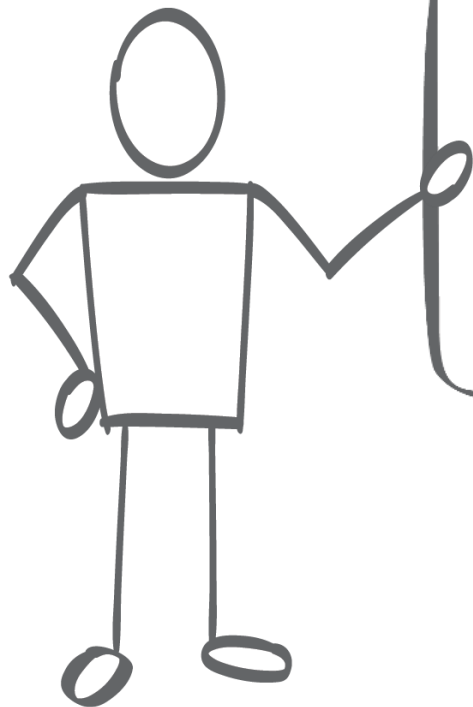




AWSome Day

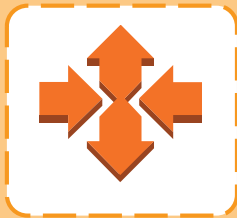
ONLINE CONFERENCE



Module 5

AWS Elasticity and Management Tools

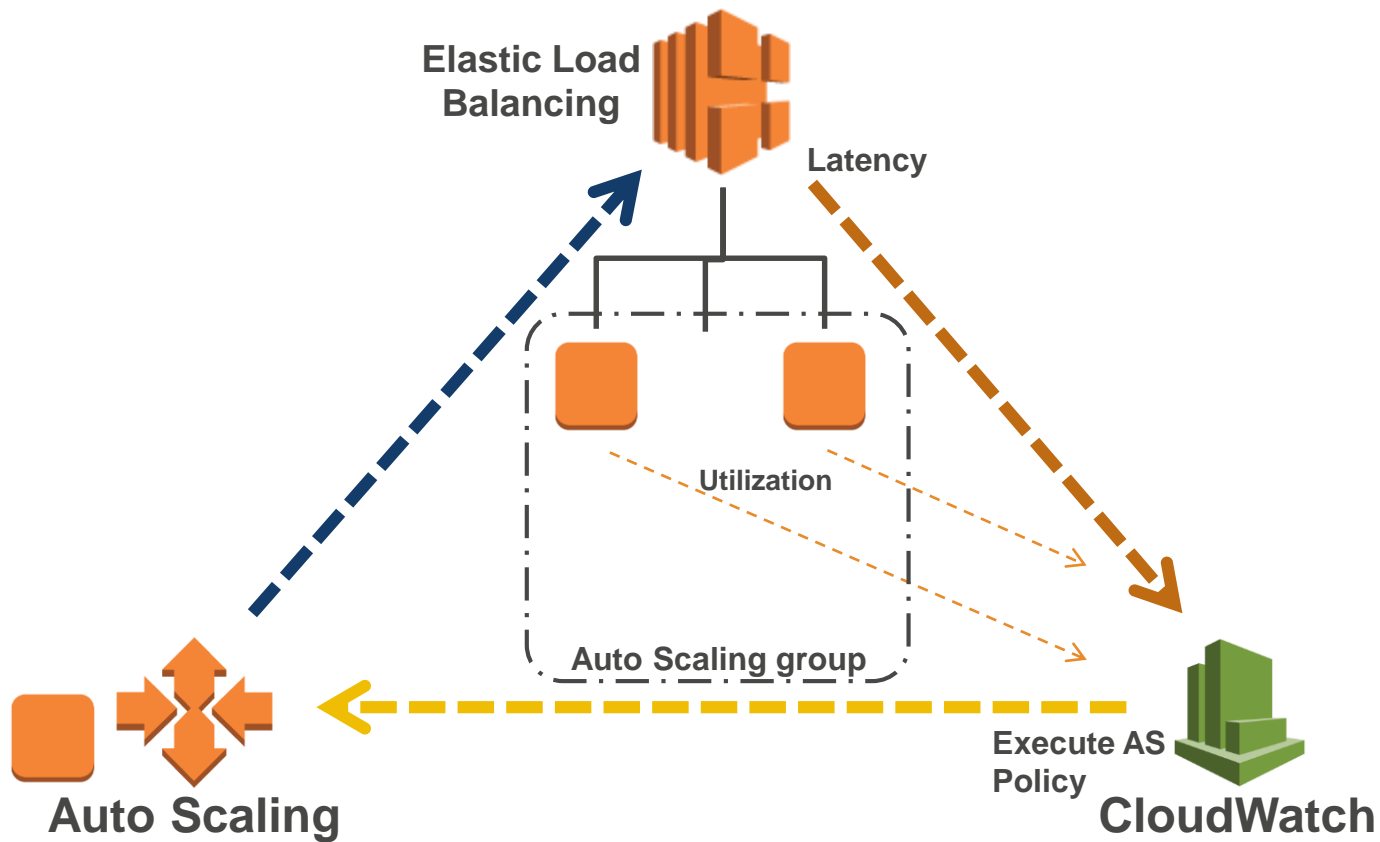
Auto Scaling



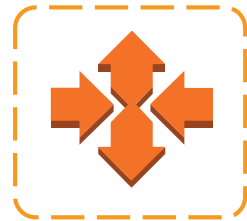
Auto
Scaling

- Scale your Amazon EC2 capacity **automatically**
- Well-suited for applications that experience **variability in usage**
- Available at no additional charge

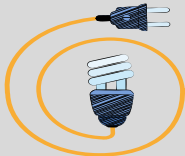
Trio of Services



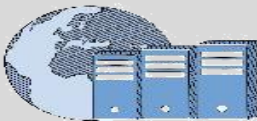
Auto Scaling Benefits



Better Fault Tolerance



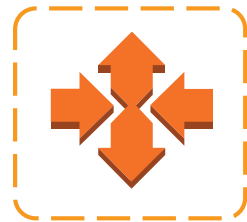
Better Availability



Better Cost Management



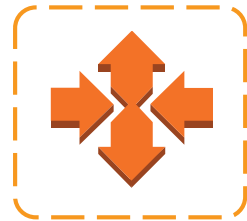
Launch Configurations



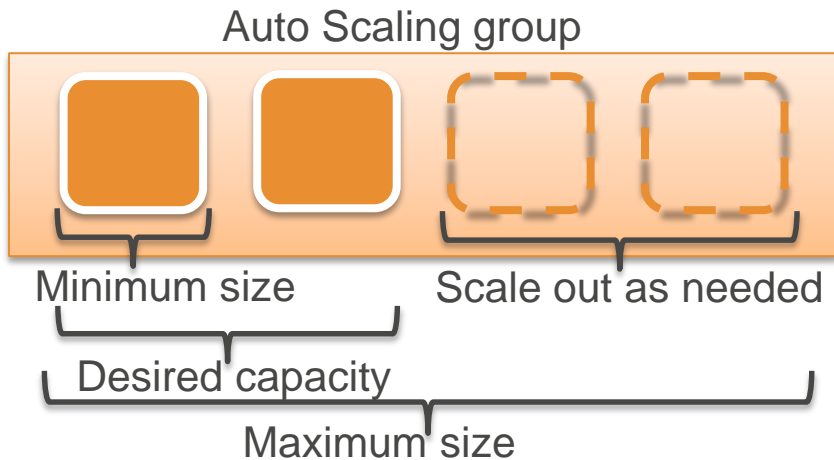
- ❏ A launch configuration is a template that an Auto Scaling group uses to launch EC2 instances.
- ❏ When you create a launch configuration, you can specify:
 - AMI ID
 - Instance type
 - Key pair
 - Security groups
 - Block device mapping
 - User data



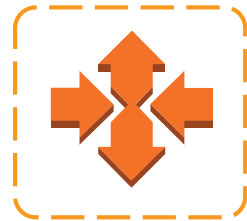
Auto Scaling Groups



- Contain a collection of EC2 instances that share similar characteristics.
- Instances in an Auto Scaling group are treated as a logical grouping for the purpose of instance scaling and management.

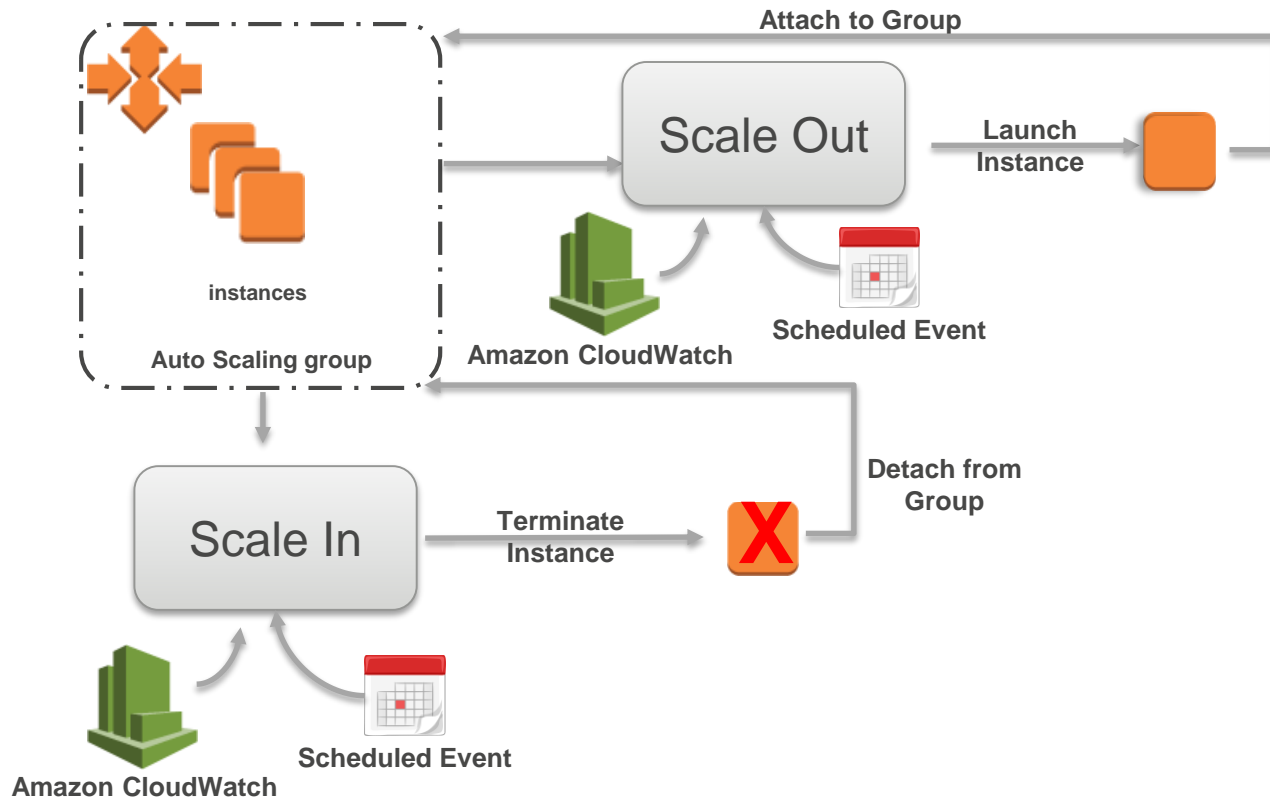
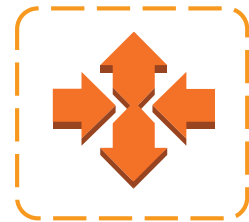


Dynamic Scaling



- ❏ You can create a scaling policy that uses CloudWatch alarms to determine:
 - When your Auto Scaling group should scale out.
 - When your Auto Scaling group should scale in.
- ❏ You can use alarms to monitor:
 - Any of the metrics that AWS services send to Amazon CloudWatch.
 - Your own custom metrics.

Auto Scaling Basic Lifecycle



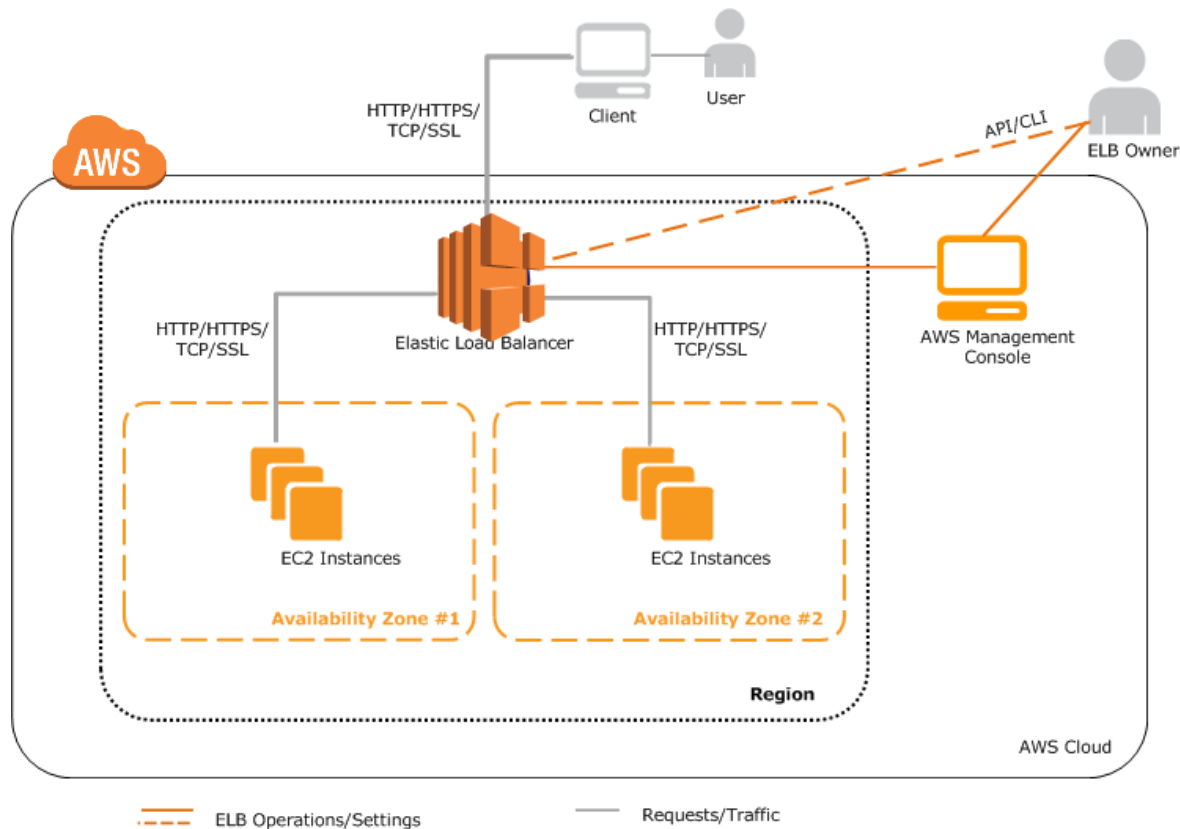
Elastic Load Balancing



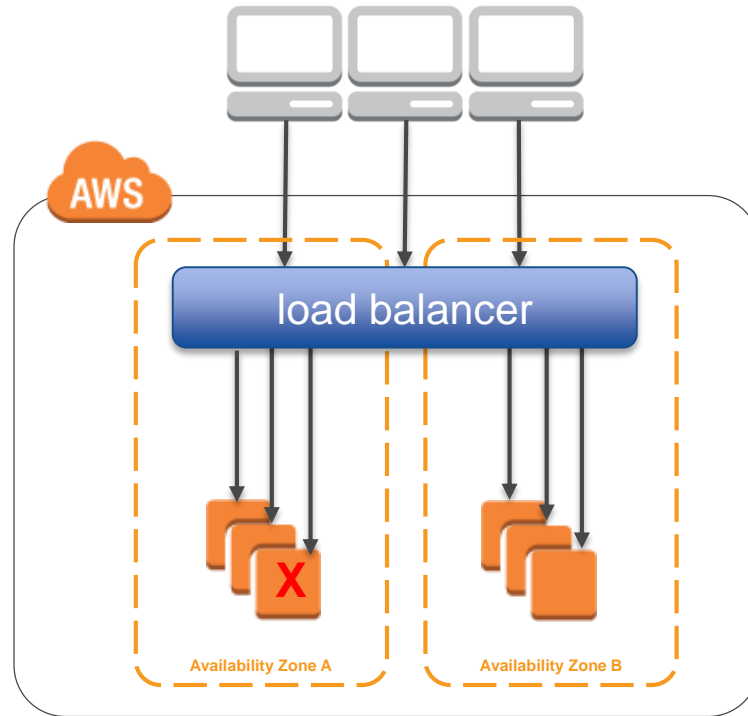
Elastic Load
Balancing

- ❏ **Distributes** traffic across multiple instances
- ❏ Supports **health checks** to detect unhealthy Amazon EC2 instances
- ❏ Supports the **routing and load balancing** of HTTP, HTTPS, and TCP traffic to Amazon EC2 instances

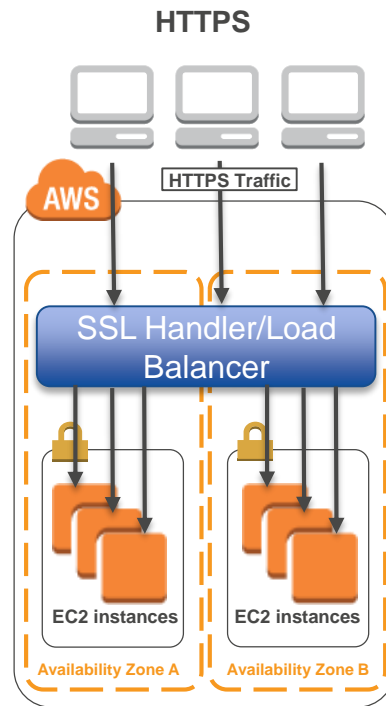
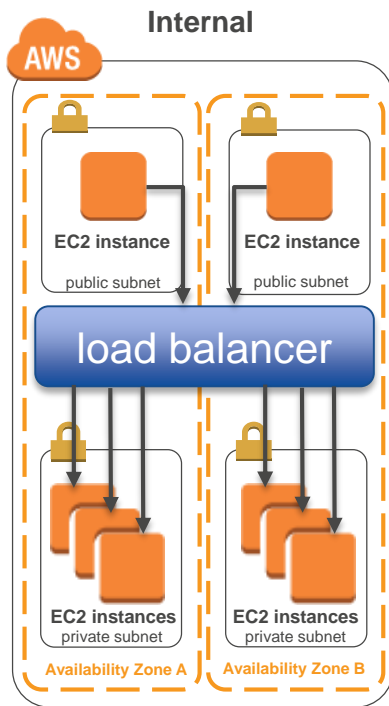
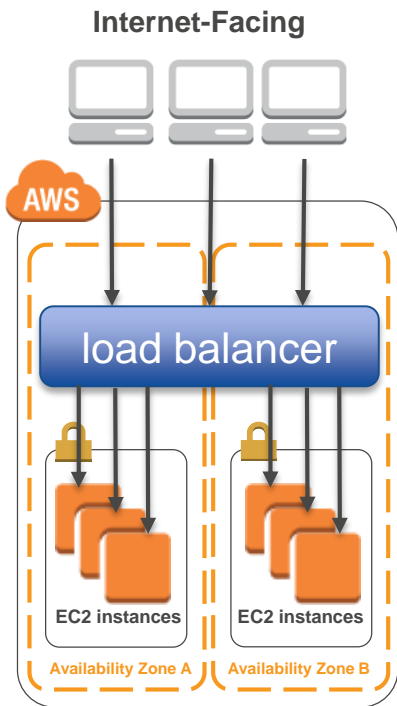
Elastic Load Balancing Example



How It Works



Load Balancer Types



Back-end Instances for Your Load Balancer



- ❏ Health Checks
- ❏ Security Groups
- ❏ Subnets
- ❏ Register
- ❏ De-Register Instances

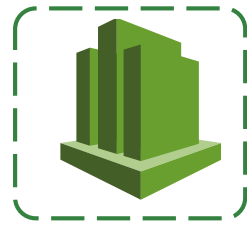
Amazon CloudWatch



Amazon
CloudWatch

- ❏ A **monitoring service** for AWS cloud resources and the applications you run on AWS
- ❏ **Visibility into** resource utilization, operational performance, and overall demand patterns
- ❏ **Custom application-specific** metrics of your own
- ❏ **Accessible** via AWS Management Console, APIs, SDK, or CLI

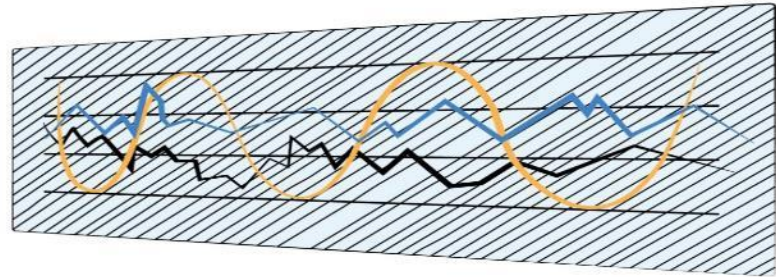
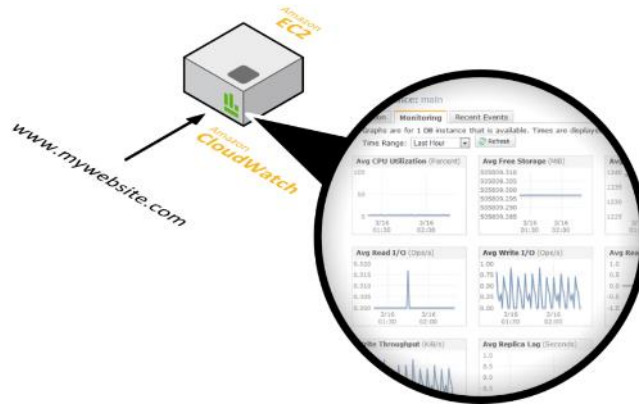
Amazon CloudWatch Facts



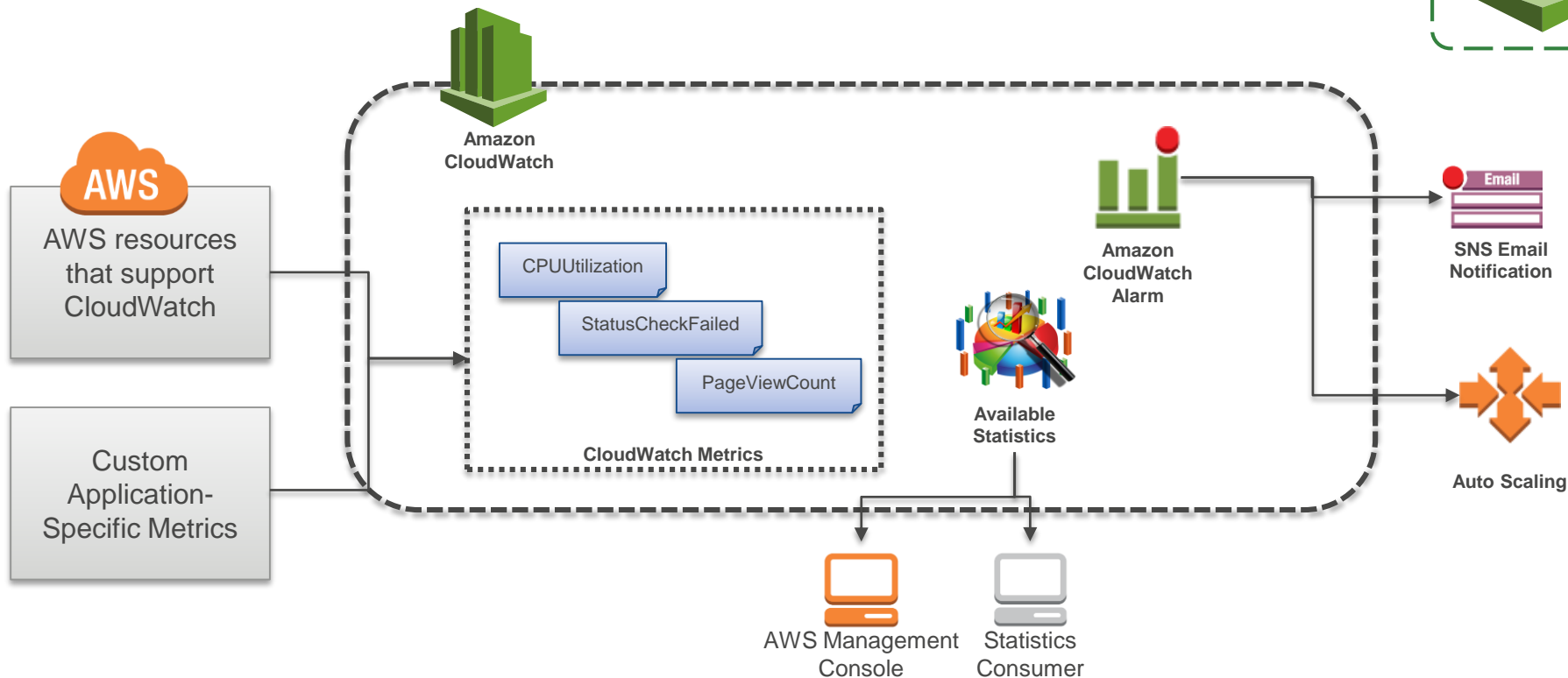
📦 Monitor other AWS resources

➤ View graphics and statistics

📦 Set Alarms



Amazon CloudWatch Architecture



CloudWatch Metrics Examples



CloudWatch Metrics by Category

Your CloudWatch metric summary has loaded. Total metrics: 97

EBS Metrics : 24

EC2 Metrics : 38

S3 Metrics : 18

SNS Metrics : 3

SQS Metrics : 14

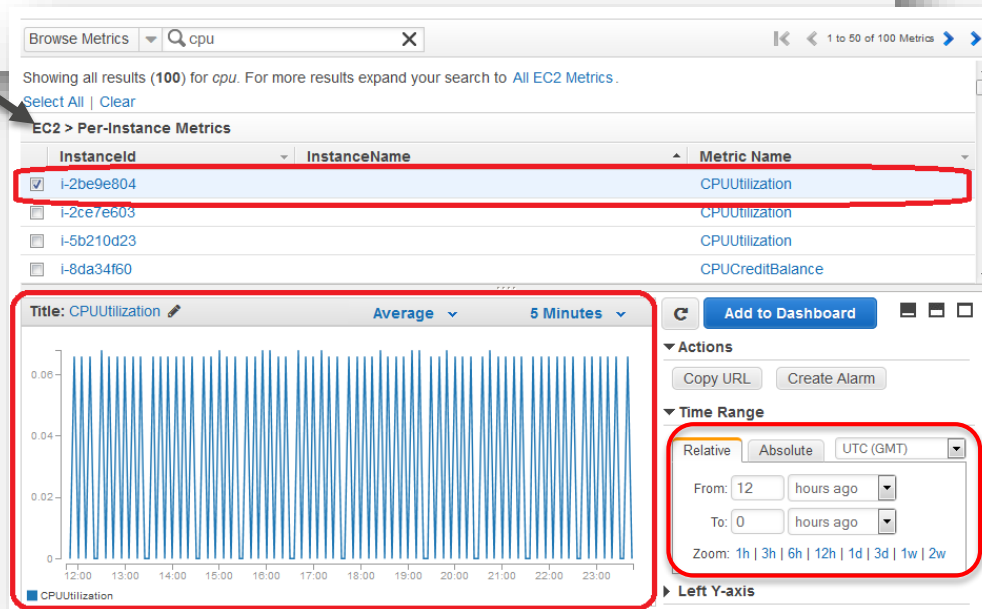
Per-Volume Metrics : 24

Per-Instance Metrics : 38

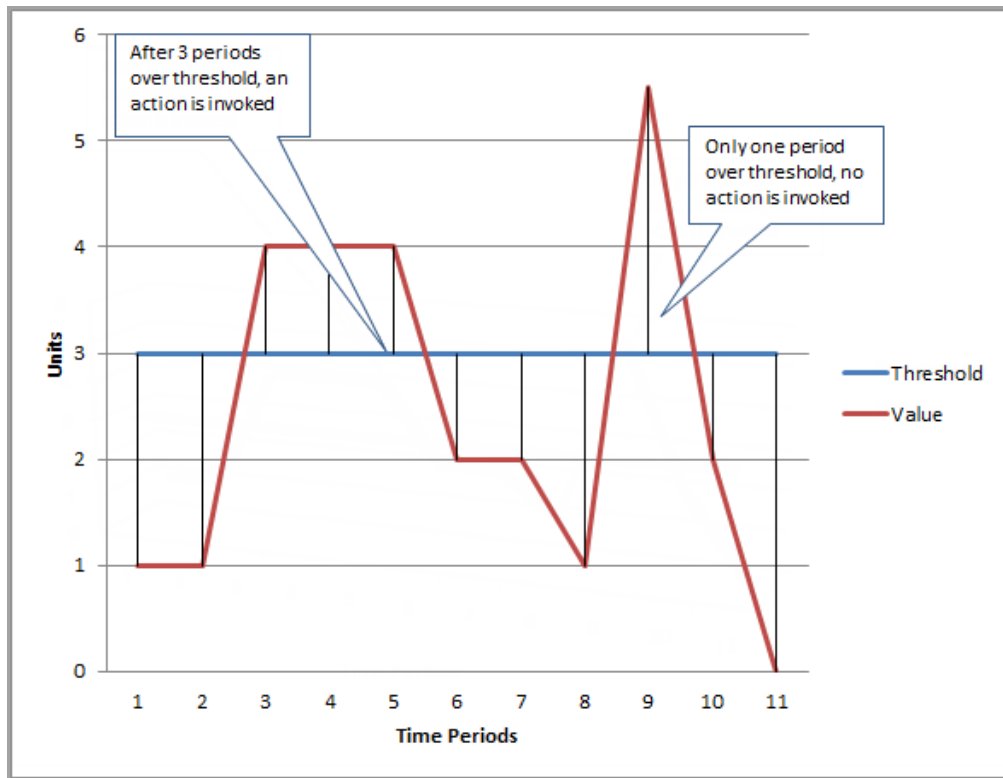
Storage Metrics : 18

Topic Metrics : 3

Queue Metrics : 14



CloudWatch Alarms



Supported AWS Services



Amazon CloudWatch



AWS Storage
Gateway



Amazon S3



Amazon Machine
Learning



Elastic Load
Balancing



Amazon
WorkSpaces



Amazon
SWF



Amazon
DynamoDB



AWS OpsWorks



Amazon
CloudFront



Amazon EC2



Amazon Kinesis



AWS Lambda



Amazon EC2
Container Service



Amazon
SQS



Amazon RDS



AWS WAF



Amazon EBS



Auto Scaling



Amazon
Route 53



Amazon EMR



Amazon
CloudSearch



Amazon SNS



Amazon Redshift



Amazon
ElastiCache

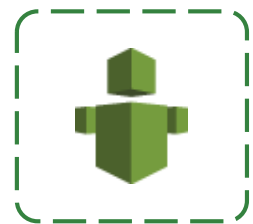
AWS Trusted Advisor



AWS Trusted
Advisor

- **Best practice** and recommendation engine.
- Provides AWS customers with performance and security recommendations in four categories: **cost optimization, security, fault tolerance, and performance improvement.**

Cost Optimization



- Amazon EC2 Reserved Instance Optimization
- Low Utilization Amazon EC2 Instances
- Idle Load Balancers
- Underutilized Amazon EBS Volumes
- Unassociated Elastic IP Addresses
- Amazon RDS Idle DB Instances

Cost Optimization

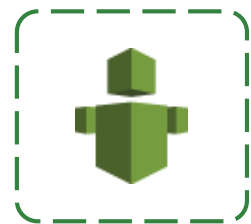


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Security



- Security Groups
- AWS IAM Use
- Amazon S3 Bucket Permissions
- MFA on Root Account
- AWS IAM Password Policy
- Amazon RDS Security Group Access Risk

Security

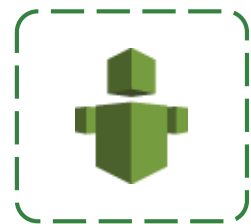


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3 !

1 excluded items

Fault Tolerance



- Amazon EBS Snapshots
- Load Balancer Optimization
- Auto Scaling Group Resources
- Amazon RDS Multi-AZ
- Amazon Route 53 Name Server Delegations
- ELB Connection Draining

Fault Tolerance

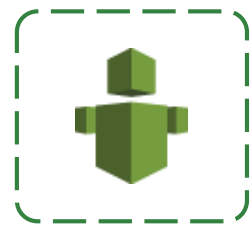


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Performance Improvement



- High Utilization Amazon EC2 Instances
- Service Limits
- Large Number of Rules in EC2 Security Group
- Over Utilized Amazon EBS Magnetic Volumes
- Amazon EC2 to EBS Throughput Optimization
- Amazon CloudFront Alternate Domain Names

Performance



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0 excluded items

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