cloudstate

Towards Stateful Serverless

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Lightbend

SERVERLESS $\neq$ FAAS

SERVERLESS **IS AN** EXPERIENCE

We Want To Build

GENERAL-PURPOSE

APPLICATIONS IN THIS NEW

CLOUD EXPERIENCE

STATE

THE MISSING PIECE

Technical Requirements

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1. Stateful long-lived addressable virtual components

   Actors

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   Ranging from strong to eventual consistency (durable/ephemeral)

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   Physical co-location of state and processing, sharding, and sticky routing

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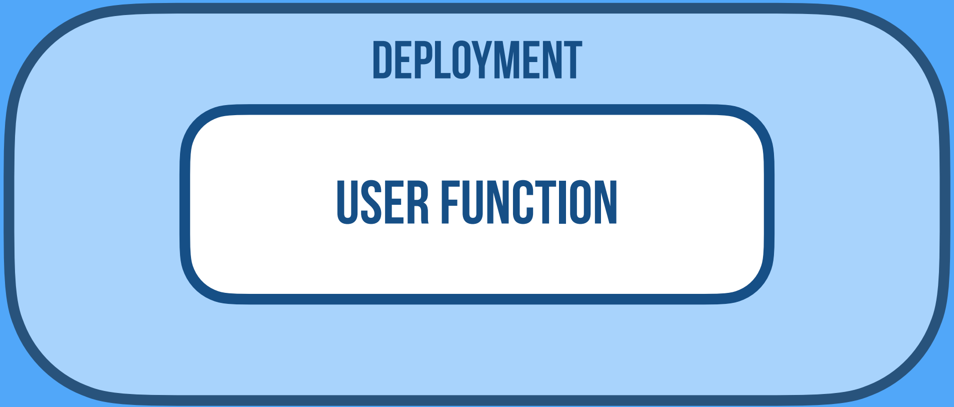
FaaS Is Great At Abstracting Over Communication



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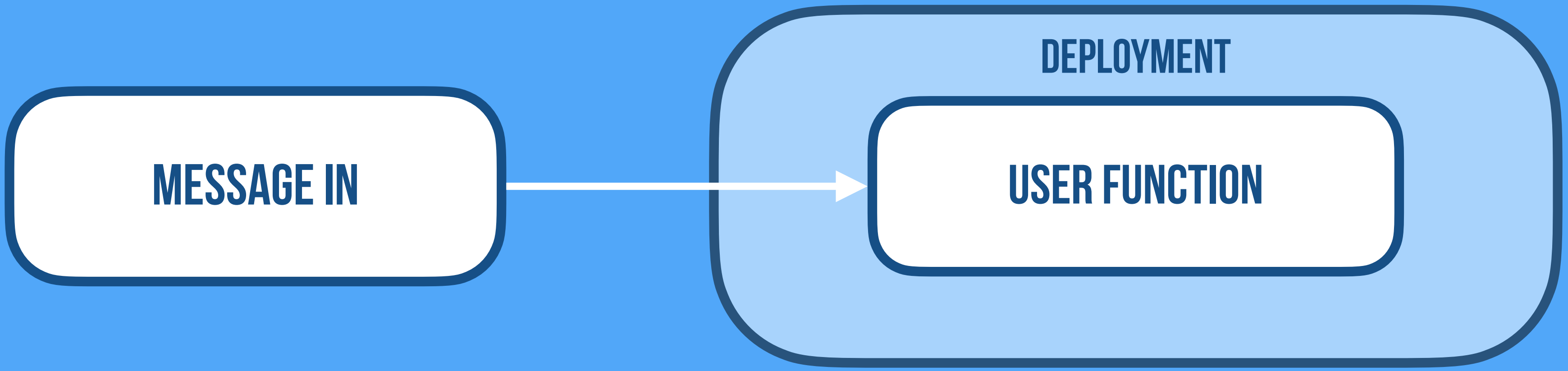

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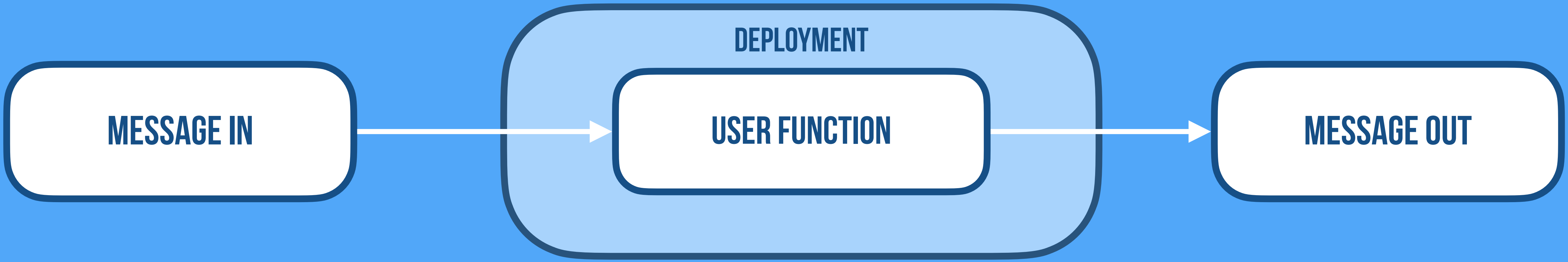
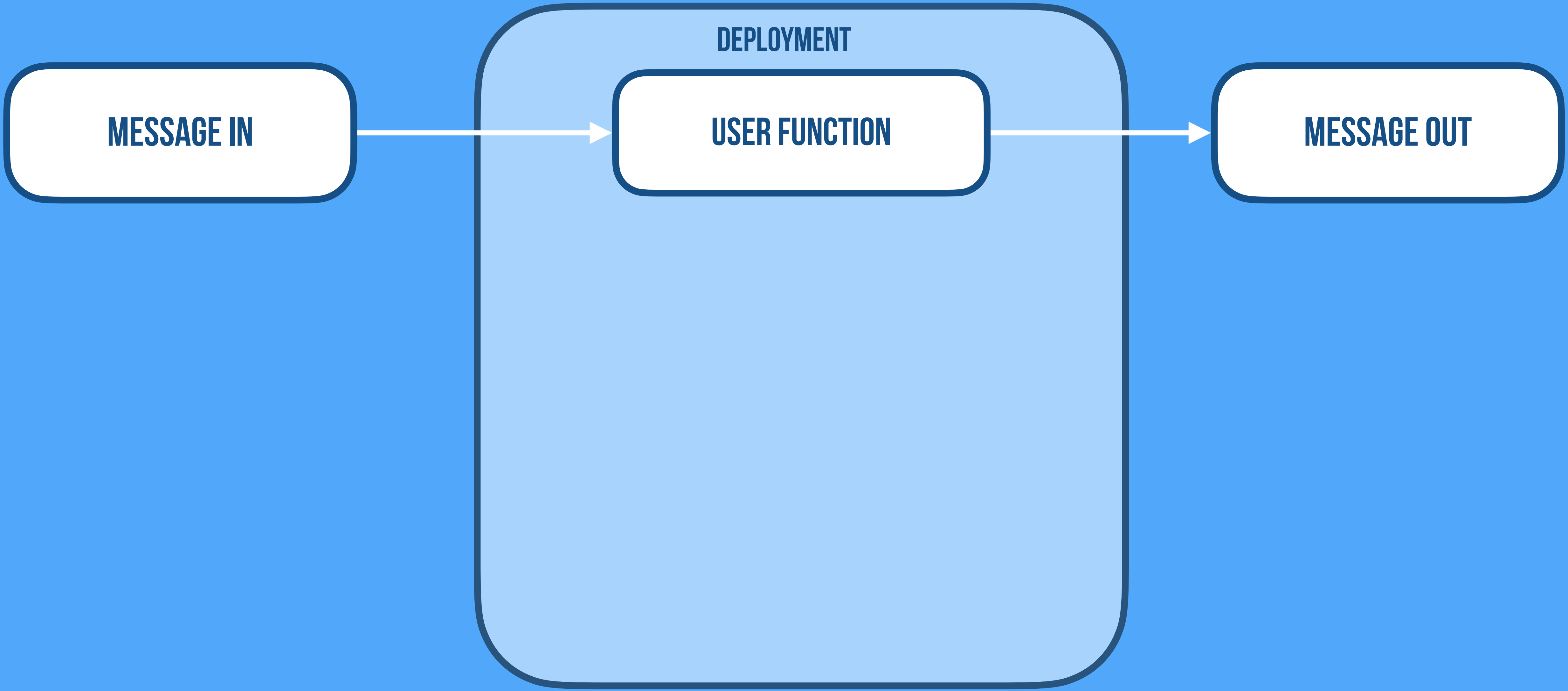


FaaS With CRUD



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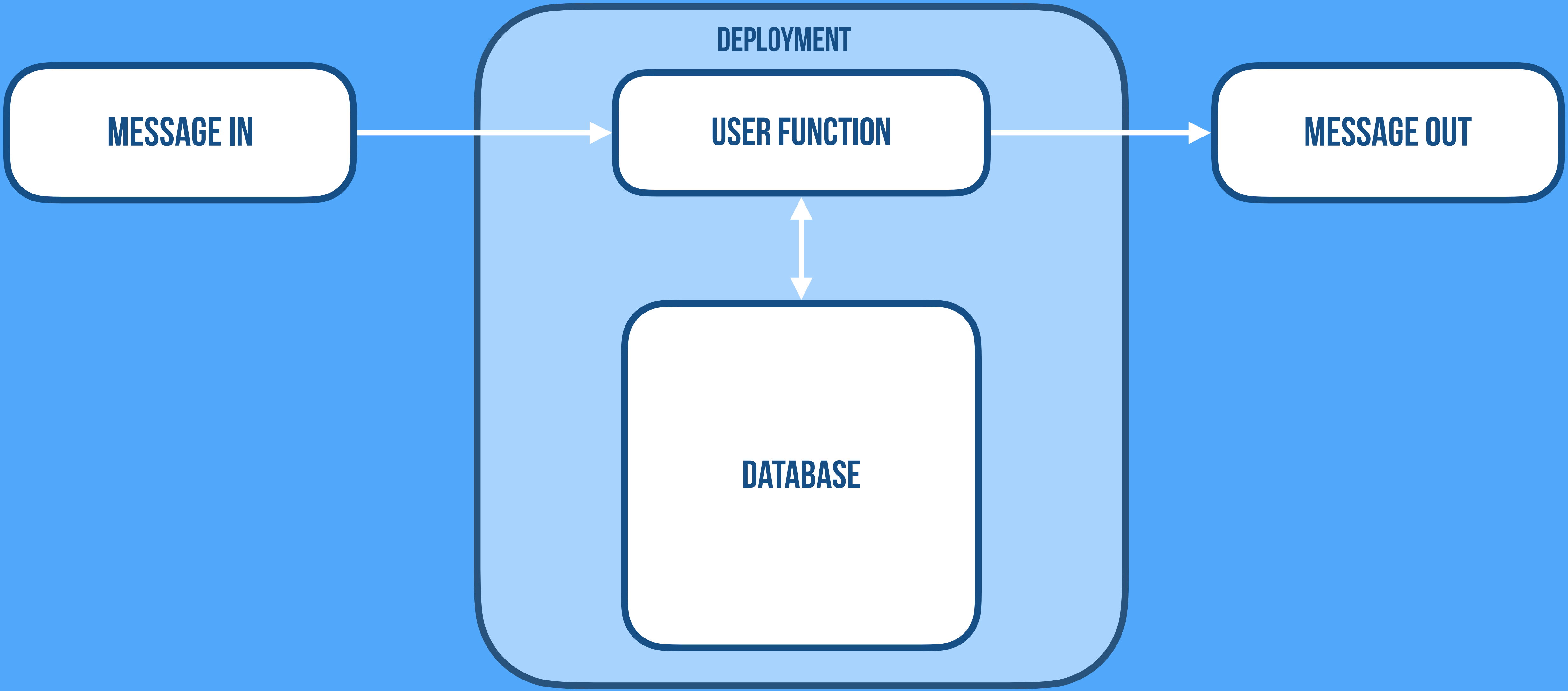
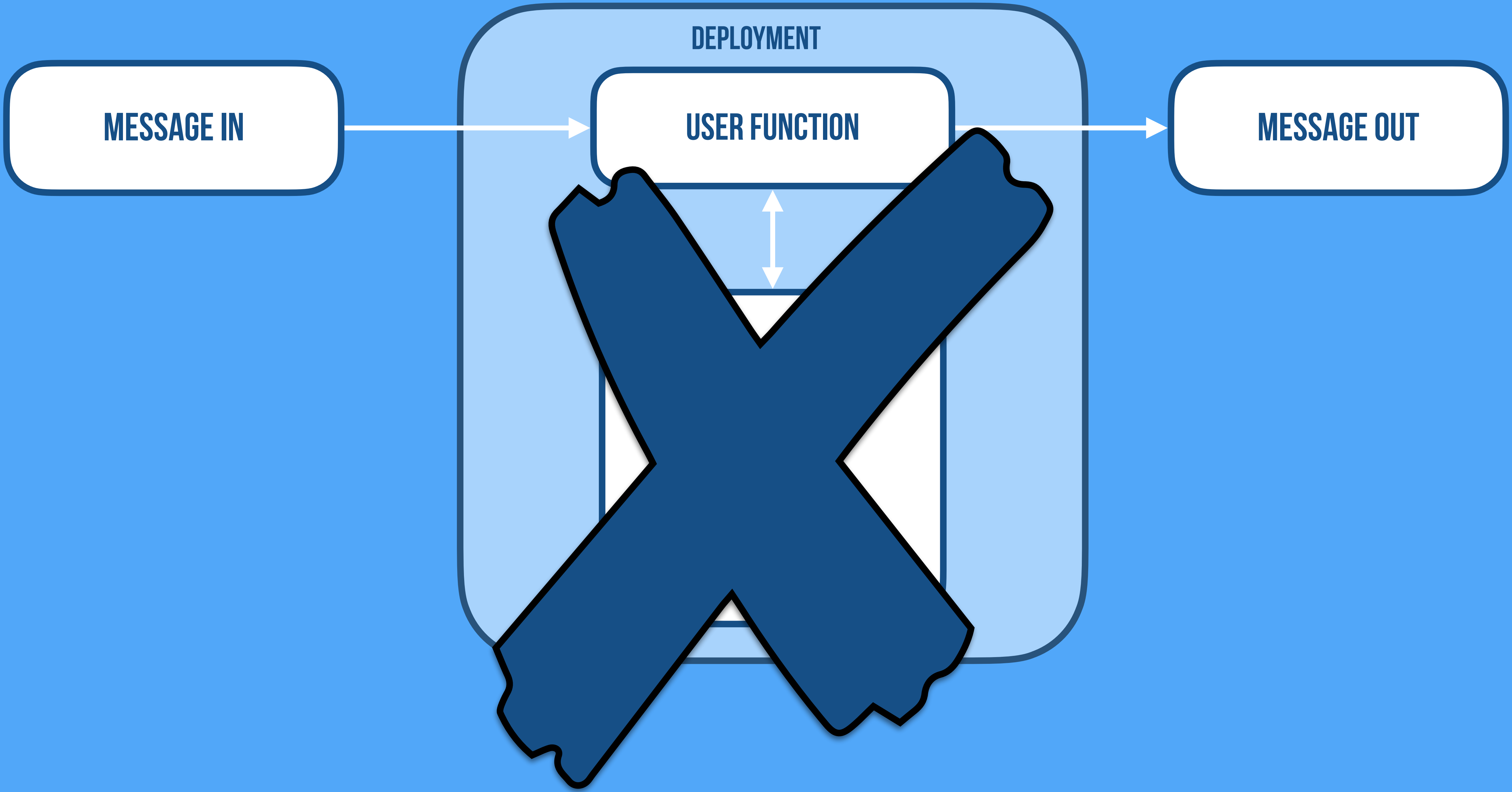
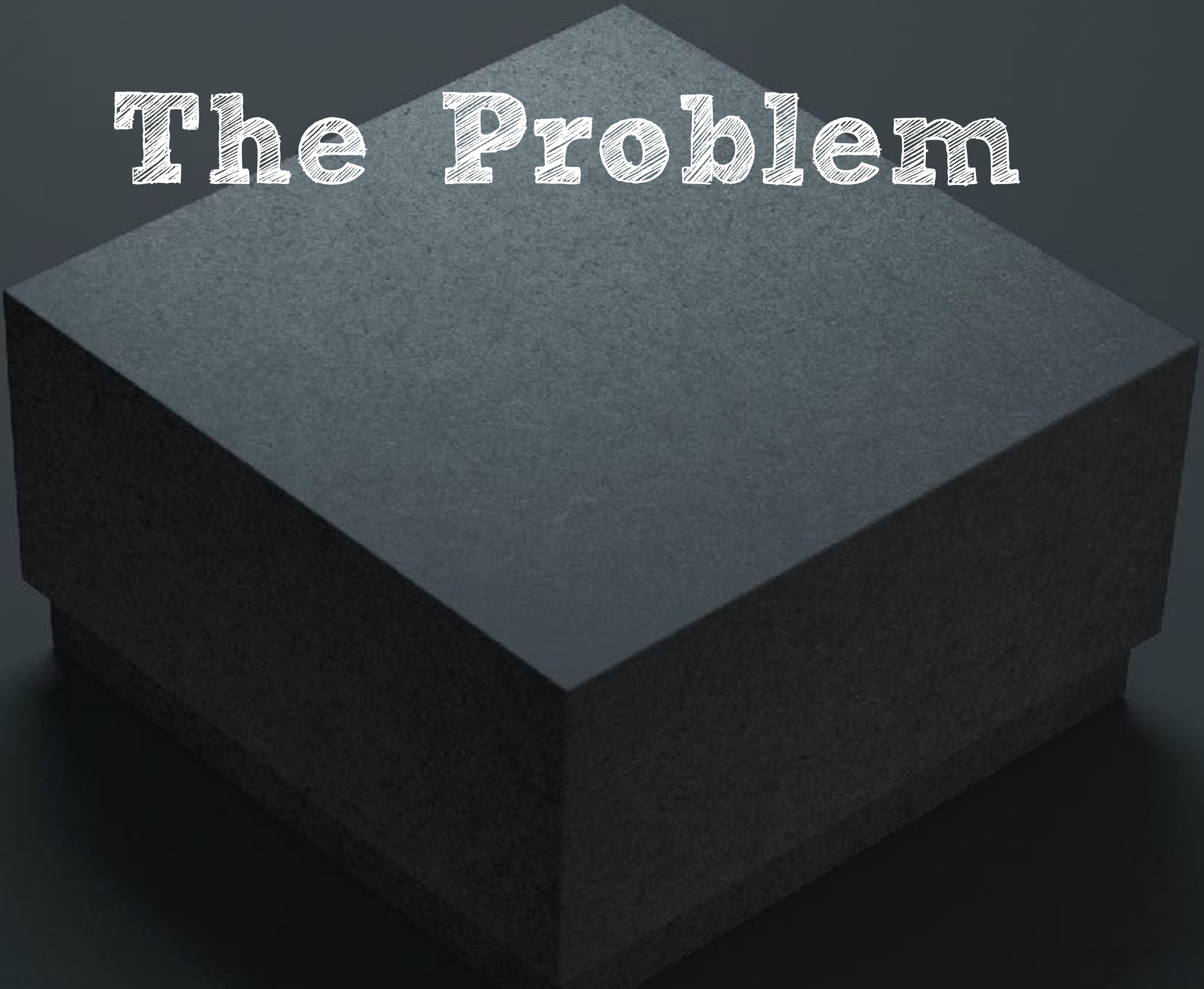


Not Serverless

Leaky Abstraction



The Problem

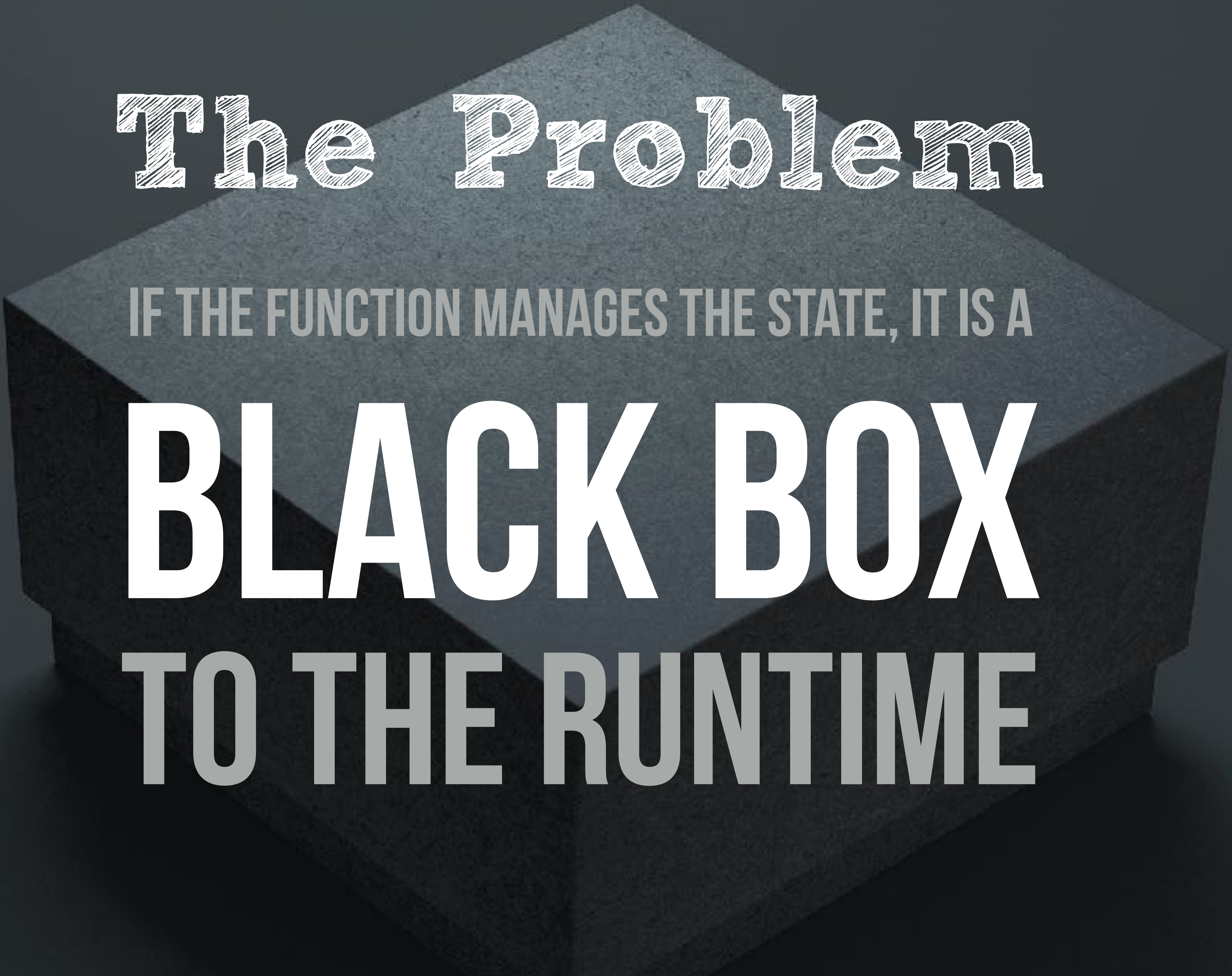


The Problem

IF THE FUNCTION MANAGES THE STATE, IT IS A

BLACK BOX

TO THE RUNTIME



The Problem

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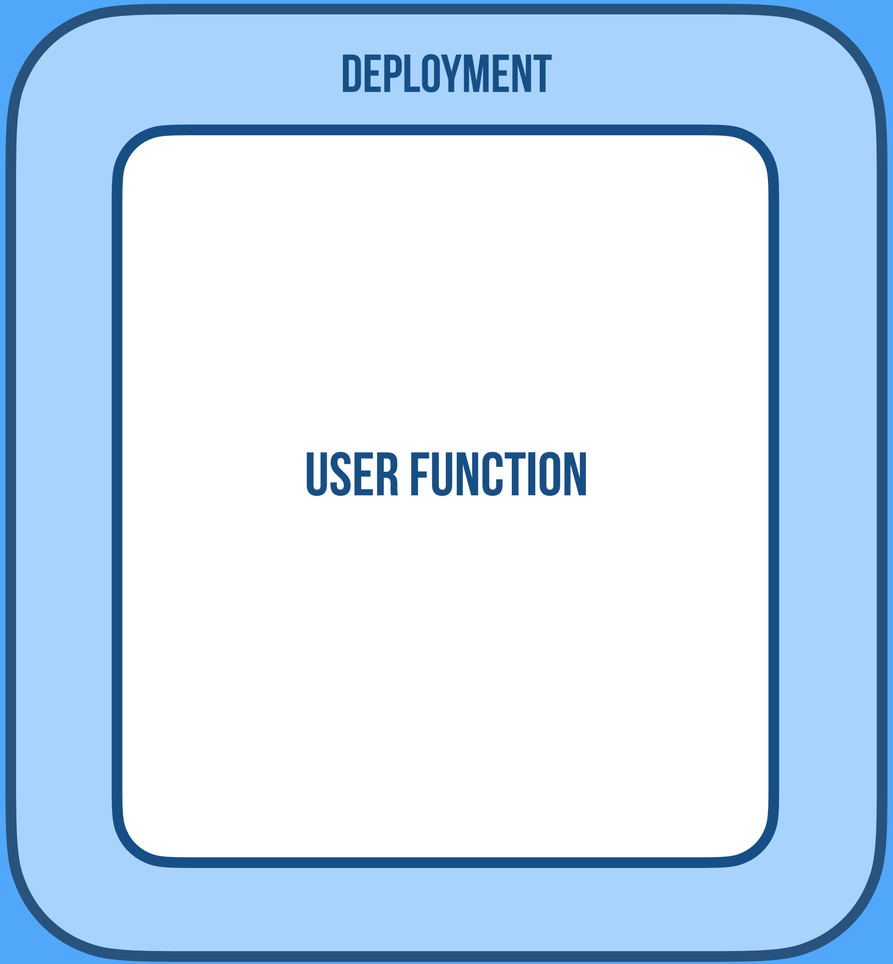
UNCONSTRAINED DATABASE ACCESS MAKES IT HARD TO AUTOMATE OPERATIONS

“Freedom is not so much the absence of restrictions as finding the right ones, the liberating restrictions.”

- TIMOTHY KELLER

FaaS

Abstracting Over Communication



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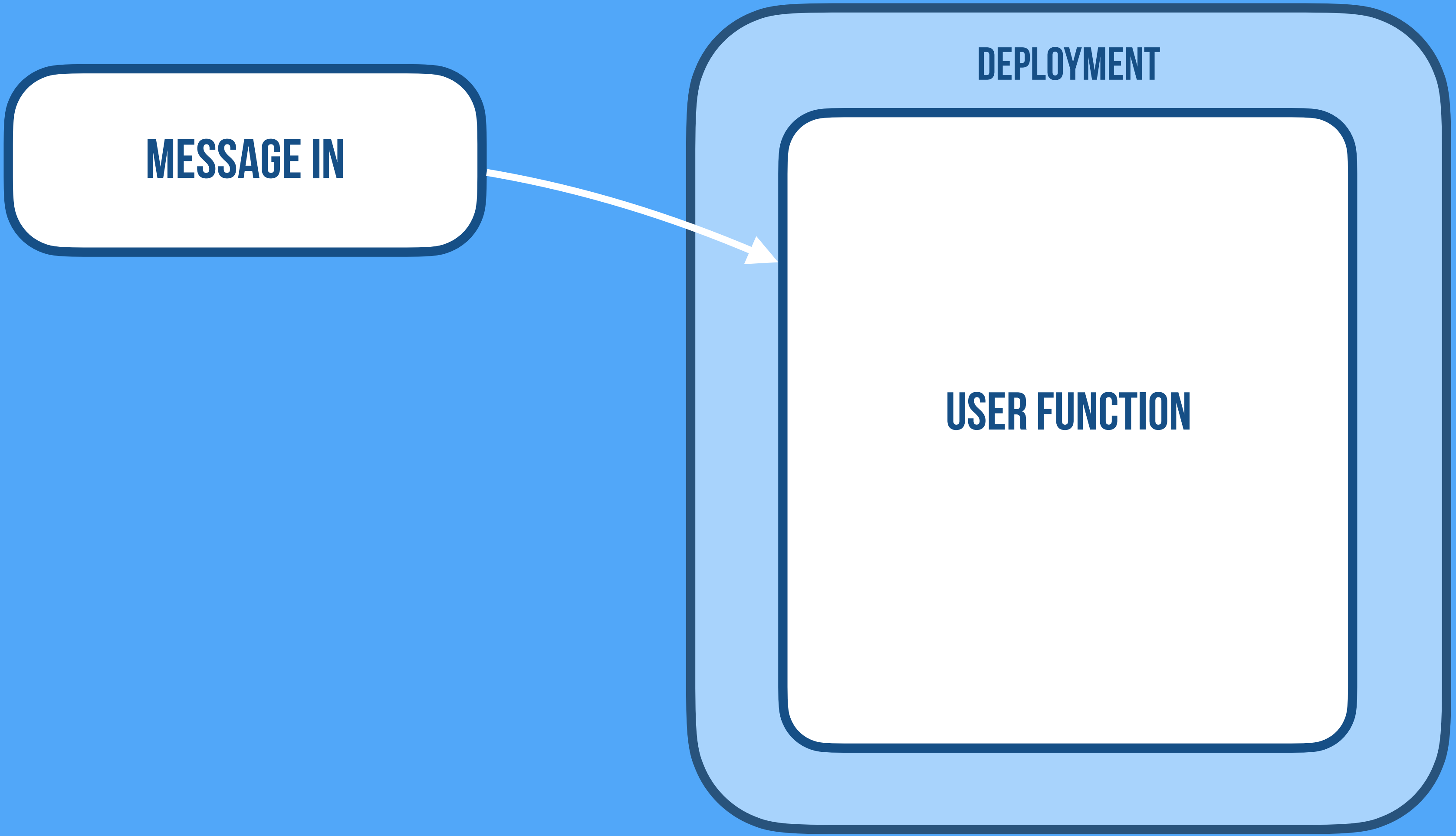

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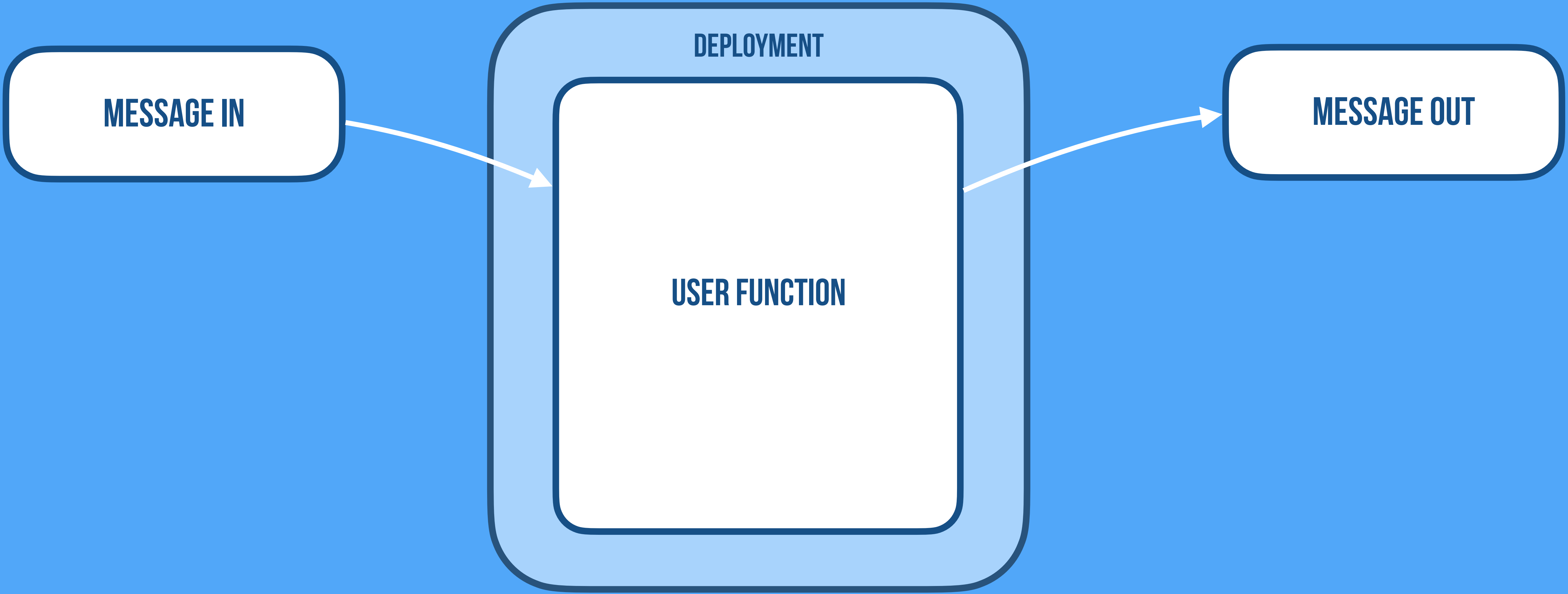
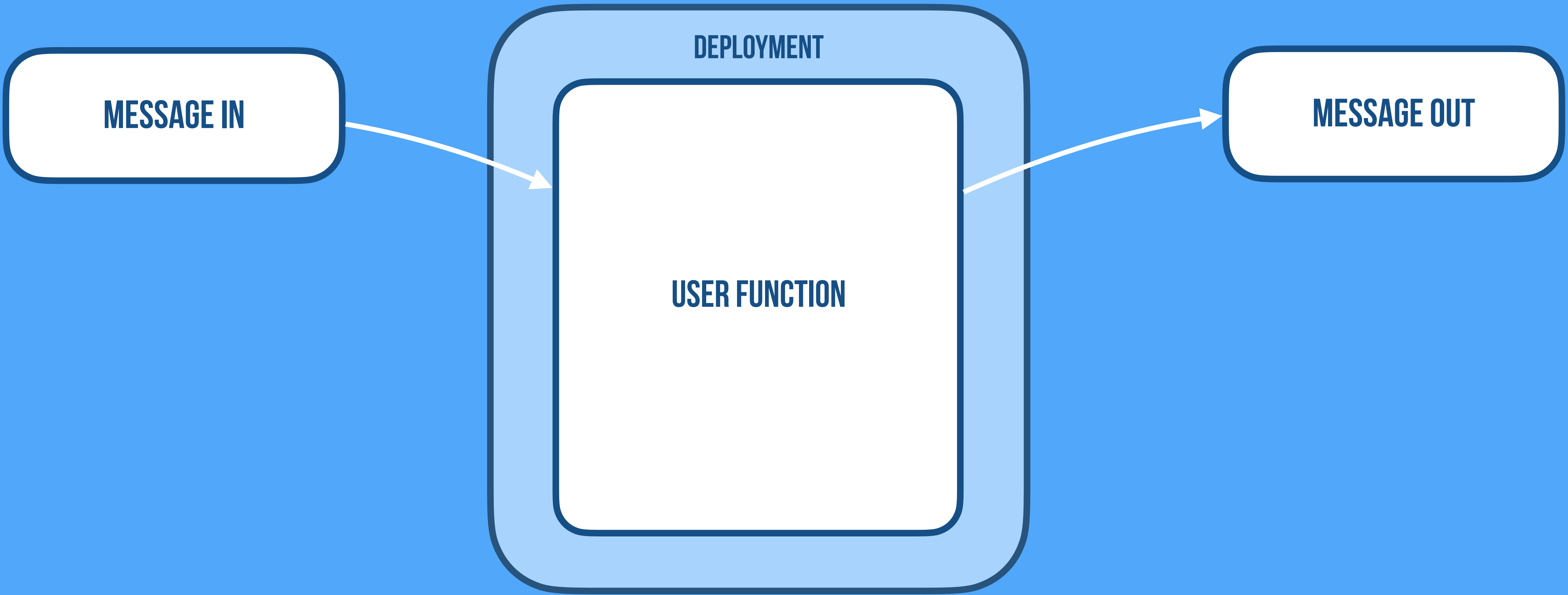
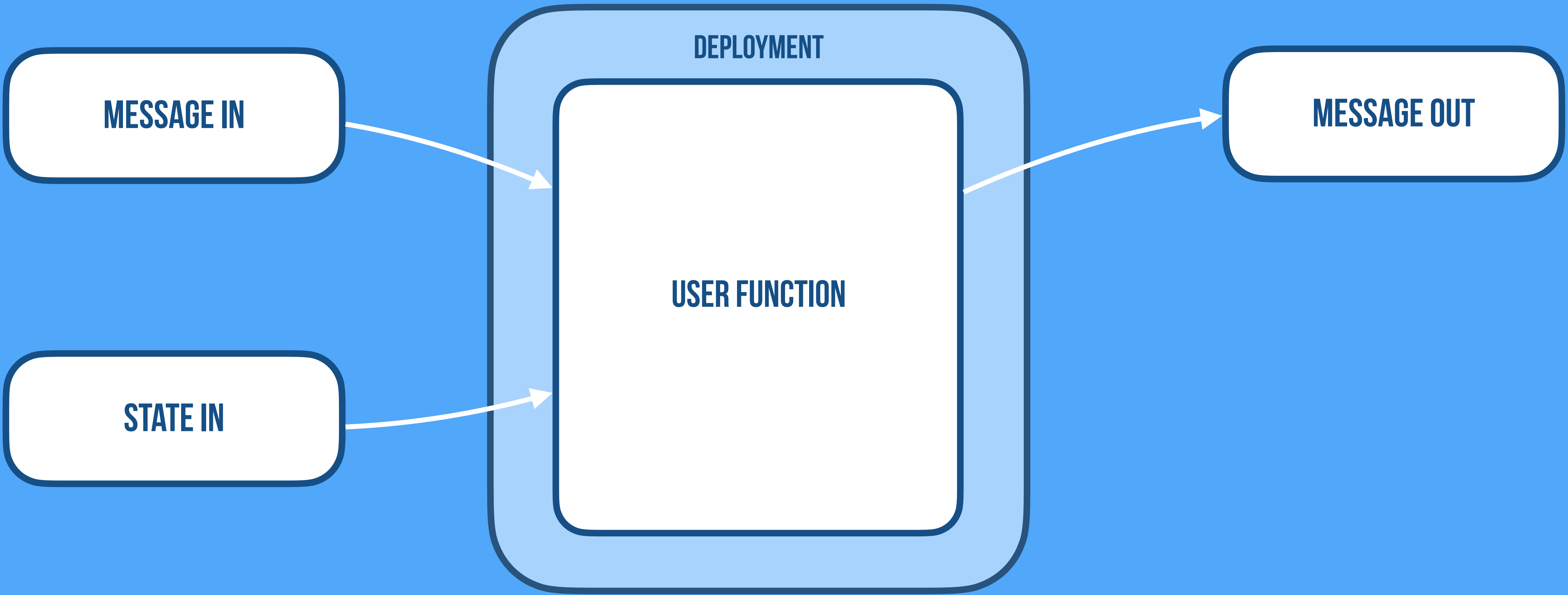


Stateful Serverless

Abstracting Over State



Stateful Serverless
Abstracting Over State



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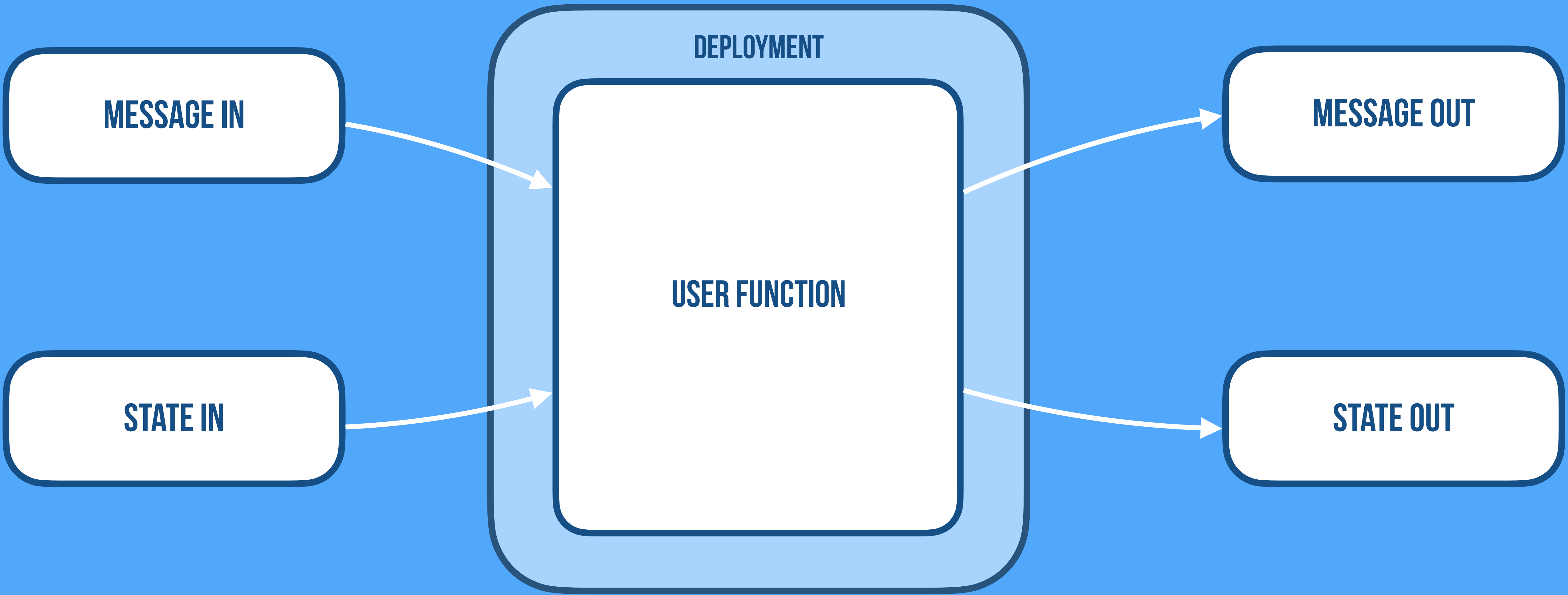

Enter

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WHAT IS CLOUDSTATE?

https://cloudstate.io

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1. Open Source (Apache 2.0)

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3. Serverless experience
4. Reference implementation for a standard (protocol and spec)
5. Let's you focus on business logic, data model, and workflow

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3. PolyState: Powerful state models—Event Sourcing, CRDTs, Key-Value

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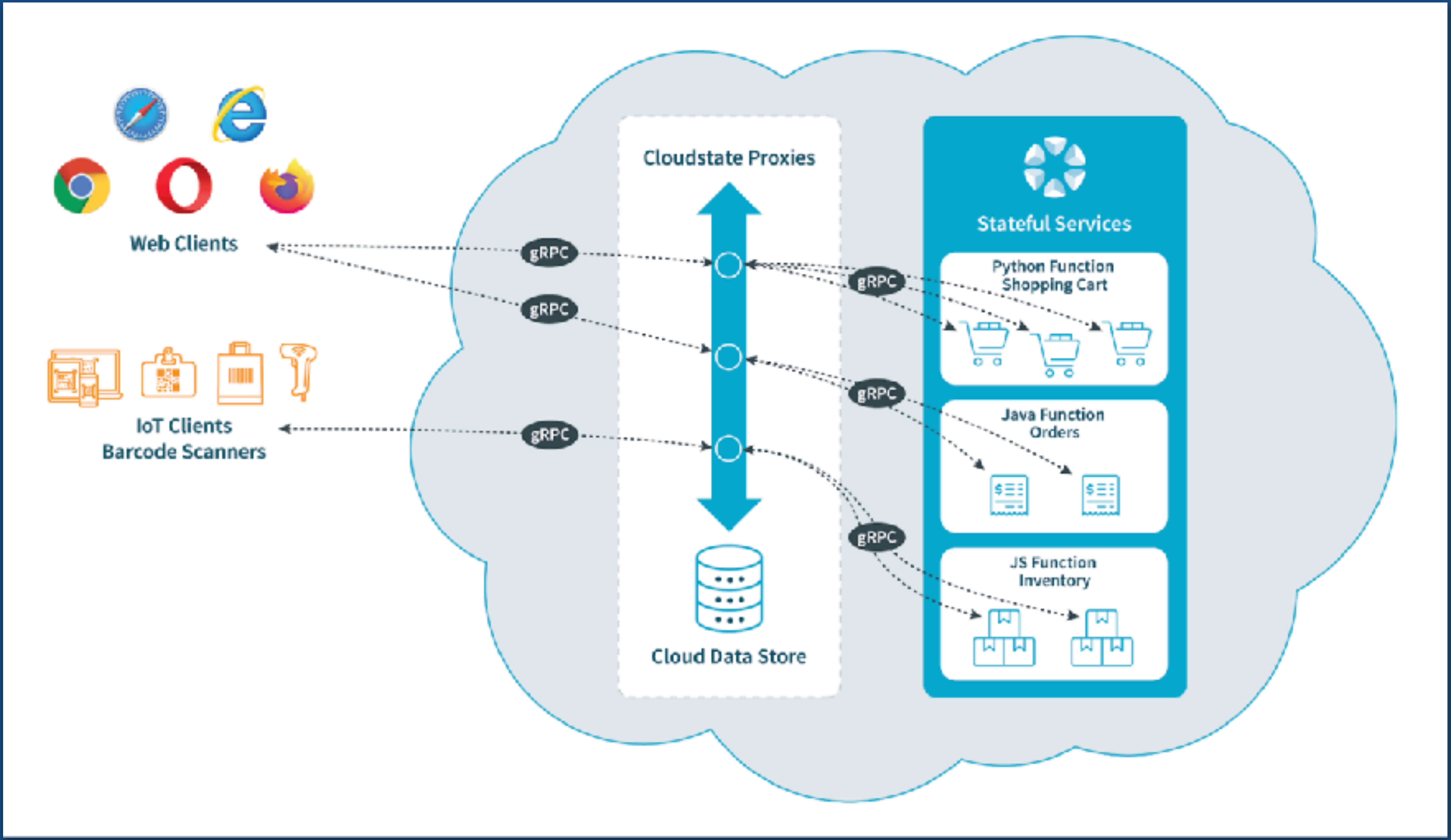
3. PolyState: Powerful state models—Event Sourcing, CRDTs, Key-Value
4. PolyDB: Supporting SQL, NoSQL, NewSQL and in-memory replication

CLOUDSTATE ARCHITECTURE



DEMO

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