

AWS State, Local, and Education Learning Days

New York City, NY

Cloud Foundations

10:15am – 11:15am

100
level

Migration and modernization with AWS: lessons learned and best practices

Learn insights on AWS tools and services, and modernizing applications during migration

11:30am – 12:30pm

200
level

Foundational best practices to strengthen your cloud journey

Foundational cloud principles to ensure secure, reliable, compliant, and operationally excellent AWS environment

1:30pm – 3:00pm

200
level

AWS Foundations hands-on workshop

Customize your AWS learning with interactive technical workshops and personalized lab experiences.

3:15pm – 4:15pm

300
level

Designing modern applications in AWS

Unlock serverless potential: reduce costs, boost scalability, and enhance security with cloud-native architectures



Foundational Best Practices to Strengthen Your Cloud Journey

Vlad Fatu (he/him)

Solutions Architecture Manager
vladfatu@amazon.com

George Christman (he/him)

Solutions Architect
gchrیمان@amazon.com

Whatever journey you're taking, you need a foundation



What do organizations want on AWS?



Make a difference



Deliver and
innovate rapidly



Secure and compliant
environment

Why do our customers adopt the cloud?



Organic and new revenue growth

Innovate rapidly (TTV)

Global reach

New products and segments



Operate with efficiency

Enhance productivity

Pay for what you use

Reduce carbon footprint



Business insight

Data-driven decision making

Lower the cost of curiosity



Reduce risk

Operational resilience

M&A, divestiture


**Cloud capabilities
drive business
outcomes**

How do organizations adopt the cloud?


Develop cloud-native apps
Innovation




Use SaaS
Focus on core business



Modernize workloads
Insight, scale, resiliency



Migrate workloads
Quick, minimal disruption



Foundational cloud capability areas



Requirements

Secure

Flexible

Resilient

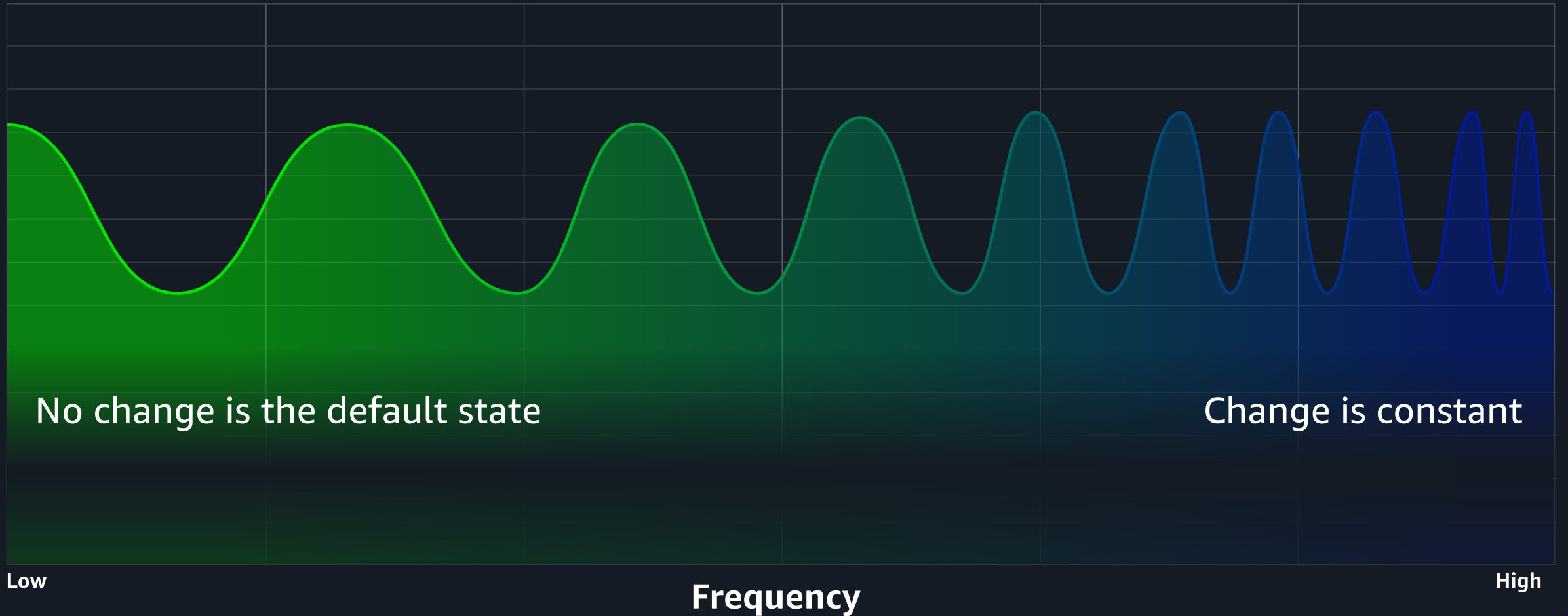
Scalable

Operations-ready

Cost-effective

Extensible

Digital transformation in the cloud



Cloud Foundations on AWS enables . . .



Agility

Response to change



Increased
velocity

Quicker time
to value



Reliability

Resilient and
available



Efficiency

Pay-as-you-go,
Elastic, and
fit-for-purpose



Risk
management

Security and
policy enforcement

The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management

- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management
- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management



Why use the AWS Well-Architected Framework?



Build and deploy faster



Lower or mitigate risks



Make informed decisions



Learn AWS best practices



How can you use the AWS Well-Architected Framework?

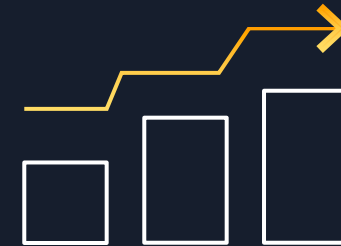
As a mechanism to drive better outcomes for customers who build and operate workloads in the cloud



Learn



Measure



Improve

What is the AWS Well-Architected Framework?



Pillars & Lenses



Design principles

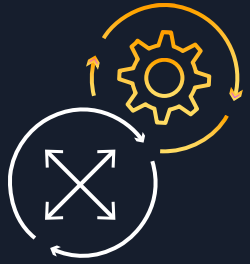


Questions



Best Practices

Pillars of the AWS Well-Architected Framework



Operational
Excellence



Security



Reliability



Performance
Efficiency



Cost
Optimization



Sustainability

General design principles

- Stop guessing your capacity needs

- Test systems at production scale

- Automate with architectural experimentation in mind

- Consider evolutionary architectures

- Drive architectures using data

- Improve through game days



The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management

- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management
- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management



Operational Excellence design principles

- Organize teams around business outcomes
- Implement observability for actionable insights
- Safely automate where possible
- Make frequent, small, reversible changes
- Refine operations procedures frequently
- Anticipate failure
- Learn from all operational events and metrics
- Use managed services



Operational Excellence best practice areas

➤ Organization

➤ Prepare

➤ Operate

➤ Evolve



The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management
- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management
- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management



Security design principles

- Implement a strong identity foundation
- Maintain traceability
- Apply security at all layers
- Automate security best practices
- Protect data in transit and at rest
- Keep people away from data
- Prepare for security events



Security best practice areas

- Security Foundations
- Identity and access management
- Detection
- Infrastructure protection
- Data protection
- Incident response
- Application security



Security Hub

The screenshot displays the AWS Security Hub console interface. At the top, the browser address bar shows the account ID: 7303-3546-0876. The page title is "Security Hub > Summary".

Navigation Menu:

- Dashboard
 - Summary
 - Exposure
 - Threats
 - Vulnerabilities
 - Posture management
 - Sensitive data
- Inventory
 - Findings
 - Resources
- Management
 - Integrations
 - Automations
- Settings
 - General
- Detection engines
 - GuardDuty
 - Inspector
 - Security Hub CSPM
 - Macie

Summary Dashboard:

Saved filter sets: Choose a filter set, Add filter

Filters: Status = New, Status = In Progress, Activity name != Close, Clear filter

Threat summary: A threat finding is an event with the potential to adversely impact operations, assets, or individuals. Top severity detections are listed below.

Severity	Count
Critical	0
High	7
Medium	2
Low	1

Findings:

- The EC2 instance i-07475a6c08a4bb671 queried a Bitcoin-related domain name. **High**
- The EC2 instance i-07475a6c08a4bb671 queried a Bitcoin-related domain name. **High**
- Port range 0 to 65535 is reachable from an Internet Gateway - TCP. **High**

[View all threats](#)

Exposure summary: An exposure finding is a correlation of multiple security findings, resource relationships and configurations. The exposure findings with the greatest severity and most findings are listed below.

Severity	Count
Critical	2
High	2
Medium	3
Low	5

Exposure:

- Potential Credential Stealing: Internet reachable EC2 instance with instance profile has network-exploitable software vulnerabilities with a high likelihood of exploitation. **Critical** 2

[View all exposure findings](#)

Resource summary: View resources prioritized by exposures and attack sequences.

Resource	Resource type	Findings
----------	---------------	----------

Security coverage: Track the status of AWS security capabilities across your environment. Coverage data can take up to a day to be reflected after you have updated your capabilities.

Security capability	Account coverage	Action
---------------------	------------------	--------

© 2025, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences



The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management

- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management
- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management



Reliability design principles

- Automatically recover from failure

- Test recovery procedures

- Scale horizontally to increase aggregate workload availability

- Stop guessing capacity

- Manage change through automation



Reliability best practice areas

- Foundations

- Workload Architecture

- Change Management

- Failure Management



The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management

- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management
- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management



Performance Efficiency design principles

- Democratize advanced technologies
-

- Go global in minutes
-

- Use serverless architectures
-

- Experiment more often
-

- Consider mechanical sympathy



Performance Efficiency Best Practice Areas

- Architecture selection

- Compute and hardware

- Data management

- Networking and content delivery

- Process and culture



The Cloud Foundations capabilities

Governance, risk management, and compliance

- Log Storage
- Data De-identification
- Tagging
- Service Onboarding
- Change Management
- Forensics
- Records Management

Operations

- Developer Experience & Tools
- Observability
- Patch Management
- Image Management

- Audit & Assessment
- Governance

Security

- Identity Management & Access Control
- Encryption & Key Management
- Secrets Management

Infrastructure

- Network Connectivity
- Network Security
- Workload Isolation
- Template Management

- Data Isolation
- Security Incident Response
- Vulnerability & Threat Management
- Application Security

Business continuity

- Disaster Recovery
- Backup and Recovery
- Support

Finance

- Cloud Financial Management
- Resource Inventory Management



Cost Optimization design principles

Implement cloud financial management

- Adopt a consumption model

- Measure overall efficiency

- Stop spending money on undifferentiated heavy-lifting

- Analyze and attribute expenditure



Cost Optimization best practice areas

Practice Cloud Financial Management (CFM)

- Expenditure and usage awareness

- Cost-effective resources

- Manage demand and supply resources

- Optimize over time



Cost Optimization on AWS



AWS Cost Explorer

Cost and usage details and anomaly detection



AWS Compute Optimizer

Right-sizing recommendations



FinOps practitioner



AWS Budgets

Control budgets and alerts



AWS Trusted Advisor

Identify idle resources



Reserved Instance (RI) Reporting

Purchase option recommendations and reporting



AWS Cost and Usage Reports

Raw billing data

Cloud Intelligence Dashboards

Foundational

Cost Intelligence Dashboard



High-level charts

KPI Dashboard



Define goals and track progress on cost optimization KPIs

CUDOS Dashboard



In-depth insights with resource-level granularity

Executives

Finance/procurement

FinOps practitioners | Product owners | Engineering and operations

Advanced



Compute Optimizer Dashboard



Cost Anomalies Dashboard



Trusted Advisor Organizational (TAO) Dashboard



Graviton Opportunities Dashboard



Extended Support Cost Projection



Sustainability Dashboard



Containers Cost Allocation Dashboard

Cloud Intelligence Dashboards Framework

Data sources

Foundational



AWS Data Exports

- AWS Cost And Usage Report
- Cost Optimization Hub Data
- FOCUS Data
- Carbon Data

Advanced



AWS Compute Optimizer



AWS Trusted Advisor



AWS Cost Anomalies



AWS Budgets



AWS Health



AWS Support

Additional



AWS Config

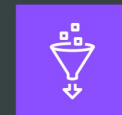


AWS Security Hub



3rd Party Sources

Data Lake



AWS Glue



Amazon S3



Amazon Athena

Business Intelligence

Dashboards



Amazon QuickSight

Decision makers



Finance & Procurement



Executives



Engineering Leads



Product Owners

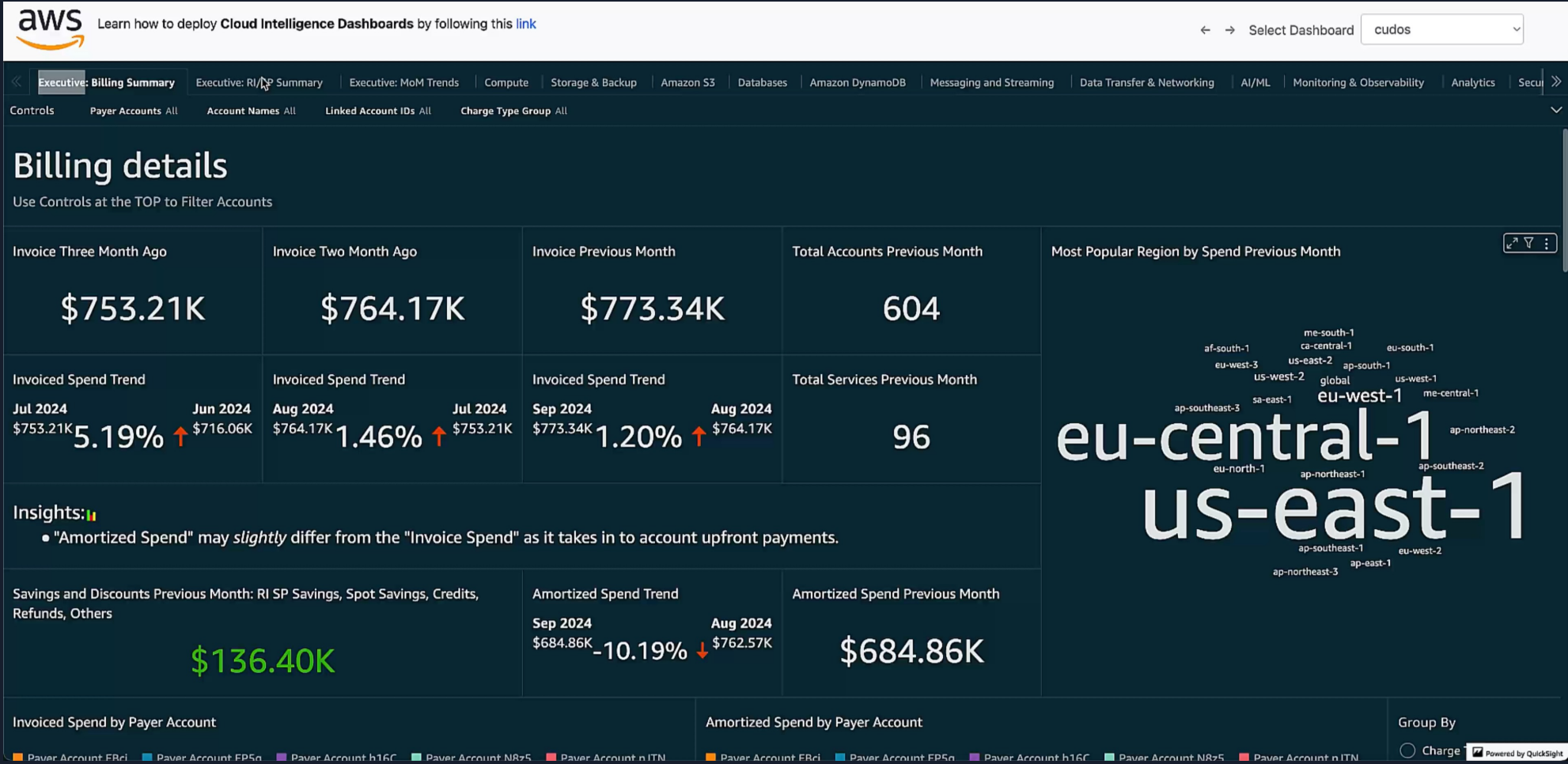


FinOps Practitioners

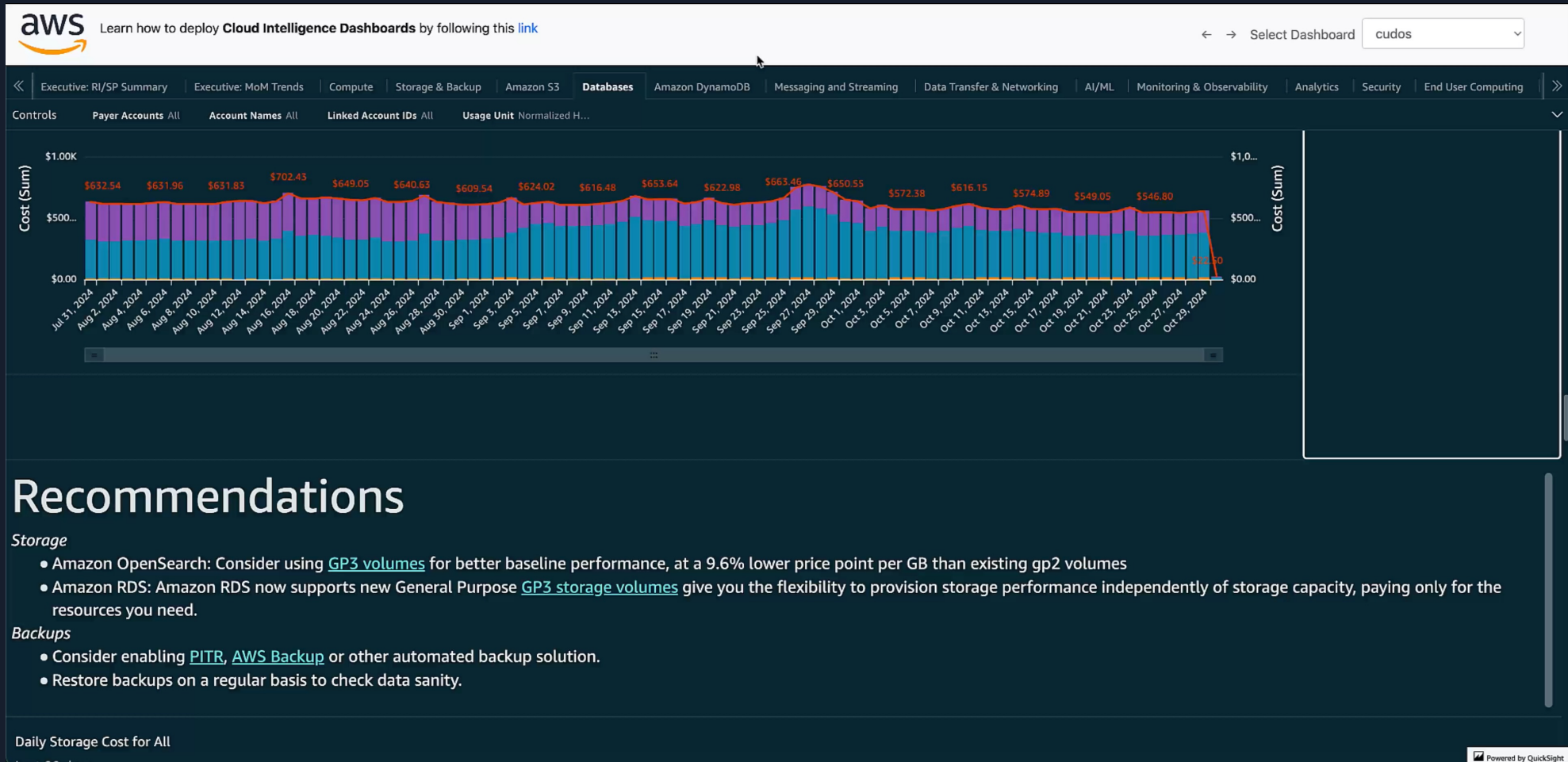


Security

Cost and Usage Dashboard Operations Solution



Cloud Intelligence Dashboards



Cost Optimization Hub

Cloud9 EC2 CloudFormation CloudWatch Systems Manager Lambda RDS Amazon GameLift Amazon SageMaker S3 Elastic Kubernetes Service Amazon OpenSearch Service AWS Compute Optimizer

Cost Optimization Hub New

- ▼ **Savings Plans**
 - Overview
 - Inventory
 - Recommendations
 - Purchase Savings Plans
 - Utilization Report
 - Coverage Report
 - Cart 0
- **Reservations**
- Preferences and Settings**
 - Payment Preferences
 - Billing Preferences
 - Cost Management Preferences
 - Tax Settings
- **Legacy Pages**

Introducing new recommendations for Amazon RDS DB instances
We've added recommendations for Amazon RDS DB instances and storage. You can use these recommendations to optimize your Amazon RDS MySQL and RDS PostgreSQL databases.

[Billing and Cost Management](#) > [Cost Optimization Hub](#)

Cost Optimization Hub

Filter cost optimization opportunities and aggregate estimated savings. To see specific cost optimization recommendations per resource, choose **View opportunities**.

Aggregate estimated savings by
Resource type

Chart Table

► Filter

The donut chart displays the aggregate estimated savings of \$779 per month. The chart is divided into two segments: a large blue segment representing EBS volume and a smaller red segment representing EC2 Instance. The total value of \$779 is displayed in the center of the chart.

CloudShell Feedback

© 2024, Amazon Web Services, Inc. or its affiliates. [Privacy](#) [Terms](#) [Cookie preferences](#)

Sustainability design principles

- Understand your impact
- Establish sustainability goals
- Maximize utilization
- Anticipate and adopt new, more efficient hardware and software offerings
- Use managed services
- Reduce the downstream impact of your cloud workloads



Sustainability best practice areas

- Region selection

- Alignment to demand

- Software and architecture

- Data management

- Hardware and services

- Process and culture



Audience Pool #4

Given what we discussed, how mature is your current AWS environment?

MENTIMETER QR
CODE



Thank you!

Vlad Fatu (he/him)

Solutions Architecture Manager
vladfatu@amazon.com

George Christman (he/him)

Solutions Architect
gchrman@amazon.com

1:30pm – 3:00pm

200
level

**AWS Foundations
hands-on workshop**

Customize your AWS learning with interactive technical workshops and personalized lab experiences.

Please complete the survey for this session



Track : Cloud Foundations

Session: Foundational best practices to strengthen your cloud journey

aws Learning Days
State, Local, and Education