Ballerina

Empowering modern systems with microservices and AI-as-a-Service using Ballerina

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Hello!

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About this Session

Coming Up

- Introduction to Microservice Architecture
- Demo: Hello Ballerina
- Introduction to Event Driven Architecture
- Demo: EDA in Ballerina
- Ballerina for AI
- Demo: Putting it all together

Checklist for Prerequisites

- Ballerina
- VSCode
- VSCode extension for Ballerina
- Docker

Introduction to Microservice Architecture

Monoliths

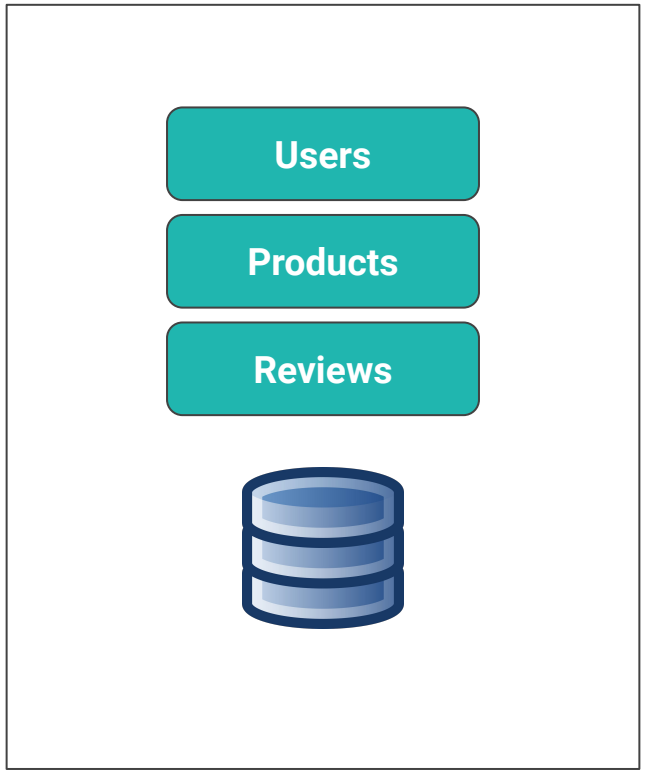
A monolithic application is built and deployed as a single unified unit.

Microservices

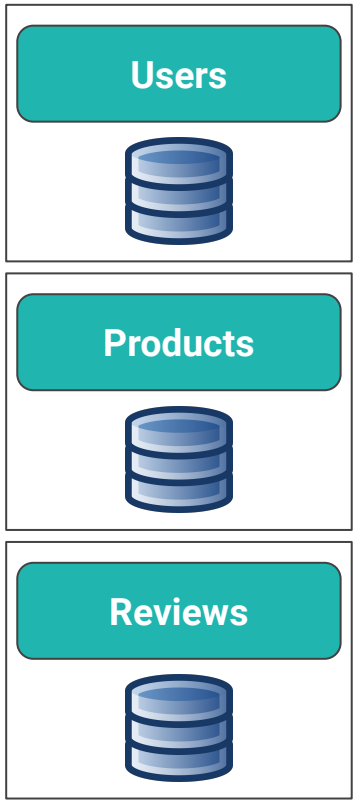
Microservice architecture is an architectural style that structures an application as a collection of services that are:

- Independently deployable
- Loosely coupled
- Organized around business capabilities
- Owned by a small team

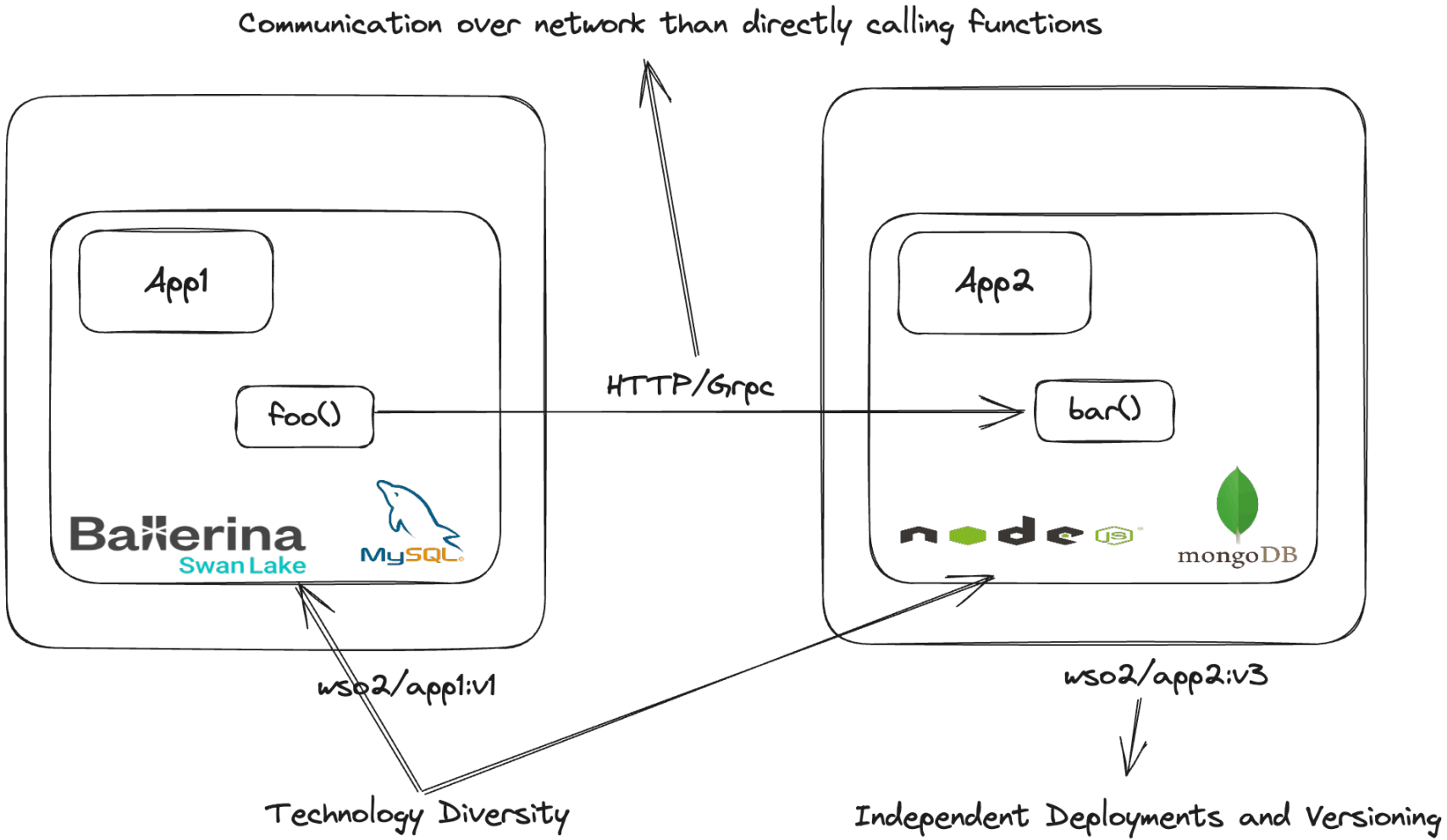
Monolithic vs. Microservice Architecture



Monolithic Architecture



Microservice Architecture


Communication over network than directly calling functions
App1
foo()
Ballerina
Swan Lake
MySQL
HTTP/Grpc
App2
bar()
node
mongoDB
wso2/app1:v1
wso2/app2:v3
Technology Diversity
Independent Deployments and Versioning

Monolith vs Microservices

Monoliths
Simpler Initial Development
Simpler Deployment
Cheaper initial Deployment
Easier debugging, observability

Microservices
Independent Deployment
Better Agility
Technology Diversity
Fault Isolation
Better Scalability

Demo : Hello Ballerina

Introduction to
Event Driven Architecture

What is an Event?

- An identifier
  - e.g. A notification that an order was successful

OR

- A message with state
  - e.g. Details of the order : price, number of items, etc.

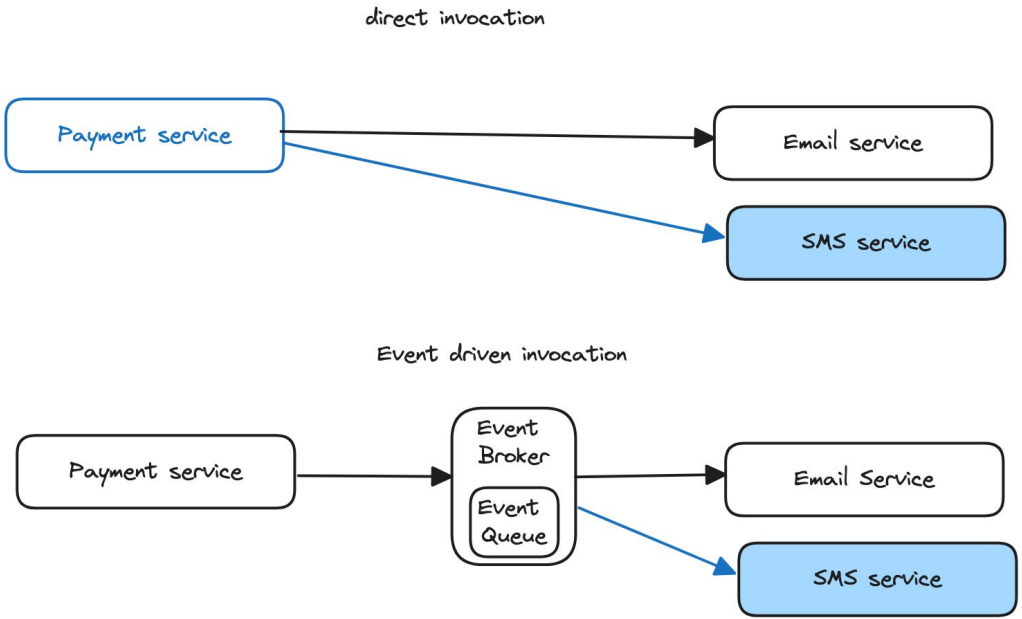
Components in an Event Driven Architecture

direct service invocation

Event driven invocation

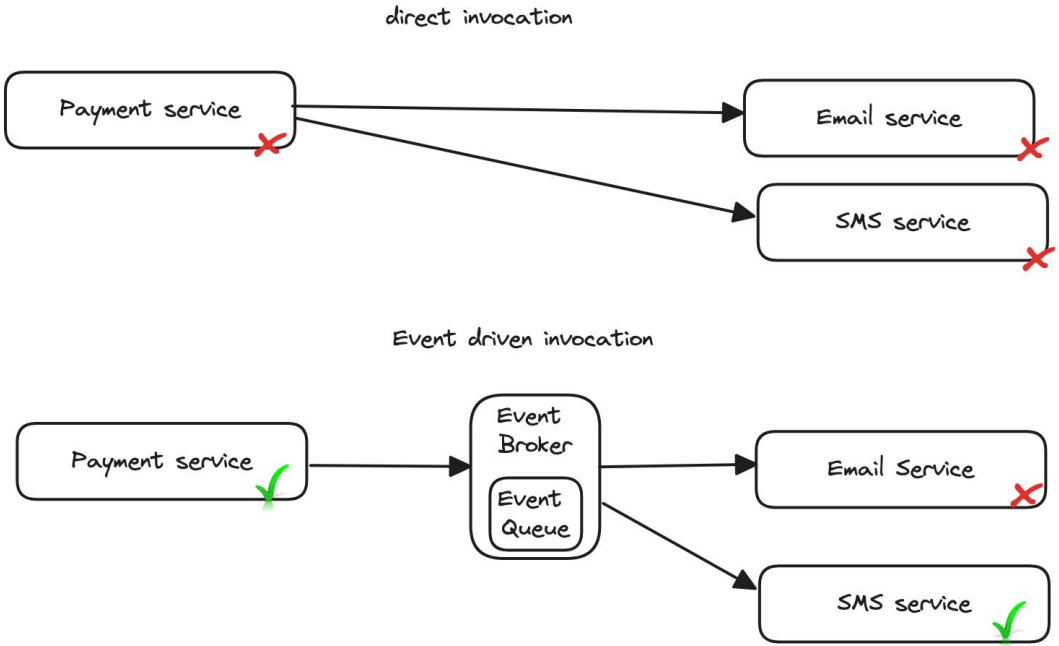
Benefits of EDA

- Scale independently



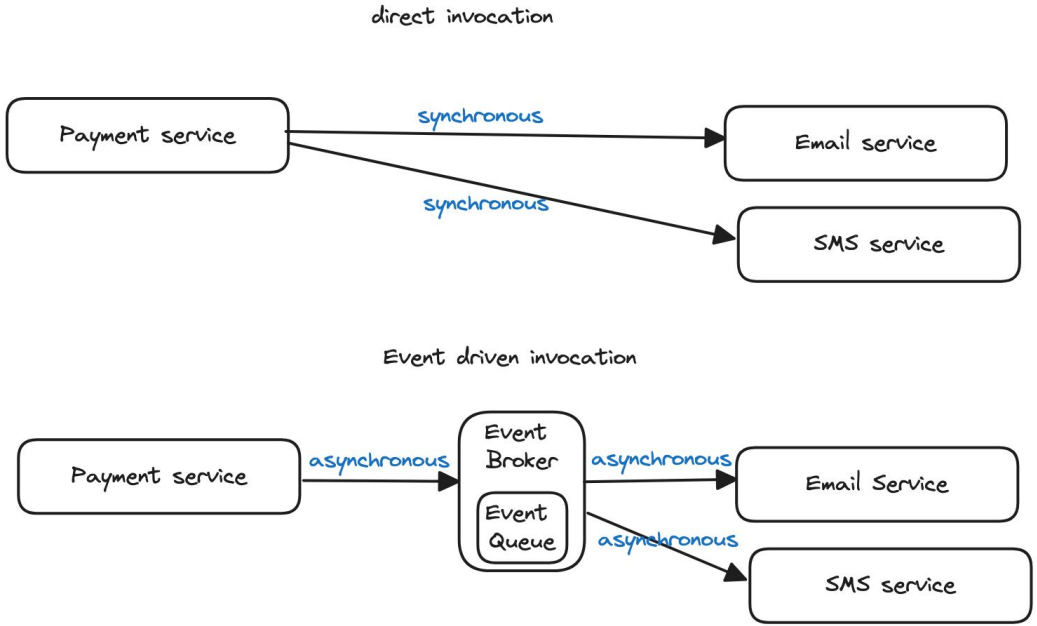
Benefits of EDA

- Fail independently



Benefits of EDA

- Real-time responsiveness



When to use EDA

- Handle operations that don't need immediate response
- Build modular systems where components operate independently
- Maintain consistency and communication across distributed services
- Get real time reactions

Types of brokers used in EDA

- Point to point Brokers
- Pub/Sub brokers
- Streaming brokers
- Message bus brokers

Demo : EDA in Ballerina

- Start RabbitMQ broker using Docker
  - Refer https://www.rabbitmq.com/download.html
  - docker run -it --rm --name rabbitmq -p 5672:5672 -p 15672:15672 rabbitmq:3.12-management
- Create a service for producer

  https://ballerina.io/learn/by-example/rabbitmq-producer/
- Create a service for consumer

  https://ballerina.io/learn/by-example/rabbitmq-consumer/

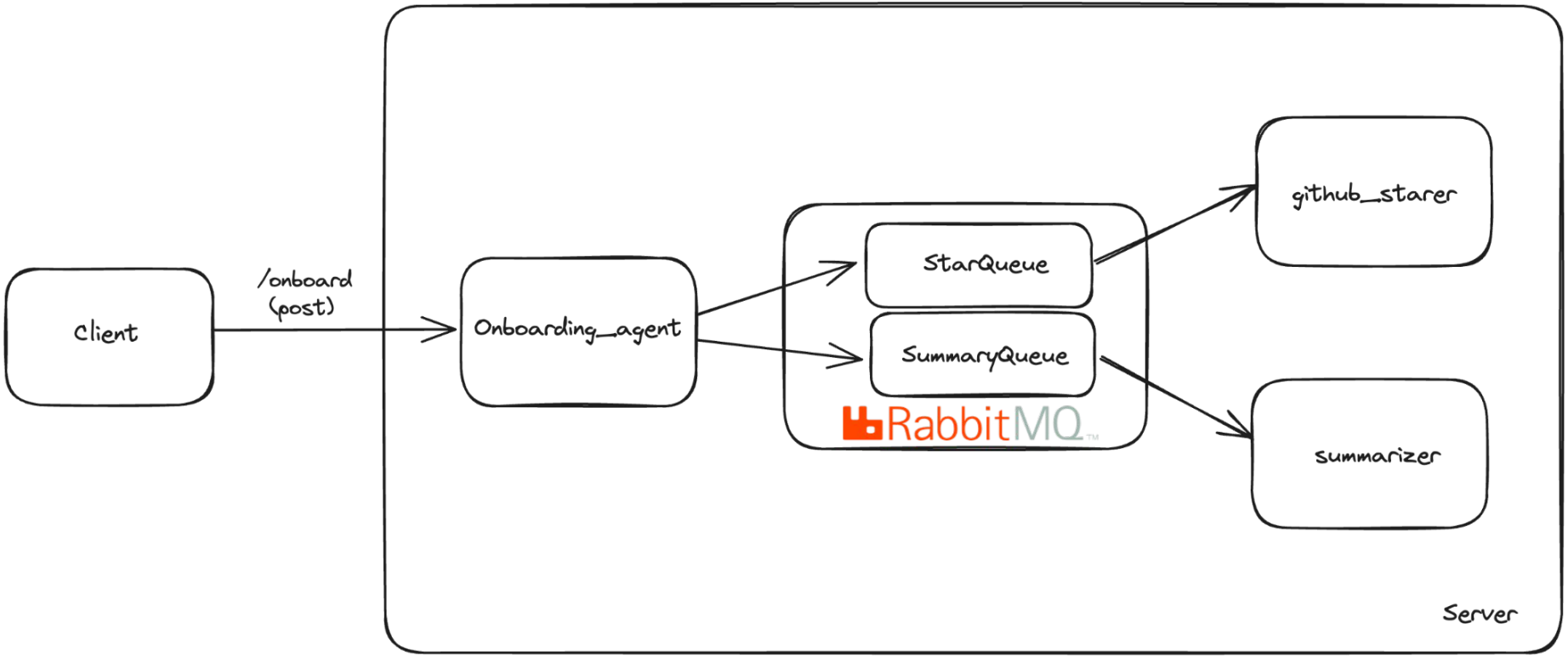
Ballerina for AI


AI is no longer only about
training models!
Ballerina
Swan Lake

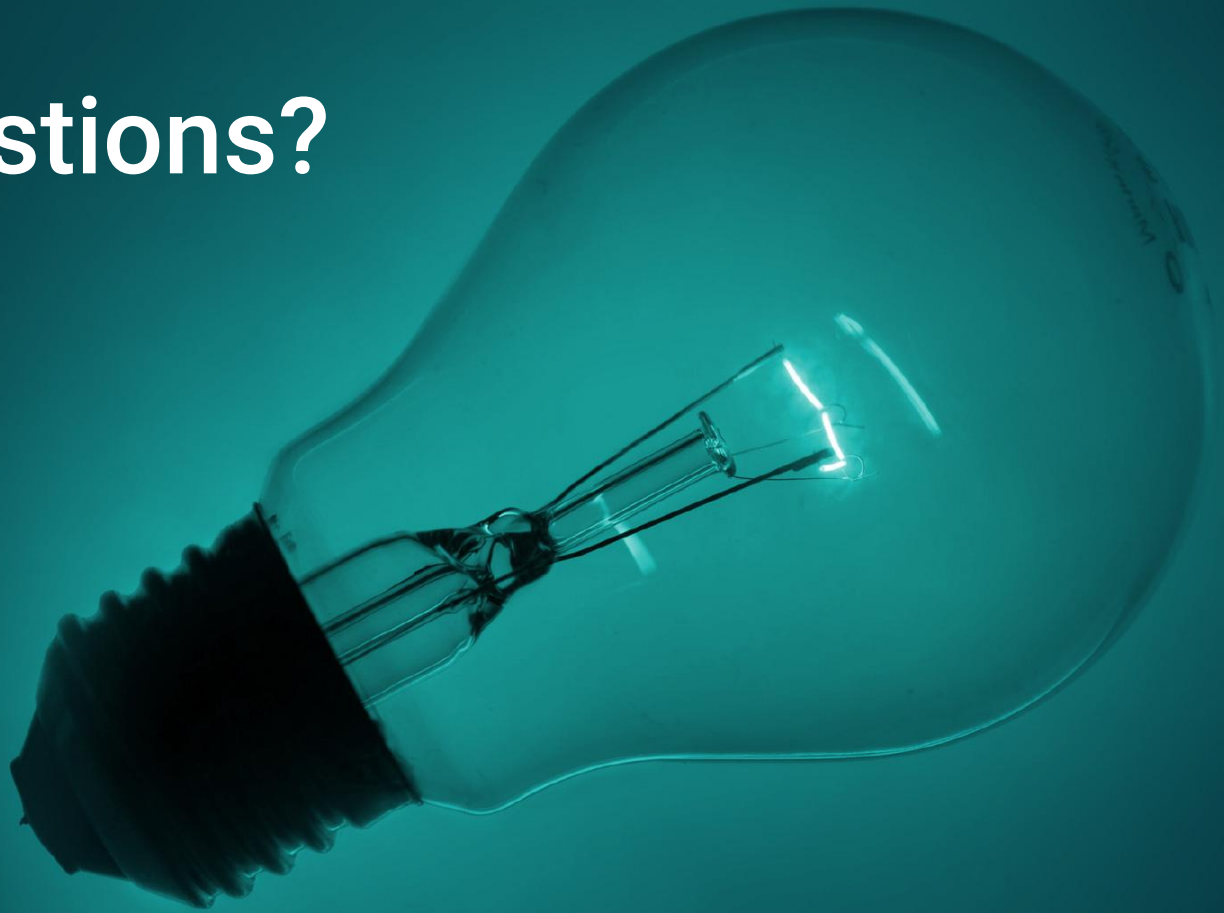
Demo : Putting it all together

Follow along referring to the README at

https://github.com/xlight05/iit_ballerina_session


Client
/onboard
(post)
Onboarding_agent
StarQueue
SummaryQueue
RabbitMQ
github_starer
summarizer
Server

Questions?



Ballerina
Swan Lake

Find out more…

- Ballerina documentation
  - Ballerina use cases : Microservices
    - ballerina.io/usecases/microservices/
  - Ballerina use cases : EDA
    - ballerina.io/usecases/eda/
  - Ballerina by example
    - ballerina.io/learn/by-example/

- Join the Ballerina community

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WSO2 Collective

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ballerina-lang

Thank you!

If you have any further questions, please raise them in the **Ballerina Discord Server.**
https://discord.gg/ballerinalang

Ballerina
Swan Lake