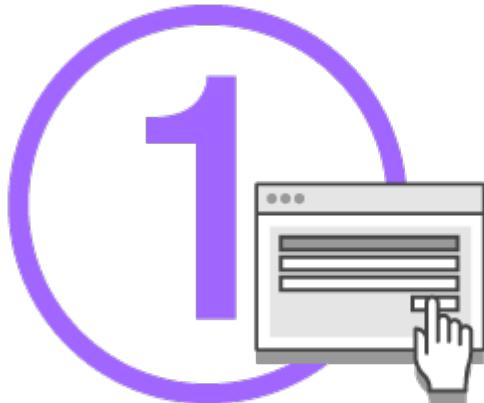
AWS Identity and Access Management (IAM)

Cost estimating tools

AWS Free Tier

Enables you to gain free hands-on experience with the AWS platform, products, and services.

aws.amazon.com/free



Sign up for an AWS account

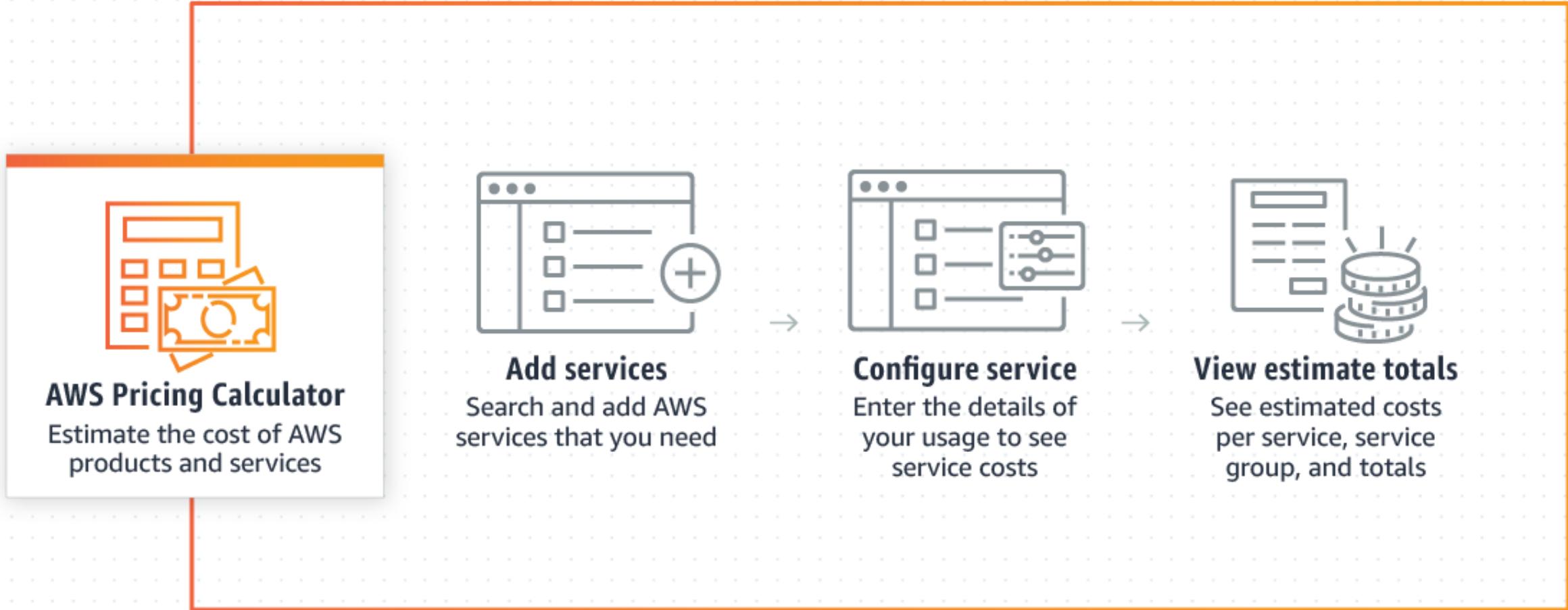


Learn with 10-minute tutorials



Start building with AWS

AWS Pricing Calculator

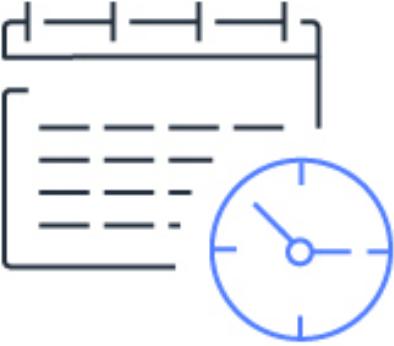


Demo

Analyzing with AWS Cost Explorer



Get started quickly



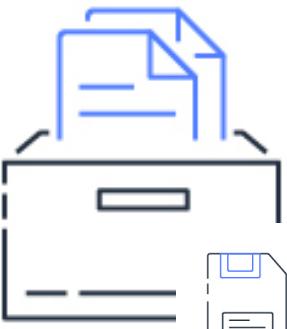
Set custom intervals



Filter/group data



Forecast cost and usage



Save progress



Access data
programmatically

What Is Trusted Advisor?

A service providing guidance to help you reduce cost,
increase performance, and improve security

Cost Optimization



0 ✓ 9 ▲ 0 !

\$7,516.87

Potential monthly savings

Performance



3 ✓ 7 ▲ 0 !

Security



2 ✓ 4 ▲ 11 !

Fault Tolerance



0 ✓ 15 ▲ 5 !

Service Limits



37 ✓ 0 ▲ 1 !

AWS Support

Support plan overview

| Support plan | Features |
|--------------|---|
| Basic | <ul style="list-style-type: none">Customer serviceSupport forumsService health checksDocumentation, whitepapers, and best-practice guides |
| Developer | <ul style="list-style-type: none">Best-practice guidanceClient-side diagnostic toolsBuilding-block architecture support |
| Business | <ul style="list-style-type: none">Use-case guidanceIAM for controlling individuals' access to AWS SupportFull AWS Trusted AdvisorAn API for interacting with Support Center and Trusted AdvisorThird-party software support |
| Enterprise | <ul style="list-style-type: none">Application architecture guidanceInfrastructure event managementTechnical Account Manager (TAM)White-glove case routingManagement business reviews |

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Tech Support Access and Response

| Support plan | Tech support access | Response times |
|--------------|--|--|
| Basic | <ul style="list-style-type: none">• N/A | <ul style="list-style-type: none">• N/A |
| Developer | <ul style="list-style-type: none">• Local business hours• Cloud Support Associates• Email | <ul style="list-style-type: none">• General guidance: < 24 business hours• System impaired: < 12 business hours |
| Business | <ul style="list-style-type: none">• 24x7• Cloud Support Engineers• Email, chat, phone | <ul style="list-style-type: none">• General guidance: < 24 hours• System impaired: < 12 hours• Production system impaired: < 4 hours• Production system down: < 1 hour |
| Enterprise | <ul style="list-style-type: none">• 24x7• Sr. Cloud Support Engineers• Email, chat & phone | <ul style="list-style-type: none">• General guidance: < 24 hours• System impaired: < 12 hours• Production system impaired: < 4 hours• Production system down: < 1 hour• Business-critical system down: < 15 minutes |

Support documentation

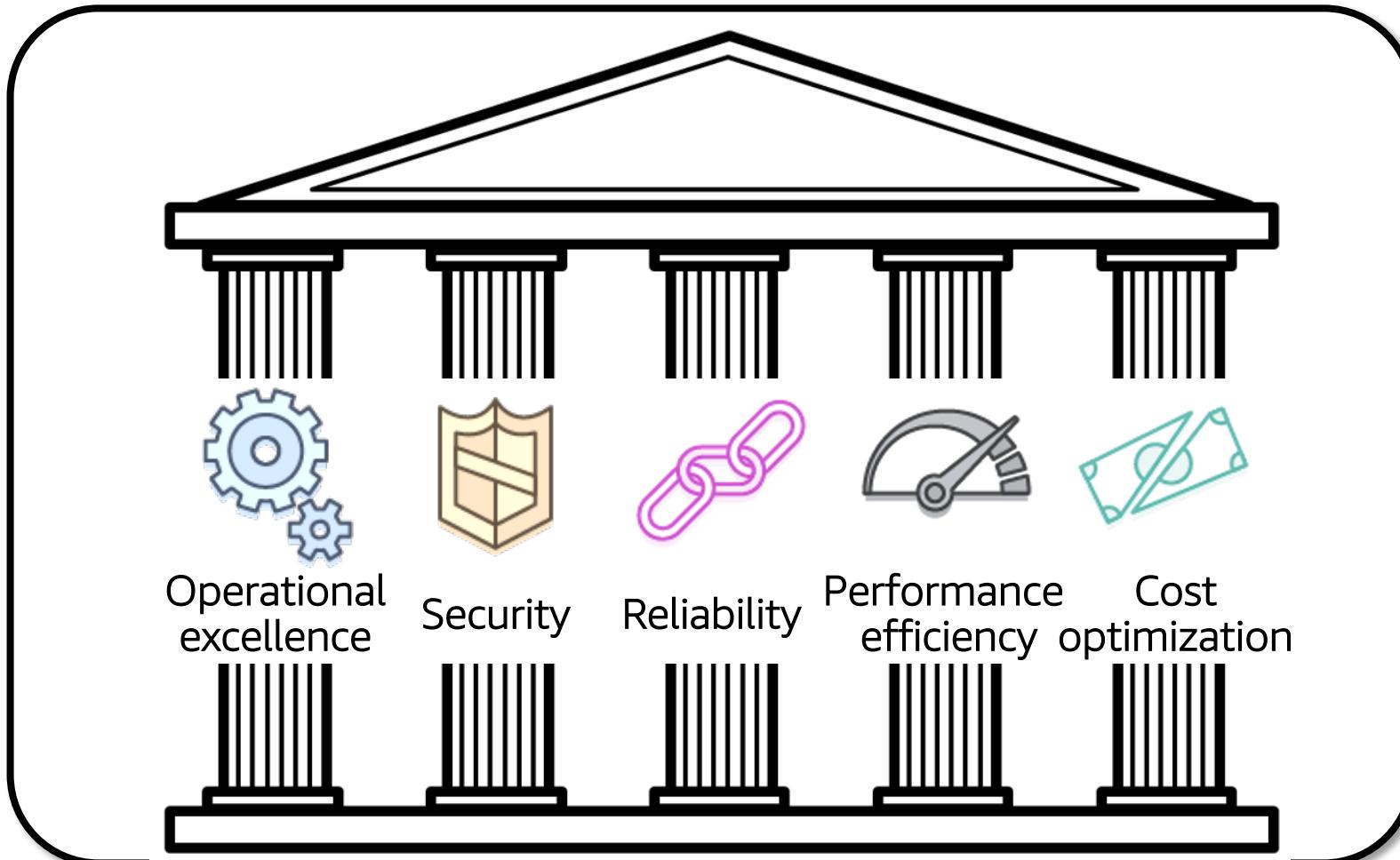
- Knowledge Center (FAQs and common requests)
- AWS Documentation
- AWS Discussion Forums
- AWS Support Center

The AWS Well-Architected Framework

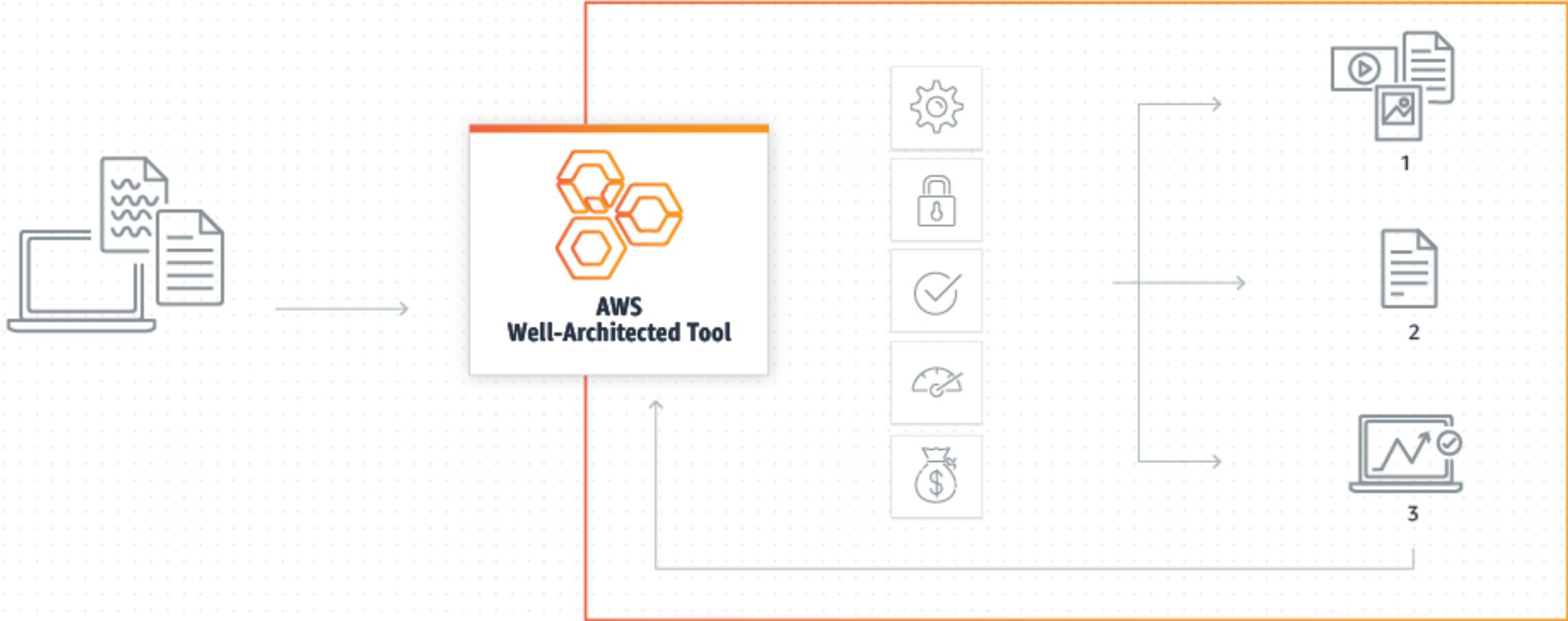
What is the Well-Architected Framework?

- A guide for designing infrastructures that are:
 - ✓ Secure
 - ✓ High-performing
 - ✓ Resilient
 - ✓ Efficient
- A systematic approach to evaluating and implementing architectures
- Established best practices developed through lessons learned by working with customers

Five pillars of the framework

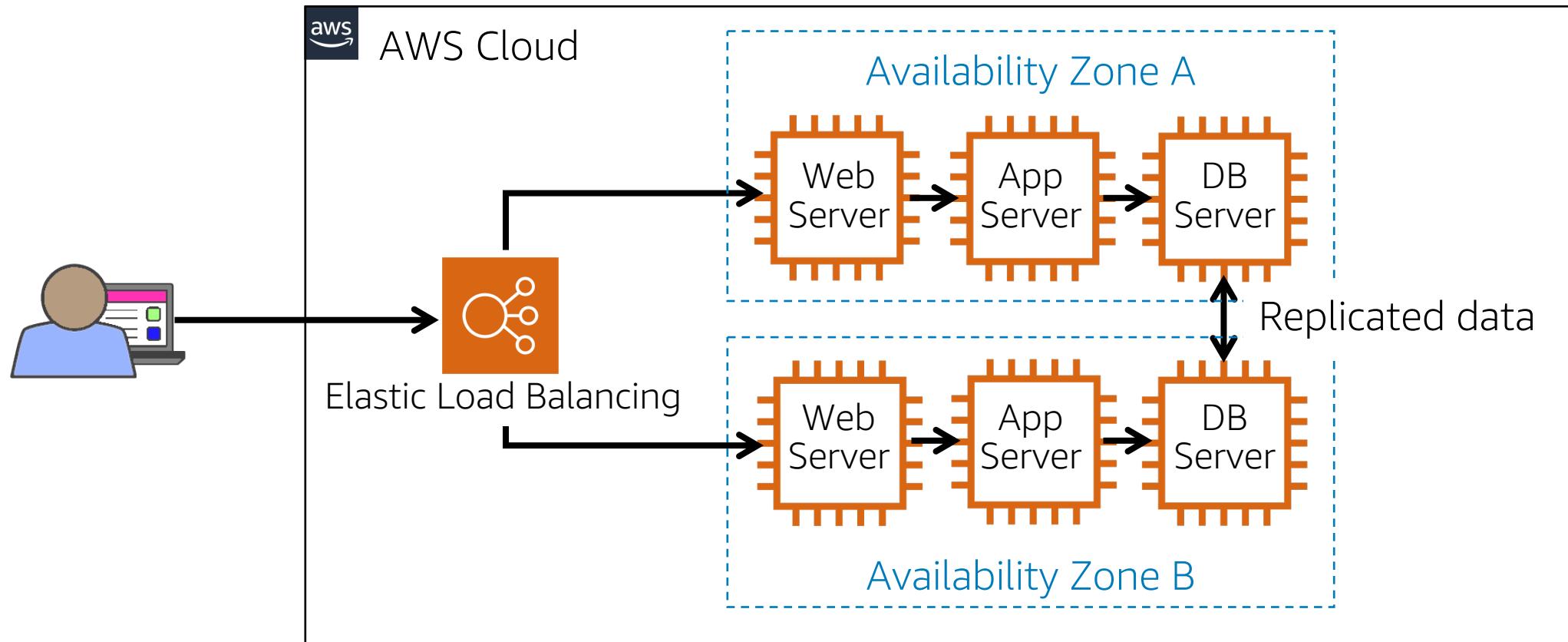


Well Architected Tool



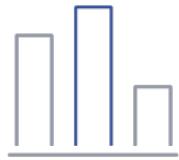
Demo

Example: Improving availability with Elastic Load



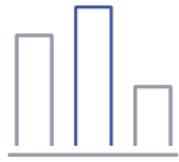
Cost optimization design principles

Cost optimization design principles



Adopt a
consumption model

Cost optimization design principles

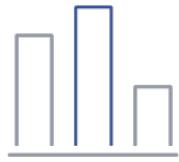


Adopt a
consumption model



Measure overall
efficiency

Cost optimization design principles



Adopt a
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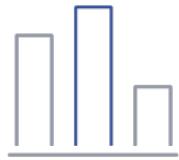


Stop spending
money on datacenter
operations



Measure overall
efficiency

Cost optimization design principles



Adopt a consumption model



Stop spending money on datacenter operations



Analyze and attribute expenditure



Measure overall efficiency

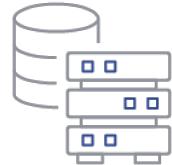
Cost optimization design principles



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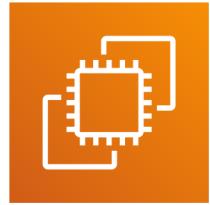


Measure overall
efficiency



Use managed services
to reduce TCO

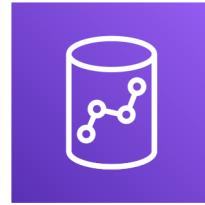
Managed services: Relational database options



Amazon EC2



Amazon
Relational
Database
Service
(Amazon RDS)



Amazon
Redshift



Amazon
Aurora
Serverless



Amazon
Athena

Unmanaged

Highly managed

Pay for Infrastructure

Pay per Transaction

Key takeaways

- AWS offers a pay-as-you-go approach for pricing
- Some services have specific pricing factors and some have no additional charge*
- AWS Simple Monthly Calculator helps you estimate your monthly bill
- Additional support such as Knowledge Center, AWS Documentation, and AWS Discussion Forums
- The Well-Architected Framework
 - Designed to help you build secure, high-performing, resilient, and efficient infrastructure in a cloud-native way
 - Provides a consistent approach for evaluating architectures and implementing designs
 - Established five pillars with design principles that scale with your needs over time

Thank you!

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