4Developers Conference

Software is (Still) Eating the world!

Rashmi Nagpal
Gopher

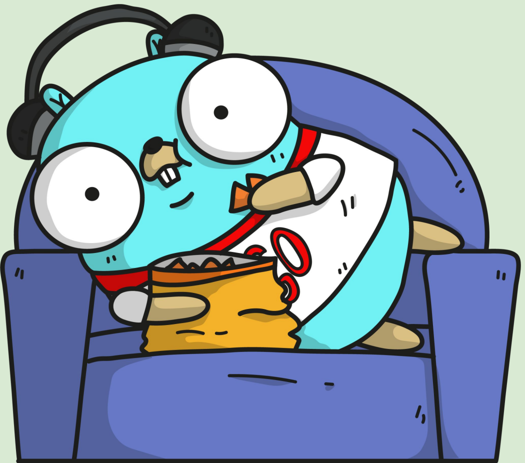
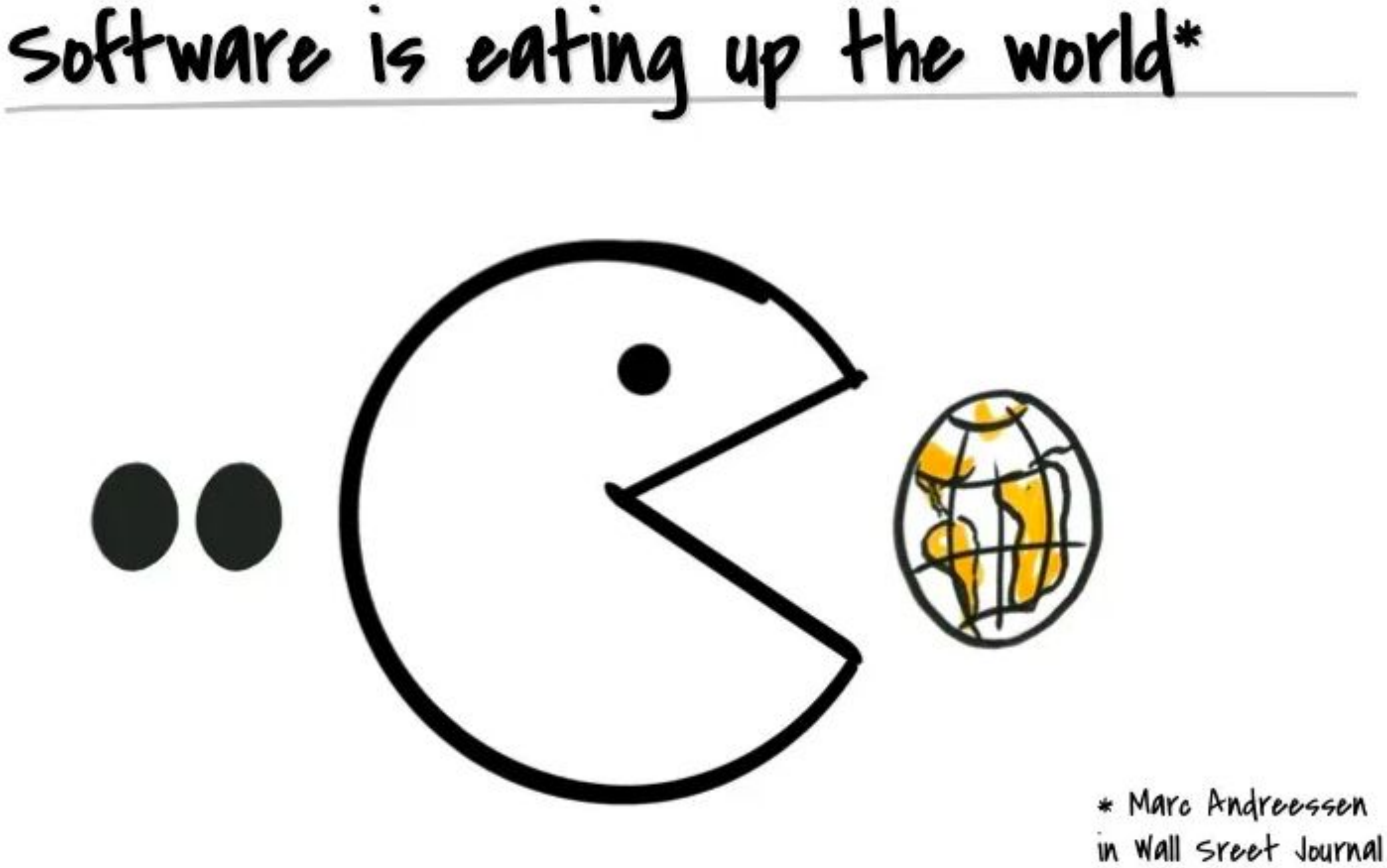


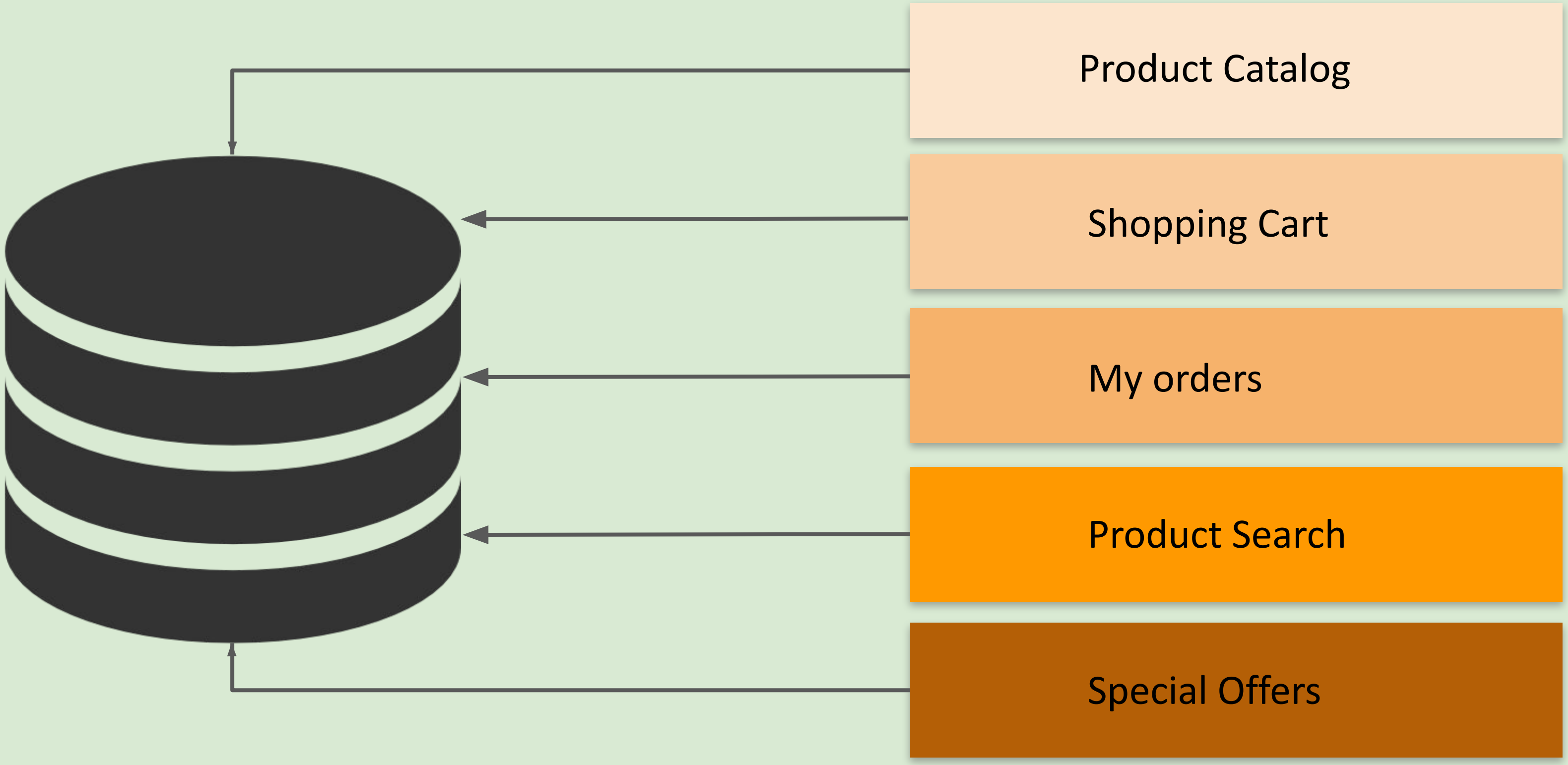
Image: Gopher Artwork by Ashley McNamara



Source: GOOGLE images

- Product Catalog
- Shopping Cart
- My orders
- Product Search
- Special Offers

Traditional Architecture



Product Catalog

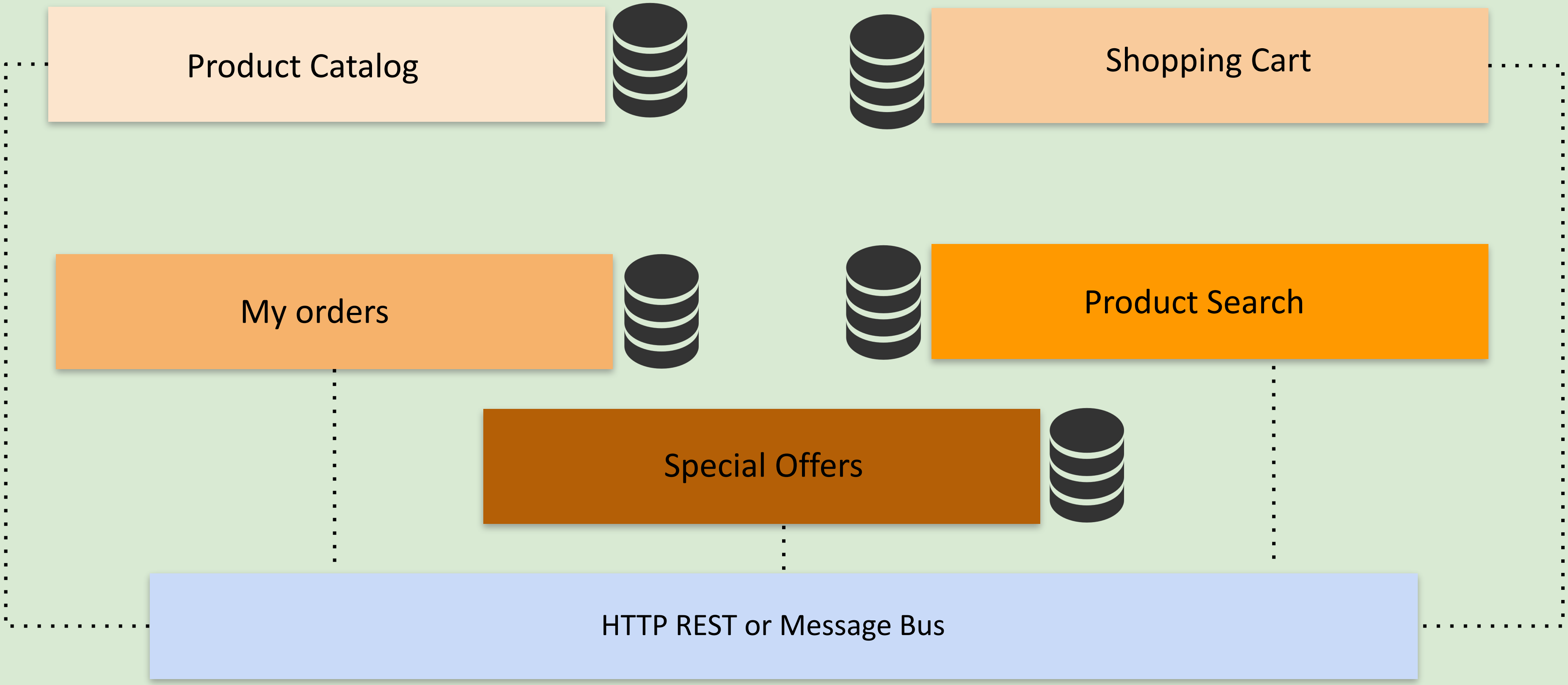
Shopping Cart

My orders

Product Search

Special Offers

Microservice Architecture



Product Catalog

Shopping Cart

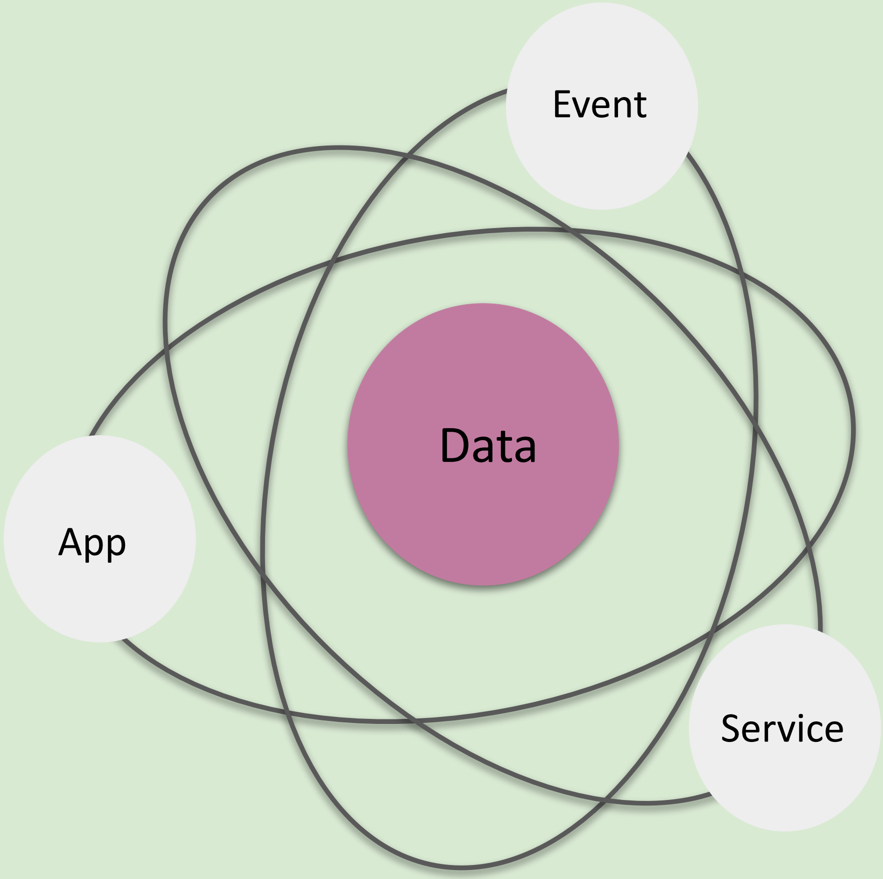
My orders

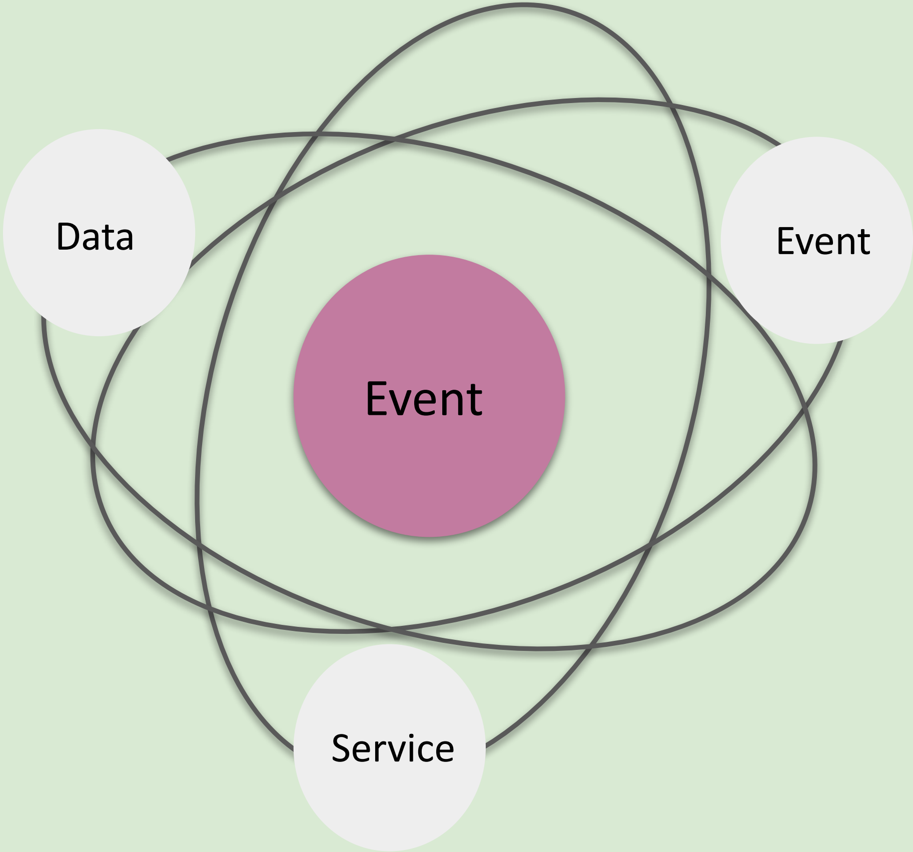
Product Search

Special Offers

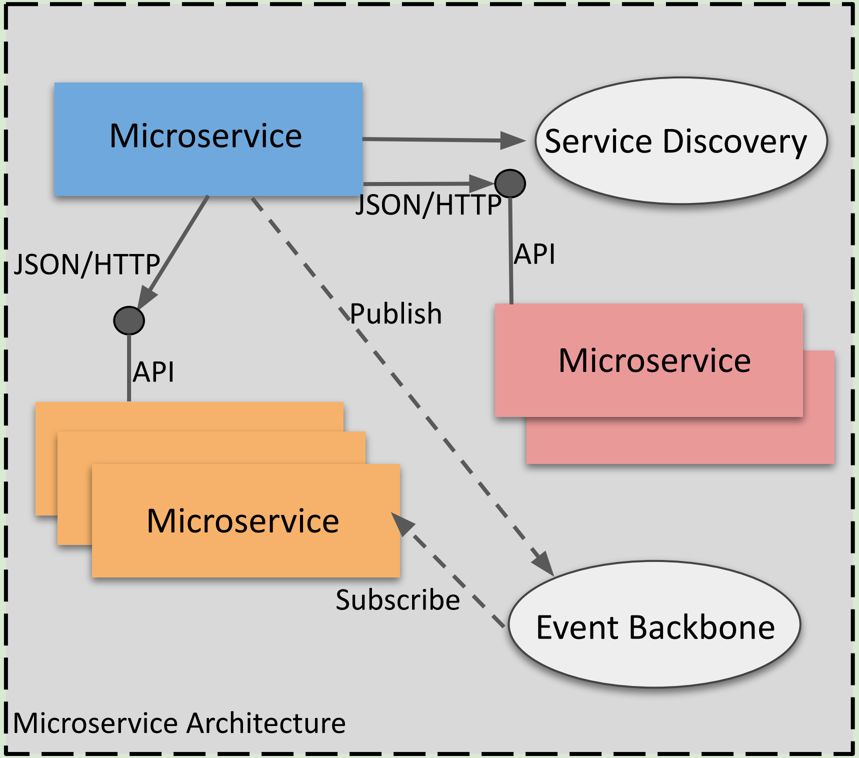
HTTP REST or Message Bus

Event-driven Microservices





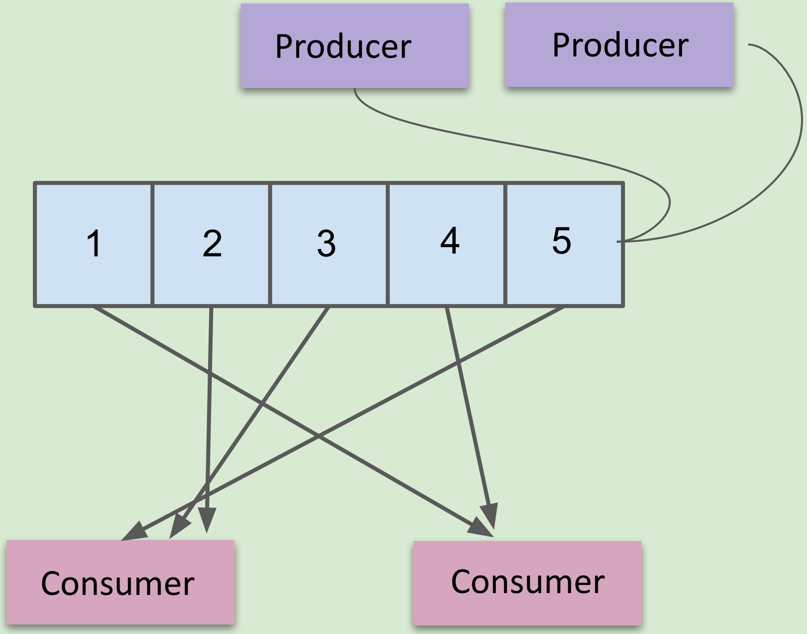
Event-driven Microservices



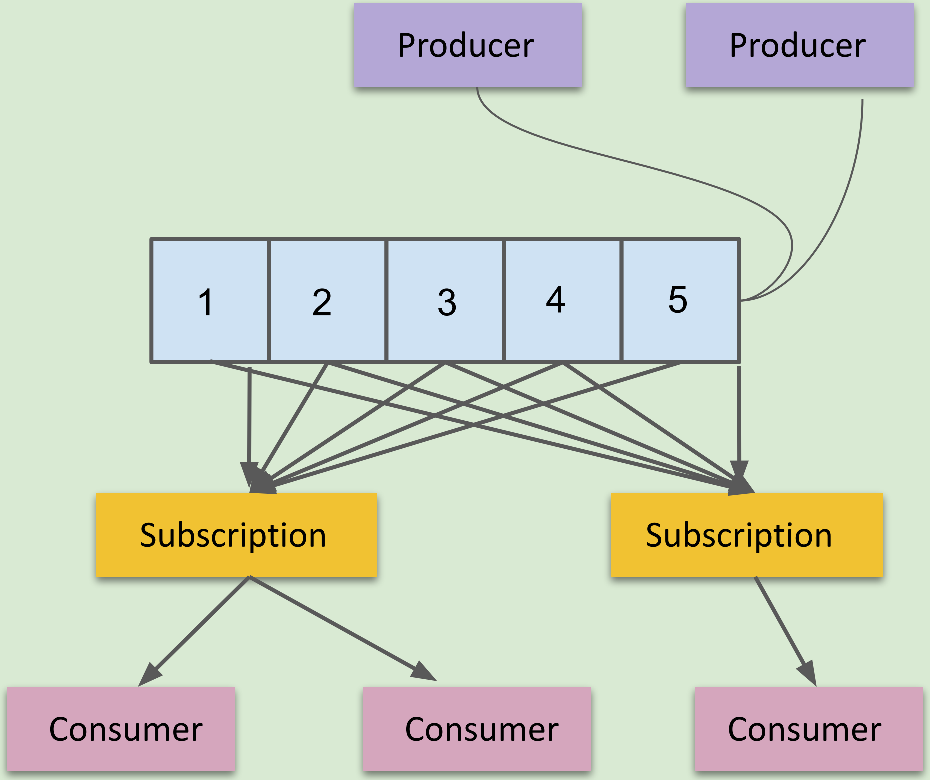
- Communicate primarily with events, with API’s whenever required.
- Can produce or consume events using publish/subscribe messaging protocol.
- Events are handled by an event backbone.

Messaging patterns

1. **Point to point**

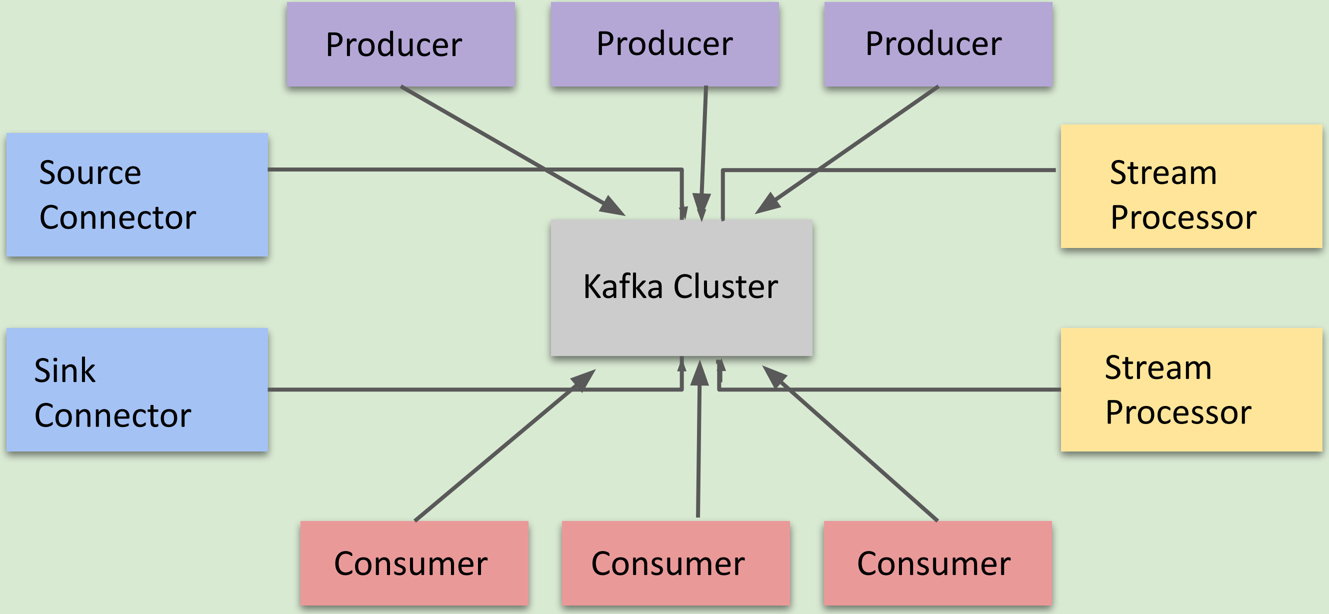


2. Publish/Subscribe



Example

Apache Kafka



Go Microservices Framework

1. Go Micro
2. Go Kit
3. Gizmo
4. Kite
5. Gin

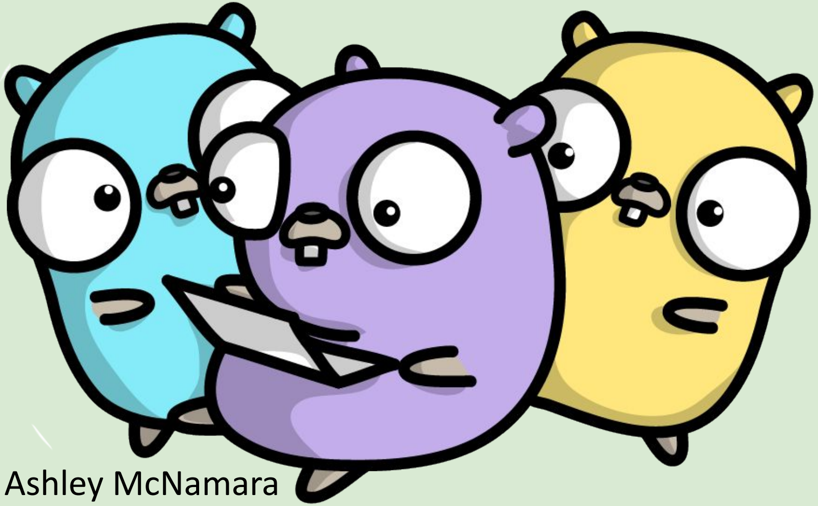
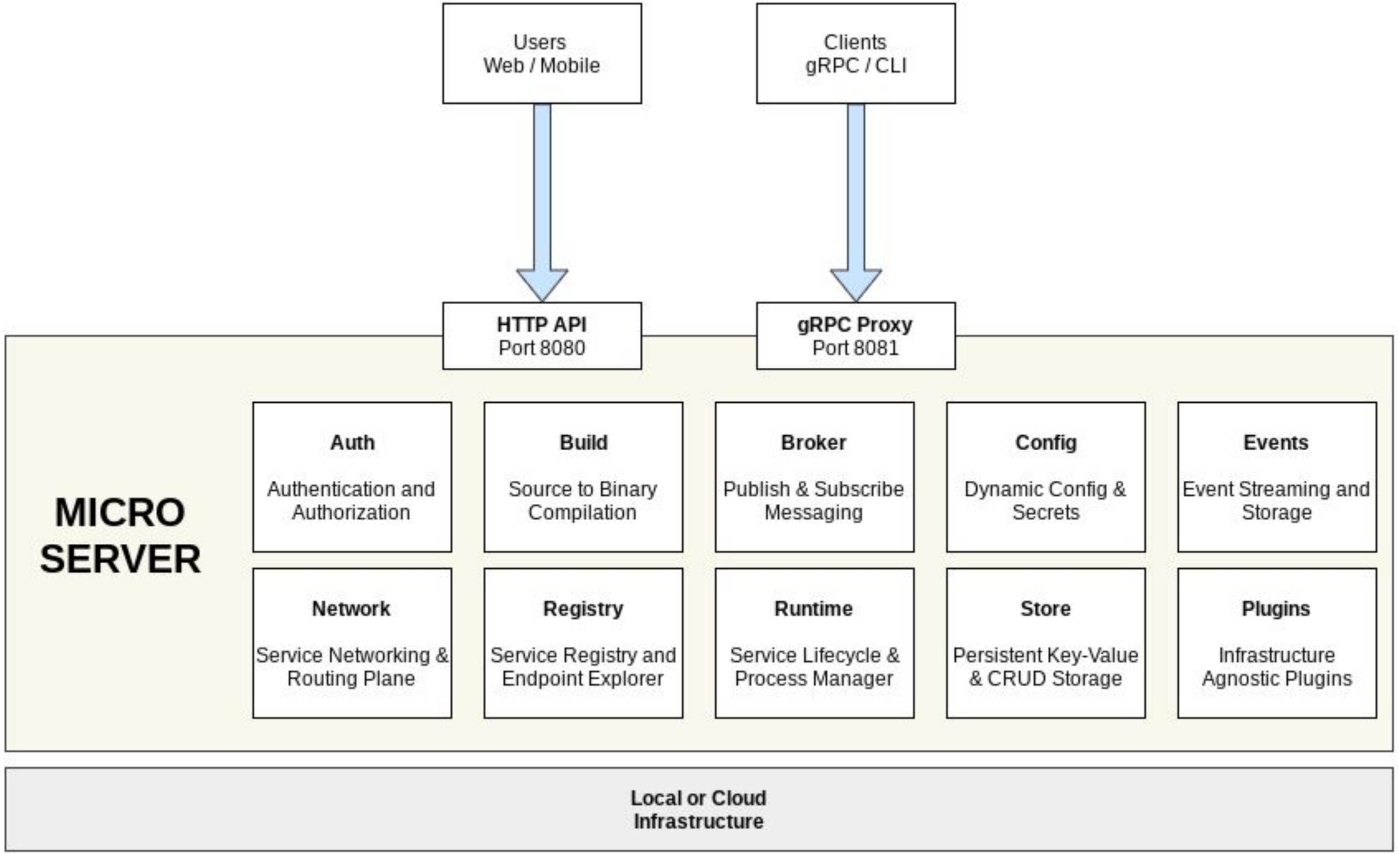


Image: Gopher Artwork by Ashley McNamara

Go Micro Framework



Users
Web / Mobile

Clients
gRPC / CLI

HTTP API
Port 8080

gRPC Proxy
Port 8081

MICRO SERVER

Auth
Authentication and Authorization

Build
Source to Binary Compilation

Broker
Publish & Subscribe Messaging

Config
Dynamic Config & Secrets

Events
Event Streaming and Storage

Network
Service Networking & Routing Plane

Registry
Service Registry and Endpoint Explorer

Runtime
Service Lifecycle & Process Manager

Store
Persistent Key-Value & CRUD Storage

Plugins
Infrastructure Agnostic Plugins

Local or Cloud Infrastructure

Image: https://micro.mu/

Go Kit Framework

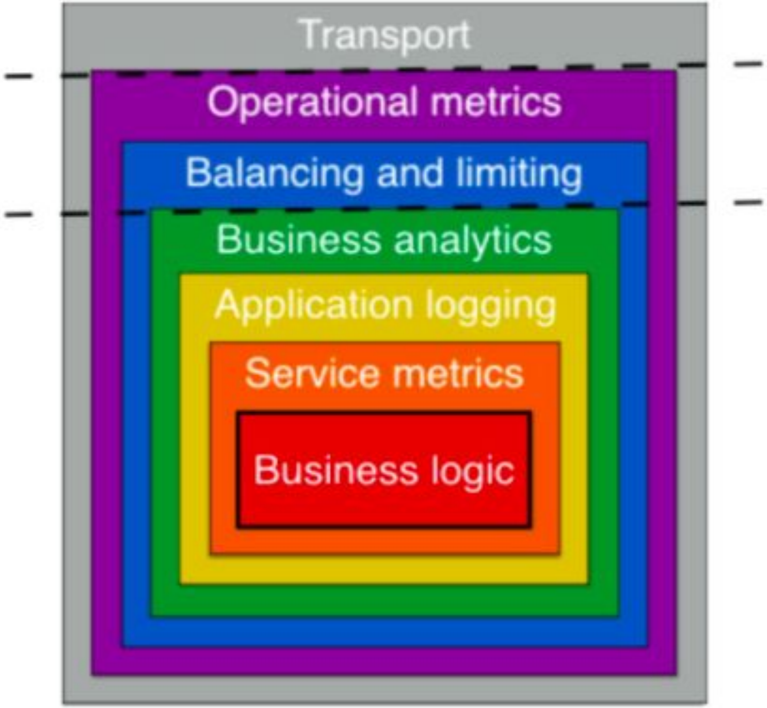


Image: http://gokit.io

Gizmo Framework

- ‘Gizmo’, an open source Golang-based microservices toolkit, which provides standardised configuration and logging, health check and metric endpoints with configurable strategies, and basic interfaces to define service expectations and vocabulary.
- This toolkit was developed by small group of developers at New York Times

Source: https://www.infoq.com/news/2016/01/gizmo-microservices-toolkit/

Kite Framework

- It is a microservice RPC library written in Go which makes writing user friendly distributed systems easy.
- It aims a balance between simple/easy usage and performance and can connect to other kites and peers to communicate with each other (bidirectional).

Source: https://blog.gopheracademy.com/birthday-bash-2014/kite-microservice-library/

Gin Framework

- **Gin** is a high-performance HTTP web framework written in Go.
- It allows you to build web applications and microservices in Go. It contains a set of commonly used functionalities (e.g., routing, middleware support, rendering, etc.) that reduce boilerplate code and make it simpler to build web applications.

Source: https://github.com/gin-gonic/gin

Demo

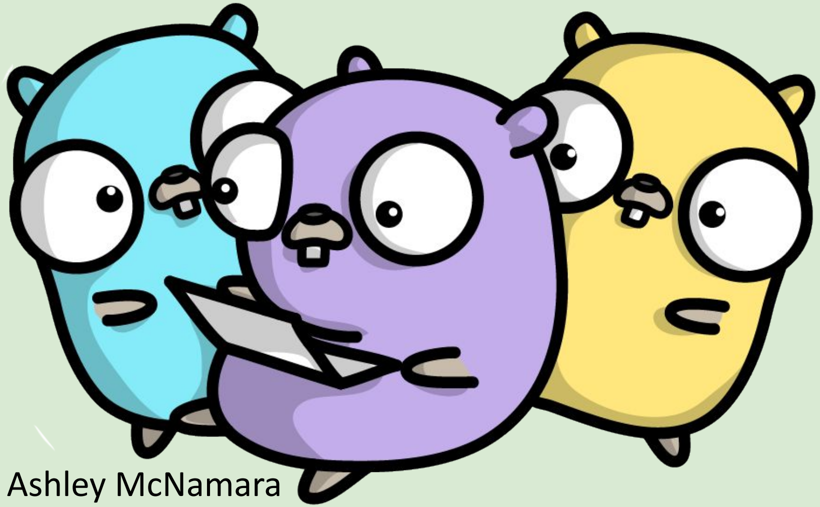
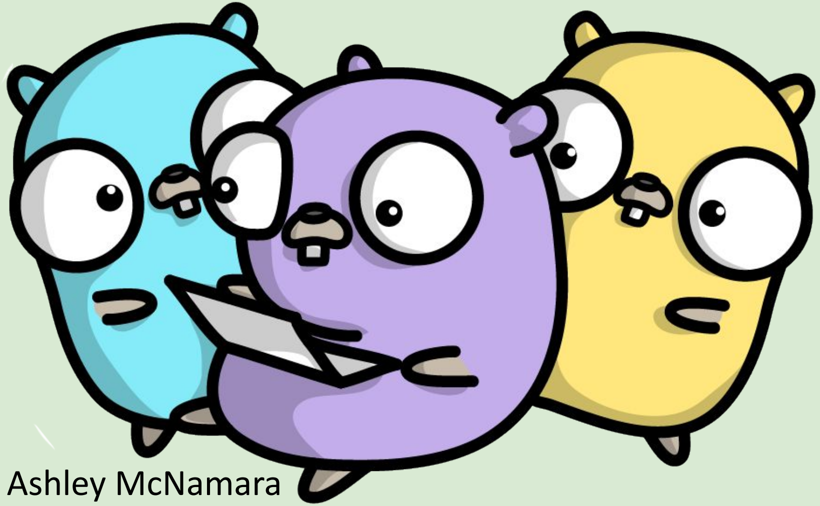


Image: Gopher Artwork by Ashley McNamara

Why “Go” for microservices?

- Go has brilliant support for Concurrent programming!
- Go is static typed language!
- Go has great readability!
- Code Formatting : Go is opinionated about the code formatting and has a tool (gofmt) which automatically formats code!

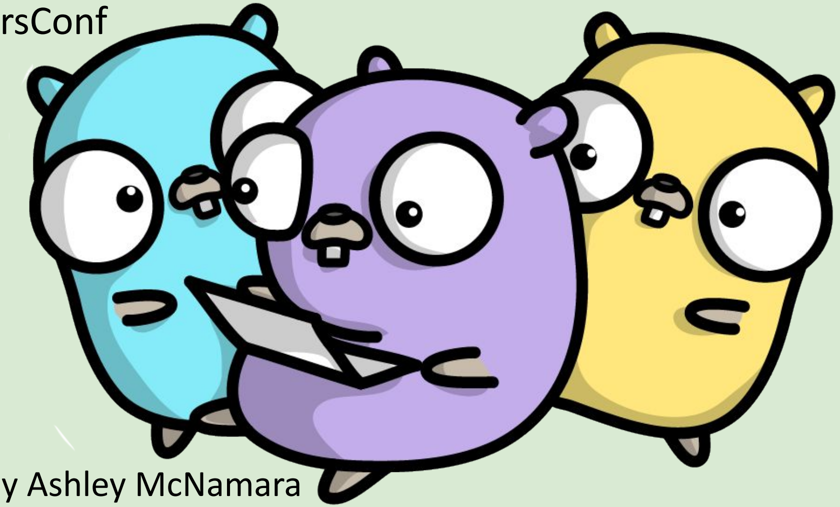


Go Proverbs: https://go-proverbs.github.io/

Image: Gopher Artwork by Ashley McNamara

Resources

- Brilliant playlist for developing Microservices in Go by Nic Jackson. https://www.youtube.com/watch?v=VzBGi_n65iU&list=PLmD8u-IFdreyh6EUfevBcbiuCKzFk0EW_
- Introduction to Event-driven microservices. https://www.youtube.com/watch?v=ksRCq0BJef8
- Great article: https://www.infoq.com/articles/golang-the-economist/
- This talk:- https://github.com/RN0311/4DevelopersConf



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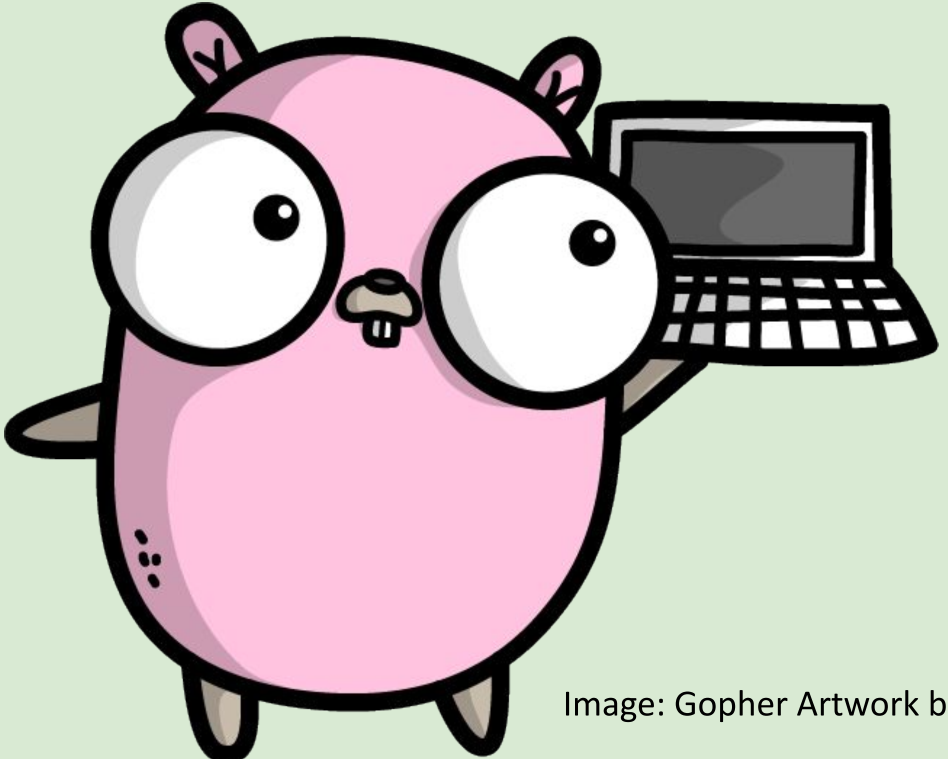

Thank you!

Image: Gopher Artwork by Ashley McNamara