

Globalbooks Inc.

SOA Implementation

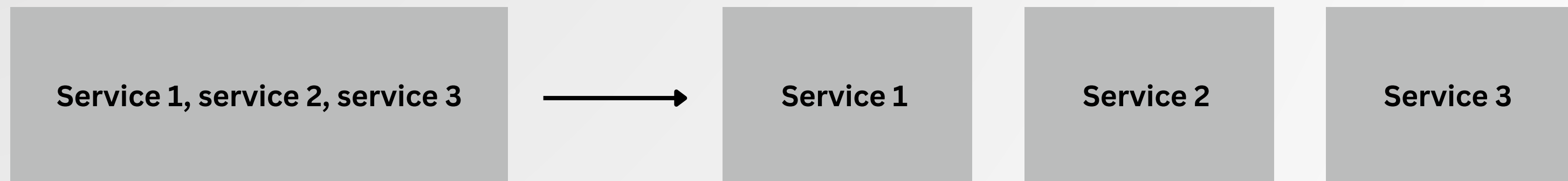
22ug1-0093 | M C R Mallawaarachchi

Problem Statement

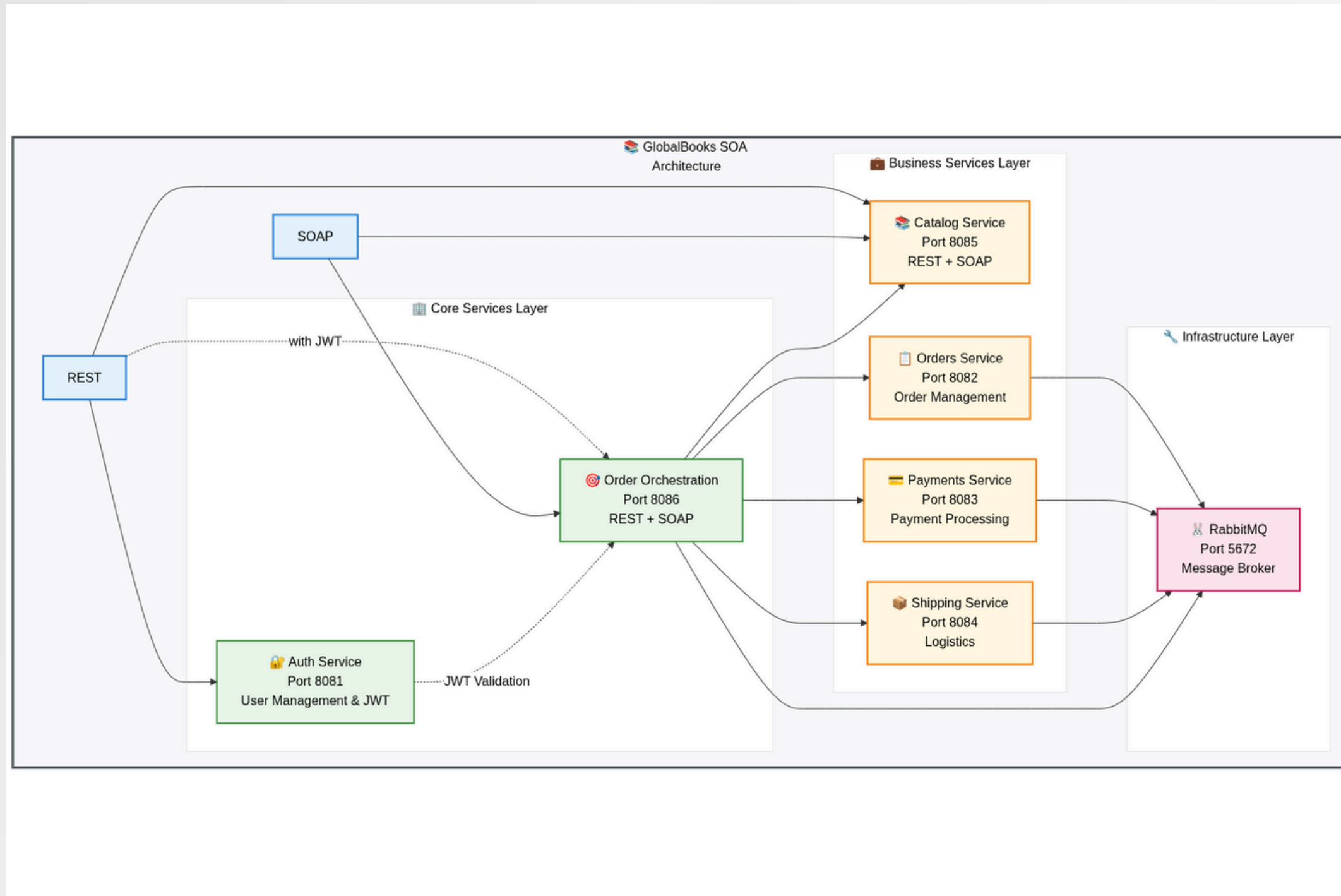
GlobalBooks Inc. has grown into a global e-commerce platform serving millions of customers. Its original Java monolith handles catalog lookup, order placement, payment processing and shipment coordination - all within one tightly coupled codebase and database. During peak events (holiday promotions, author signings), the system buckles under load. Even minor updates (e.g., adding a new payment provider) trigger full regression tests and redeployments, risking weeks of downtime.

Proposed Solution

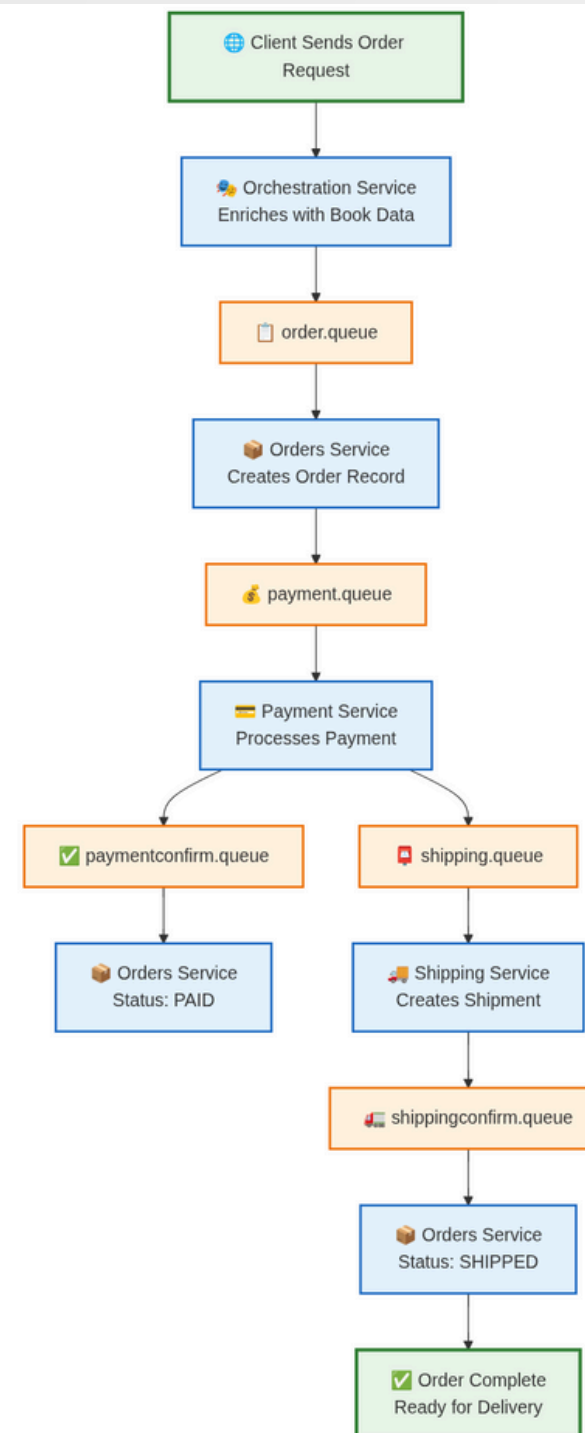
Migrating the legacy monolithic order-processing system to a Service-Oriented Architecture (SOA) with service orchestration for orders, payments and shipping while being resilience to high loads, easy maintenance and security.



Architecture



BPEL Flow



Message Queues

OverviewConnectionsChannelsExchangesQueuesAdmin

Queues

▼ All queues (7)

Pagination

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Overview				Messages			Message rates		
Name	Type	Features	State	Ready	Unacked	Total	incoming	deliver / get	ack
order.queue	classic	D	idle	0	0	0	0.00/s	0.00/s	0.00/s
payment.process	classic	D	idle	1	0	1	0.00/s	0.00/s	0.00/s
payment.queue	classic	D	idle	0	0	0	0.00/s	0.00/s	0.00/s
paymentconfirm.queue	classic	D	idle	0	0	0	0.00/s	0.00/s	0.00/s
shipping.initiate	classic	D	idle	1	0	1	0.00/s	0.00/s	0.00/s
shipping.queue	classic	D	idle	0	0	0	0.00/s	0.00/s	0.00/s
shippingconfirm.queue	classic	D	idle	0	0	0	0.00/s	0.00/s	0.00/s

► Add a new queue

Deployment

- Deploy to AWS ECS/Fargate or Kubernetes cluster
- Replace H2 with managed PostgreSQL database
- Replace RabbitMQ with AWS SQS or managed RabbitMQ
- Configure Application Load Balancer for traffic distribution

Security

- Simple security for SOAP
- JWT for REST
- Secured data transfer between message queues using json serialization

Resilience

- De coupled services for each endpoint.
- Asynchronous message queues for service synchronization.
- Containerized services and container orchestration.

Demo

- Accessing Catalog Service (SOAP and REST) using cURL
- Order-fulfillment workflow using spring orchestrator (BPEL replacement)
- Accessing REST endpoints

To be demonstrated during the viva session

Q and A

Thank You