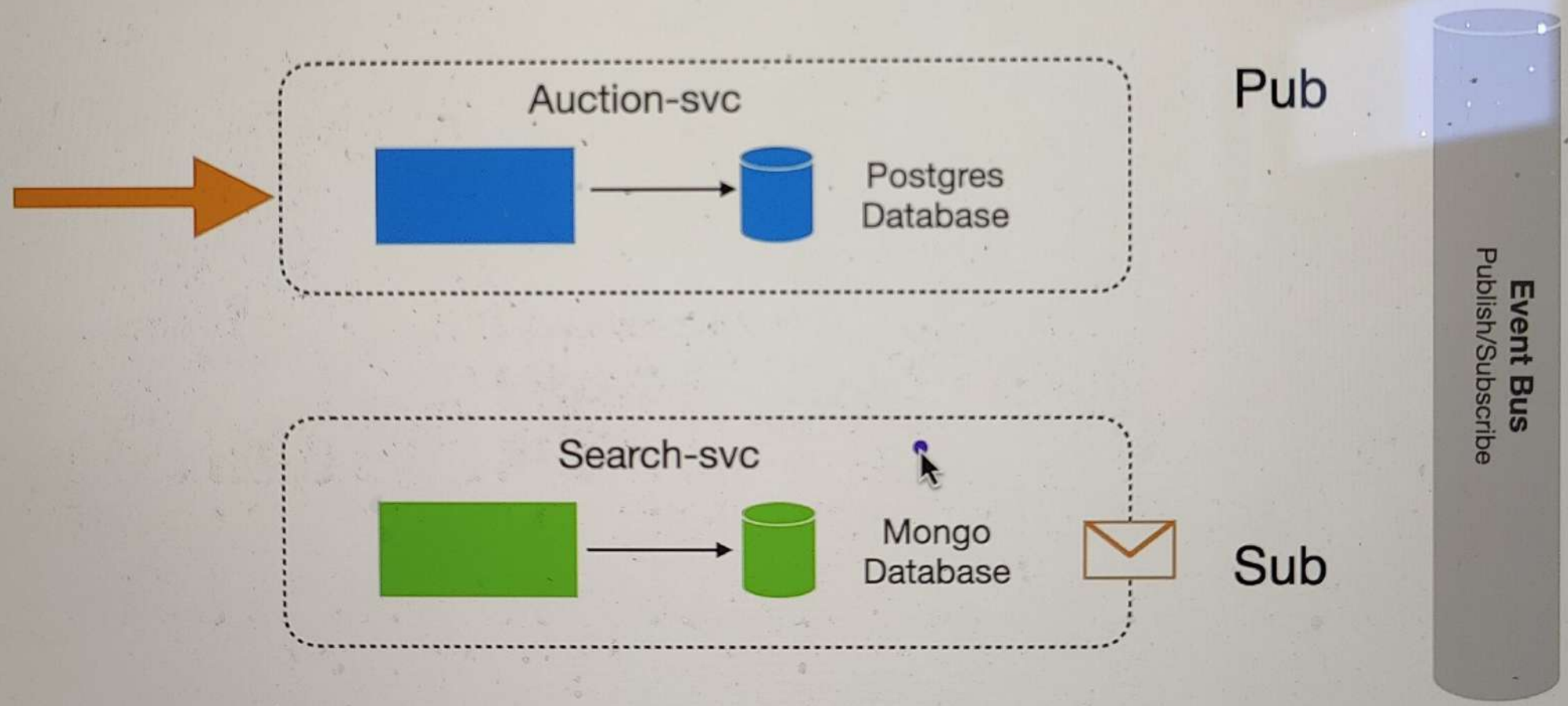
## Section 4: RabbitMQ

0 / 14 | 1hr 43min

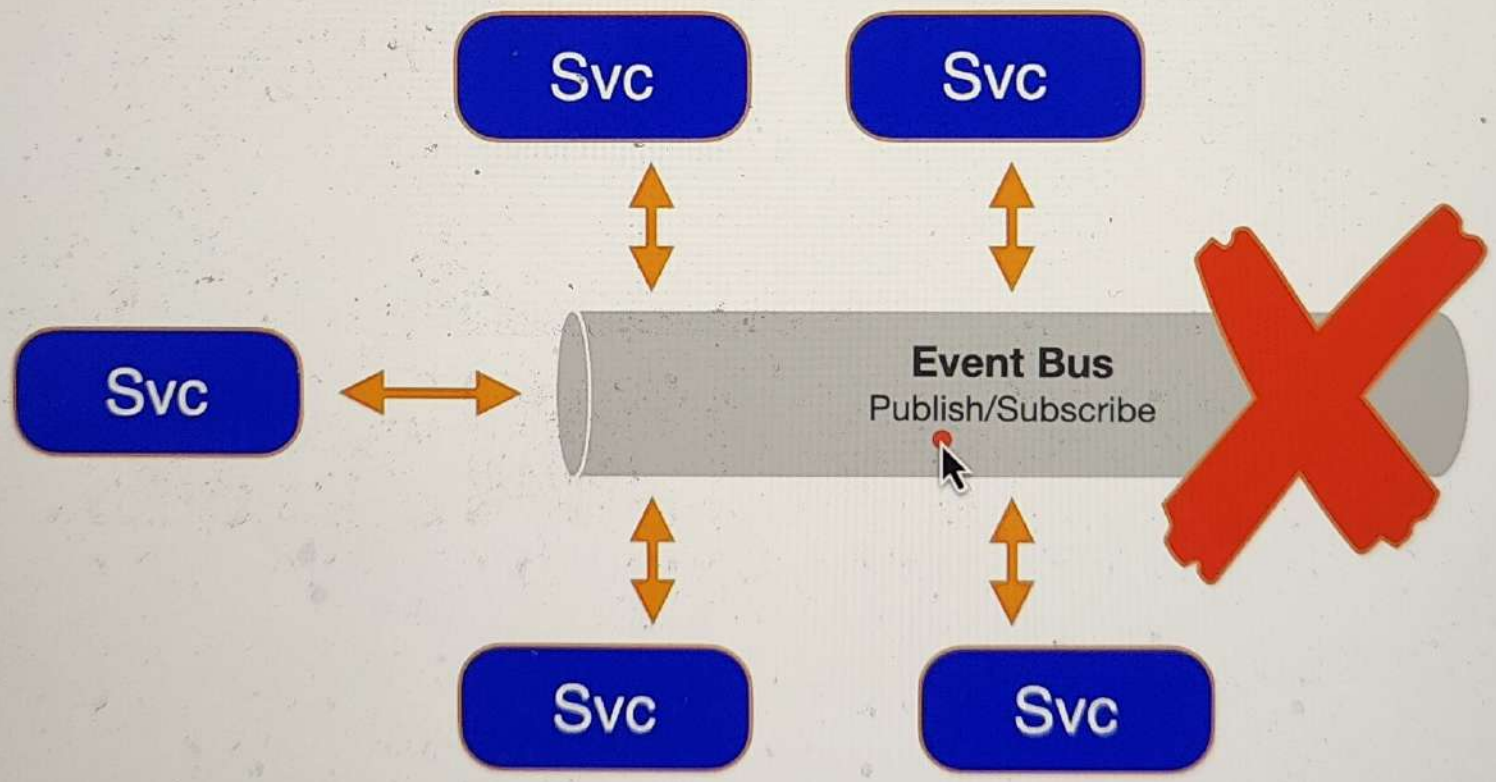
POST /api/auctions



# Asynchronous Messaging

- No Request / Response
- Fire and forget
- Event model (publish / subscribe)
- Typically used for service to service messaging
- Transports (RabbitMQ, Azure Service Bus, Amazon SQS)
- Services only need to know about the bus
- More complex than sync messaging

# What if?

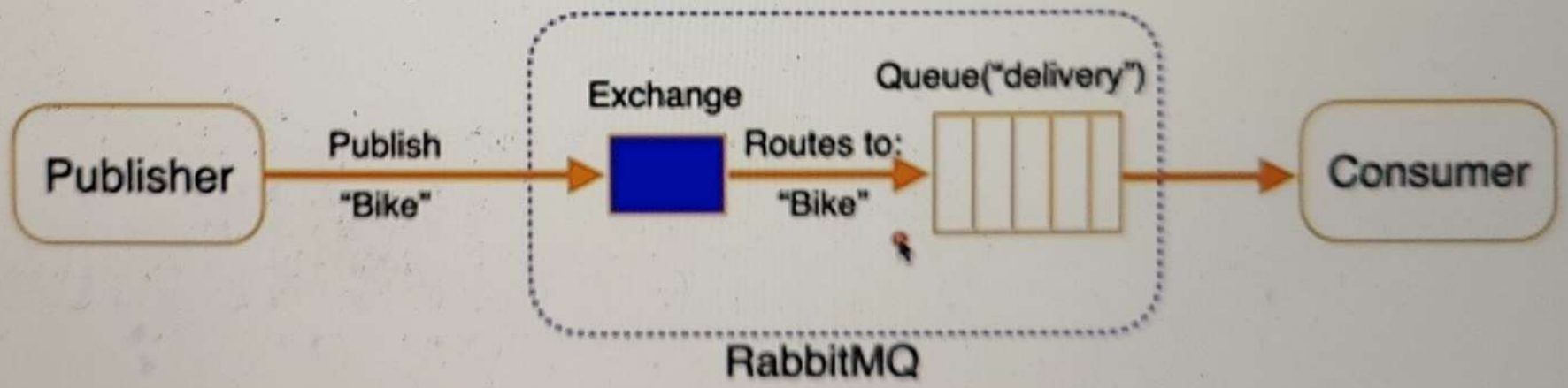



# RabbitMQ - What is it?

- Message Broker - accepts and forwards messages
- Producer/Consumer model (Pub/Sub)
- Messages are stored on queues (message buffer)
- Can use persistent storage
- Exchanges can be used for “routing” functionality
- Uses AMQP

# Exchanges

- Direct
- Fanout
- Topic
- Header



# Exchanges

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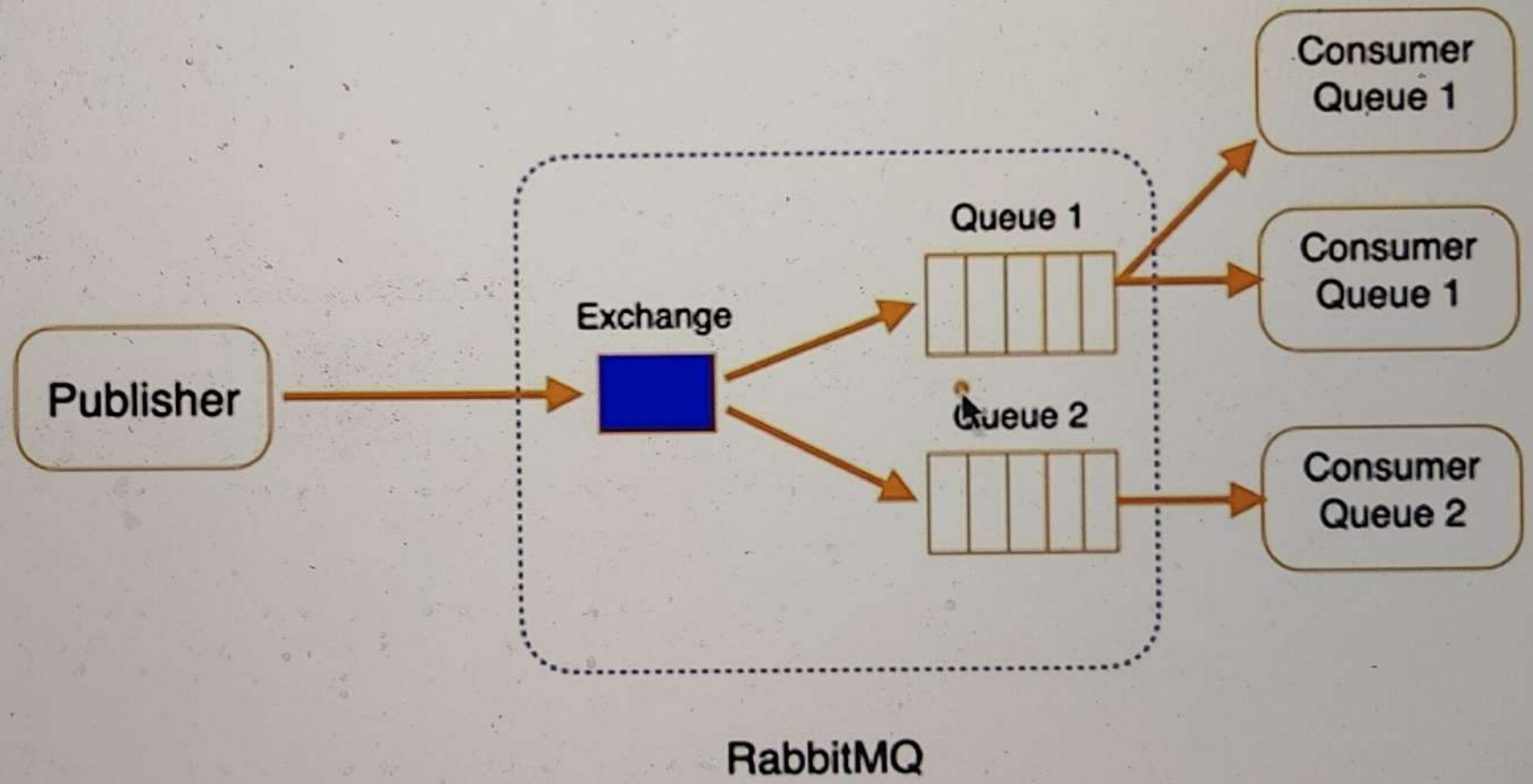

# Exchanges

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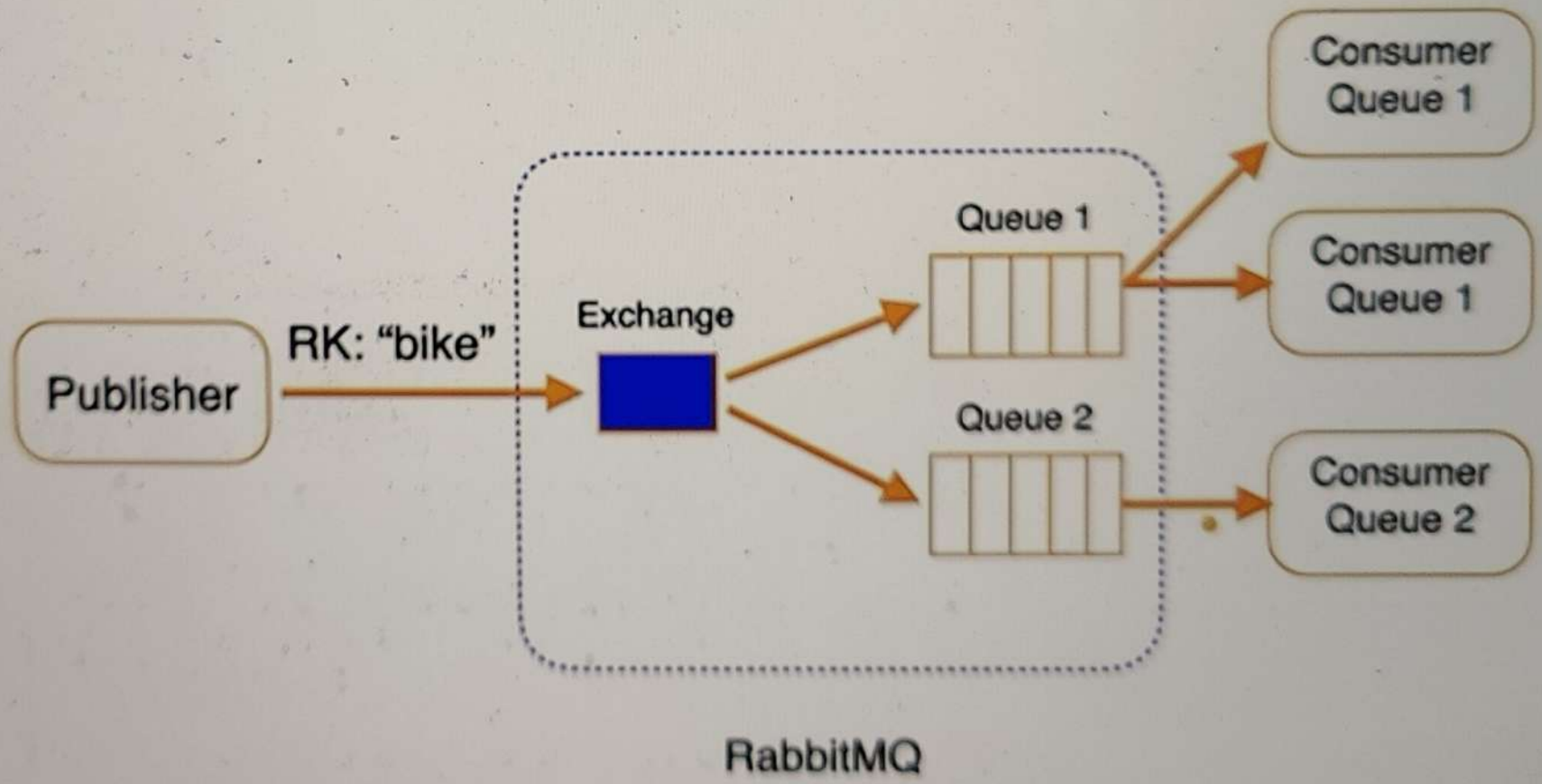

# Exchanges

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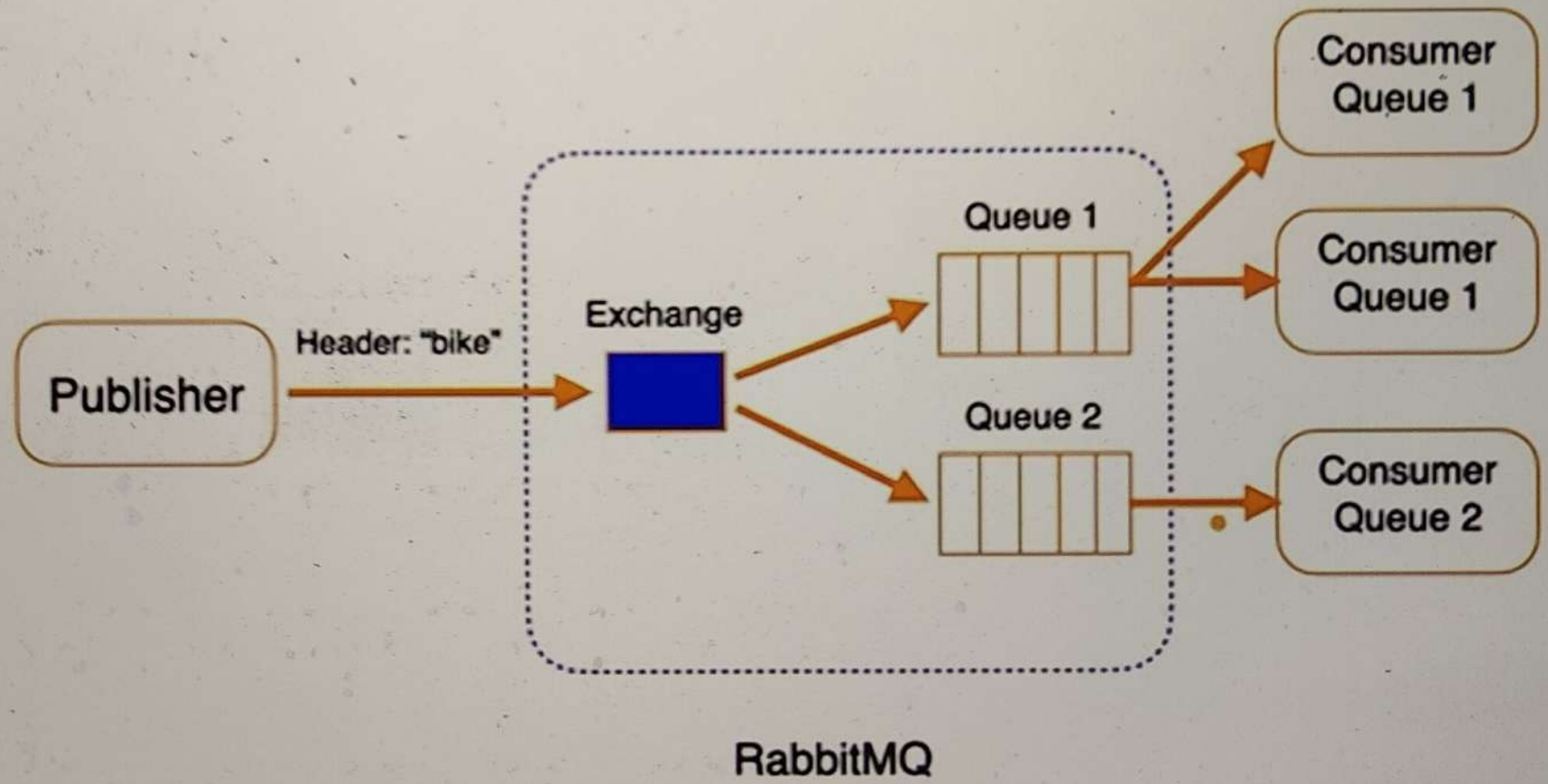


# MassTransit

### Message Routing

Type-based publish/subscribe and automatic broker topology configuration

### Exception Handling

When an exception is thrown, messages can be retried, redelivered, or moved to an error queue

### Test Harness

Fast, in-memory unit tests with consumed, published, and sent message observers

### Observability

Native Open Telemetry (OTEL) support for end-to-end activity tracing

### Dependency Injection

Service collection configuration and scope service provider management

### Scheduling

Schedule message delivery using transport delay, Quartz.NET, and Hangfire

### Sagas, State Machines

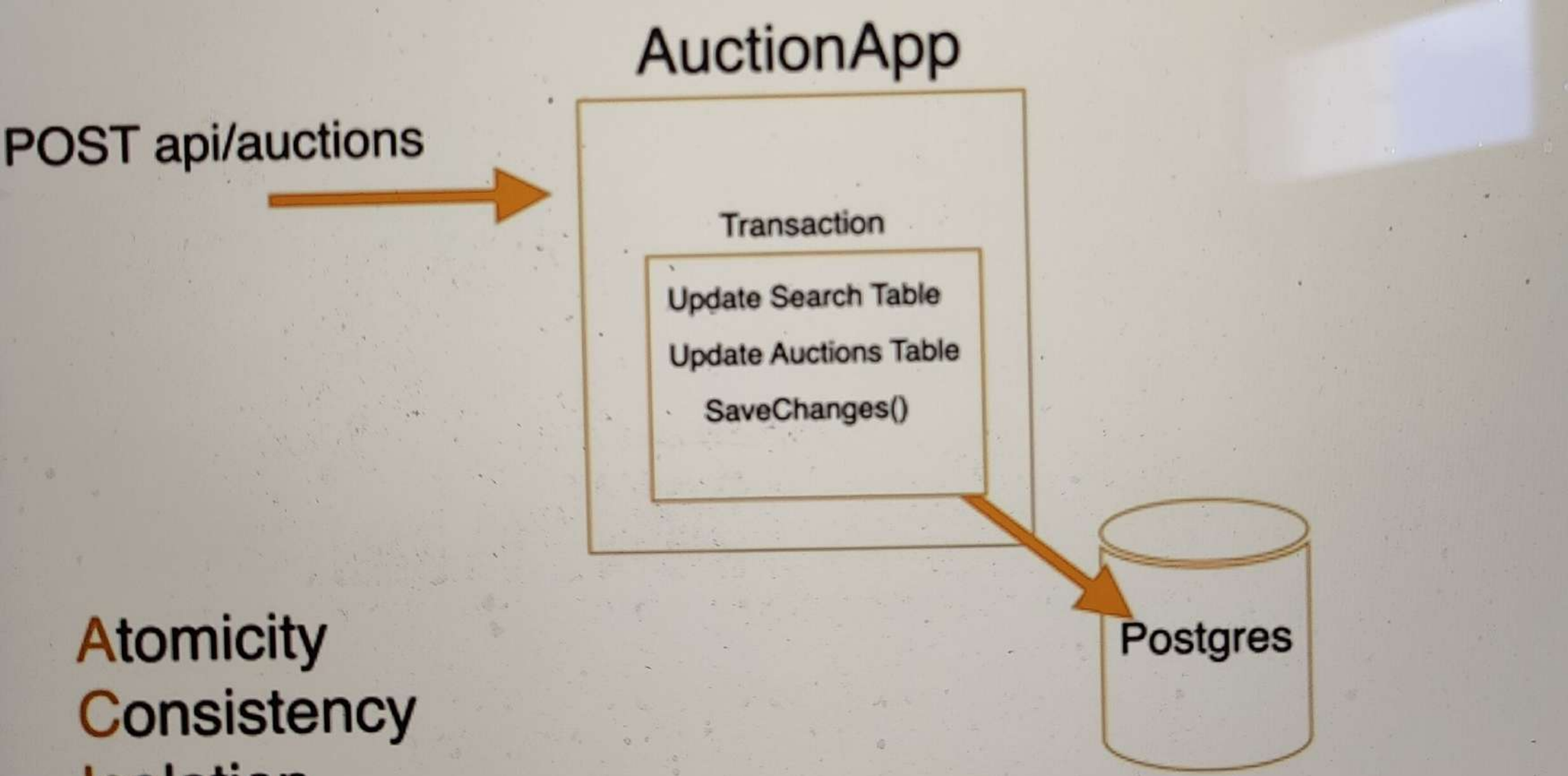
Reliable, durable, event-driven workflow orchestration

### Routing Slip Activities

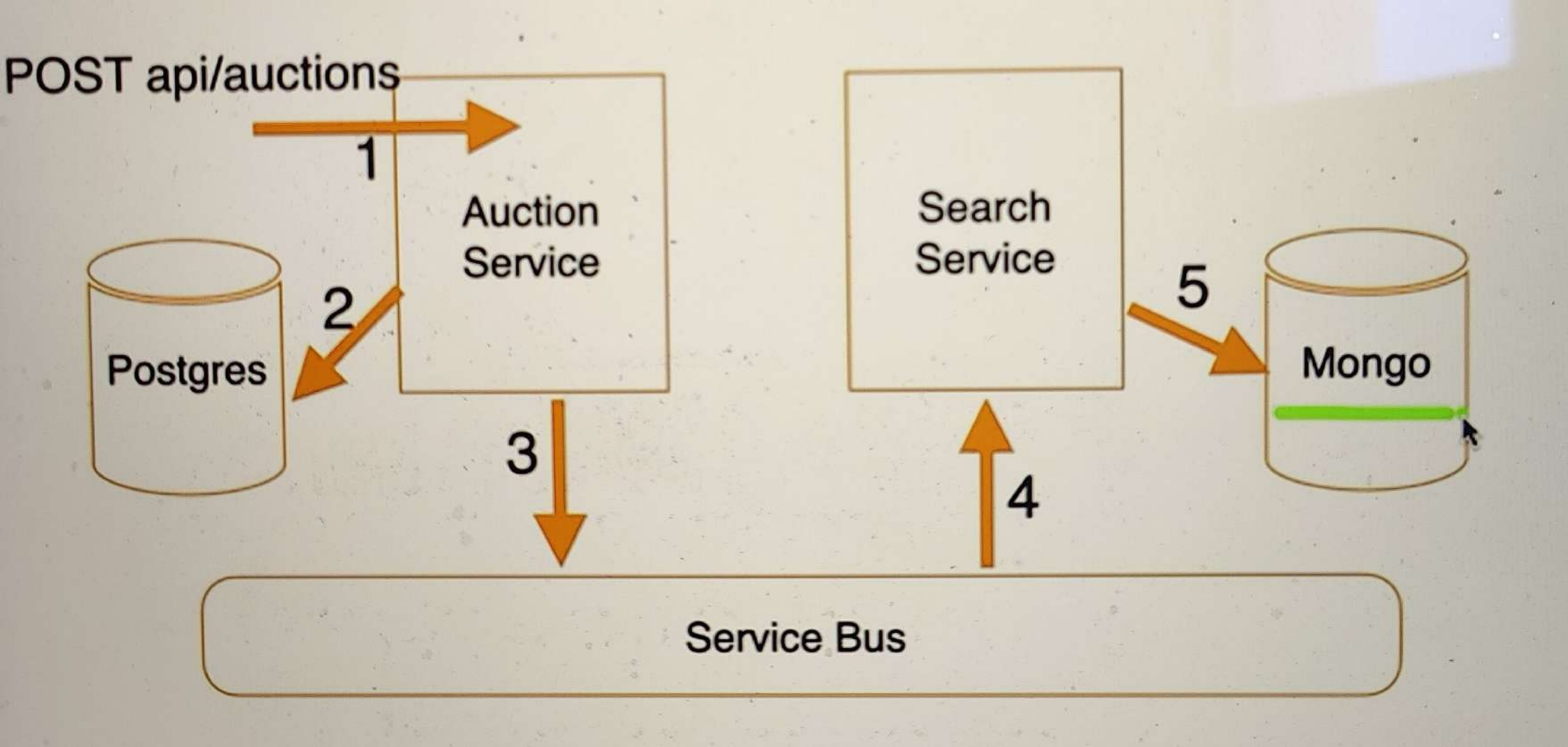
Distributed, fault-tolerant transaction choreography with compensation

### Request, Response

Handle requests with fast, automatic response routing




Atomicity
Consistency
Isolation
Durability


POST api/auctions
1
Auction Service
2
Postgres
3
Search Service
4
5
Mongo
Service Bus

# A small thought experiment…

If one of our services fails, and a user attempts to create an auction whilst that service is down, will the Auction Service DB and the Search Service DB be consistent?

| | | | | | Data Concistency? |
|---|---|---|---|---|---|
| Auction Service | PostgresDB | Search Svc | Mongo DB | RabbitMQ | ✓ |
| Auction Service | PostgresDB | Search Svc | Mongo DB | RabbitMQ | ✓ |
| Auction Service | PostgresDB | Search Svc | Mongo DB | RabbitMQ | ✓ |
| Auction Service | PostgresDB | Search Svc | Mongo DB | RabbitMQ | ✗ |
| Auction Service | PostgresDB | Search Svc | Mongo DB | RabbitMQ | ✗ |

# So what are the options?

Outbox

Retry