How Do You Architect a Kafka Streams Topology?

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kstd.thriving.dev

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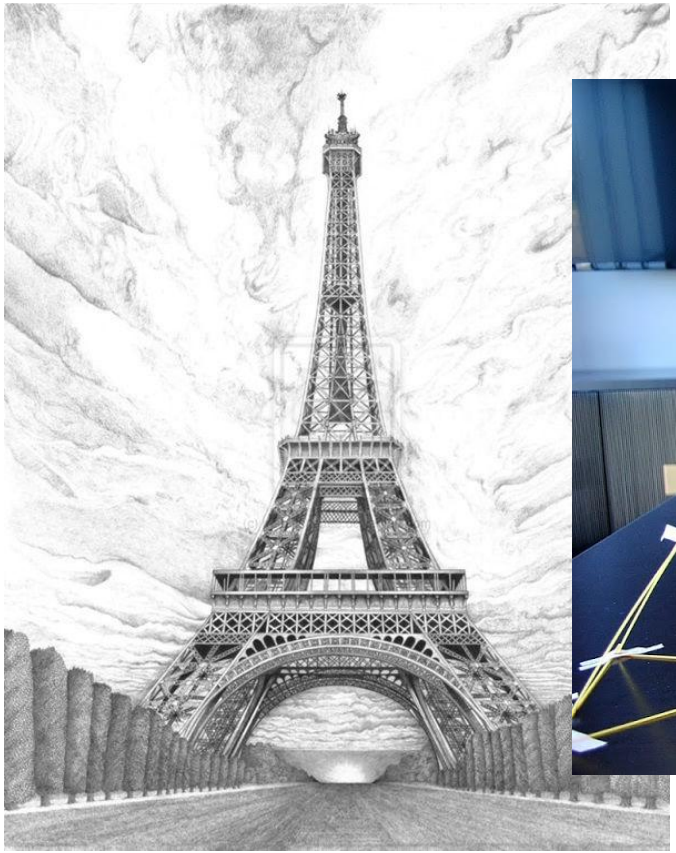
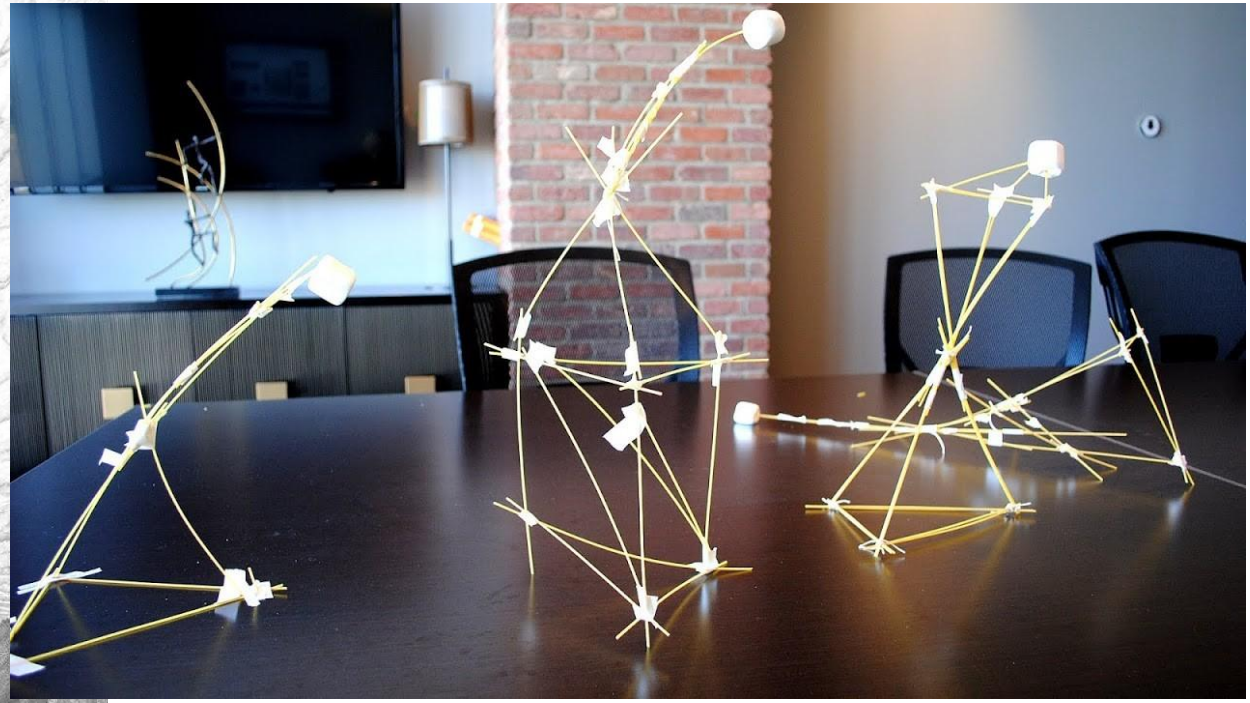
Architecting clarity in complex systems.

Stream processing expert, Kafka enthusiast.
Builder of scalable solutions.

Passionate about elevating engineering practices – blending technical depth with a focus on clarity, communication, and impact.

Business asks for a New Product



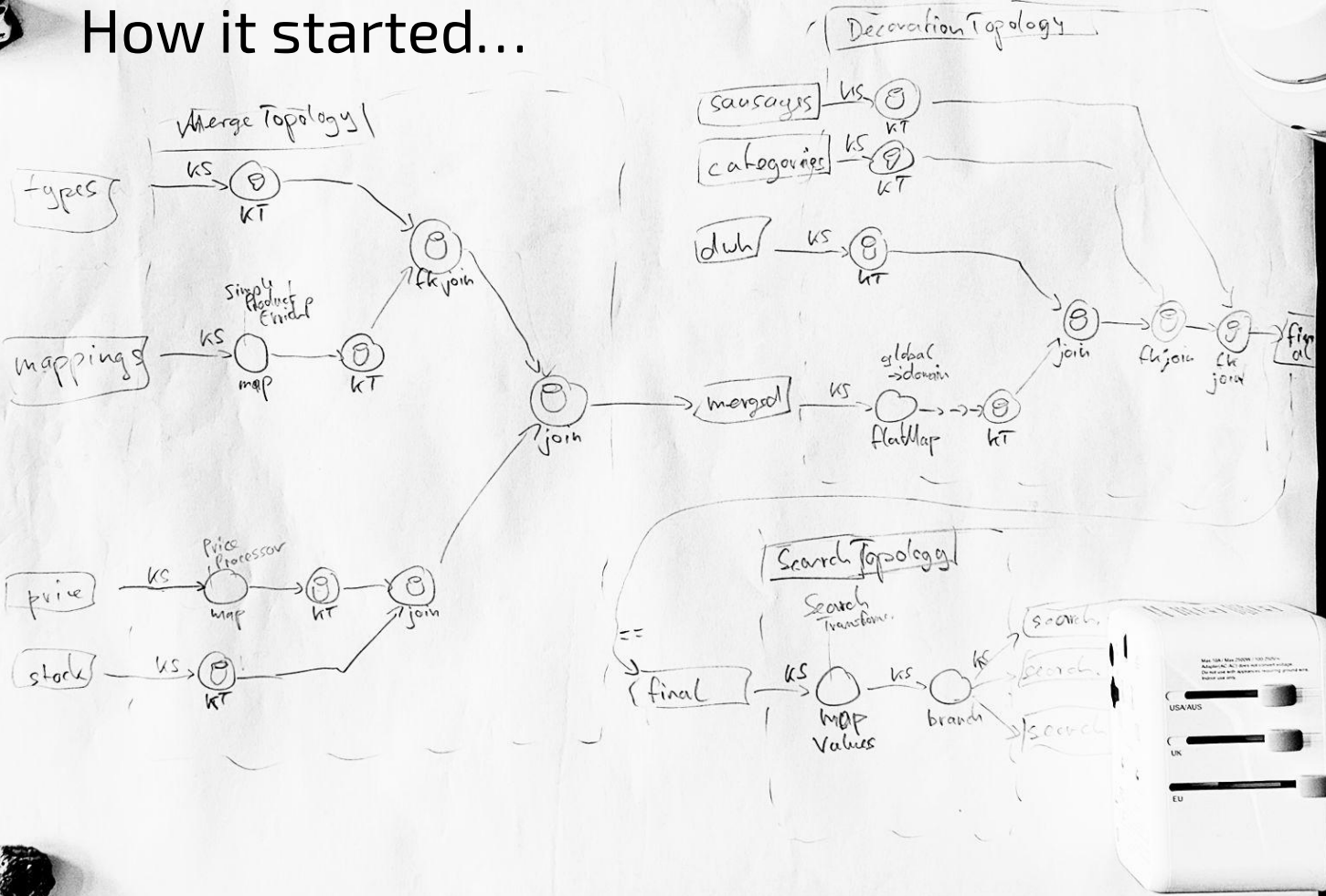


How Do You Architect a Kafka Streams Topology?

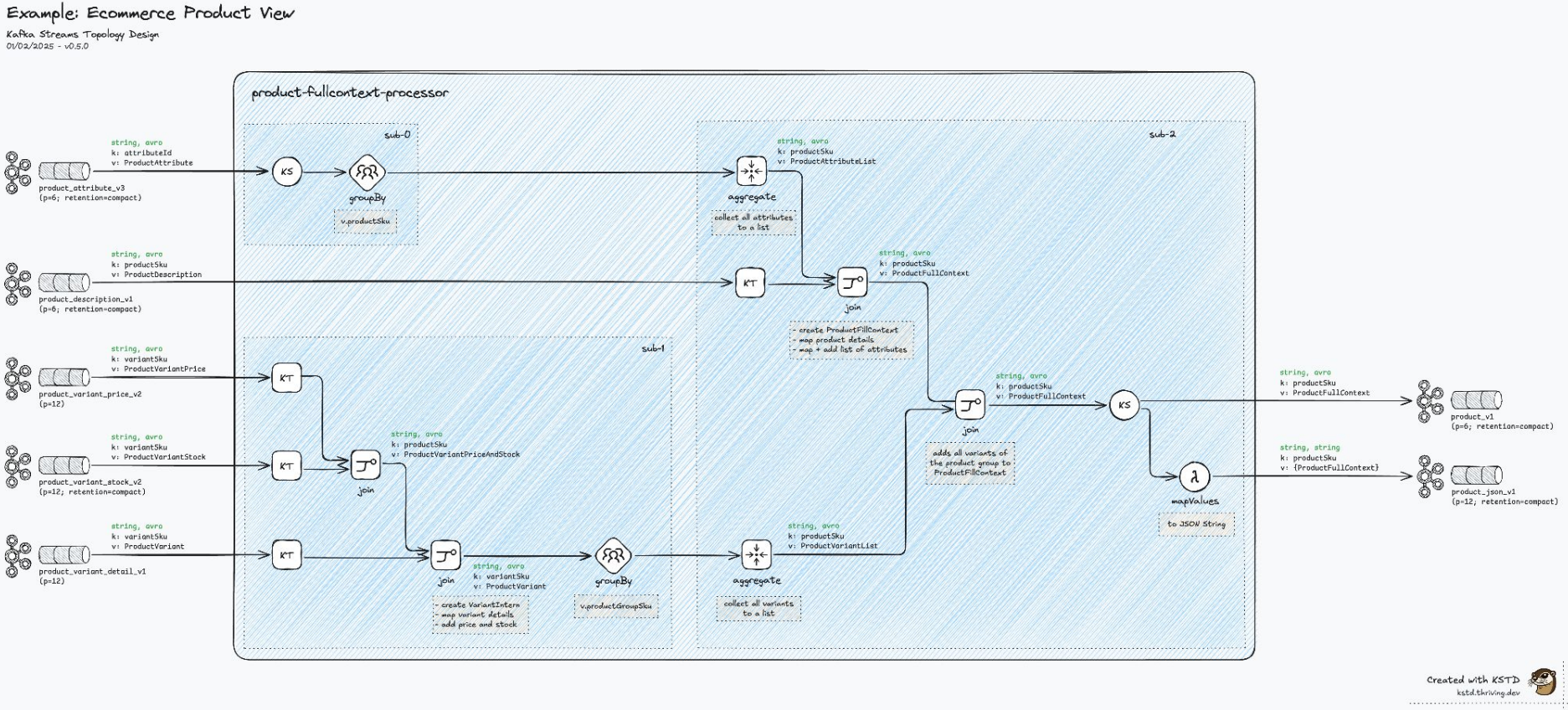
- Real-world pain points:
  - No detailed diagrams, no detailed discussions, building without a blueprint
  - Stalled progress, unclear direction, eroding trust, rising pressure, mounting frustration.
  - Misunderstandings, rework, or outright failure

- ~~UML?~~ ~~ArchiMate?~~ ~~C4 Model?~~
- 🙊 There is no standardized visual modeling language available

How it started...



Where it's going



Kafka Streams Topology Design

The standard for
designing and visualising
Kafka Streams Topologies.

Use with:

EXCALIDRAW

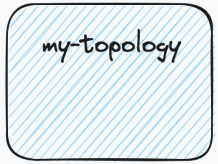
Sketch hand-drawn like diagrams

What you get with KSTD

- Design Standard
  - Layout and Building Blocks
  - Designated library components
- Excalidraw Library
  - No Installation (WebApp)
  - Secure Live Collaboration
  - Save/Open in Native Excalidraw Format
  - Various Export Formats
- Fast whiteboarding sessions

Notation

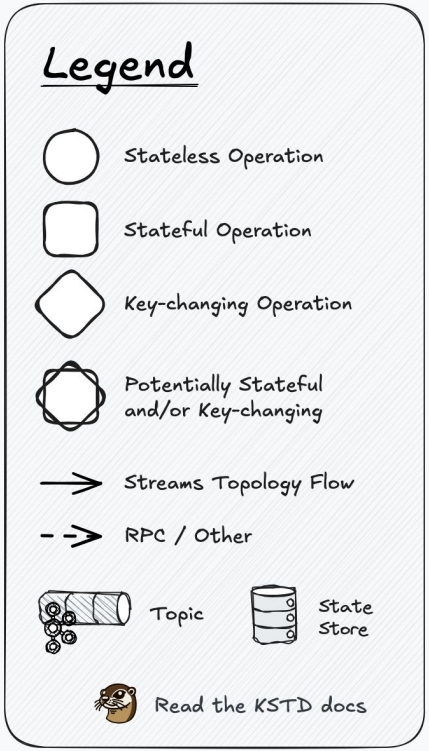
Topology



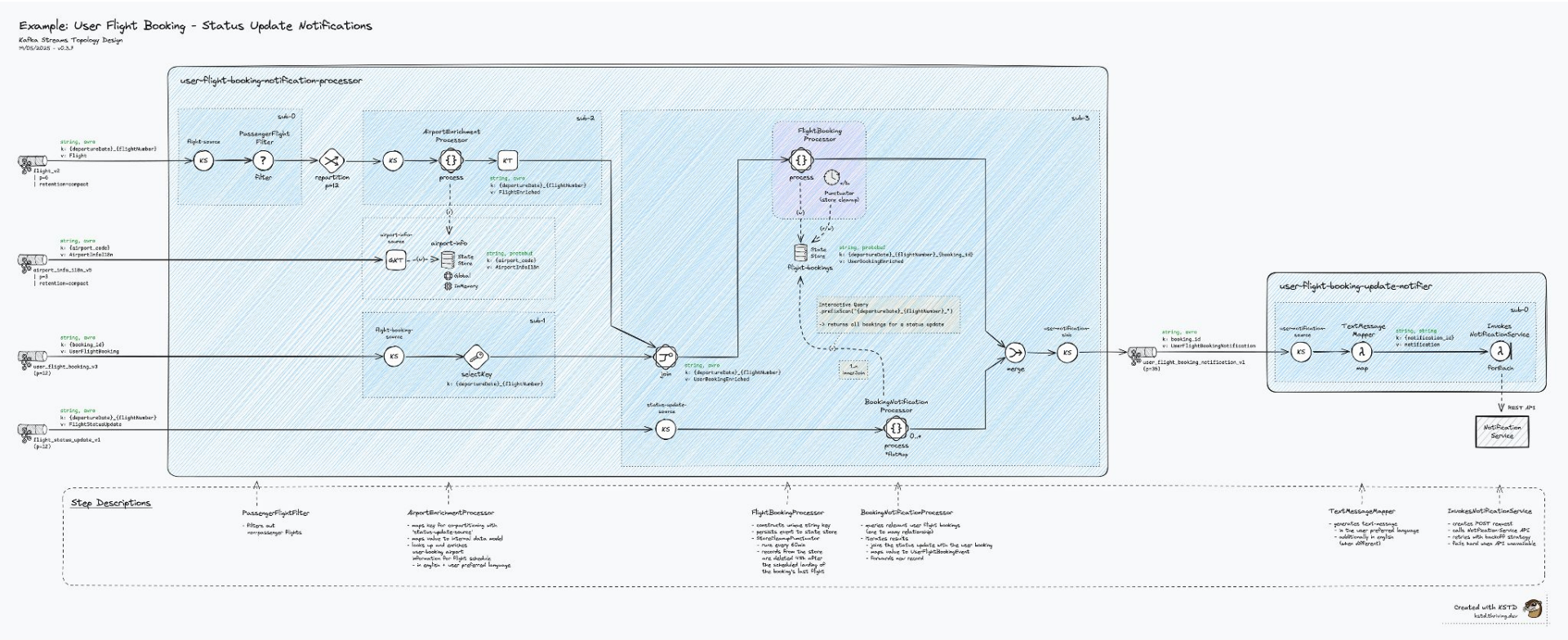
Processor Context

Key-Value Record

```
string, avro
k: userId
v: UserEvent
```



What You Get With KSTD



Design Principles

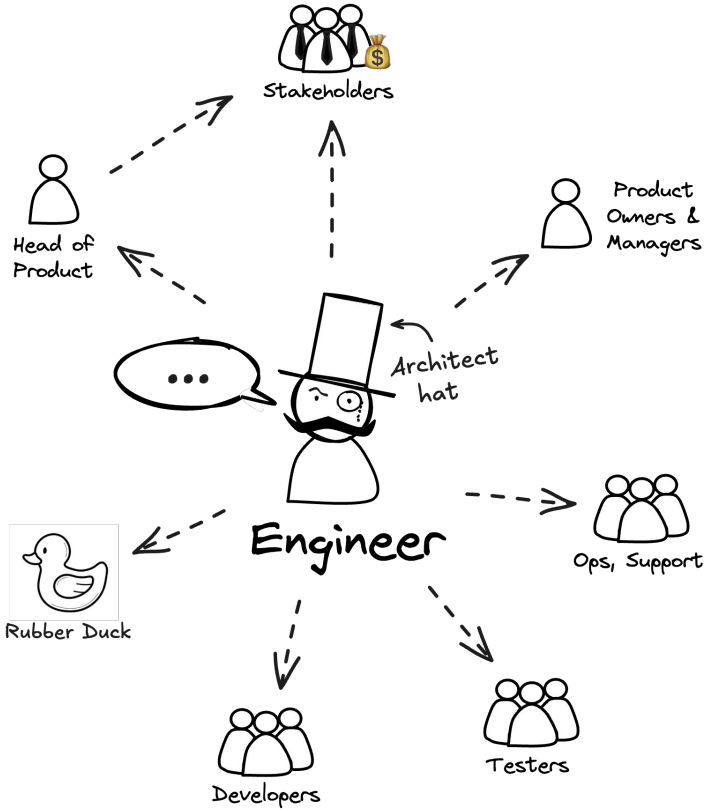
Crafting KSTD Diagrams

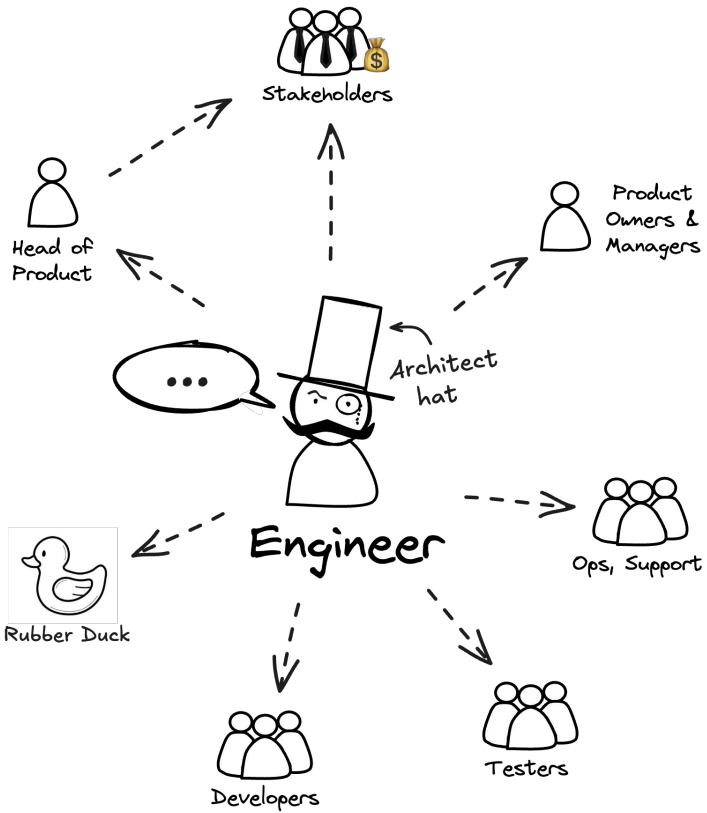
> *“Everything should be made as simple as possible, but not simpler”* Albert Einstein

1. Start Simple, and Keep It Simple
2. Prioritize Clarity Over Completeness
3. Iterate and Add Details as the Design and Project Evolves

Why

create
Architecture Diagrams?





Purpose; Intention

Shared vision+understanding

Make complexity appear simple

Reason, verify, de-risk

Building trust

Questions?

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kstd.thriving.dev
thriving-dev/kstd-examples

How to Get Started?

1. kstd.thriving.dev
2. "Install library"
3.