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Introduction to **Distributed Systems**

With Microsoft .NET

Dylan Beattie
@dylanbeattie

Schedule

Day 1:

09:30-09:45	Introduction and Welcome
09:45-10:15	Getting started with HTTP APIs
10:15-10:40	Documenting APIs with Swagger
10:40-11:00	*BREAK*
11:00-11:30	Advanced HTTP APIs
11:30-12:30	REST and hypermedia
12:30-13:30	*LUNCH*
13:30-14:30	Introducing messages queues
14:30-15:15	Messaging patterns and publish/subscribe
15:15-15:30	*BREAK*
15:30-17:00	Testing Hypermedia APIs Testing Message Queues

Day 2:

09:30-09:45	Review & recap
09:45-10:40	GraphQL Backends for Frontends (BFFs)
10:40-11:00	*BREAK*
11:00-11:30	Monitoring and logging for distributed apps
11:30-12:30	Introduction to gRPC and Protocol Buffers
12:30-13:30	*LUNCH*
13:30-14:30	Integrating gRPC with ASP.NET
14:30-15:15	Cross-platform gRPC
15:30-15:45	*BREAK*
15:45-17:00	Connecting to the web: SignalR

Ursatile

ursatile.com

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https://dylanbeattie.net

ROCKSTAR

codewithrockstar.com

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What is a

“distributed system”

anyway?

MONOLITH

MONOLITH

(From Greek “monos lithos” - literally “single stone”)

ONE:

Codebase

Language

Platform

Server

Deployment Process

Point of failure

MICROSERVICES:

MULTIPLE:

Codebases?

Languages?

Platforms?

Servers?

Deployment Processes?

Points of failure?

MULTIPLE:

Codebases?

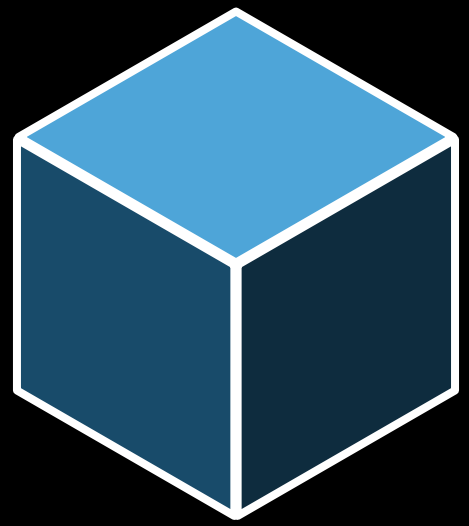
Languages?

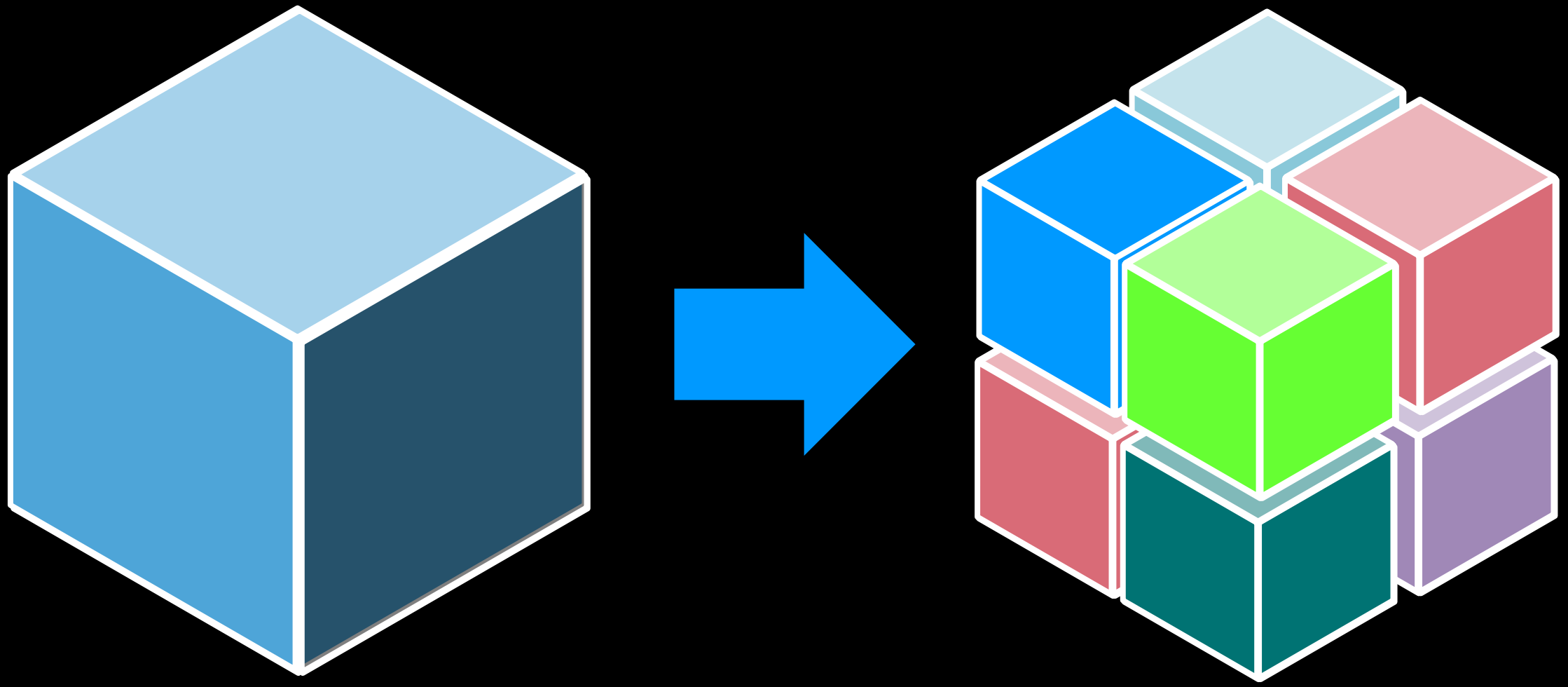
Platforms?

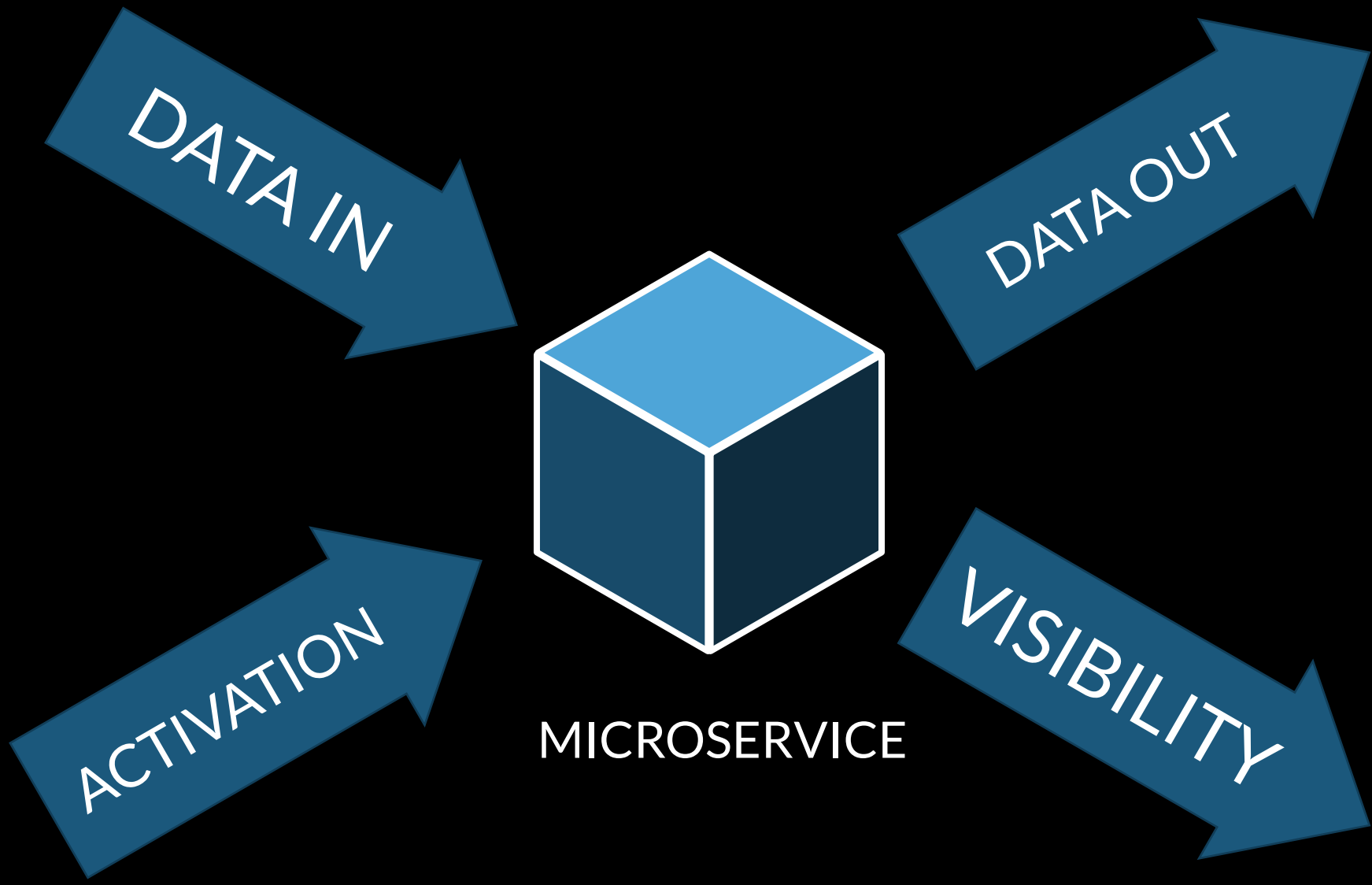
Servers?

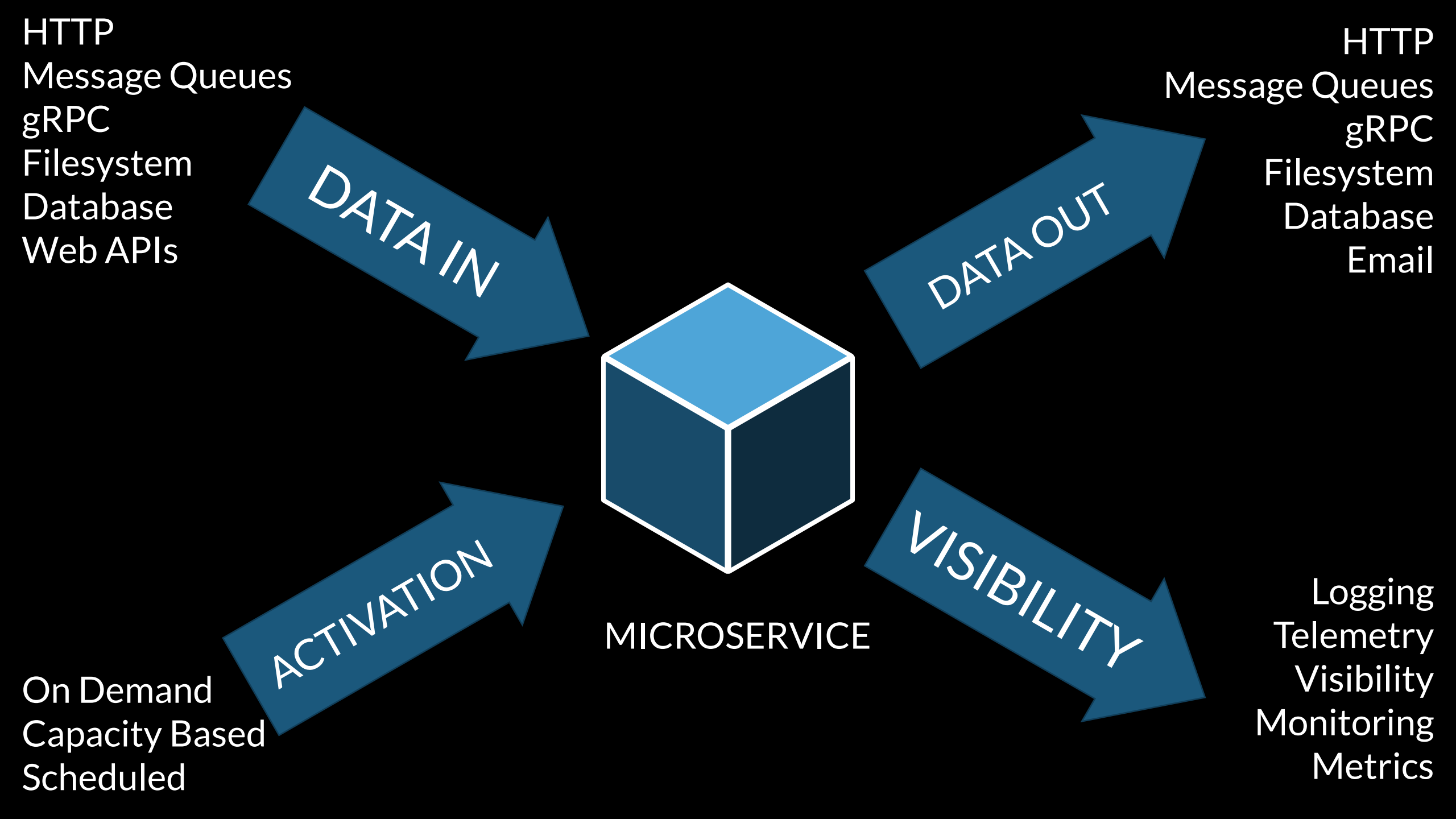
Deployment Processes?

Points of failure?






DATA IN
DATA OUT
ACTIVATION
VISIBILITY
MICROSERVICE


HTTP
Message Queues
gRPC
Filesystem
Database
Web APIs
DATA IN
HTTP
Message Queues
gRPC
Filesystem
Database
Email
DATA OUT
MICROSERVICE
ACTIVATION
On Demand
Capacity Based
Scheduled
VISIBILITY
Logging
Telemetry
Visibility
Monitoring
Metrics

"TALK IS
CHEAP.
SHOW ME THE
CODE."

- LINUS TORVALDS

Useful URLs

GitHub repo:

https://github.com/ursatile/dsnet-codecamp-2023

Handbook and exercises:

https://ursatile.github.io/dsnet

Live examples:

https://workshop.ursatile.com:5001/

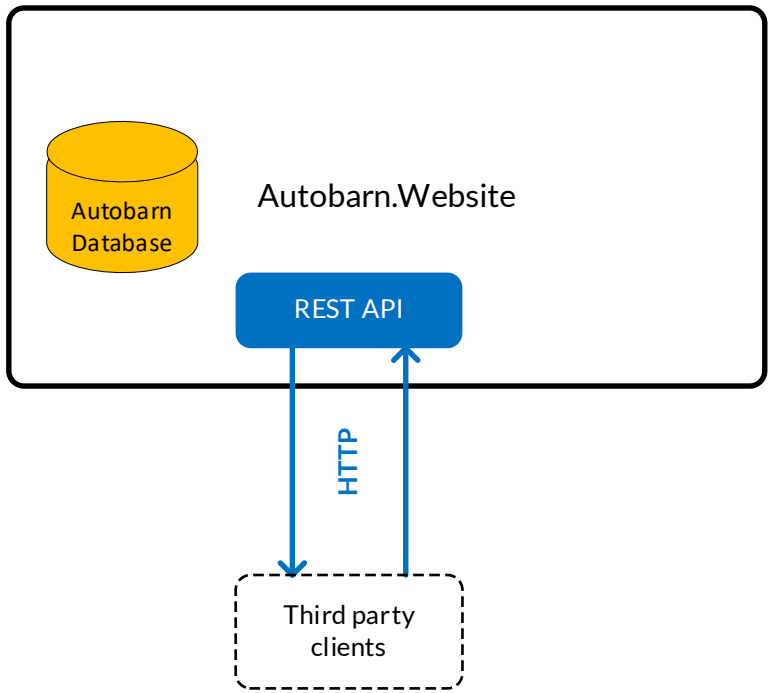
The Golden Rule of Distributed Computing:

Don’t do it.

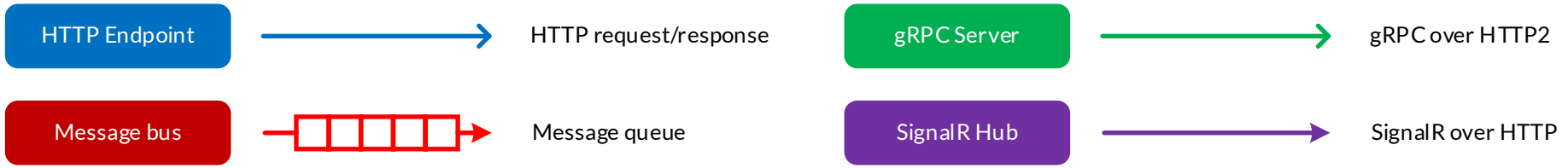
(unless you have to!)

Why?

"Autobarn" System Architecture Diagram



Guide to Diagram Notation



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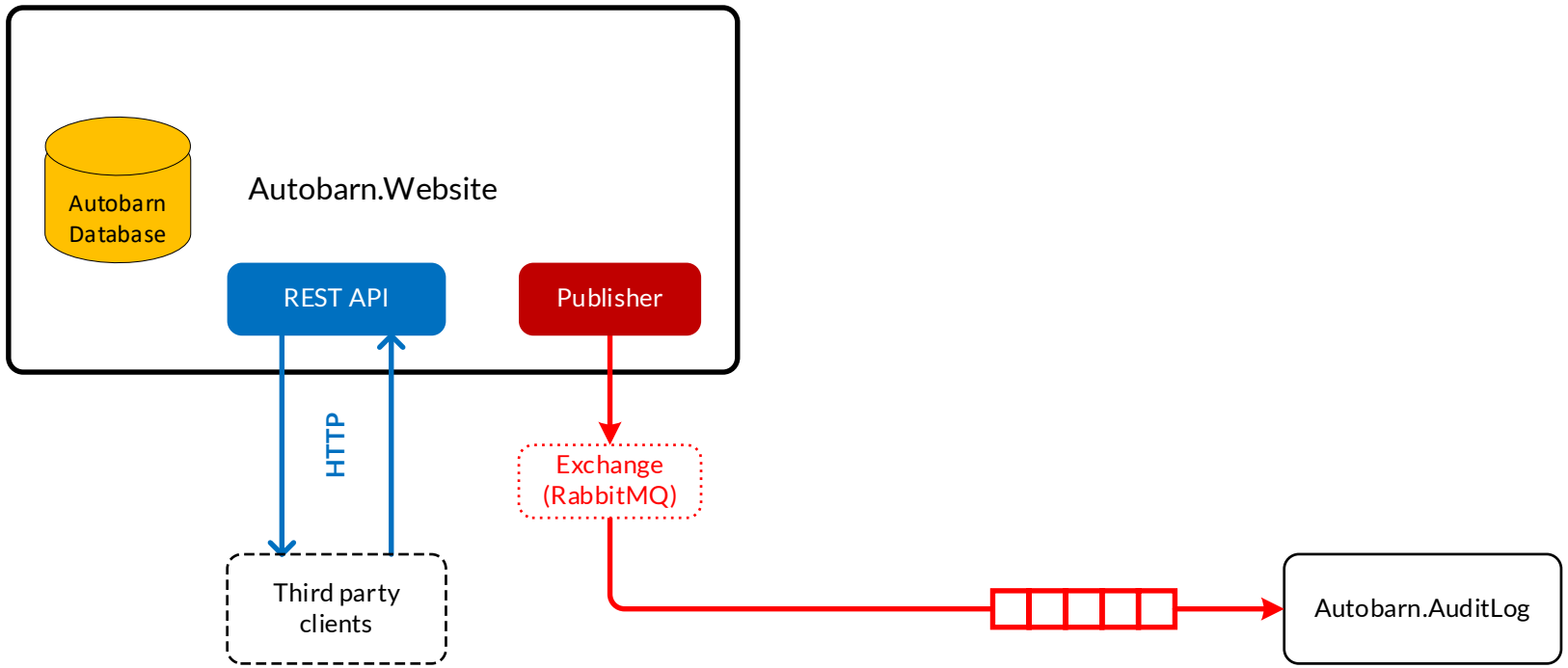

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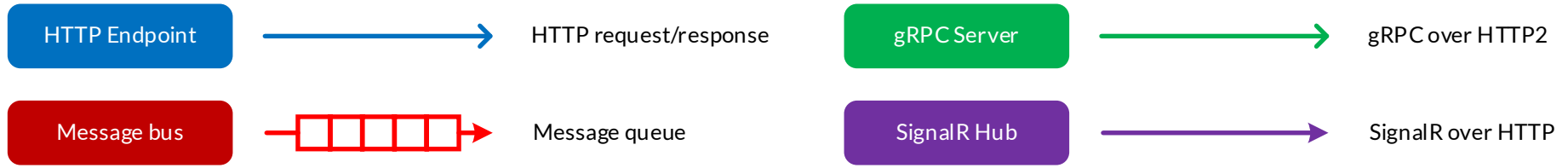

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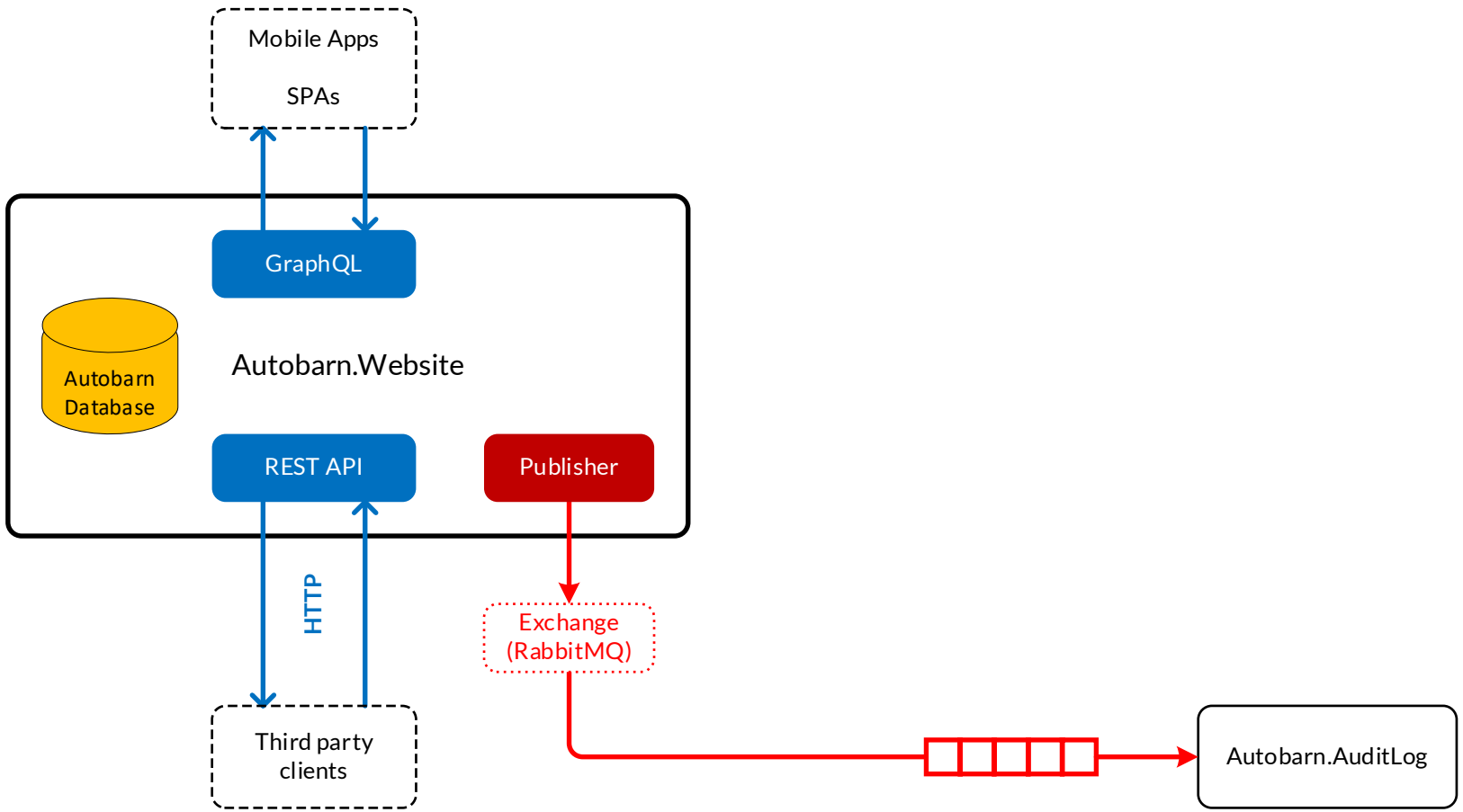

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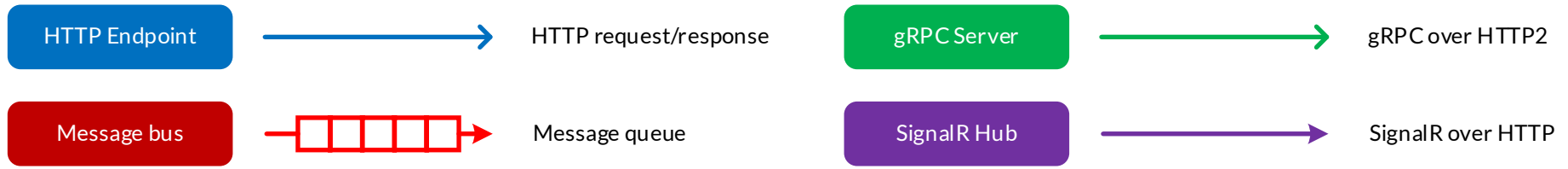

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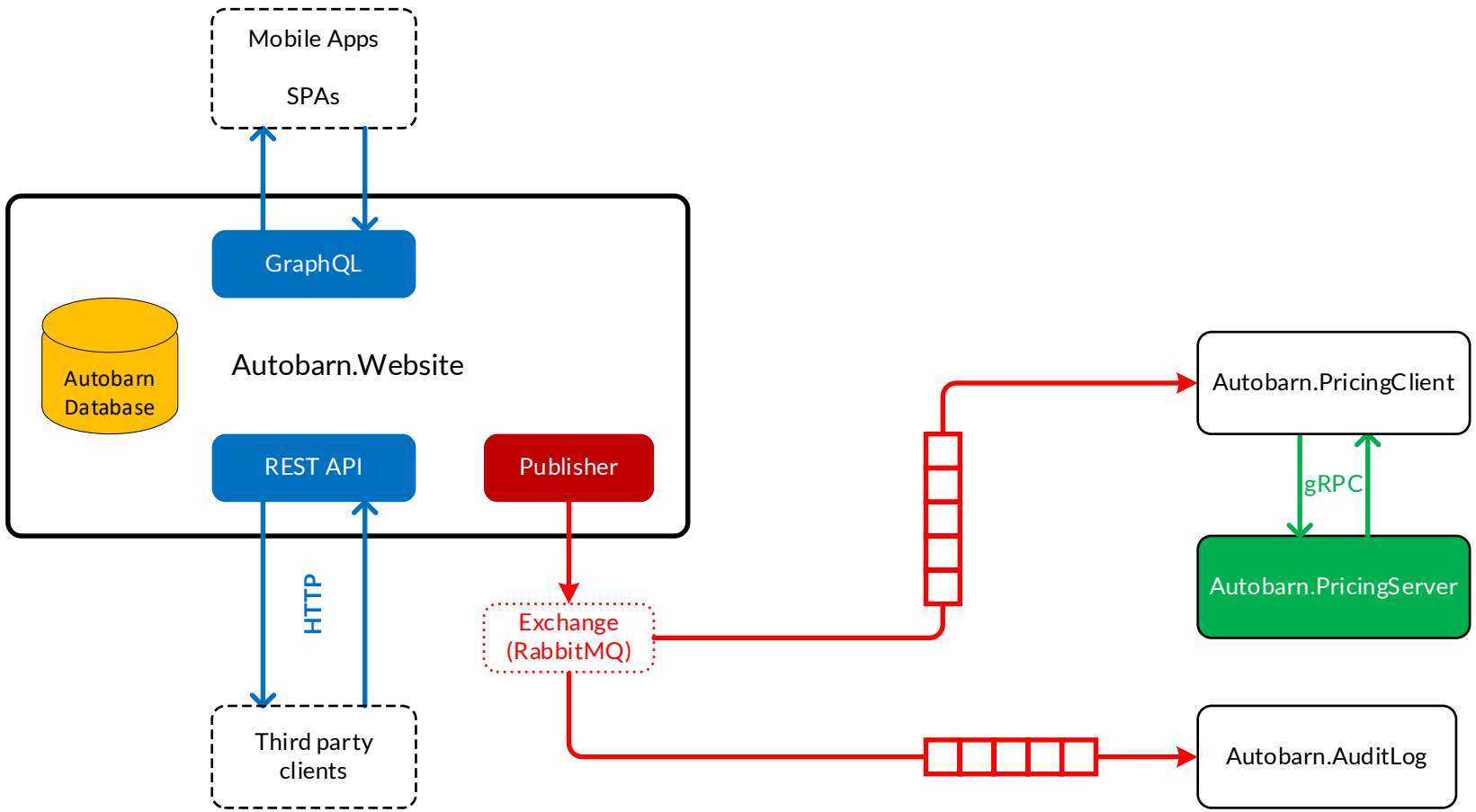

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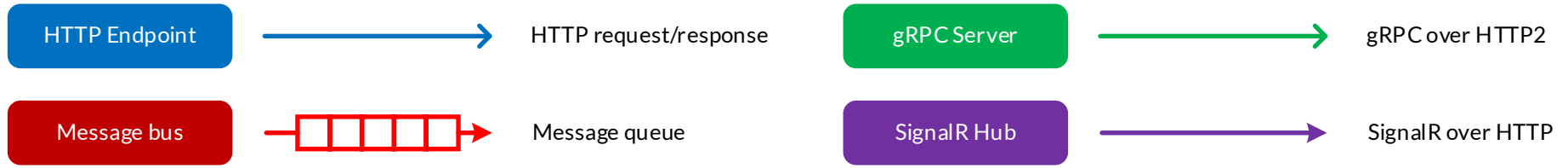

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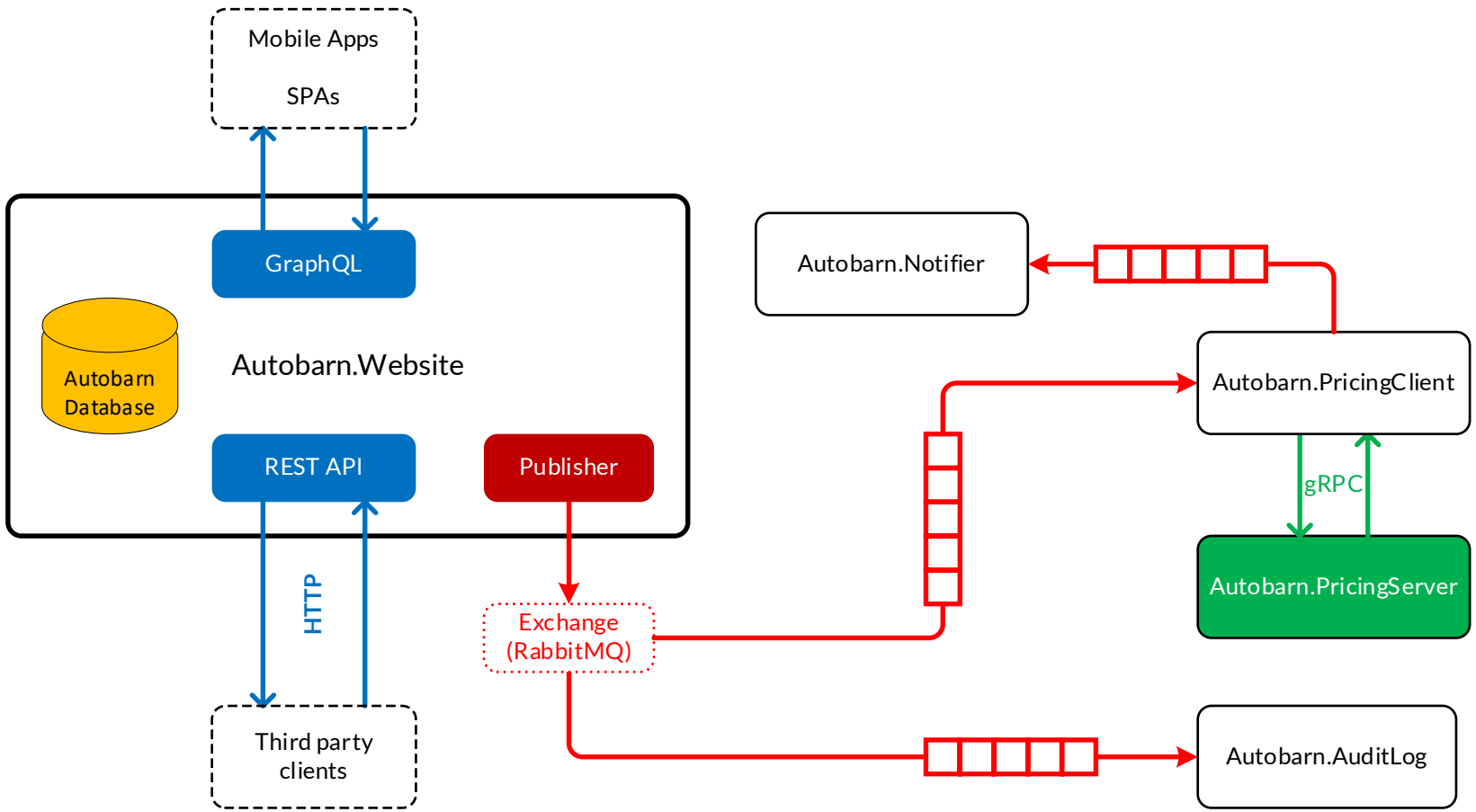

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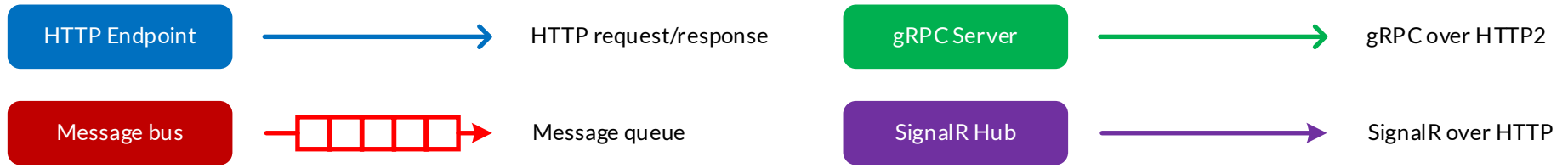

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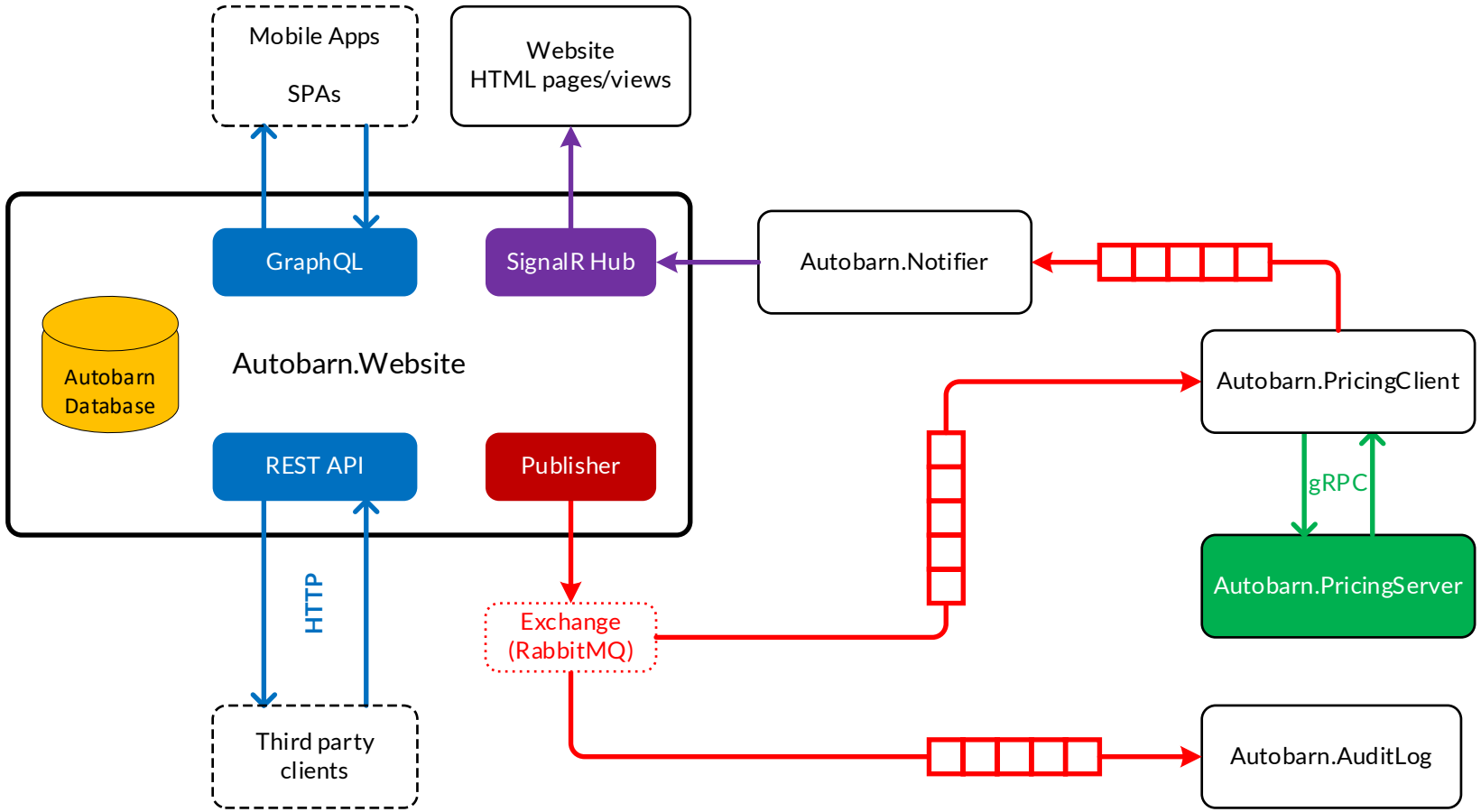

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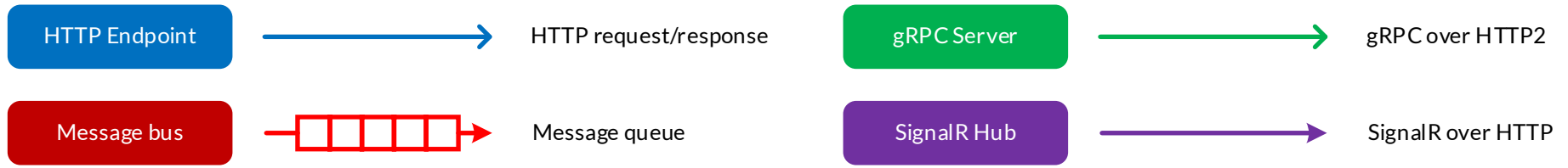

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