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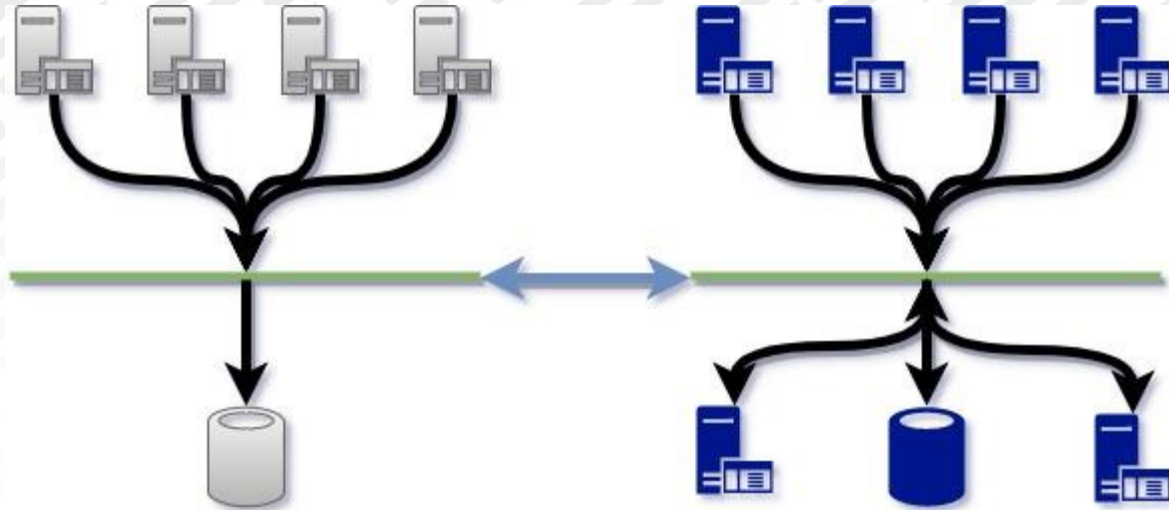
Useful techniques for Microservices

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Why do we need something
else then monolith and when?

How about SOA?



Okay, then let's use something else...

Microservices is a variant of the [service-oriented architecture](#) (SOA) architectural style that structures an application as a collection of [loosely coupled](#) services. (wiki pages)

CVFD?
APPROVED

Deployability & Modifiability

Define and create:

- Deployment jobs
 - Scripts
 - Transfer areas
 - Config files
-
- Pipelines
 - Provisioning tools
 - Binary stores
 - Branching strategies

„Writing code to deploy code
To execute code, which needs a
testing and deployment environments
with stages.”

How to avoid deployment inconsistency?

How to rollback the deployment?

How to rollback the DB?



Availability

How to reach 0 downtime, when upgrading any or all of the services within microservice architecture and serve the requests continuously?

Performance

What affects the performance?

- Network issues
- Availability problems
- Coding problems that affects response time

How to solve it?

- Monitor each service individually -> locate the service to blame
- Overcome on the domino effect with proactive monitoring
- Create a production aware development team
- Build a devOps team to keep everything running properly

Testability

Creating automatized testing framework for:

- End-to-end testing
- Functional testing
- Performance testing
- Stress testing
- Security testing

„Mocking” the resources that required by the services

Management

Using centralized logging

- Logstash / Filebeat / etc.

Centralized runtime configuration

- HawtIO / etc.

Application management and reporting

- New Relic / Stackify / etc.

Autonomy vs authority

Business logic is separated to multiple services, to avoid runtime autonomy issues use:

- Event-driven architecture
- Command Query Responsibility Segregation
- Data replication tools (caches)
- Bounded context pattern

Conways law

Organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations

— M. Conway^[3]

Communication

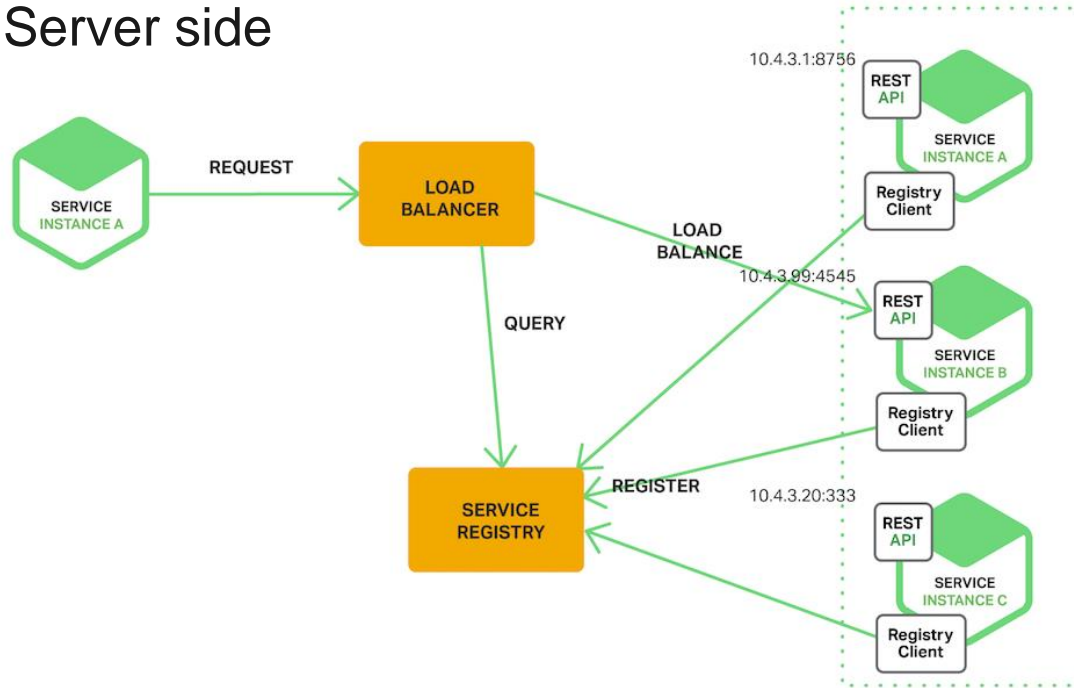
- REST
- Queue
- EventBus
- Protocol buffers (Protobuf, Thrift)

To avoid asynchron communication issues a simple correlation ID is enough.

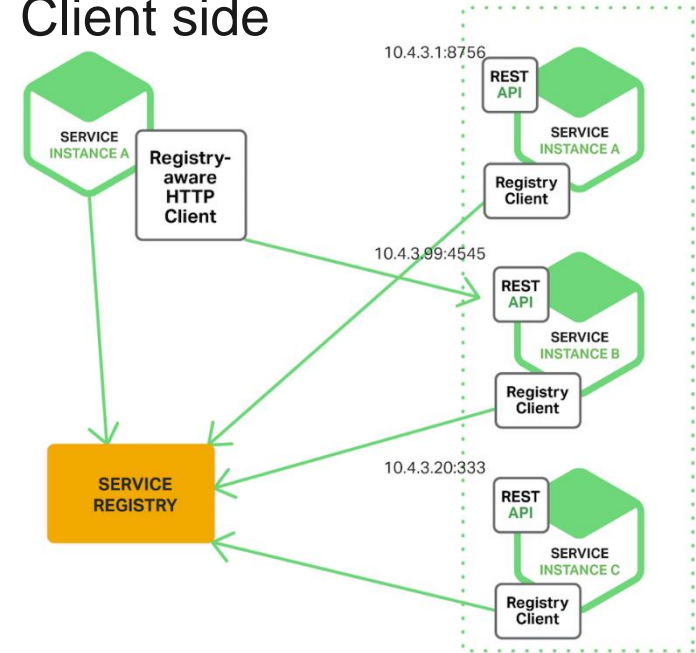
To chose asynch vs synch communication is always depends on the use case.

What is service discovery?

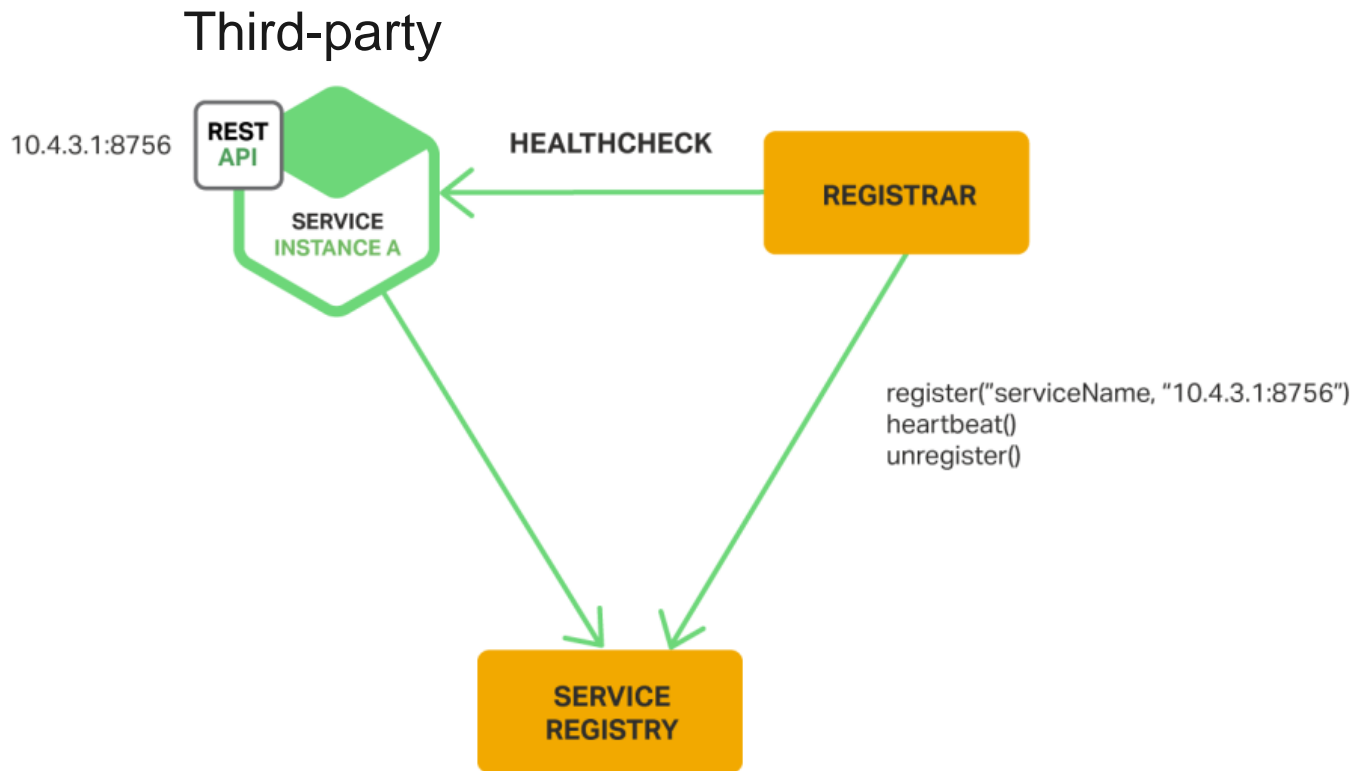
Server side



Client side



What is service discovery?



Bluemix public cloud

- Bluemix Dedicated provides physically isolated hardware in an IBM data center
- priced based on the amount of allocated capacity
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- IBM provides multiple mechanisms to securely connect your data
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- Reports and logs
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Questions & Suggestions



Used materials:

<http://blog.xebia.com/>
<https://martinfowler.com/>
<https://www.wikipedia.org/>
<https://www.nginx.com/>
<https://stackoverflow.com/>
<https://www.ibm.com>
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Thank you for your attention!
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