Event-driven architecture for a 12-factor app

How the event-driven architecture fits into the “Backing services”, “Processes” and “Disposability” factors

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Nice to meet you!

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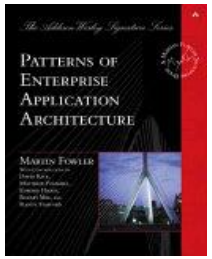
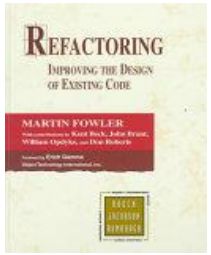
The Twelve-Factor App

Source: https://12factor.net





- I. Codebase

One codebase tracked in revision control, many deploys

- II. Dependencies

Explicitly declare and isolate dependencies

- III. Config

Store config in the environment

- IV. Backing services

Treat backing services as attached resources

- V. Build, release, run

Strictly separate build and run stages

- VI. Processes

Execute the app as one or more stateless processes

- VII. Port binding

Export services via port binding

- VIII. Concurrency

Scale out via the process model

- IX. Disposability

Maximize robustness with fast startup and graceful shutdown

- X. Dev/prod parity

Keep development, staging, and production as similar as possible

- XI. Logs

Treat logs as event streams

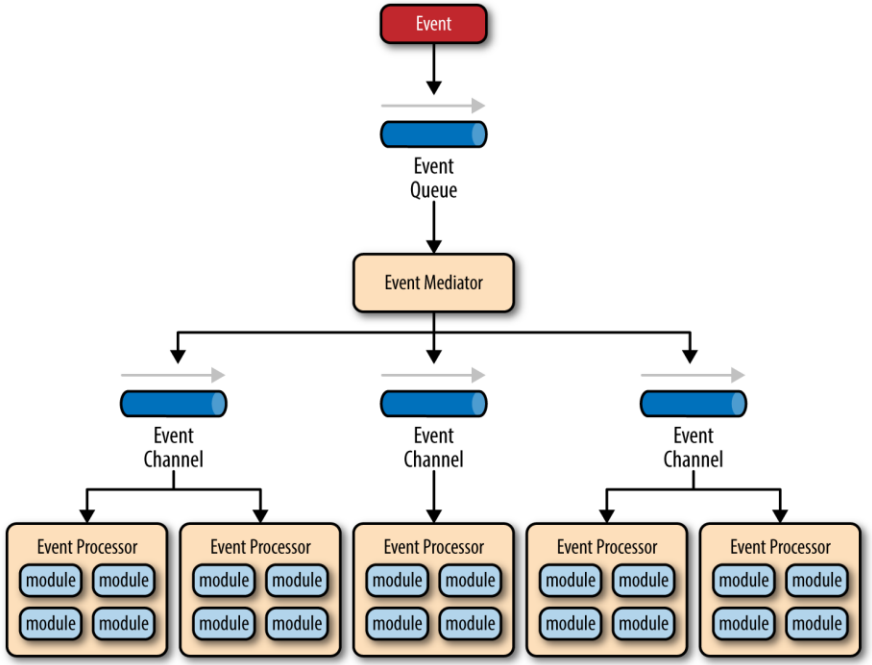
- XII. Admin processes

Run admin/management tasks as one-off processes

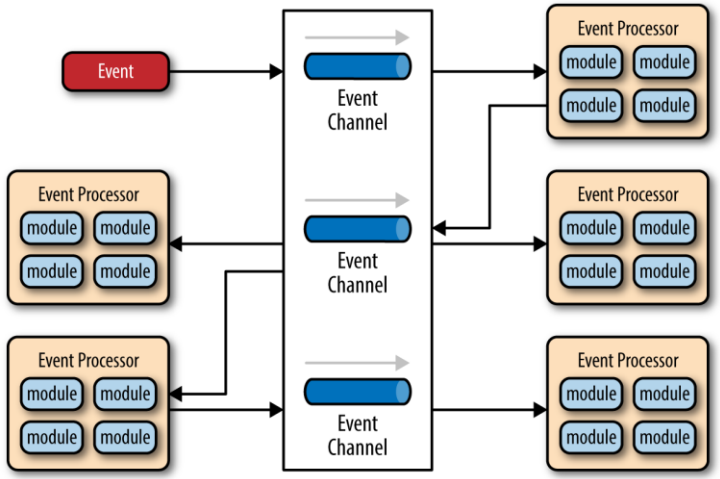
The event-driven architecture

The event-driven architecture is made up of highly decoupled, single-purpose event processing components that asynchronously receive and process events.

Mediator Topology

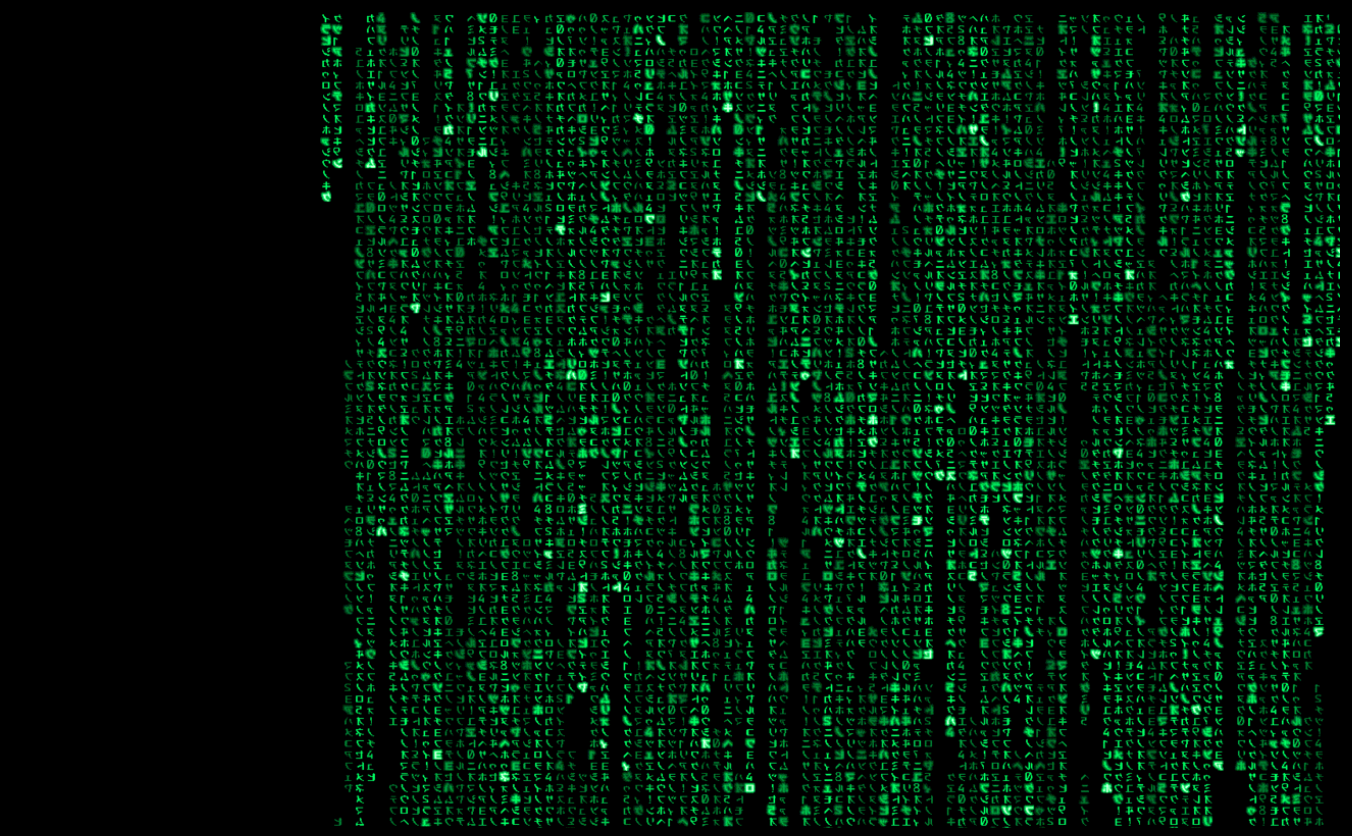


Broker Topology



Demo!

Wake up, Neo…



Event-driven arch meets 12-factor app

By following the distributed asynchronous architecture pattern, we turn a legacy set of services into a highly scalable and robust SaaS solution.

Sync app

- Tight coupling
- Some processes have multiple reasons to change
- Resources cannot be detached
- High chances for data to get out of sync
- Stopping a resource must be planned

Async app

- Loose coupling
- Each process has one and only one reason to change
- Resources can be detached
- Low chances for data to get out of sync
- A resource can stop at any given point

The deck and the sample app source code are available at https://github.com/dsosedov/event-driven-arch-demo

Questions?

Feel free to ask!