NATS: The Cloud-Native Challenger to Kafka's Messaging Throne

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Introduction

Weather Station : Alert! Temperature hit 30°C in the city center!

Weather App: Got it! Sending *"Don't forget sunscreen!"* notifications to users.

Smart Thermostat :
❄ Hey, any power grid updates? Might need to adjust cooling systems.

A **messaging system** is software infrastructure that **enables the exchange of messages** or data between **different parts of a distributed system**, applications, or services.

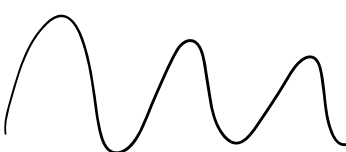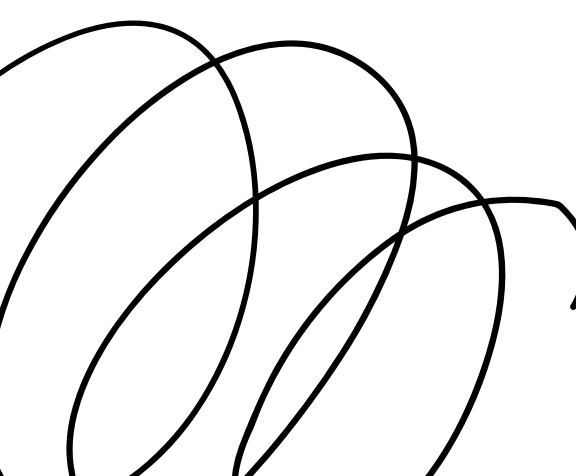# Streaming Technologies Problems

⚠️ **Infrastructure Complexity**

⚠️ **Scalability Challenges**

⚠️ **Data Consistency and Reliability**

NATS OVERVIEW

NATS is a **simple**, **secure** and **high performance** open source data layer for cloud native applications, IoT messaging, and microservices architectures.

Easy to deploy and use

Built-in authentication and encryption

Millions of messages per second
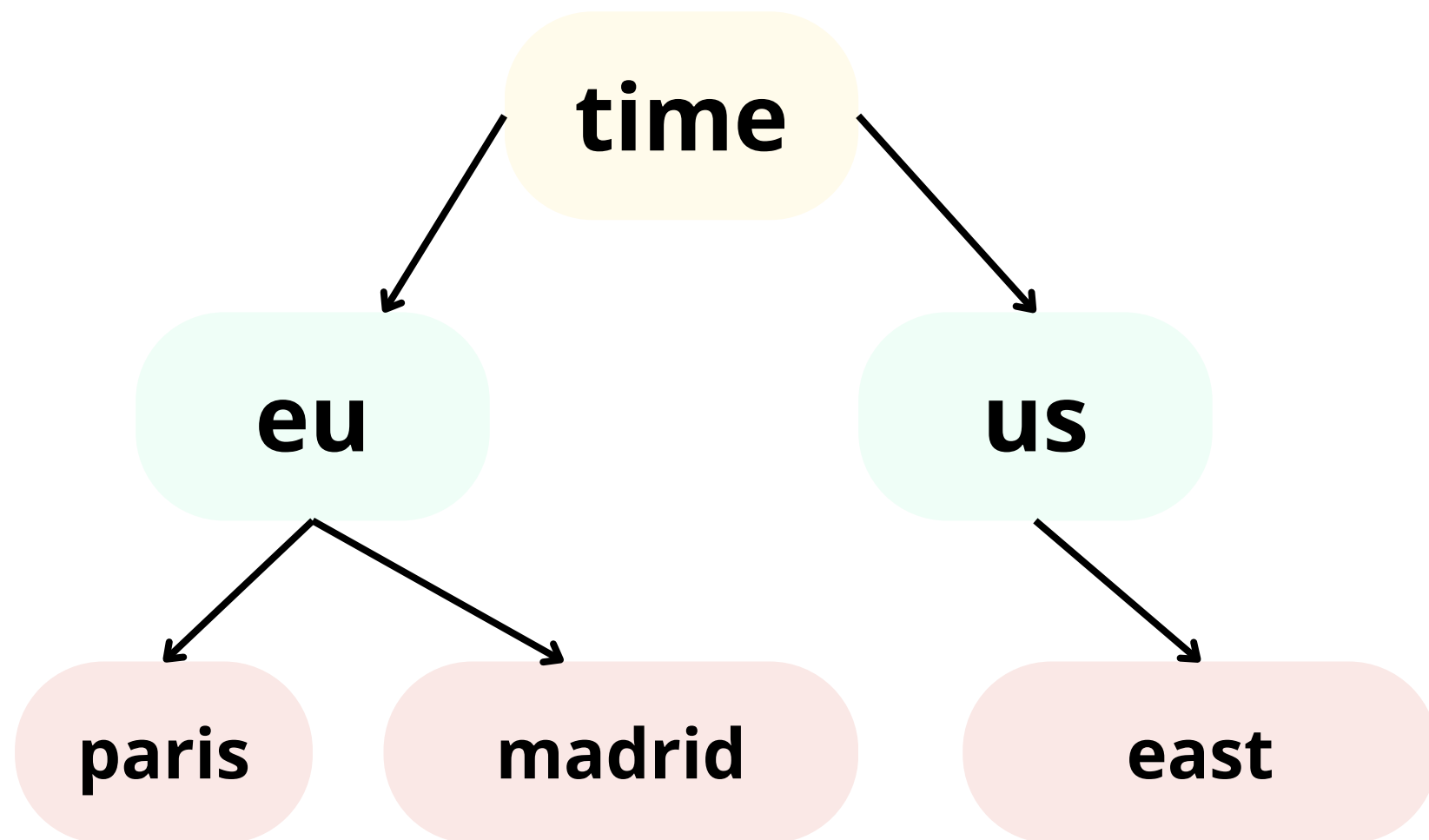
NATS OVERVIEW

NATS

Publish-Subscribe

Request-Reply

Queue Groups

+ JETSTREAM

Streams (Persistence)

Key / Value

Object Store

Service API / WebSocket

Security Model

SUBJECTS

time

eu

us

paris

madrid

east

Publisher subject :
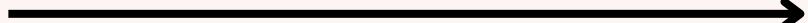
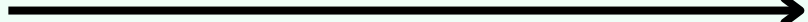| time | time.eu.paris |
| time.eu | time.eu.madrid |
| time.us | time.us.east |

WILDCARDS

(*) used to match a single token

time.eu.* ⟶ *(time.eu.paris, time.eu.madrid, time.eu.london ...)*

(>) used to match on or multiple tokens

time.> ⟶ *(time.eu.paris, time.us.east, time.eu.london.west ...)*