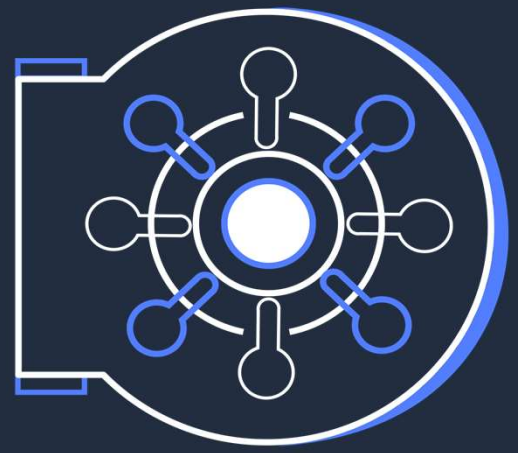
AWS TECHSHIFT

EMBARK



Intro to Containers

AWS TECHSHIFT How do we manage containers?

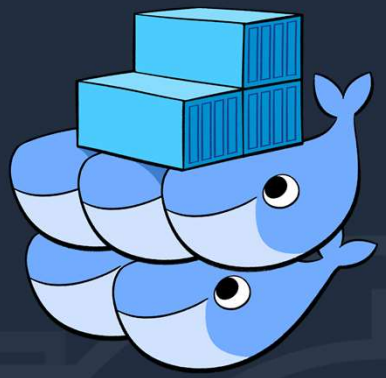
If you have ten containers and four applications, it's not that difficult to manage the deployment and maintenance of your containers. If, on the other hand, you have 1,000 containers and 400 services, management gets much more complicated.

Container orchestration is all about managing the lifecycles of containers, especially in large, dynamic environments.

AWS TECHSHIFT What does orchestration do?

- Provisioning and deployment of containers
- Redundancy and availability of containers
- Scaling up or removing containers to spread application load evenly across host infrastructure
- Movement of containers from one host to another if there is a shortage of resources in a host, or if a host dies
- Allocation of resources between containers
- External exposure of services running in a container with the outside world
- Load balancing of service discovery between containers
- Health monitoring of containers and hosts
- Configuration of an application in relation to the containers running it

AWS TECHSHIFT Orchestration Tools



Amazon Elastic
Container Service

AWS TECHSHIFT What is Kubernetes?

Kubernetes is a portable, extensible, open-source platform for managing containerized workloads and services, that facilitates both declarative configuration and automation.

Service discovery and load balancing

Automatic bin packing

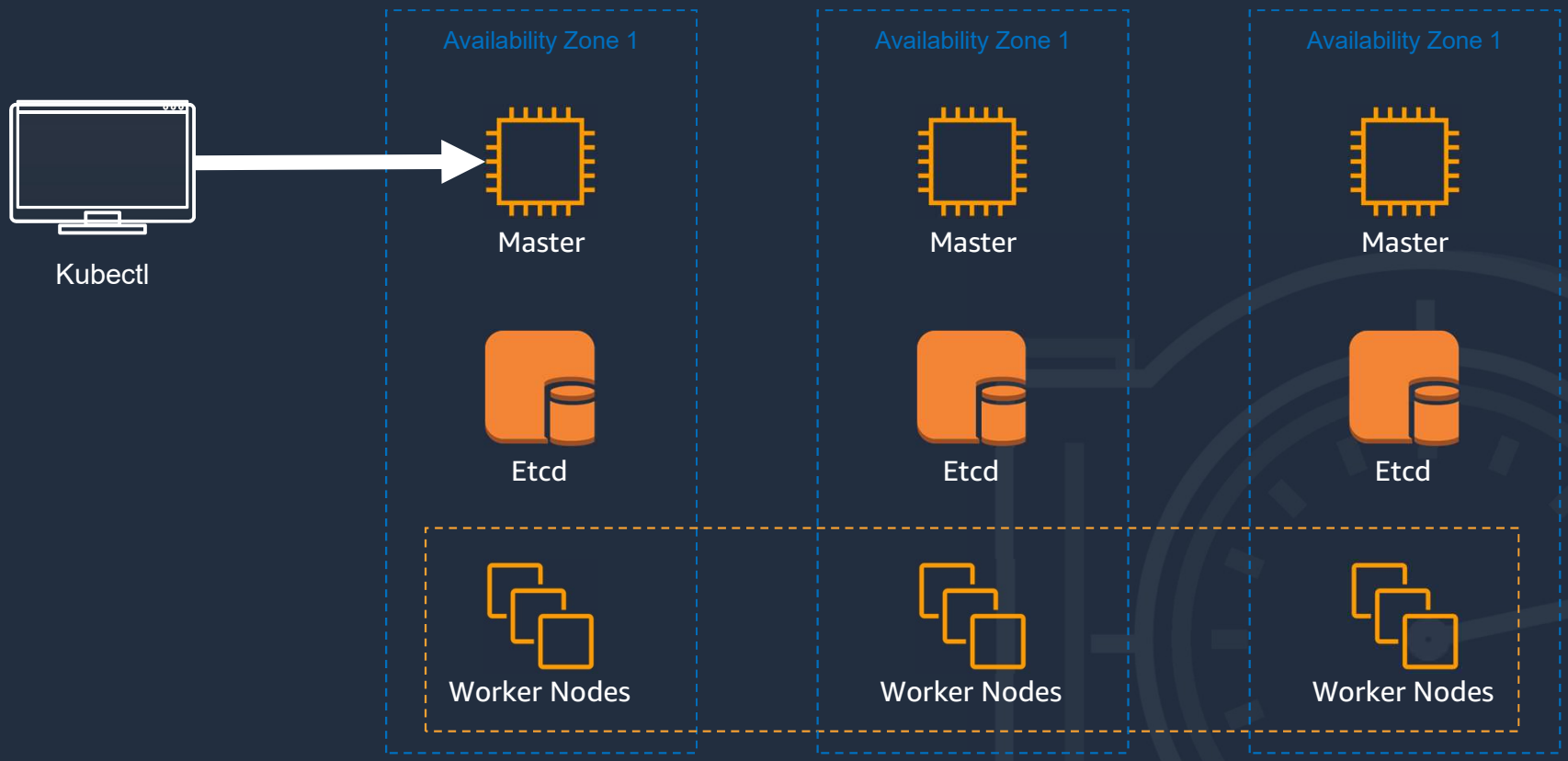
Storage orchestration

Self-healing

Automated rollouts and rollbacks

Secret and configuration management

AWS TECHSHIFT Inside Kubernetes



57%

of Kubernetes workloads run on AWS today

— Cloud Native Computing Foundation

AWS TECHSHIFT What is EKS?

Amazon Elastic Kubernetes Service (Amazon EKS) makes it easy to deploy, manage, and scale containerized applications using Kubernetes on AWS.

Amazon EKS runs the Kubernetes management infrastructure for you across multiple AWS availability zones to eliminate a single point of failure.

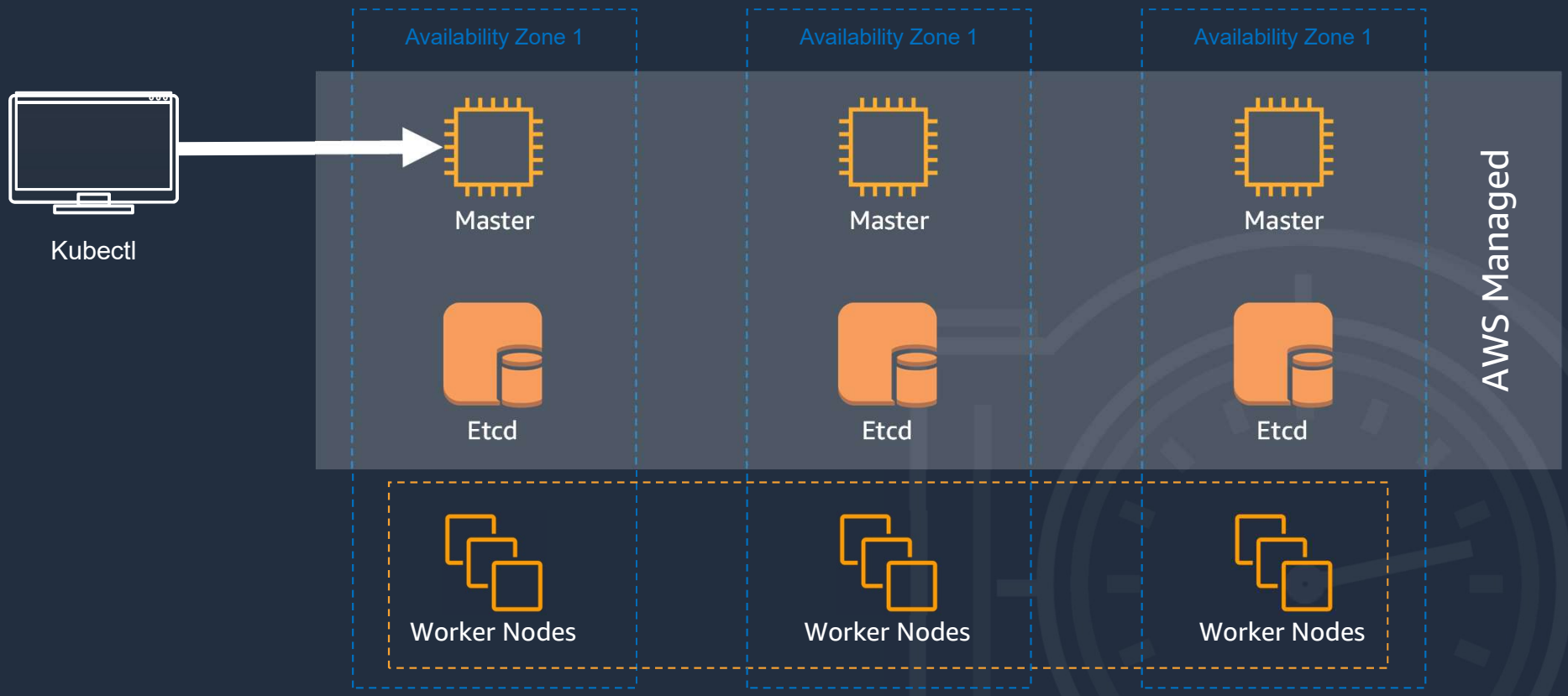
AWS TECHSHIFT EKS is Kubernetes Certified

1. Guaranteed Portability and Interoperability

2. Timely Updates

3. Confirmability

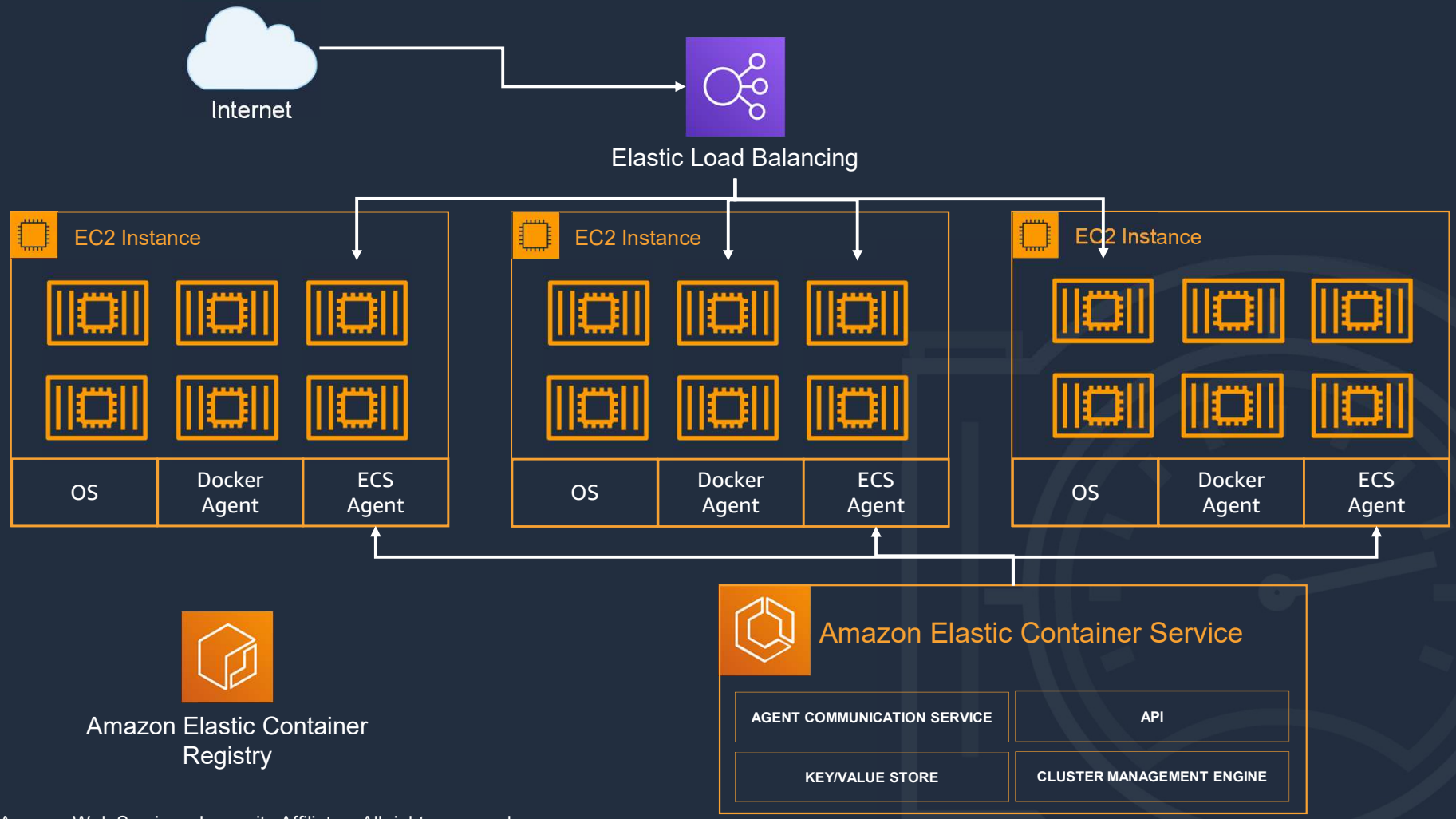
AWS TECHSHIFT Inside Kubernetes



AWS TECHSHIFT What is ECS?

Amazon Elastic Container Service (ECS) is a highly scalable, high performance container orchestration service that supports Docker containers and allows you to run and scale containerized applications on AWS.

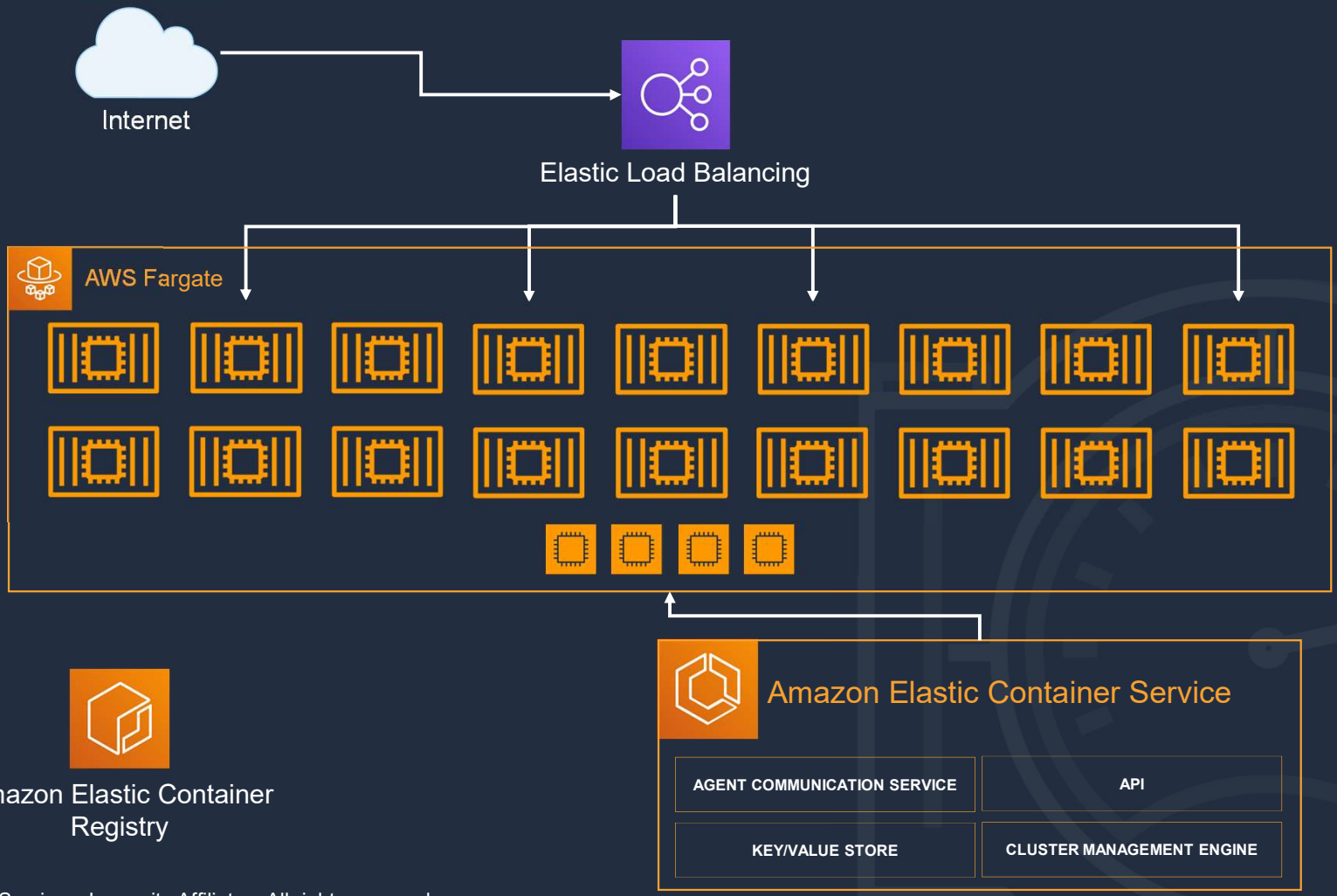
AWS TECHSHIFT What is ECS?



AWS TECHSHIFT What is Fargate?

AWS Fargate is a compute engine for Amazon ECS that allows you to run containers without having to manage servers or clusters.

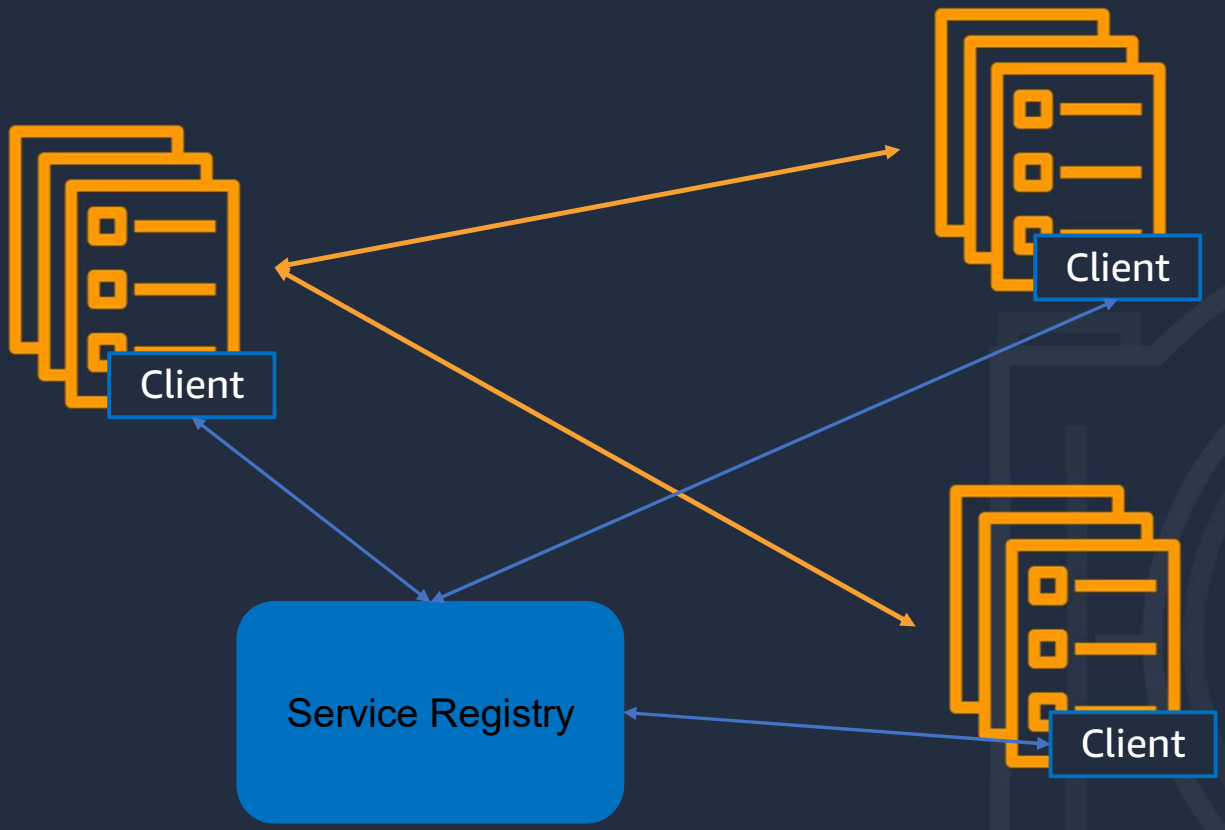
AWS TECHSHIFT What is Fargate?



AWS TECHSHIFT Why Service Discovery?

Service discovery is a way for applications and microservices to locate each other on a network. Service discovery includes both; a central server (or servers) that maintain a global view of addresses and clients that connect to the central server to update and retrieve addresses.

AWS TECHSHIFT Service Discovery 101



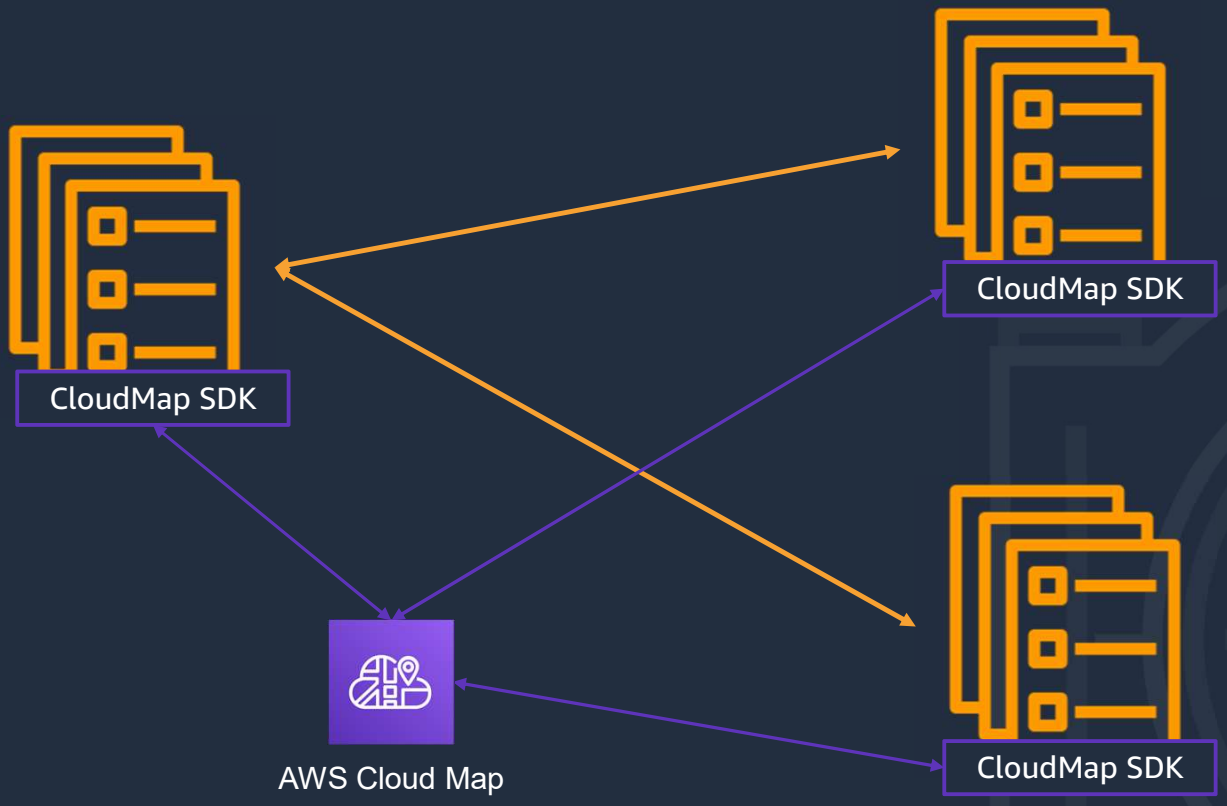
AWS TECHSHIFT AWS CloudMap

AWS Cloud Map is a cloud resource discovery service. With Cloud Map, you can define custom names for your application resources, and it maintains the updated location of these dynamically changing resources.

AWS TECHSHIFT AWS CloudMap

- Discover resources via API calls or DNS queries
- Simplified service naming
- Assign custom attributes
- Access control
- Automatic health check
- Deep integration with AWS container services
- Rapid change propagation
- Fully managed

AWS TECHSHIFT Service Discovery 101



AWS TECHSHIFT Adding a service mesh

A service mesh is a low-latency infrastructure layer designed to handle interprocess communication among application infrastructure services. A service mesh ensures that communication among containerized and often ephemeral application infrastructure services is fast, reliable, and secure.

AWS TECHSHIFT AWS App Mesh

AWS App Mesh is a service mesh that provides application-level networking to make it easy for your services to communicate with each other across multiple types of compute infrastructure. App Mesh standardizes how your services communicate, giving you end-to-end visibility and ensuring high-availability for your applications.

AWS TECHSHIFT Open source Envoy proxy

Open source proxy

App Mesh uses the open source Envoy proxy to manage all traffic into and out of a service's containers. Envoy has a vibrant ecosystem of community-built integrations that work with App Mesh.

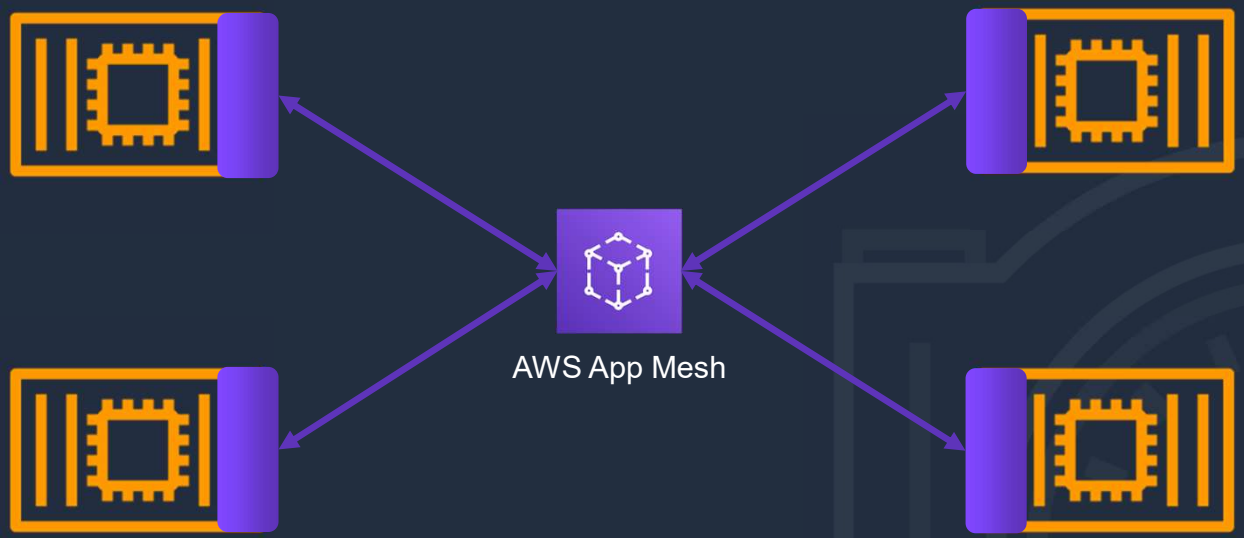
Compatible AWS services:

- Amazon CloudWatch* – monitoring and logging service for complete visibility of resources and applications.
- AWS X-Ray* – tracing service for an end-to-end view of application performance.

Compatible AWS partner and open source tools:

- Datadog, Alcide, HashiCorp, Sysdig, Signalfx, Spotinst, Tetrate, Neuvector, Weaveworks, Twistlock, Wavefront by VMware, Aqua.

AWS TECHSHIFT App Mesh



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