

Media Cloud and Microservice Architecture

Jump start your media infrastructure in the cloud

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<https://tech.ebu.ch/groups/mcma>

WHAT



WHO



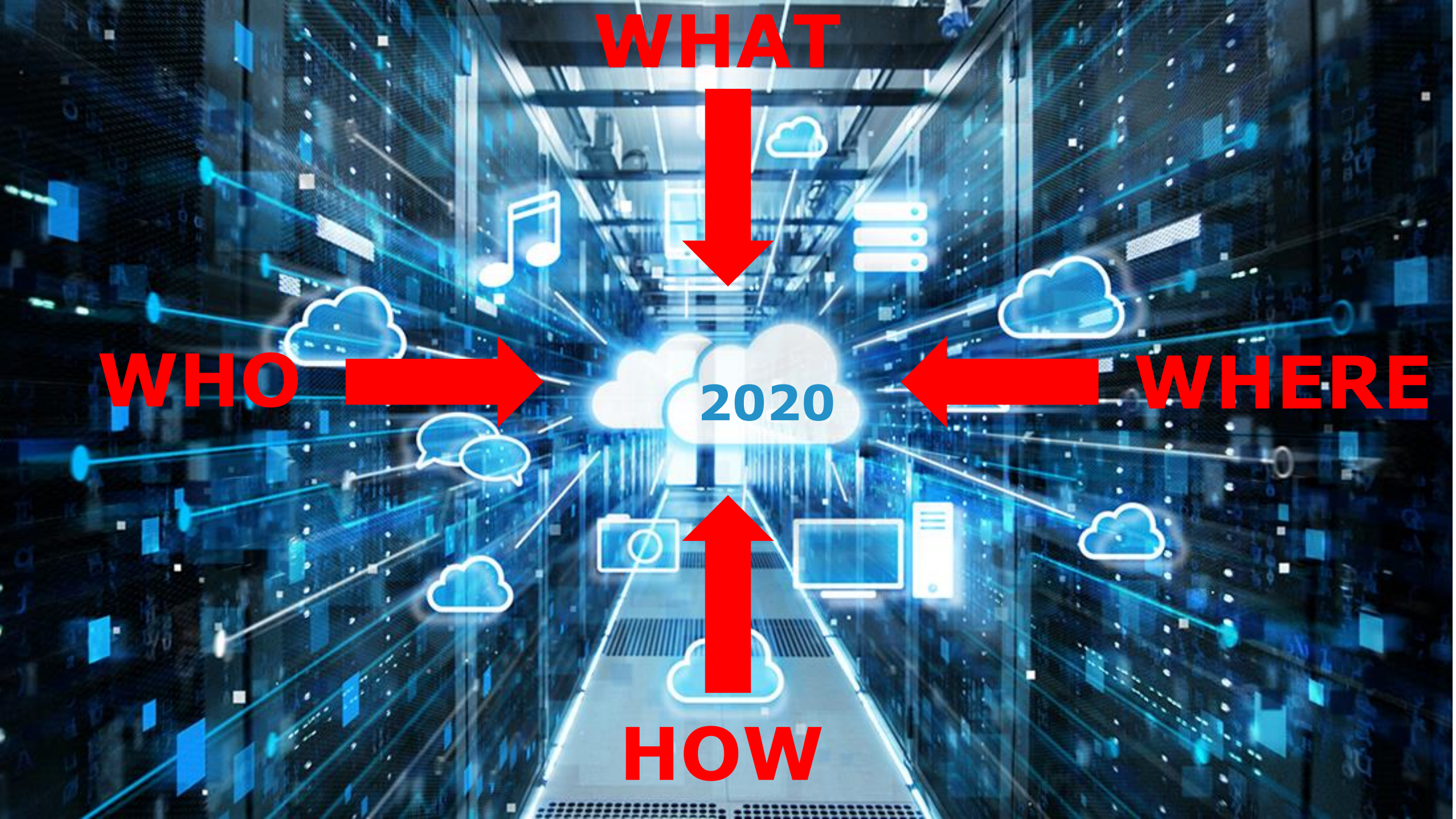
2020



WHERE



HOW



Cloud Trend and Facts

In 2018, public cloud adoption grew to 92%

*84% of enterprises run on a multi-cloud strategy.
(Source: RightScale)*

*IDC claims that by 2020, cloud-based IT spending will reach 60% of all spending on IT infrastructure and 60-70% of all software, services and technology spending.
(Source: Forbes)*

In 2019, the AWS adoption fell by 1%, while the rest of the cloud computing services' adoption continues to grow.

Serverless Computing Eliminates the Need for the Set-Up of Complex Application Stacks

What is new is the growing realisation that serverless is much, much more than just a new form of compute.

*Cloud expenses are expected to amount to 70% of all tech spending by 2020.
(Source: Trend Micro)*

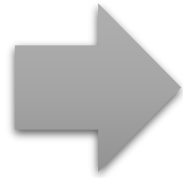
Serverless adoption is expected to grow more than any other cloud technologies in 2020



What is serverless and FaaS?



WIKIPEDIA
The Free Encyclopedia

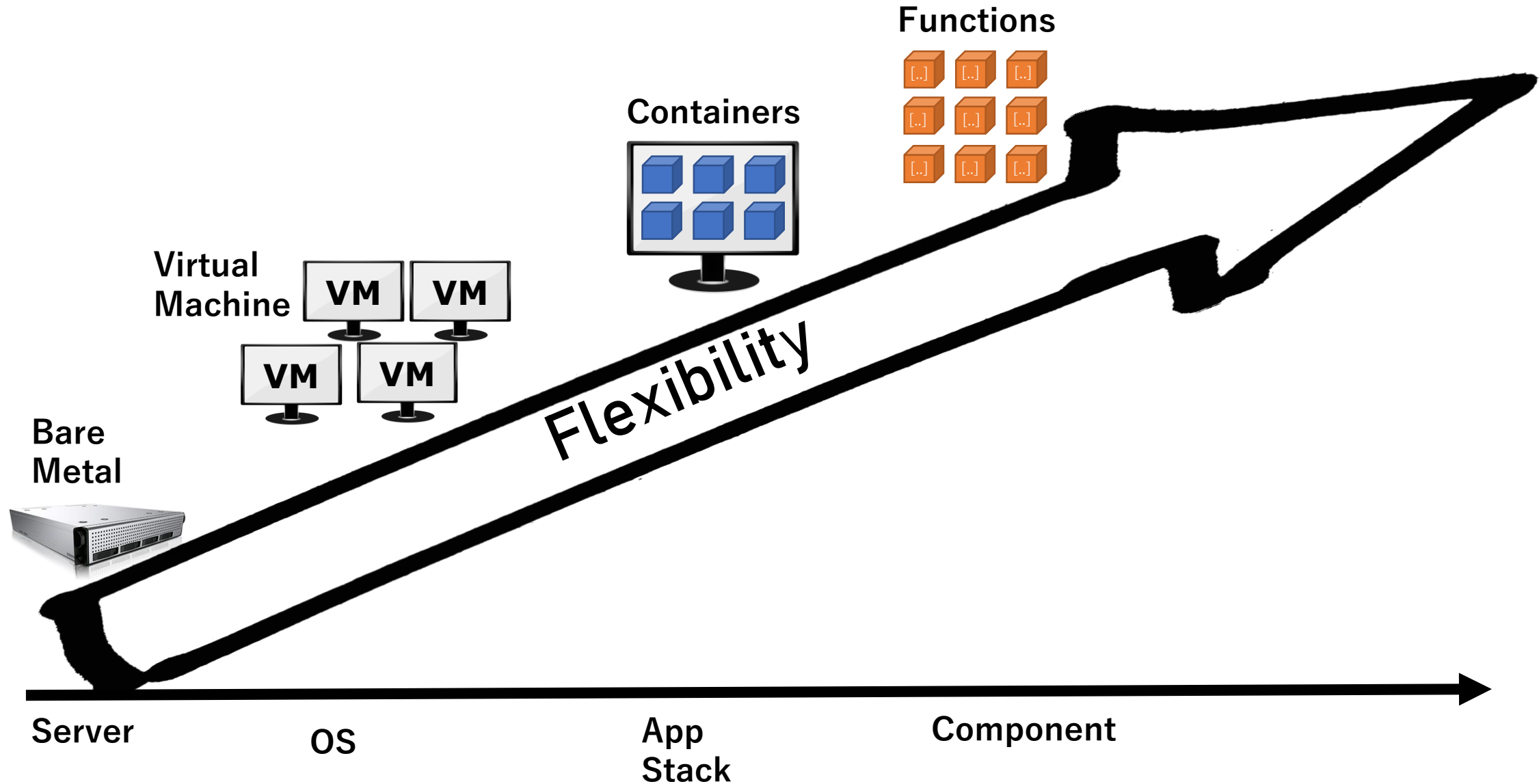


Serverless computing is a cloud-computing execution model in which the cloud provider runs the server, and dynamically manages the allocation of machine resources. Pricing is based on the actual amount of resources consumed by an application



Function as a service (FaaS) is a category of cloud computing services that provides a platform allowing customers to develop, run, and manage application functionalities without the complexity of building and maintaining the infrastructure

Computing maturity evolution



Serverless, FaaS, what does it mean?

- Only pay for the execution time
- Enable innovative business models
- “Functions” are compatible with other cloud resources
- Easy to deploy and configure
- Completely remove the need of IT involvement
- Create as many environments as you want
- No time wasted in app stack or server configuration

SOUNDS GREAT, WHERE DO I SIGN?

Practically, what does it REALLY mean?

- Simple to do simple things
- Developers can do it all..... Watch for the kitchen sink!
- CI/CD pipelines are key to environment management sanity (No console)
- Follow a multi-cloud strategy for all decision
- Programming language choice is not as important as standardizing Functions design
- 10 or 15 min execution time limit
- More is better, break complex logic into separate Functions
- Use workflow services to orchestrate business logic

YOU NEED A STRATEGY FOR CODE ARCHITECTURE, CONFIGURATION AND DEPLOYMENT!

What is MCMA?

- Serverless/Microservice strategy for media
- Best practices to implement media workflows in the cloud
- Methodology to support services from most common cloud providers
- Libraries to facilitate implementation of cloud services
 - Service sequencing
 - Job management, tracking and monitoring
 - Data store and repository
 - Service registry
 - Interaction with native cloud services, open source and commercial components
 - Libraries and sample implementations available on GitHub

Technology stack details

- **Code**

- Node.js
- DotNet core/C#

- **Libraries**

- MCMA Core
- MCMA AWS
- MCMA Azure

- **Code orchestrator**

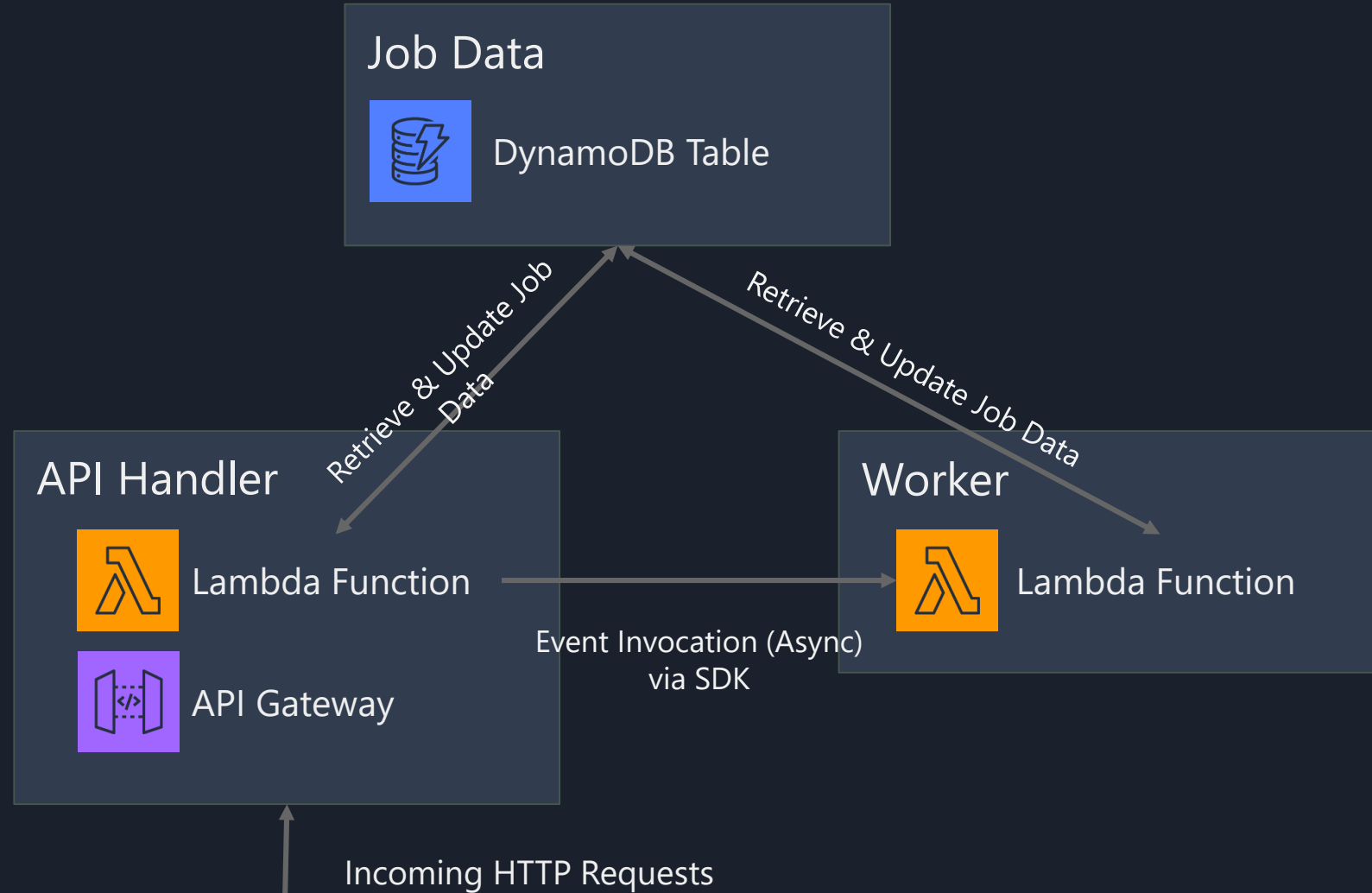
- Gradle
- Jenkins
- .NetCore Script

- **Deployment and configuration**

- Terraform

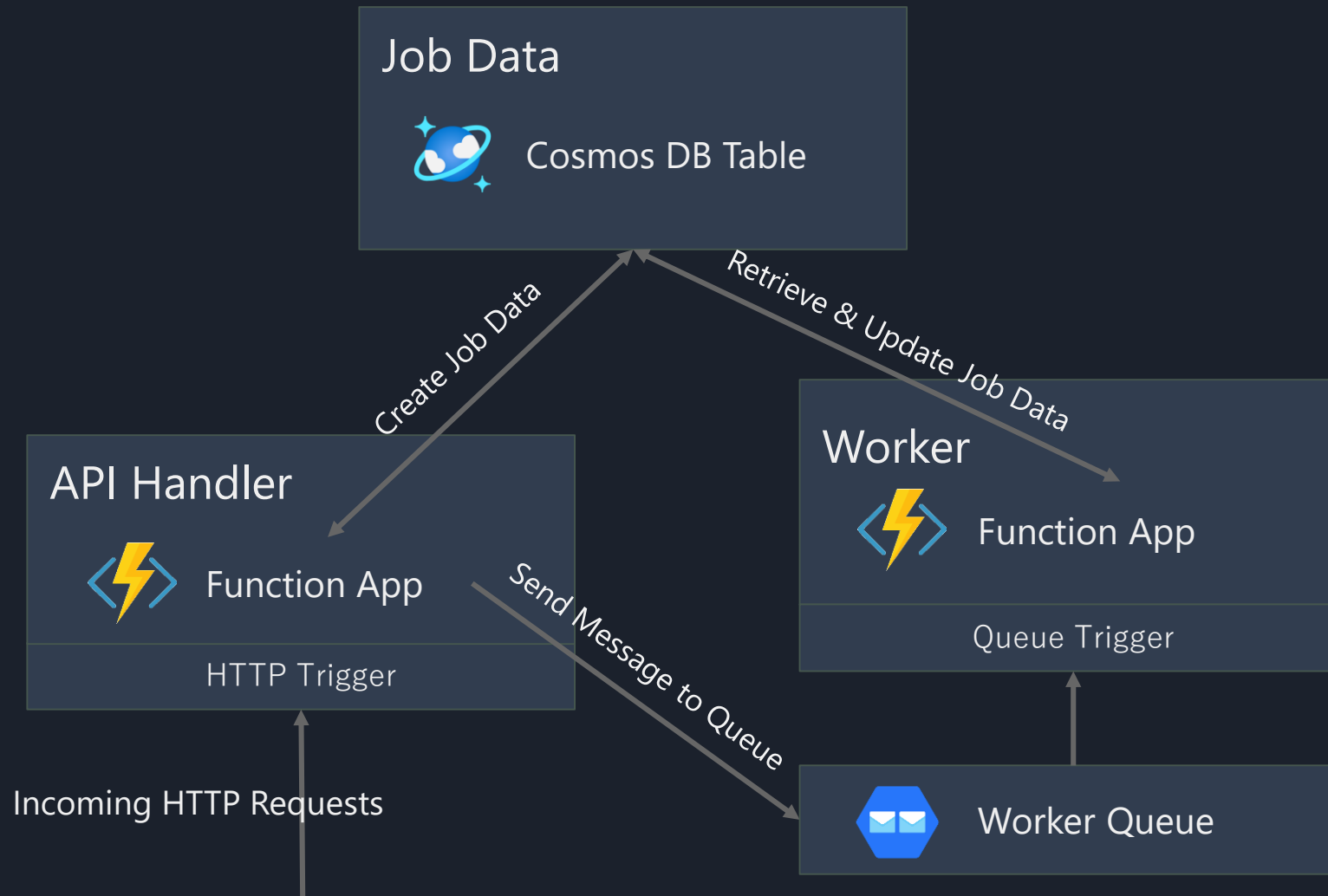
Architecture of a Typical MCMA Service

AWS



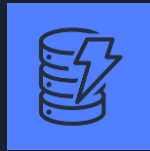
Architecture of a Typical MCMA Service

Azure



MCMA Main Resources Overview

AWS



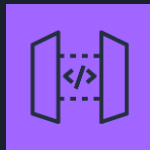
DynamoDB



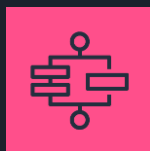
S3



Lambda
Functions



API
Gateway



Step
Functions

Azure



Cosmos DB



Blob
Storage



Queue
Storage



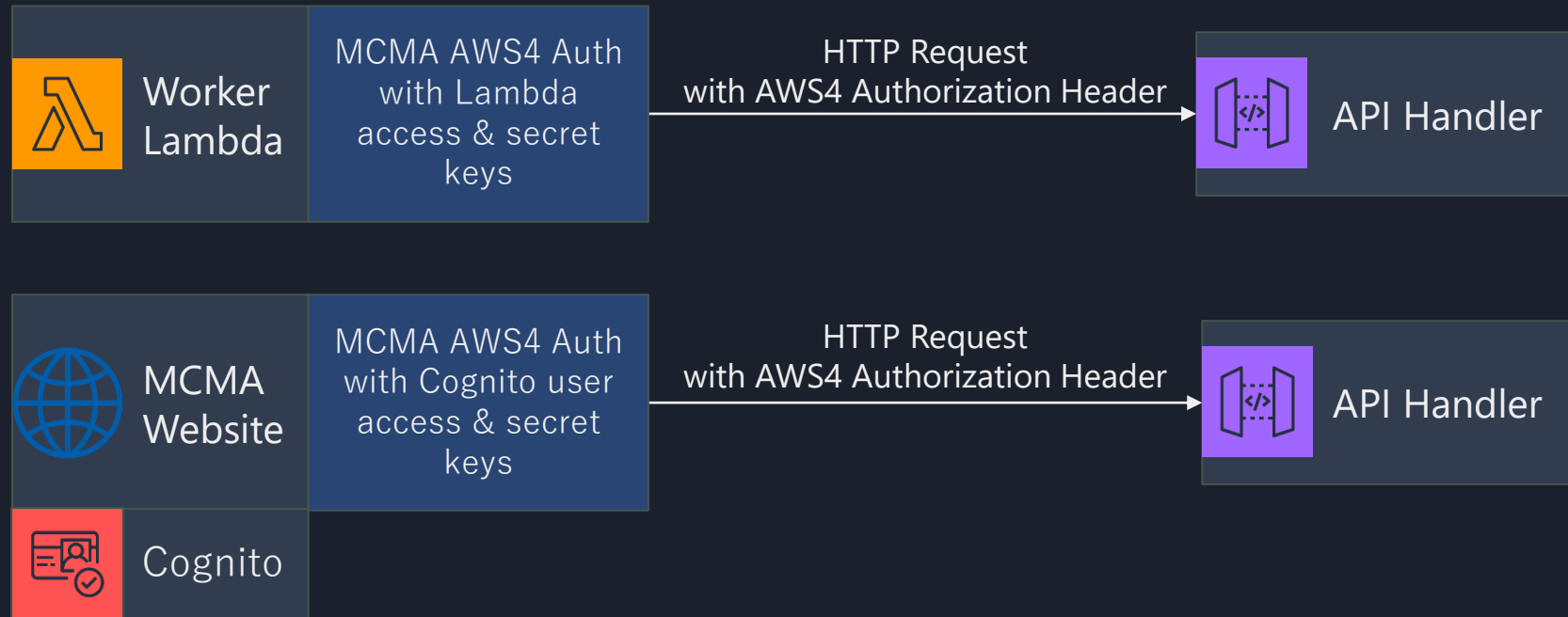
Function
Apps



Logic Apps

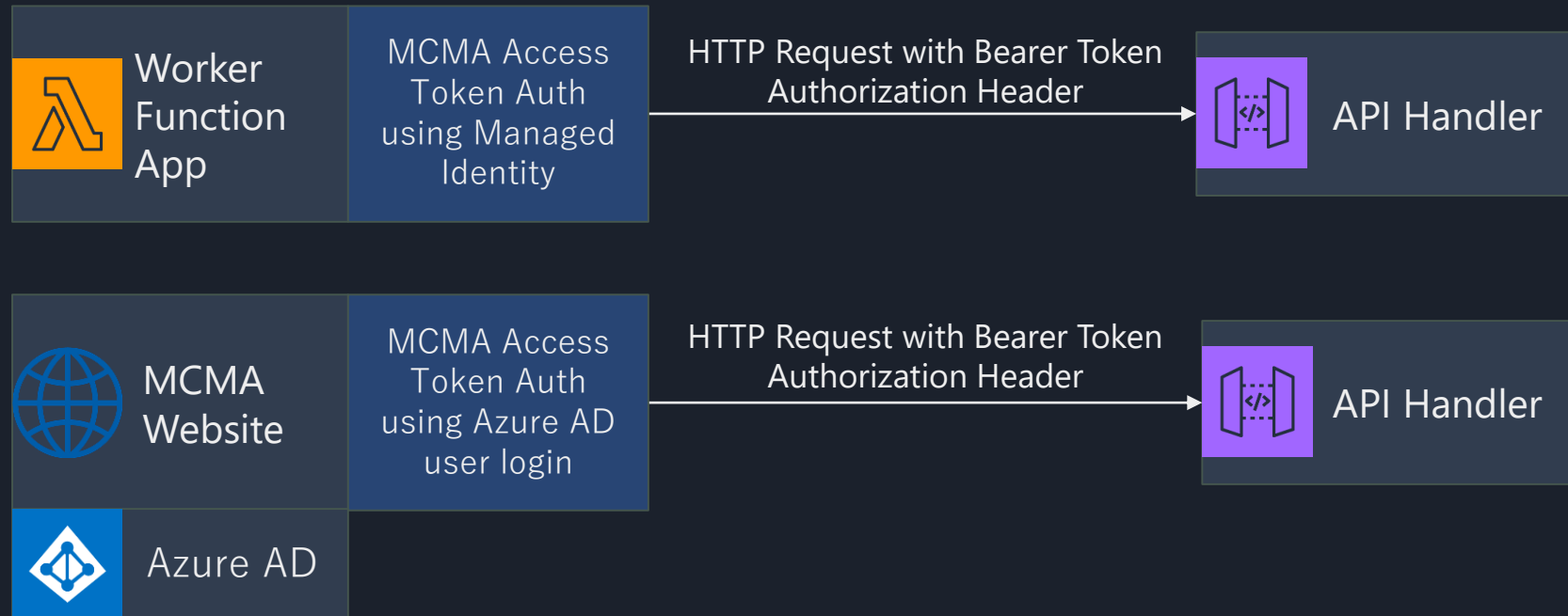
MCMA Service Authentication and Security

AWS

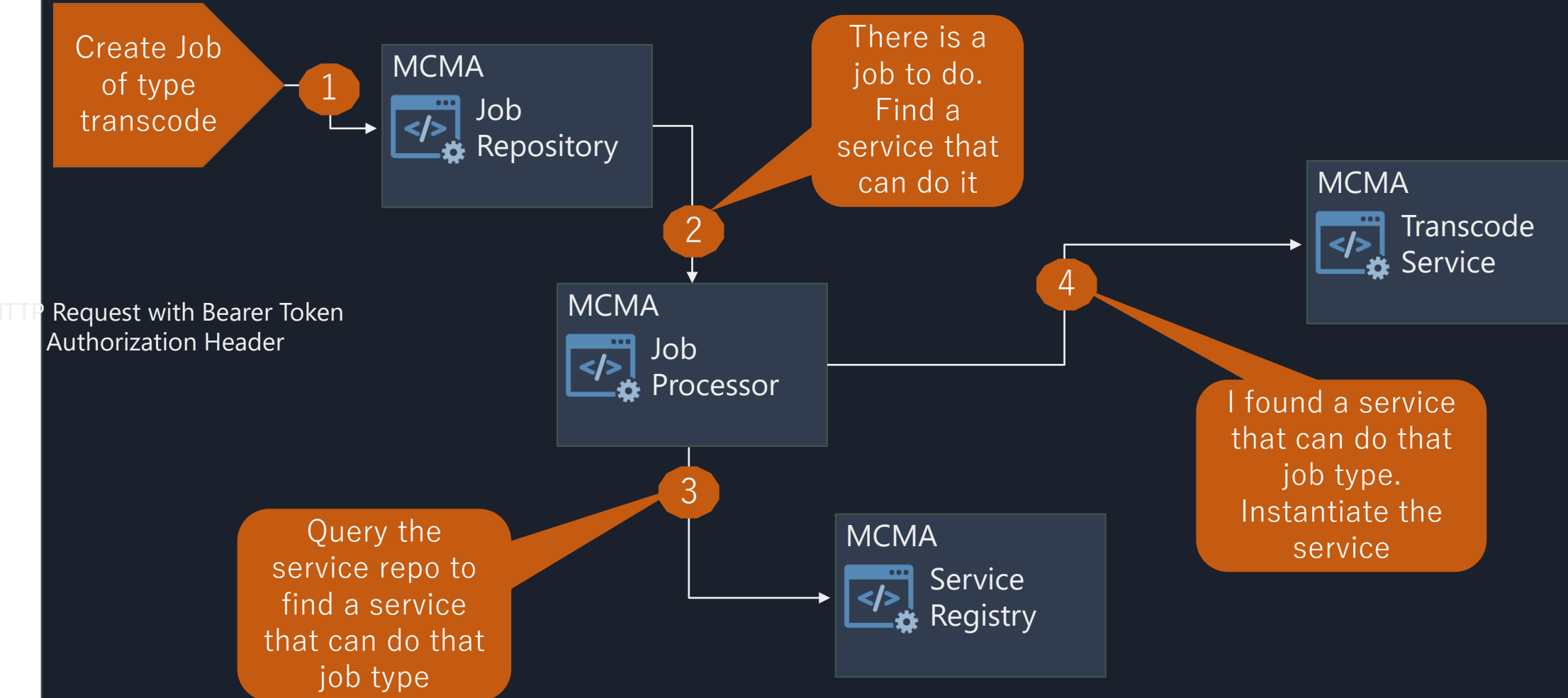


MCMA Service Authentication and Security

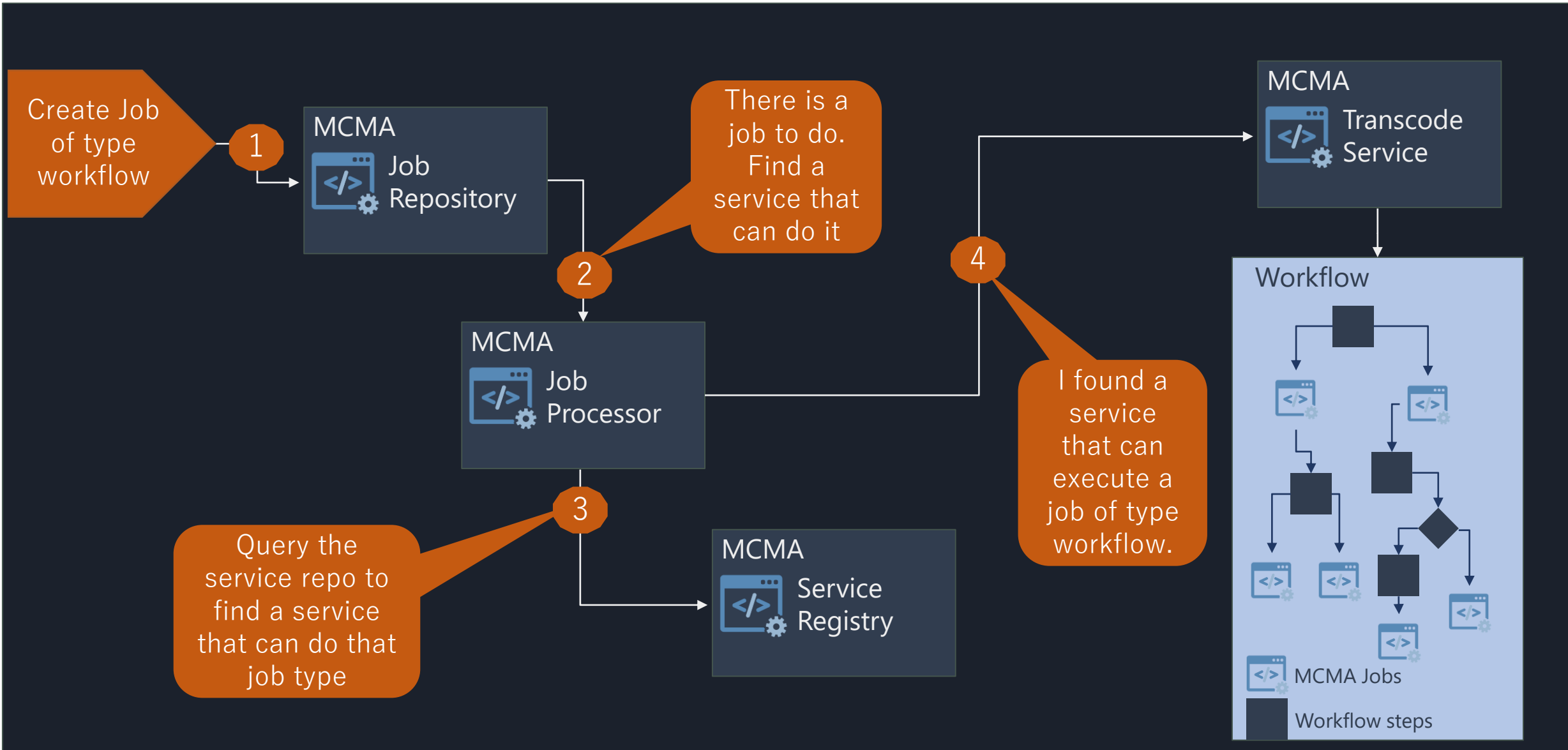
Azure



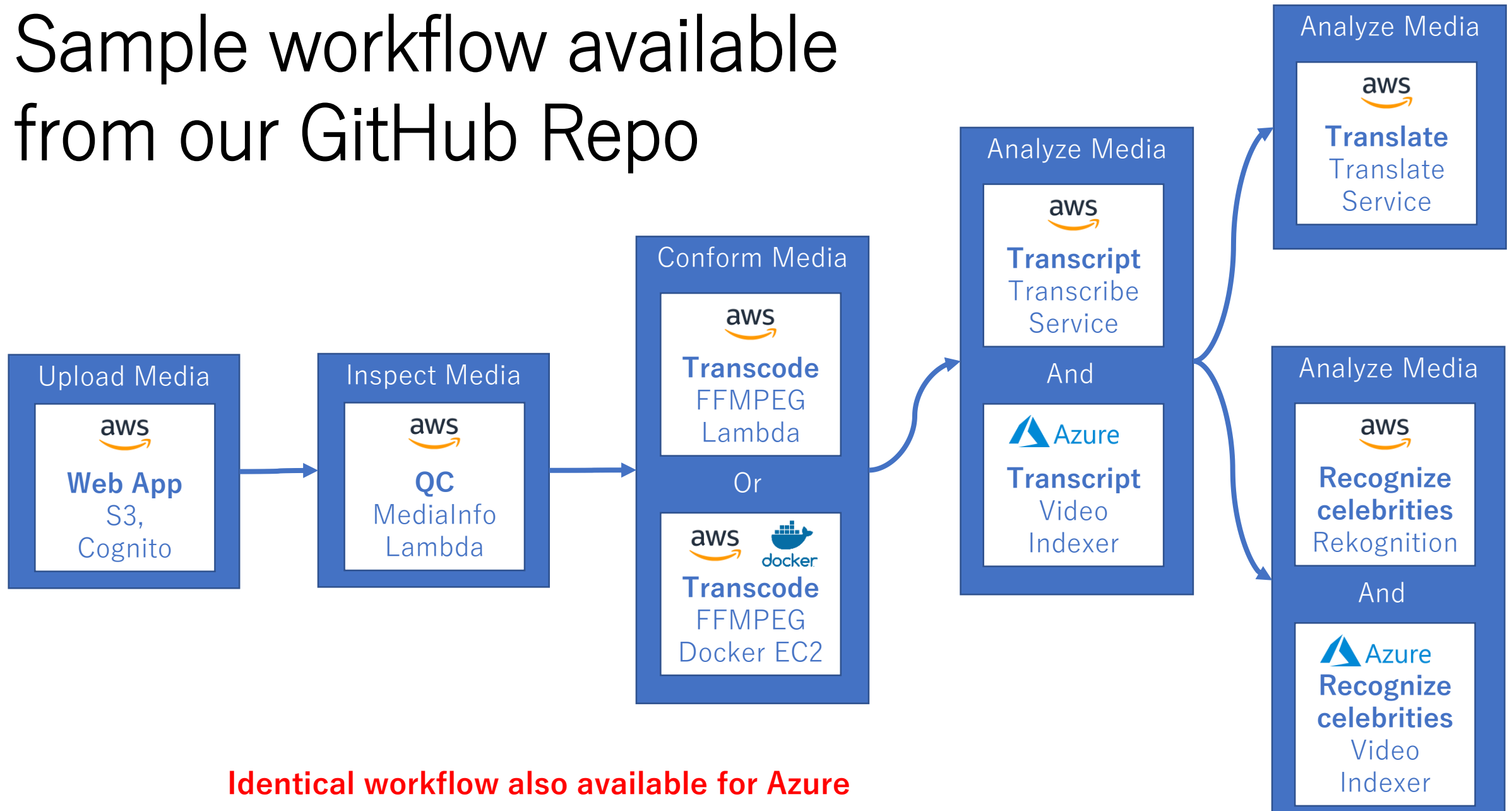
MCMA Service Instantiation Model



MCMA Service Instantiation Model : Workflow



Sample workflow available from our GitHub Repo



Identical workflow also available for Azure