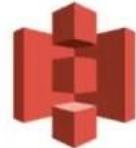


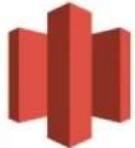
Storage Choices

AWS: Storage Choices



Amazon S3

Durable object storage for all types of data



Amazon Glacier

Archival storage for infrequently accessed data



Amazon EBS

Block storage for use with Amazon EC2



Amazon EFS

File storage for use with Amazon EC2

Economics

Pay as you go

No upfront investment
No commitment

Easy to Use

Self service administration

SDKs for simple integration

Reduce risk

Durable and Secure

Avoid risks of physical media handling

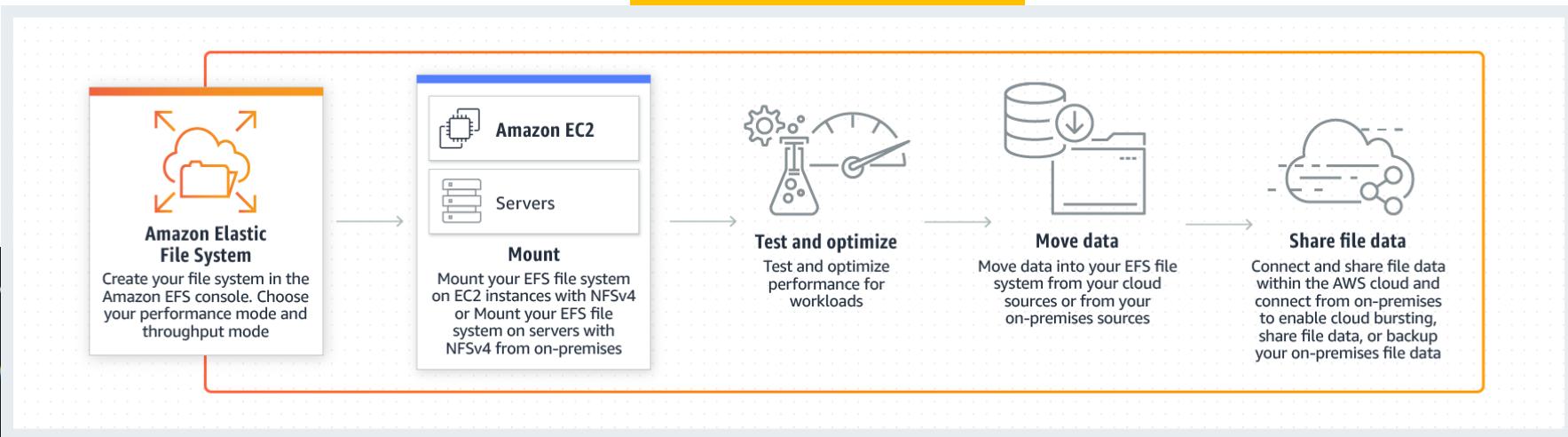
Agility, Scale

Reduce time to market

Focus on your business, not your infrastructure



EFS



Comparing EFS with S3 and EBS

The table below compares EFS with S3 and EBS.

		File Amazon EFS	Object Amazon S3	Block Amazon EBS
Performance	Per-operation latency	Low, consistent	Low, for mixed request types, and integration with CloudFront	Lowest, consistent
	Throughput scale	Multiple GBs per second	Multiple GBs per second	Single GB per second
Characteristics	Data Availability/Durability	Stored redundantly across multiple AZs	Stored redundantly across multiple AZs	Stored redundantly in a single AZ
	Access	One to thousands of EC2 instances or on-premises servers, from multiple AZs, concurrently	One to millions of connections over the web	Single EC2 instance in a single AZ
	Use Cases	Web serving and content management, enterprise applications, media and entertainment, home directories, database backups, developer tools, container storage, big data analytics	Web serving and content management, media and entertainment, backups, big data analytics, data lake	Boot volumes, transactional and NoSQL databases, data warehousing & ETL

AWS OpsWorks

AWS OpsWorks is a configuration management service that provides managed instances of Chef and Puppet. Chef and Puppet are automation platforms that allow you to use code to automate the configurations of your servers. OpsWorks lets you use Chef and Puppet to automate how servers are configured, deployed, and managed across your Amazon EC2 instances or on-premises compute environments. OpsWorks has three offerings, [AWS Opsworks for Chef Automate](#), [AWS OpsWorks for Puppet Enterprise](#), and [AWS OpsWorks Stacks](#).

- **Load-based instances** are automatically started and stopped by AWS OpsWorks Stacks, based on specified load metrics, such as CPU utilization.
They allow your stack to automatically adjust the number of instances to accommodate variations in incoming traffic. Load-based instances are available only for **Linux**-based stacks.

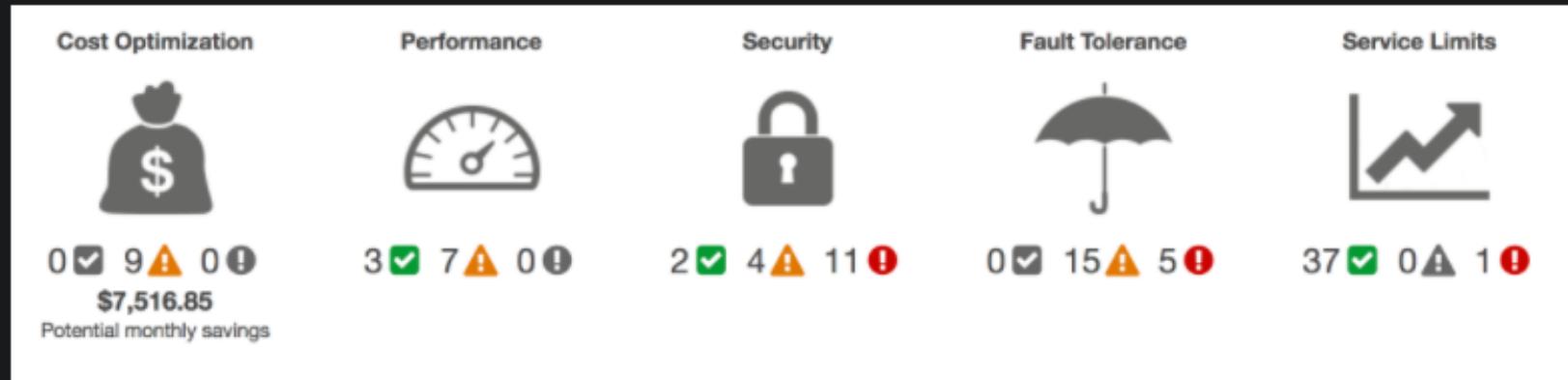
AWS OpsWorks Stacks supports instance autohealing. If an agent stops communicating with the service, AWS OpsWorks Stacks automatically stops and restarts the instance.

You can also incorporate **Linux**-based computing resources into a stack that was created outside of AWS OpsWorks Stacks.

AWS Trusted Advisor

AWS Trusted Advisor is an online tool that provides you real time guidance to help you provision your resources following AWS best practices. Trusted Advisor checks help optimize your AWS infrastructure, increase security and performance, reduce your overall costs, and monitor service limits. Whether establishing new workflows, developing applications, or as part of ongoing improvement, take advantage of the recommendations provided by Trusted Advisor on a regular basis to help keep your solutions provisioned optimally.

AWS Basic Support and [AWS Developer Support](#) customers get access to 6 security checks (S3 Bucket Permissions, Security Groups - Specific Ports Unrestricted, IAM Use, MFA on Root Account, EBS Public Snapshots, RDS Public Snapshots) and 50 service limit checks. [AWS Business Support](#) and [AWS Enterprise Support](#) customers get access to all 115 Trusted Advisor checks (14 cost optimization, 17 security, 24 fault tolerance, 10 performance, and 50 service limits) and recommendations. For a complete list of checks and descriptions, explore [Trusted Advisor Best Practices](#).



AWS Budgets

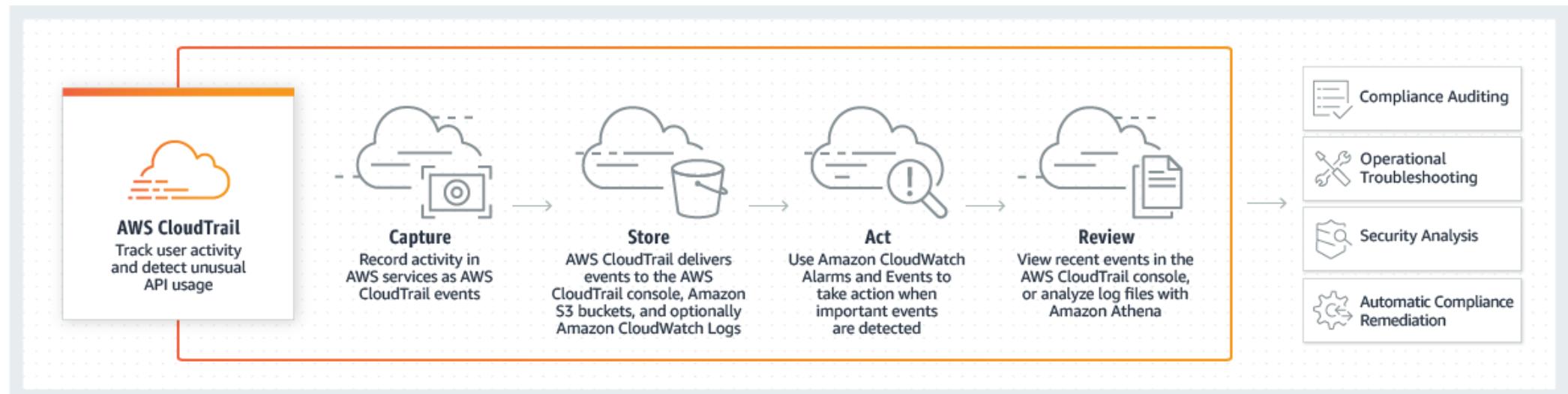
Businesses and organizations need to plan and set expectations around cloud costs. However, the cloud agility requires you to adapt your forecasting processes and tools to match the dynamic nature of your usage. Set up custom budgets and stay informed of how your cost and usage progress and respond quickly when cost or usage exceeds threshold.

AWS Budgets allows you to set custom budgets to track your cost and usage from the simplest to the most complex use cases. With AWS Budgets, you can choose to be alerted by email or SNS notification when actual or forecasted cost and usage exceed your budget threshold, or when your actual RI and Savings Plans' utilization or coverage drops below your desired threshold. With AWS Budget Actions, you can also configure specific actions to respond to cost and usage status in your accounts, so that if your cost or usage exceeds or is forecasted to exceed your threshold, actions can be executed automatically or with your approval to reduce unintentional over-spending.

AWS Budgets							
<input type="text"/> Filter by budget name						 Download CSV	 Create budget
All budgets (15)	Cost budgets (9)	Usage budgets (1)	Reservation budgets (5)				
Budget name	Budget type	Current	Budgeted	Forecasted	Current vs. budgeted	Forecasted vs. budgeted	
Monthly EC2 Credit Budget	Cost	\$1,426.61	\$100.00	\$1,793.01	<div style="width: 1426.61%;"><div style="width: 1426.61%;">1,426.61%</div></div>	<div style="width: 1793.01%;"><div style="width: 1793.01%;">1,793.01%</div></div>	...
Demo Credit Budget	Cost	\$2,303.55	\$3,000.00	\$2,906.86	<div style="width: 76.78%;"><div style="width: 76.78%;">76.78%</div></div>	<div style="width: 96.9%;"><div style="width: 96.9%;">96.9%</div></div>	...
Monthly total planning budget	Cost	\$2,303.55	\$3,000.00	\$2,906.86	<div style="width: 76.78%;"><div style="width: 76.78%;">76.78%</div></div>	<div style="width: 96.9%;"><div style="width: 96.9%;">96.9%</div></div>	...
EC2 Monthly Budget	Cost	\$1,295.74	\$1,800.00	\$1,643.15	<div style="width: 71.99%;"><div style="width: 71.99%;">71.99%</div></div>	<div style="width: 91.29%;"><div style="width: 91.29%;">91.29%</div></div>	...
EC2 Costs Production	Cost	\$41.76	\$80.00	\$52.27	<div style="width: 69.61%;"><div style="width: 69.61%;">69.61%</div></div>	<div style="width: 87.12%;"><div style="width: 87.12%;">87.12%</div></div>	...

AWS CloudTrail

AWS CloudTrail is a service that enables governance, compliance, operational auditing, and risk auditing of your AWS account. With CloudTrail, you can log, continuously monitor, and retain account activity related to actions across your AWS infrastructure. CloudTrail provides event history of your AWS account activity, including actions taken through the AWS Management Console, AWS SDKs, command line tools, and other AWS services. This event history simplifies security analysis, resource change tracking, and troubleshooting. In addition, you can use CloudTrail to detect unusual activity in your AWS accounts. These capabilities help simplify operational analysis and troubleshooting.



S3 Lifecycle

Object lifecycle management

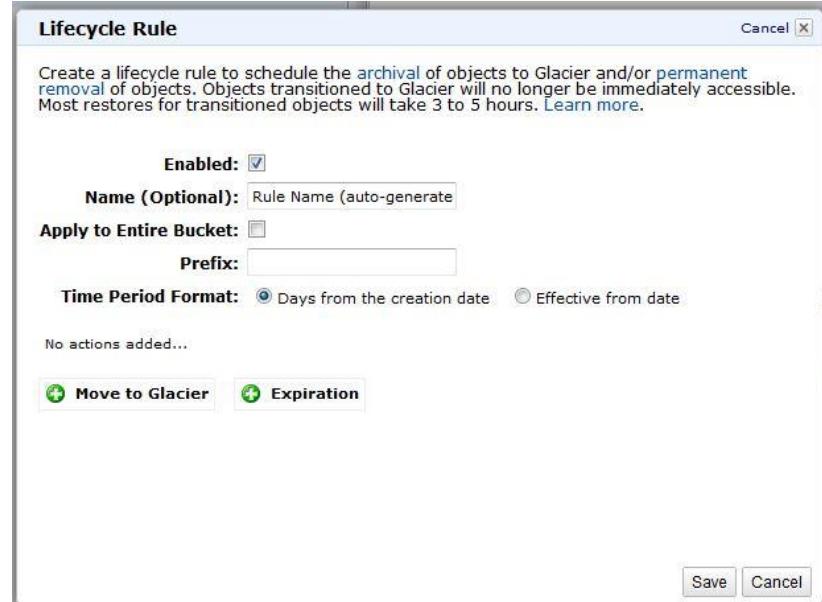
[PDF](#) | [Kindle](#) | [RSS](#)

To manage your objects so that they are stored cost effectively throughout their lifecycle, configure their *Amazon S3 Lifecycle*. An *S3 Lifecycle configuration* is a set of rules that define actions that Amazon S3 applies to a group of objects. There are two types of actions:

- **Transition actions**—Define when objects transition to another storage class. For example, you might choose to transition objects to the S3 Standard-IA storage class 30 days after you created them, or archive objects to the S3 Glacier storage class one year after creating them.

There are costs associated with the lifecycle transition requests. For pricing information, see [Amazon S3 pricing](#).

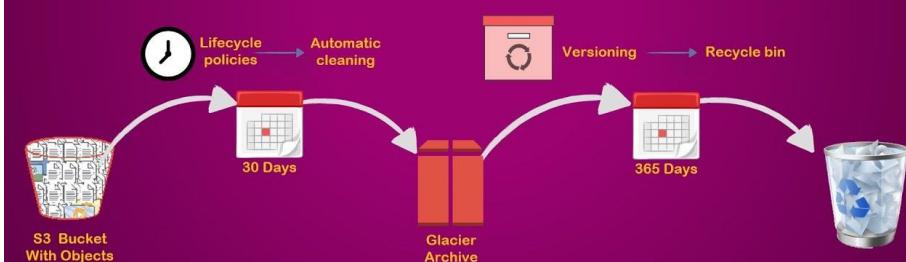
- **Expiration actions**—Define when objects expire. Amazon S3 deletes expired objects on your behalf. The lifecycle expiration costs depend on when you choose to expire objects. For more information, see [Understanding object expiration](#).



AWS S3 Life Cycle Policy

Transition objects to another storage class

Archive objects, or delete them after a specified period



AWS Tools

Tools to Build on AWS

Tools for developing and managing applications on AWS

Browse by Programming Language

Easily develop applications on AWS in the programming language of your choice

C++ Go Java JavaScript .NET Node.js PHP Python Ruby

Start building with Java

BUILD APPLICATIONS

Develop applications with Java-specific APIs and helpful libraries

[AWS SDK for Java »](#)

[AWS IoT Device SDK for Java »](#)

BUILD ON AWS WITH AN IDE

Use popular Integrated Development Environments (IDEs) to author, debug, and deploy your code on AWS

[AWS Toolkit for Eclipse »](#)

[AWS Toolkit for IntelliJ »](#)

GET STARTED

Access documentation and sample code to help you get started with Java on AWS

[Visit the Java on AWS Homepage »](#)

[Sample Code for Java »](#)

[Java Articles and Tutorials »](#)

CONNECT WITH THE COMMUNITY

Join the conversation or find answers, guidance, and resources to help you successfully build Java-based applications on AWS

[Developer Blog »](#)

[AWS on GitHub »](#)

[Stack Overflow »](#)

DOWNLOAD AMAZON CORRETTO

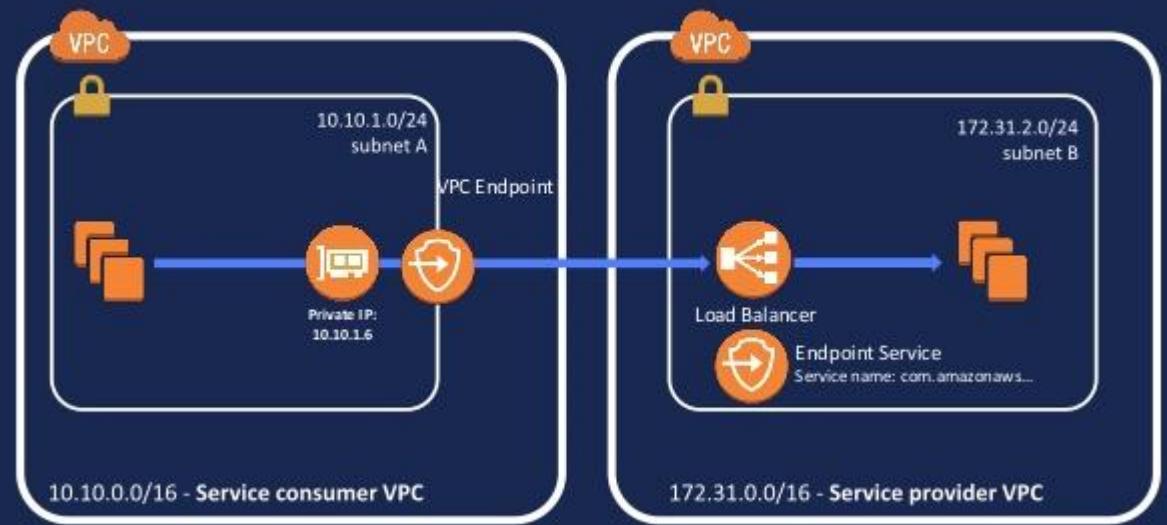
Amazon Corretto is a no-cost, multiplatform, production-ready distribution of the Open Java Development Kit (OpenJDK)

[Amazon Corretto »](#)

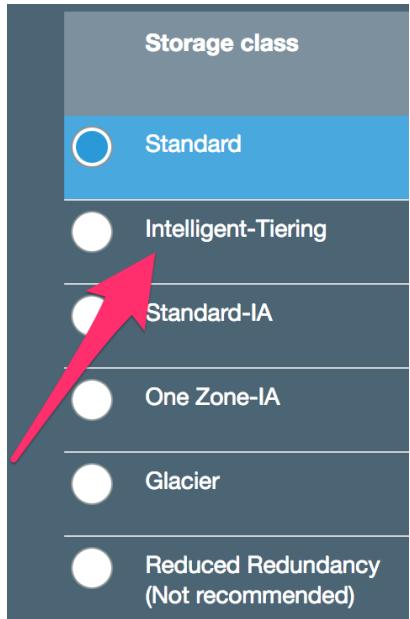
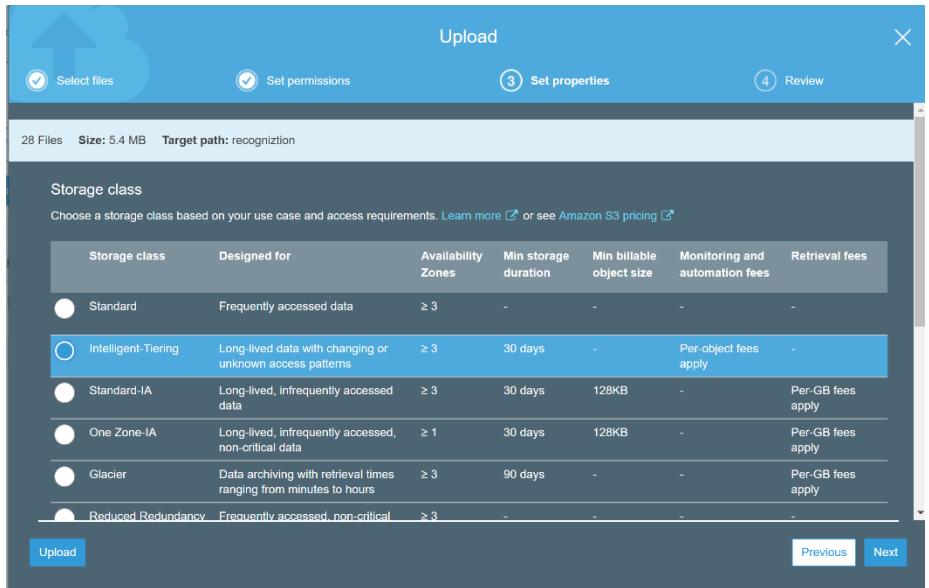
VPC endpoint powered by PrivateLink

aws VISUAL EXPLANATIONS

89

AWS CERTIFIED
SOLUTIONS ARCHITECT ASSOCIATE 2021Sharing a service **with** AWS PrivateLink

S3 Intelligent-Tiering



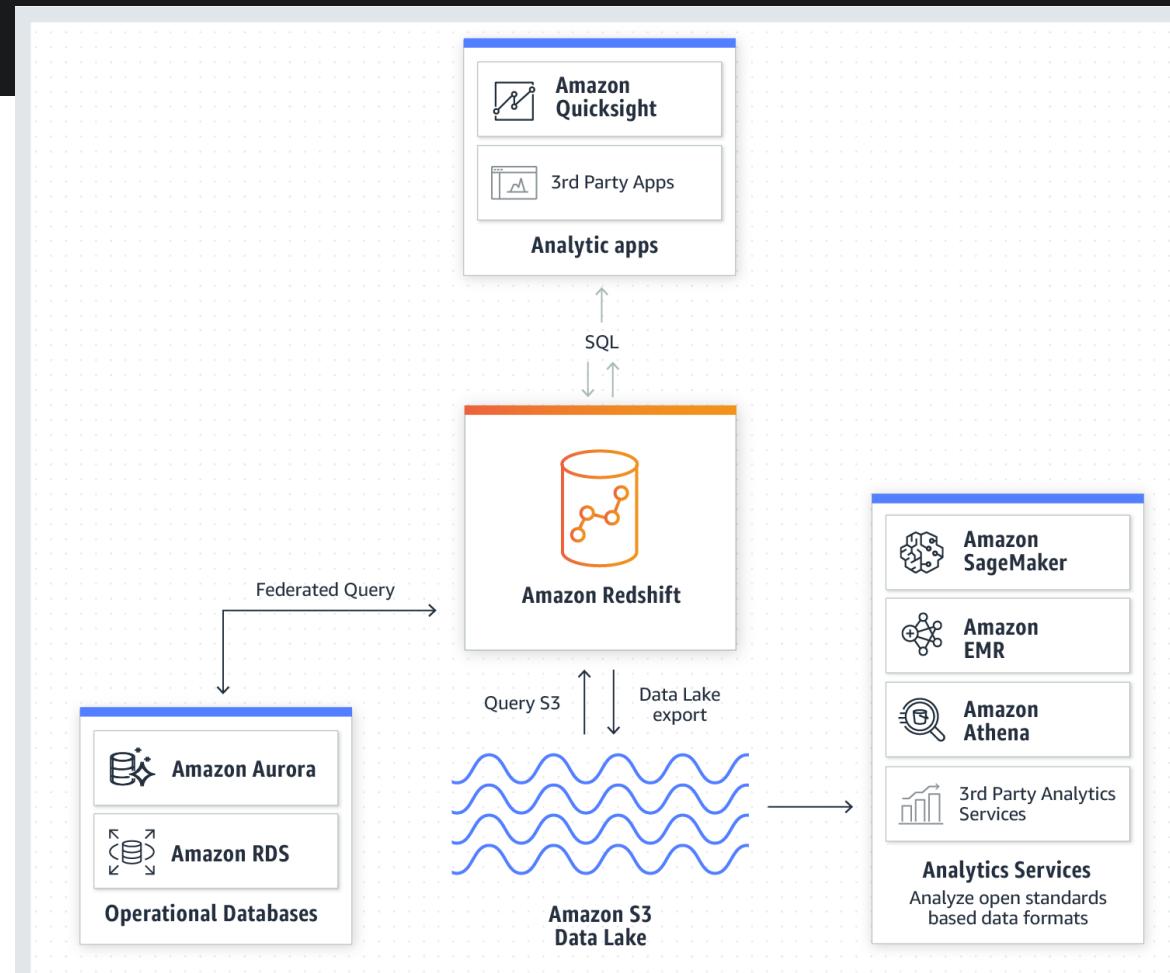
Announcing S3 Intelligent-Tiering — a New Amazon S3 Storage Class

Posted On: Nov 25, 2018

S3 Intelligent-Tiering is a new Amazon S3 storage class designed for customers who want to optimize storage costs automatically when data access patterns change, without performance impact or operational overhead. S3 Intelligent-Tiering is the first cloud object storage class that delivers automatic cost savings by moving data between two access tiers — frequent access and infrequent access — when access patterns change, and is ideal for data with unknown or changing access patterns.

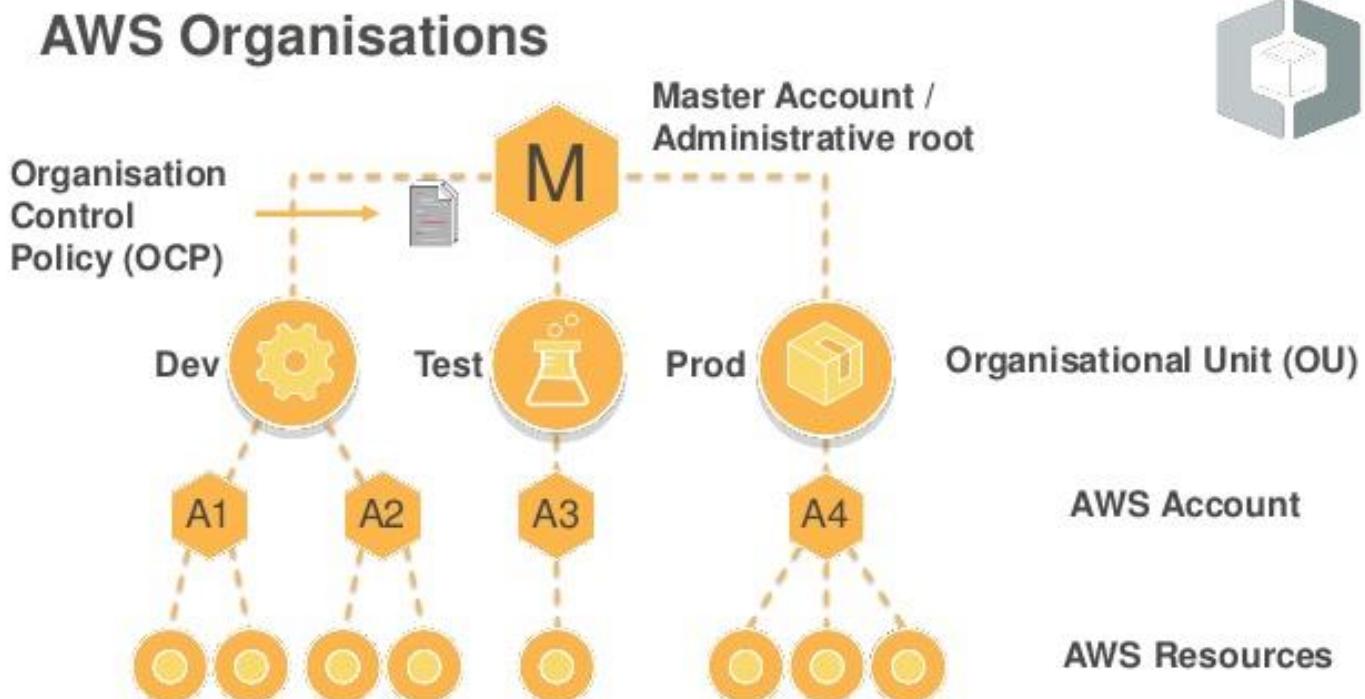
Redshift

Welcome to the *Amazon Redshift Cluster Management Guide*. Amazon Redshift is a fully managed, petabyte-scale data warehouse service in the cloud. You can start with just a few hundred gigabytes of data and scale to a petabyte or more. This enables you to use your data to acquire new insights for your business and customers.



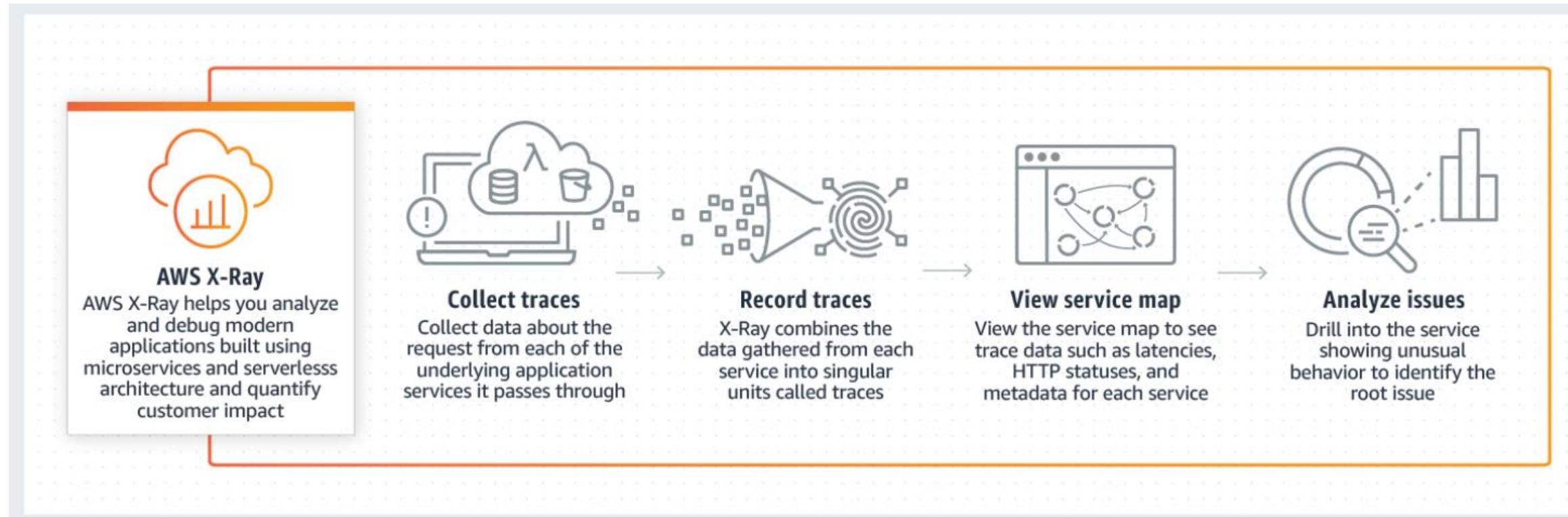
AWS Organizations

AWS Organizations helps you centrally manage and govern your environment as you grow and scale your AWS resources. Using AWS Organizations, you can programmatically create new AWS accounts and allocate resources, group accounts to organize your workflows, apply policies to accounts or groups for governance, and simplify billing by using a single payment method for all of your accounts.



AWS X-Ray

AWS X-Ray helps developers analyze and debug production, distributed applications, such as those built using a microservices architecture. With X-Ray, you can understand how your application and its underlying services are performing to identify and troubleshoot the root cause of performance issues and errors. X-Ray provides an end-to-end view of requests as they travel through your application, and shows a map of your application's underlying components. You can use X-Ray to analyze both applications in development and in production, from simple three-tier applications to complex microservices applications consisting of thousands of services.



AWS OpsWorks

AWS OpsWorks is a configuration management service that provides managed instances of Chef and Puppet. Chef and Puppet are automation platforms that allow you to use code to automate the configurations of your servers. OpsWorks lets you use Chef and Puppet to automate how servers are configured, deployed, and managed across your Amazon EC2 instances or on-premises compute environments. OpsWorks has three offerings, [AWS Opsworks for Chef Automate](#), [AWS OpsWorks for Puppet Enterprise](#), and [AWS OpsWorks Stacks](#).



AWS OpsWorks

AWS OpsWorks is a configuration management service that helps you build and operate highly dynamic applications, and propagate changes instantly.

AWS OpsWorks provides three solutions to configure your infrastructure:



OpsWorks Stacks

Define, group, provision, deploy, and operate your applications in AWS by using Chef in local mode.

[Go to OpsWorks Stacks](#)

Learn more about OpsWorks Stacks



OpsWorks for Chef Automate

Create Chef servers that include Chef Automate premium features, and use the Chef DK or any Chef tooling to manage them.

[Go to OpsWorks for Chef Automate](#)

Learn more about OpsWorks for Chef Automate



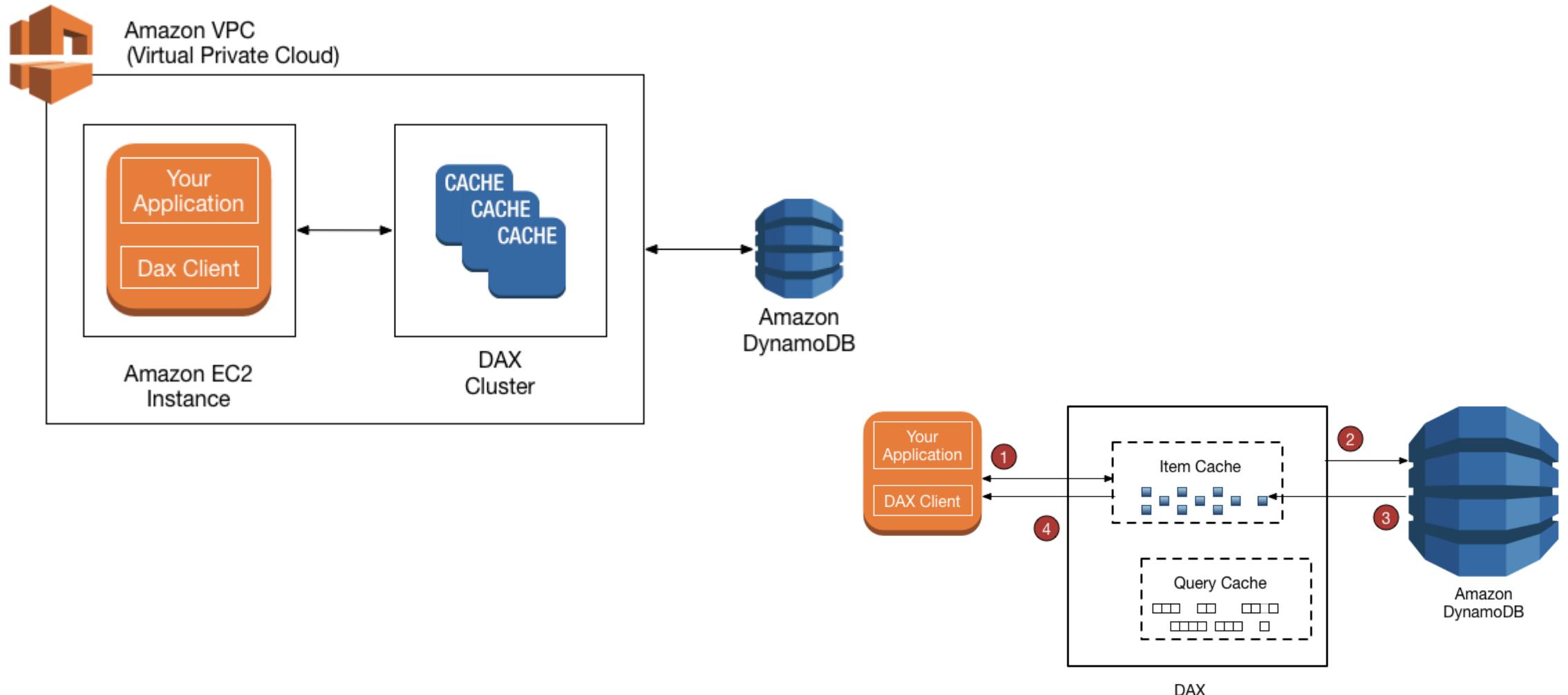
OpsWorks for Puppet Enterprise

Create Puppet servers that include Puppet Enterprise features. Inspect, deliver, update, monitor, and secure your infrastructure.

[Go to OpsWorks for Puppet Enterprise](#)

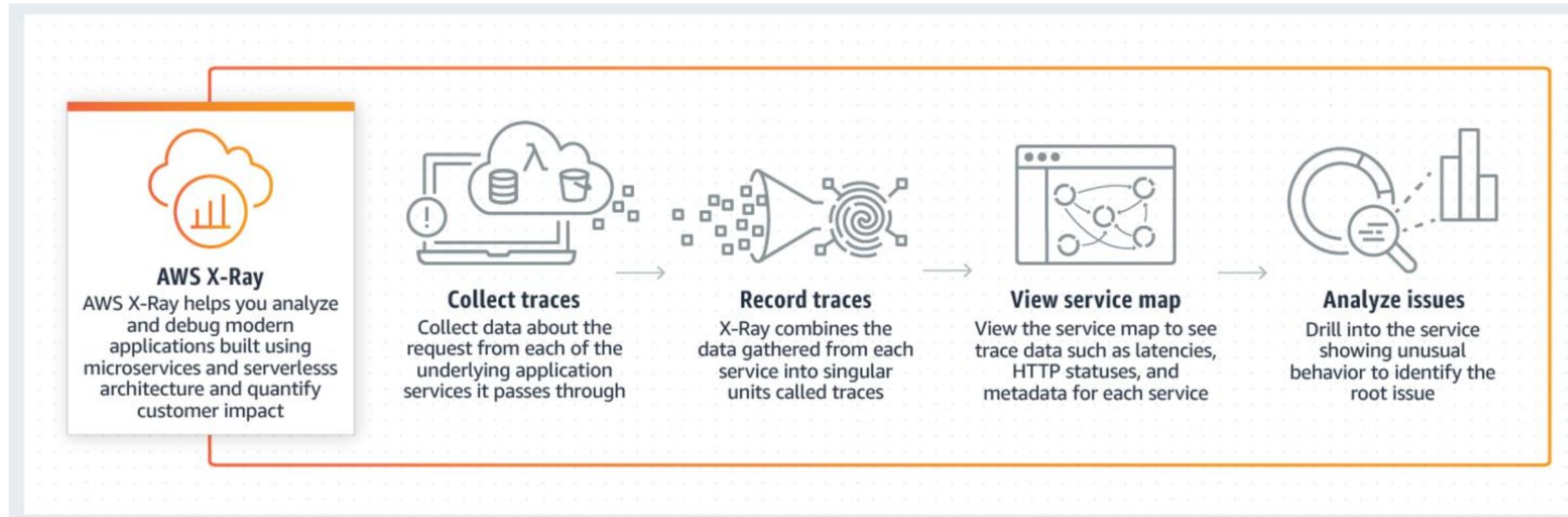
Learn more about OpsWorks for Puppet Enterprise

DynamoDB Accelerator DAX



AWS X-Ray

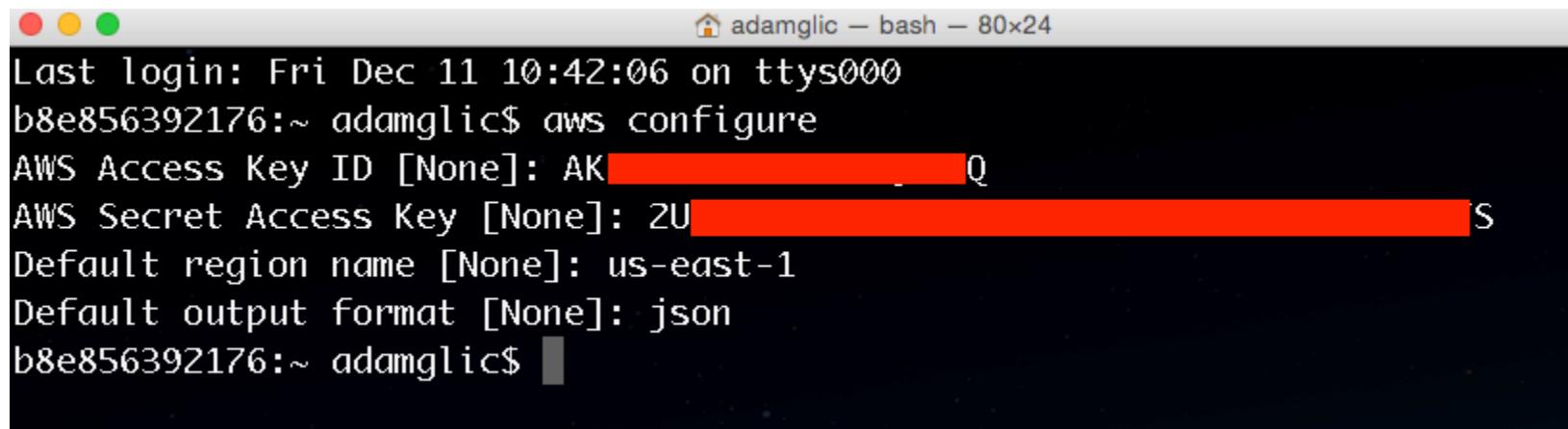
AWS X-Ray helps developers analyze and debug production, distributed applications, such as those built using a microservices architecture. With X-Ray, you can understand how your application and its underlying services are performing to identify and troubleshoot the root cause of performance issues and errors. X-Ray provides an end-to-end view of requests as they travel through your application, and shows a map of your application's underlying components. You can use X-Ray to analyze both applications in development and in production, from simple three-tier applications to complex microservices applications consisting of thousands of services.



What is the AWS Command Line Interface?

[PDF](#) | [Kindle](#) | [RSS](#)

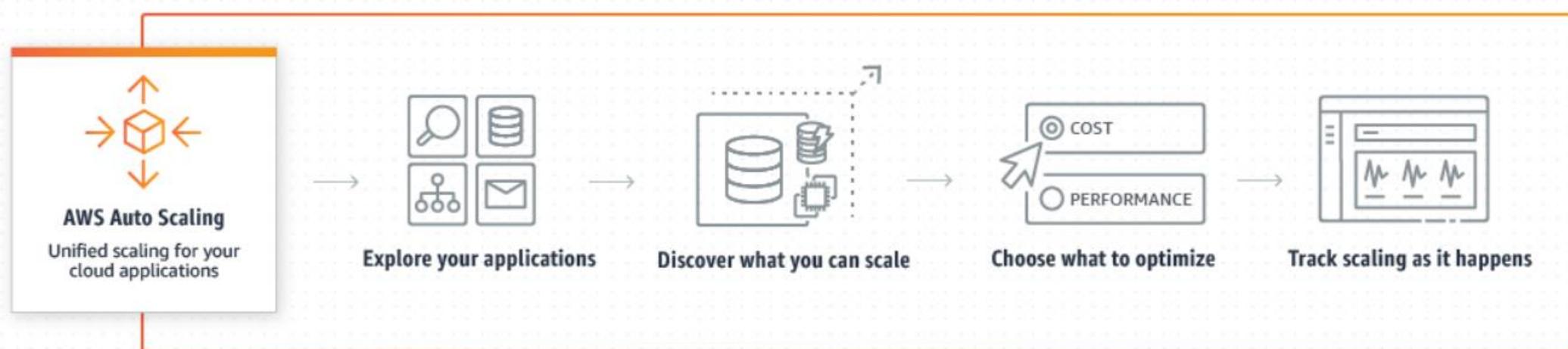
The AWS Command Line Interface (AWS CLI) is an open source tool that enables you to interact with AWS services using commands in your command-line shell. With minimal configuration, the AWS CLI enables you to start running commands that implement functionality equivalent to that provided by the browser-based AWS Management Console from the command prompt in your terminal program:



```
adamglic ~ bash 80x24
Last login: Fri Dec 11 10:42:06 on ttys000
b8e856392176:~ adamglic$ aws configure
AWS Access Key ID [None]: AK[REDACTED]Q
AWS Secret Access Key [None]: 2U[REDACTED]S
Default region name [None]: us-east-1
Default output format [None]: json
b8e856392176:~ adamglic$
```

Elasticity (Cloud Concepts)

The concept of Elasticity is the means of an application having the ability to scale up and scale down based on demand. An example of such a service is the Autoscaling service



Spot Instances

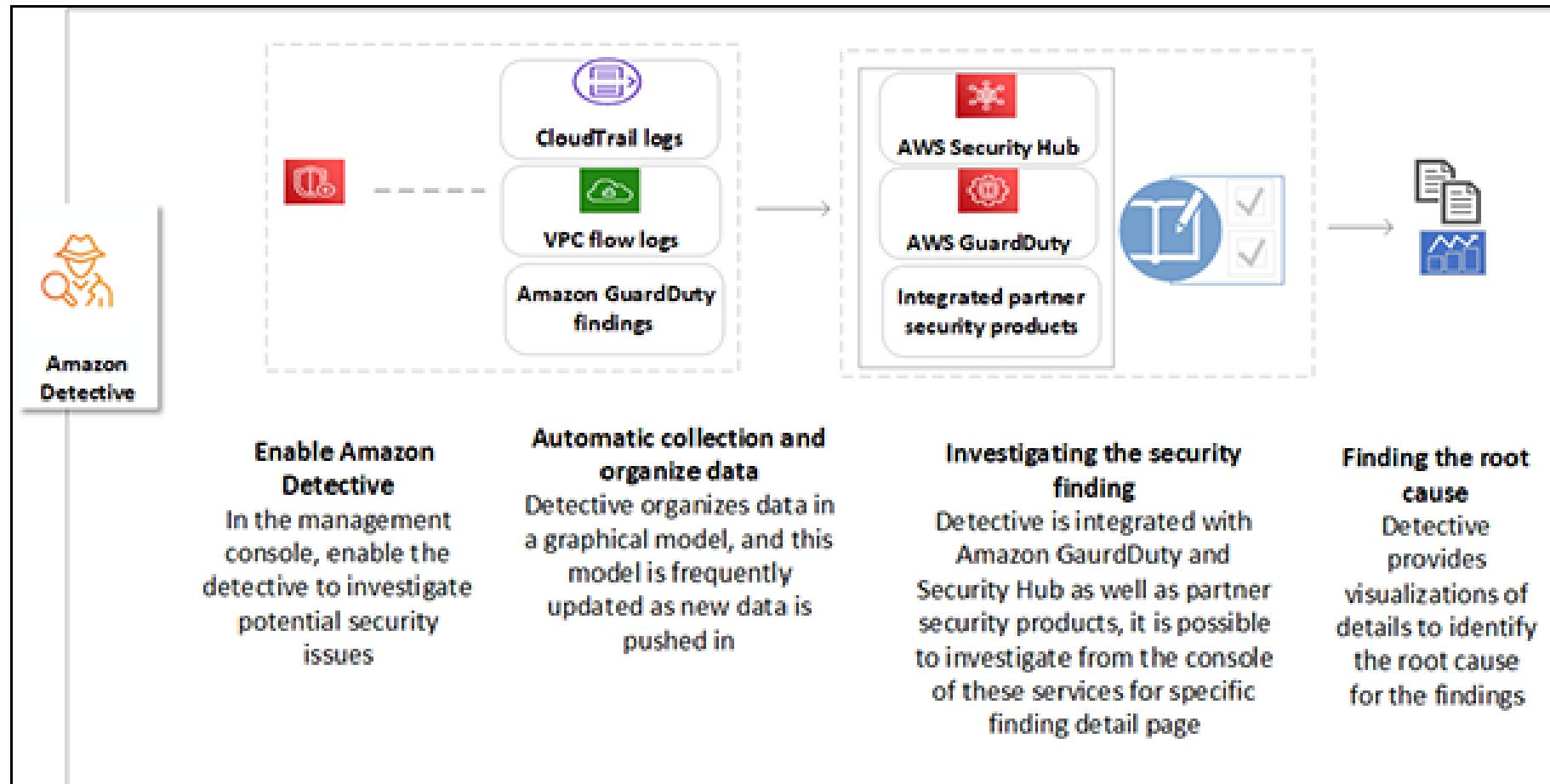
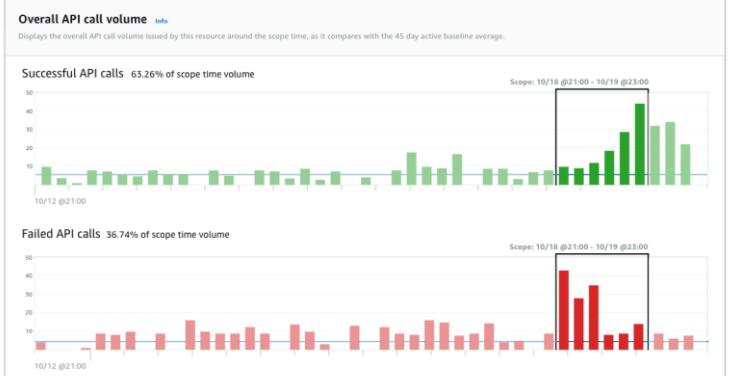
Spot Instances are a cost-effective choice if you can be flexible about when your applications run and if your applications can be interrupted. For example, Spot Instances are well-suited for data analysis, batch jobs, background processing, and optional tasks. For more information, see [Amazon EC2 Spot Instances](#).



AWS Detective

Amazon Detective

Analyze and visualize security data to rapidly get to the root cause of potential security issues

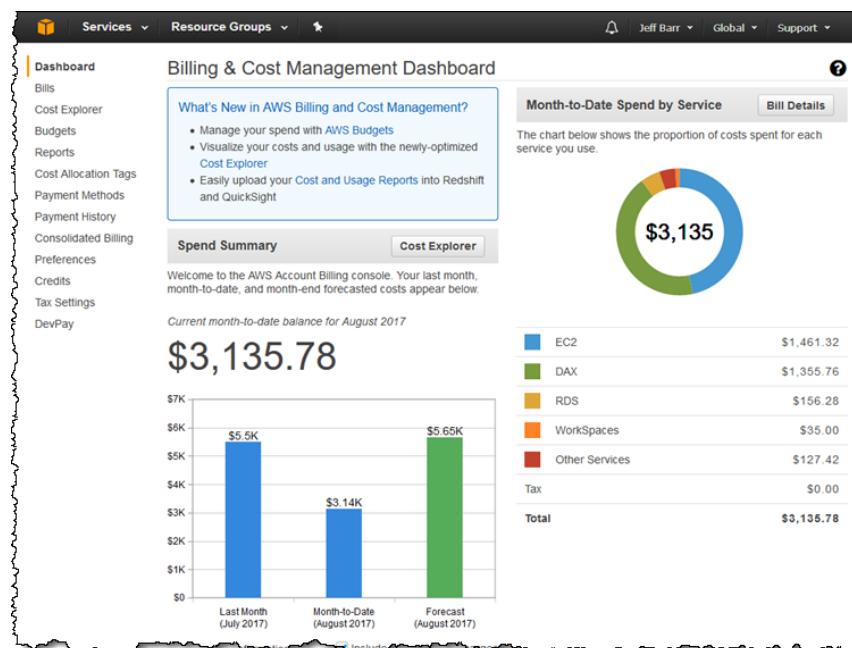


AWS Cost Explorer

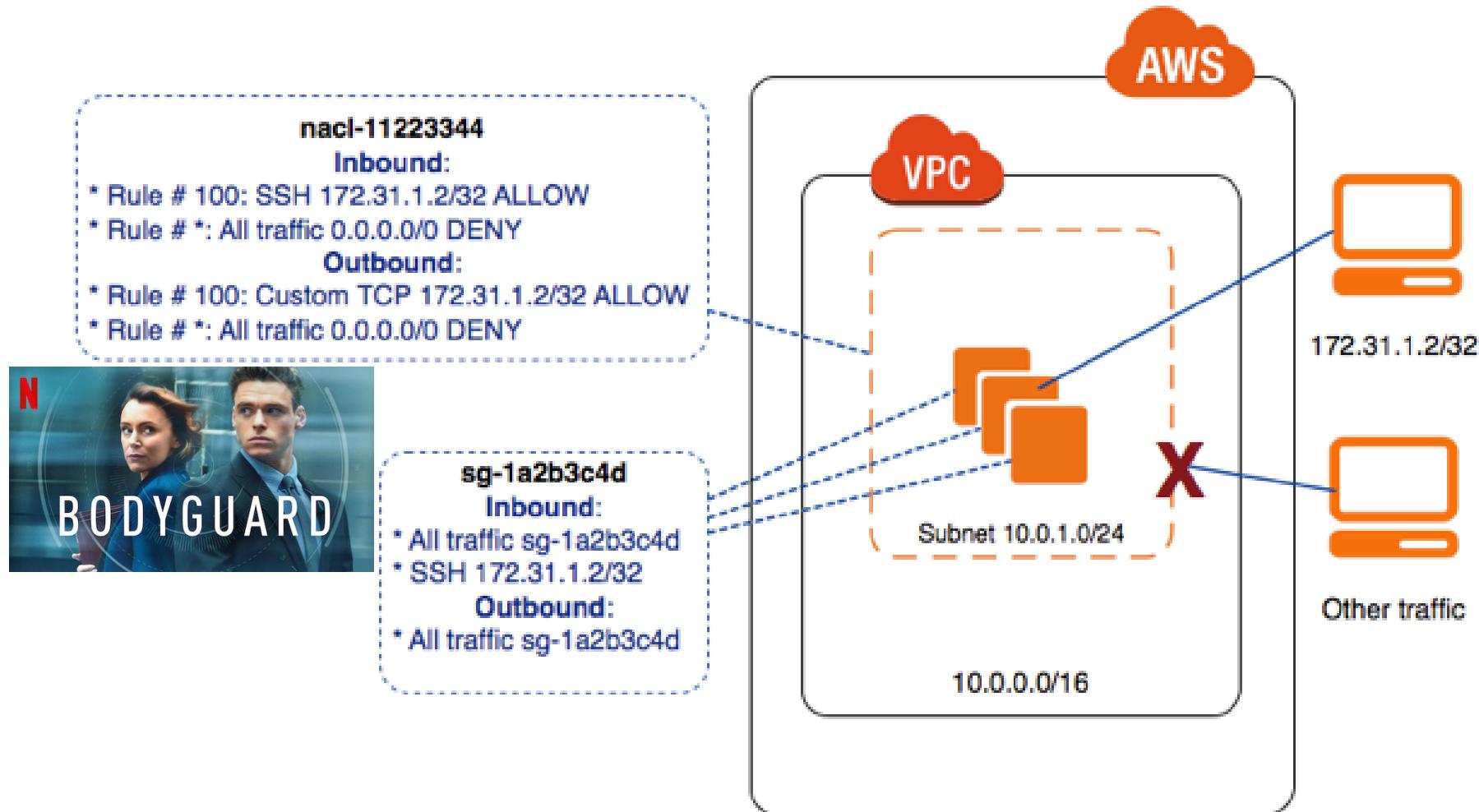
Analyzing your costs with Cost Explorer

[PDF](#) | [Kindle](#) | [RSS](#)

Cost Explorer is a tool that enables you to view and analyze your costs and usage. You can explore your usage and costs using the main graph, the Cost Explorer cost and usage reports, or the Cost Explorer RI reports. You can view data for up to the last 12 months, forecast how much you're likely to spend for the next 12 months, and get recommendations for what Reserved Instances to purchase. You can use Cost Explorer to identify areas that need further inquiry and see trends that you can use to understand your costs.



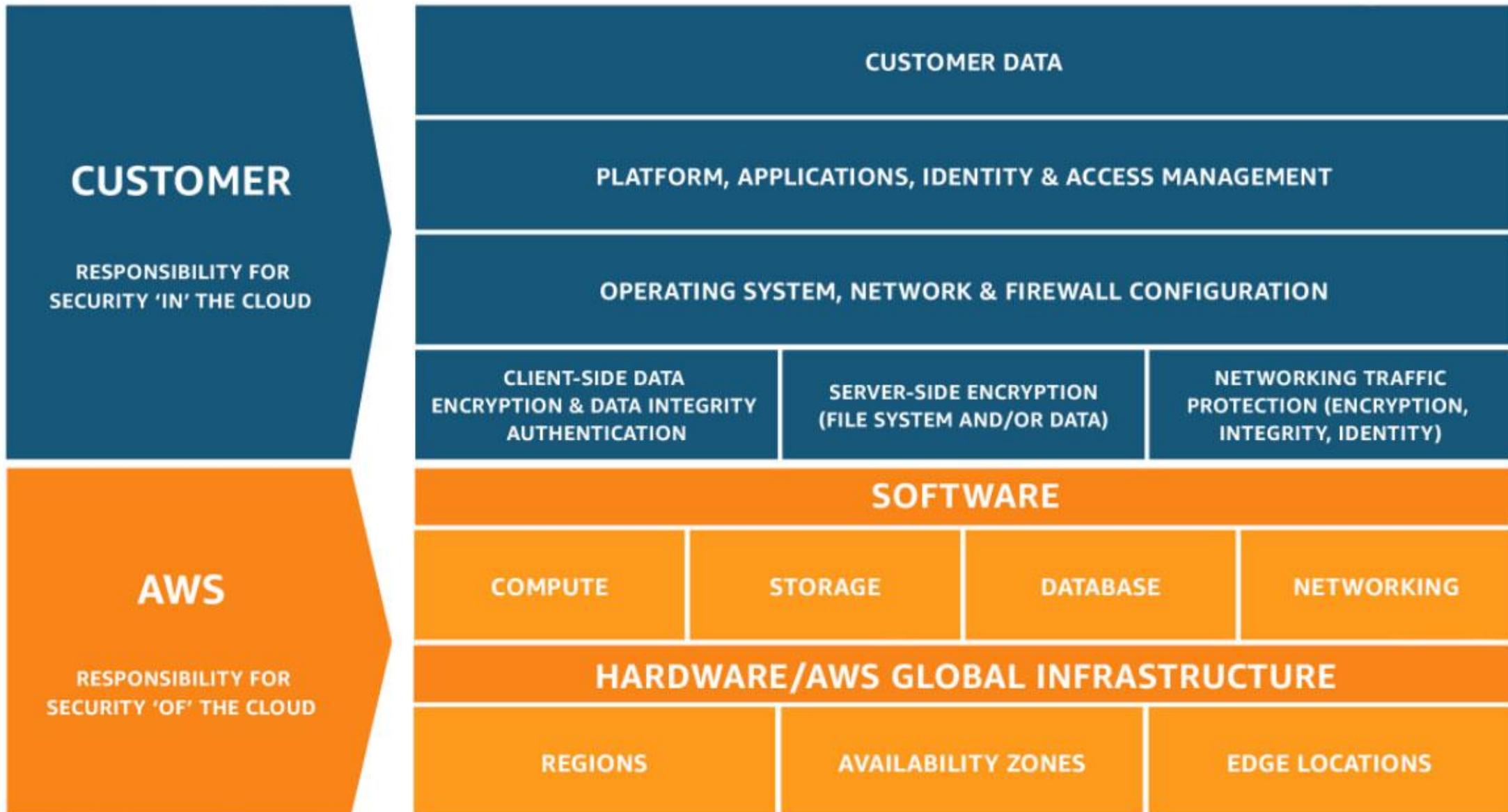
SG & NACL



AWS Storage Classes

	S3 Standard	S3 Intelligent-Tiering*	S3 Standard-IA	S3 One Zone-IA†	S3 Glacier	S3 Glacier Deep Archive
Designed for durability	99.999999999% (11 9's)					
Designed for availability	99.99%	99.9%	99.9%	99.5%	99.99%	99.99%
Availability SLA	99.9%	99%	99%	99%	99.9%	99.9%
Availability Zones	≥3	≥3	≥3	1	≥3	≥3
Minimum capacity charge per object	N/A	N/A	128KB	128KB	40KB	40KB
Minimum storage duration charge	N/A	30 days	30 days	30 days	90 days	180 days
Retrieval fee	N/A	N/A	per GB retrieved	per GB retrieved	per GB retrieved	per GB retrieved
First byte latency	milliseconds	milliseconds	milliseconds	milliseconds	select minutes or hours	select hours
Storage type	Object	Object	Object	Object	Object	Object
Lifecycle transitions	Yes	Yes	Yes	Yes	Yes	Yes

aws shared-responsibility-model



TCO

 AWS Total Cost of Ownership (TCO) Calculator

Contact Sales 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

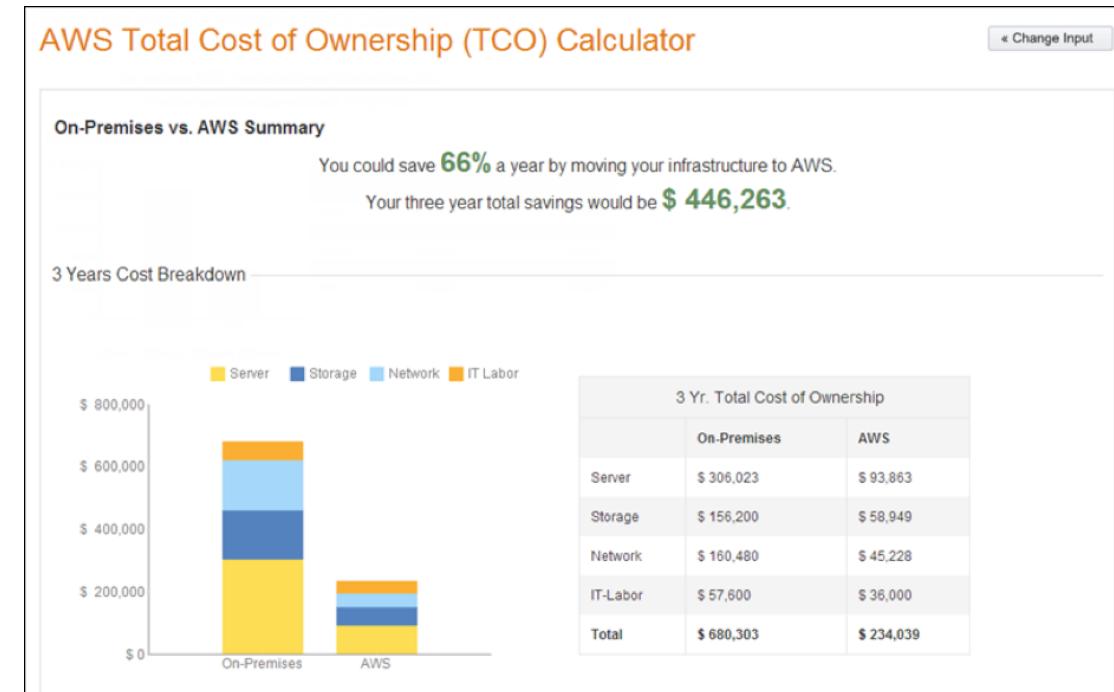
Are you comparing physical servers or virtual machines? Physical Servers Virtual Machines

Provide your configuration details:

Server Type 	App. Name 	Number of VMs 	CPU Cores 	Memory(GB) 	Hypervisor 	Guest OS 	DB Engine 
Non DB 	<input type="text"/>	1 - 10000 	1 - 32 	1 - 256 	VMware 	Linux 	

Total no.of VMs:

[+ Add Row](#)



AWS CodeCommit

AWS CodeCommit is a fully-managed source control service that hosts secure Git-based repositories. It makes it easy for teams to collaborate on code in a secure and highly scalable ecosystem. CodeCommit eliminates the need to operate your own source control system or worry about scaling its infrastructure. You can use CodeCommit to securely store anything from source code to binaries, and it works seamlessly with your existing Git tools.

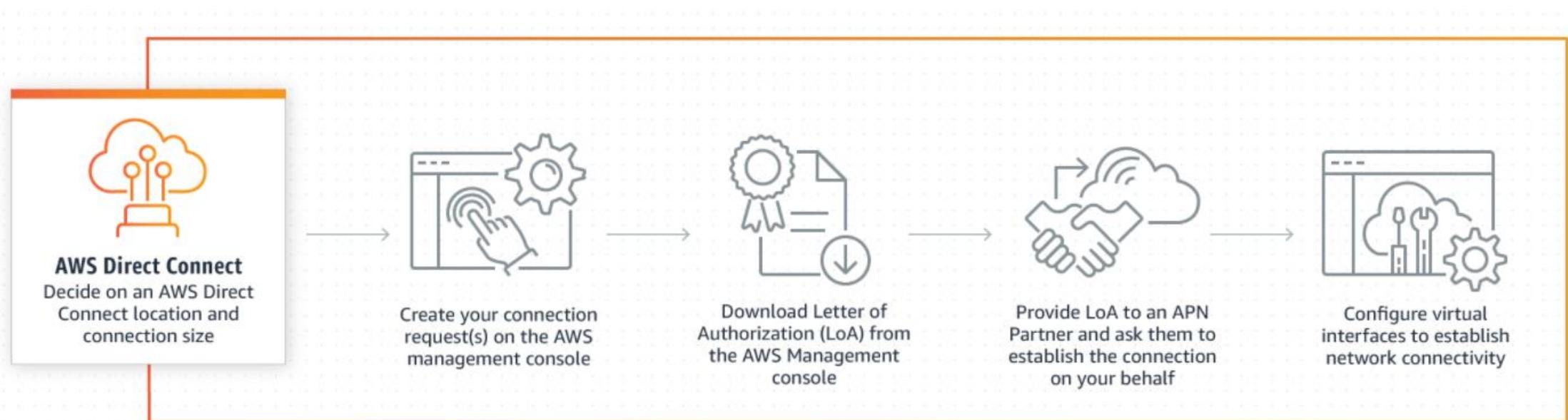
The screenshot shows the AWS CodeCommit interface. On the left, there's a sidebar with 'Developer Tools' and 'CodeCommit' selected. Under 'Source > CodeCommit', 'Branches' is also selected. The main area shows the 'MyDemoRepo' repository. The URL in the top navigation bar is 'Developer Tools > CodeCommit > Repositories > MyDemoRepo > Branches'. The page title is 'MyDemoRepo'. A sub-instruction says: 'View a list of branches in your repository, including the date and message of the most recent commit to each branch. Change the default branch, create branches, or delete branches.' Below this is a table titled 'Branches' with columns: 'Branch name', 'Last commit date', and 'Commit message'. The table lists several branches:

Branch name	Last commit date	Commit message
feature-randomizationfeature	7 months ago	Changed methodology to better match introductory class material
jane-branch	12 minutes ago	Adding an example blocking policy that would prevent any access to our repo if n...
master	2 hours ago	Adding a readme file to the repository.
new-branch	1 year ago	Added a basic VI tutorial
preprod	2 years ago	..
working-branch	2 years ago	Merge branch 'jane-branch' into working-branch

At the top of the table area, there are buttons: 'Delete branch', 'View branch', 'View last commit', 'Create pull request', and 'Create branch' (which is highlighted in orange).

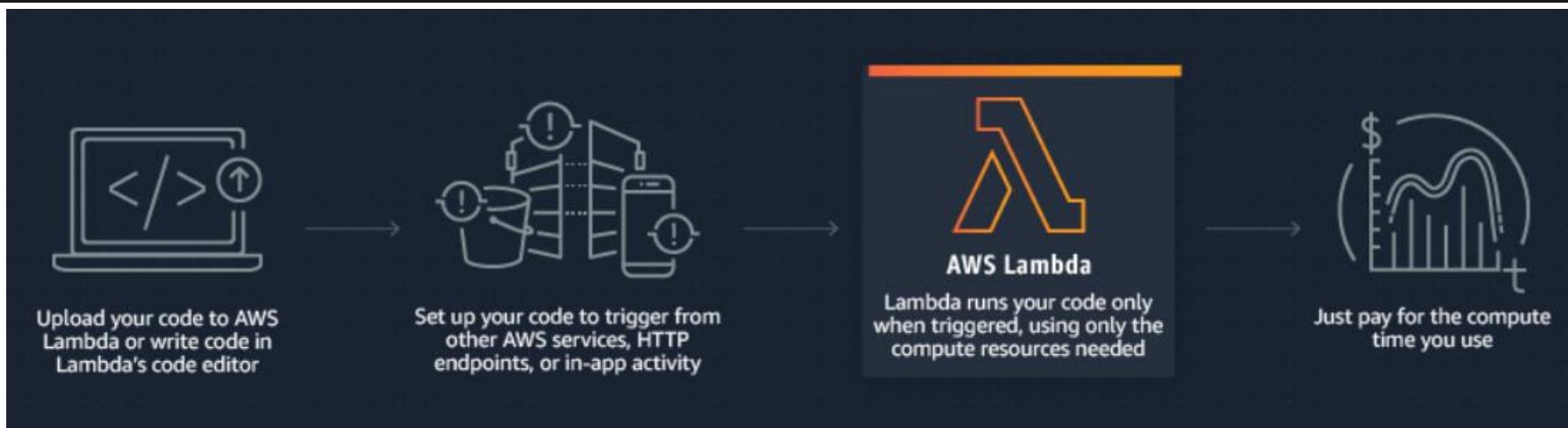
AWS Direct Connect

AWS Direct Connect is a cloud service solution that makes it easy to establish a dedicated network connection from your premises to AWS. Using AWS Direct Connect, you can establish private connectivity between AWS and your datacenter, office, or colocation environment, which in many cases can reduce your network costs, increase bandwidth throughput, and provide a more consistent network experience than Internet-based connections.

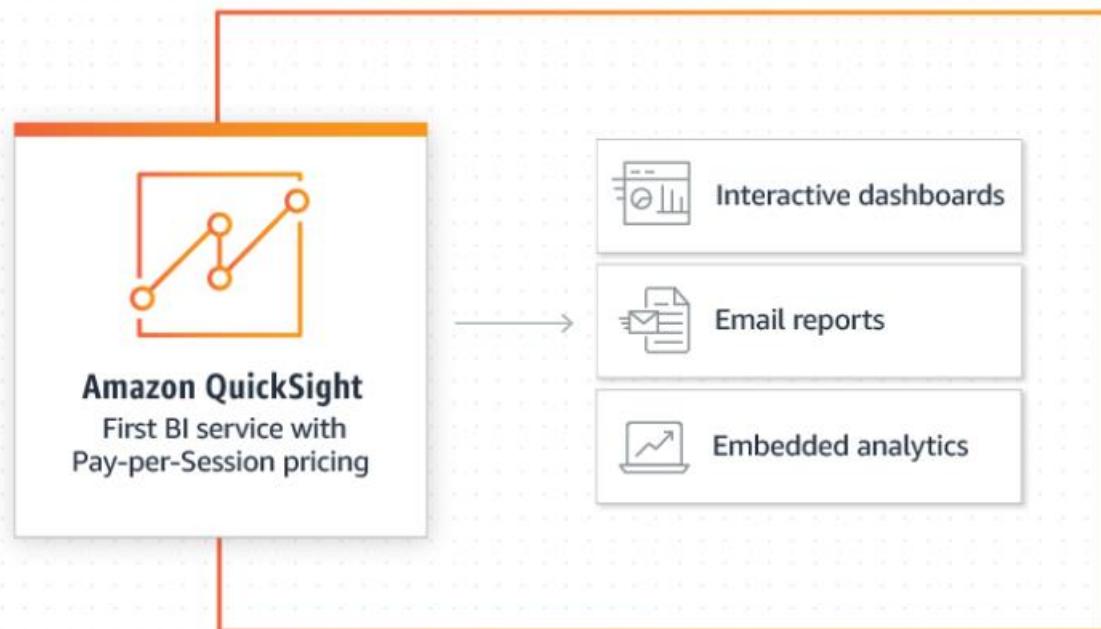
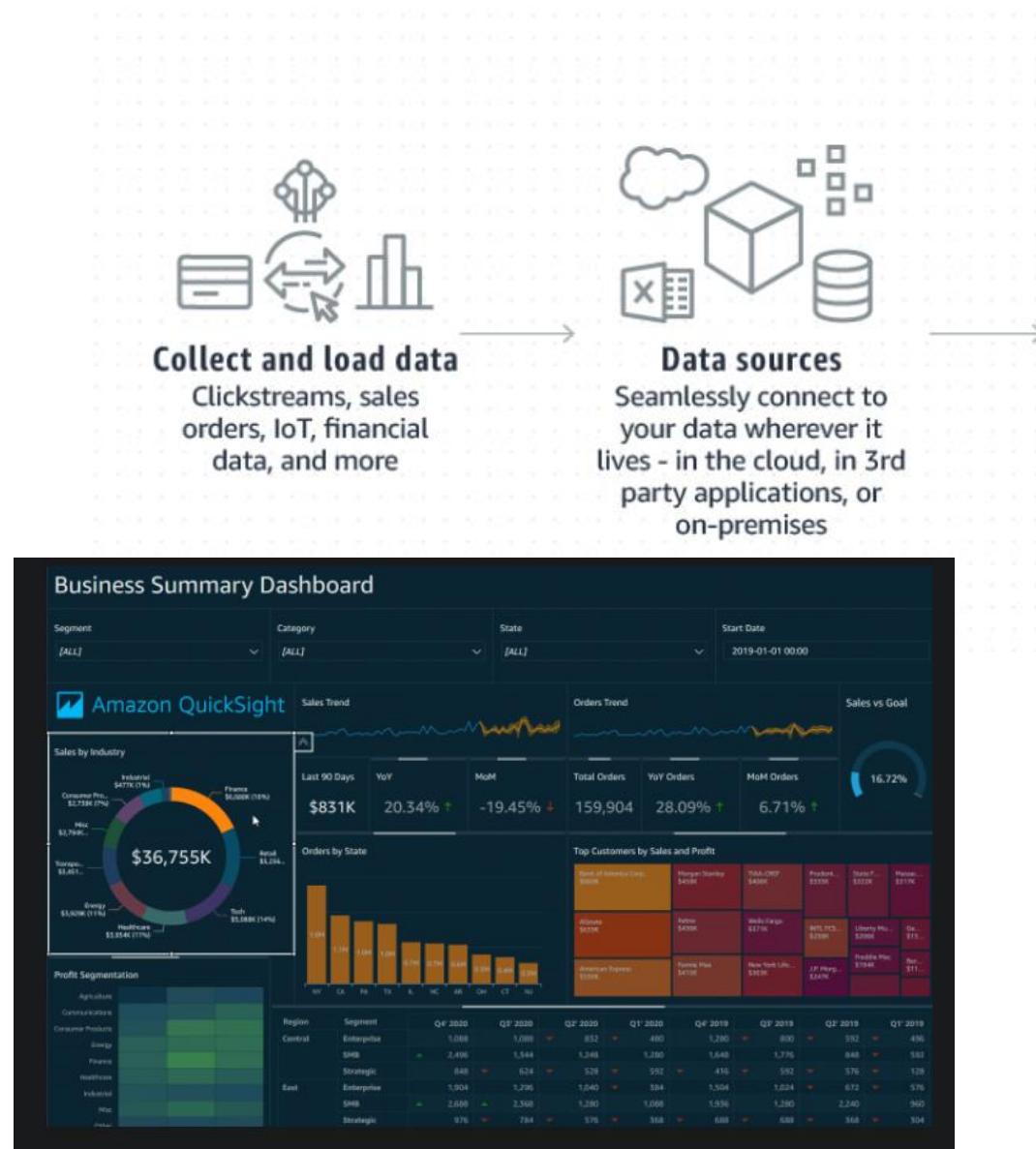


AWS Lambda

AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers, creating workload-aware cluster scaling logic, maintaining event integrations, or managing runtimes. With Lambda, you can run code for virtually any type of application or backend service - all with zero administration. Just upload your code as a ZIP file or container image, and Lambda automatically and precisely allocates compute execution power and runs your code based on the incoming request or event, for any scale of traffic. You can set up your code to automatically trigger from 140 AWS services or call it directly from any web or mobile app. You can write Lambda functions in your favorite language (Node.js, Python, Go, Java, and more) and use both serverless and container tools, such as AWS SAM or Docker CLI, to build, test, and deploy your functions.



AWS QuickSight



* Business intelligence (BI)

S3 Transfer Acceleration

Amazon S3 Transfer Acceleration enables fast, easy, and secure transfers of files over long distances between your client and an S3 bucket. Transfer Acceleration takes advantage of Amazon CloudFront's globally distributed edge locations. As the data arrives at an edge location, data is routed to Amazon S3 over an optimized network path.

Transfer acceleration X

Endpoint: testtesttest2363.s3-accelerate.amazonaws.com

Use the new accelerated endpoint for faster data transfers, which will incur an additional fee.

Want to compare your data transfer speed by region?

Enabled

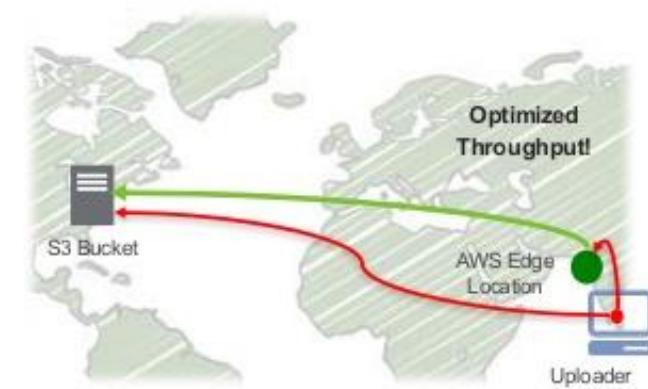
Suspended

Suspended

Cancel Save

Introducing Amazon S3 Transfer Acceleration

- Up to 300% faster
- Change your endpoint, not your code
- 56 global edge locations
- No firewall exceptions
- No client software required



Penetration Testing

Penetration Testing

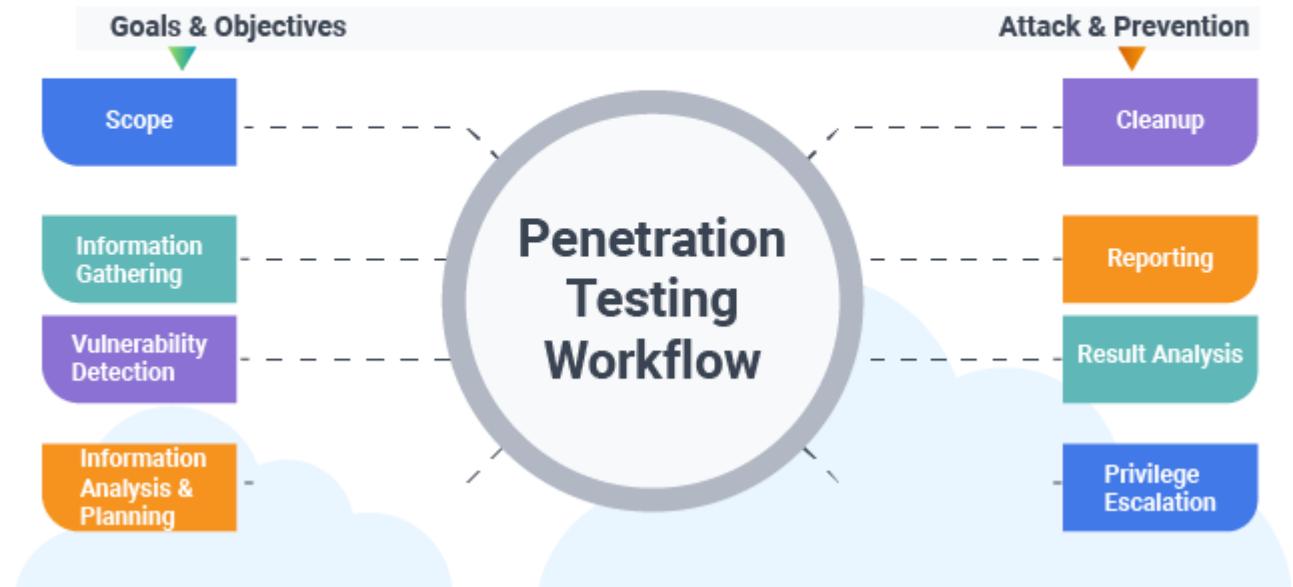
Test the AWS environment against defined security standards



Permitted Services

- Amazon EC2 instances, NAT Gateways, and Elastic Load Balancers
- Amazon RDS
- Amazon CloudFront
- Amazon Aurora
- Amazon API Gateways
- AWS Lambda and Lambda Edge functions
- Amazon Lightsail resources
- Amazon Elastic Beanstalk environments

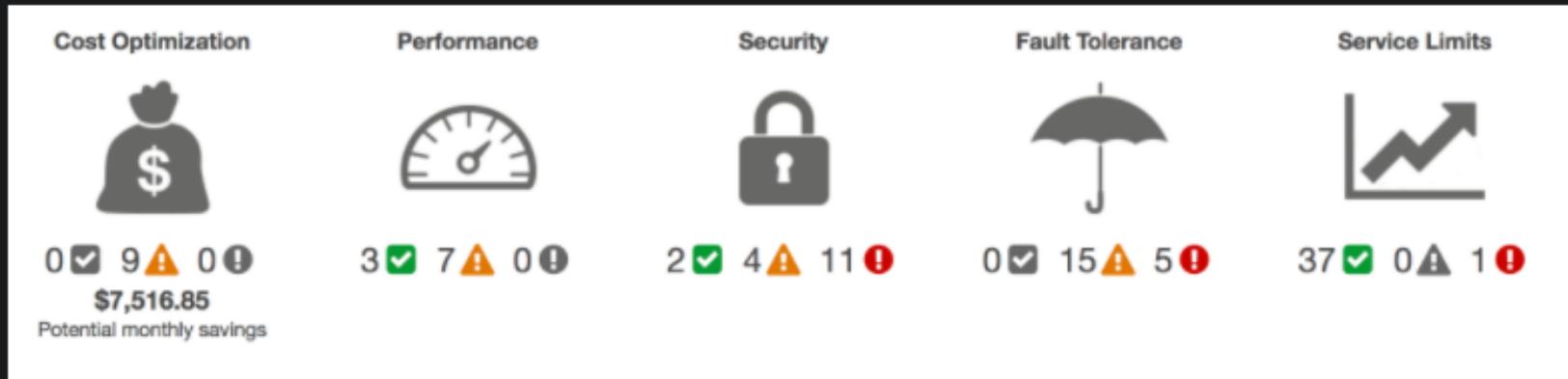
Penetration Testing WorkFlow



AWS Trusted Advisor

AWS Trusted Advisor is an online tool that provides you real time guidance to help you provision your resources following AWS best practices. Trusted Advisor checks help optimize your AWS infrastructure, increase security and performance, reduce your overall costs, and monitor service limits. Whether establishing new workflows, developing applications, or as part of ongoing improvement, take advantage of the recommendations provided by Trusted Advisor on a regular basis to help keep your solutions provisioned optimally.

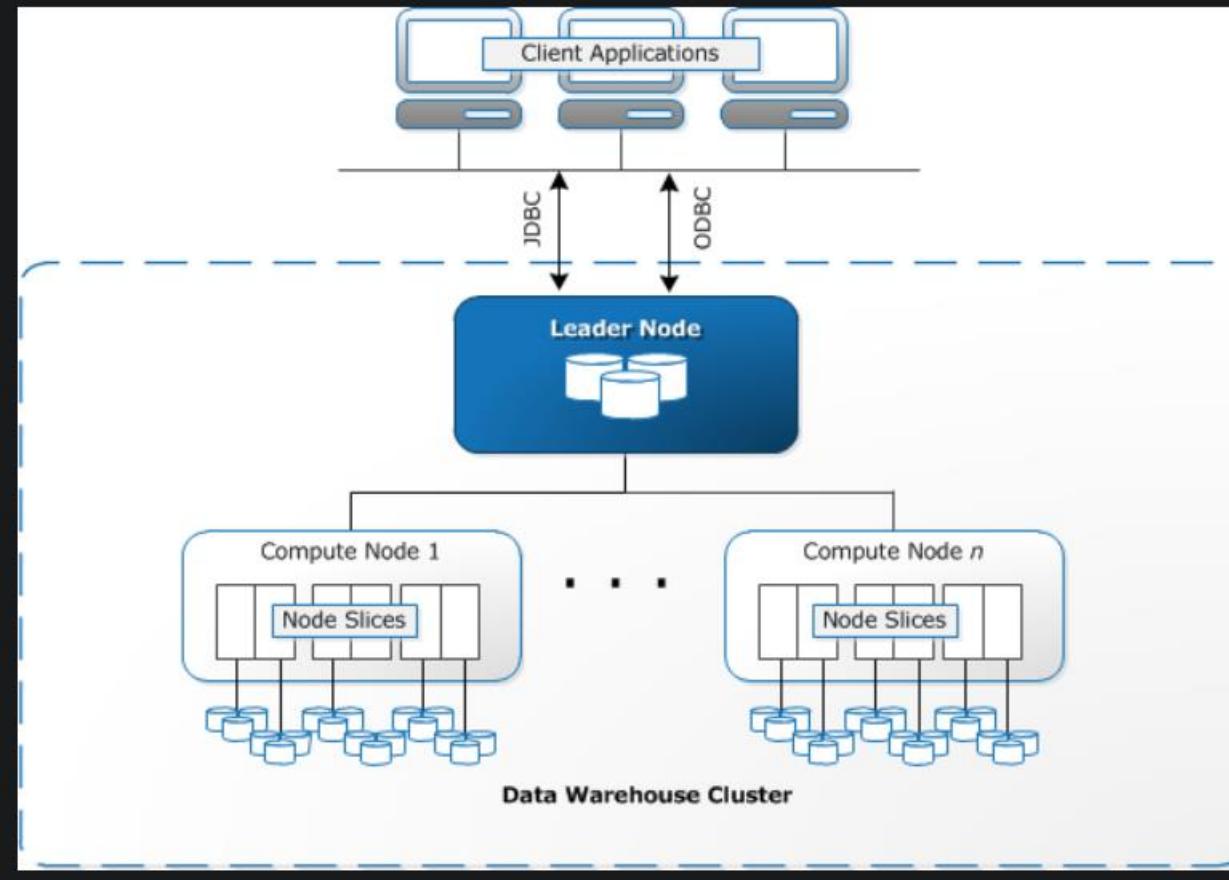
AWS Basic Support and [AWS Developer Support](#) customers get access to 6 security checks (S3 Bucket Permissions, Security Groups - Specific Ports Unrestricted, IAM Use, MFA on Root Account, EBS Public Snapshots, RDS Public Snapshots) and 50 service limit checks. [AWS Business Support](#) and [AWS Enterprise Support](#) customers get access to all 115 Trusted Advisor checks (14 cost optimization, 17 security, 24 fault tolerance, 10 performance, and 50 service limits) and recommendations. For a complete list of checks and descriptions, explore [Trusted Advisor Best Practices](#).



Data warehouse system architecture

Leader node

The leader node manages communications with client programs and all communication with compute nodes. It parses and develops execution plans to carry out database operations, in particular, the series of steps necessary to obtain results for complex queries. Based on the execution plan, the leader node compiles code, distributes the compiled code to the compute nodes, and assigns a portion of the data to each compute node.



Principle of Least Privilege

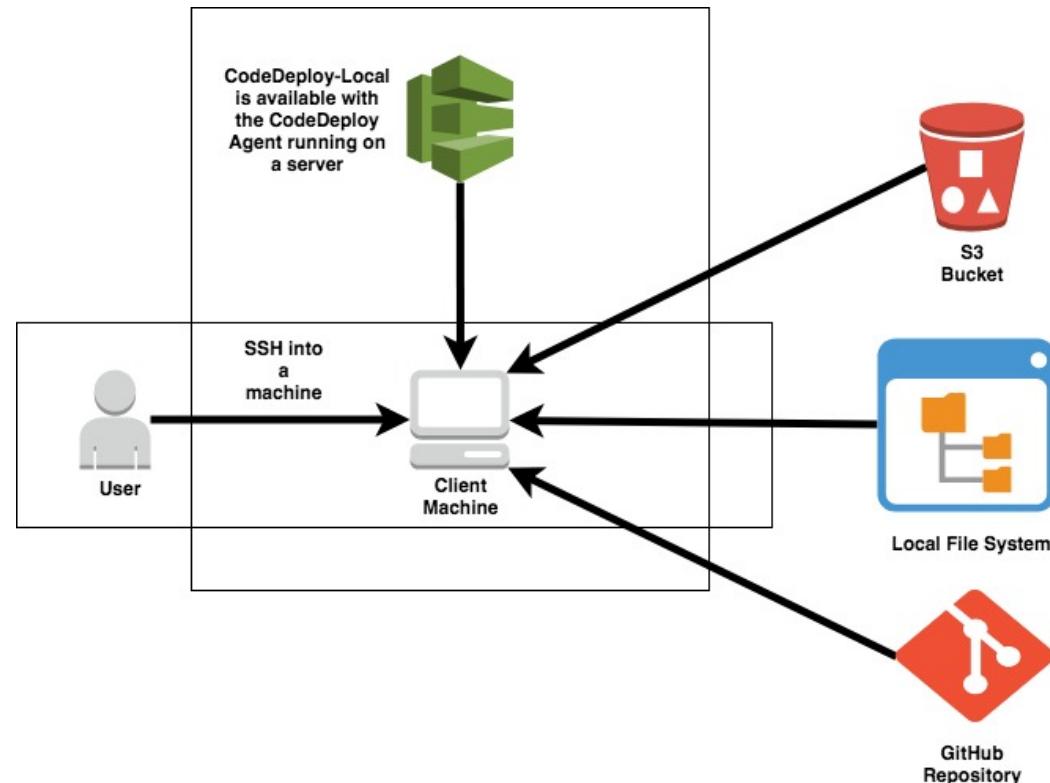
The principle means giving a user account only those privileges which are essential to perform its intended function. For example, a user account for the sole purpose of creating backups does not need to install software: hence, it has rights only to run backup and backup-related applications.

CodeDeploy

What is CodeDeploy?

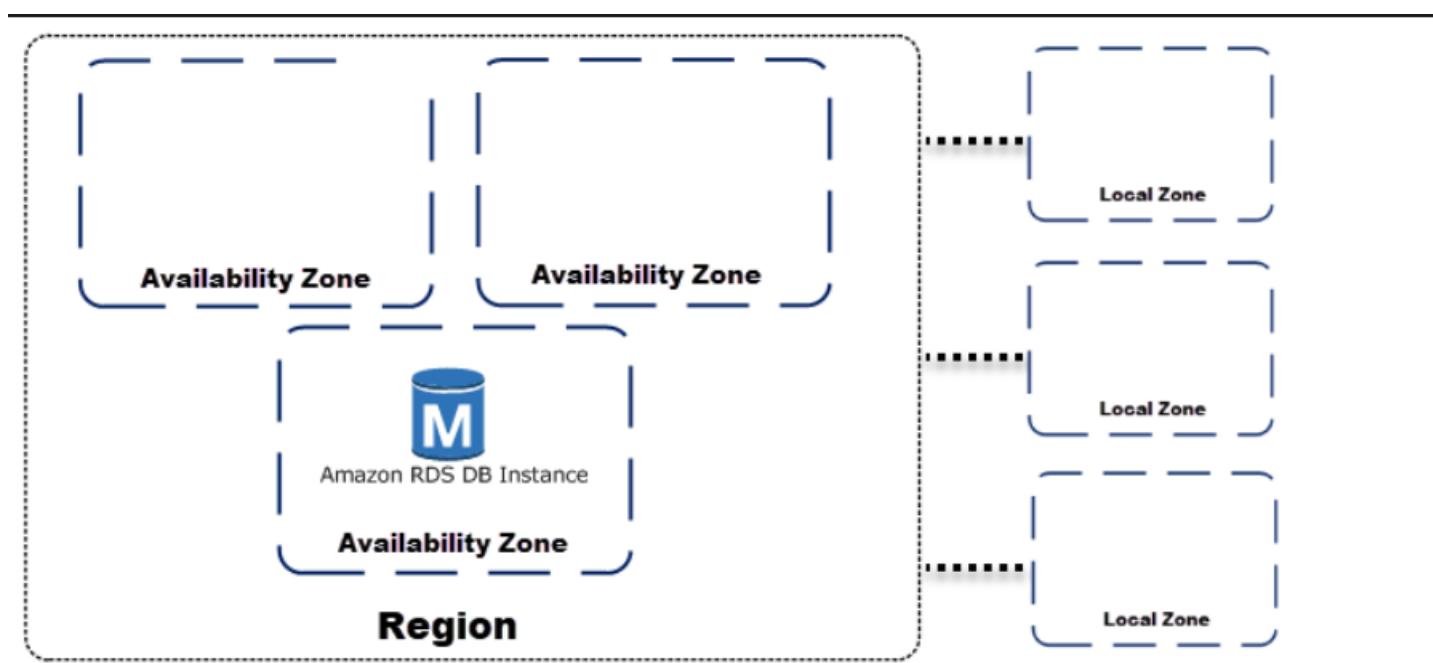
[PDF](#) | [Kindle](#) | [RSS](#)

CodeDeploy is a deployment service that automates application deployments to Amazon EC2 instances, on-premises instances, serverless Lambda functions, or Amazon ECS services.



Availability Zones

Each AZ is a set of one or more data centers. By deploying your AWS resources to multiple Availability zones , you are designing with failure in mind. So if one AZ were to go down , the other AZ's would still be up and running and hence your application would be more fault tolerant.



Route53 Routing Policies

Choosing a routing policy

[PDF](#) | [Kindle](#) | [RSS](#)

When you create a record, you choose a routing policy, which determines how Amazon Route 53 responds to queries:

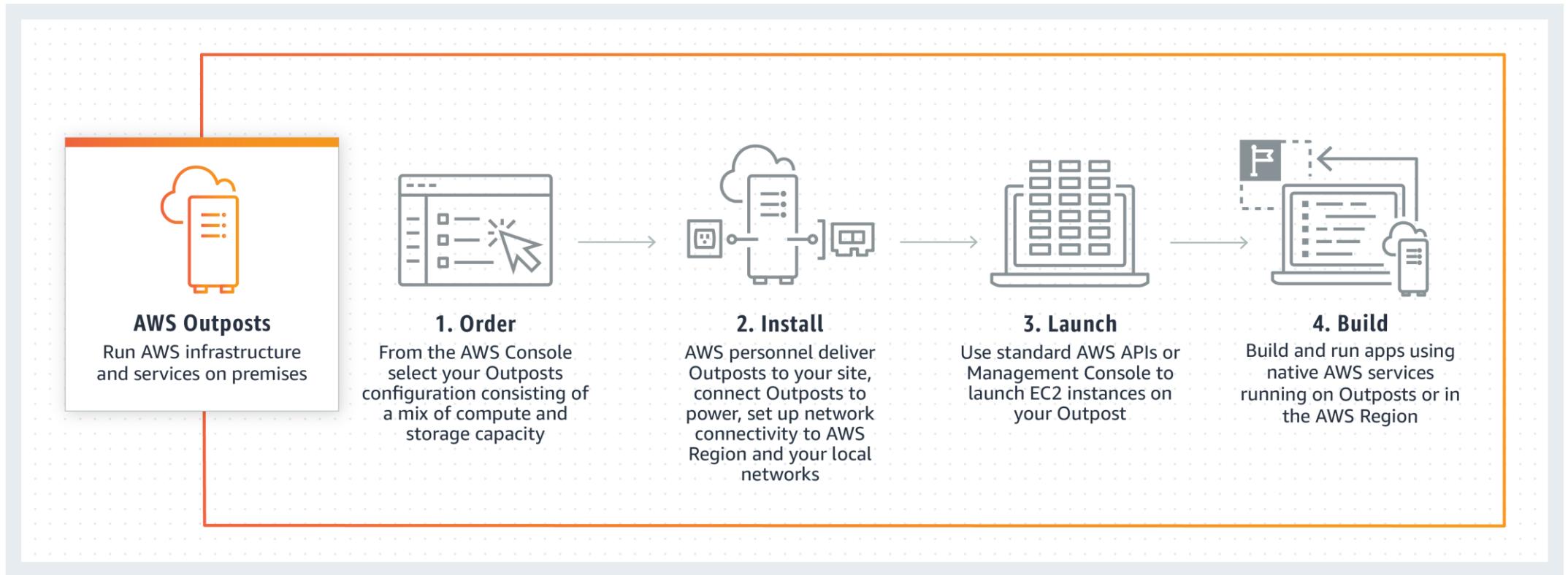
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- **Multivalue answer routing policy** – Use when you want Route 53 to respond to DNS queries with up to eight healthy records selected at random.
- **Weighted routing policy** – Use to route traffic to multiple resources in proportions that you specify.

S3 Transfer Acceleration

Using S3 Transfer Acceleration will allow the photographers to upload the images to a distinct URL, allowing them to upload images to the nearest Edge Location, then the file will be transferred in a fast, secure via the Amazon backbone network to the S3 bucket.



AWS Outposts



AWS Outposts

Run AWS infrastructure and services on premises for a truly consistent hybrid experience

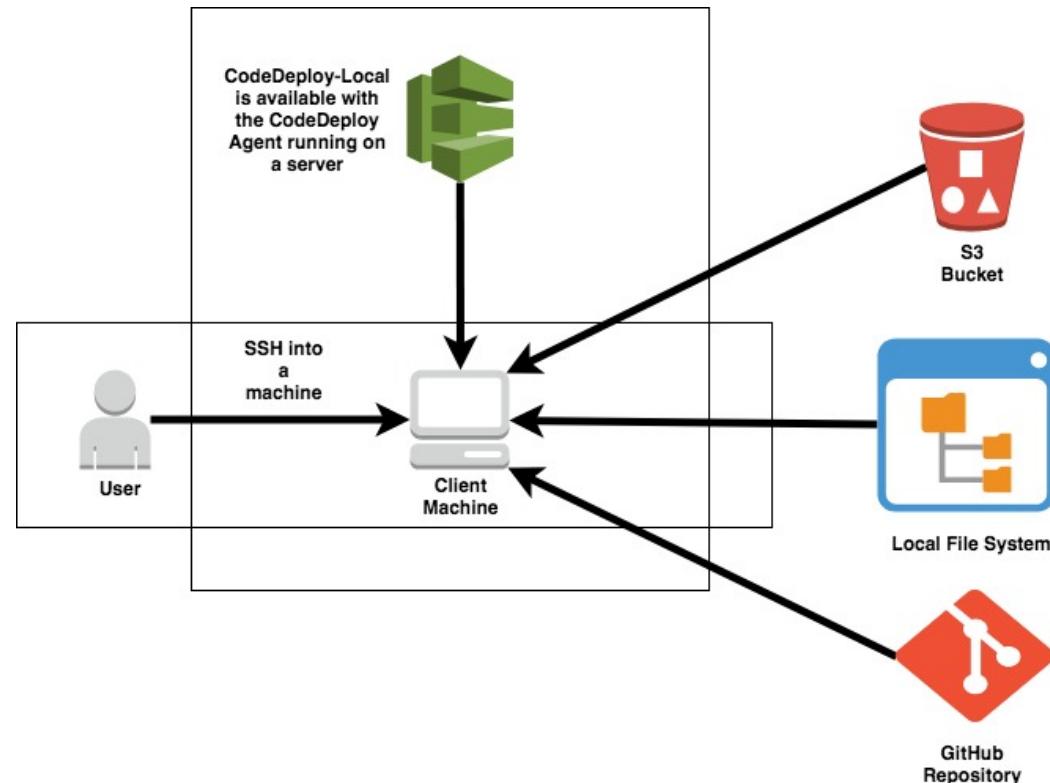


CodeDeploy

What is CodeDeploy?

[PDF](#) | [Kindle](#) | [RSS](#)

CodeDeploy is a deployment service that automates application deployments to Amazon EC2 instances, on-premises instances, serverless Lambda functions, or Amazon ECS services.



Personal Health Dashboard

AWS Personal Health Dashboard

Technology and tools to monitor, manage, and optimize your AWS environment

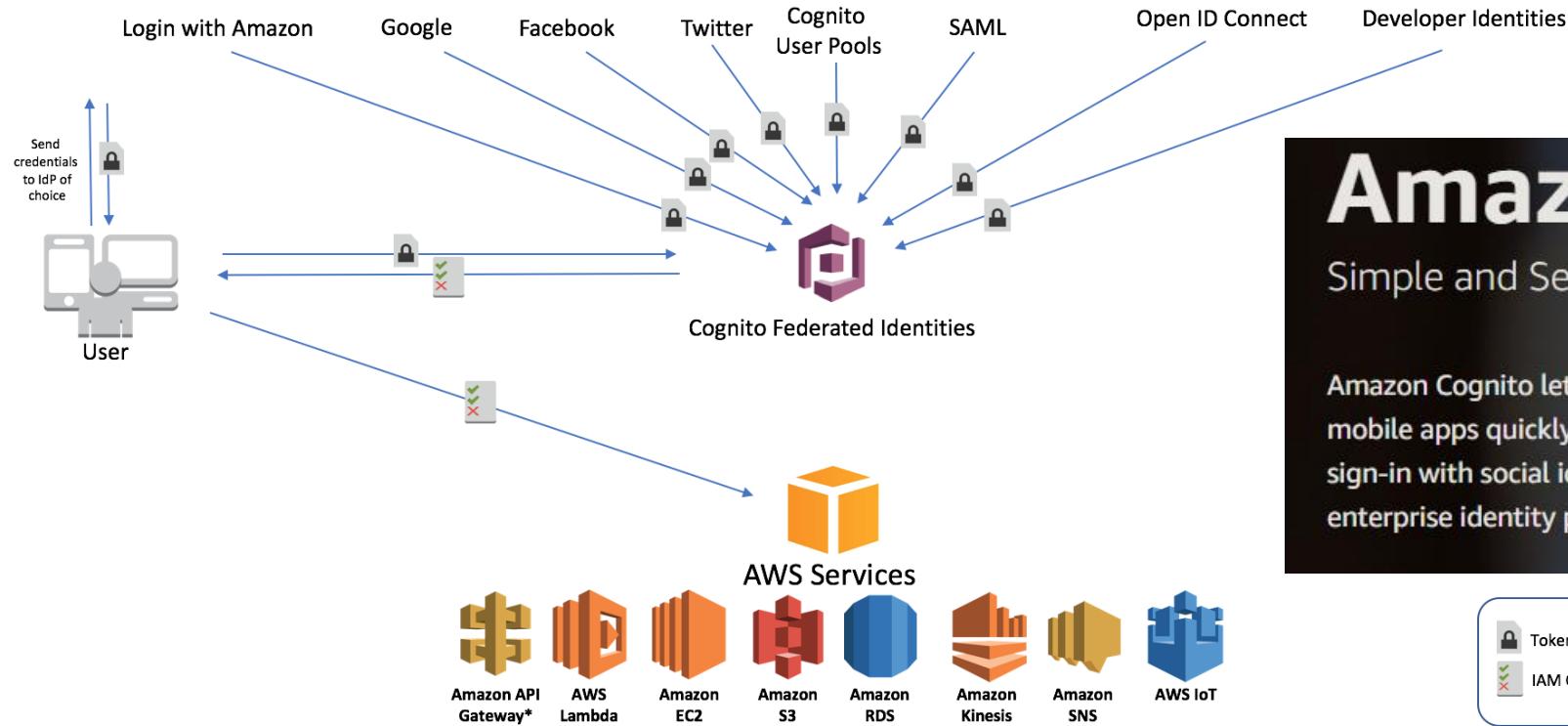
The screenshot shows the AWS Personal Health Dashboard interface. On the left, a sidebar menu includes 'Personal Health Dashboard' and 'Dashboard' (which is selected). Below the sidebar is an 'Event log' section. The main content area is titled 'Dashboard' and displays three summary boxes: '5 Open issues Past 7 days', '4 Scheduled changes', and '3 Other notifications Past 7 days'. Below these boxes is a section titled 'Issues that might affect your AWS infrastructure.' It shows a single resolved issue ('1 issue was resolved in the past 24 hours') and a table of five recent events. The table has columns for 'Event', 'Region/AZ', 'Start time', 'Last update time', and 'Affected resources'. The events listed are:

Event	Region/AZ	Start time	Last update time	Affected resources
RDS storage failure DB corruption	ap-southeast-2	November 29, 2016 at 12:03:...	November 29, 2016 at 12:03:...	1 DB instance
EC2 RI marketplace bank account up...	us-east-1	November 28, 2016 at 11:55:...	November 28, 2016 at 11:55:...	1 instance
ELB gateway not attached	us-east-1	November 28, 2016 at 9:50:0...	November 28, 2016 at 9:50:0...	1 load balancer
SES DKIM pending to failed	us-west-2	November 27, 2016 at 10:19:...	November 27, 2016 at 10:19:...	1 resource
Cognito issues with streams role	us-east-1	November 26, 2016 at 10:19:...	November 26, 2016 at 10:19:...	1 resource

AWS Personal Health Dashboard provides alerts and remediation guidance when AWS is experiencing events that may impact you. While the Service Health Dashboard displays the general status of AWS services, Personal Health Dashboard gives you a personalized view into the performance and availability of the AWS services underlying your AWS resources.

Amazon Cognito

Identity Providers (IdPs):



Developer
Authenticated
Identities

Developer Identities

Amazon S3

Amazon S3 (Simple Storage Service) provides object storage which is built for storing and recovering any amount of information or data from anywhere over the internet



Reserved Instances

Why Should I Use RI's?

Save Money and Maintain Flexibility

RIs provide you with a significant discount (up to 72%) compared to On-Demand instance pricing. You have the flexibility to change families, OS types, and tenancies while benefitting from RI pricing when you use Convertible RI's.

Reserve Capacity

RIs can provide a capacity reservation, offering additional confidence in your ability to launch the number of instances you have reserved when you need them.

Only show offerings that reserve capacity

Platform		Linux/UN...		Tenancy		Default		Offering Class		Converti...			
Instance Type		c4.large		Term		Any		Payment Option		Any		Search	
Seller	Term	Effective Rate	Upfront Price	Hourly Rate	Payment Option	Offering Class	Quantity Available	Desired Quantity					
AWS	36 months	\$0.059	\$1,555.00	\$0.000	All Upfront	convertible	Unlimited	1	Add to Cart				
AWS	36 months	\$0.060	\$797.00	\$0.030	Partial Upfront	convertible	Unlimited	1	Add to Cart				
AWS	36 months	\$0.070	\$0.00	\$0.070	No Upfront	convertible	Unlimited	1	Add to Cart				

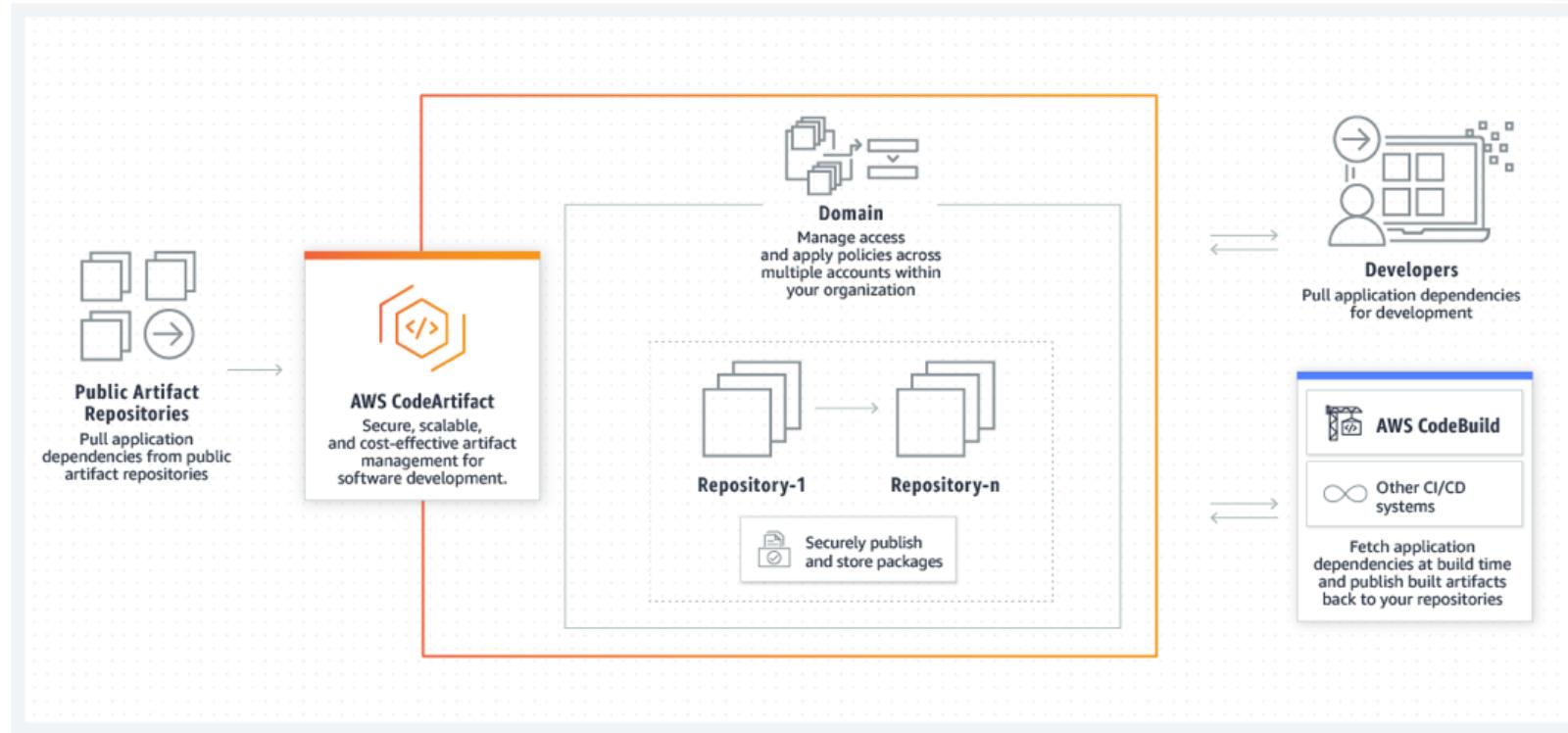
You currently have no items in your cart.

Cancel View Cart

AWS Artifact

AWS Artifact

No cost, self-service portal for on-demand access to AWS' compliance reports.



AWS Artifacts - Compliance reports

- Provides customers with an easier process to obtain AWS compliance reports (SOC, PCI, ISO) with self-service, on-demand access via the console



Principle of Least Privilege

The principle means giving a user account only those privileges which are essential to perform its intended function. For example, a user account for the sole purpose of creating backups does not need to install software: hence, it has rights only to run backup and backup-related applications.

Advantages of AWS Cloud

Benefits at a Glance

Easy to use

AWS is designed to allow application providers, ISVs, and vendors to quickly and securely host your applications – whether an existing application or a new SaaS-based application. You can use the AWS Management Console or well-documented web services APIs to access AWS's application hosting platform.

Flexible

AWS enables you to select the operating system, programming language, web application platform, database, and other services you need. With AWS, you receive a virtual environment that lets you load the software and services your application requires. This eases the migration process for existing applications while preserving options for building new solutions.

Cost-Effective

You pay only for the compute power, storage, and other resources you use, with no long-term contracts or up-front commitments. For more information on comparing the costs of other hosting alternatives with AWS, see the AWS Economics Center.

Reliable

With AWS, you take advantage of a scalable, reliable, and secure global computing infrastructure, the virtual backbone of Amazon.com's multi-billion dollar online business that has been honed for over a decade.

Scalable and high-performance

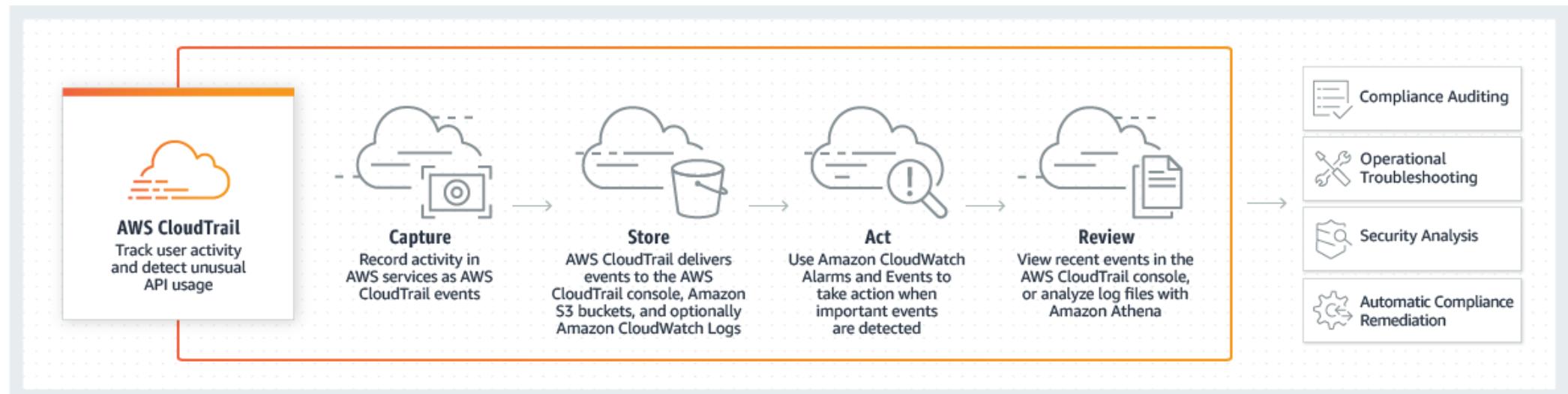
Using AWS tools, Auto Scaling, and Elastic Load Balancing, your application can scale up or down based on demand. Backed by Amazon's massive infrastructure, you have access to compute and storage resources when you need them.

Secure.

AWS utilizes an end-to-end approach to secure and harden our infrastructure, including physical, operational, and software measures. For more information, see the AWS Security Center.

AWS CloudTrail

AWS CloudTrail is a service that enables governance, compliance, operational auditing, and risk auditing of your AWS account. With CloudTrail, you can log, continuously monitor, and retain account activity related to actions across your AWS infrastructure. CloudTrail provides event history of your AWS account activity, including actions taken through the AWS Management Console, AWS SDKs, command line tools, and other AWS services. This event history simplifies security analysis, resource change tracking, and troubleshooting. In addition, you can use CloudTrail to detect unusual activity in your AWS accounts. These capabilities help simplify operational analysis and troubleshooting.



AWS Certificate Manager

AWS Certificate Manager

Easily provision, manage, and deploy public and private SSL/TLS certificates for use with AWS services and your internal connected resources



AWS Certificate Manager

AWS Certificate Manager (ACM) makes it easy to provision, manage, deploy, and renew SSL/TLS certificates on the AWS platform.

[Get started](#)

[User guide](#)



Provision certificates

Provide the name of your site, establish your identity, and let ACM do the rest. ACM manages renewal of SSL/TLS certificates issued by Amazon for you.

[Learn more](#)



Deploy SSL/TLS-based sites and applications

Create an Elastic Load Balancer or Amazon CloudFront distribution and use ACM-provided or imported certificates with SSL/TLS to securely identify your site.

[Learn more](#)



Manage certificates

See all of your ACM-provided and imported certificates in one place in the AWS Management Console. Automate management tasks by using the ACM API, SDK, or CLI.

[Learn more](#)

AWS Savings Plan



Savings Plans

Review your Savings Plans recommendations in AWS Cost Explorer



Compute Savings Plans



EC2 Instance Savings Plans

Customize recommendations based on your needs (Type of Savings Plans, Payment Option, Term Length)



Review hourly commitment (e.g. \$10/hr) and add to cart



Discounts apply automatically to your usage across EC2 instances and Fargate, even as your usage changes

Savings Plan Comparison

	Compute Savings Plan	EC2 Savings Plan
Term	1 or 3 years	1 or 3 years
Purchase Type	All, Partial and No Upfront	All, Partial and No Upfront
Services	EC2* and Fargate	EC2 only
Instance Family	Any	Locked to Single Family
Tenancy	Any	Any
Operating System	Any	Any
Region	Any (expect China)	Locked into a single region
Max Savings	66%	72%

- * instances used in EMR, ECS and EKS

CloudFormation Change Sets

		Status	Type	Logical ID	Status reason
2016-03-23	19:55:45 UTC-07 00	CREATE_IN_PROGRESS	AWS::AutoScaling::AutoScalingGroup	WebServerAutoScalingGr oup	Resource creation Initiated
	19:55:44 UTC-07 00	CREATE_IN_PROGRESS	AWS::AutoScaling::AutoScalingGroup	WebServerAutoScalingGr oup	
	19:55:39 UTC-07 00	CREATE_COMPLETE	AWS::AutoScaling::LaunchConfiguratio n	WebServerLaunchConfig	
	19:55:39 UTC-07 00	CREATE_COMPLETE	AWS::ElasticLoadBalancing::LoadBala ncer	WebSiteLoadBalancer	
	19:55:39 UTC-07 00	CREATE_IN_PROGRESS	AWS::AutoScaling::LaunchConfiguratio n	WebServerLaunchConfig	Resource creation Initiated
	19:55:37 UTC-07 00	CREATE_IN_PROGRESS	AWS::ElasticLoadBalancing::LoadBala ncer	WebSiteLoadBalancer	Resource creation Initiated
	19:55:37 UTC-07 00	CREATE_IN_PROGRESS	AWS::AutoScaling::LaunchConfiguratio n	WebServerLaunchConfig	
	19:55:37 UTC-07 00	CREATE_IN_PROGRESS	AWS::ElasticLoadBalancing::LoadBala ncer	WebSiteLoadBalancer	
	19:55:33 UTC-07 00	UPDATE_IN_PROGRESS	AWS::CloudFormation::Stack	LAMP-Stack-3	User Initiated

AWS Services Edit Jeff Barr N. Virginia Support

Creating Change Set for LAMP-Stack-3 Stack

Select Template Options

Specify Details

Options

Review

You can update additional options for your stack, like notification options and a stack policy.

Tags

You can specify tags (key-value pairs) for resources in your stack. You can add up to 10 unique key-value pairs for each stack. [Learn more.](#)

Key	(127 characters maximum)	Value	(255 characters maximum)
1 App		LAMP-Stack-3	x
2			+

Advanced

Notification options

No change

No notification

New Amazon SNS topic

Topic	<input type="text"/>
Email	<input type="text"/>

Existing Amazon SNS topic

<input type="text"/>

Existing topic ARN

<input type="text"/>

Cancel Previous Next

RDS Database (SQL)

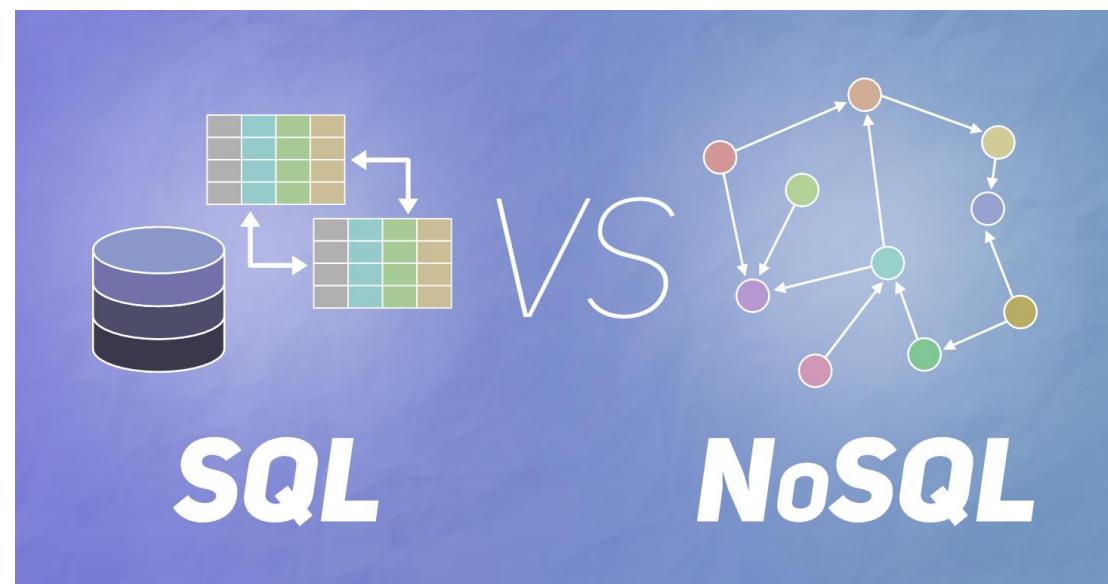
RDBMS Vs. NoSQL

RDBMS

- Structured and organized data
- Structured Query Language (SQL)
- Data and its relationships stored in separate tables.
- Data Manipulation Language, Data Definition Language
- Tight Consistency
- BASE Transaction

NoSQL

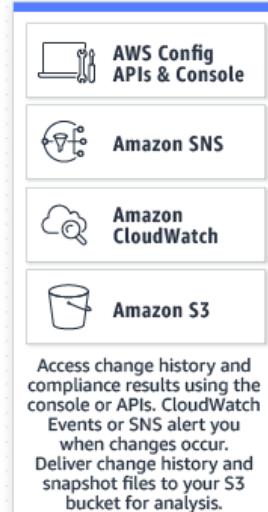
- No declarative query language
- No predefined schema
- Key-Value pair storage, Column Store, Document Store, Graph Databases
- Eventual consistency rather ACID property
- Unstructured and unpredictable data
- CAP Theorem
- Prioritize high performance, high availability and scalability



AWS Config



Configuration change occurs in your AWS resources.



AWS Config

- Dashboard**
- Rules
- Resources
- Settings
- What's new 2
- Learn More
- Documentation
- Partners
- Pricing
- FAQs

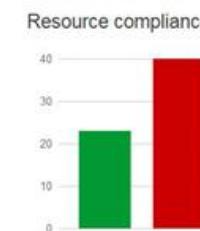
Resources A	
Total resources	200
Top 10 resource types	Total
CloudWatch Alarm	38
RDS DBSnapshot	26
EC2 SecurityGroup	25
EC2 NetworkInterface	18
S3 Bucket	17
EC2 Subnet	16
EC2 RouteTable	12
EC2 NetworkAcl	8
EC2 Volume	7
EC2 EIP	5

View all 200 resources C


D

Noncompliant rules

11


E
E

40

Top 5 noncompliant rules

Rule name	Compliance
s3-bucket-ssl-requests-only	14 noncompliant resource(s)
s3-bucket-logging-enabled	13 noncompliant resource(s)
restricted-ssh	12 noncompliant resource(s)
s3-bucket-versioning-enabled	9 noncompliant resource(s)
encrypted-volumes	4 noncompliant resource(s)

F

14 noncompliant resource(s)

13 noncompliant resource(s)

12 noncompliant resource(s)

9 noncompliant resource(s)

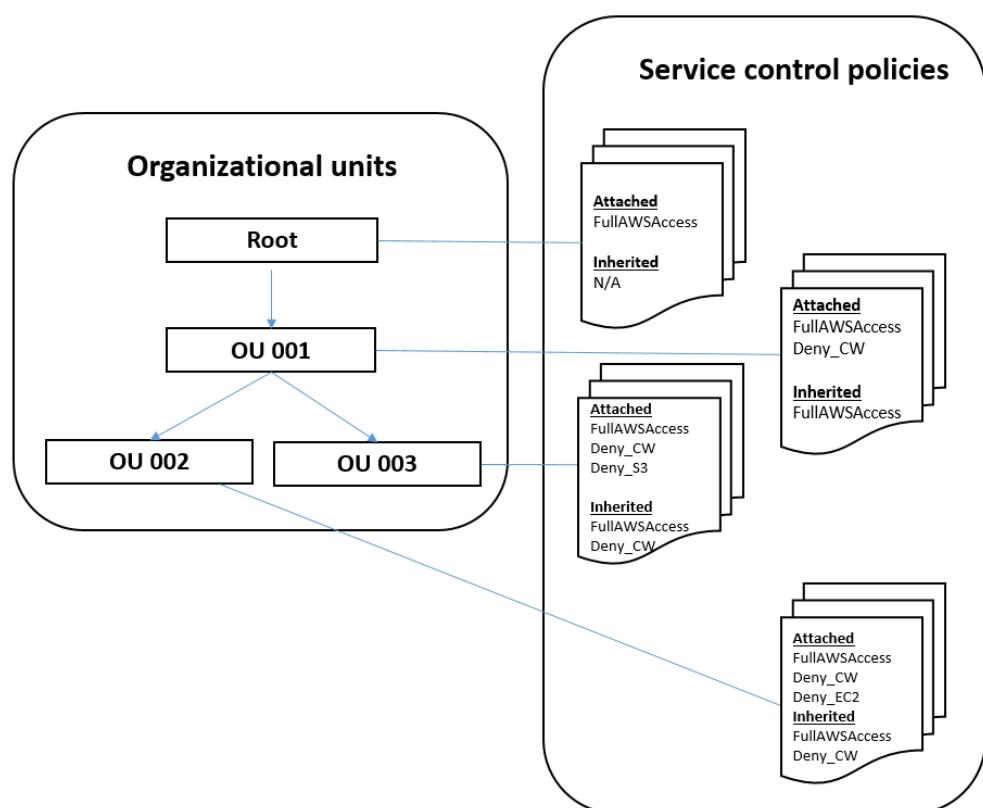
4 noncompliant resource(s)

G

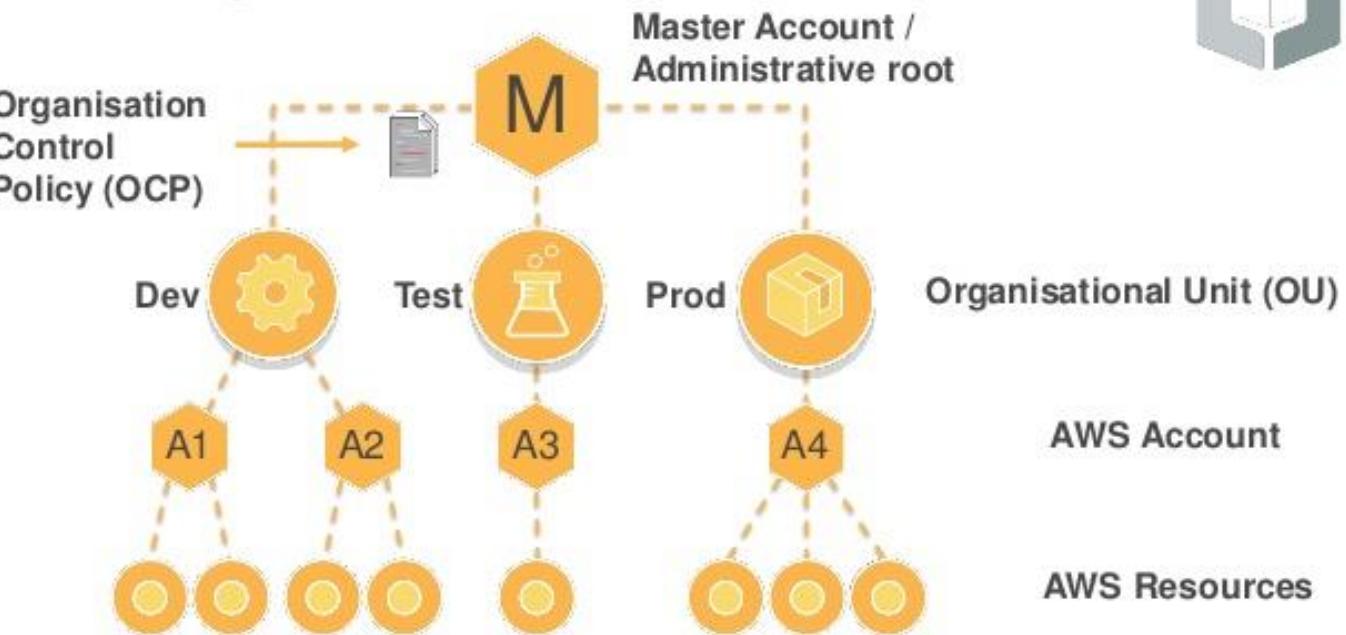
View all 11 noncompliant rules

AWS Organizations

AWS Organizations helps you centrally manage and govern your environment as you grow and scale your AWS resources. Using AWS Organizations, you can programmatically create new AWS accounts and allocate resources, group accounts to organize your workflows, apply policies to accounts or groups for governance, and simplify billing by using a single payment method for all of your accounts.

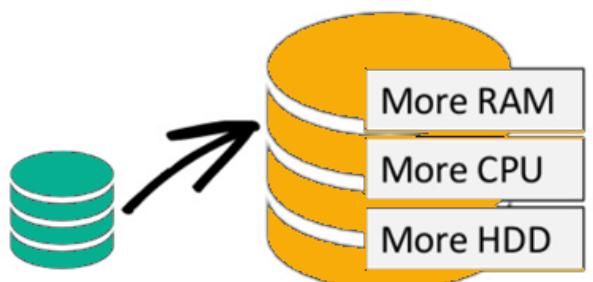


AWS Organizations

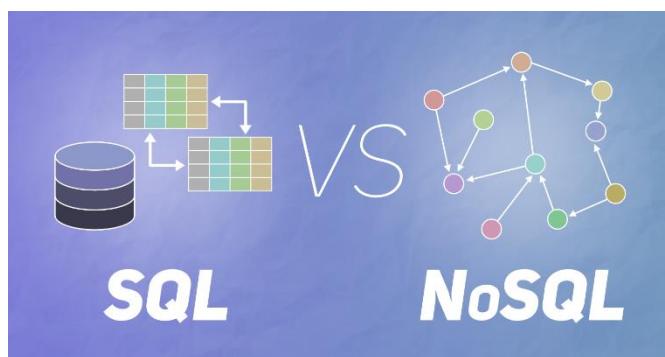
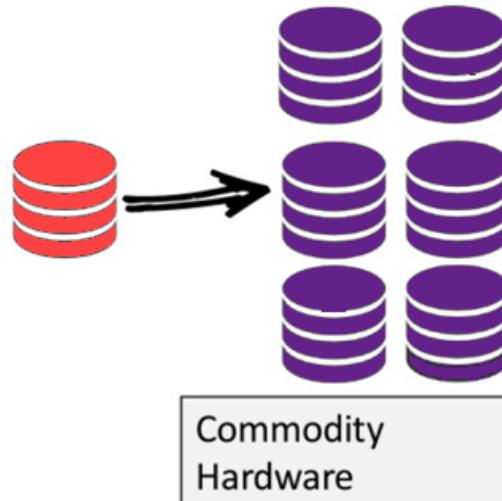


NoSQL Databases

Scale-Up (vertical scaling):



Scale-Out (horizontal scaling):



RDBMS Vs. NoSQL

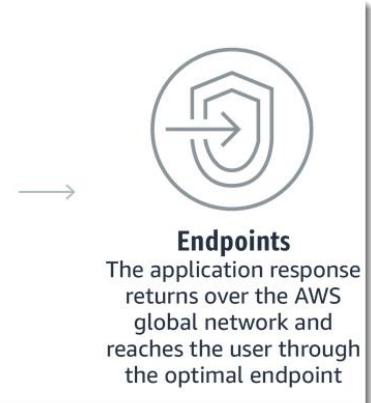
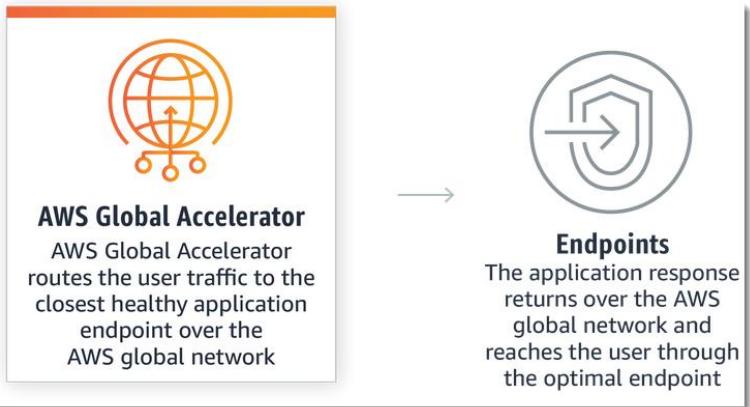
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- Prioritize high performance, high availability and scalability

Global Accelerator vs. CloudFront



**Applications over TCP and UDP,
Static IP**

One or more AWS Regions

**Non HTTP, gaming, IoT (MQTT),
Voice over IP**

Cachable Content (images-videos)

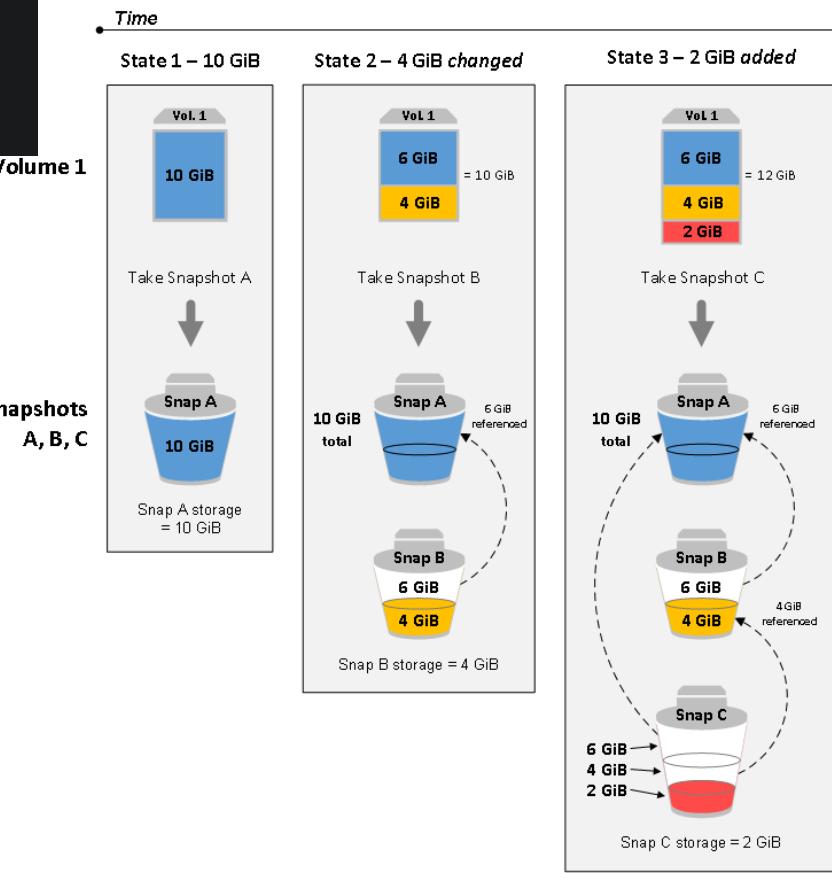
Dynamic Content

EBS Snapshots

Amazon EBS snapshots

[PDF](#) | [Kindle](#) | [RSS](#)

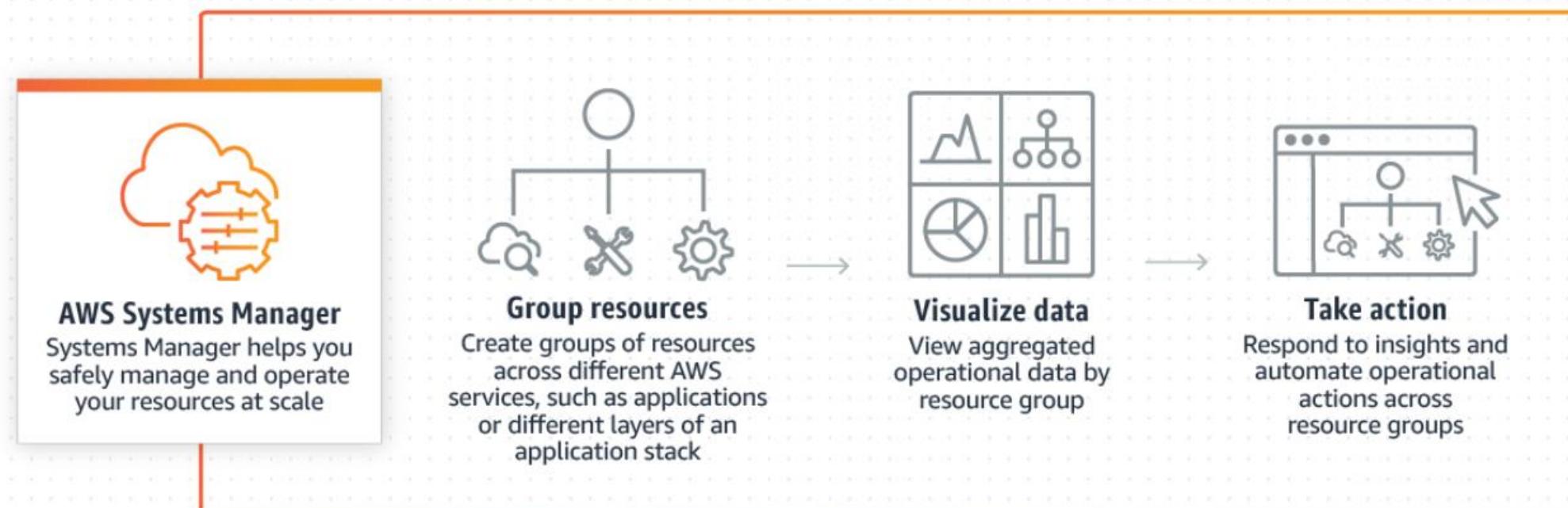
You can back up the data on your Amazon EBS volumes to Amazon S3 by taking point-in-time snapshots. Snapshots are *incremental* backups, which means that only the blocks on the device that have changed after your most recent snapshot are saved. This minimizes the time required to create the snapshot and saves on storage costs by not duplicating data. Each snapshot contains all of the information that is needed to restore your data (from the moment when the snapshot was taken) to a new EBS volume.



AWS Systems Manager

AWS Systems Manager

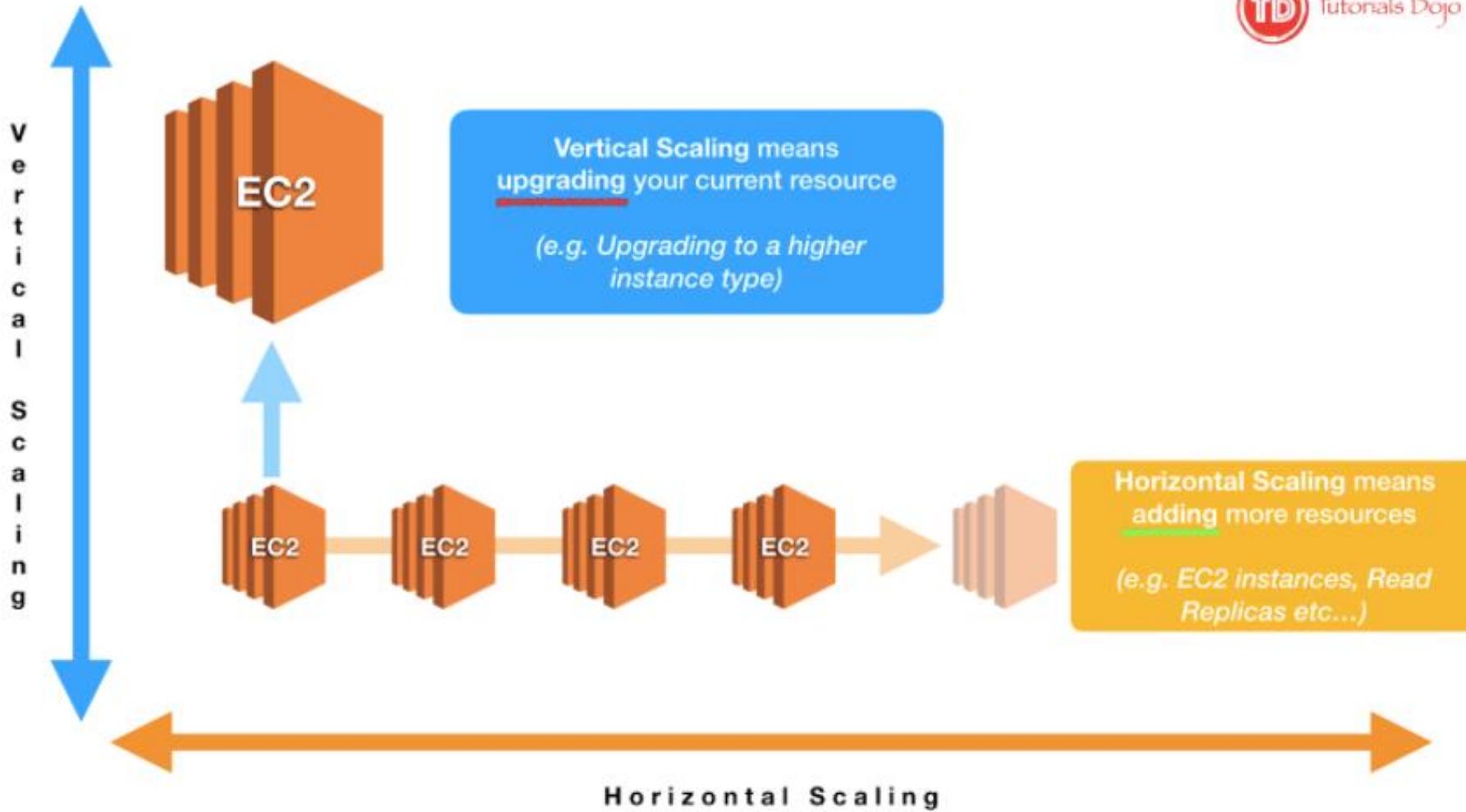
Gain operational insights and take action on AWS resources



EC2 Use Cases

- **On-Demand Instances** – Pay, by the second, for the instances that you launch.
- **Savings Plans** – Reduce your Amazon EC2 costs by making a commitment to a consistent amount of usage, in USD per hour, for a term of 1 or 3 years.
- **Reserved Instances** – Reduce your Amazon EC2 costs by making a commitment to a consistent instance configuration, including instance type and Region, for a term of 1 or 3 years.
- **Spot Instances** – Request unused EC2 instances, which can reduce your Amazon EC2 costs significantly.
- **Dedicated Hosts** – Pay for a physical host that is fully dedicated to running your instances, and bring your existing per-socket, per-core, or per-VM software licenses to reduce costs.
- **Dedicated Instances** – Pay, by the hour, for instances that run on single-tenant hardware.
- **Capacity Reservations** – Reserve capacity for your EC2 instances in a specific Availability Zone for any duration.

Vertical & Horizontal Scaling



Route53 Routing Policies

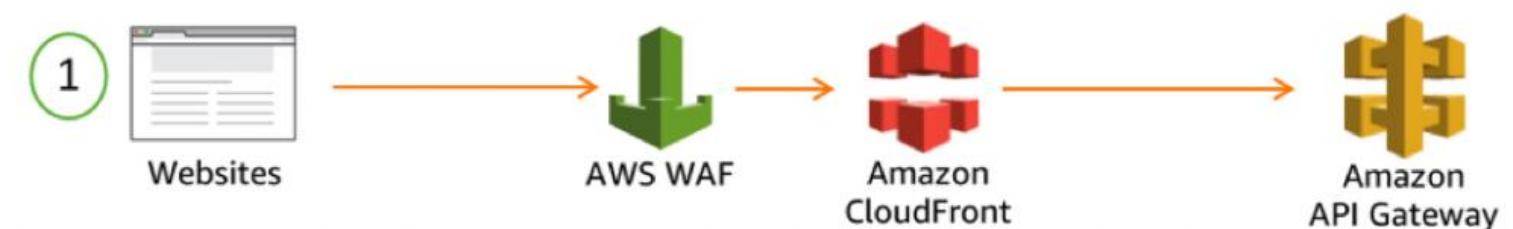
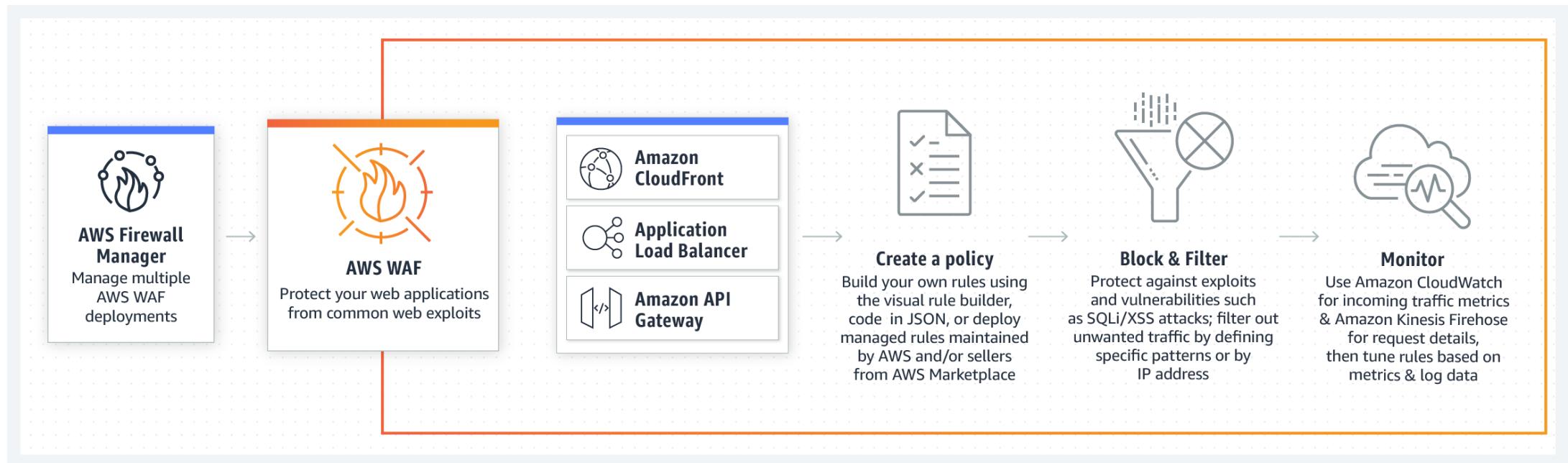
Choosing a routing policy

[PDF](#) | [Kindle](#) | [RSS](#)

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- **Multivalue answer routing policy** – Use when you want Route 53 to respond to DNS queries with up to eight healthy records selected at random.
- **Weighted routing policy** – Use to route traffic to multiple resources in proportions that you specify.

AWS WAF



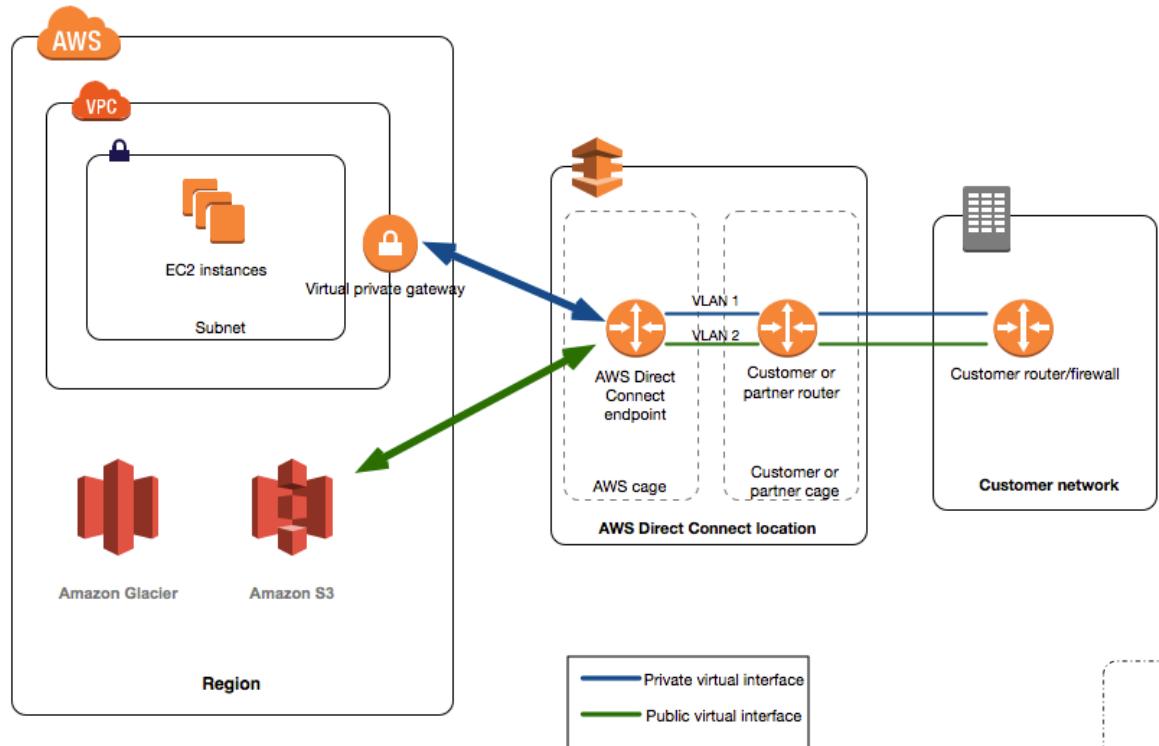
Resource Tagging

The screenshot shows the AWS Resource Groups interface for 'Find resources to tag'. The top navigation bar includes 'Services', 'Resource Groups', and user information for 'Jeff Barr'. The main search area has dropdowns for 'Regions*', 'Resource types*', and 'Tags'. A note indicates '* Required'. Below the search is a 'View as resource group' link and a 'Find resources' button. The main content area displays a table of EC2 instances with columns: Go, Resource type, Region, ID, and Name. The table lists seven EC2 instances across various regions, each with a 'Edit' icon and a 'Delete' icon. A black callout box at the bottom highlights the importance of AWS Resource tags.

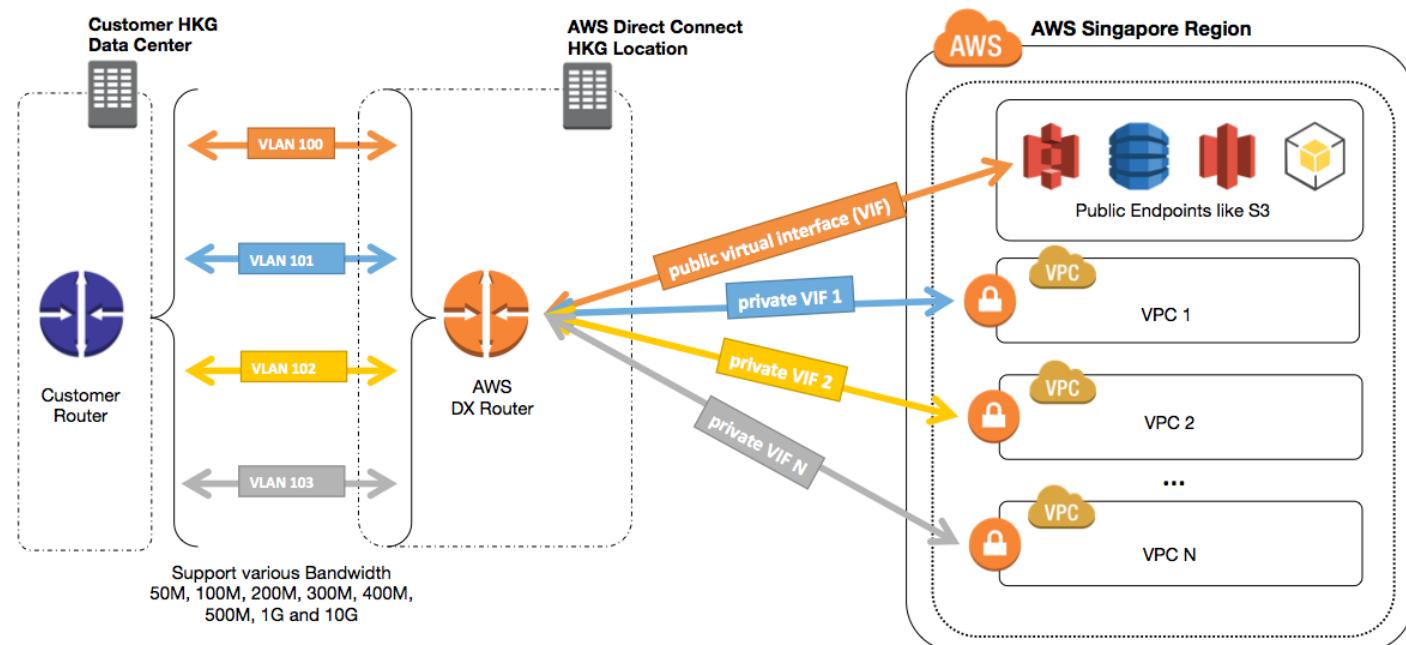
Go	Resource type	Region	ID	Name
<input type="checkbox"/>	EC2 Instance	us-west-2	i-29a0ef22	AWS Blog Authori...  
<input type="checkbox"/>	EC2 Instance	eu-west-1	i-ca5f405d	GP2 Test  
<input type="checkbox"/>	EC2 Instance	us-east-1	i-00de5522bfe3536ab	ALB WAF Blog  
<input type="checkbox"/>	EC2 Instance	us-east-1	i-0ead27b83afef0307	ALB WAF Blog  
<input type="checkbox"/>	EC2 Instance	us-east-1	i-0134ced7d56d94d29	ALB WAF Blog  
<input type="checkbox"/>	EC2 Instance	ap-southeast-1	i-127e6e9c	Not tagged  
<input type="checkbox"/>	EC2 Instance	ap-southeast-1	i-647969ea	Not tagged  

AWS Resource tags are critical components when architecting in the cloud, they create an identifying mechanism for the user to group, classify and order all their provisioned resources appropriately.

Direct Connect

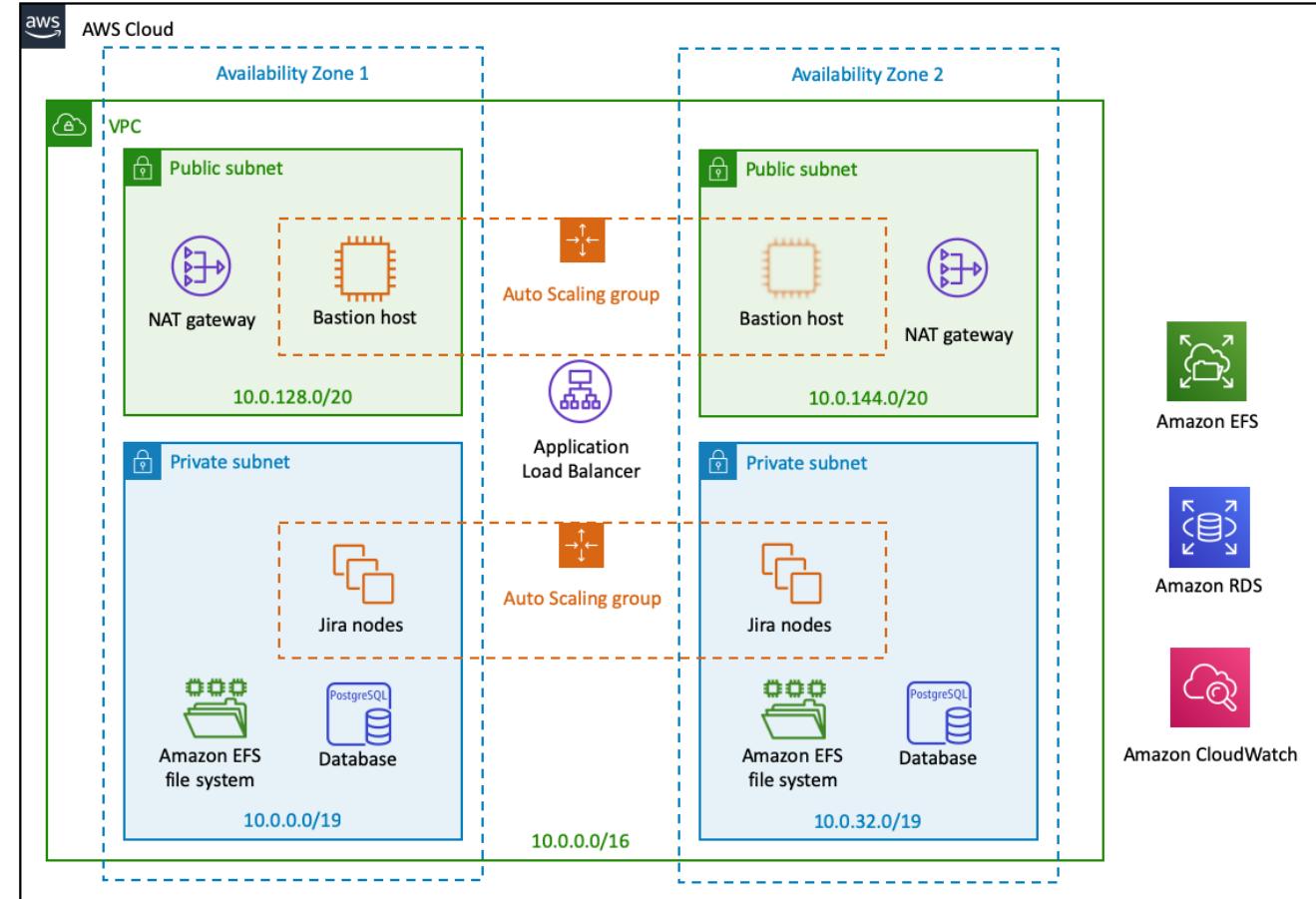


AWS Direct Connect is a cloud service solution that makes it easy to establish a dedicated network connection from your premises to AWS. Using AWS Direct Connect, you can establish private connectivity between AWS and your datacenter, office, or colocation environment, which in many cases can reduce your network costs, increase bandwidth throughput, and provide a more consistent network experience than Internet-based connections.



Quick Starts

Wide Spectrum of Quick Starts



Quick Starts are built by Amazon Web Services (AWS) solutions architects and partners to help you deploy popular technologies on AWS, based on AWS best practices for security and high availability. These accelerators reduce hundreds of manual procedures into just a few steps, so you can build your production environment quickly and start using it immediately.



Wish You
All the Best