

FLYNT

# Architecture in practice

Actor Model and Event Sourcing combined with Security

October 2017

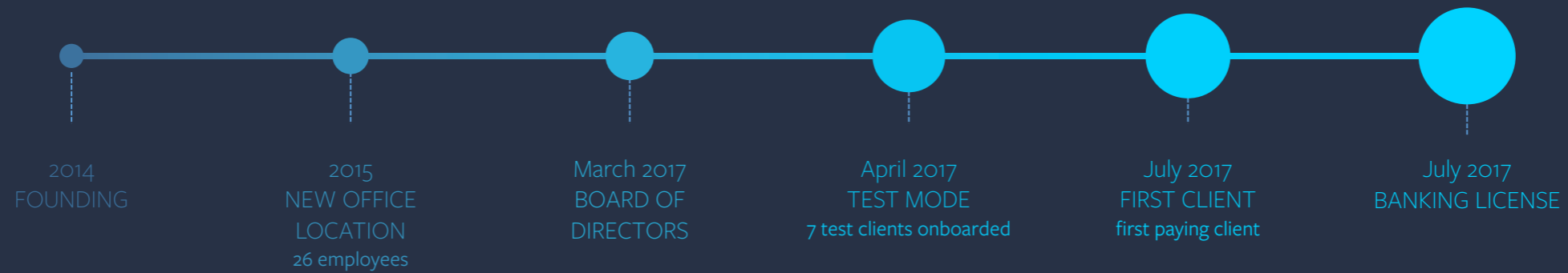
by Stefan Thiel, Enterprise Architect

Stefan – myself

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# FLYNT – history and stats



43 employees from 10 nationalities  
27 Software Developers/ Engineers / Designers  
6 Ambassadors / Wealth Services / Investments  
10 Operations / Finance / Risk & Compliance

FLYNT – Ambassador

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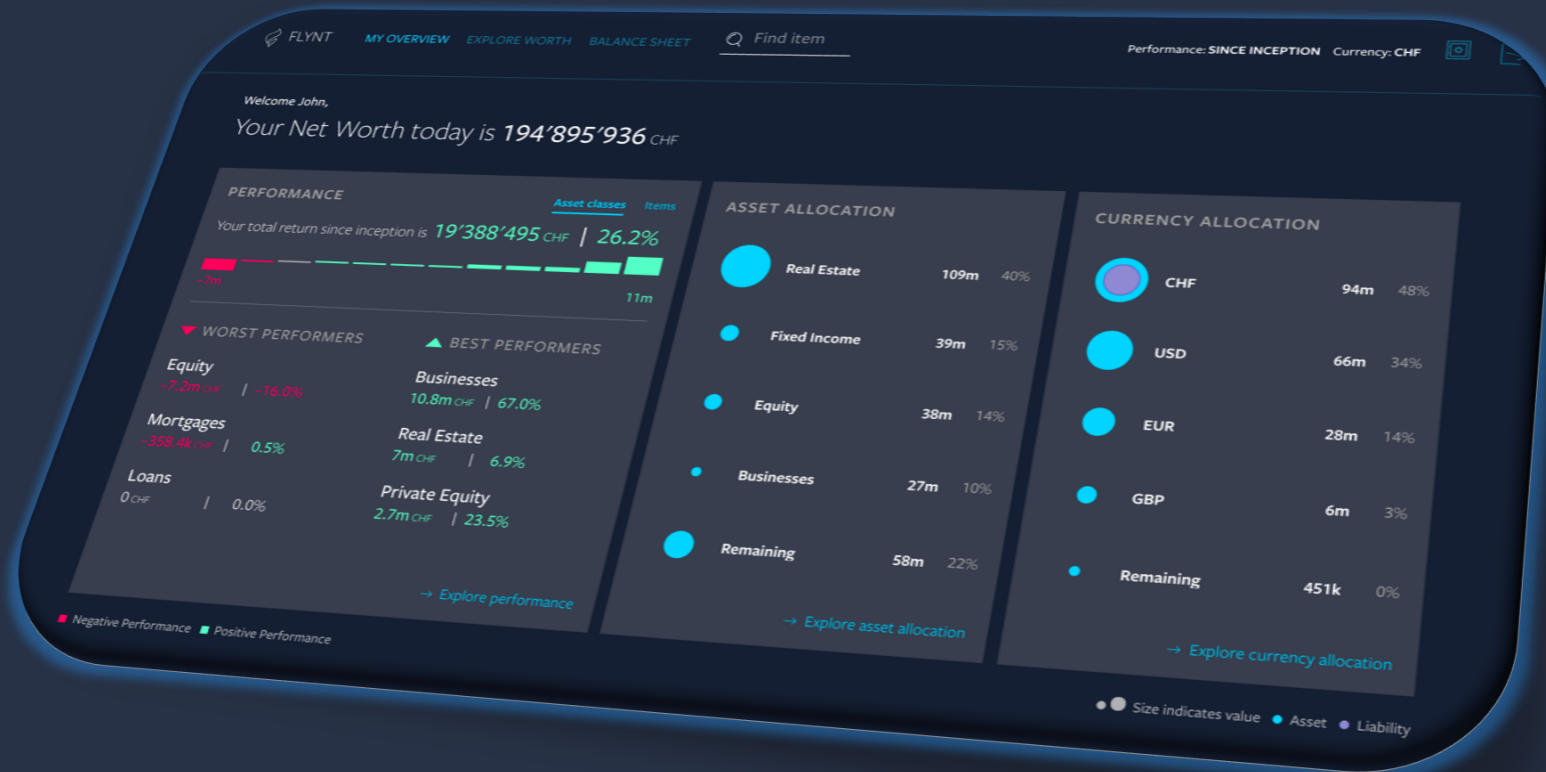


## FLYNT's clients – complex wealth structures

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# WORTH – demo?



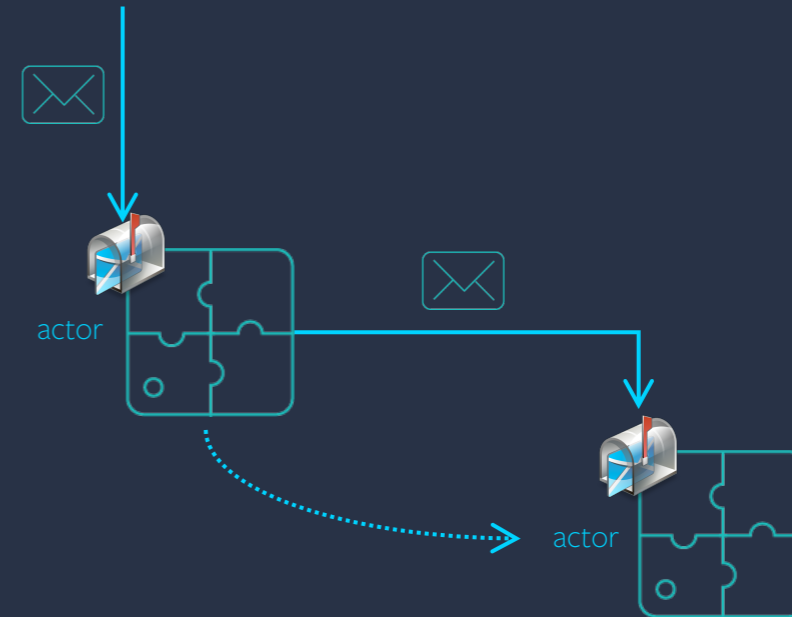




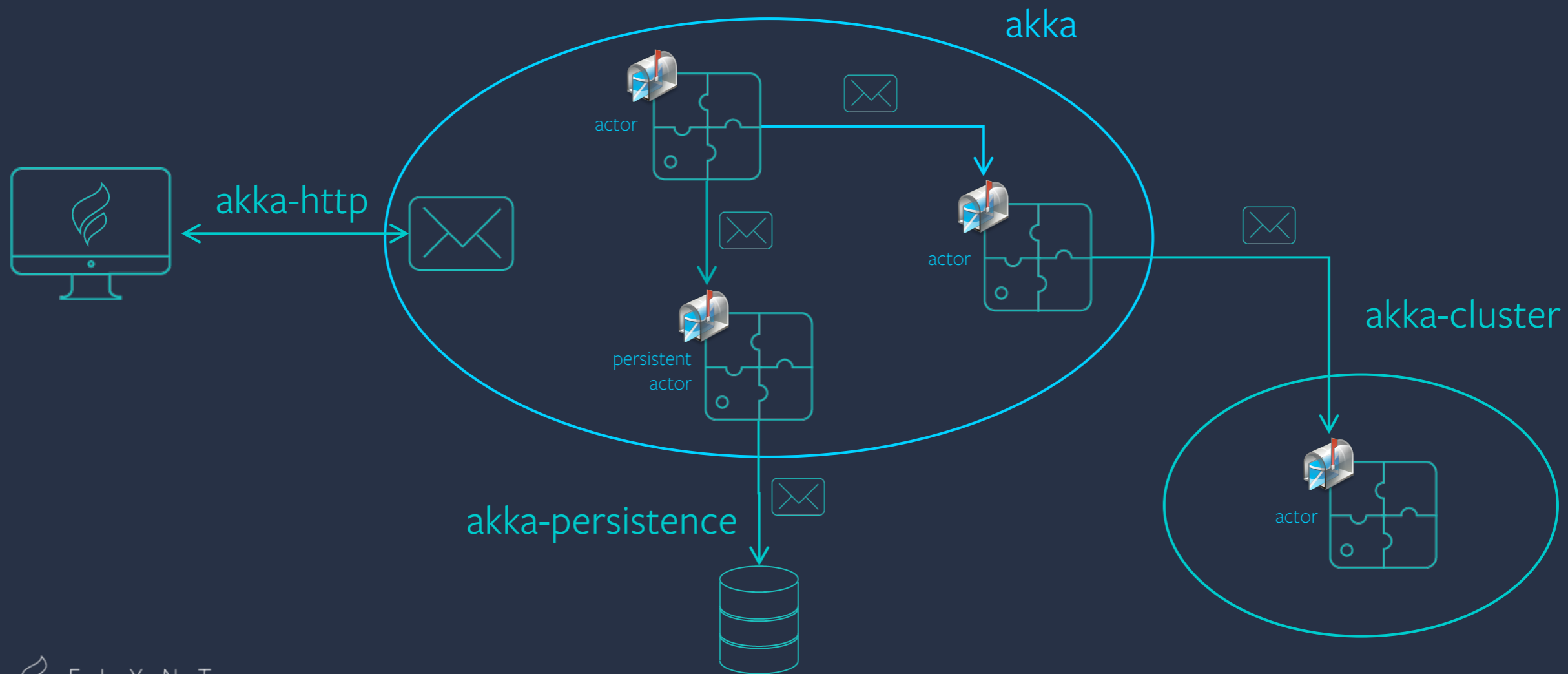
## akka – actor model

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- inbox
- one msg at any time
- creates other actors
- sends msgs
- private state  
(incl behavior of following msgs)

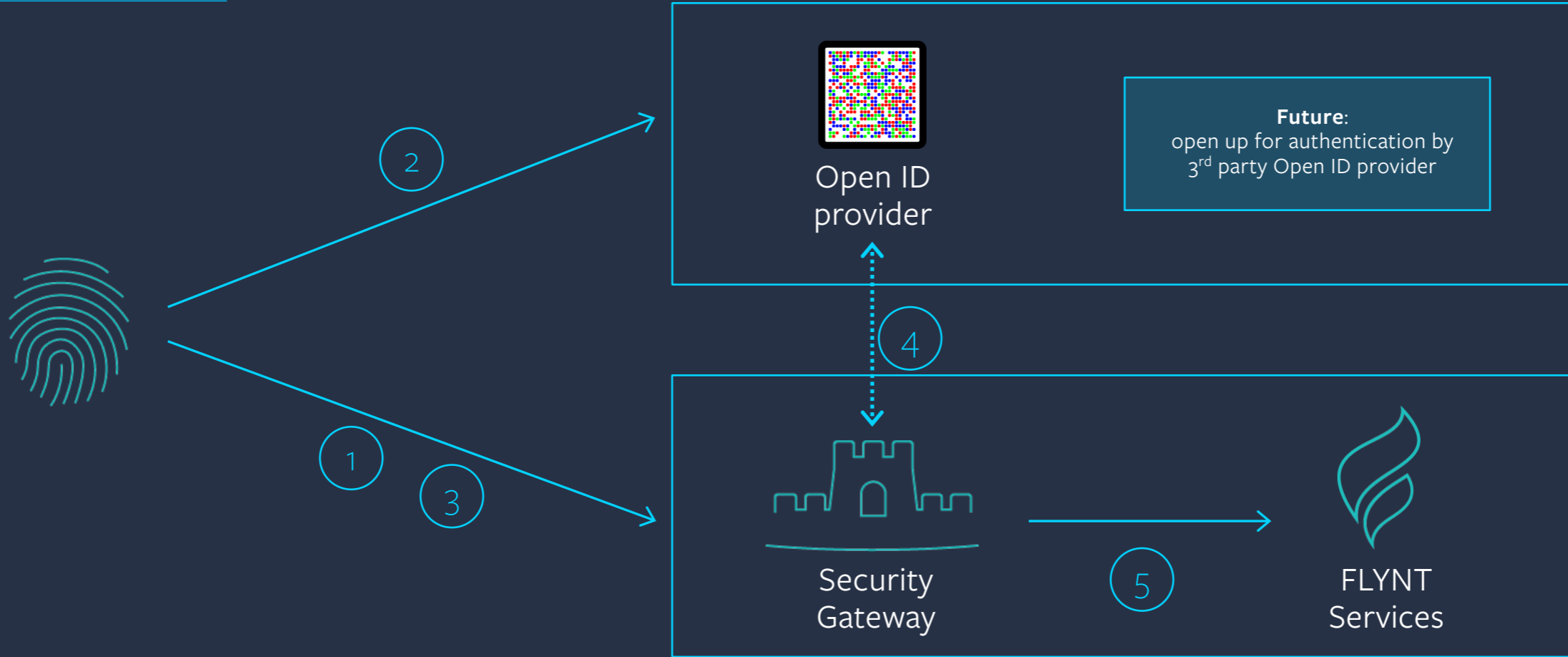


# asynchronous messaging – distributed actors



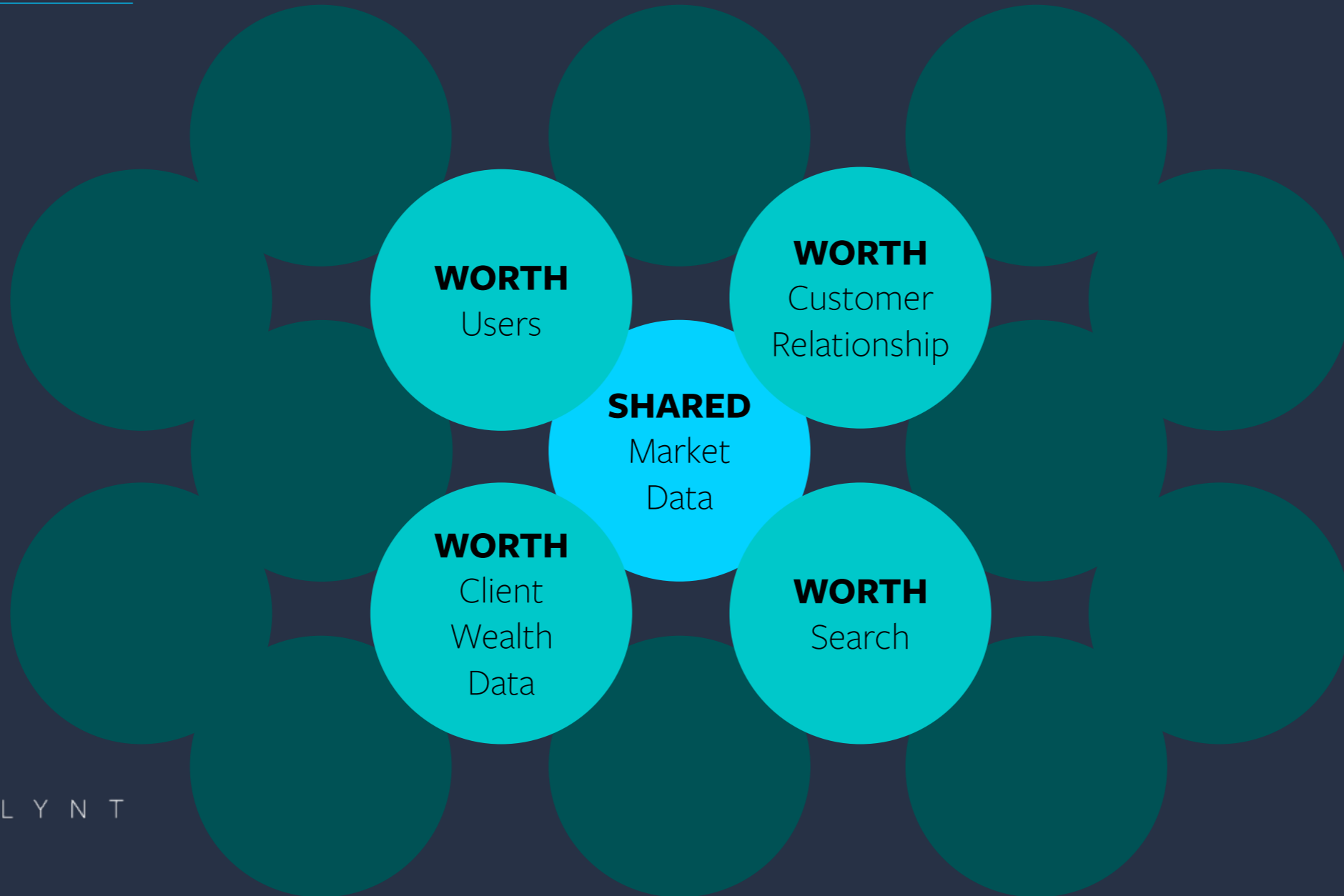


# Open ID – delegated authentication

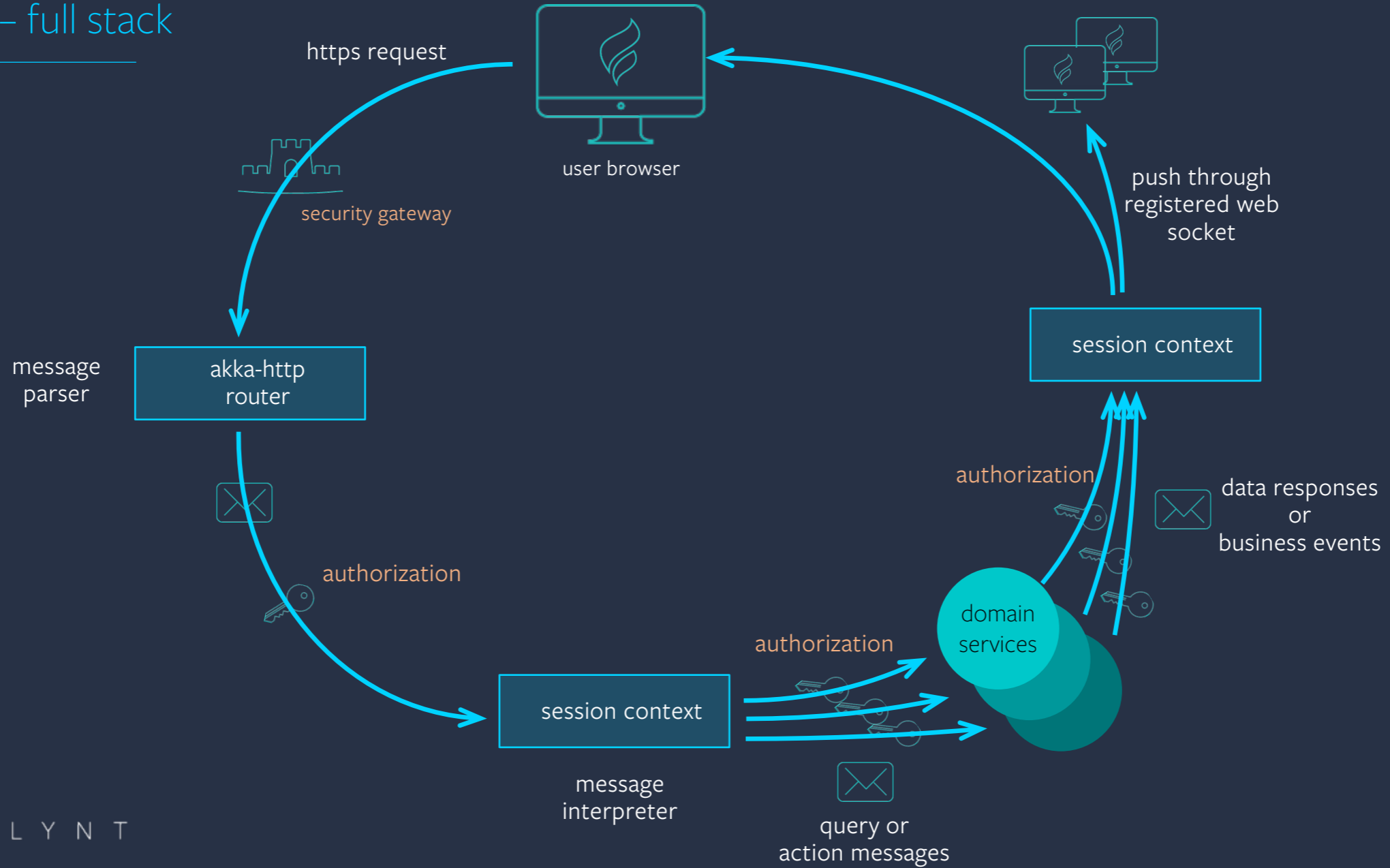


domain model – breaking up responsibility

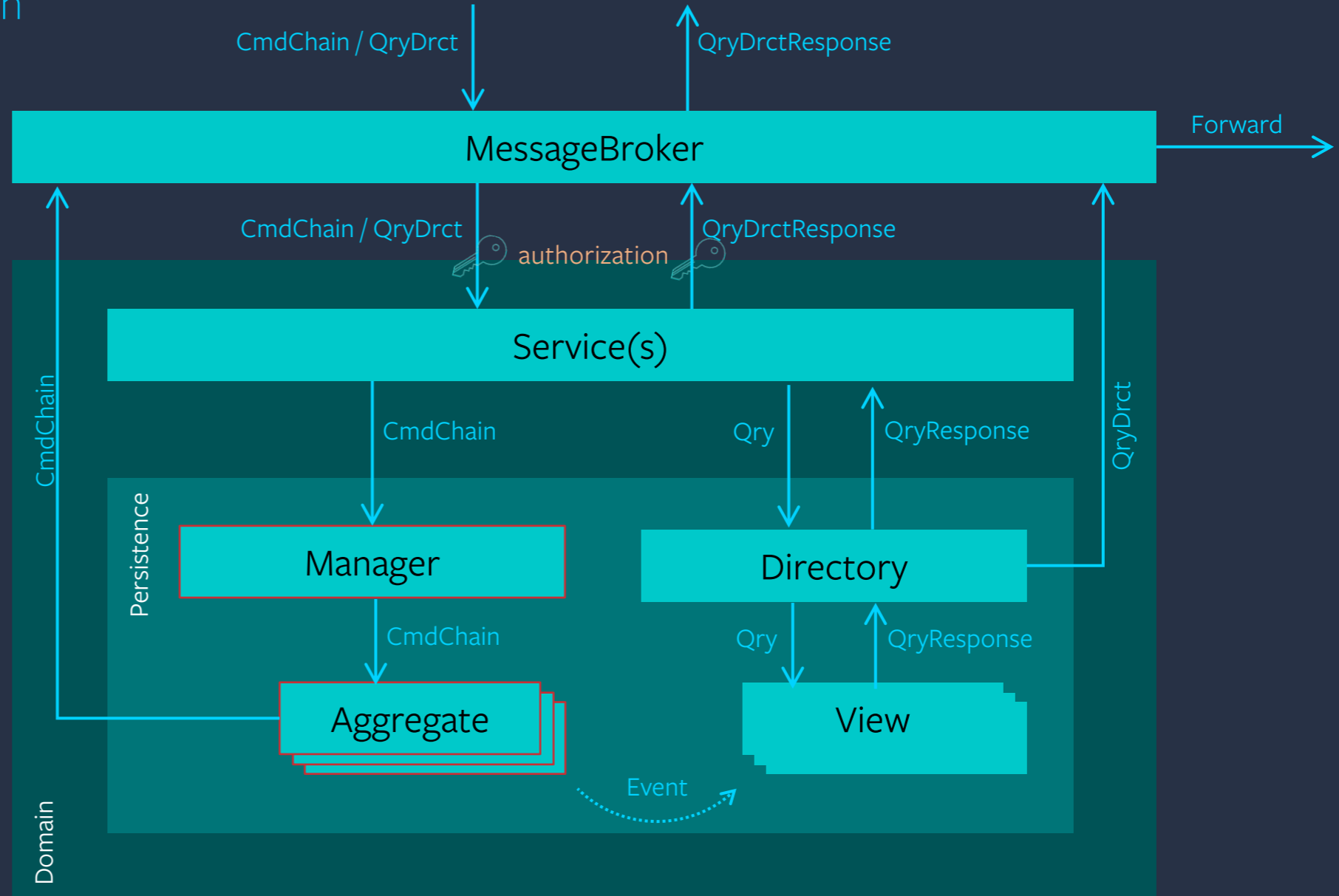
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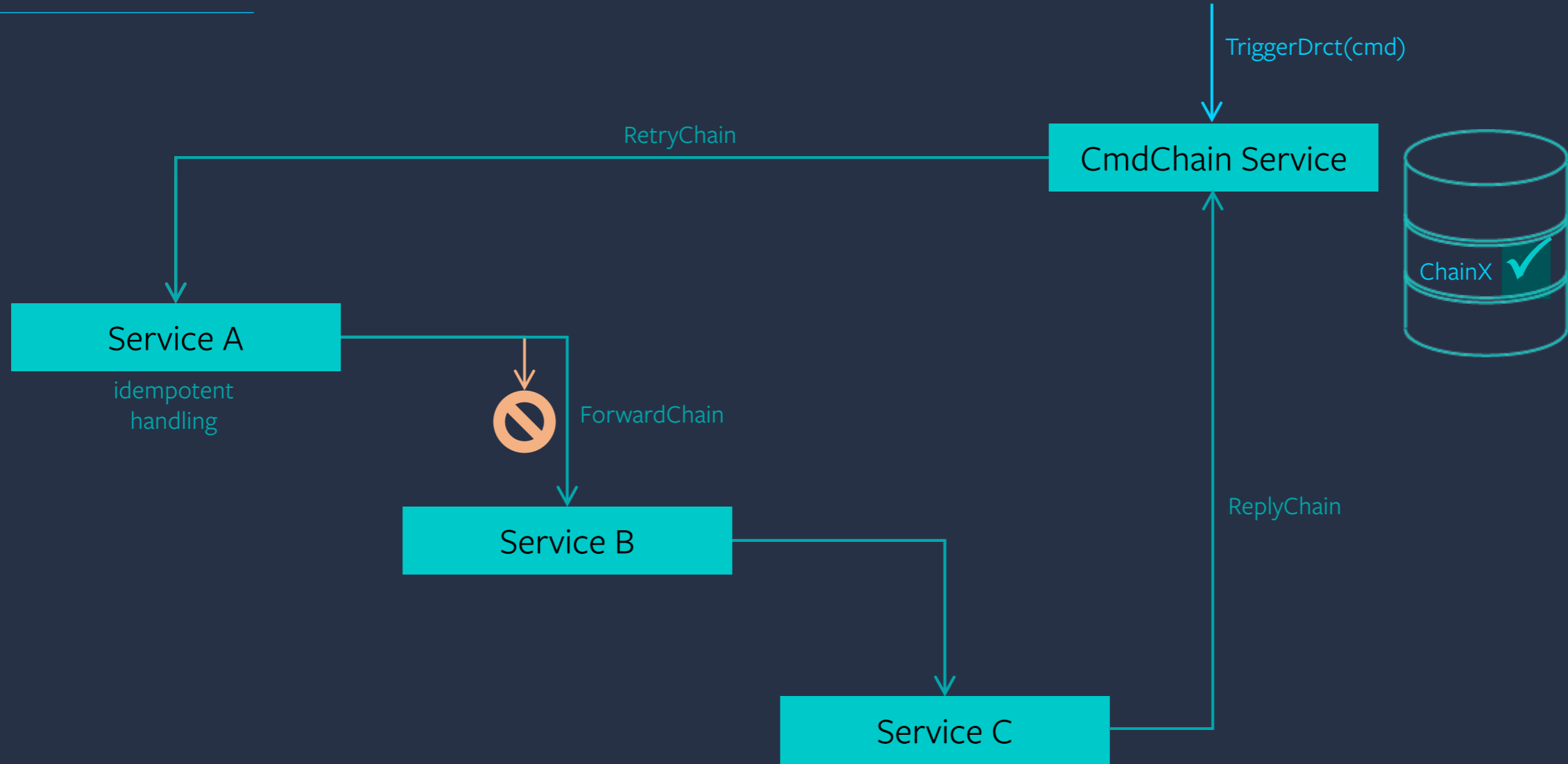
reactive – full stack



# CQRS – each node's postman



# command chain – routing slip

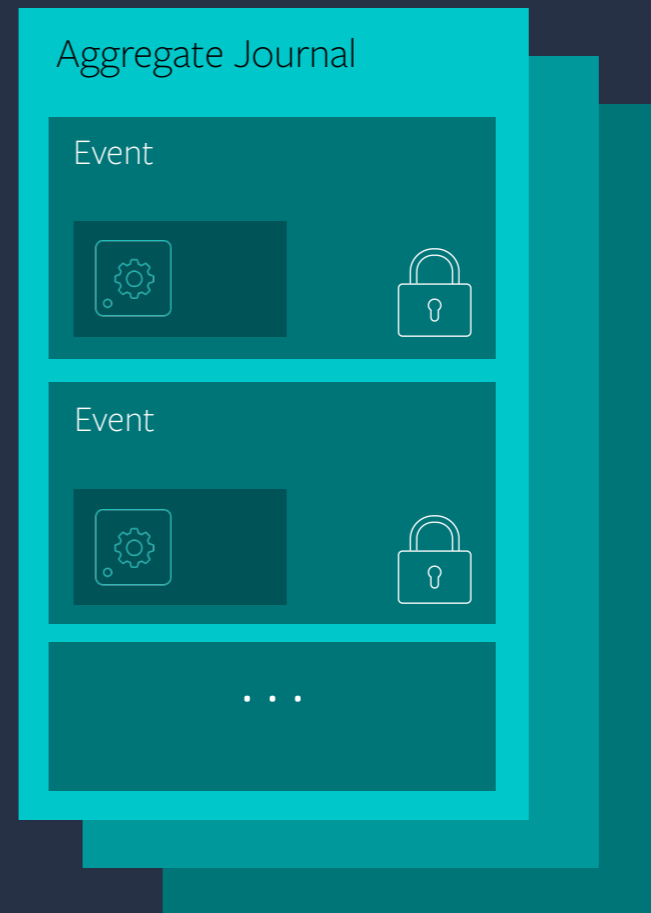




# Event Sourcing – store events not state



# persistence – signed and encrypted





## Q & A

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Zug, September 2017

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|                                  | SCALE OUT | SECURITY | GEOGRAPHIC DISTRIBUTION | ZERO DOWNTIME | INTEGRATIONIT | IT OPERATIONS | QUALITY | TOOLS                         |
|----------------------------------|-----------|----------|-------------------------|---------------|---------------|---------------|---------|-------------------------------|
| CONCEPTS                         |           |          |                         |               |               |               |         |                               |
| Async Messaging                  | x         |          | x                       | x             | x             |               |         | Akka, JVM                     |
| Event Sourcing                   | x         |          |                         | x             |               |               |         | Akka, Securosys HSM           |
| Distributed Persistence          | x         |          |                         | x             |               |               |         | Cassandra, KairosDB, LogStash |
| CQRS                             | x         |          |                         |               |               |               |         | Akka                          |
| Encryption                       |           | x        |                         |               |               |               |         | Securosys HSM, Bouncy Castle  |
| Separation of Duty               |           | x        |                         |               |               |               |         | Drools, Scala, Akka           |
| Declarative Authorization        |           | x        |                         |               |               |               |         | Drools                        |
| Automated Tests                  |           |          |                         |               |               | x             | x       | Selenium, ScalaTest           |
| Virtual Appliances (=Nodes)      | x         |          |                         |               |               | x             |         | VMWare, JVM                   |
| Node Factory (Autom. Deployment) | x         |          |                         |               |               | x             | x       | VMWare, Ansible, CentOS       |
| Versioned Messages               |           |          |                         | x             |               |               |         | Akka, Scala                   |
| Domains (Tenants)                | x         | x        | x                       |               | x             |               |         | Akka                          |
| Federated Authentication         |           | x        |                         |               | x             |               |         | OpenID, Cronto                |
| Subscriptions                    | x         |          |                         |               | x             |               |         | Akka                          |
| Integrated Monitoring            | x         |          |                         | x             |               | x             | x       | Cassandra, LogStash           |

# Virtual Appliance

