Chopping the monolith

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Me, myself and I

- Developer
- Developer advocate

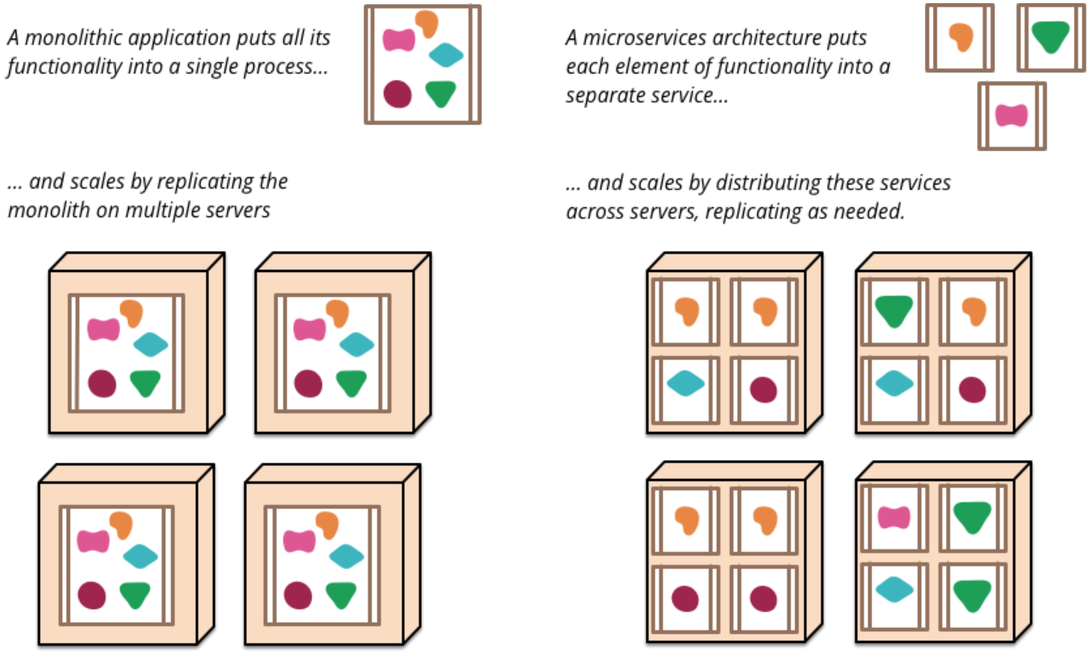
Disclaimer

- Contains a lot of controversy inside

The sad state we're in

- Monolith = bad
- Microservices = good

What are microservices anyway?



"In short, the microservice architectural style is an approach to developing a single application as **a suite of small services**, each **running in its own process** and communicating with lightweight mechanisms, often an HTTP resource API. These services are built around business capabilities and independently deployable by fully automated deployment machinery. There is a bare minimum of centralized management of these services, which may be written in different programming languages and use different data storage technologies."

-- https://martinfowler.com/articles/microservices.html

Characteristics of microservices

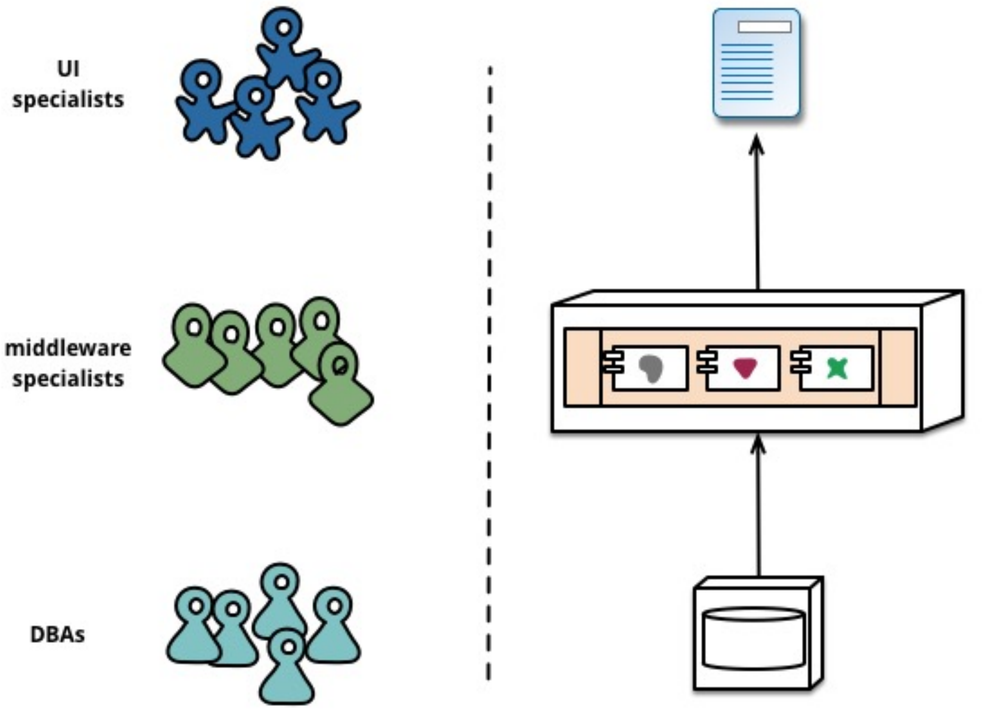
- Componentization via Services
- Organized around Business Capabilities
- Smart endpoints and dumb pipes
- Decentralized Governance
- Decentralized Data Management
- Infrastructure Automation
- Design for failure
- Evolutionary Design
- Products not Projects

Conway's Law

"Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure."

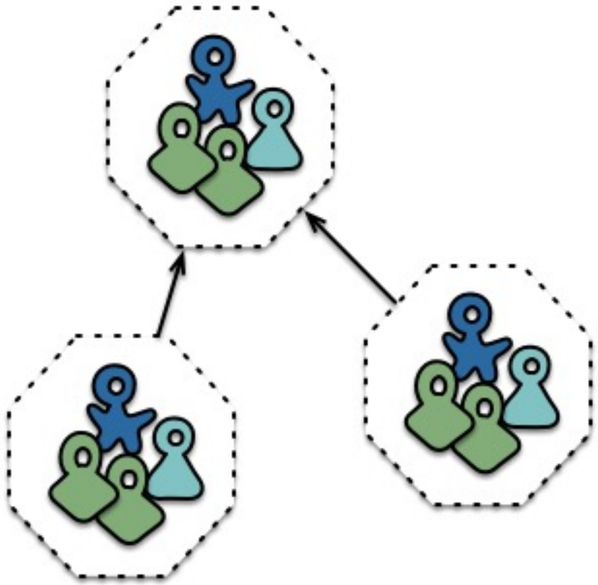
-- Melvin E. Conway

Reversing Conway's Law

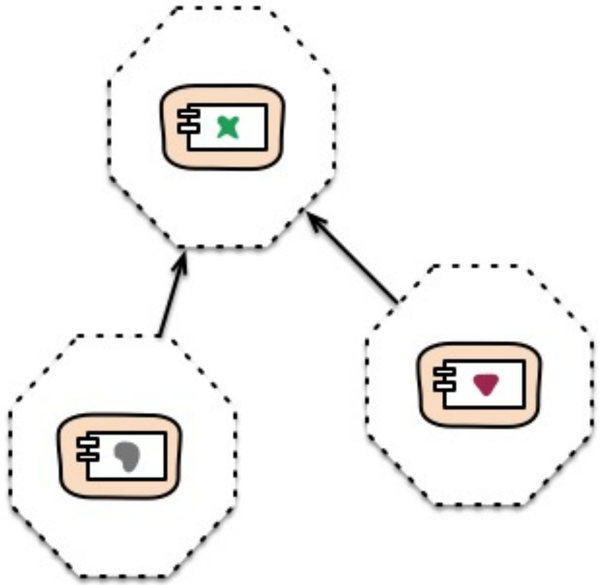


Siloed functional teams...

... lead to silod application architectures.
Because Conway's Law



Cross-functional teams...



... organised around capabilities
Because Conway's Law

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Amazon Web Services, a poster child for microservices

“We try to create teams that are no larger than can be fed by two pizzas,” said Bezos. “We call that the two-pizza team rule.”

-- https://docs.aws.amazon.com/whitepapers/latest/introduction-devops-aws/two-pizza-teams.html

Whose organization is like this?

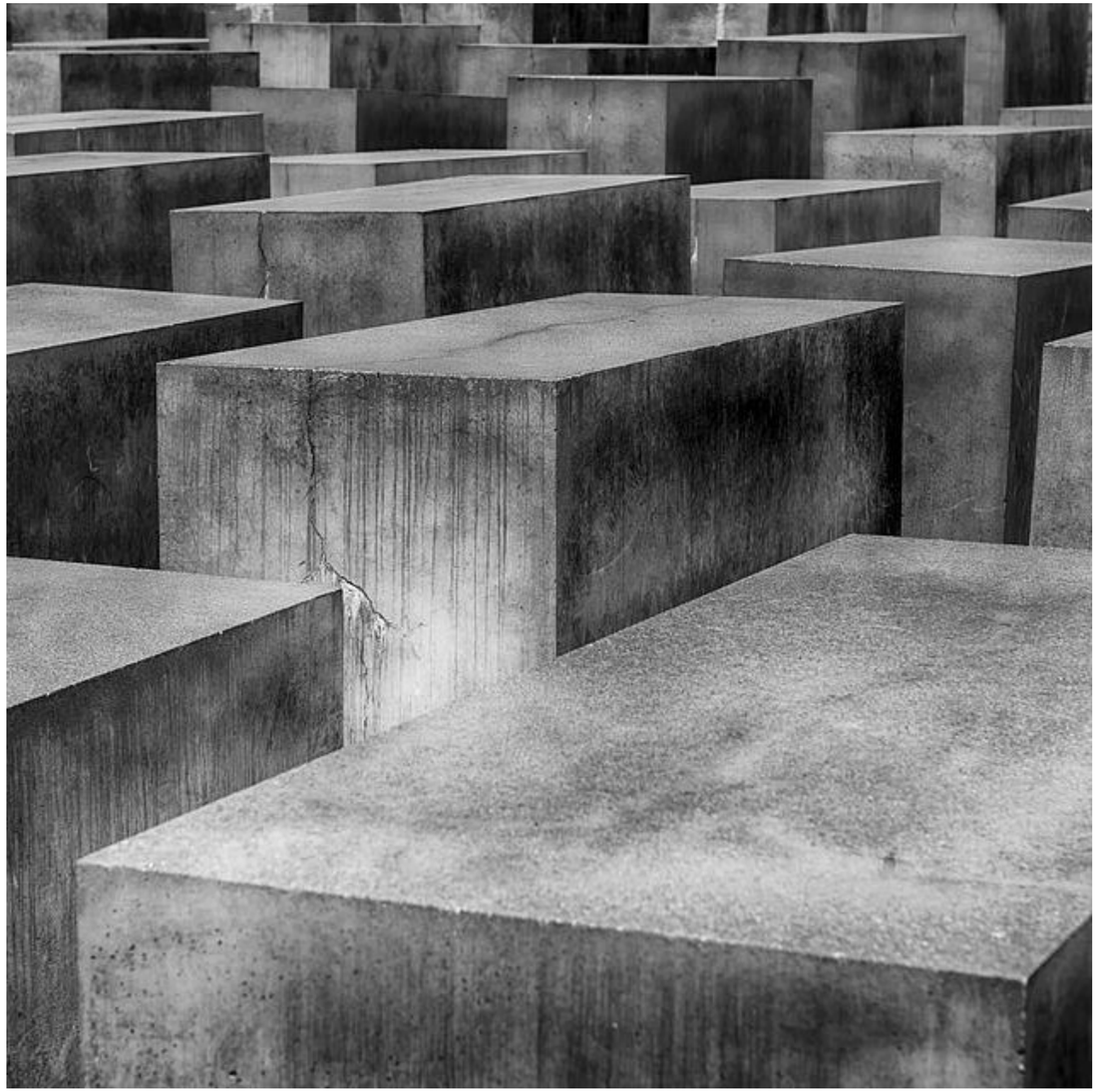
A recipe for failure

1. An architect/lead reads about microservices
2. Remembers only the benefits
3. Applies only the technical aspects
4. Leaves for another job with a shinier CV

What’s the main reason behind microservices?

Benefits	Costs
• Strong Module Boundaries • Independent Deployment • Technology Diversity	• Distribution • Eventual Consistency • Operational Complexity

Strong module boundaries



- Many other ways to enforce boundaries
- With less downsides

Technology diversity

- Satisfies some people’s aspirations
- Doesn’t help the organization as a whole

Lead time, one of the Golden DevOps metrics

How did we manage releases “back in the days”?

- Unfrequent releases
  - Release trains
- You don’t want to miss the train!
  - Bugfixes are allowed
  - Shove feature into a bugfix

It’s not possible to release often and test monoliths well

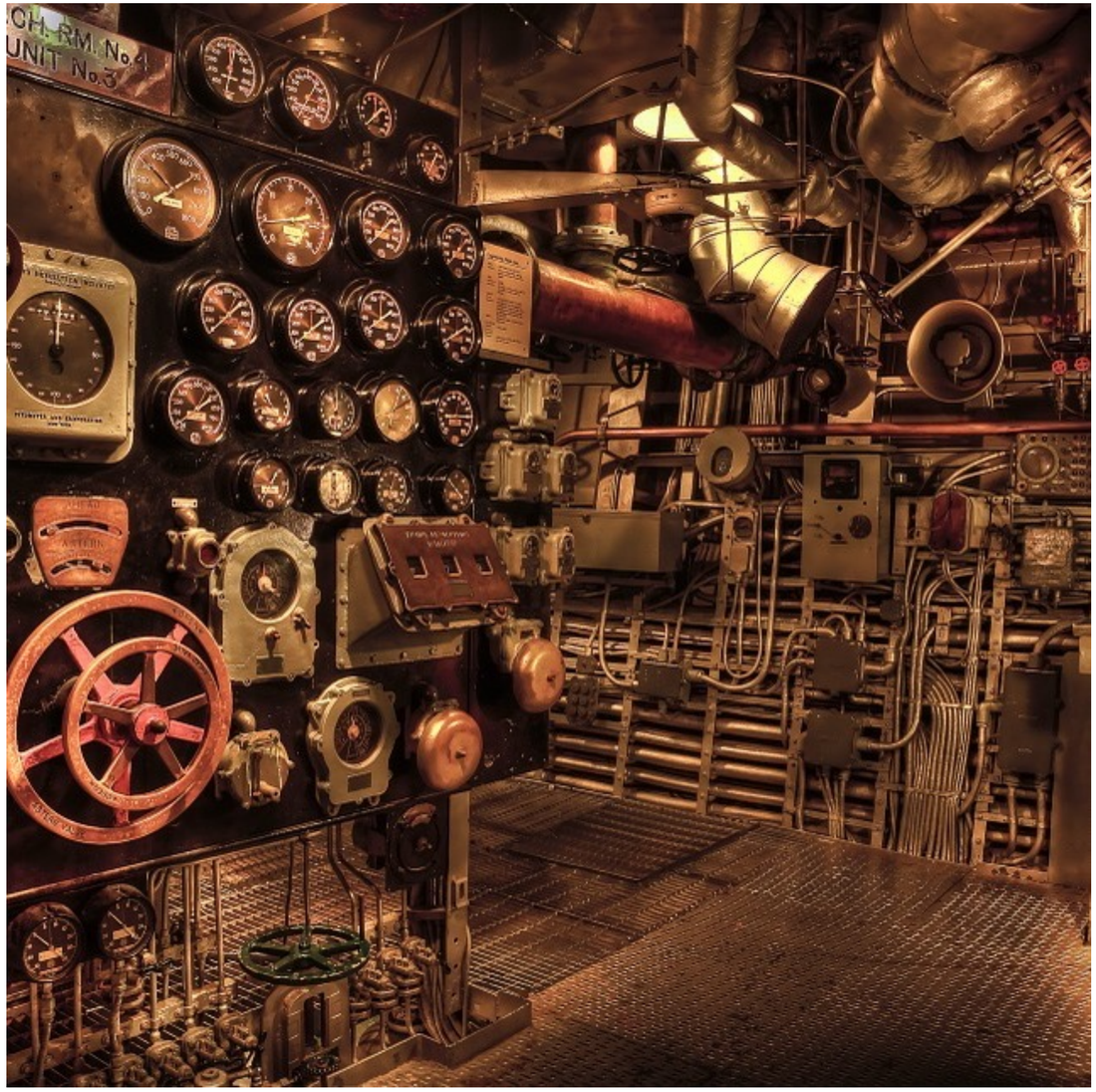
The real problem

- Not all parts of an app change at the same speed
- Some are more stable than others
- Reasons for change
  - Business “requirement”
  - Law

Rules engine

A business rules engine is a software system that executes one or more business rules in a runtime production environment. The rules might come from legal regulation, company policy, or other sources. A business rule system enables these company policies and other operational decisions **to be defined, tested, executed and maintained separately from application code**.

-- https://en.wikipedia.org/wiki/Business_rules_engine



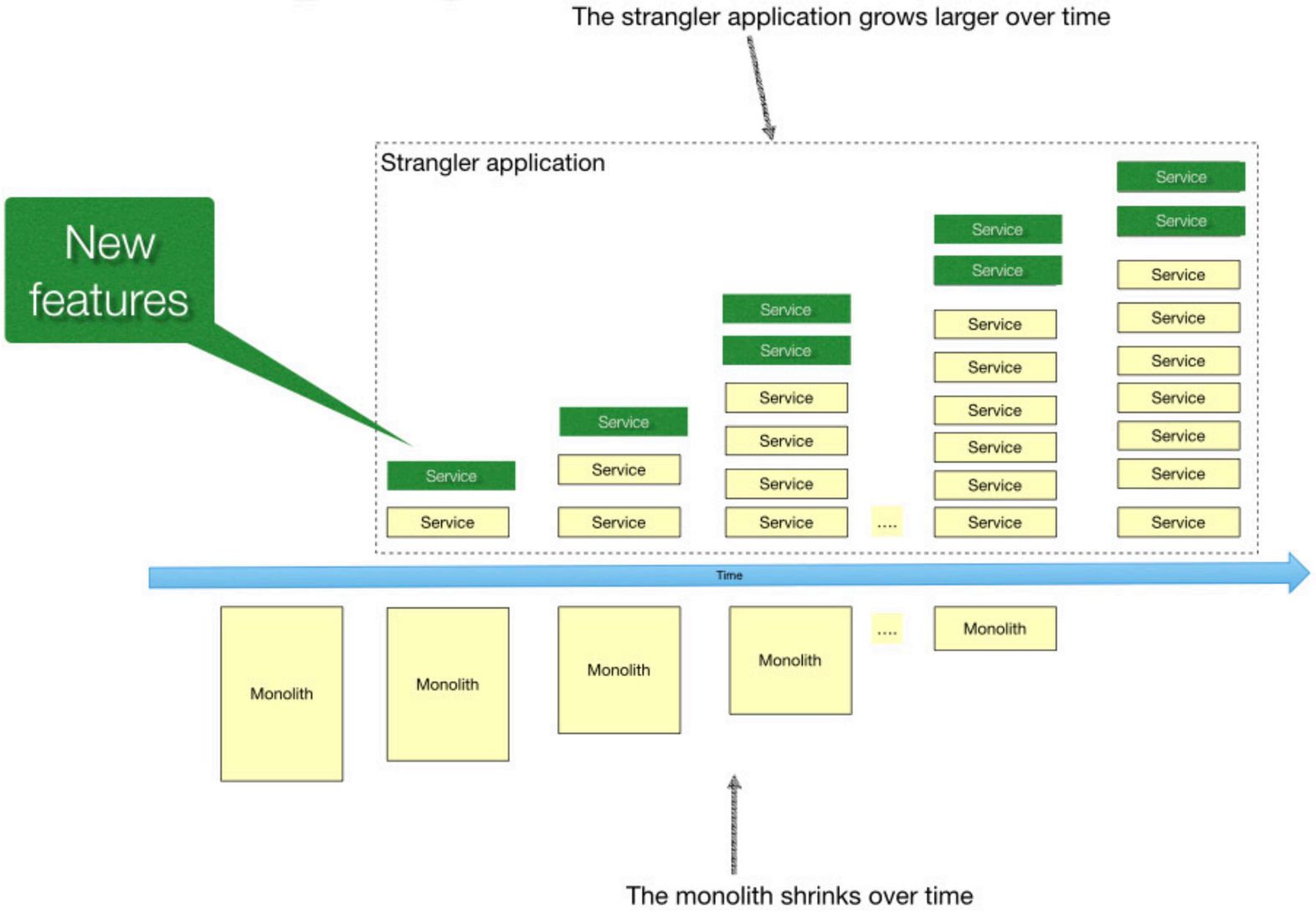
Characteristics of rules engines

- No release
- The business changes the rules how often they want
- With great power comes great responsibility

Isolate the quick-changing part

- Alternative implementations:
  - Rules engine
  - Microservice
  - Serverless function
  - Something else?

Strangling the monolith



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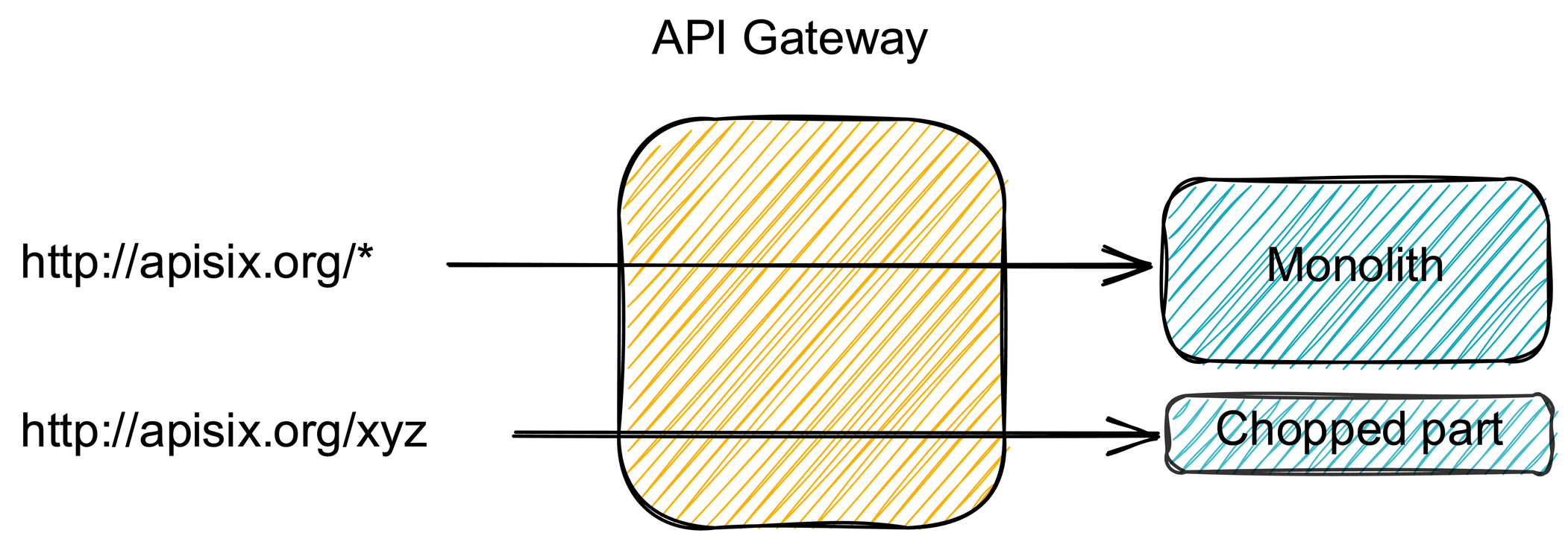
https://microservices.io/patterns/refactoring/strangler-application.html

“Chop” the part



Example: an e-commerce shop

- Business wants to push some products
  - Too much stock
  - End-of-season leftovers
  - High margin product
  - Flagship product

Sell more by lowering price

- Pricing should be very flexible
- Impossible to model pricing options ahead of time
- “Chop” the pricing engine
  - Don’t break the clients!

Thanks for your attention!

- https://blog.frankel.ch/
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