



aws SUMMIT

MILAN

22-06-2023

COP201

Operational Excellence dal tradizionale al modello cloud: come Cerved gestisce e orchestra il post migrazione grazie agli strumenti AWS

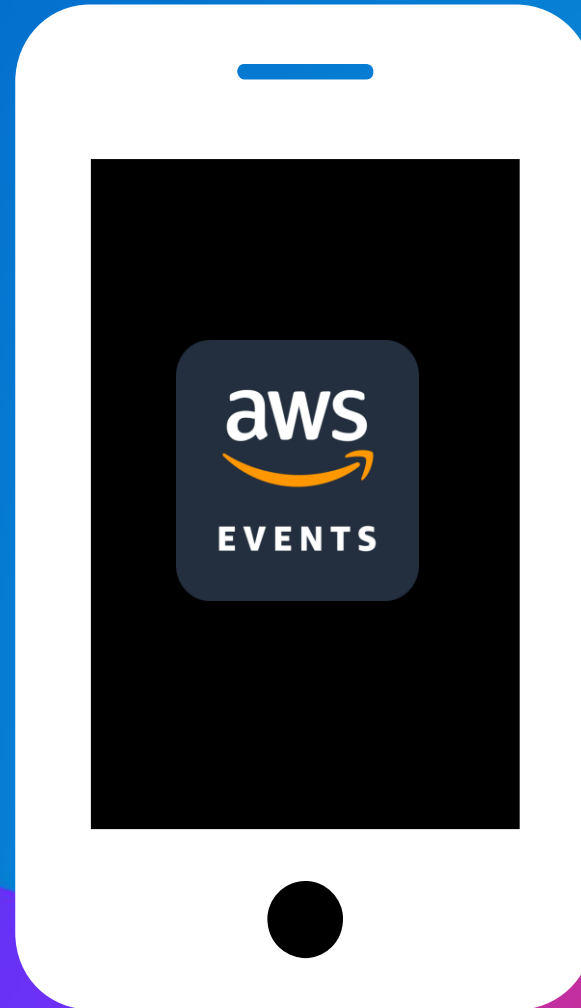
Giuseppe Borasio
Sr.Solutions Architect
AWS

Danila De Santo
Systems & Cloud management, Cerved

Andrea Ballin
Network & Cloud Infrastructure, Cerved



Scarica la App «AWS Events» e accedi a tutte le informazioni dell'evento!



Agenda

Operational Excellence

System Manager

OpenSearch

Converged in Operation excellency

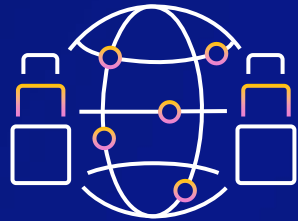
Pillars of AWS Well-Architected



Operational
Excellence



Security



Reliability



Performance
Efficiency



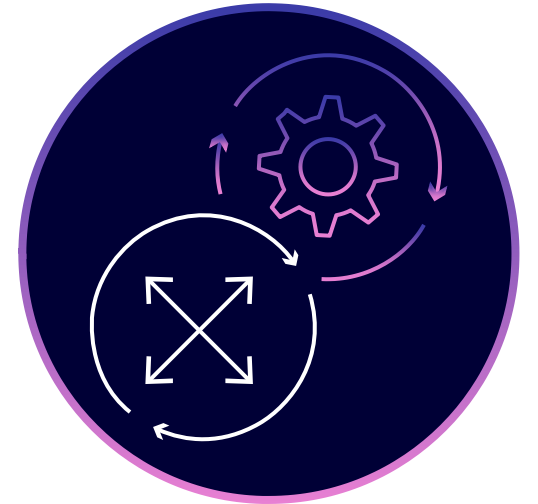
Cost
Optimization



Sustainability

Operational Excellence design principles

- ❧ Perform operations as code
- ❧ Make frequent, small, reversible changes
- ❧ Refine operations procedures frequently
- ❧ Anticipate failure
- ❧ Learn from all operational failures



System Manager



How it works



AWS Systems Manager
Systems Manager helps you safely manage and operate your resources at scale



Group resources

Create groups of resources across different AWS services, such as applications or different layers of an application stack



Visualize data

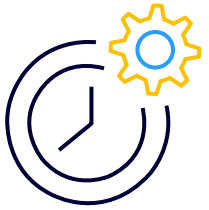
View aggregated operational data by resource group



Take Action

Respond to insights and automate operational actions across resource groups

AWS Systems Manager benefits



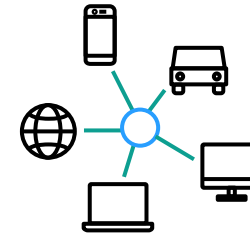
Shorten the
time to detect
problems



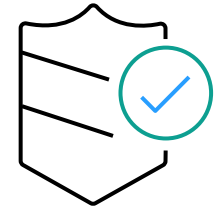
Automate tasks
to increase
efficiency



Improve
visibility and
control

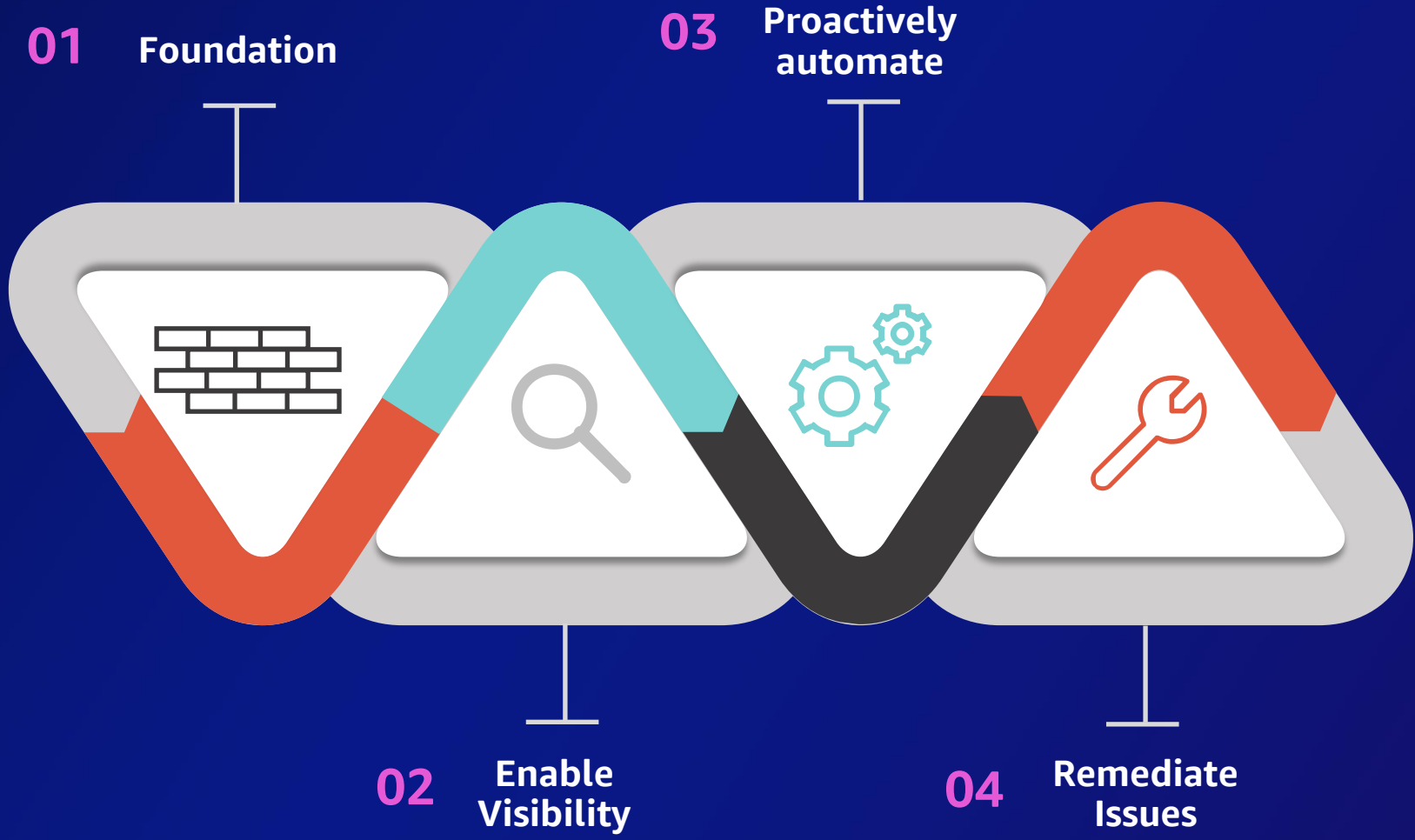


Manage hybrid
environments



Maintain
security and
compliance

Centralized IT Operations with Systems Manager



Build the Foundation



Quick Setup



Inventory



Automation



Parameter Store



State Manager

Set-up service configurations and collect IT asset inventory

Enable Operational Best Practices

Codify Runbooks

Enable Continuous Compliance

Enable Visibility



Explorer



OpsCenter



Application Manager



Fleet Manager

Continuously track key technical and business measures like compliance

Visibility for the right people at the right time

Trends on outstanding operational issues

Proactively Automate



Change Manager



Patch Manager



Maintenance Window



Change Calendar



Distributor



AppConfig



Automation

Built-in approval workflows for safe application and environment changes

Perform common administrative tasks and troubleshooting

Automated remediation and reporting

Remediate Issues



Incident Manager



OpsCenter



Run Command



Session Manager



Automation

Response plans for triggering, notification, and resolution

Take action directly in context of the issue

Automated resolution Runbooks

Tracking and reporting of actions

OpenSearch





Amazon OpenSearch Service

Amazon OpenSearch Service securely unlocks real-time search, monitoring, and analysis of operational data.



Managed: Increase operational excellence by using a popular open source solution.



Secure: Audit and secure your data with a data center and network architecture and built-in certifications



Observability: Systematically detect potential threats and react to a system's state through an open source solution for machine learning, alerting, and visualization



Cost conscious: Optimize time and resources for strategic work

OpenSearch is a database

1

Send data as JSON via REST APIs

2

Data is indexed – all fields searchable, including nested JSON

3

REST APIs, for fielded matching, Boolean expressions, sorting, and analysis



Observability: data drives decisions



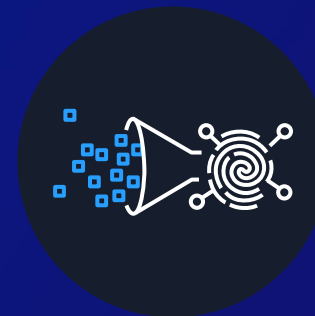
Logs

Amazon OpenSearch Service



Metrics

Amazon Managed Service for Prometheus
Amazon Managed Service for Grafana



Traces

AWS Distro for OpenTelemetry
Fluent Bit



AWS monitoring and observability services help you maintain SLAs by **detecting, investigating, and remediating problems** to achieve

Availability

Reliability

Performance



*Aiutiamo il Sistema Paese
a proteggersi dal rischio
e a crescere in modo sostenibile.*

Cerved, la data-driven company

Cerved è la data-driven company italiana nata nel 1974, che fornisce ad imprese e istituzioni i dati che guidano le loro scelte, gli strumenti per interpretarli e un team di persone per trasformarli in azioni.

Siamo leader di mercato perché abbiamo saputo guidare il cambiamento, attraverso l'integrazione di importanti realtà e l'ingresso in mercati vicini alle nostre attività tradizionali, fino a diventare nel 2014 la prima società quotata del settore in Italia.



OLTRE 3.000
PROFESSIONISTI



2014
CERVED DEBUTTA SUL SEGMENTO MTA
DI BORSA ITALIANA



600M
EVENTI DI MONITORAGGIO ALL'ANNO



OLTRE 40M
DI INVESTIMENTI STANZIATI OGNI ANNO
PER AGGIORNARE E ARRICCHIRE I
DATABASE CON NUOVI DATI E FONTI
INFORMATIVE



OLTRE 1.000
RICHIESTE DI INFORMAZIONI AL
MINUTO SU 5,6 MILIONI DI AZIENDE
ATTIVE



OLTRE 1,1 PETABYTE
DI DATI ARCHIVIATI NEI NOSTRI 1.000 SERVER

I nostri elementi distintivi

1

ECOSISTEMA DATI

- ⌋ Il più grande ecosistema di dati in Italia, integrabile con quello dei nostri partner e dei nostri clienti
- ⌋ Patrimonio informativo ricco, unico, distintivo e costantemente in crescita

2

TECNOLOGIE DI FRONTIERA

- ⌋ Le Tecnologie più innovative ed avanzate per la gestione, elaborazione e visualizzazione dei dati
- ⌋ Machine Learning, Advanced Analytics e Motori Semantici per trasformare i dati in soluzioni di valore

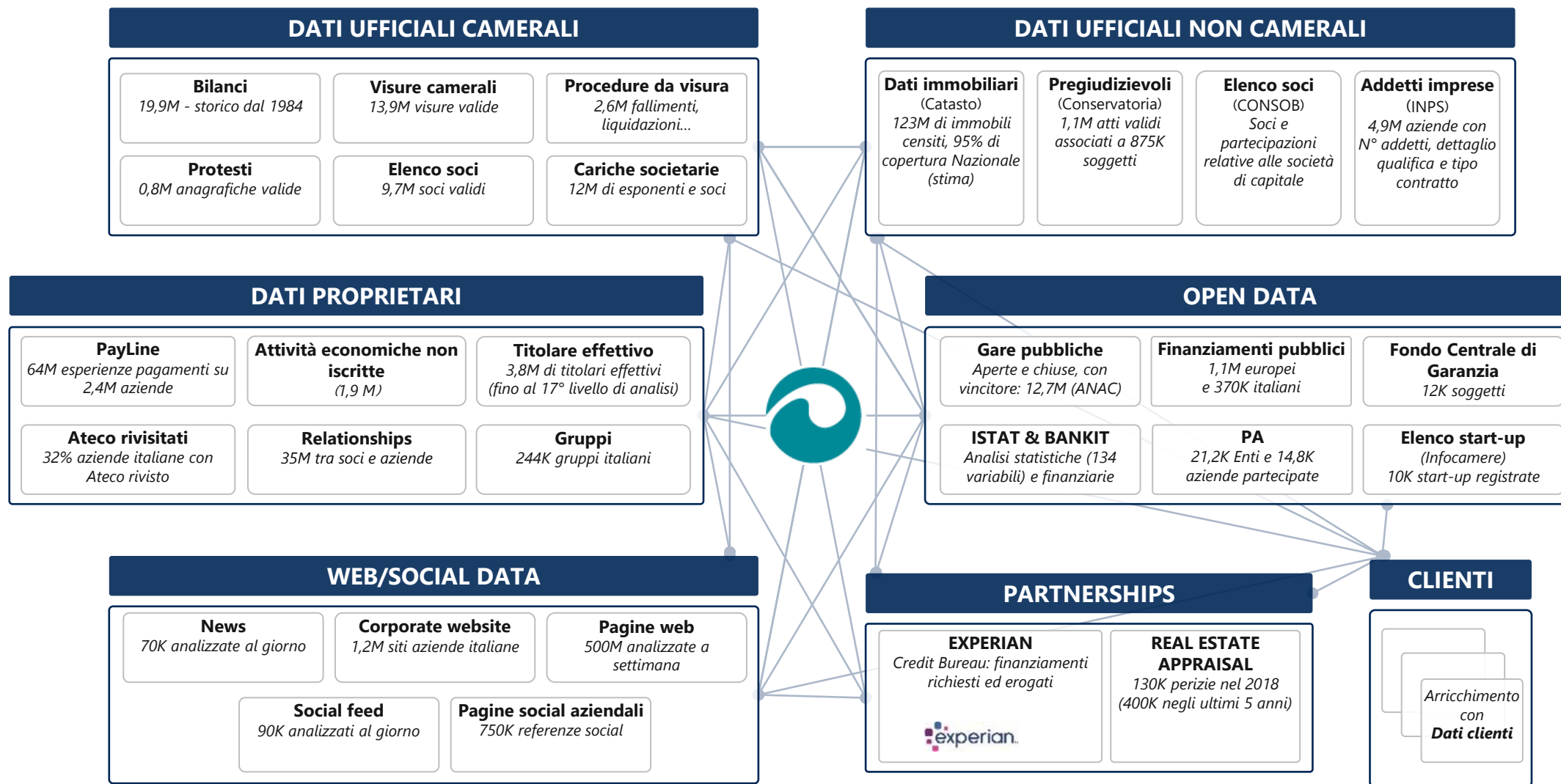
3

APP VALUE BASED

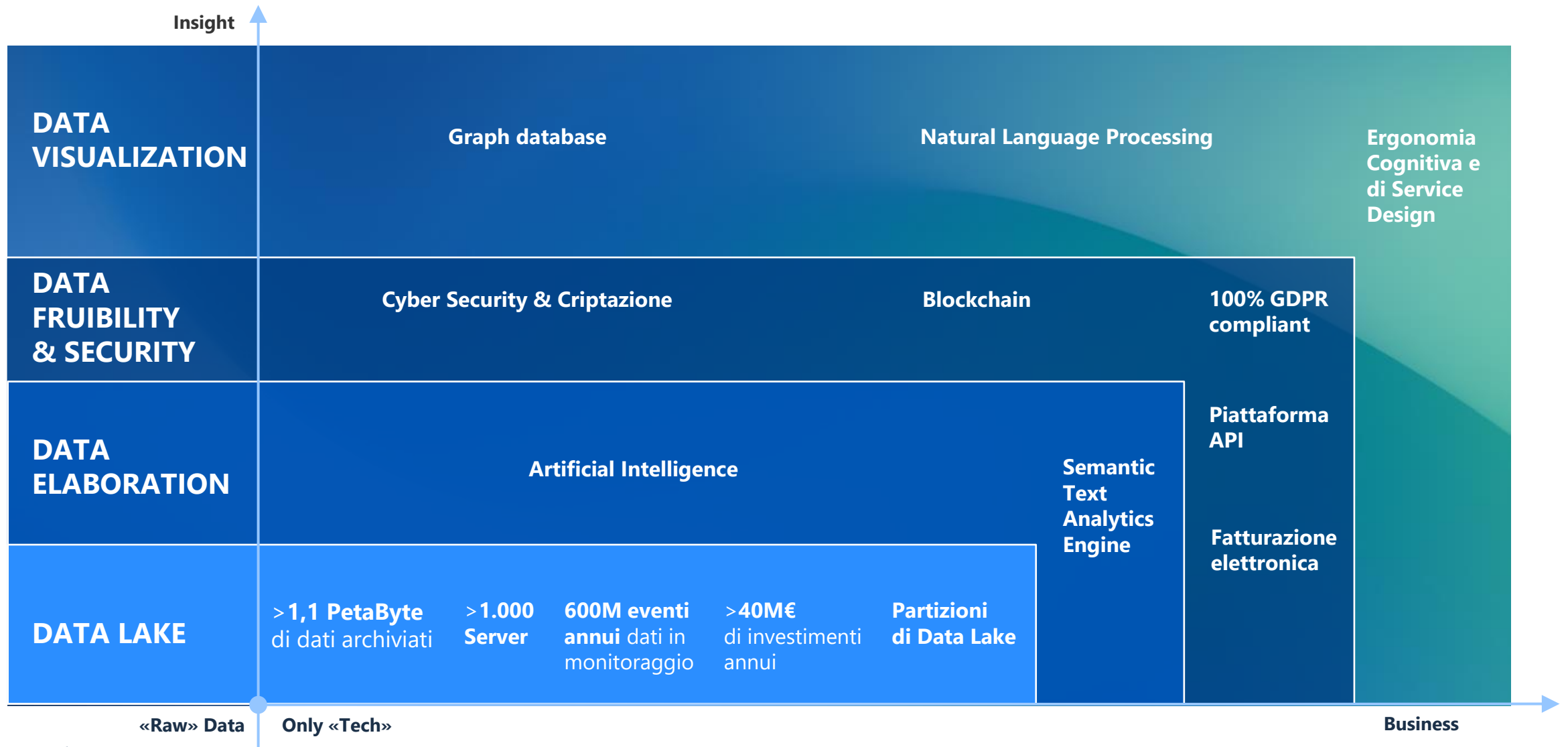
- ⌋ «App» pronte all'uso, che non necessitano di attività di integrazione sui sistemi (IT Independent)
- ⌋ App Cerved per generare valore



Ecosistema dati unico, distintivo e in crescita



Utilizziamo tecnologie di frontiera





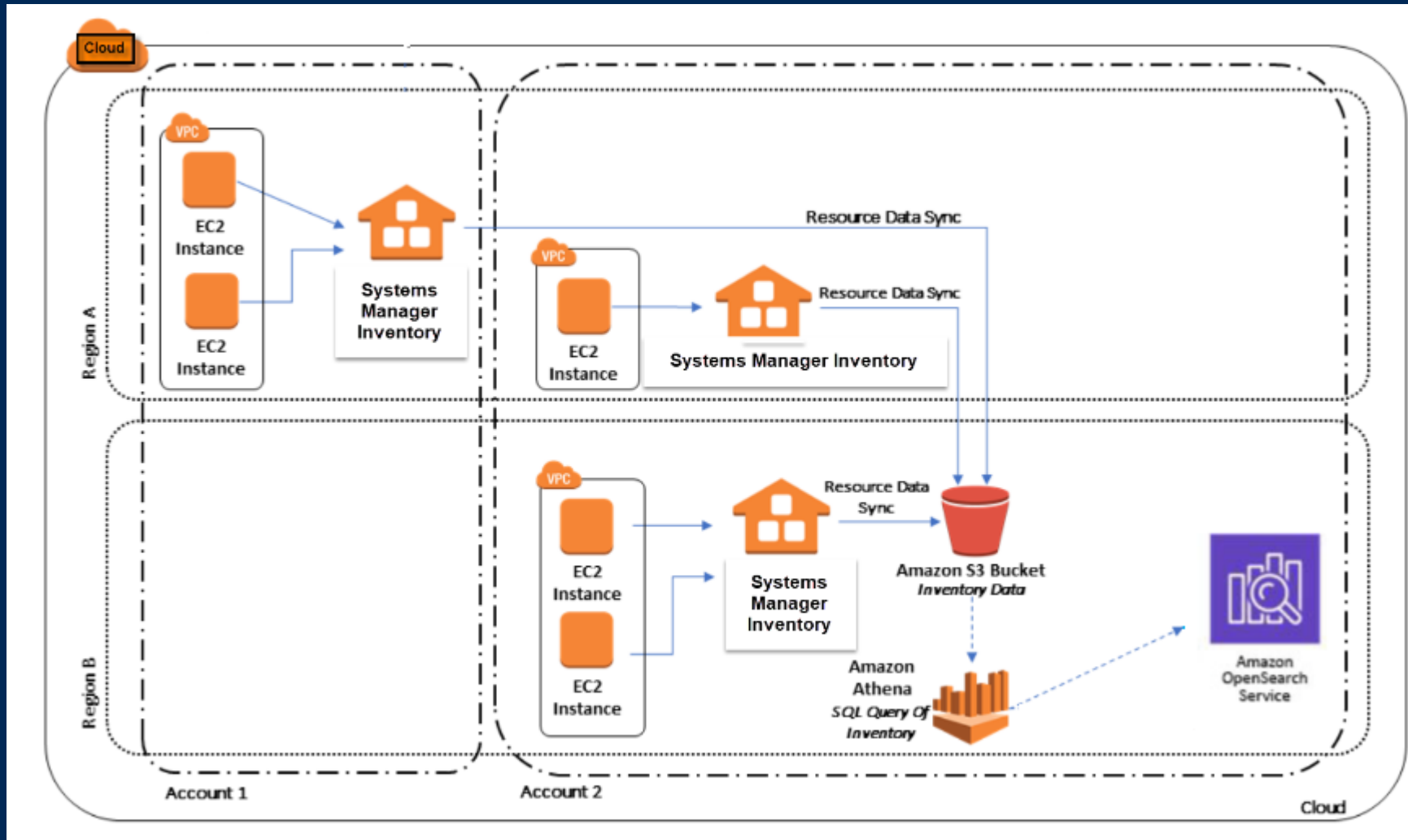
Operation Excellence

How Cerved manages it's Infrastructure on AWS

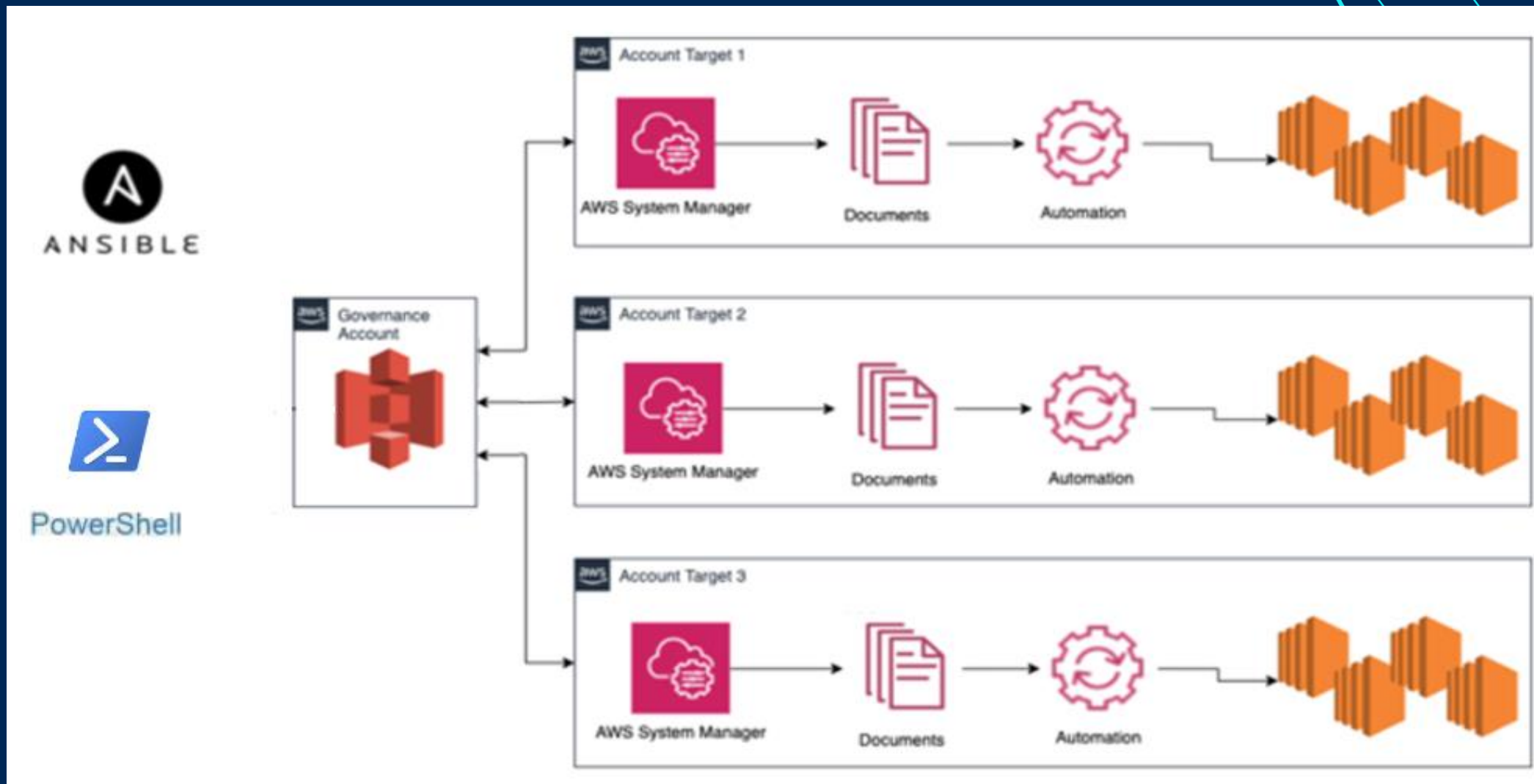
Operational Excellence - IaaS

- IaaS is the first real impact that we had when we decided to migrate on AWS.
- To build our infrastructure by writing code is our real change .
- AWS Deployment Framework (ADF) is the framework to manage and deploy resources within an AWS Organization.

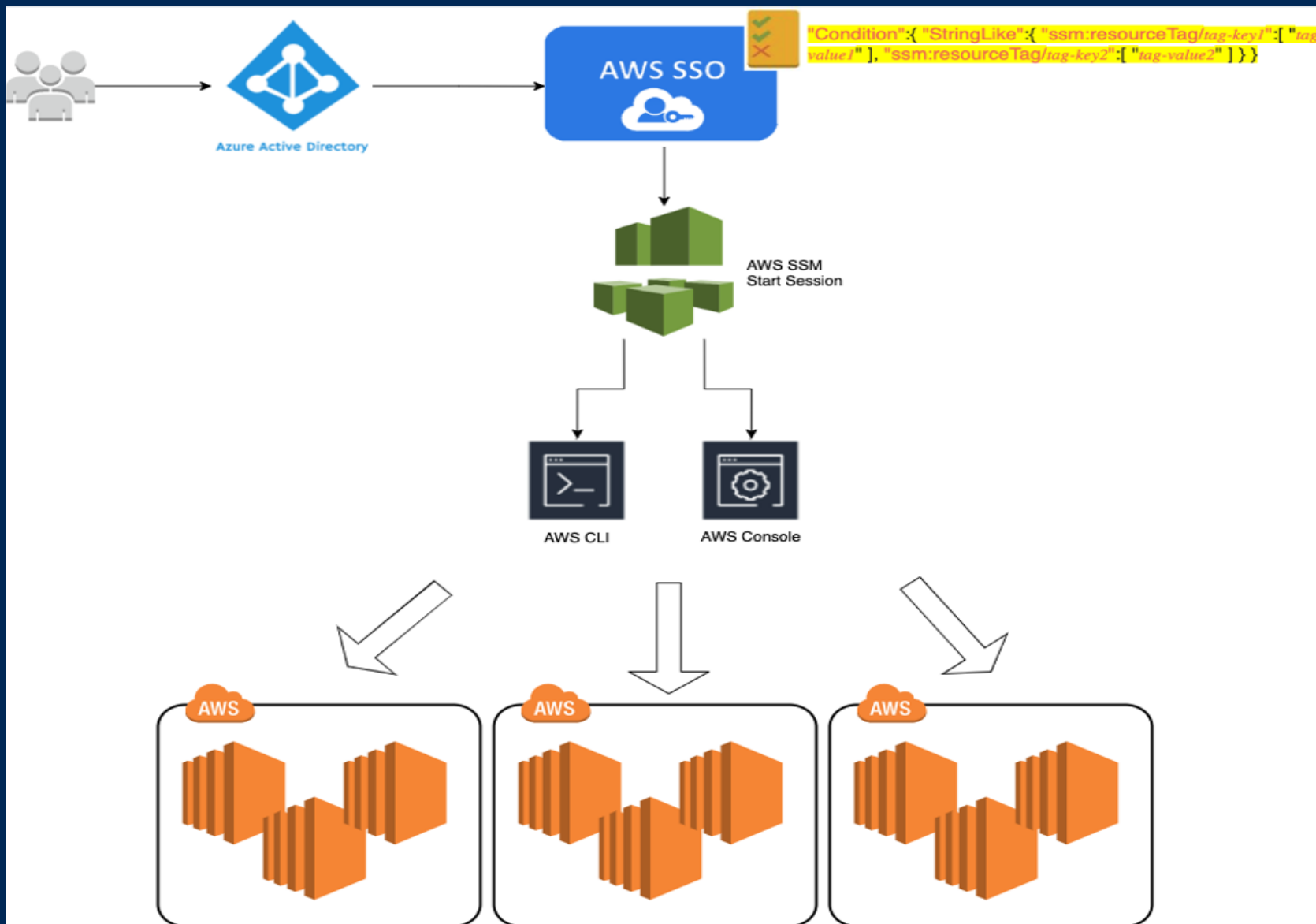
Operational Excellence -SSM Inventory



SSM Automation: example



SSM: Access to Instances through Start Session

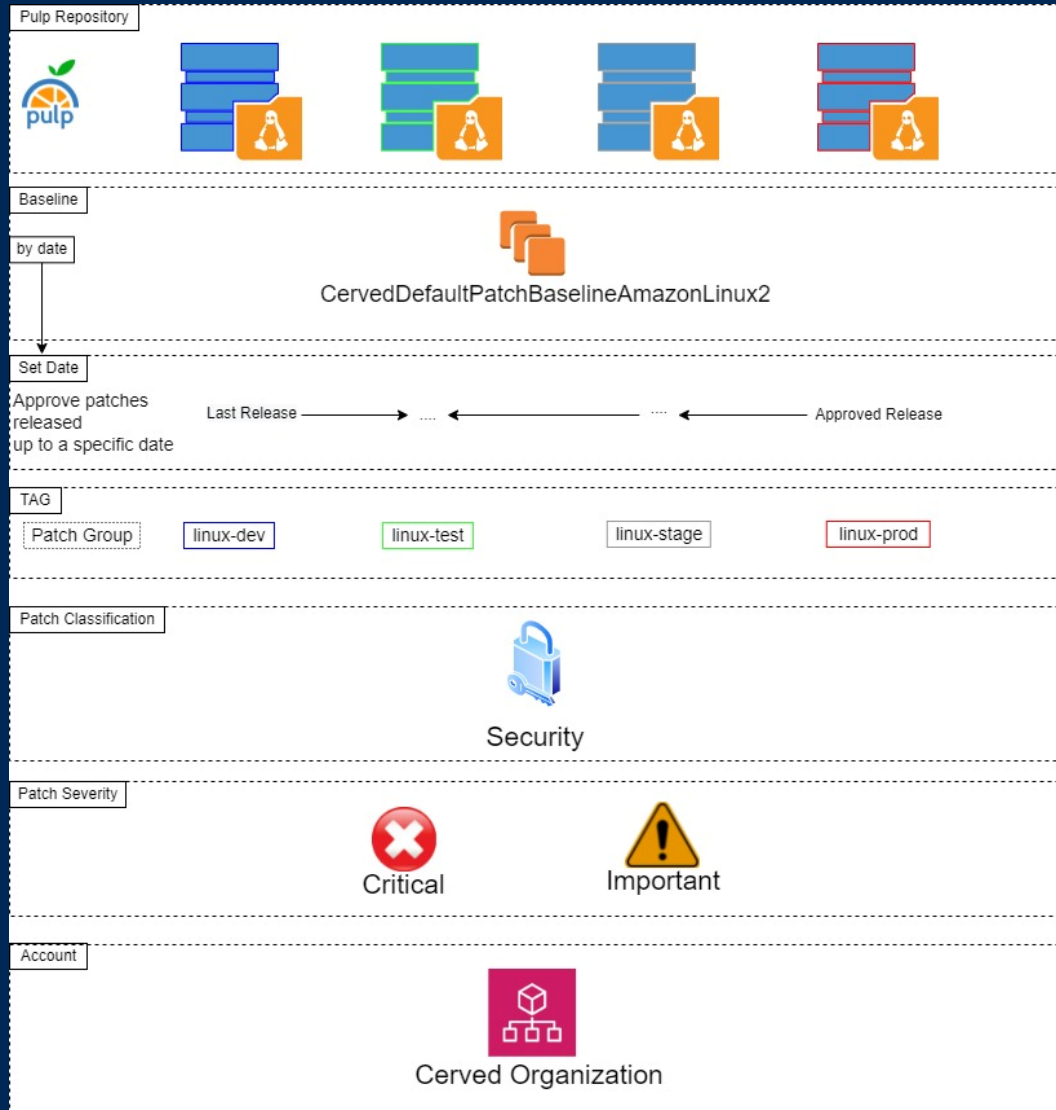


AWS Systems Manager - Session Manager



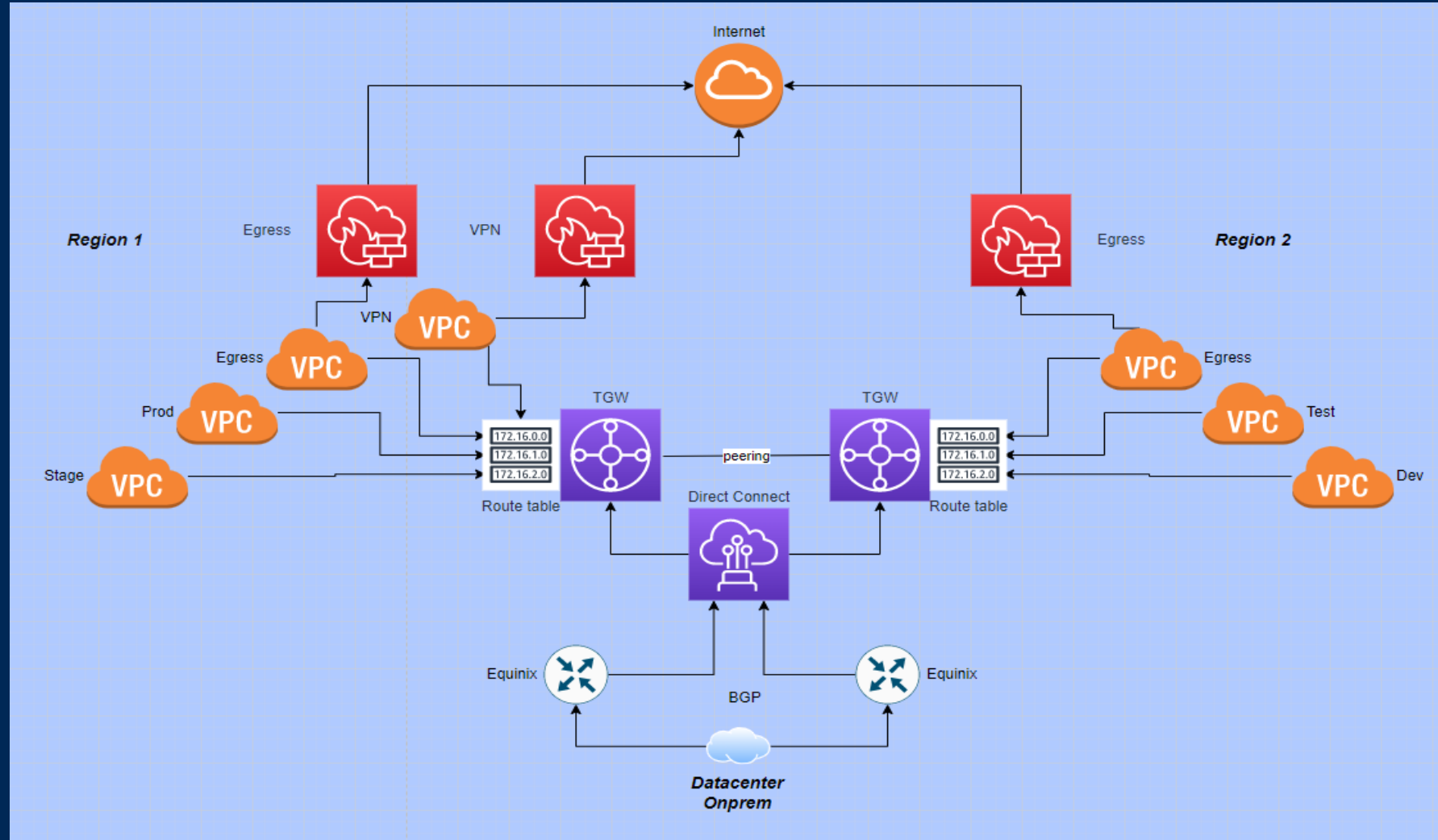
- Centralized Control Access to Instances
- No open inbound ports and no need to manage bastion hosts or SSH keys
- One-click access to instances from the console and command line interface (CLI)
- Cross-platform support for Windows, Linux e macOS
- Comply with corporate policies that require controlled access to instances, rigorous security procedures, and fully auditable logs with instance access details

SSM: Patch Manager



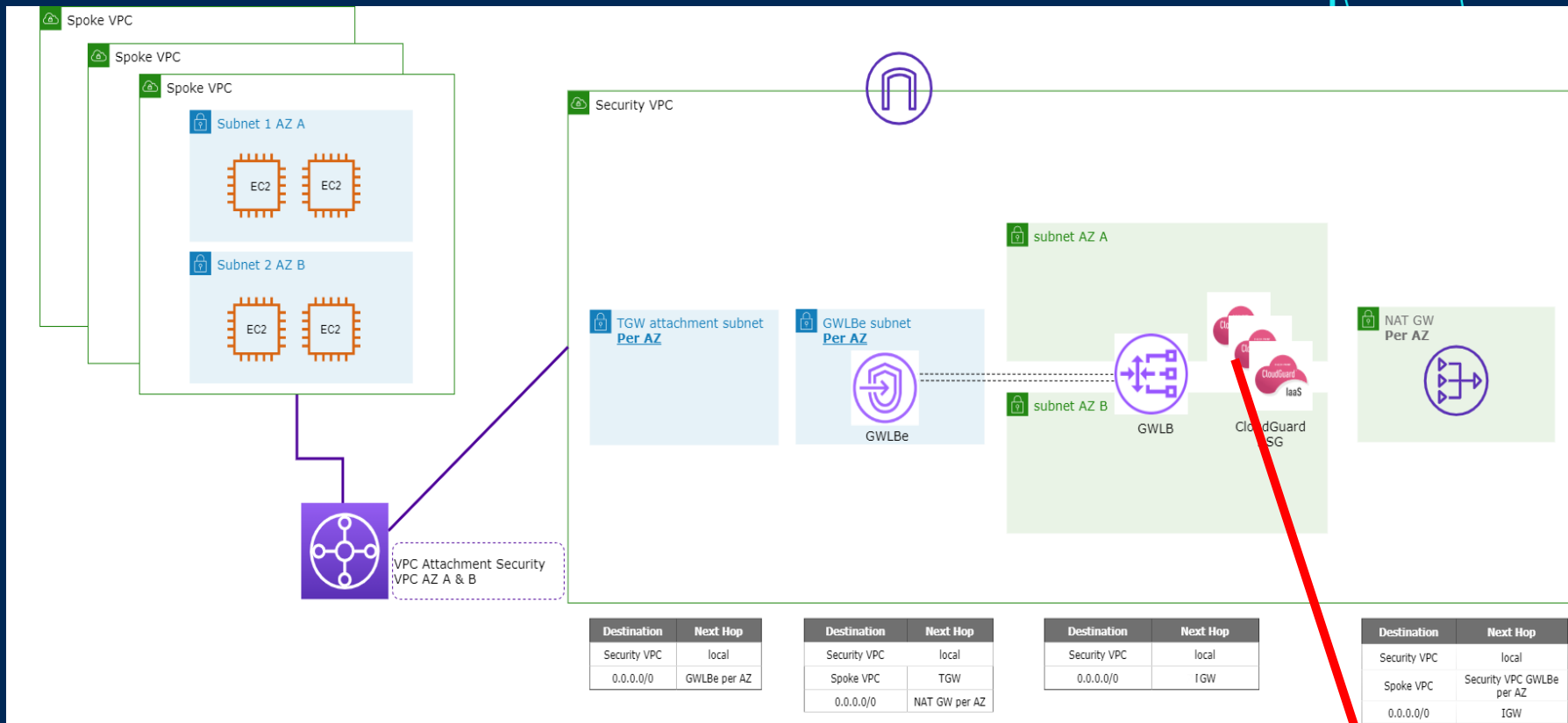
Cloud Network

Multi Cloud and Onpremise connection

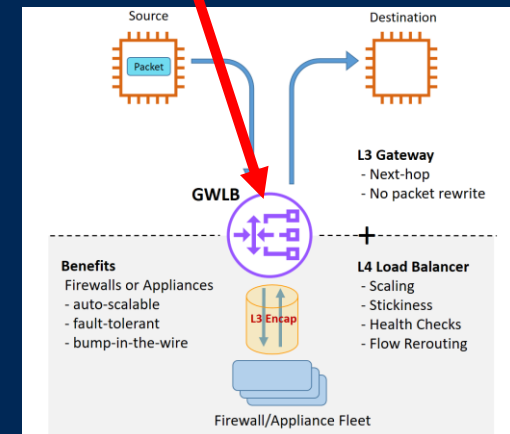
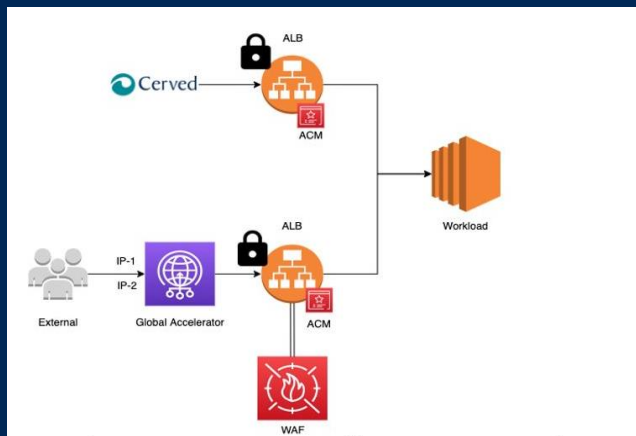


Security

Egress secured by CheckPoint Firewall

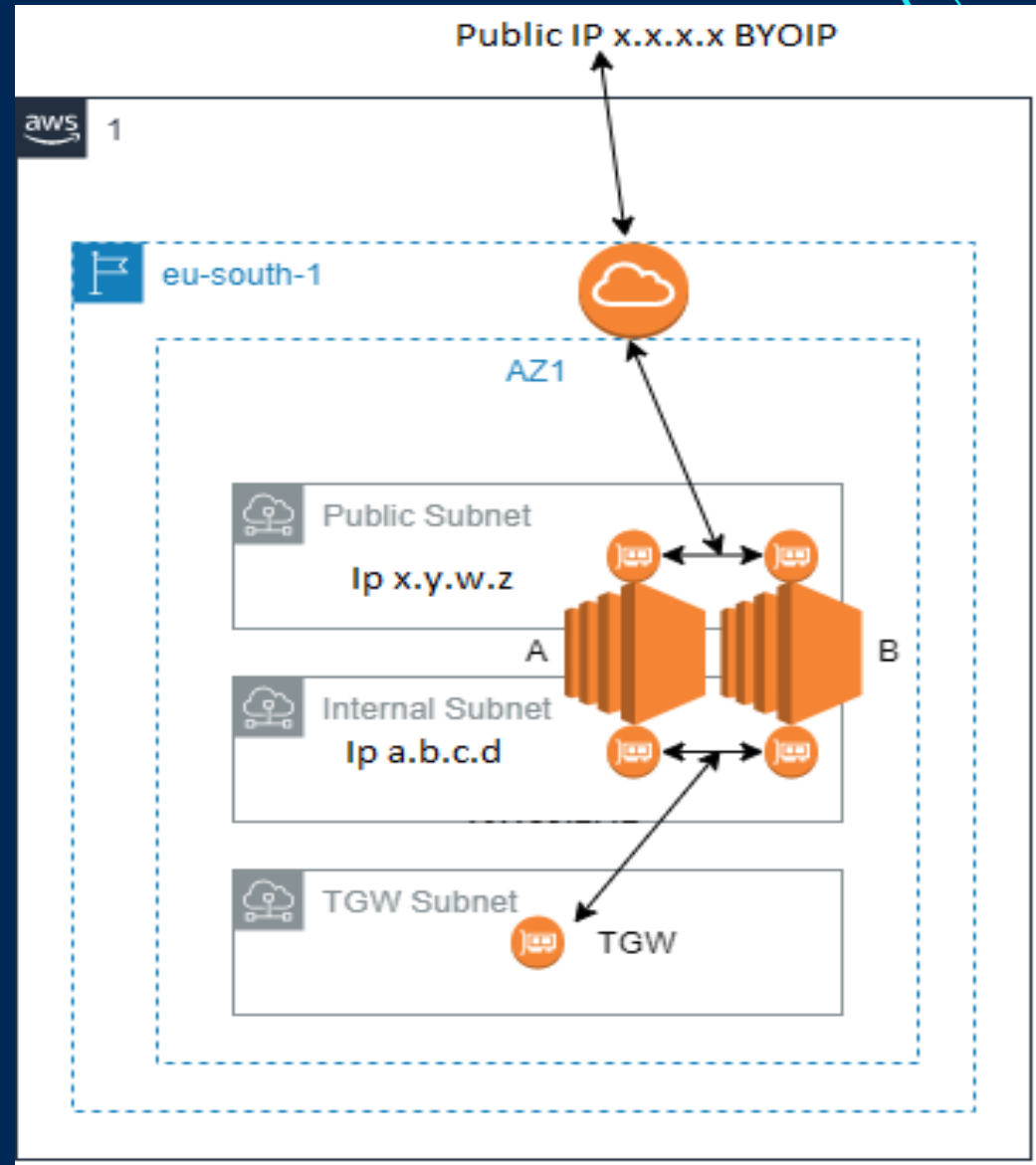


Ingress secured by AWS WAF

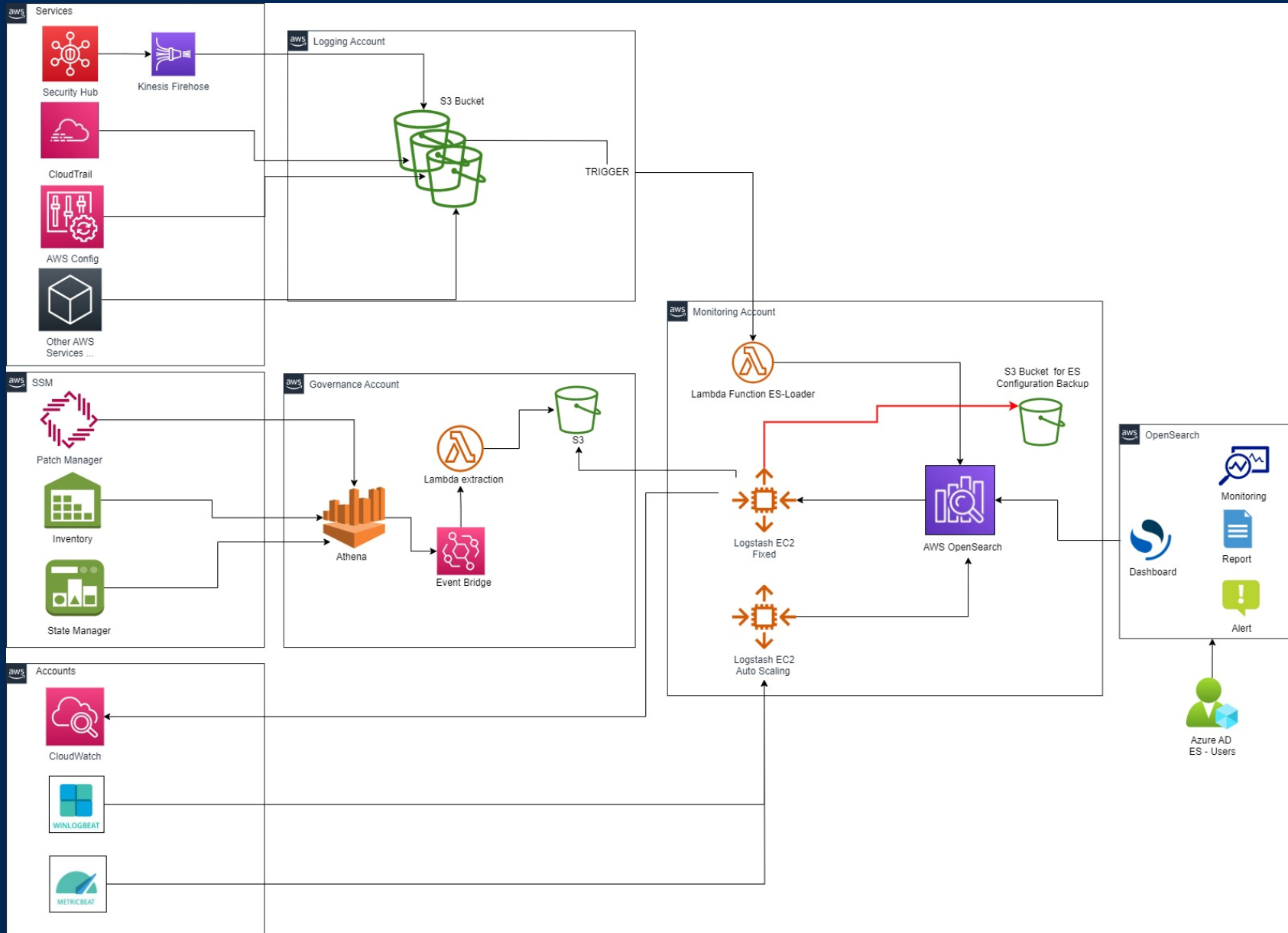


VPN by Firewall Checkpoint

- VPN on Cluster Active/Standby and NAT feature
- Autonomus System is AWS and Public IP are Cerved
- Migration via feature BYOIP



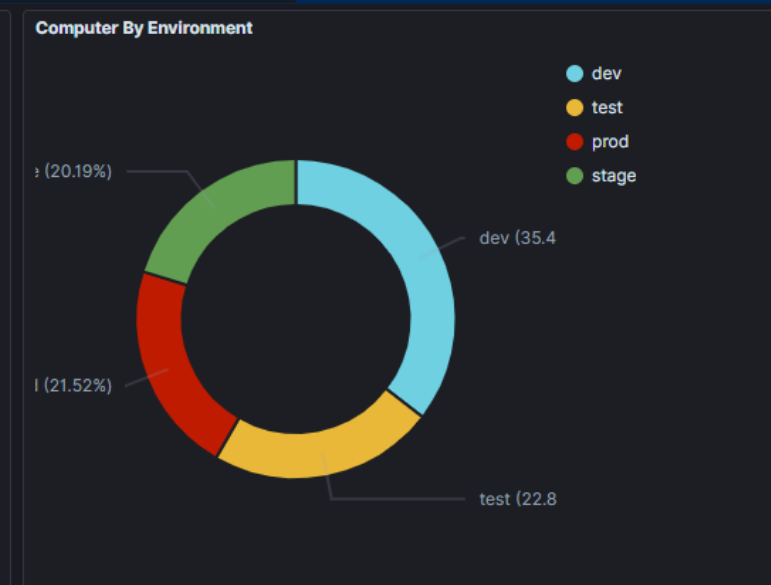
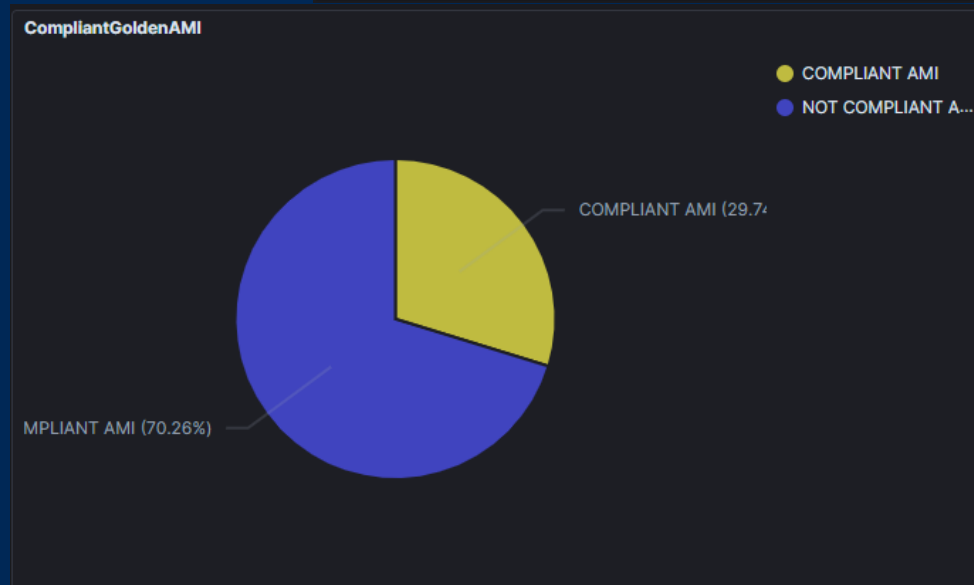
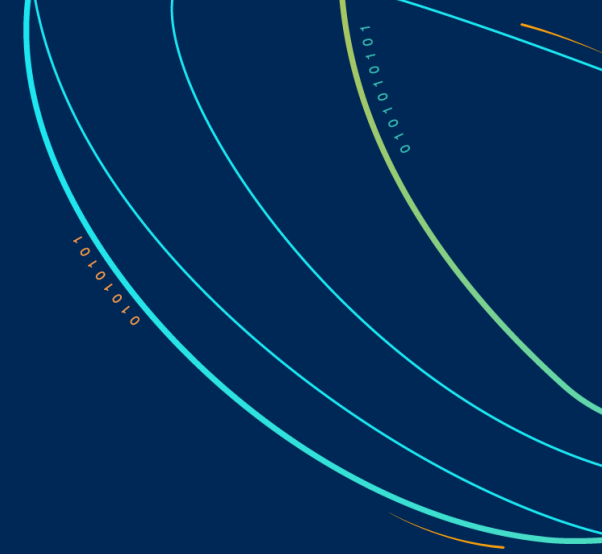
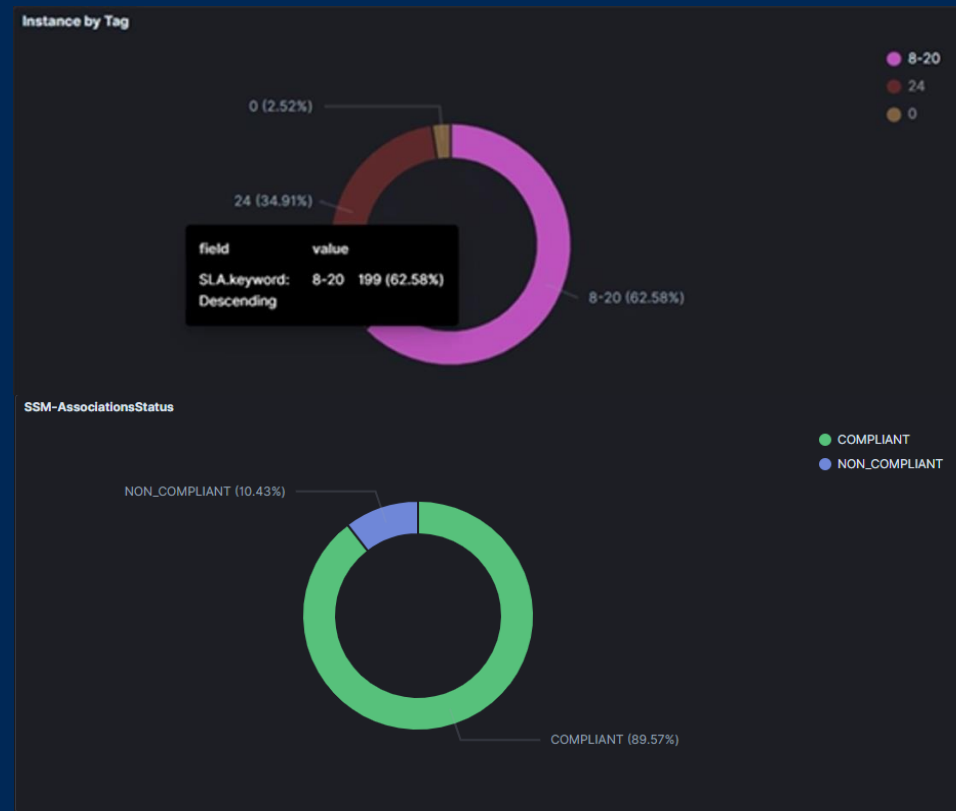
Operational Excellence : AWS OpenSearch



Ingestion source to
OpenSearch

Opensearch Monitoring

- ✓ Tag Analysis for Cost Optimization
- ✓ Check Compliance
- ✓ Monitoring Patch process
- ✓ Monitoring SSM Automation
- ✓ Monitoring EC2 System Resource
- ✓ Security Log



Patching Report

CompliantStatus

● COMPLIANT
● NON_COMPLIANT

NON_COMPLIANT (5.71%)
COMPLIANT (94.29%)

CompliantStatusFilter

⚠ Compliance status.keyword

Select...

Apply changes Cancel changes Clear form

CompliantStatusCount

396 COMPLIANT - Unique count of Instance ID.keyword
24 NON_COMPLIANT - Unique count of Instance ID.keyword

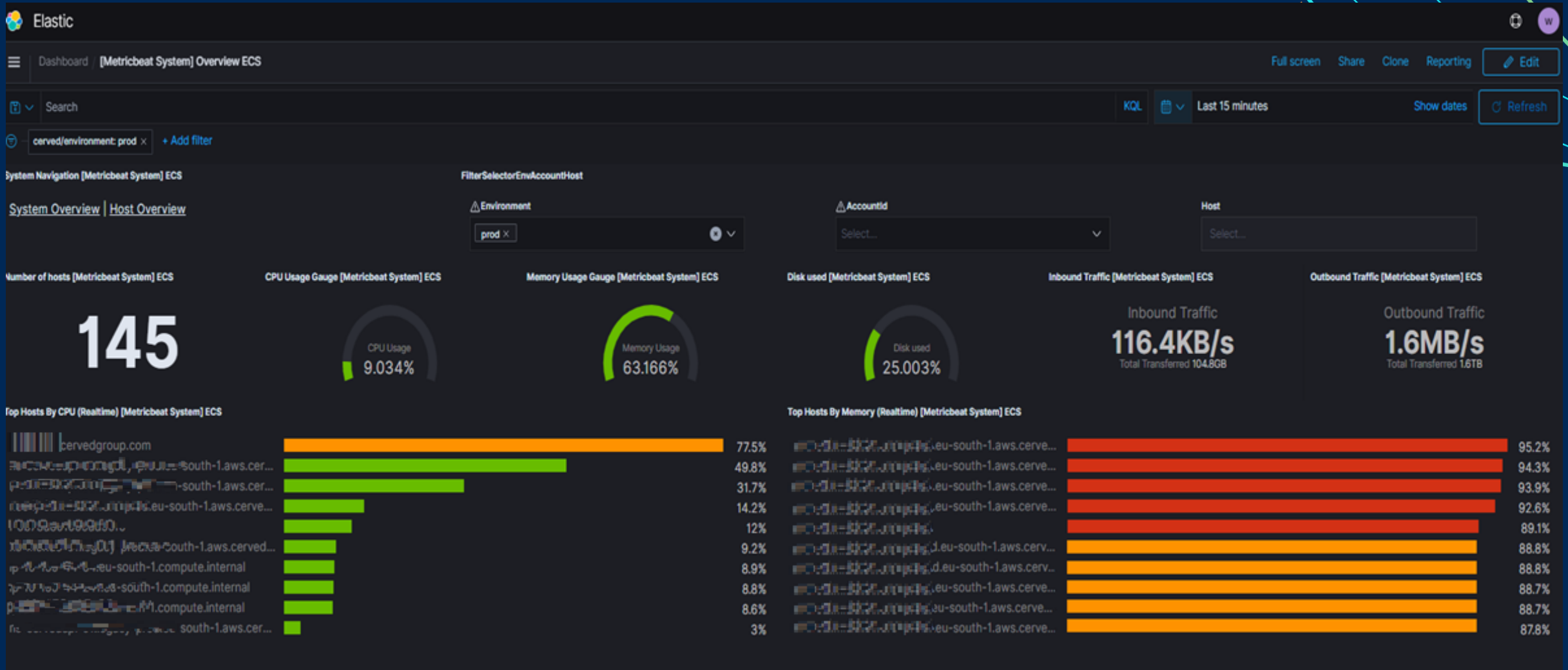
Athena-patch-data

1-50 of 301

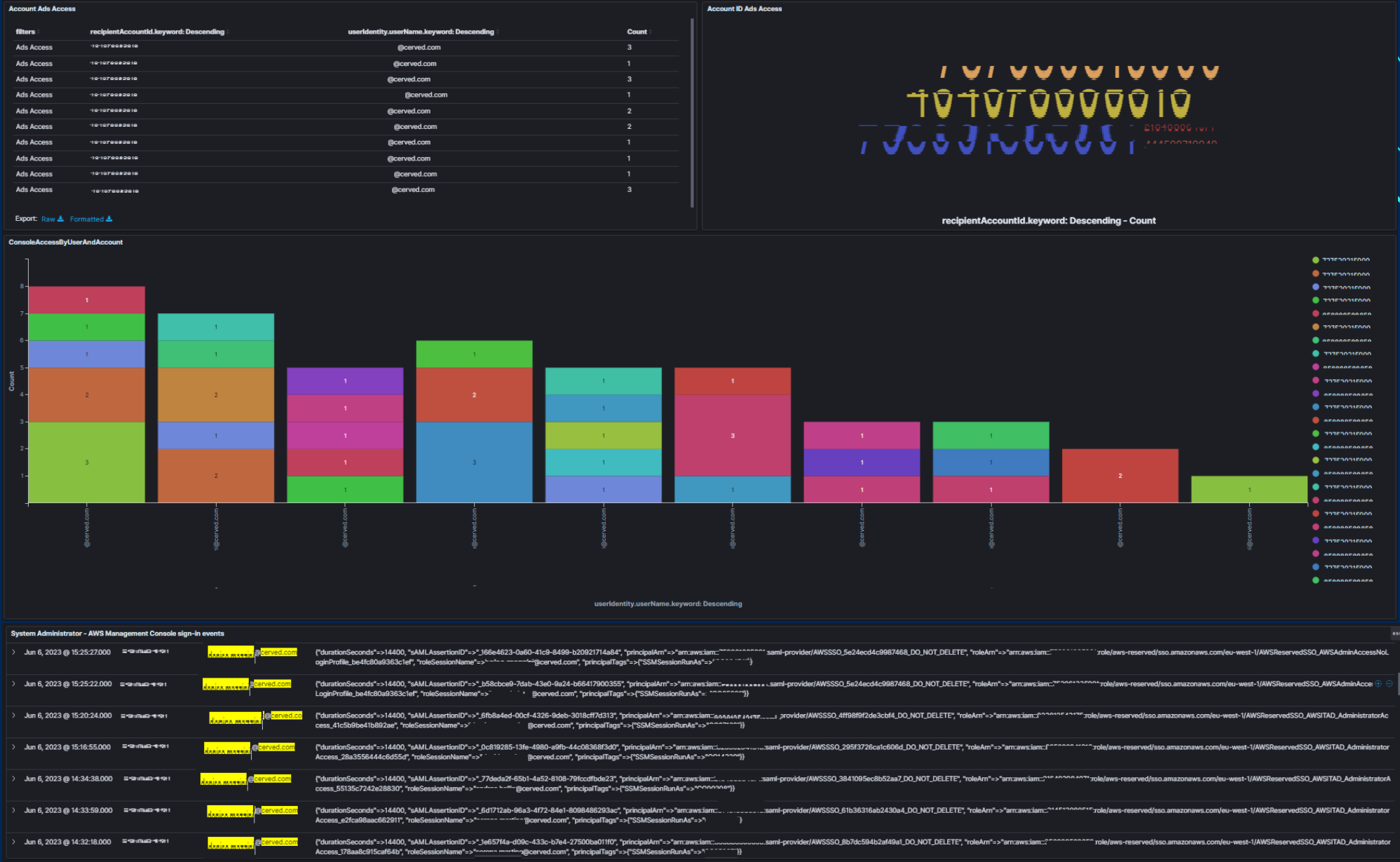
Time	accountid	baselineid	patchgroup	Name	Project	resourceid	region	installedcount	criticalnoncompliantcount	installedothercount	securitynoncompliantcount	noncompliantseverity	capt
> Mar 8, 2023 @ 10:35:51.100	linux-prod	...	legacy-novasi-ri	...	eu-south-1	204	0	351	0	-	Mar 17:36.
> Mar 8, 2023 @ 10:35:51.100	linux-prod	...	cerved-data-lake	...	eu-south-1	217	0	358	0	-	Mar 15:49.
> Mar 8, 2023 @ 10:35:51.100	win-prod	...	sertec-fp	...	eu-south-1	25	0	21	0	-	Mar 21:00.
> Mar 8, 2023 @ 10:35:51.100	linux-stage	...	legacy-corporate	...	eu-south-1	202	0	348	0	-	Mar 07:00.

Operational Excellence

Dashboard System Overview

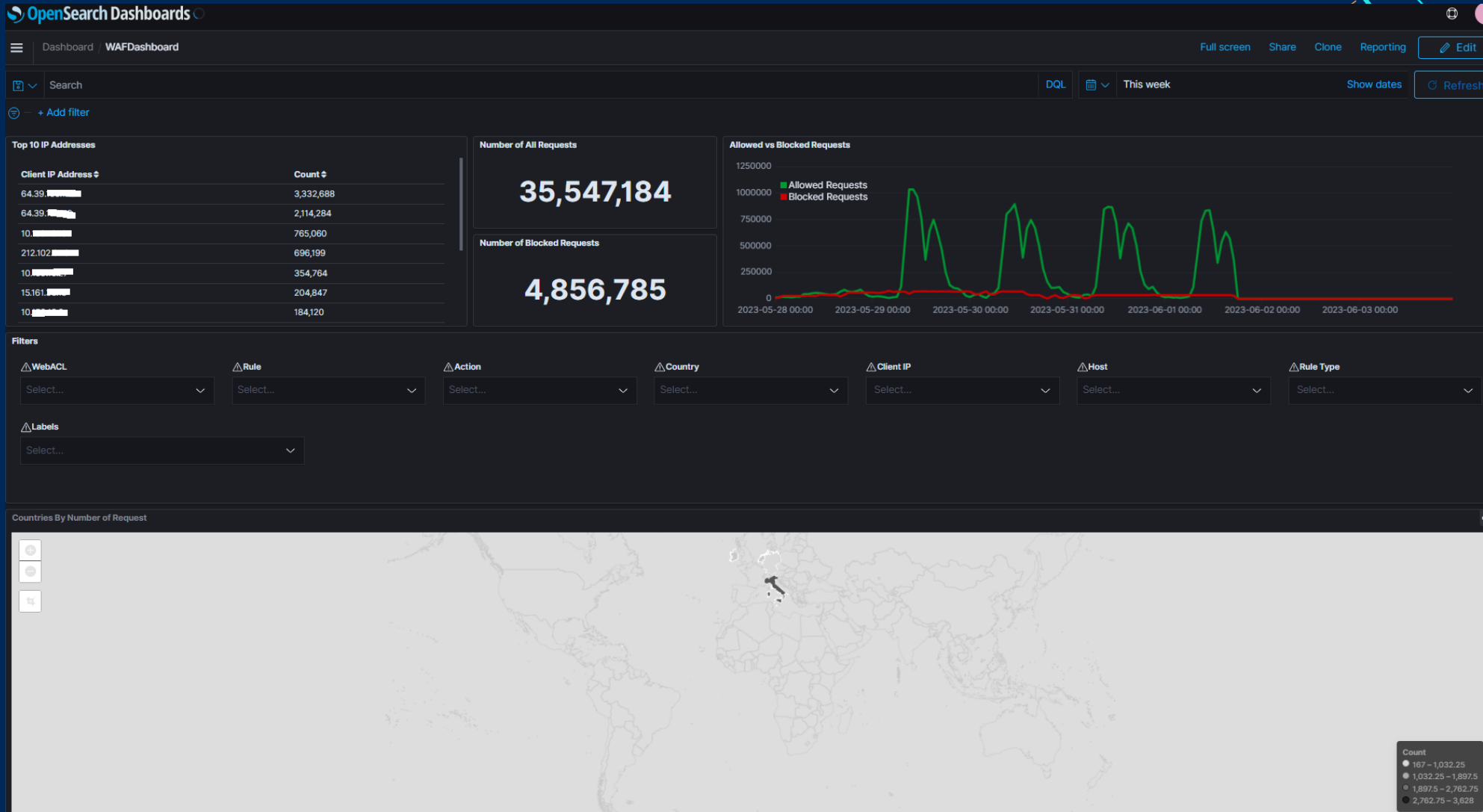


Operational Excellence - Dashboard System Administrator Access



WAF Dashboard

Count detail web access



Cerved numbers to date

Amazon EC2



>1000

AWS Lambda



>1500

AWS WAF



>40

Amazon RDS



>50

Amazon FSx for Netapp ONTAP



>500 TB

Amazon Simple Storage Service (Amazon S3)



>90 TB

AWS Backup



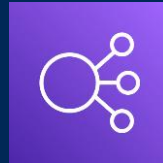
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AWS Global Accelerator



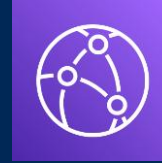
>120

Elastic Load Balancing



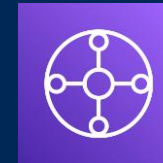
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Amazon CloudFront



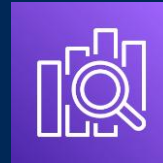
3

AWS Transit Gateway



>10

Amazon OpenSearch Service



Kuberntes Nodes



>160

AWS EKS



>10

A screenshot of the AWS account page. At the top left is the AWS logo. In the center is an orange cube icon. Below the icon, the text reads "AWS Account (121)".

AWS Shield



AWS Security Hub



AWS Certificate Manager (ACM)



Our Cloud Infrastructure



- IaaS - Continuous Integration & Continuous Delivery
- Business Continuity - Our Production Services are deployed on 3 AZs of Milan Region
- DR Environment is on Frankfurt Region
RTO value with an improvement Factor 1.5
- Delivery Time with an improvement Factor >18
- Scalability – Cost Optimization – Cost Allocation

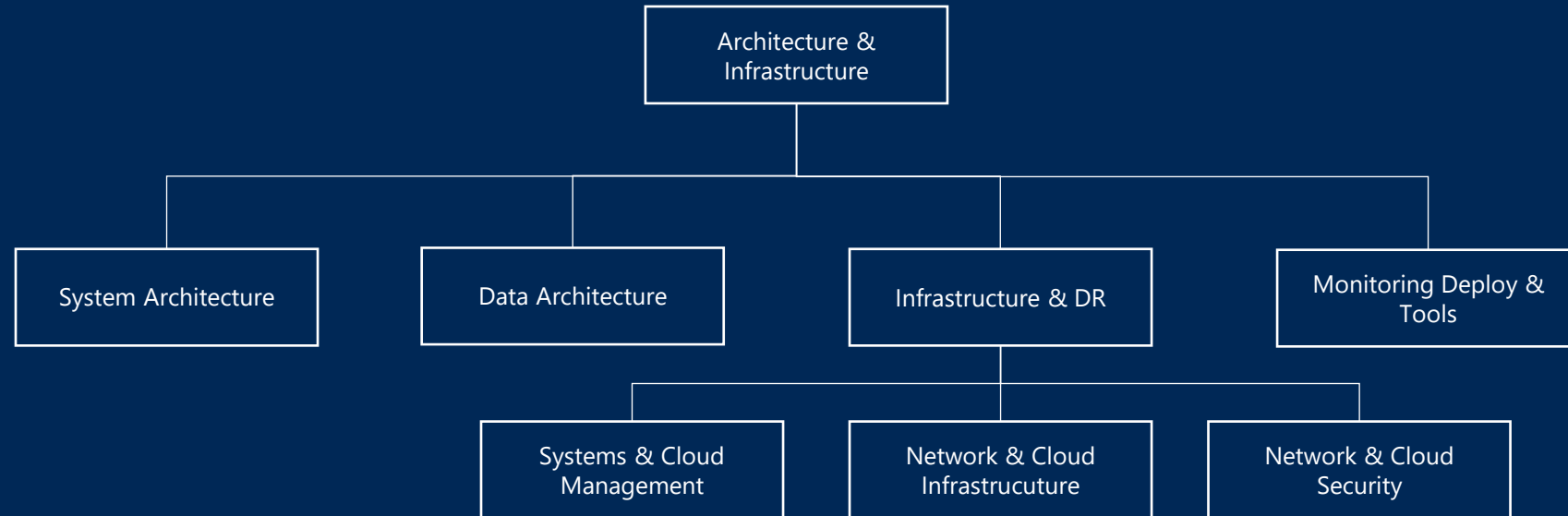
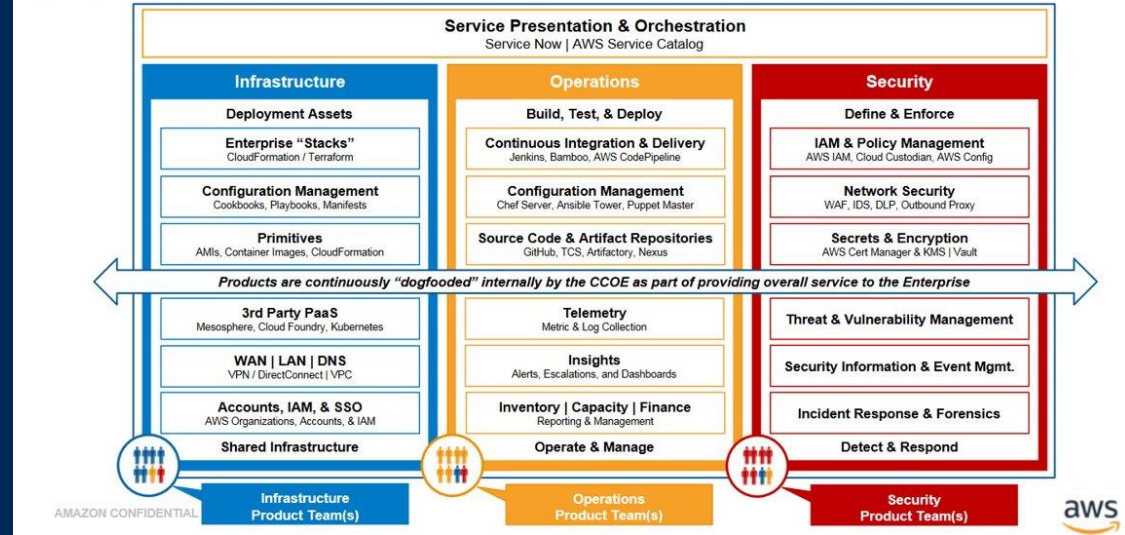
Cerved CCoE

Center Cloud of Excellence

- Migration
- Organization
- Training & certifications
- Cloud culture:
 - IT (tech skills, performance, monitoring, cost optimization)
 - Finance (cost analysis, capex/opex, EDP)
 - Procurement (aws market place)
 - Compliance (security, GDPR, ESMA, EBA, ISO27001 ..)
 - Marketing & Communication (Events, Customers)

What services does the Cloud Center of Excellence provide?

The CCOE accelerates cloud adoption by codifying enterprise services, making them self-service and removing duplicative work while ensuring adherence to corporate standards.



Thank you!

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