

Layotto - A new chapter of Service Mesh and Application Runtime

Jason Song



Staff Engineer @ Ant Group
Focus on cloud-native and microservice areas, such as Service Mesh, Serverless, Application Runtime, etc.



Open source enthusiast, PMC member of Apollo Config
<https://github.com/nobodyiam>



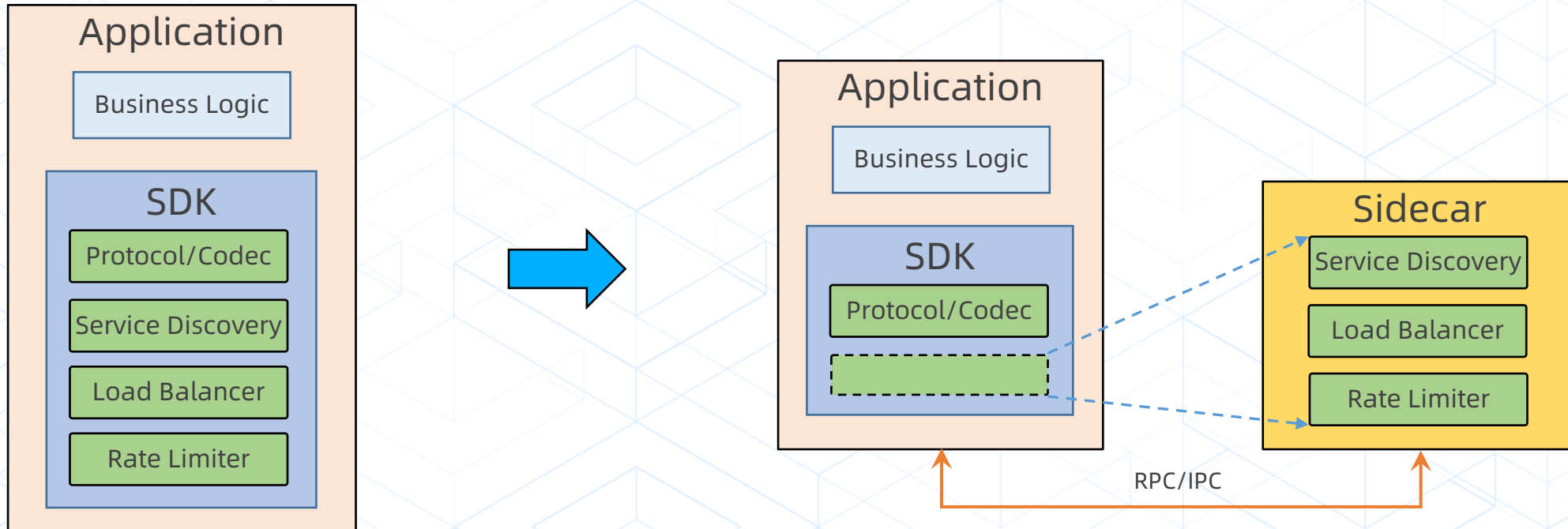
Worked at Dianping and Ctrip, in charge of backend systems and middleware products

- 01 Service Mesh Review
- 02 Introduction to Layotto
- 03 Future plans

01

Service Mesh Review

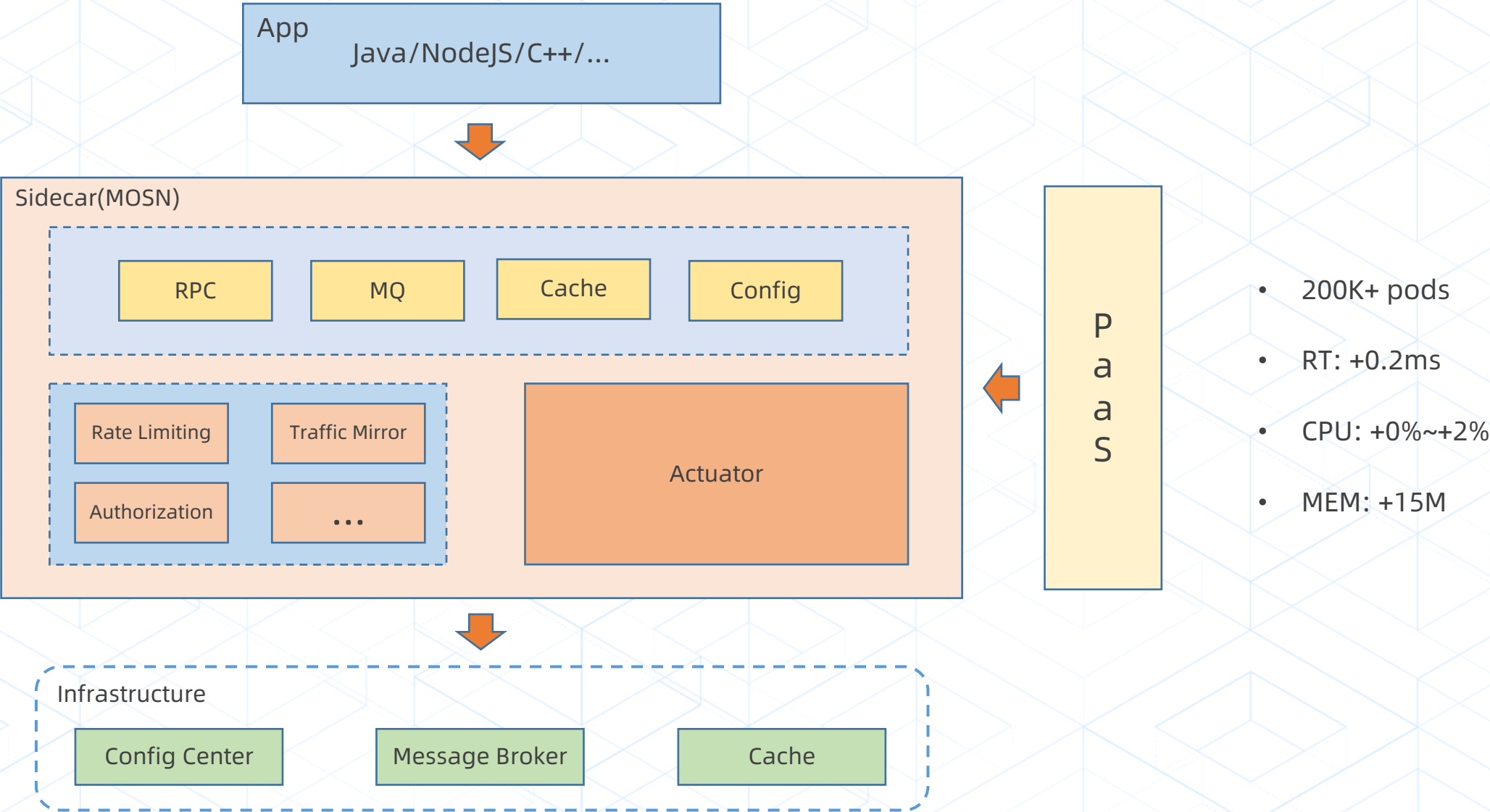
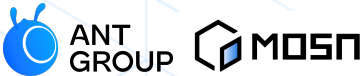
Why Service Mesh?



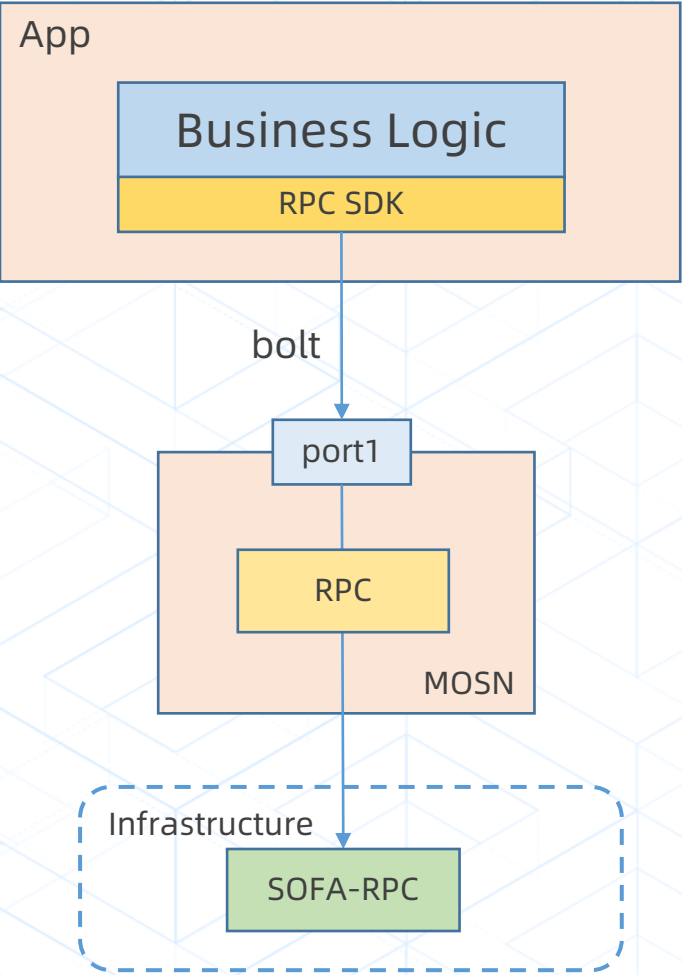
- High upgrade costs of SDK
- SDK version fragmentation
- Weak service governance for multi-language

- Business logic decoupling
- Smooth upgrade
- Good service governance for multi-language

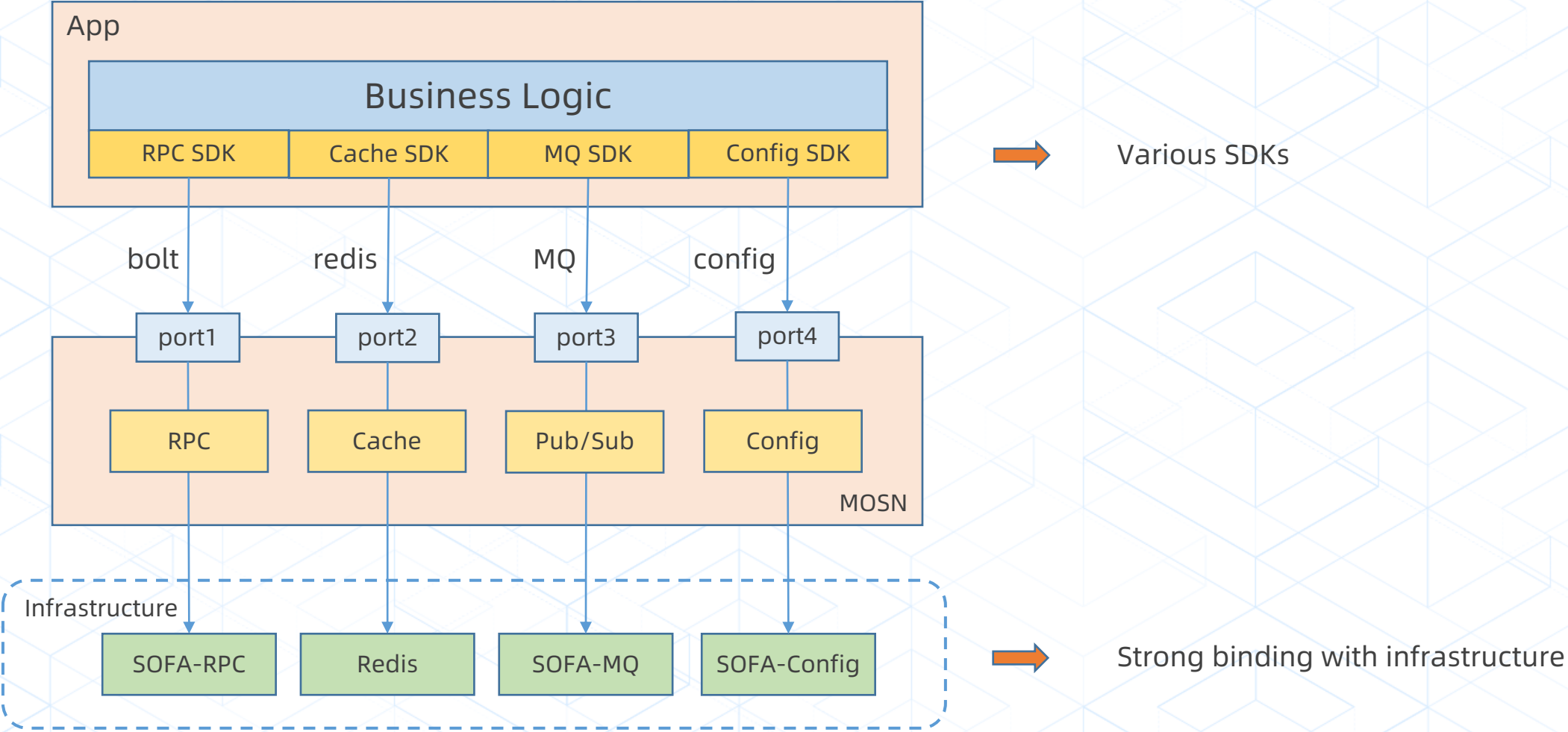
Service Mesh Adoption Status in Ant Group



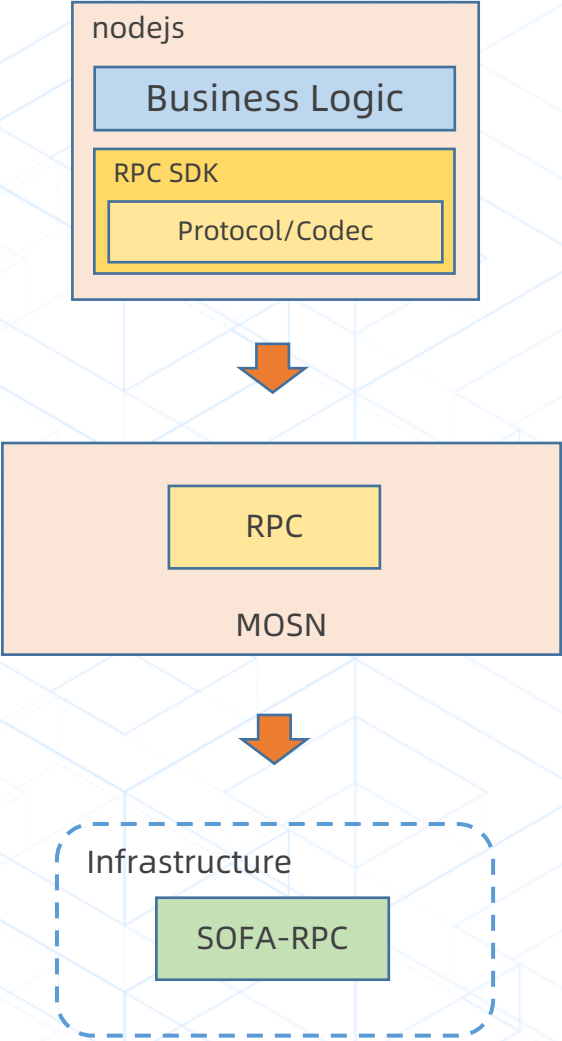
New challenge: Strong binding between applications and infrastructure



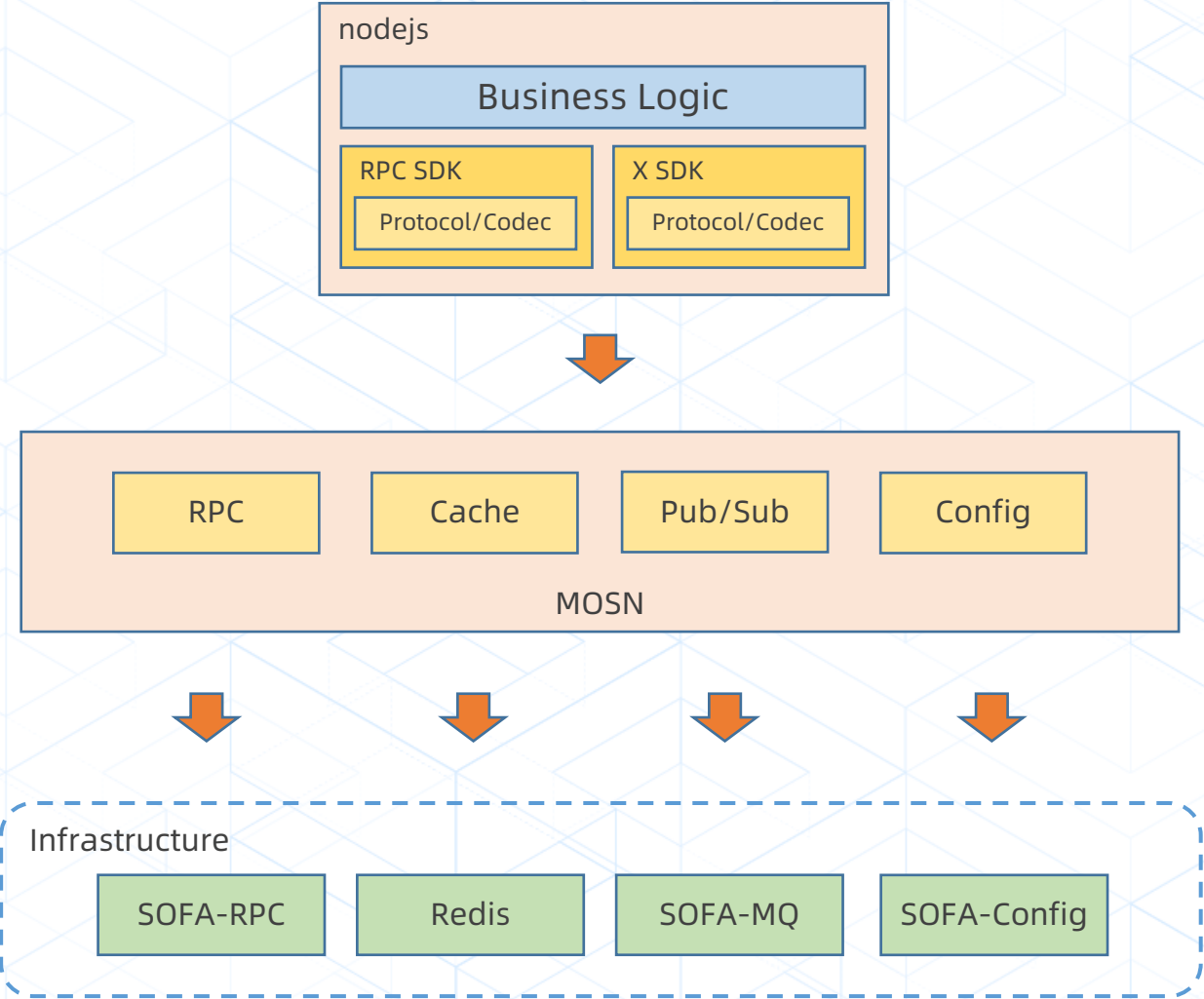
New challenge: Strong binding between applications and infrastructure



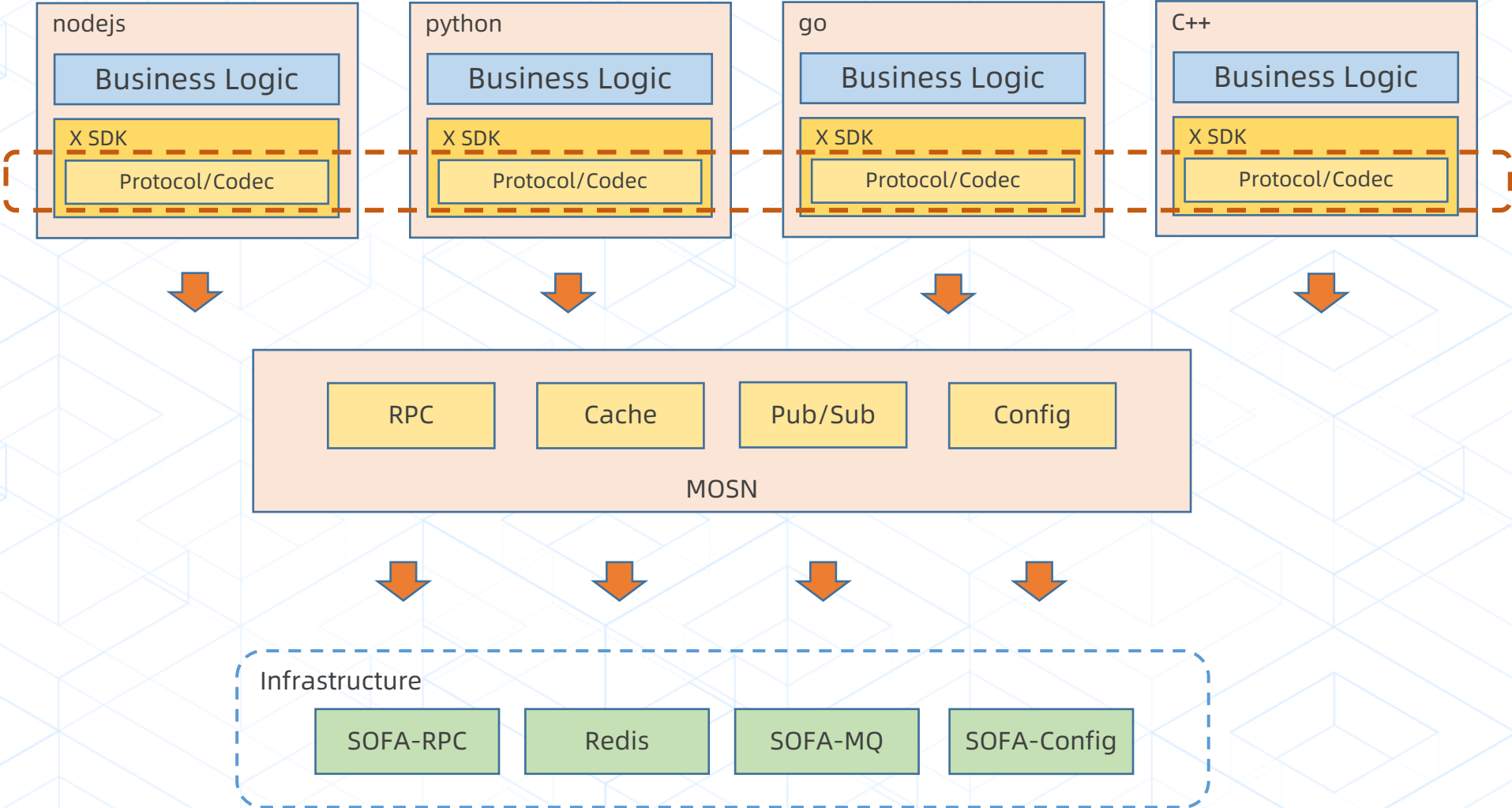
New challenge: High cost of multi-language support



New challenge: High cost of multi-language support



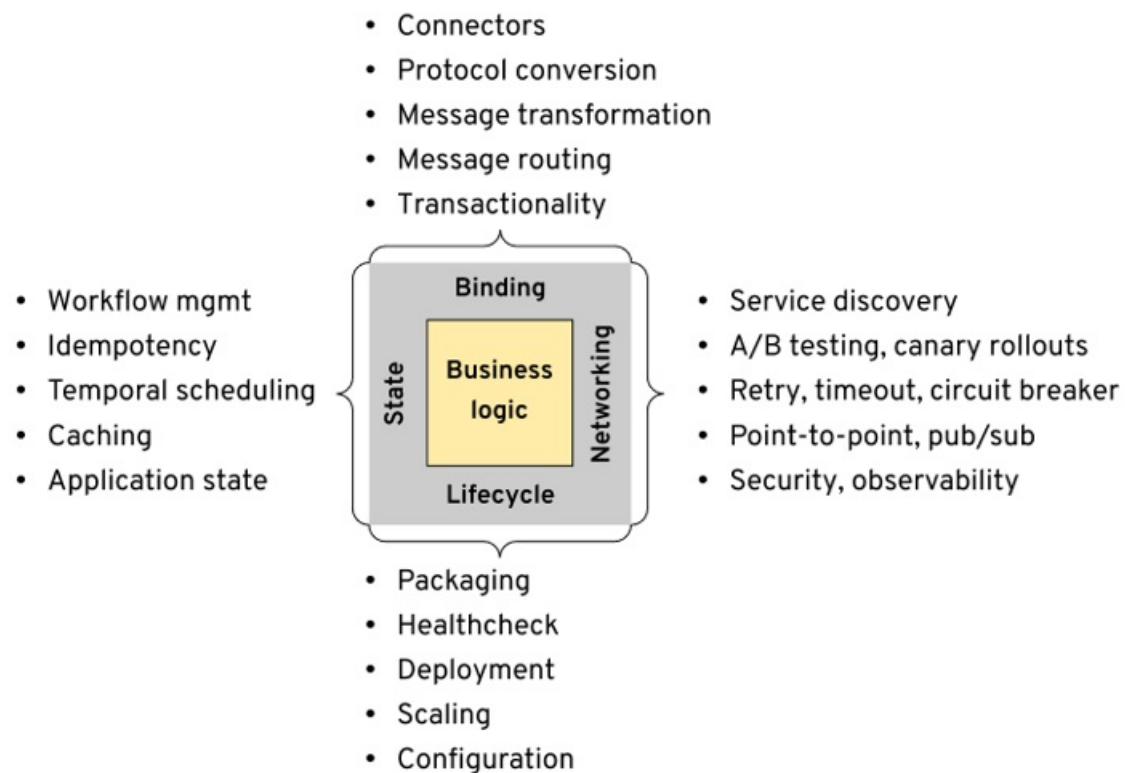
New challenge: High cost of multi-language support



02

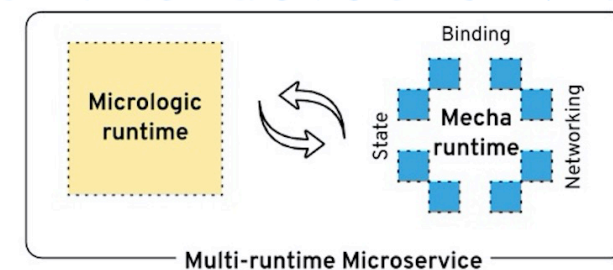
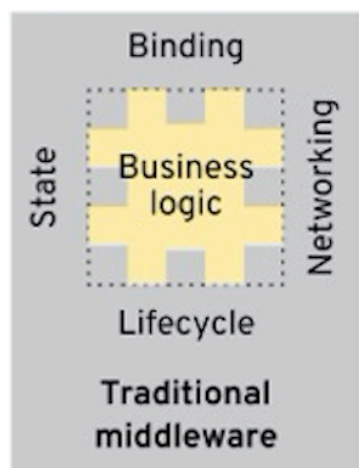
Introduction to Layotto

What is Multi-Runtime?



Reference: <https://www.infoq.com/articles/multi-runtime-microservice-architecture/>

What is Multi-Runtime?



Micrologic

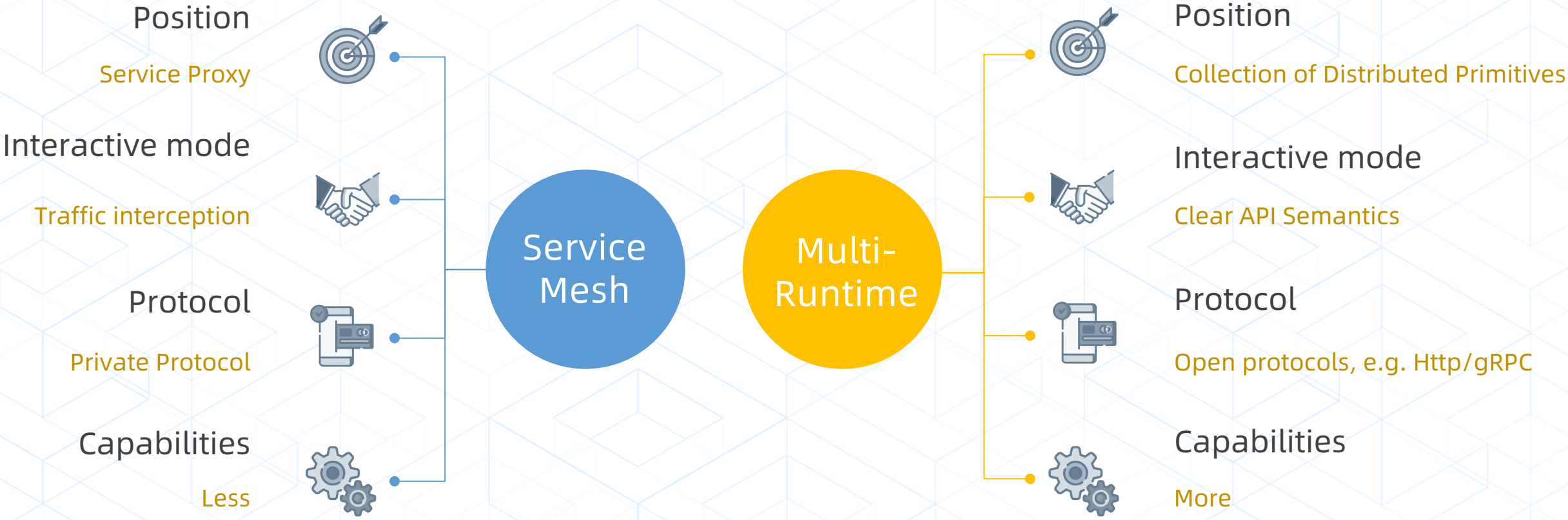
- Developed in-house
- Custom business logic
- Higher-level language
- HTTP/gRPC, CloudEvents

Mecha

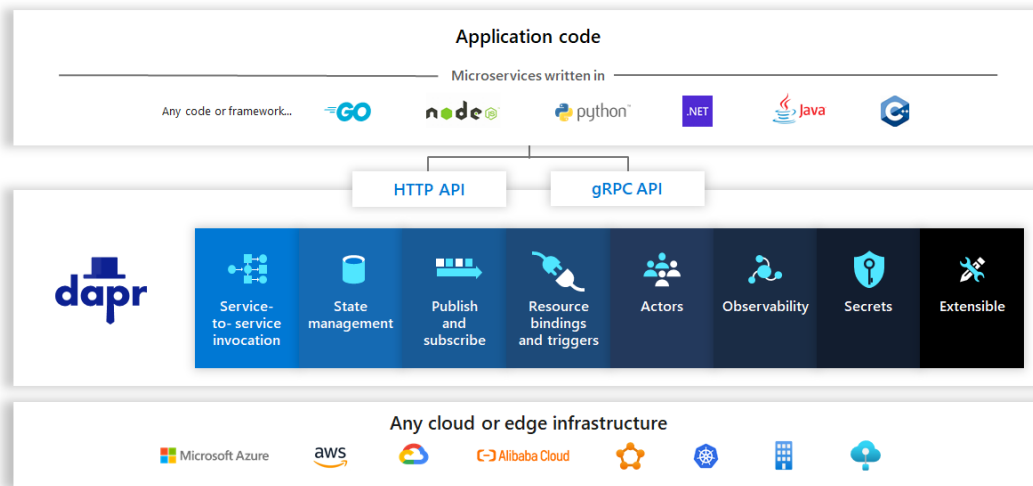
- Off-the-shelf mechanisms
- Configurable capabilities
- Declarative (YAML, JSON)
- OpenAPI, AsyncAPI, SQL

Reference: <https://www.infoq.com/articles/multi-runtime-microservice-architecture/>

Service Mesh vs Multi-Runtime



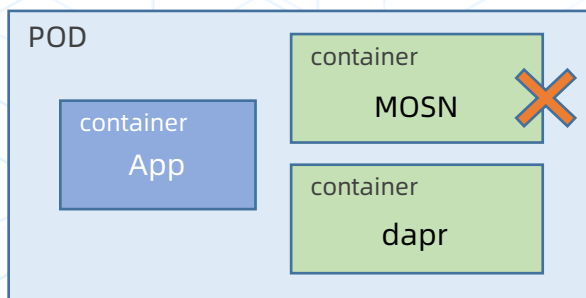
How about dapr?



- Offers a variety of distributed capabilities
- Integrated with a lot of components

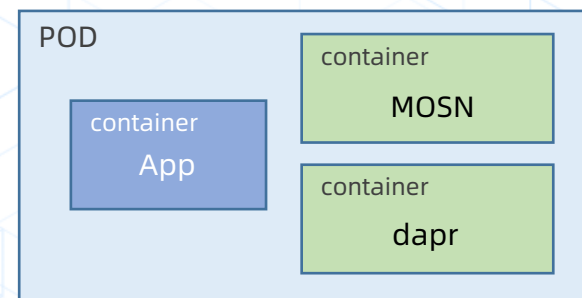
How to adopt?

Option 1: use dapr to replace MOSN

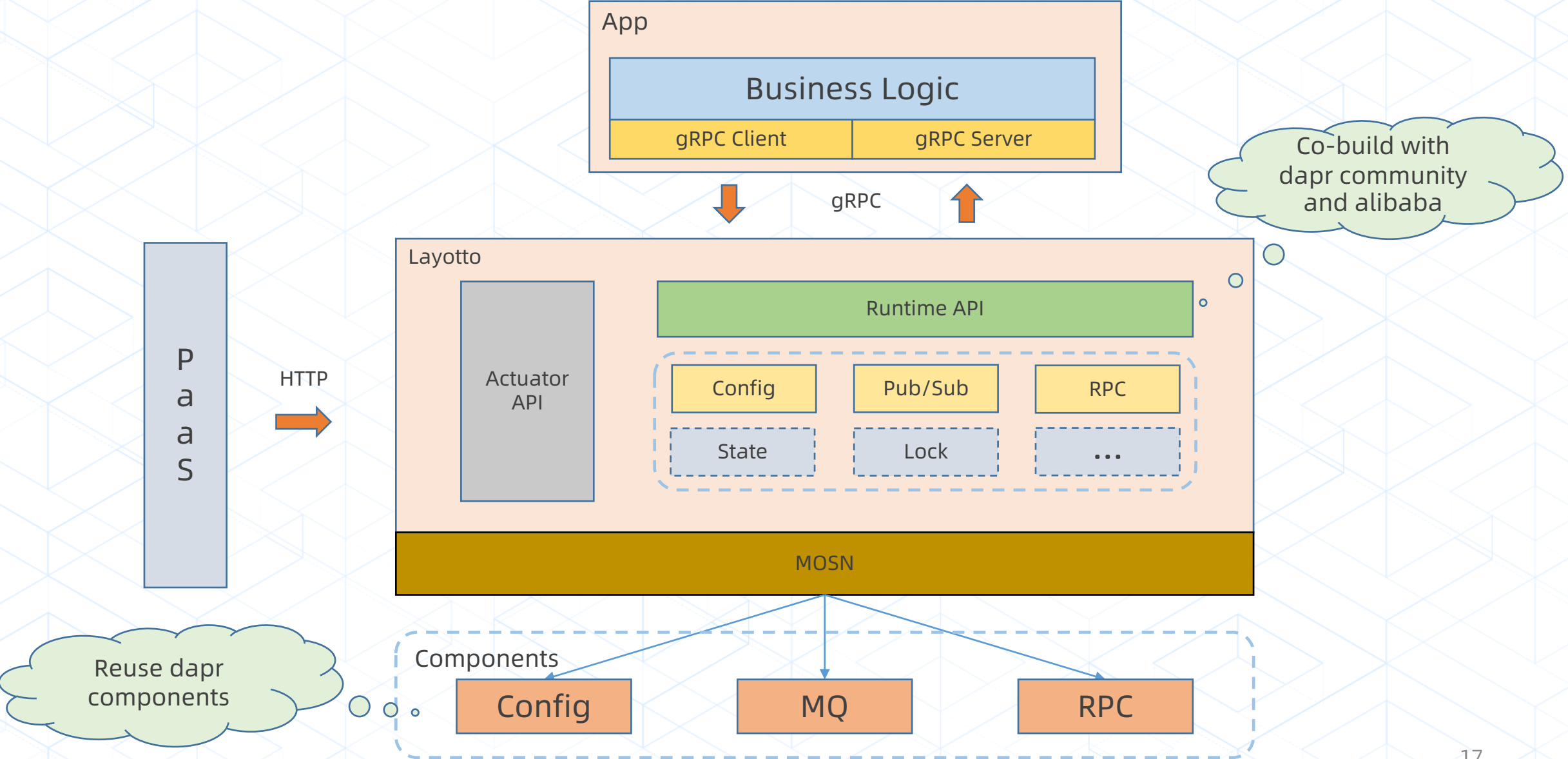


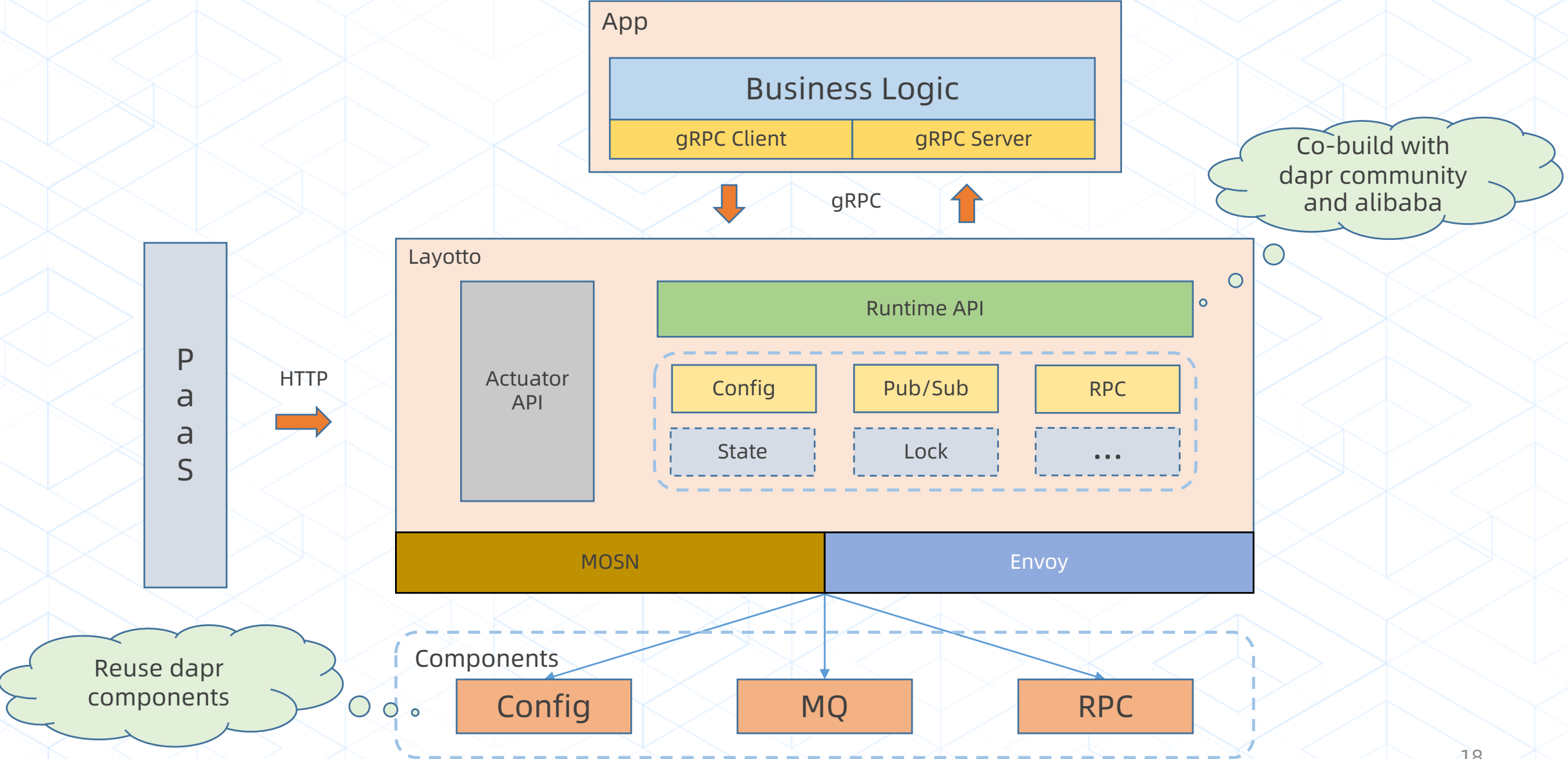
- Lack of Service Mesh capability
- Lack of legacy features support

Option 2: use dapr along with MOSN

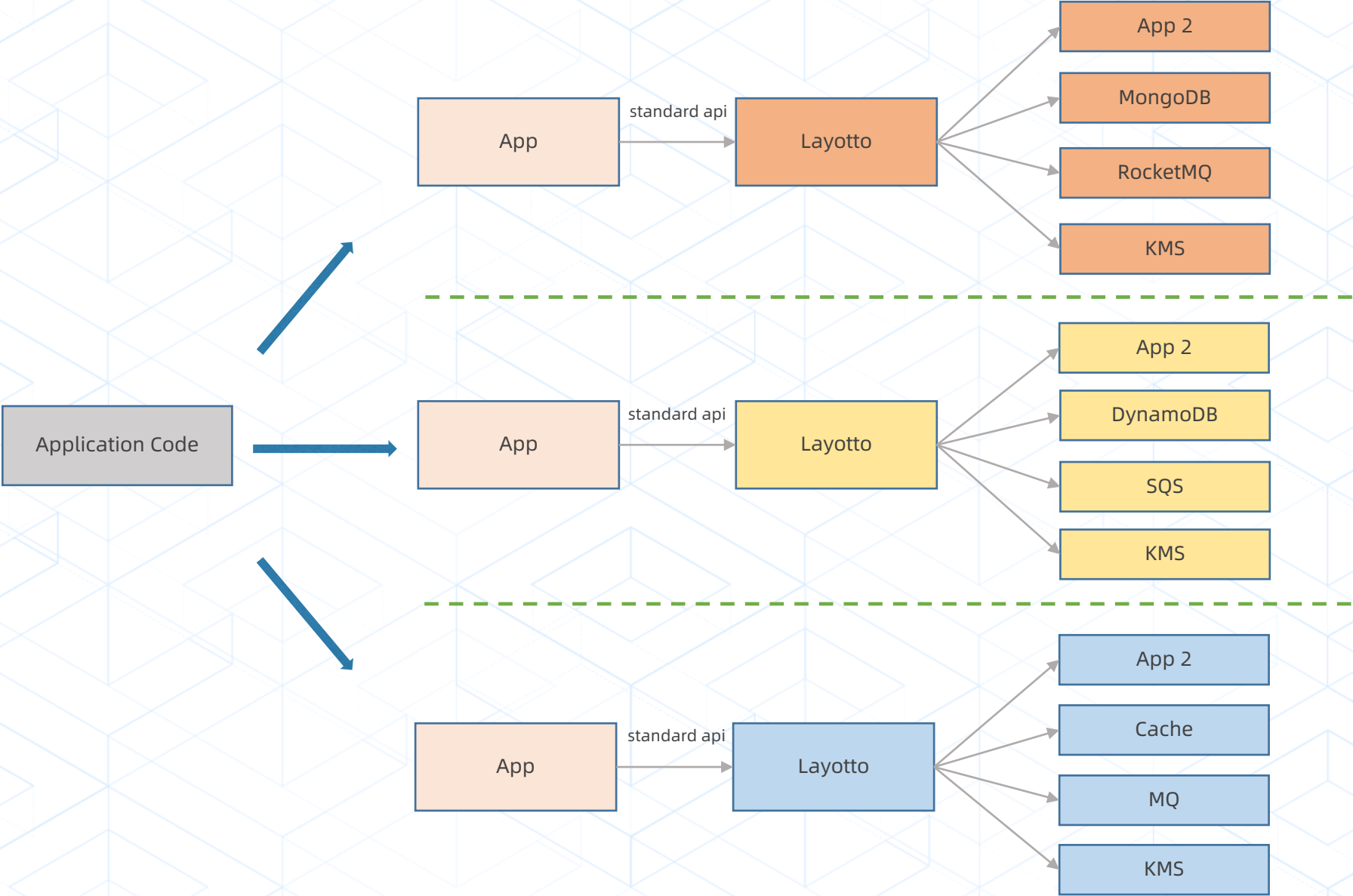
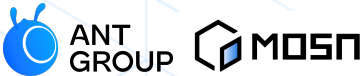


- High operational cost
- Hard to keep high stability



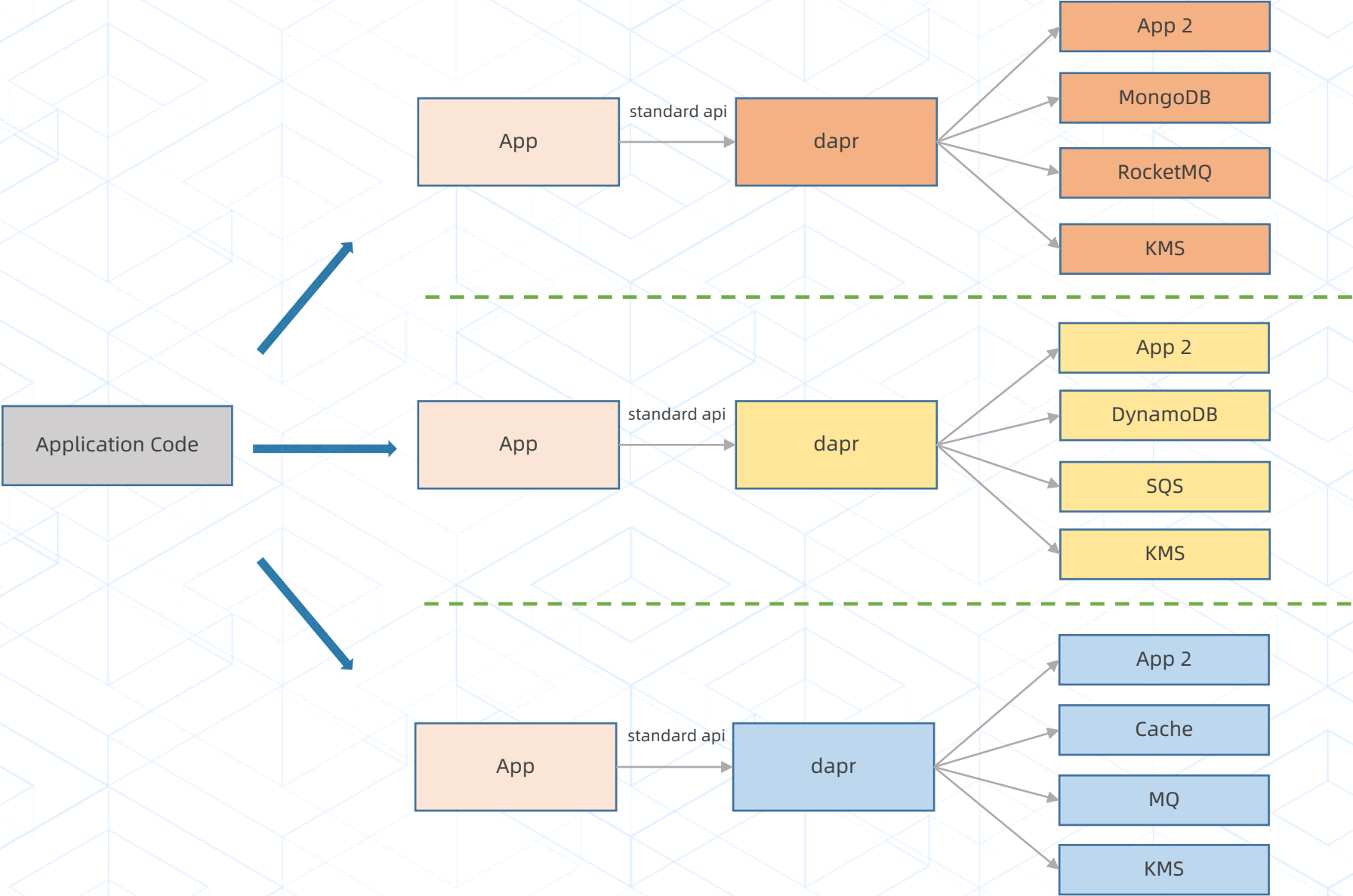
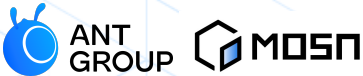


Portability of Layotto

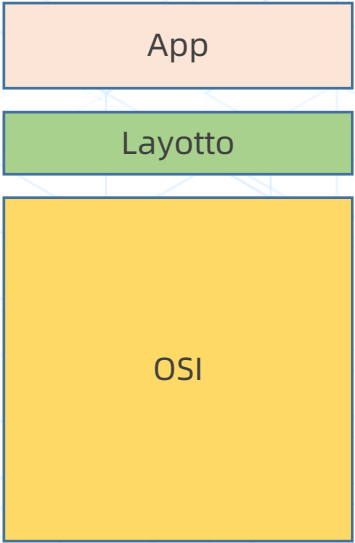
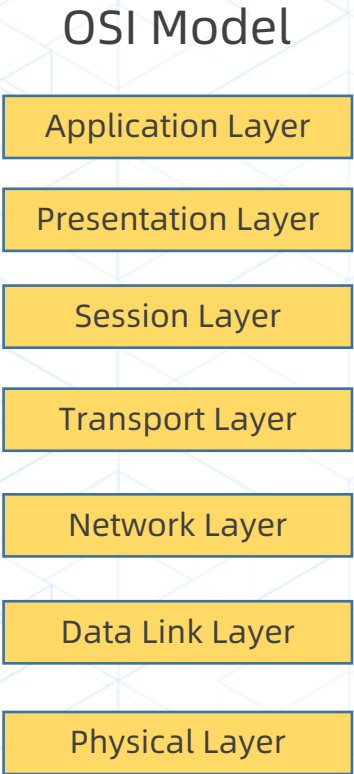


Write once, Run anywhere!

Portability of Layotto

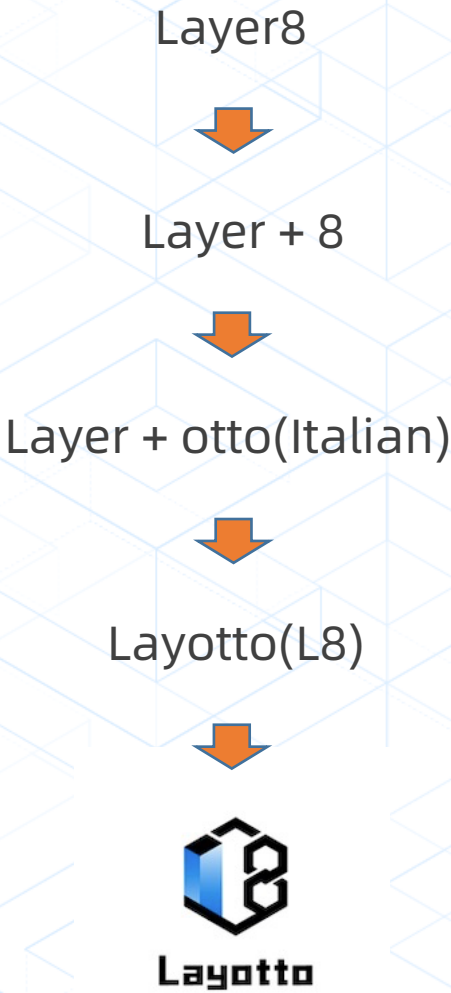


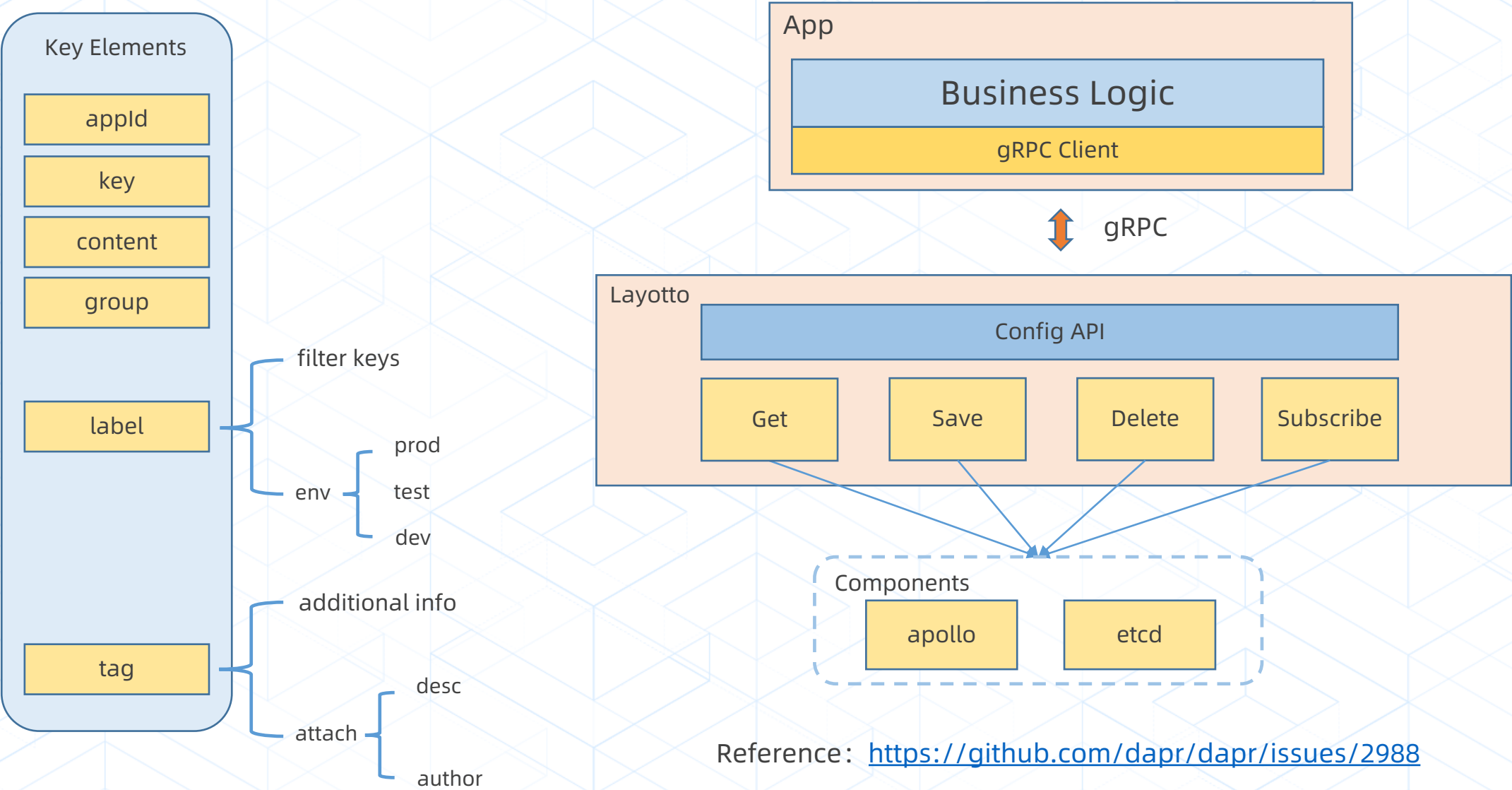
What's the meaning of Layotto?



The 8th layer

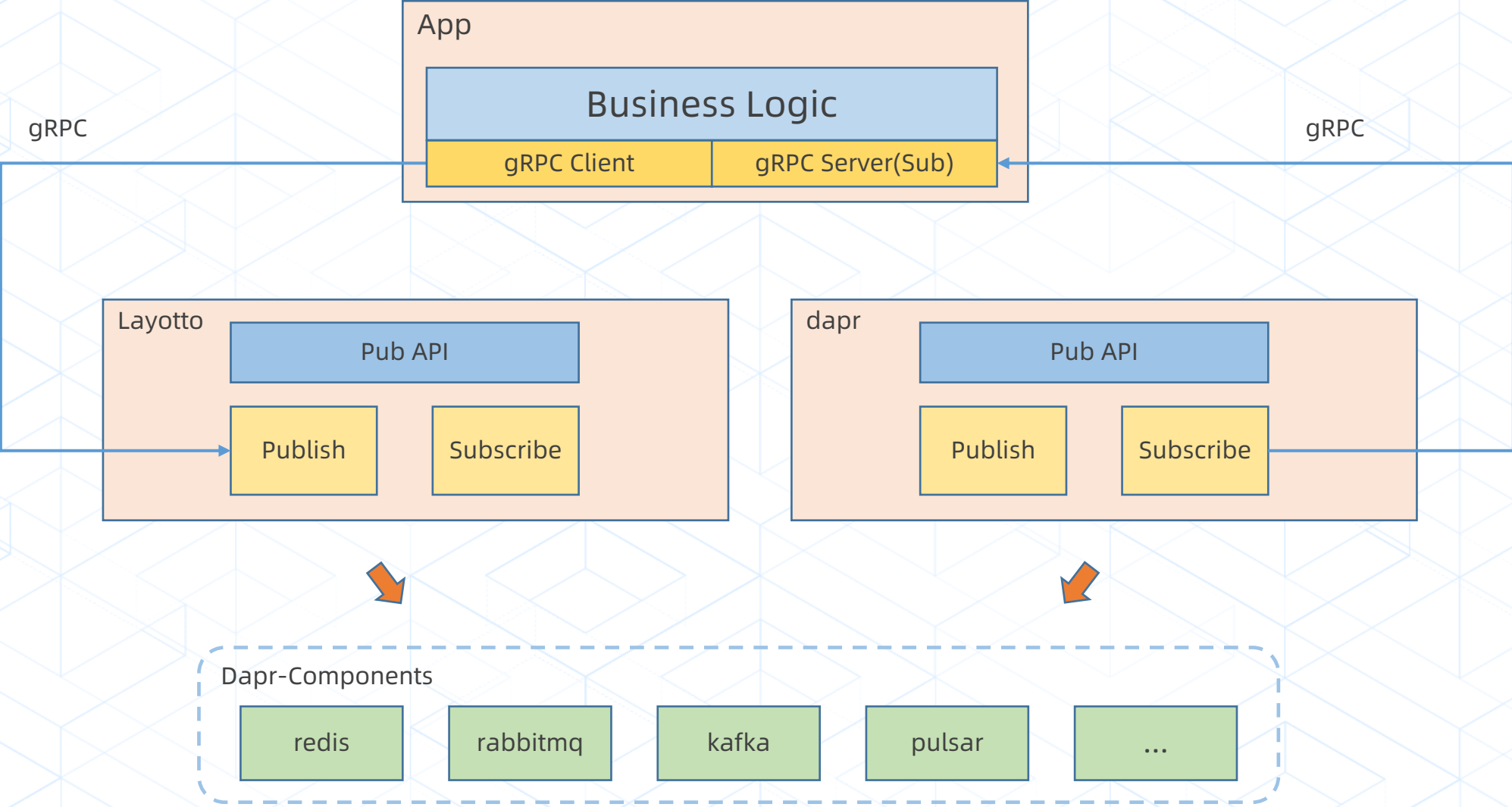
Seven Layers

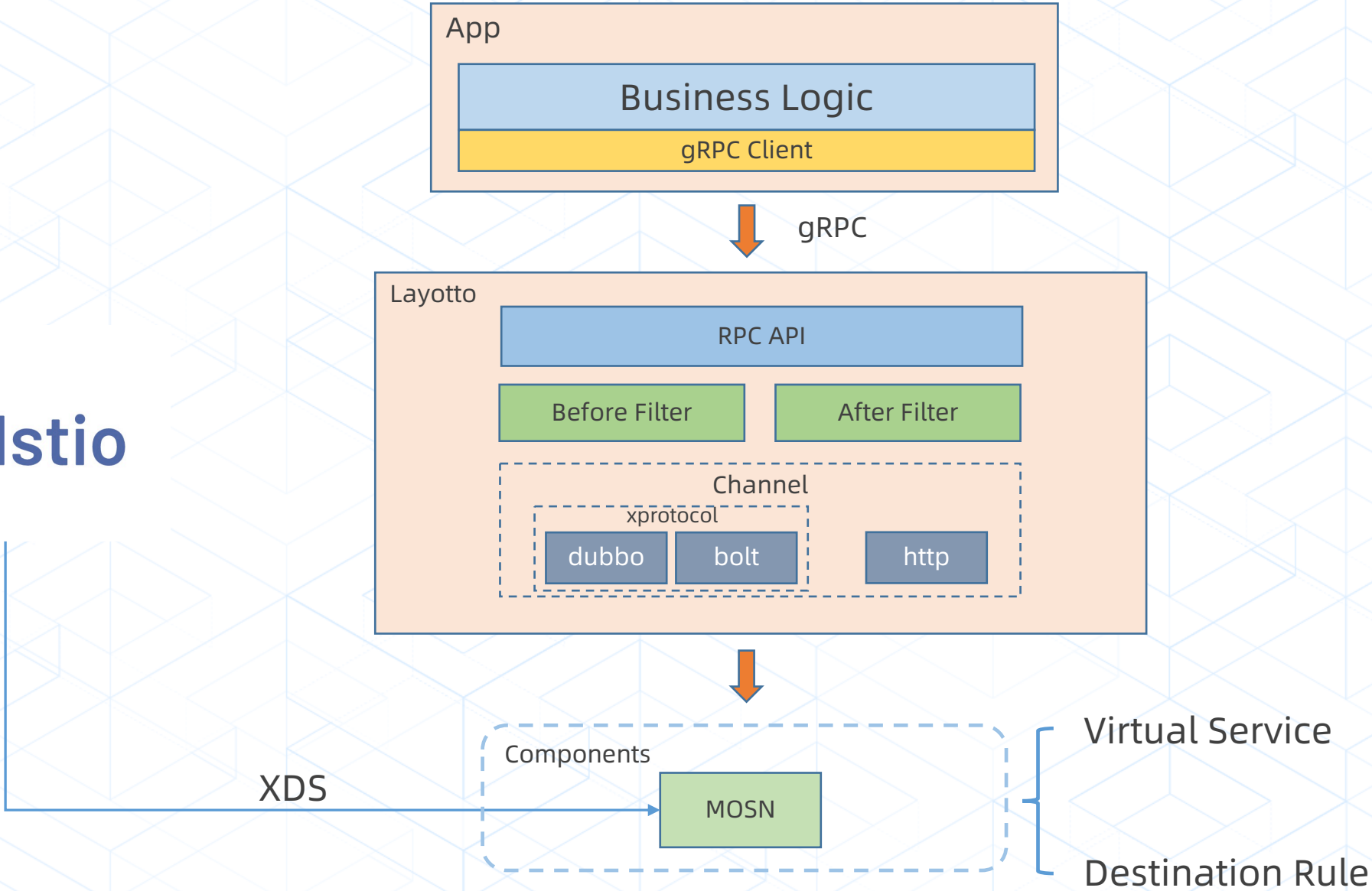


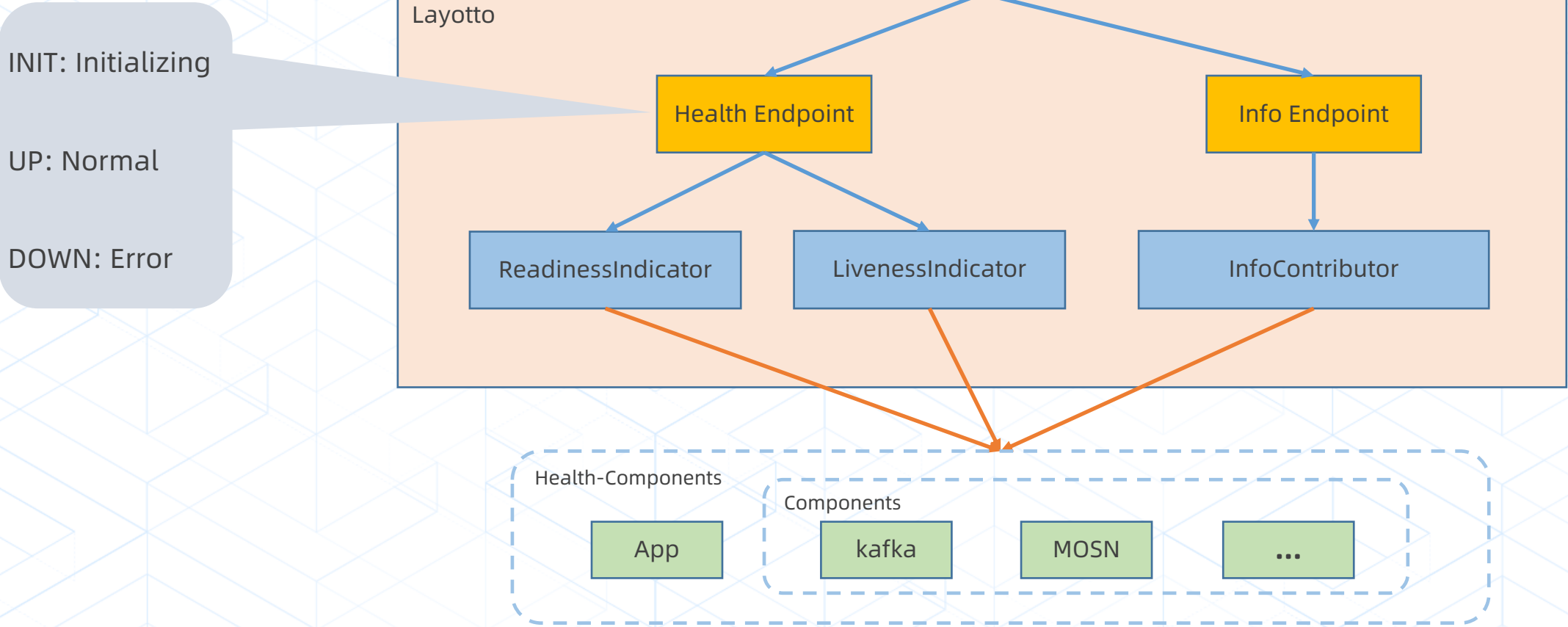


Reference: <https://github.com/dapr/dapr/issues/2988>

Pub/Sub primitive







03

Future plans

Layotto vs Dapr

Distributed primitives	dapr	Layotto
Service Invocation	✓	✓
Service Mesh	✗	✓
Config	🚀	✓
Pub/Sub	✓	✓
State	✓	✓
Actor	✓	✗
Metadata	✓	✗
Actuator	✗	✓
WebAssembly	✗	✓

Supported

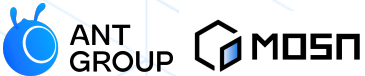
Not Supported

Under Construction

Principles of feature building:

- 1. adopted in Layotto first
- 2. then migrate to standard api

Community Co-building



envoyproxy / envoy

<> Code Issues 1k Pull requests 136 Actions Projects Wiki Security 31 Insights

Does Envoy intend to evolve to an application runtime? #15113

Open nobodyiam opened this issue on 19 Feb · 1 comment

nobodyiam commented on 19 Feb

mosn / mosn

<> Code Issues 126 Pull requests 17 Actions Projects 1 Security Insights

[Proposal] Mosn to evolve to an application runtime #1591

Open nobodyiam opened this issue on 19 Feb · 6 comments

nobodyiam commented on 19 Feb Contributor

dapr / dapr

<> Code Issues 333 Pull requests 45 Actions Security Insights

[Feature Request] PublishEvent API returns a response with concrete semantics and extensible metadata #3276

Open RayneHwang opened this issue 3 days ago · 0 comments

RayneHwang commented 3 days ago · edited

In what area(s)?

/area runtime

Assignees
No one assigned

Labels
None yet

dapr / dapr

<> Code Issues 333 Pull requests 45 Actions Security Insights

[Discussion] Future plans for dapr api #2817

Open nobodyiam opened this issue on 18 Feb · 17 comments

nobodyiam commented on 18 Feb

dapr / dapr

<> Code Issues 333 Pull requests 45 Actions Security Insights

[Proposal] configuration api design #2988

Open skyao opened this issue on 29 Mar · 21 comments

skyao commented on 29 Mar · edited Member

envoyproxy / envoy

<> Code Issues 1k Pull requests 143 Actions Projects Wiki Security 31 Insights

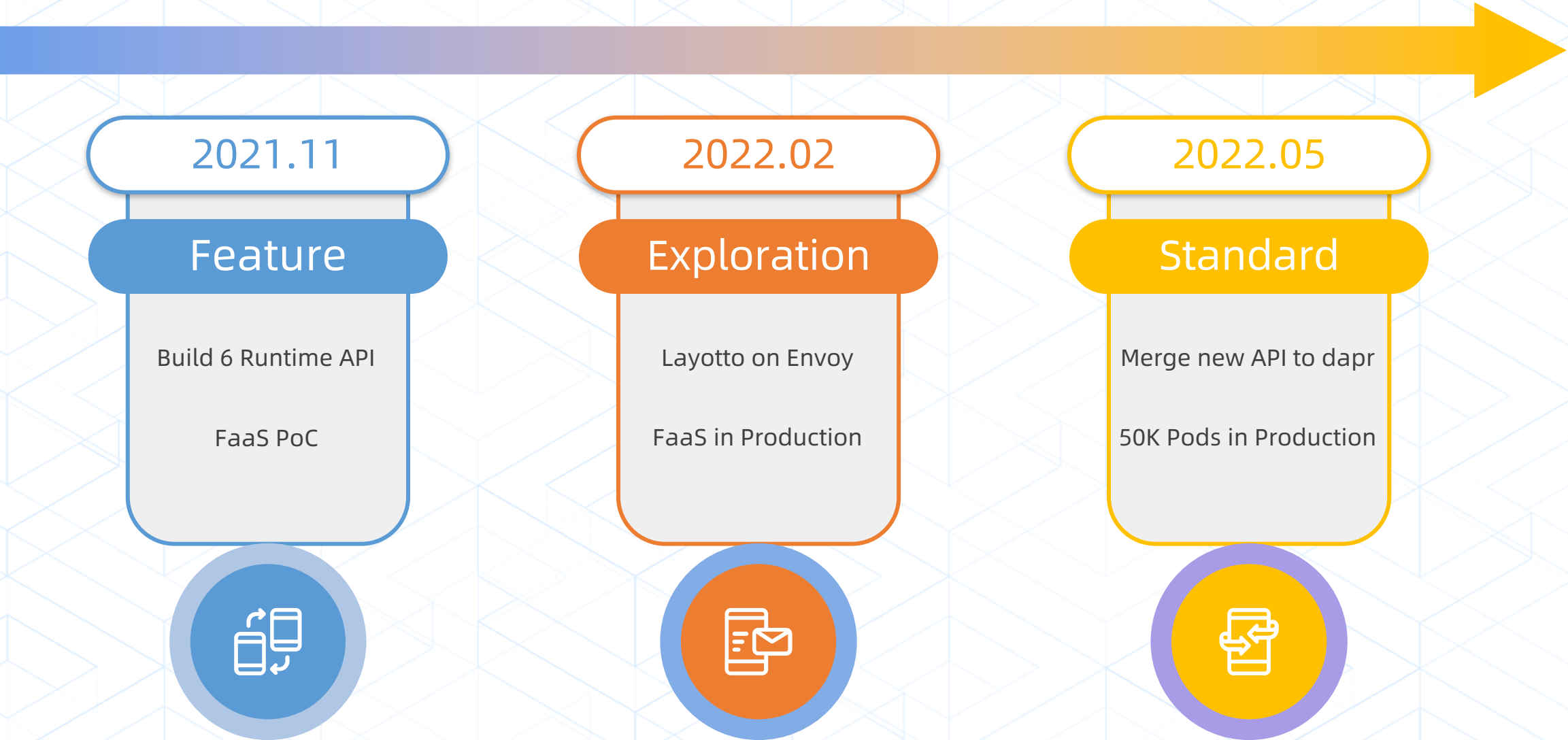
A proposal of high-performance L7 network GoLang extension for Envoy.

Open wangfakang opened this issue on 23 Feb · 31 comments

wangfakang commented on 23 Feb · edited Contributor

Background

Assignee:
No one as
Labels





<https://github.com/mosn/layotto>

Write once, Run anywhere!

Thanks!