Entwickler und Architekten

Strategien 2020

Oliver Sturm • @olivers[@fosstodon.org] • oliver@oliversturm.com

Oliver Sturm

- Training Director at DevExpress
- Consultant, trainer, author, software architect and developer for over 25 years
- Contact: oliver@oliversturm.com

Agenda

Idee: Technologie diskutieren

Was sind Ihre Fragen? Diskussionspunkte?

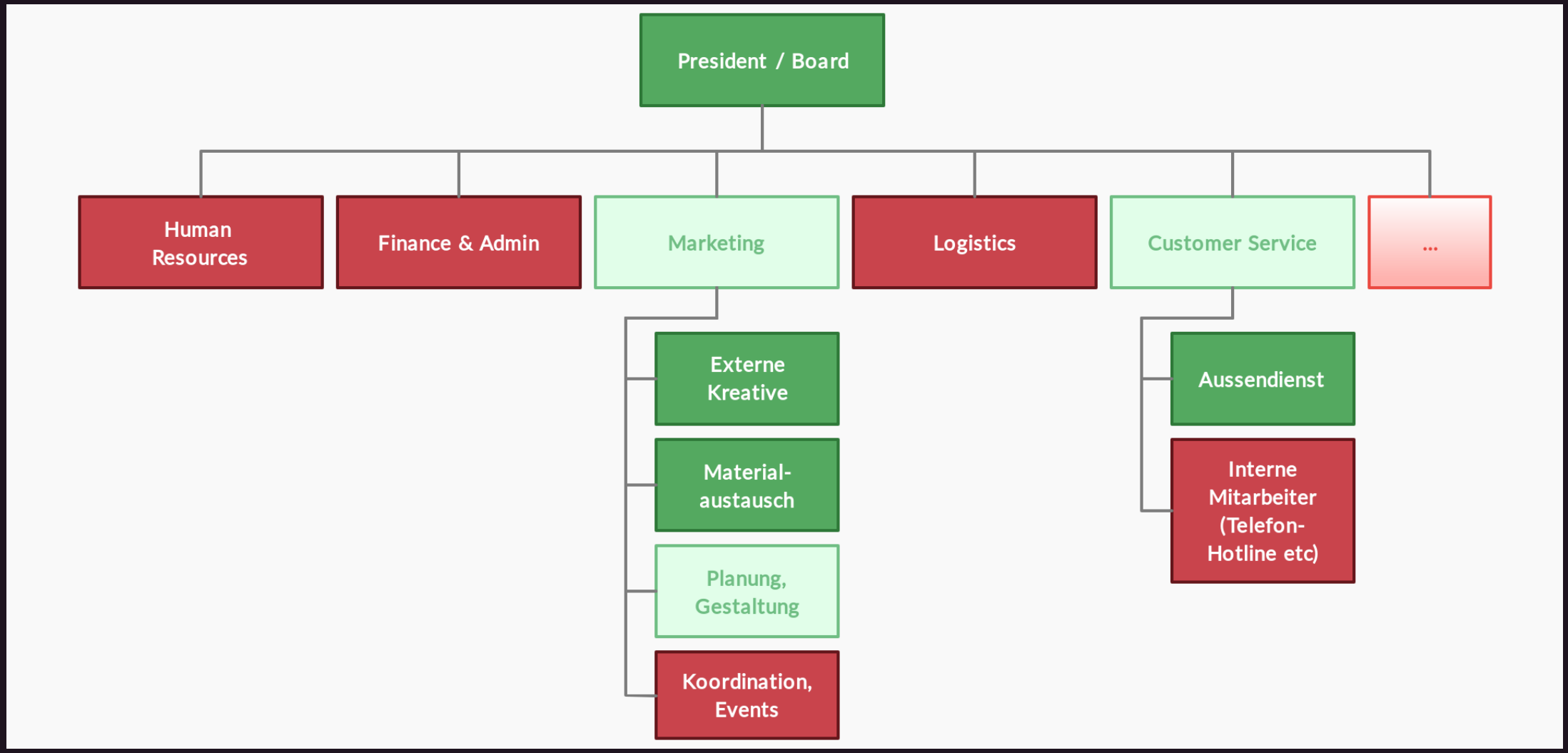
Anregungen

- COVID-19 - was ändert sich?
- Microservices, ja oder nein? Und wie?
- Cloud - muss das sein? Welche? Worauf kommt's an?
- Serverless - wird da nicht alles schwieriger?
- CQRS? Event Sourcing? Eventual Consistency? GraphQL? Moderne Datenzugriffspatterns
- Container und VMs - Docker, Kubernetes, Vagrant, Terraform...
- Blazor? Ist das die Zukunft? Server mit SignalR oder Client mit WASM?
- Wie mache ich am besten Mobile?
- gRPC - Microsoft's neuer (?) Hype
- React vs Vue vs Angular usw....
- TypeScript oder doch einfach JavaScript?
- Oliver Sturm's Best Practices Architekturmodell

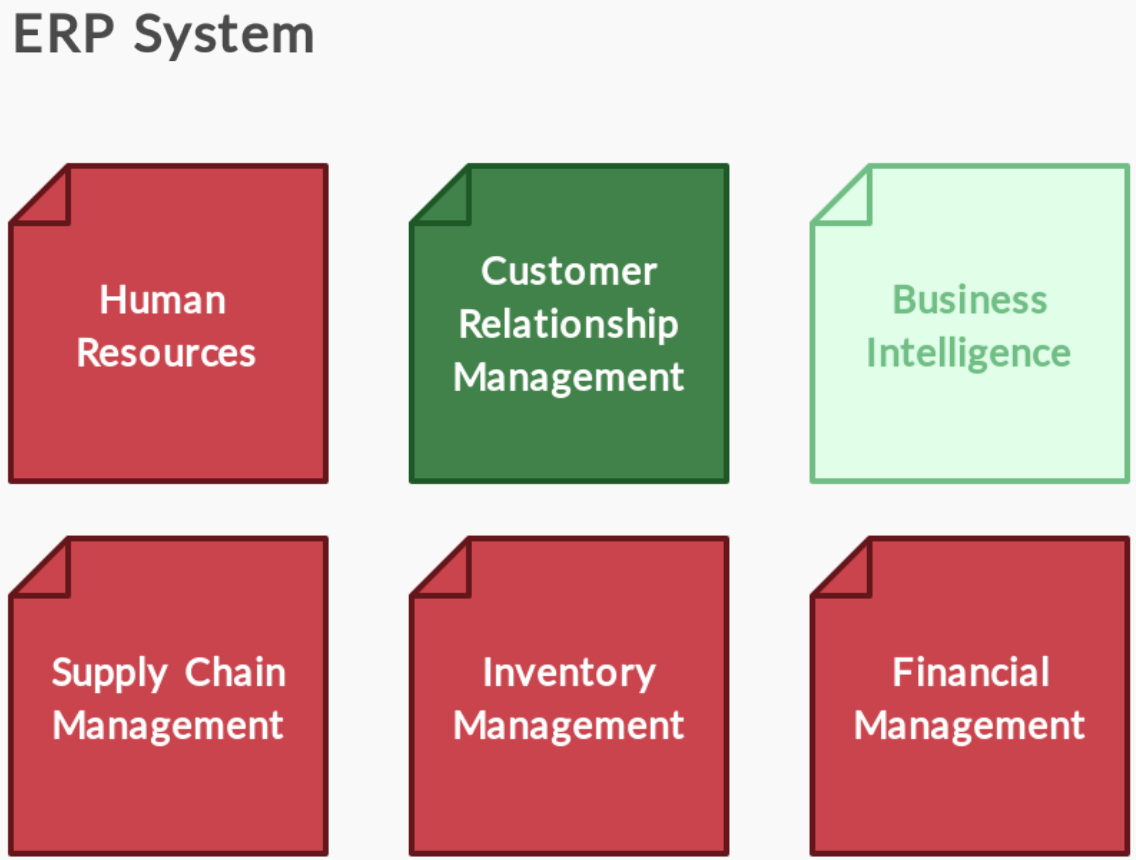
Fragen

- Cloud - Kostenkontrolle - wie weiss man, was die eigene Anwendung kostet?
- Hochverfuegbarkeit notwendig - kann man "hybrid" oder lokal arbeiten, wenn die Cloud unzugaenglich ist? Docker - Registry lokal?
- On Premise-System in die Cloud migrieren, moeglichst ohne Aenderungen, was sind die Stolpersteine?
- GraphQL - wo gehoert das ins Datenzugriffssystem? Im Vergleich mit OData?
- Daten transferieren zwischen lokal und Cloud im Hybridsetup? Datenbankinhalte
- Beispiel Consul - Azure-Service oder separater Container - SaaS oder separates Deployment?

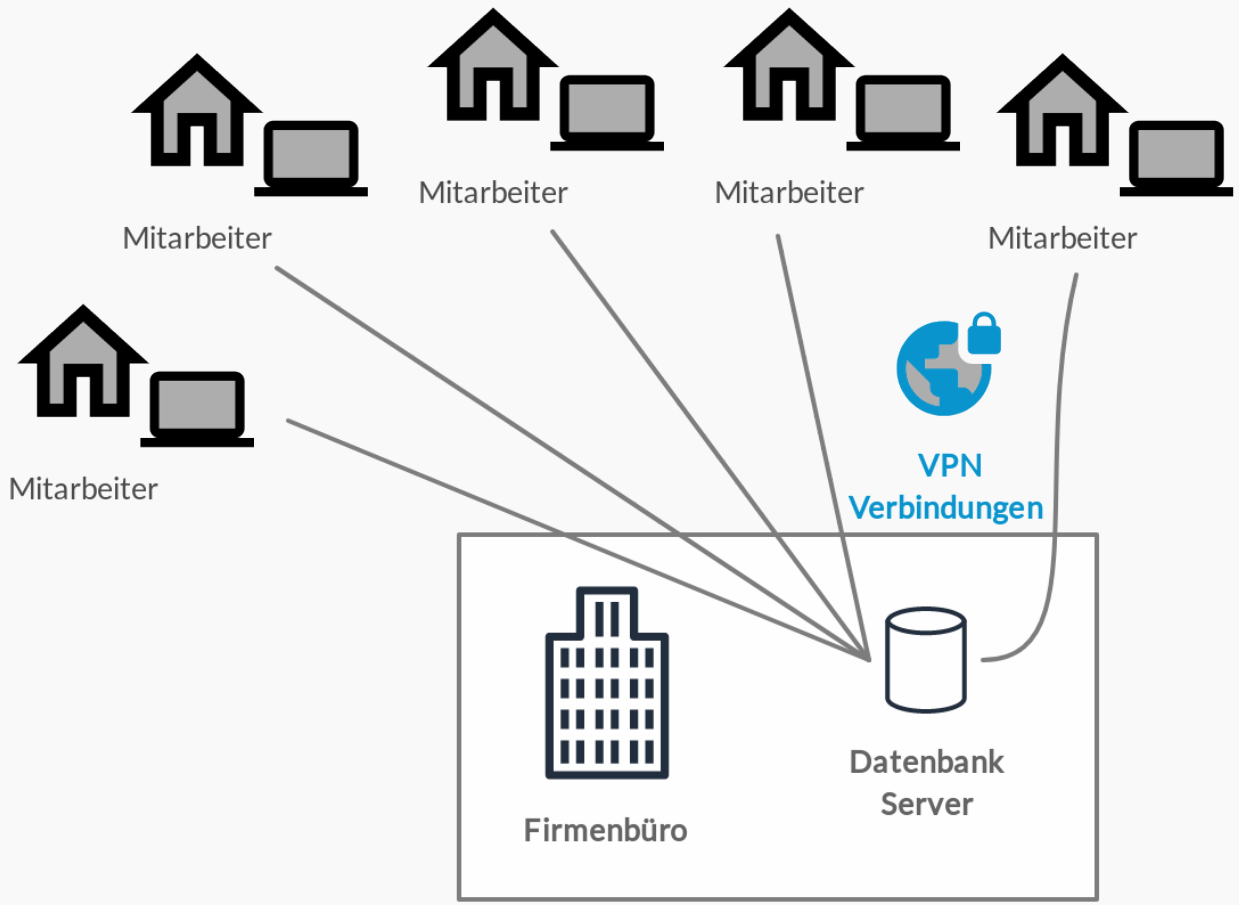
Vor COVID - Eingeschränkter Remotezugriff



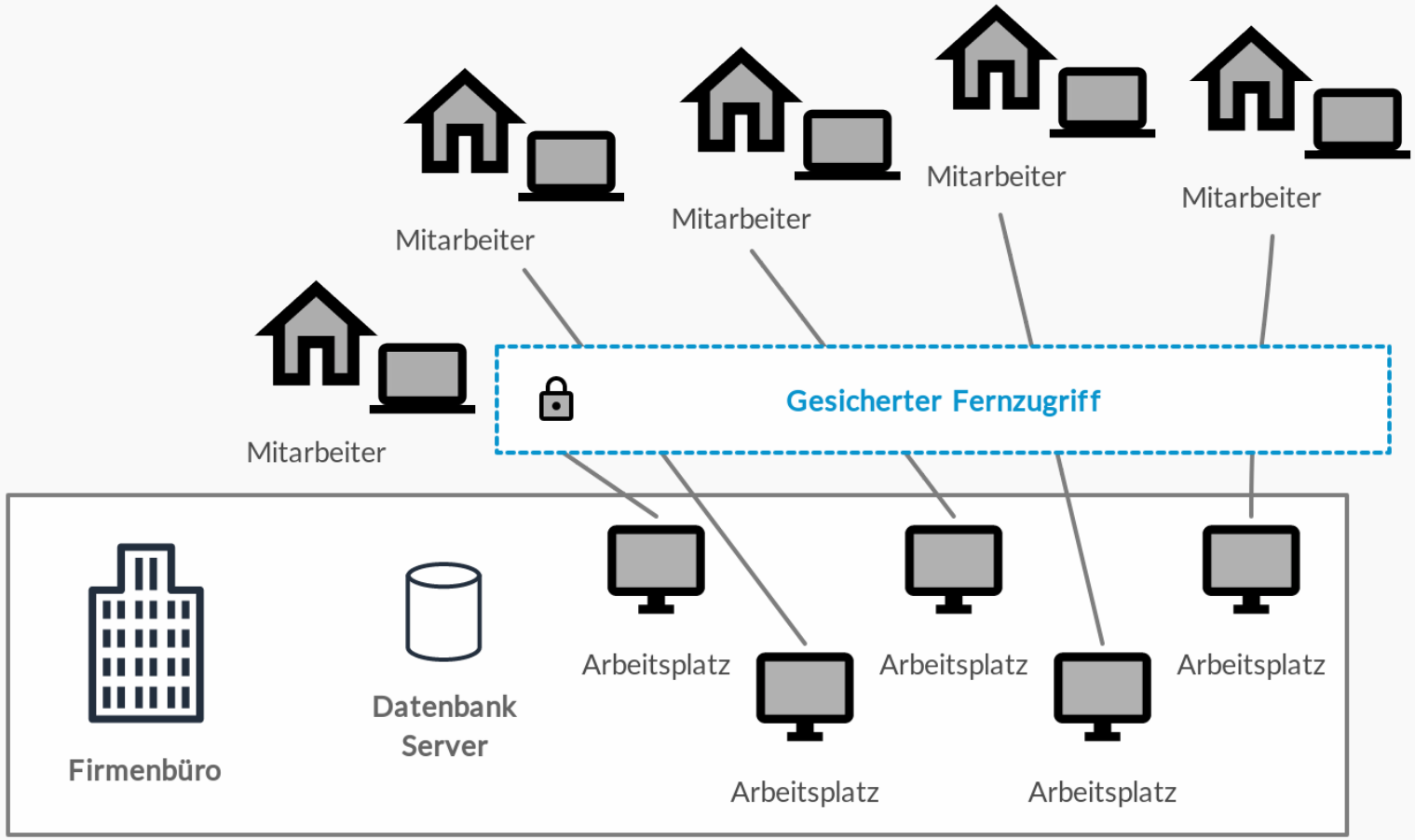
Vor COVID - Eingeschränkte Remote-Funktionalität



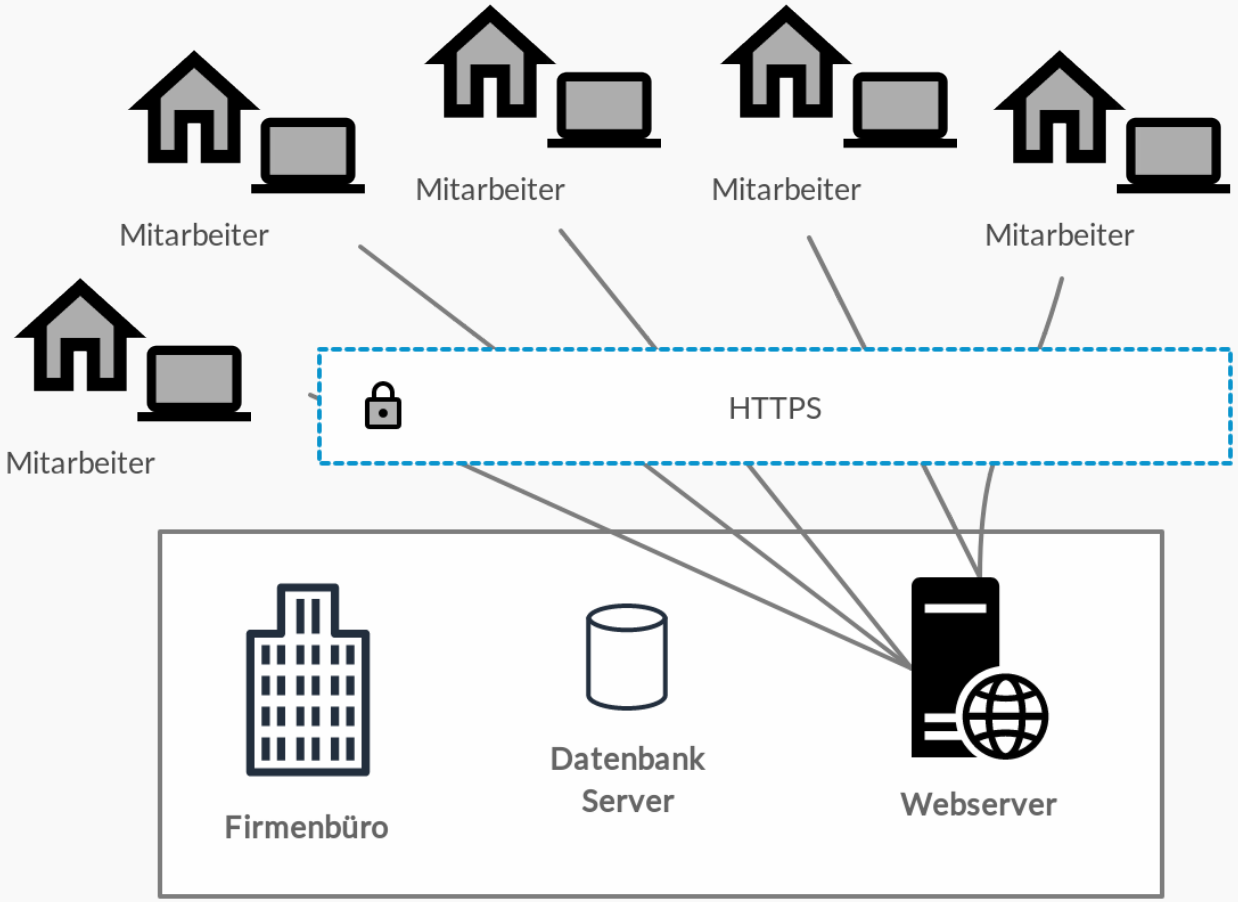
Fernzugriff auf eine Datenbank



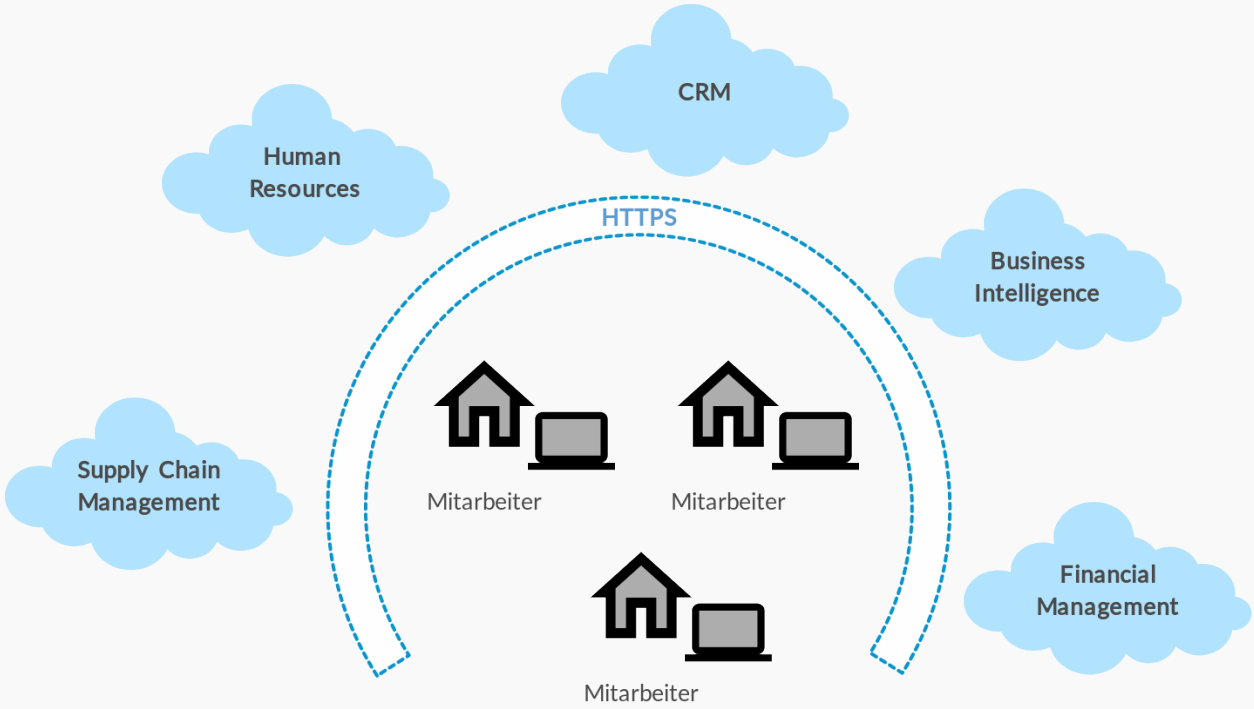
Fernzugriff mit Remote Desktop



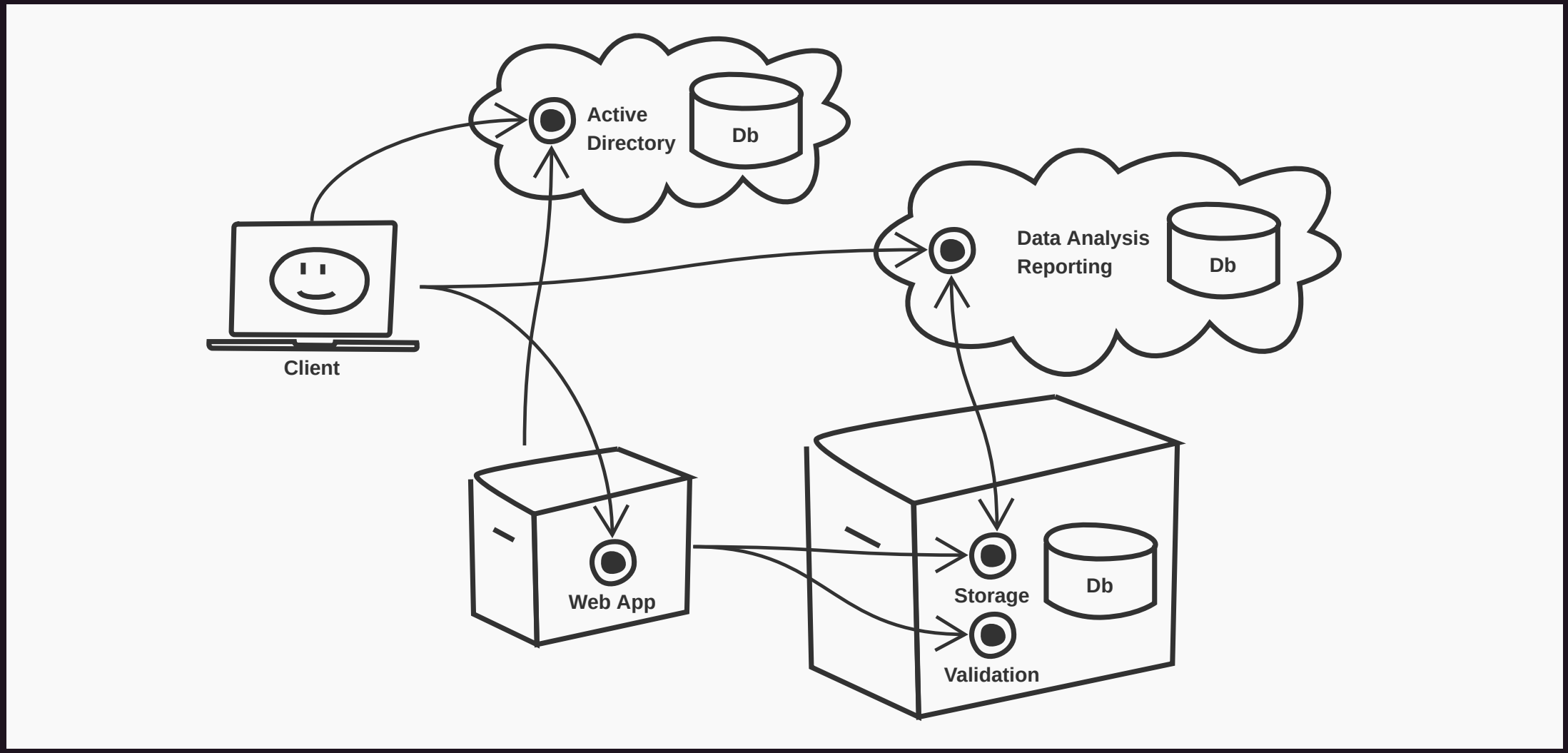
Einfache Web-Anwendung



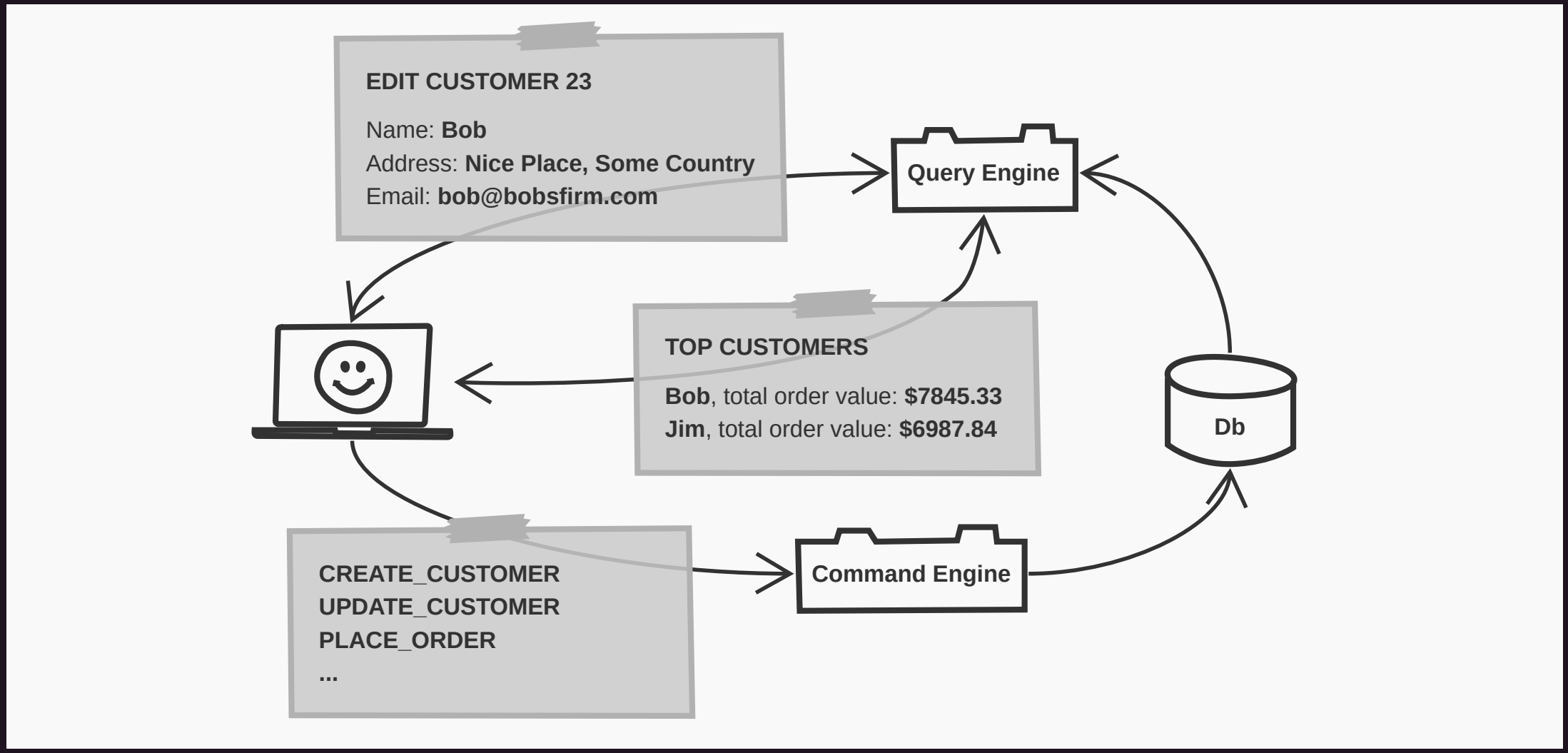
(Micro-?) Services



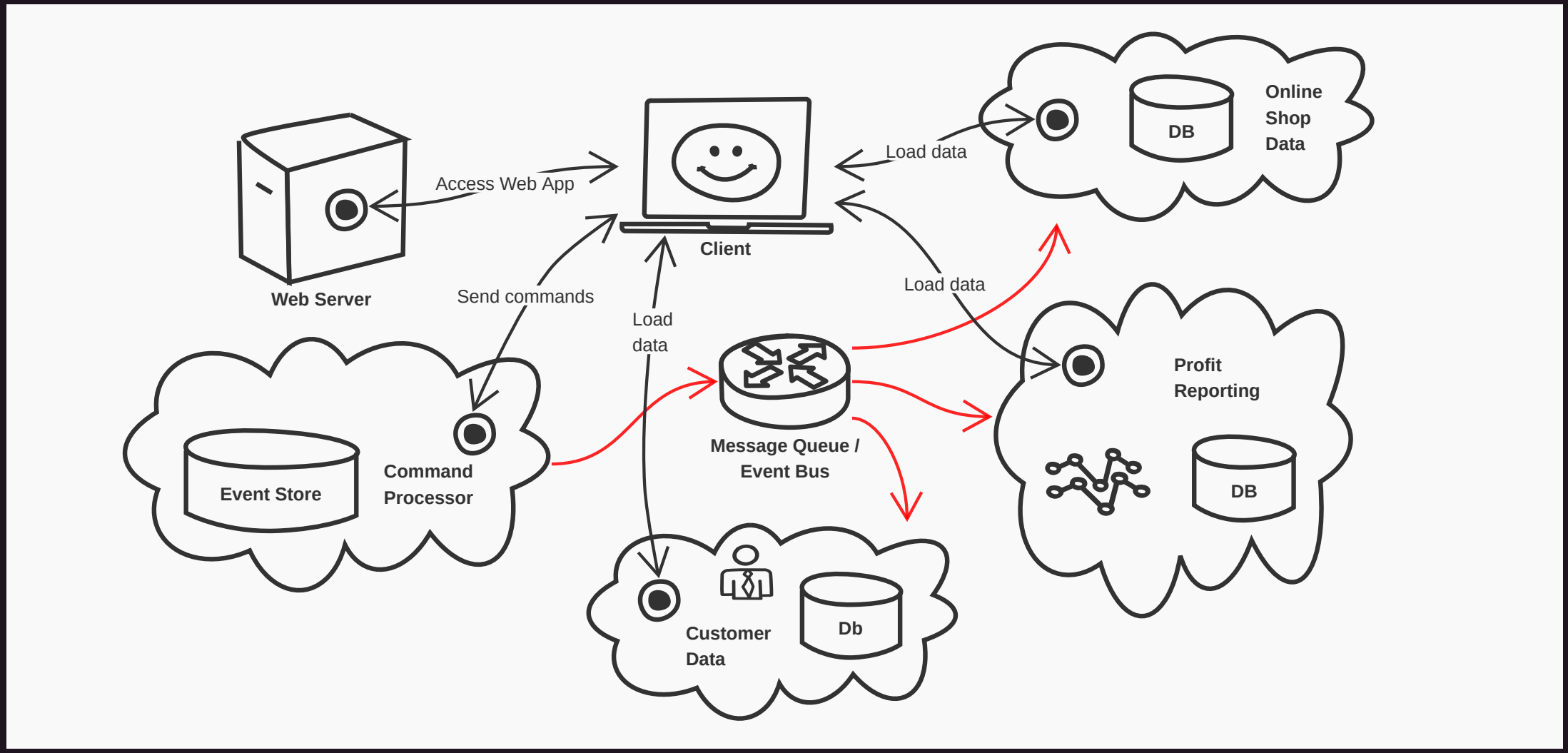
Dienststruktur - Micro oder Größer



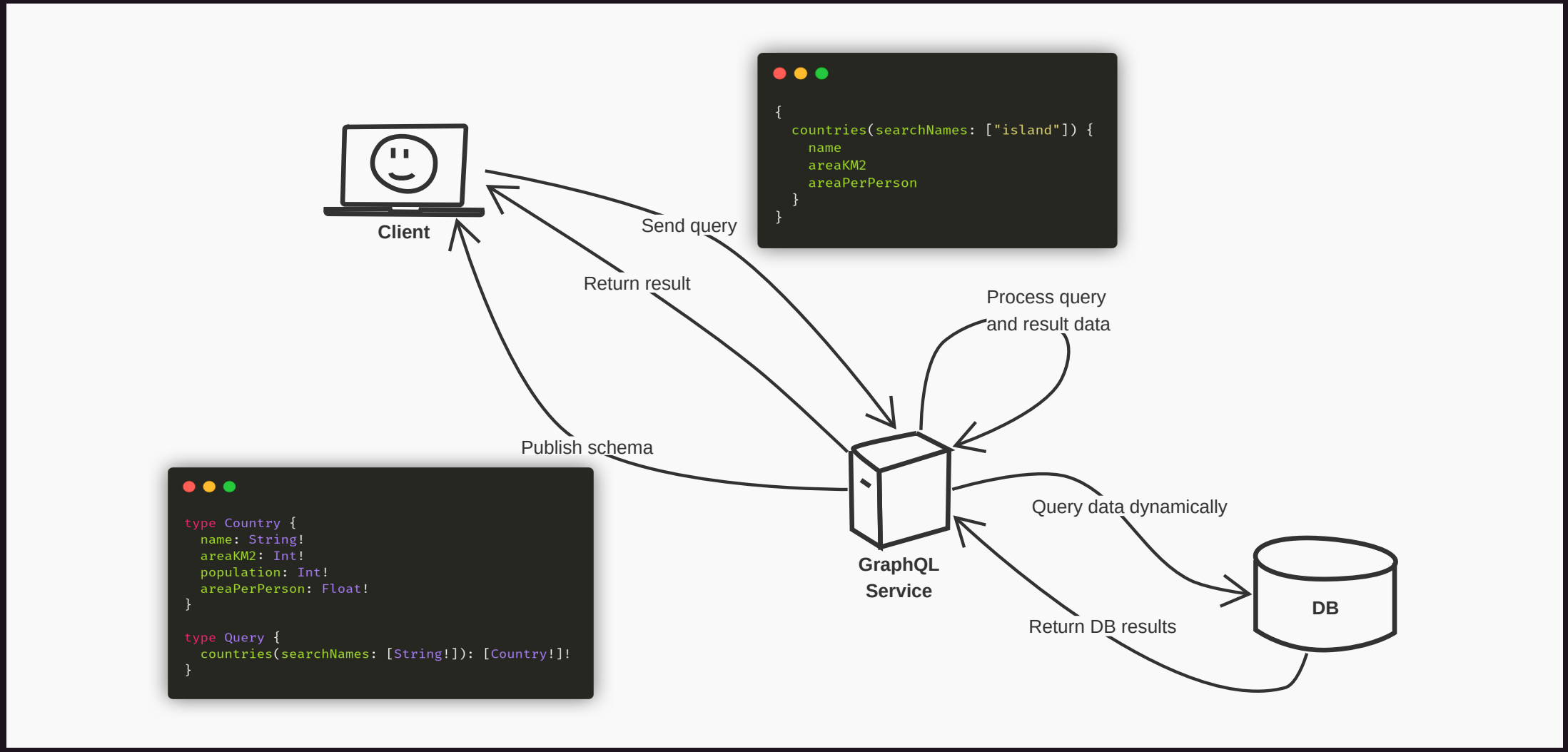
CQRS


EDIT CUSTOMER 23
Name: Bob
Address: Nice Place, Some Country
Email: bob@bobsfirm.com
Query Engine
TOP CUSTOMERS
Bob, total order value: $7845.33
Jim, total order value: $6987.84
Db
CREATE_CUSTOMER
UPDATE_CUSTOMER
PLACE_ORDER
...
Command Engine

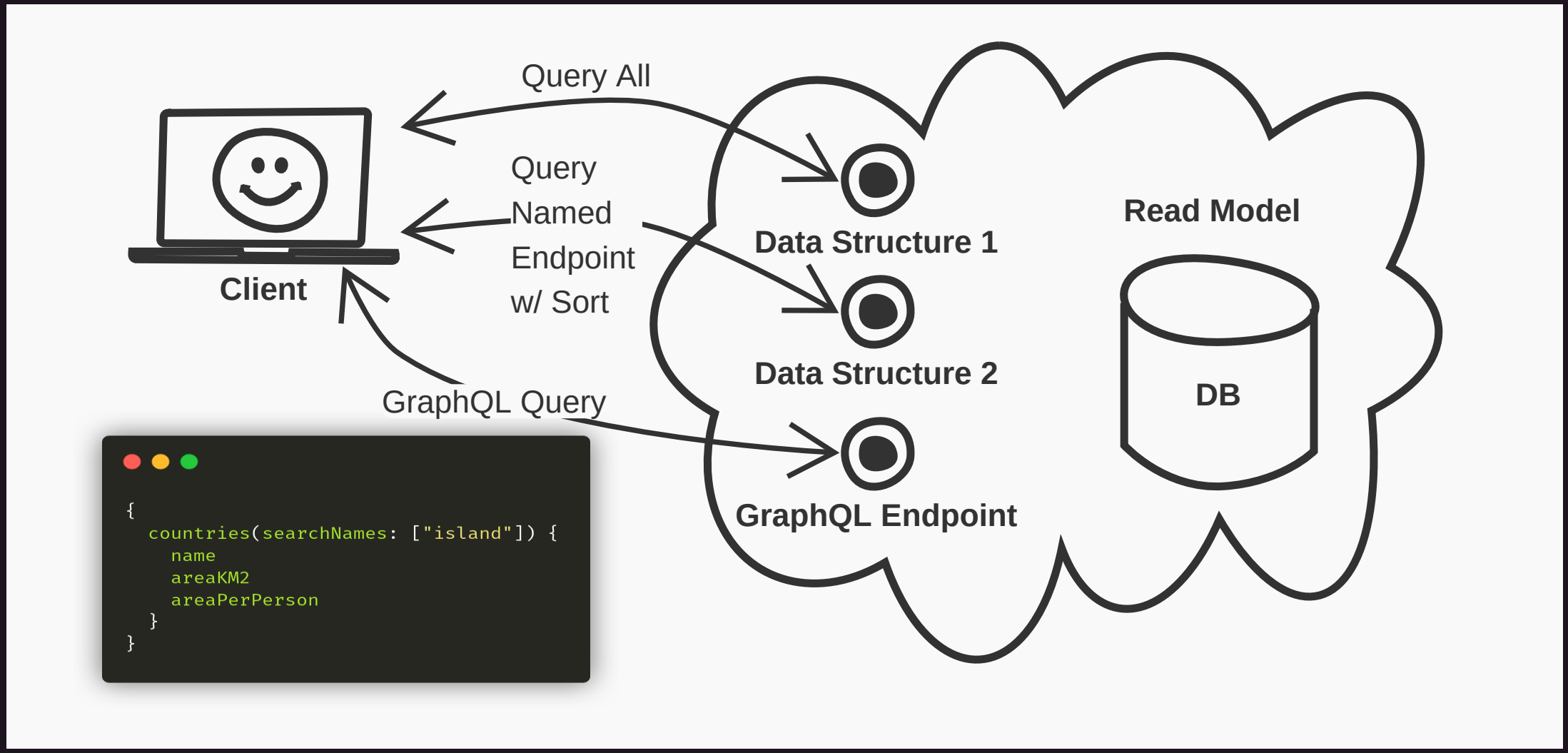
CQRS mit Event Sourcing



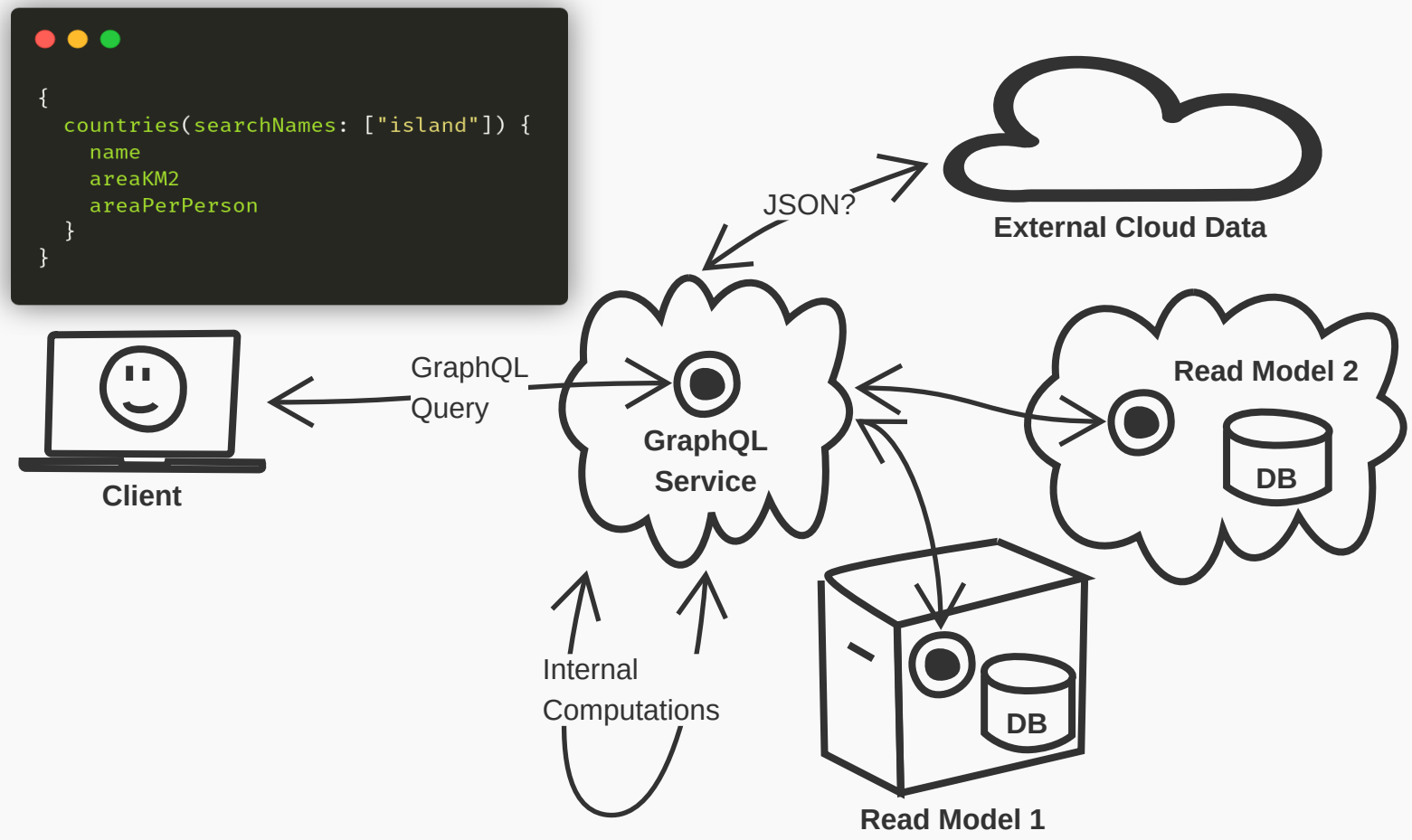
GraphQL Basics



GraphQL Endpoint in Readmodel

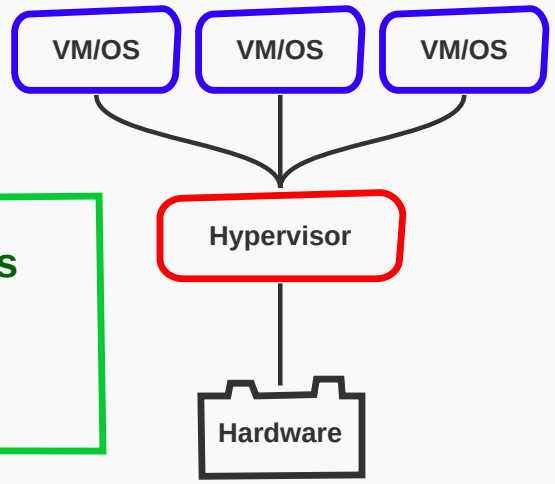


GraphQL - Frontend Service



Hypervisors

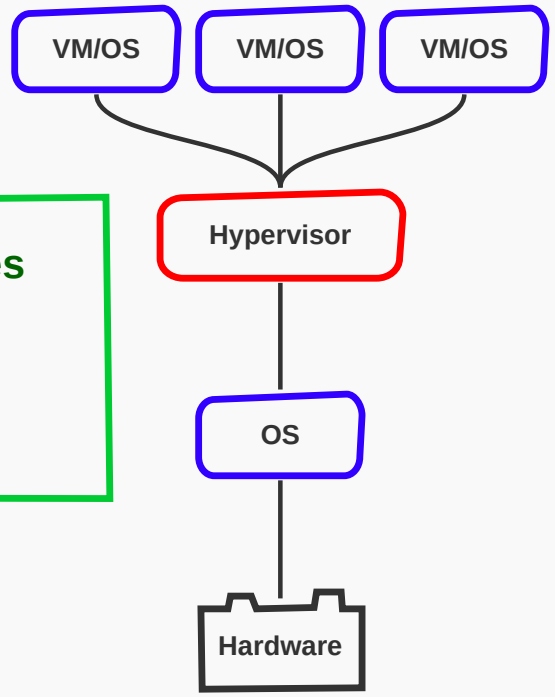
Type 1 Native Hypervisor



Type 1 Examples

- Xen
- Hyper-V
- VMWare ESX(i)

Type 2 Hosted Hypervisor



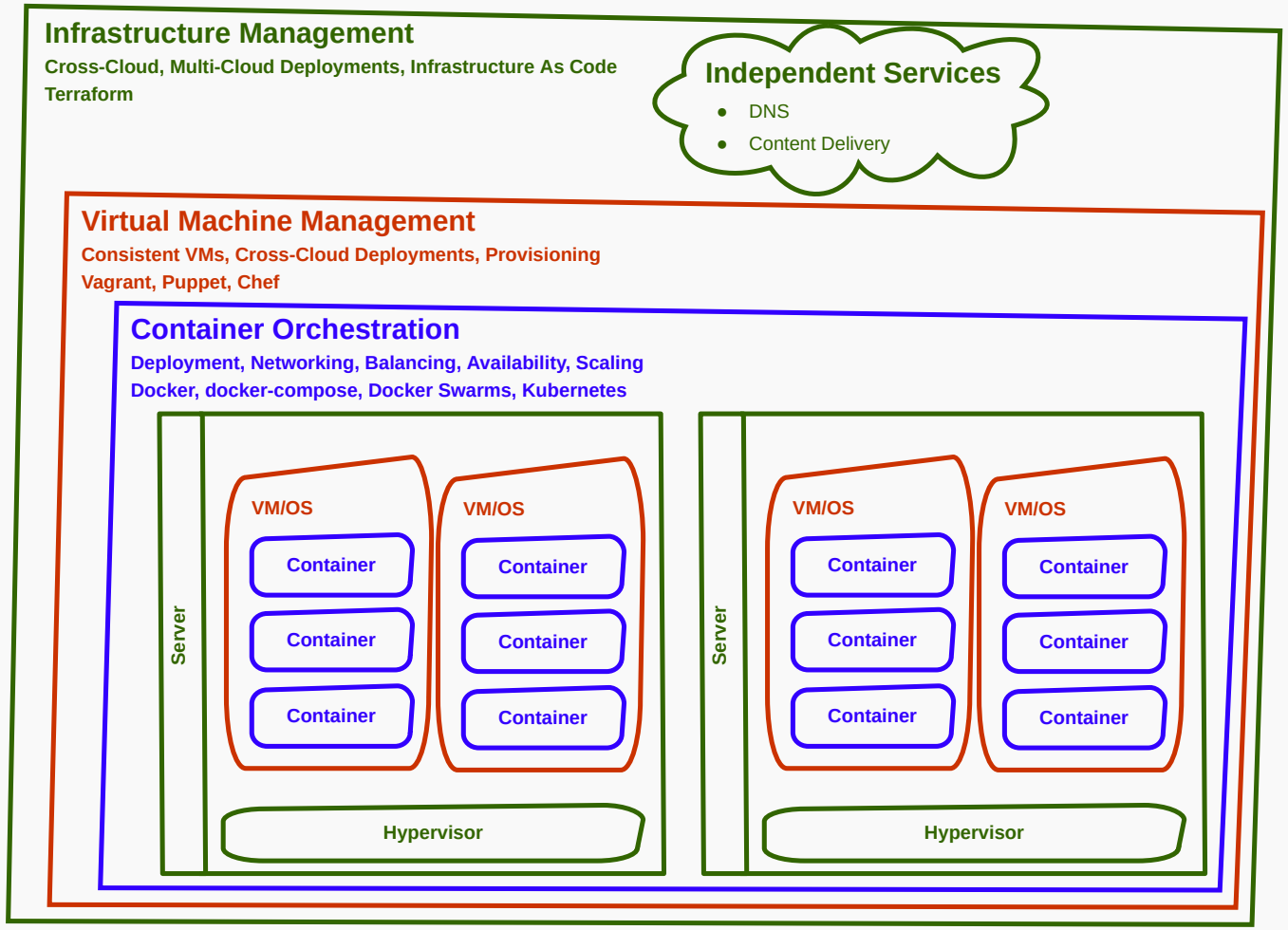
Type 2 Examples

- VMWare
- Parallels
- VirtualBox
- QEMU

A bit complicated

- KVM - can be type 1 or 2
- Hyper-V really is type 1

Container und VMs



CAP Theorem

Two Out of Three Ain't Bad

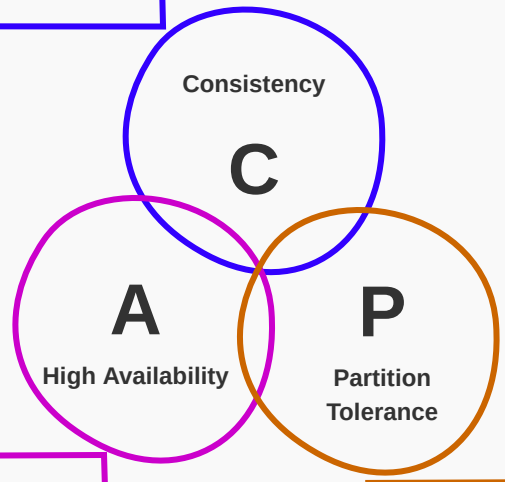
James Richard Steinman, 1977

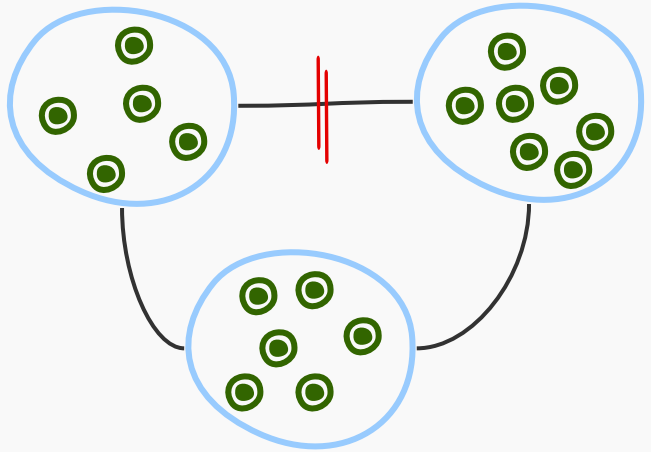
Every read receives latest data or an error

CAP Theorem:

Only two out of the three (C/A/P) guarantees can be provided simultaneously by a distributed data store.

Eric Brewer, 1998





Requests always receive a successful response

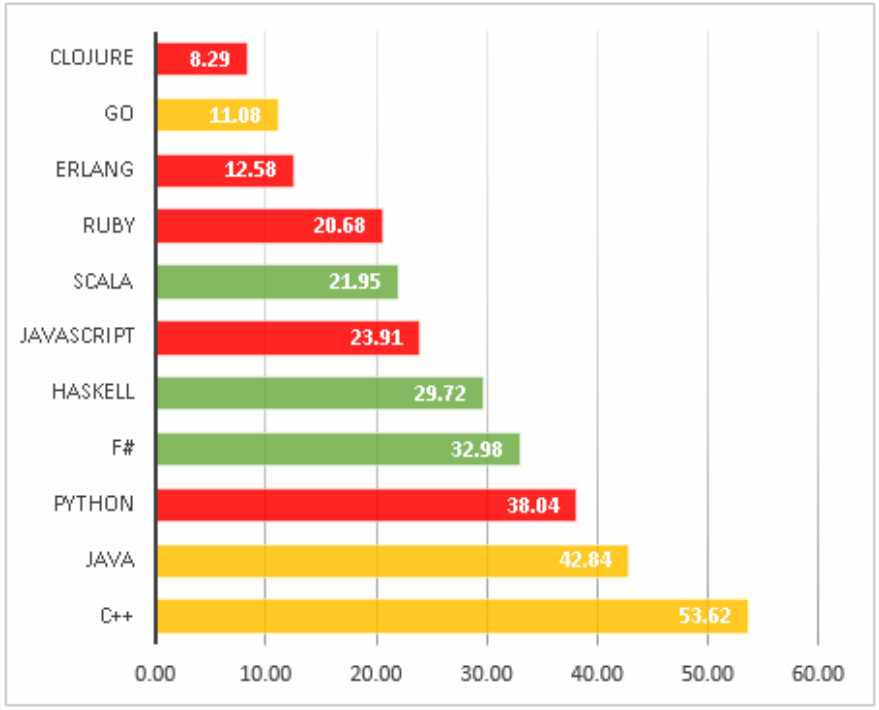
System remains operational in spite of network failures

Typical basic RDBMS: **CA** -- Typical cache-style DB: **CP** -- Eventual Consistency: **AP**
Honorary mention: MongoDB supports ACID guarantees (CP)

JavaScript vs TypeScript

Languages by bug density - GitHub repos with >100 stars

In green, in the "advanced" static typed languages corner: Haskell, Scala and F#.
In orange, in the "old and boring" static typed languages corner: Java, C++ and Go.
In red, in the dynamic typed language corner: JavaScript, Ruby, Python, Clojure and Erlang.



Daniel Lebrero, May 2016, The broken promise of static typing

> ***My own prediction is that TDD is the deciding factor. You don't need static type checking if you have 100% unit test coverage. [...]***
>
> ***I predict, that as TDD becomes ever more accepted as a necessary professional discipline, dynamic languages will become the preferred languages.***

Uncle Bob Martin, May 2016, Type Wars

> **When it comes to bug reduction, I think it's fair to say:**
>
> **Static types are overrated.**

Eric Elliott, June 2016, The Shocking Secret About Static Types

> **I will not use the current version of TypeScript in my next large scale application, because the larger the project is, the more the costs of using TypeScript compound.**

Eric Elliott, January 2019, The TypeScript Tax

Sources

- This presentation:
  - https://oliversturm.github.io/developers-and-architects/basta-2020
  - PDF download: https://oliversturm.github.io/developers-and-architects/basta-2020/slides.pdf

Thank You

Please feel free to contact me about the content anytime.

Oliver Sturm • @olivers[@fosstodon.org] • oliver@oliversturm.com