Management and Governance Services

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AWS Management & Governance Services

AWS CloudTrail

AWS CloudFormation

Amazon CloudWatch

AWS Config

AWS Systems Manager

AWS Control Tower

Overview

Reviewing the ecosystem of services that are provided for management

Examining how to create an audit trail with AWS CloudTrail

Exploring how you track infrastructure with CloudWatch and Config

Introducing infrastructure automation with CloudFormation

Looking at operational insights with Systems Manager

Reviewing AWS Organizations leveraging Control Tower

AWS CloudTrail

“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.”

Amazon Web Services

AWS CloudTrail

- Inserts audit trail in an S3 bucket or into CloudWatch Logs
- Logs events in the regions in which they occur
- Meets many compliance requirements for infrastructure auditing
- As a best practice, it should be enabled on every AWS account
- Can be consolidated into an Organizational trail using AWS Organizations

AWS CloudTrail Use Cases

Compliance requirement

Forensic analysis

Operational analysis

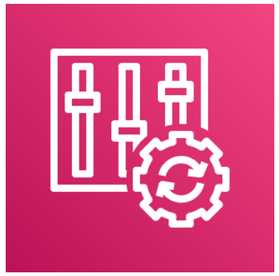
Troubleshooting

Amazon CloudWatch and AWS Config

Managing Infrastructure

Amazon CloudWatch

Provides metrics, logs, and alarms for infrastructure



AWS Config

Continually evaluates infrastructure against a set of rules

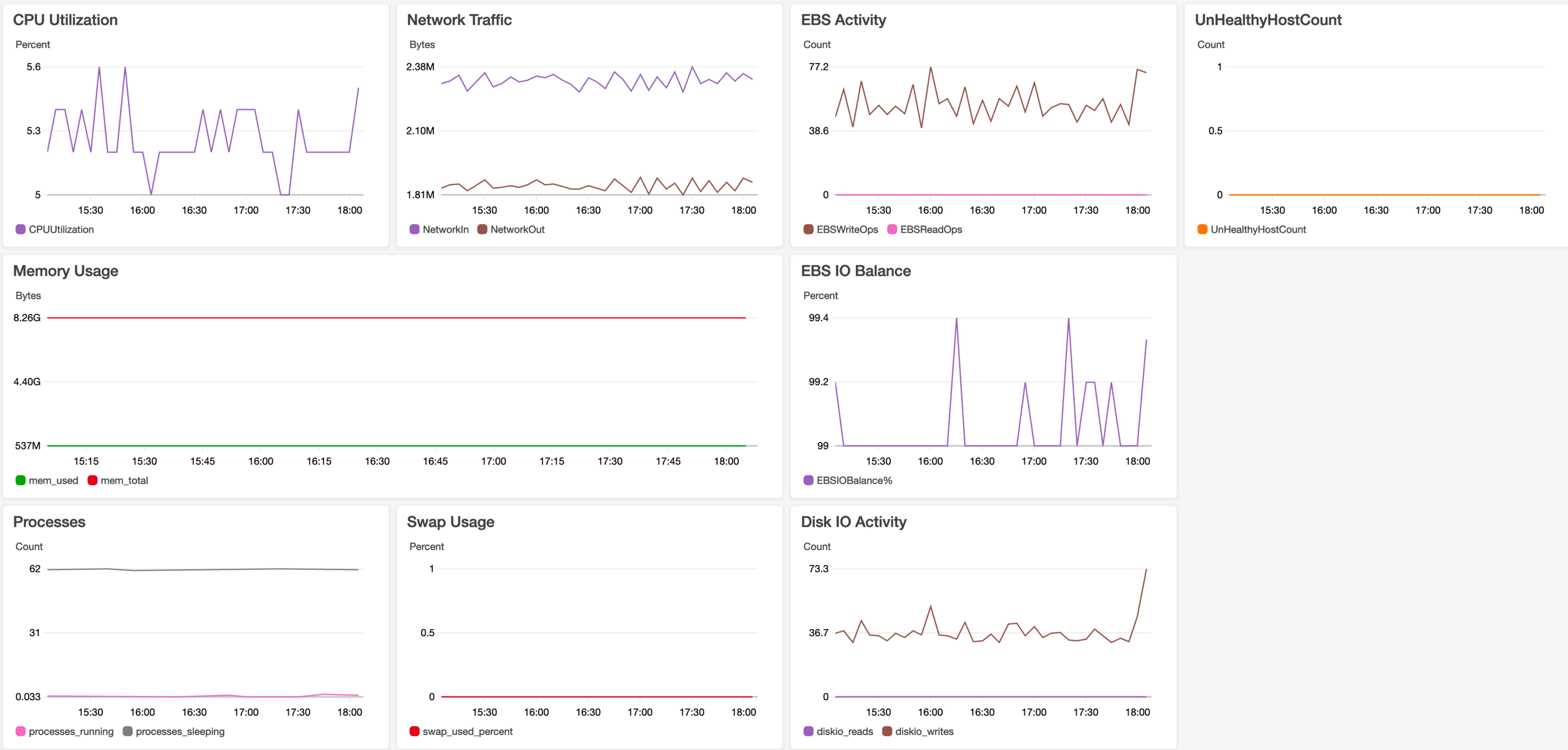
AWS Systems Manager

Provides operational data and automation across infrastructure

Amazon CloudWatch

- Monitoring and management service
- Collects logs, metrics, and events from most AWS services
- Enables alarms based on metrics
- Provides visualization capabilities for metrics
- Allows for custom dashboards based on collected metrics

Sample Dashboard | Add widget | Actions | Save dashboard | 1h 3h 12h 1d 3d 1w custom



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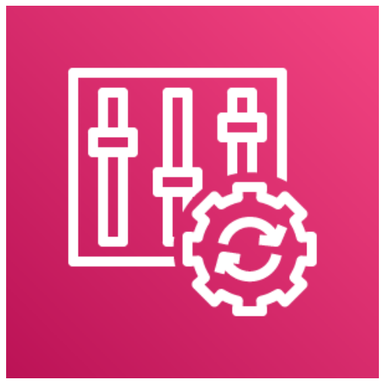
“**AWS Config** continuously monitors and records your AWS resource configurations and allows you to automate the evaluation of recorded configurations against desired configurations.”

Amazon Web Services

AWS Config



- Provides configuration history for infrastructure
- Works against rules that you can customize or even create custom validations
- Includes conformance packs for compliance standards including PCI-DSS
- Can work with AWS Organizations for both cross-region and cross-account setup
- Provides remediation steps for infrastructure not meeting criteria

AWS Systems Manager

“**AWS Systems Manager** provides a unified user interface so you can view operational data from multiple AWS services and allows you to automate operational tasks across your AWS resources.”

Amazon Web Services

AWS Systems Manager

Provides multiple tools that make it easier to manage your AWS infrastructure

Enables automation tasks for common maintenance actions

Gives a secure way to access servers using only AWS credentials

Stores commonly used parameters securely for operational use

AWS CloudFormation

AWS CloudFormation

- Managed service for provisioning infrastructure based on templates
- No additional charge
- Templates can be YAML or JSON
- Enables infrastructure as code
- Manages dependencies between resources
- Provides drift detection to find changes in your infrastructure

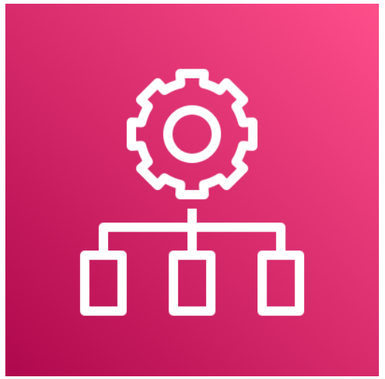
```
Description: Creates an S3 bucket

Resources:
  SampleS3Bucket:
    Type: AWS::S3::Bucket
    Properties:
      BucketName: sample-s3-bucket
```

Example CloudFormation YAML

The code above if placed within a full CloudFormation template would create a single S3 bucket

AWS OpsWorks

AWS OpsWorks



Configuration management service

Provides managed instances of Chef and Puppet

Configuration is defined as code for servers

Chef and Puppet manage the lifecycle of those configuration changes with servers

Works in a hybrid cloud architecture for both cloud-based on on-premise servers

AWS OpsWorks Services

AWS OpsWorks for Chef Automate

AWS OpsWorks for Puppet Enterprise

AWS OpsWorks Stacks

AWS Organizations and Control Tower

AWS Organizations

Allows organizations to manage multiple accounts under a single master account

Provides organizations with the ability to leverage Consolidated Billing for all accounts

Enables organizations to centralize logging and security standards across accounts

AWS Control Tower

A service to create a multi-account environment on AWS that follows the recommended best practices in operational efficiency, security, and governance.

AWS Control Tower

Centralizes users across all AWS accounts

Provides a way to create new AWS accounts based on templates

Integrates Guardrails for accounts

Includes a dashboard to gain operational insights from a single view

Scenario Based Review

Scenario 1

Elliott is an operations engineer at a financial services company

He recently discovered that someone had disabled a security setting on a server

He is concerned that events like this might go unnoticed until a breach

Which service would allow the organization to continually track configuration of infrastructure?

Scenario 2

James is the lead architect at a SaaS company

They will be launching a new application that includes several components

He is looking to minimize manual work required when creating infrastructure

What service would enable James to automate much of this effort?

Scenario 3

Candace is the CTO at a manufacturing company

A cloud server needed to support their manufacturing process was deleted

They want to make sure the follow up with the person who deleted this instance

Which service could show the individual that deleted this specific server?

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Solution: AWS Config

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Solution: AWS CloudFormation

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Preparing for the Exam