

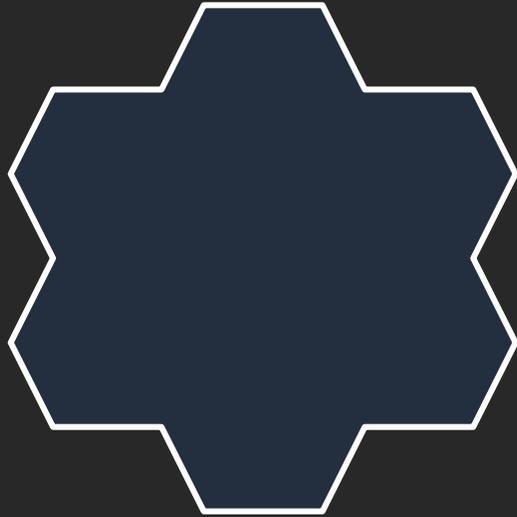
Esegui i tuoi container .Net in Amazon ECS

Chiara Brandle
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Container &
DevOps Day

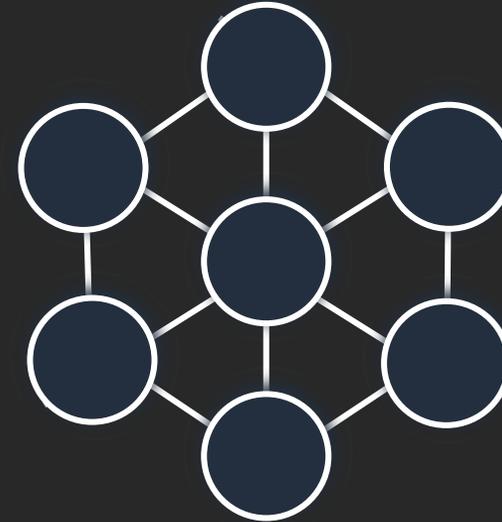
Architecture evolution

When the impact of change is small, release velocity can increase



Monolithic application

- Does everything
- Shared release pipeline
- Rigid scaling
- High impact of change
- Hard to adopt new technologies



Microservices

- Does one thing
- Independent deployments
- Independent scaling
- Small impact of change
- Choice of technology

Options for architecting your microservices

Containers



Amazon Elastic
Container Service
(Amazon ECS)

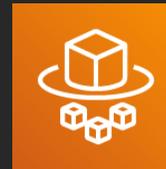


Amazon Elastic
Kubernetes Service
(Amazon EKS)

Serverless



Lambda



Fargate

What are container orchestration tools?

Frameworks for managing, scaling, and deploying containers



Amazon Elastic
Container Service



kubernetes



MESOS

AWS Container Services

Management

Deployment, scheduling, scaling, & management of containerized applications



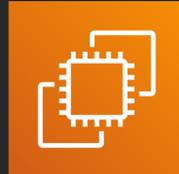
Amazon Elastic Container Service



Amazon Elastic Container Service for Kubernetes (Amazon EKS)

Hosting

Where the containers run



Amazon Elastic Compute Cloud



AWS Fargate

Image registry

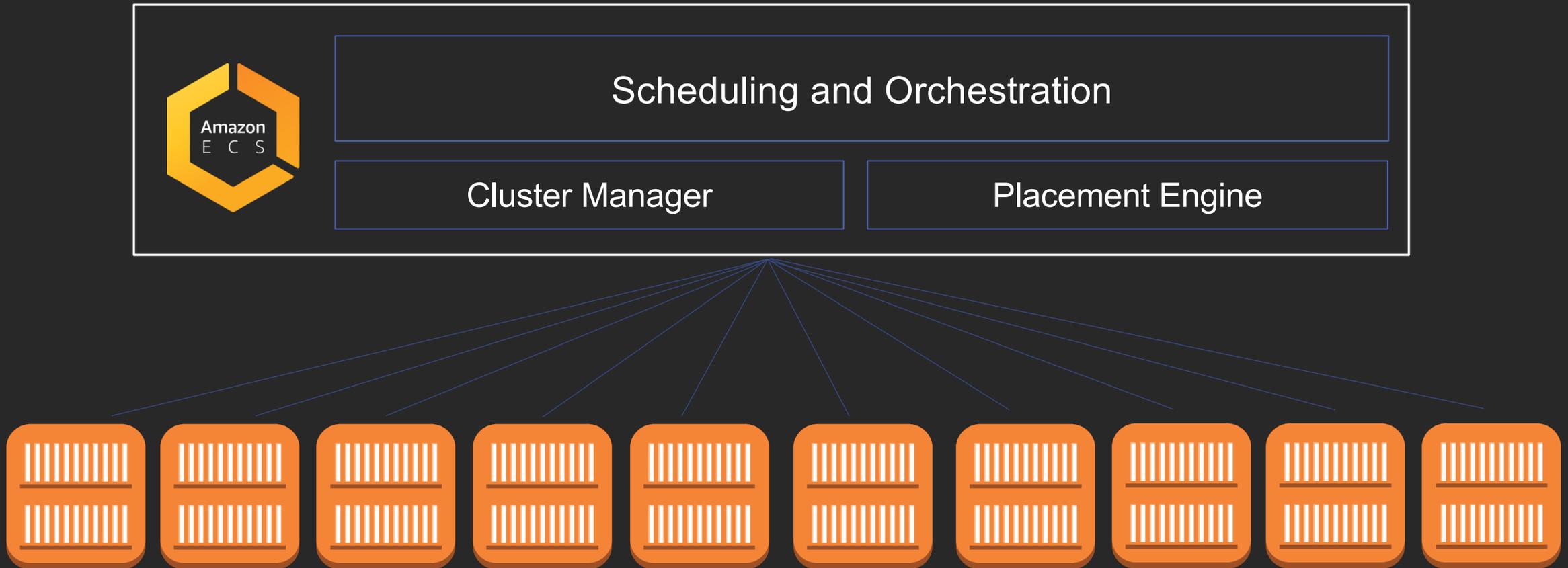
Container image repository



Amazon Elastic Container Registry

Amazon Elastic Container Service

Cluster management as a hosted service



Amazon ECS Primitives



register

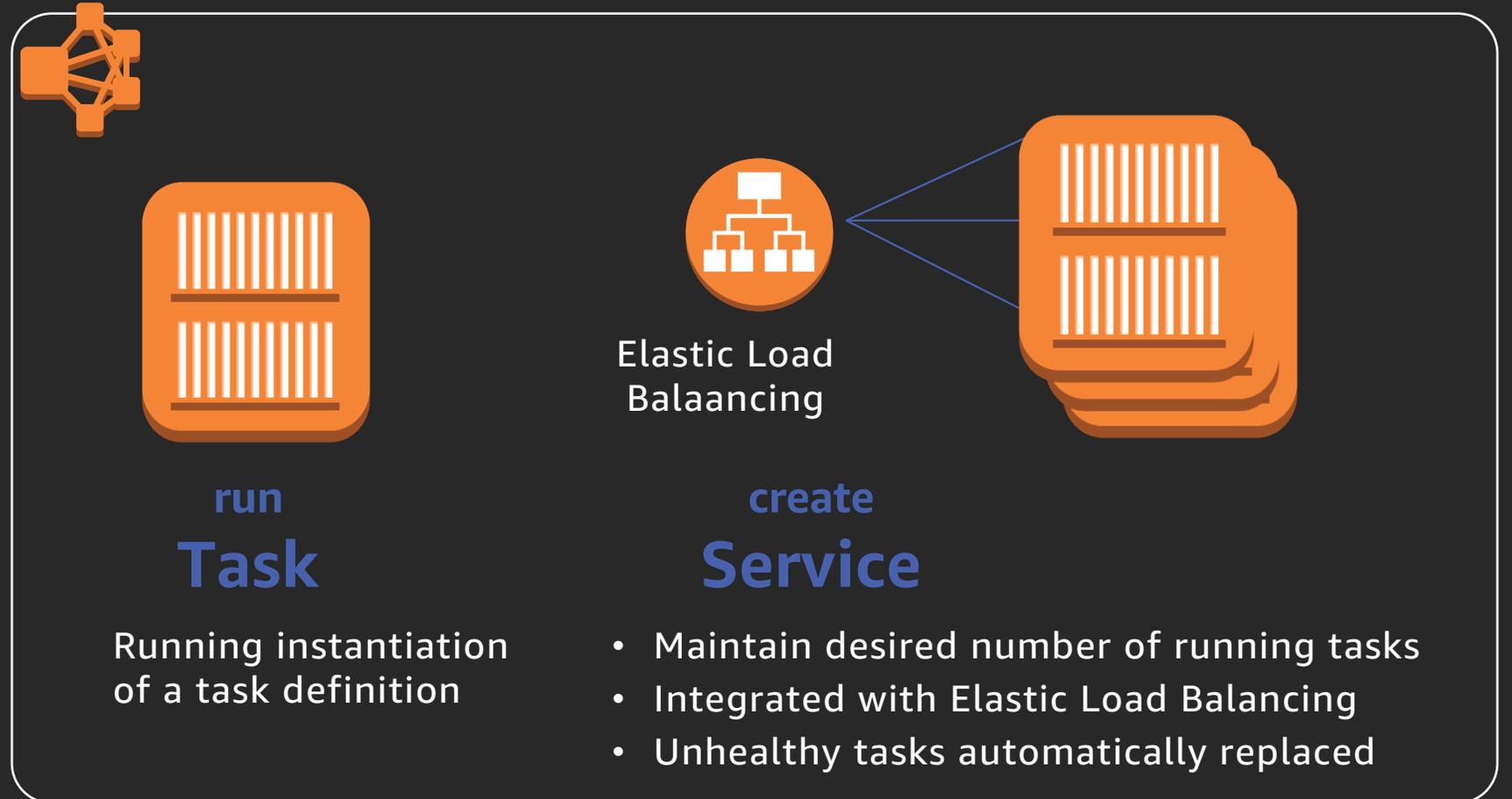
Task Definition

Is a Json file which define application container(s):

- Image URL
- CPU & memory requirements
- and so on

create
Cluster

- Infrastructure isolation boundary
- IAM permissions boundary



Automatic scaling with Amazon ECS

Two dimensions to scaling

- Amazon EC2 instance autoscale through Capacity Provider
Scale out Amazon EC2
- Service Autoscaling through Application Auto Scaling
Scale out service

AWS Fargate simplifies the burden



Your containers

Serverless

No EC2 container instances to provision, scale, or manage

Elastic

Scale up and down seamlessly; pay for only what you use

Integrated with the AWS ecosystem

VPC networking, Elastic Load Balancing, IAM permissions, Amazon CloudWatch, and more

Task CPU & memory configurations



Flexible configuration options –
50 CPU/memory configurations

CPU

Memory

256 (.25 vCPU)

512 MB*, 1 GB, 2 GB

512 (.5 vCPU)

1–4 GB (1-GB increments)

1024 (1 vCPU)

2–8 GB (1-GB increments)

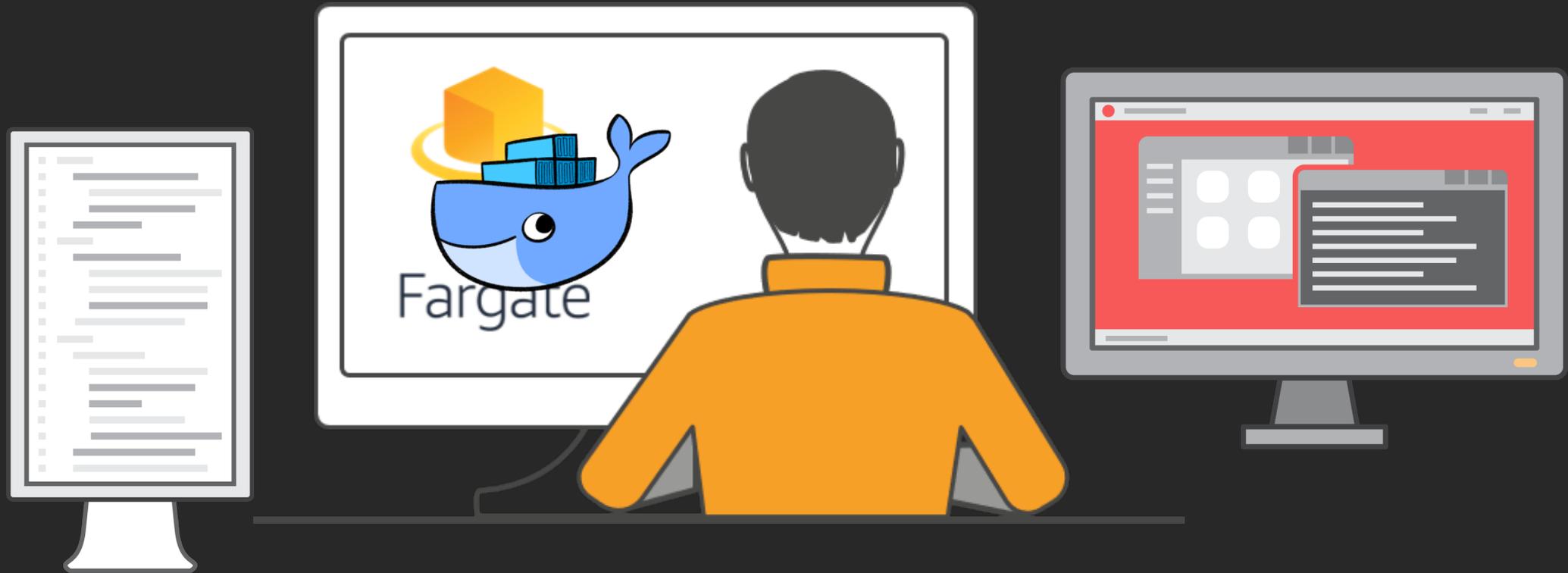
2048 (2 vCPU)

4–16 GB (1-GB increments)

4096 (4 vCPU)

8–30 GB (1-GB increments)

And it lets you focus on the application

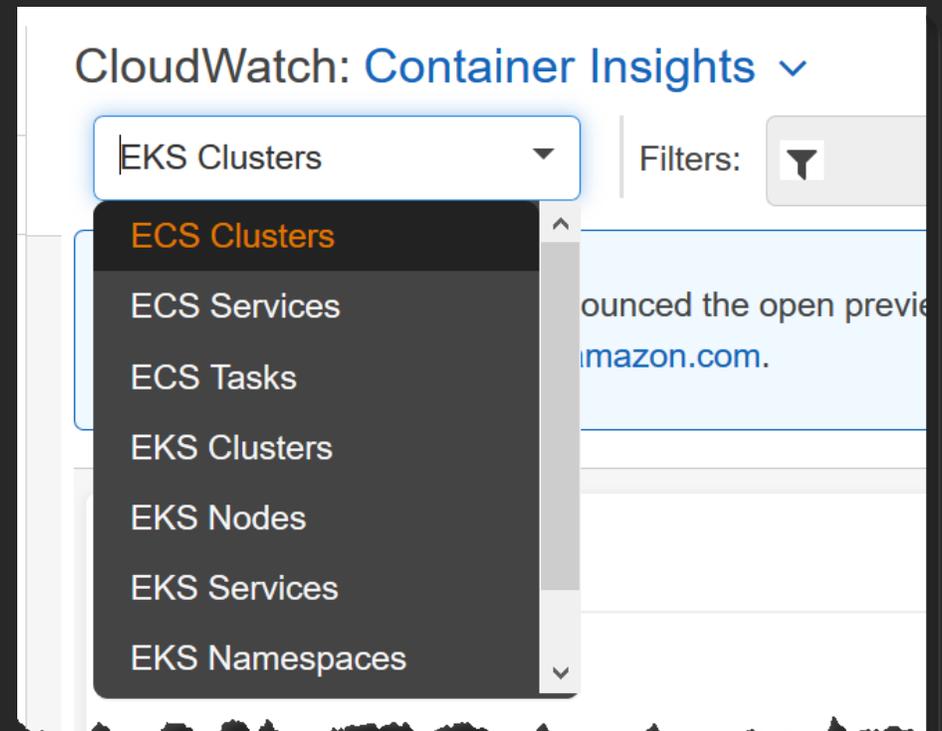


Two ways to collect and monitor metrics in your cluster

You can use the CNCF's **Prometheus** to aggregate / alert on your Cluster, Node and Pod metrics and **Grafana** to visualize them into a dashboard.



You can use our new **CloudWatch Container Insights** to aggregate, alert and visualise those same metrics in the same place as all of your other AWS-related metrics.



Two ways to collect and monitor logs in your cluster

A common pattern using fully open tooling is collecting logs with **fluentd** to stream directly into an **Elasticsearch** where you'll query/visualise them with **Kibana** – this is often called the EFK stack.

While you can run all these components yourself on your cluster, we'd encourage you to use the managed Amazon Elasticsearch (which also includes Kibana).

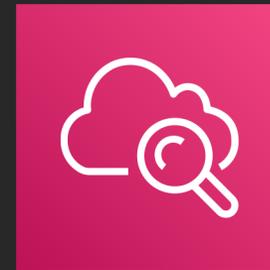


Amazon Elasticsearch Service



You can also use fluentd to send the logs to **CloudWatch Logs**. This may entirely meet your needs or you can also optionally stream them elsewhere too.

Often I see customers send them to CloudWatch Logs with a low retention as a place you can search or tail them if Elasticsearch is down for any reason then ship them to Elasticsearch or Splunk from there.

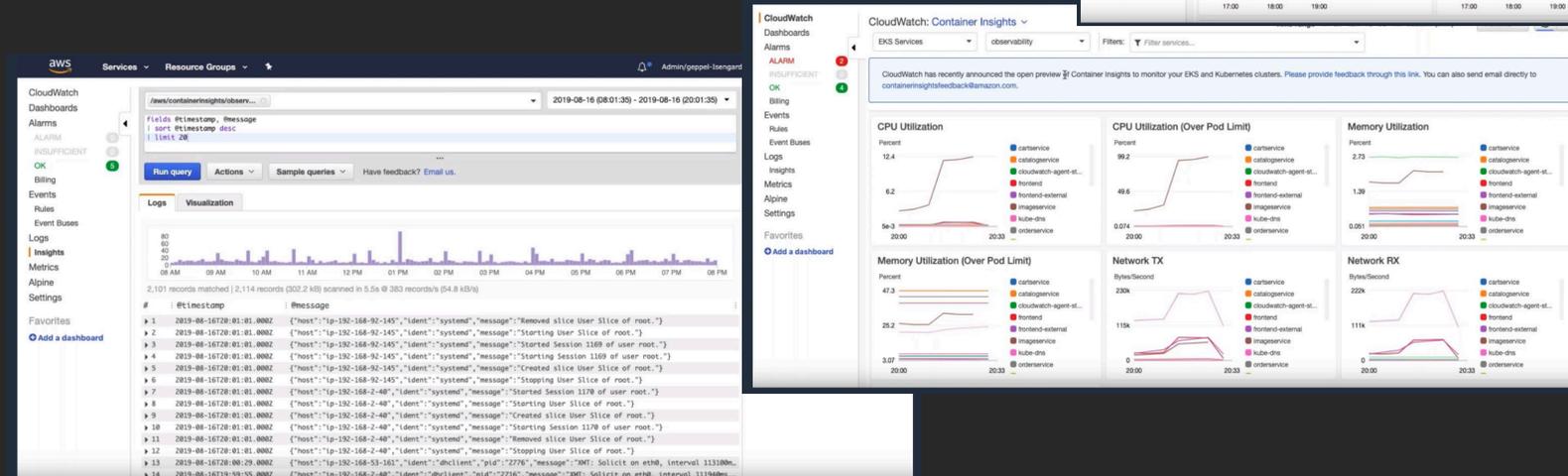
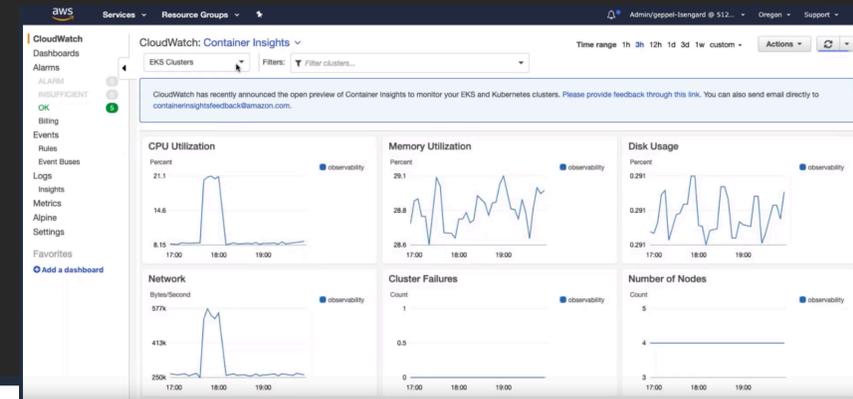


Amazon CloudWatch

CloudWatch Container Insights

A fully managed observability service for monitoring, troubleshooting, and alarming on your containerized applications and microservices

- ✓ Collects, aggregates, and summarizes
- ✓ Reliable, secure metrics and logs collection
- ✓ Automated dashboards and analysis
- ✓ Observability experience across metrics, logs, traces
- ✓ Ad hoc analytics



Amazon Elastic Container Registry (Amazon ECR)



-  100 percent cloud-based Docker container registry
-  Deep integration with AWS platform
-  Integrated with Amazon ECS and Docker CLI
-  Scalable and highly available

ECR Components

- Registry & Repository
- Registry Policy
- Image
 - CVE Scanning (Common Vulnerabilities and Exposures)
 - Image lifecycle



Amazon ECR

Demo

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<https://aspit.co/ContainerDevOpsDay-21>

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