

Reliable communication in microservices



Python developer

- 10+ YEARS IT
- ~8 YEARS PYTHON
- 3x PyStok
- ddeby.pl

About

Monolith



Single unit deployment



Self-sufficient



No modularity

Monolith pros



**Fast and
reliable**



transactions



security



infrastructure



Easy to start

Monolith cons



fragile



scalability



maintain

Modularity monolith



grape up®

Monolith first

04/2022



Why distributed systems?



Scalability



Resilience



Polyglot



**Regulation
Security**



Productivity

Distributed systems fallacies



Network is reliable



Latency is zero



The network is secure

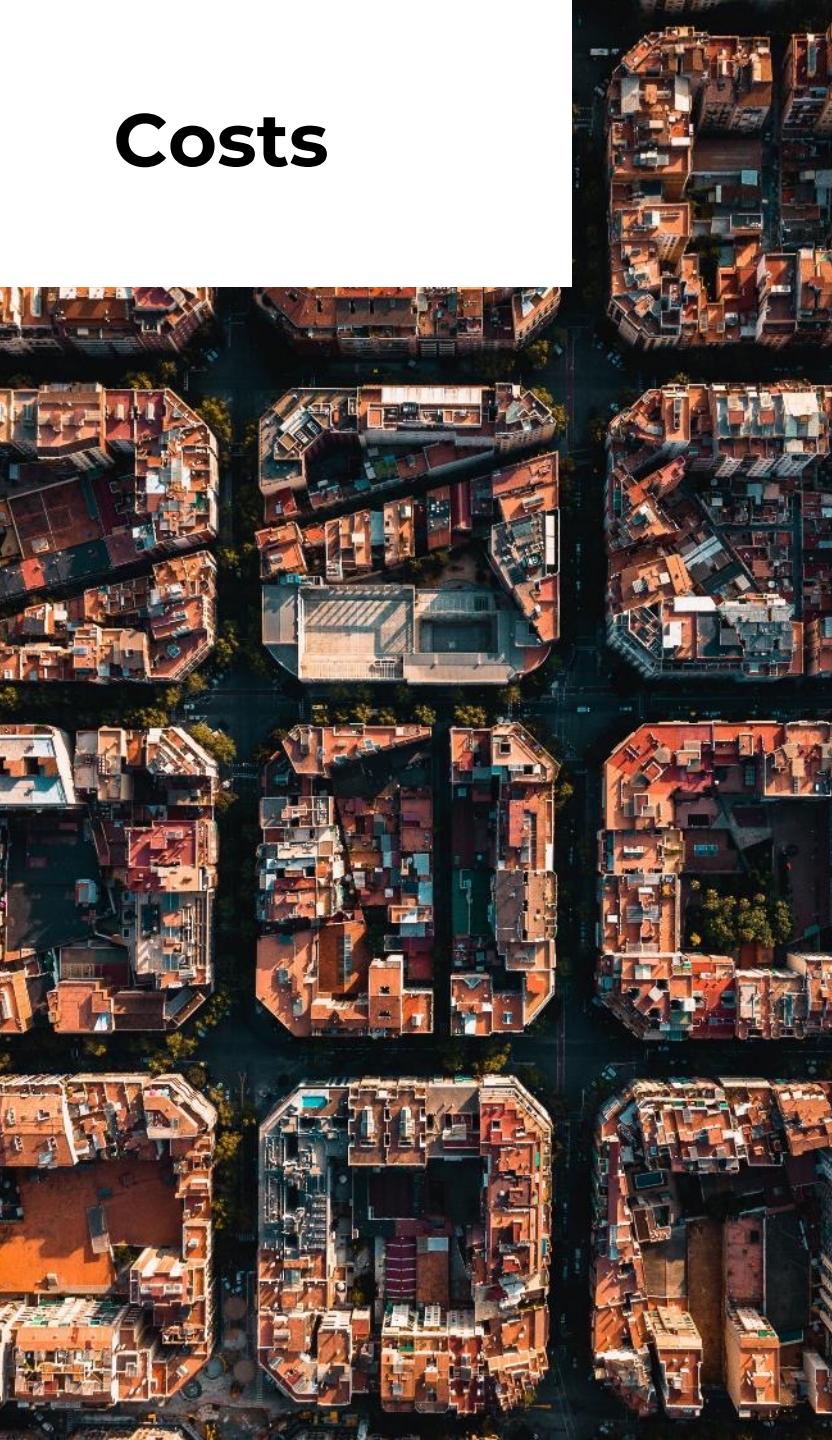


Topology doesn't change



Transport is free

Costs



grape up®

Distribution is not for free

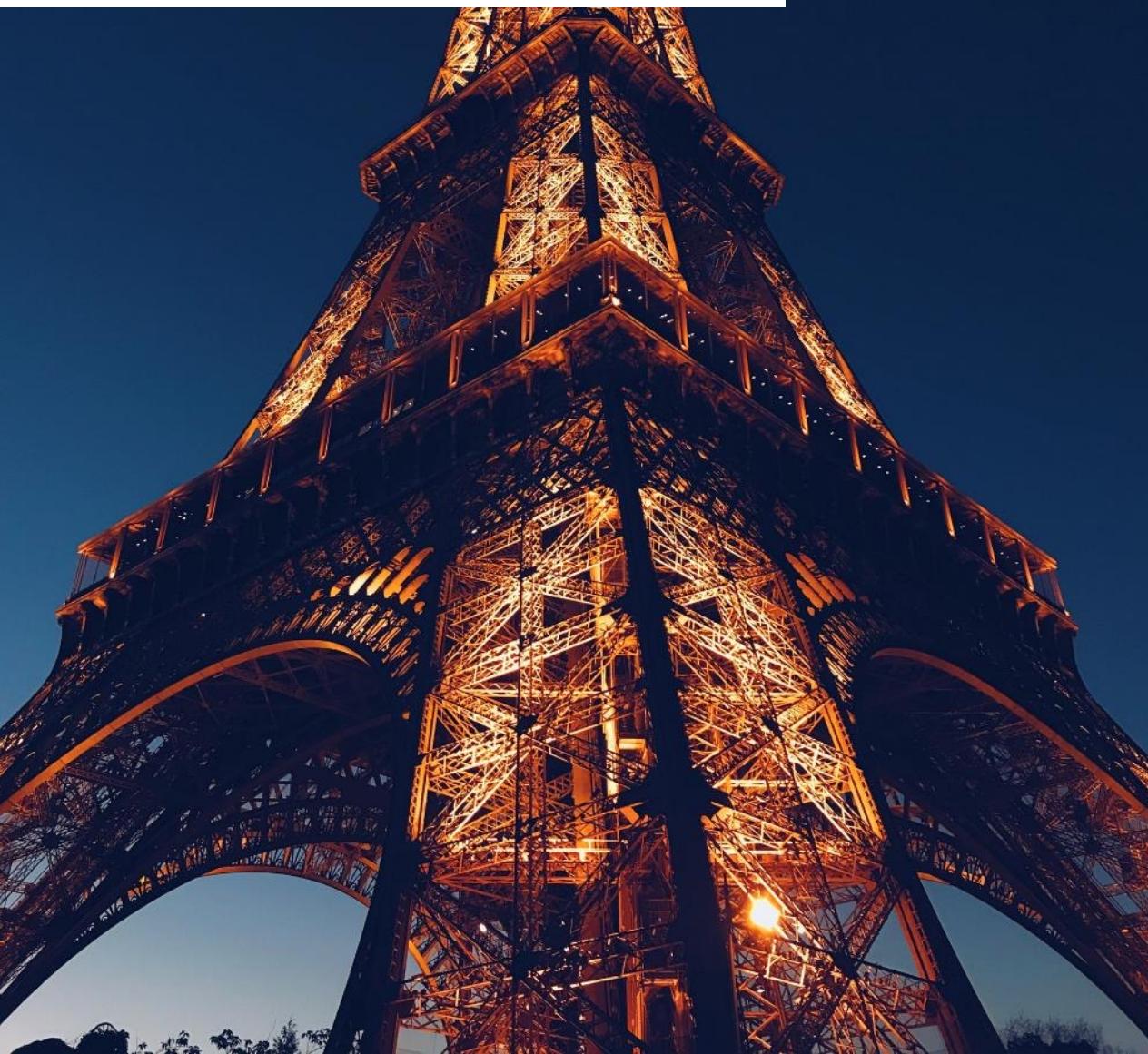
- Complex infrastructure
- No transactions
- Development impediments

Distributed monolith

04/2022

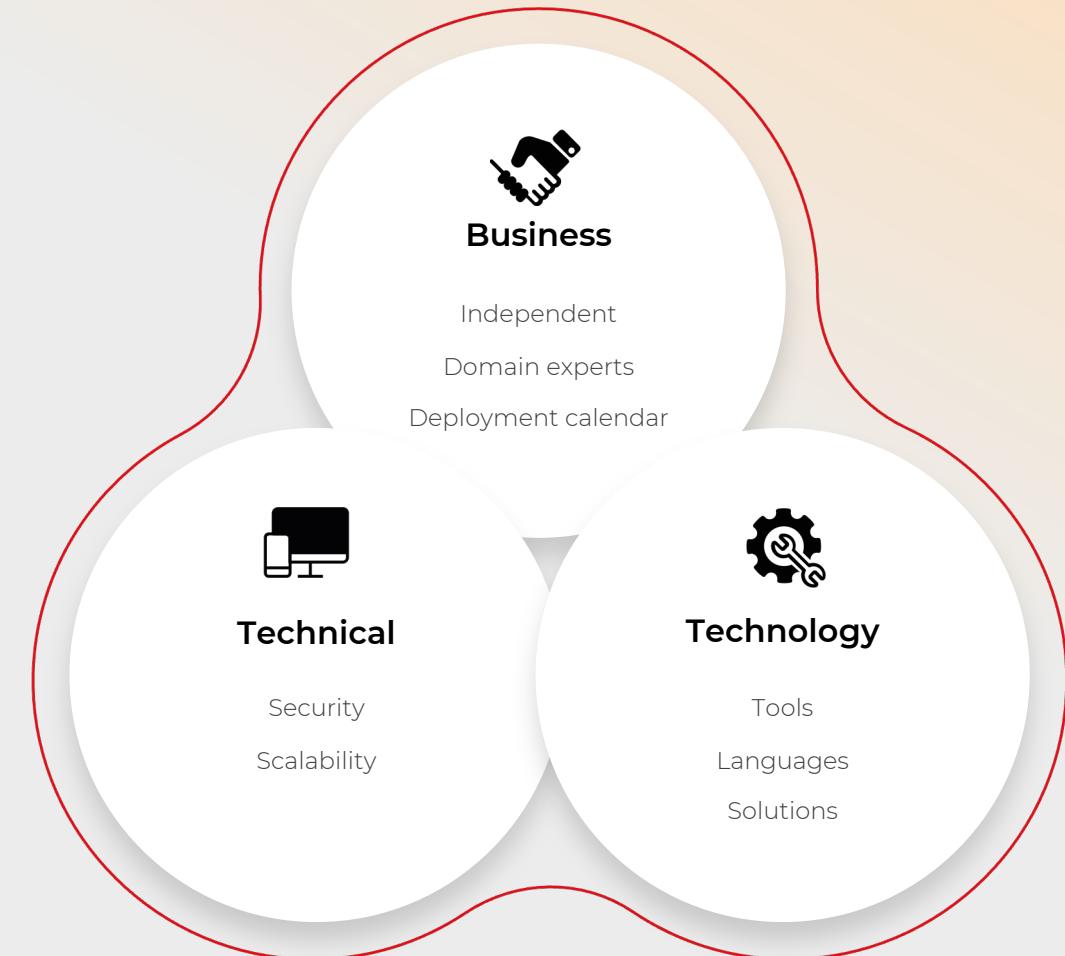
Microservices

grape up®



**Soa
Distributed
Loose coupling
Autonomy**

Autonomy



Service Level Agreement

04/2022

Service Level Agreement

Availability vs downtime

- Availability **99.95%**
 - $7 \text{ d} * 24\text{h} * 60\text{m} = \mathbf{10080\text{min}}$
 - $99.95\% * 10080 \sim \mathbf{10075\text{min}}$
 - $10080\text{min} - 10075\text{min} = \mathbf{5 \text{ min}}$

Service Level Agreement

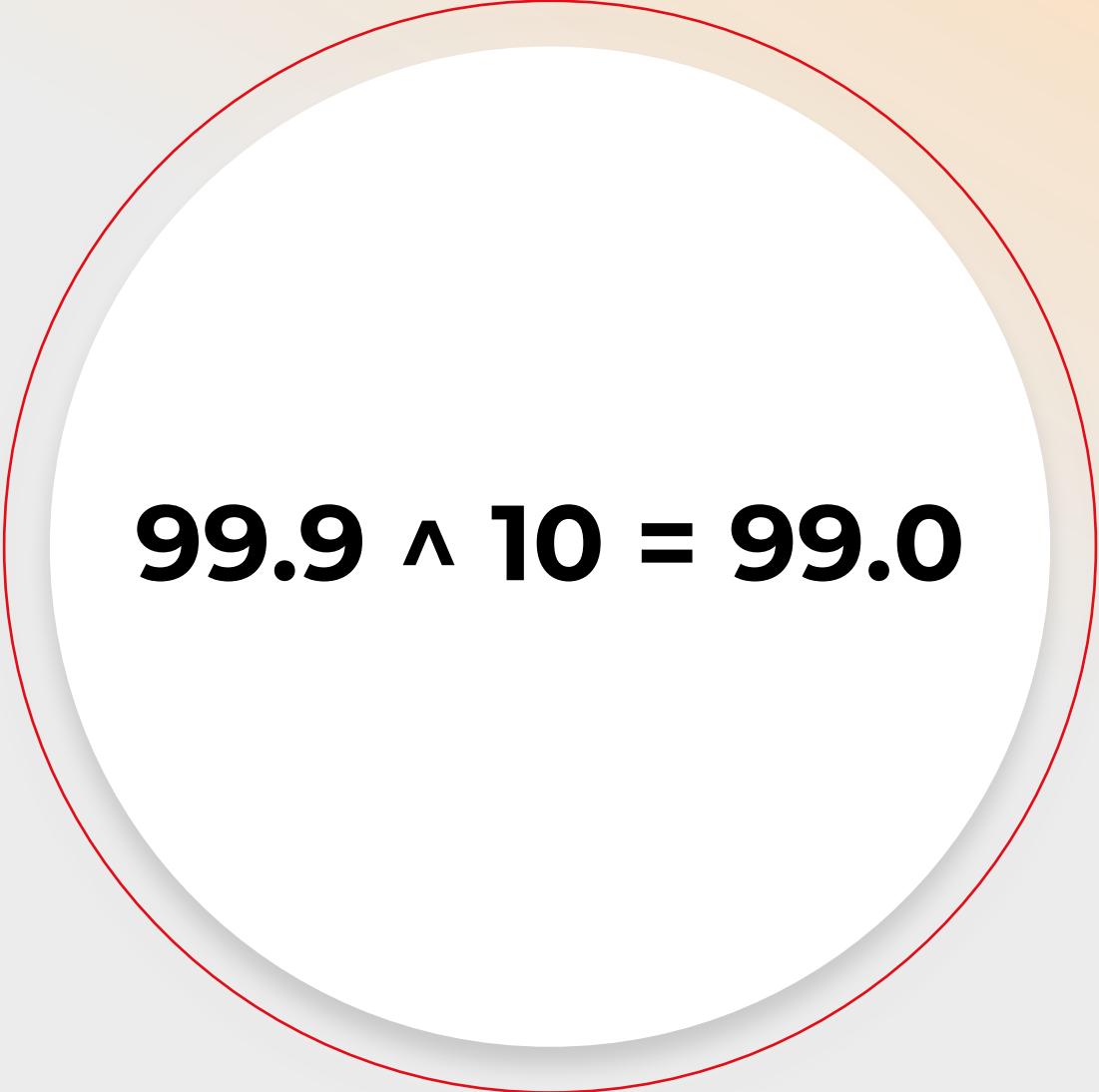
9	9	.	9	9	9	%
36 d	3,5 d		9 h	53 m	5 m	year
3 d	7 h		43 m	4 m	26 s	month
2,5 h	14 m		1,5 m	9 s	0,9 s	day



Authenticated user place a bet

- Users
- Fraud
- Payment
- Betting
- Notification

Service Level Agreement



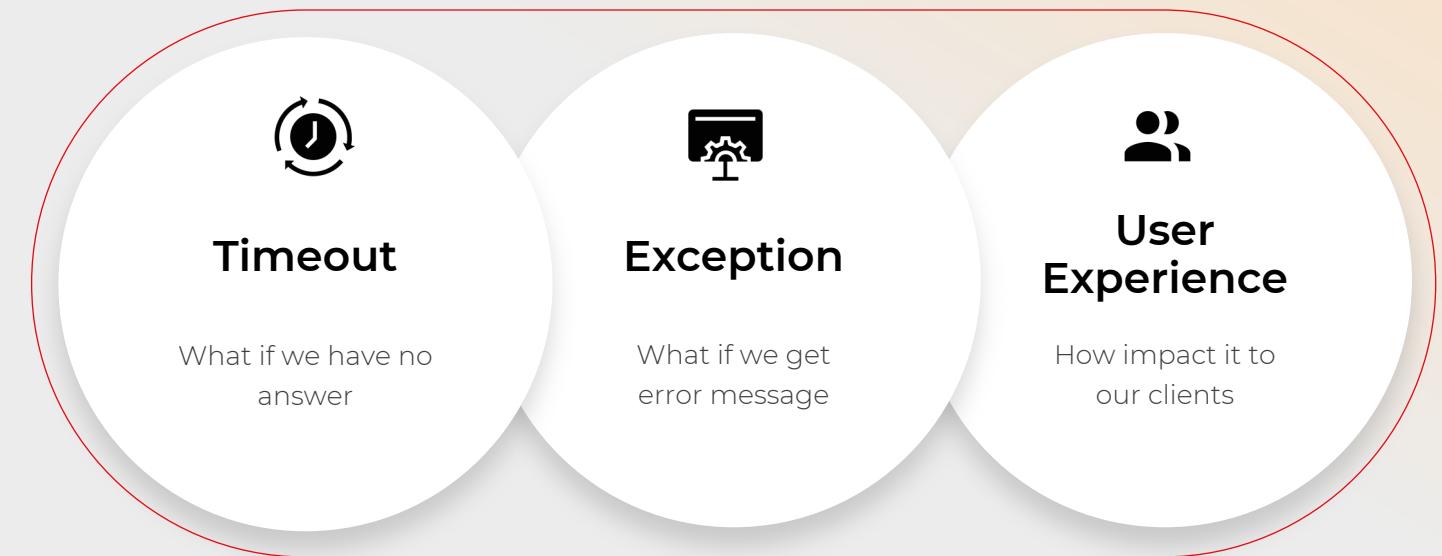
99.9 \wedge 10 = 99.0

Temporal coupling

Design for failure

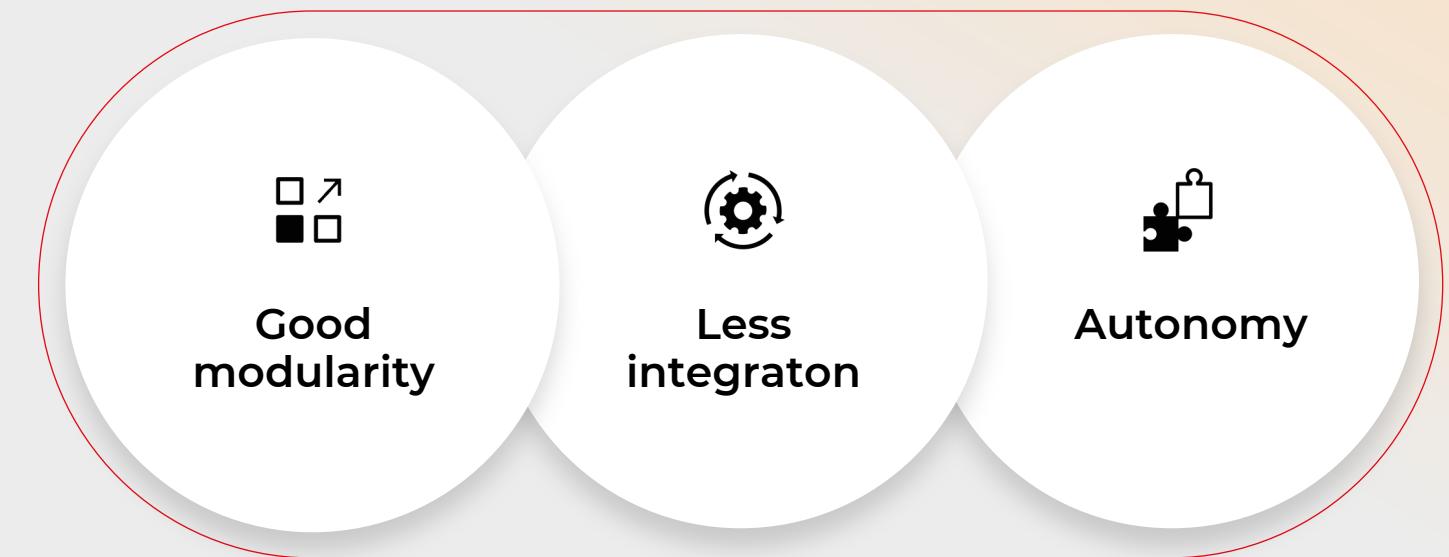
Fail safe vs Safe to fail

Required questions



High availability

High availability



**High
availability**

**Prefer
asynchronous
Over
synchronous**

Commends and Events

High availability



Cache



Retry



Rate limiters



Fallback

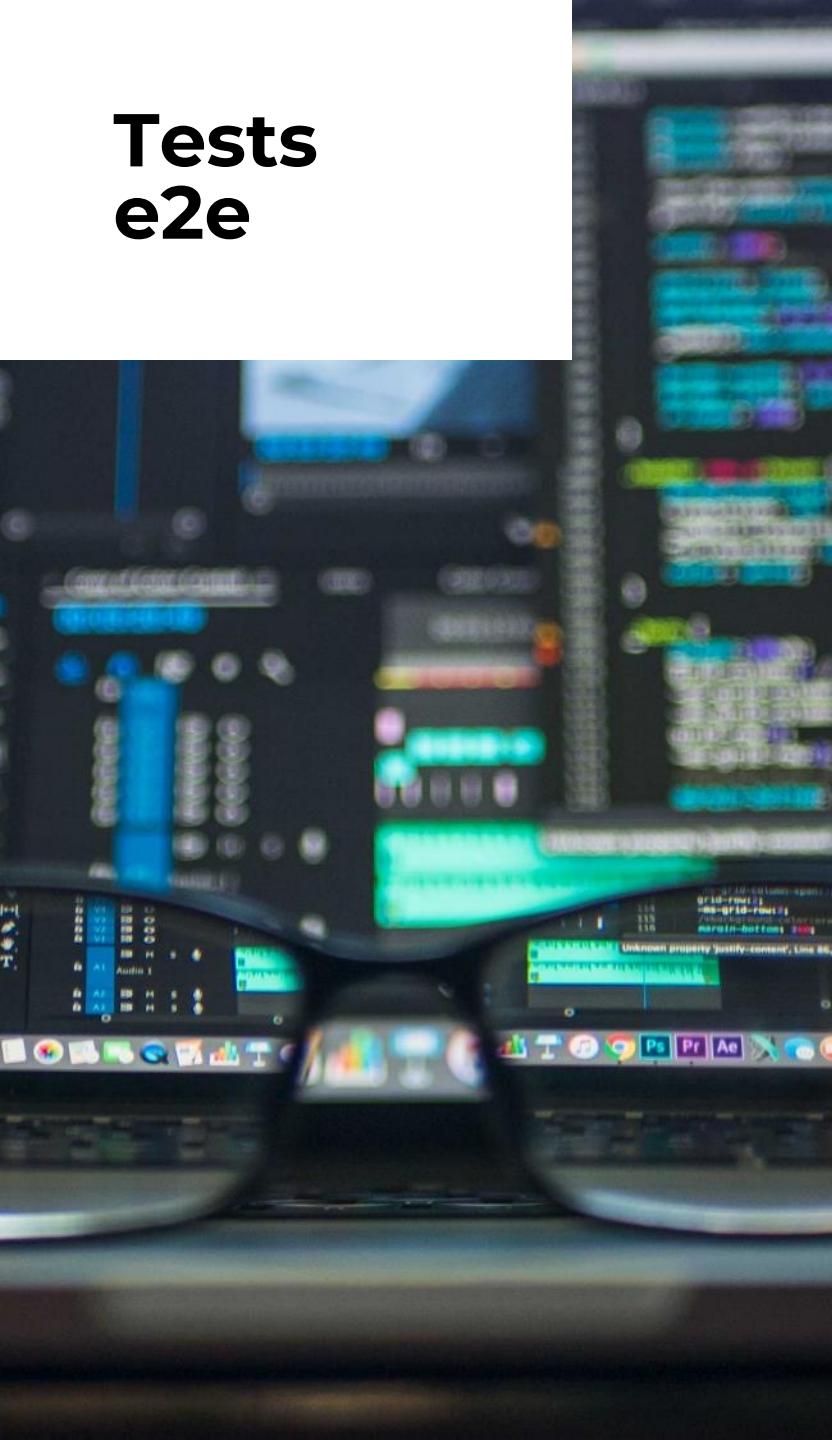


**Circuit
breakers**

Tests e2e

Additional text

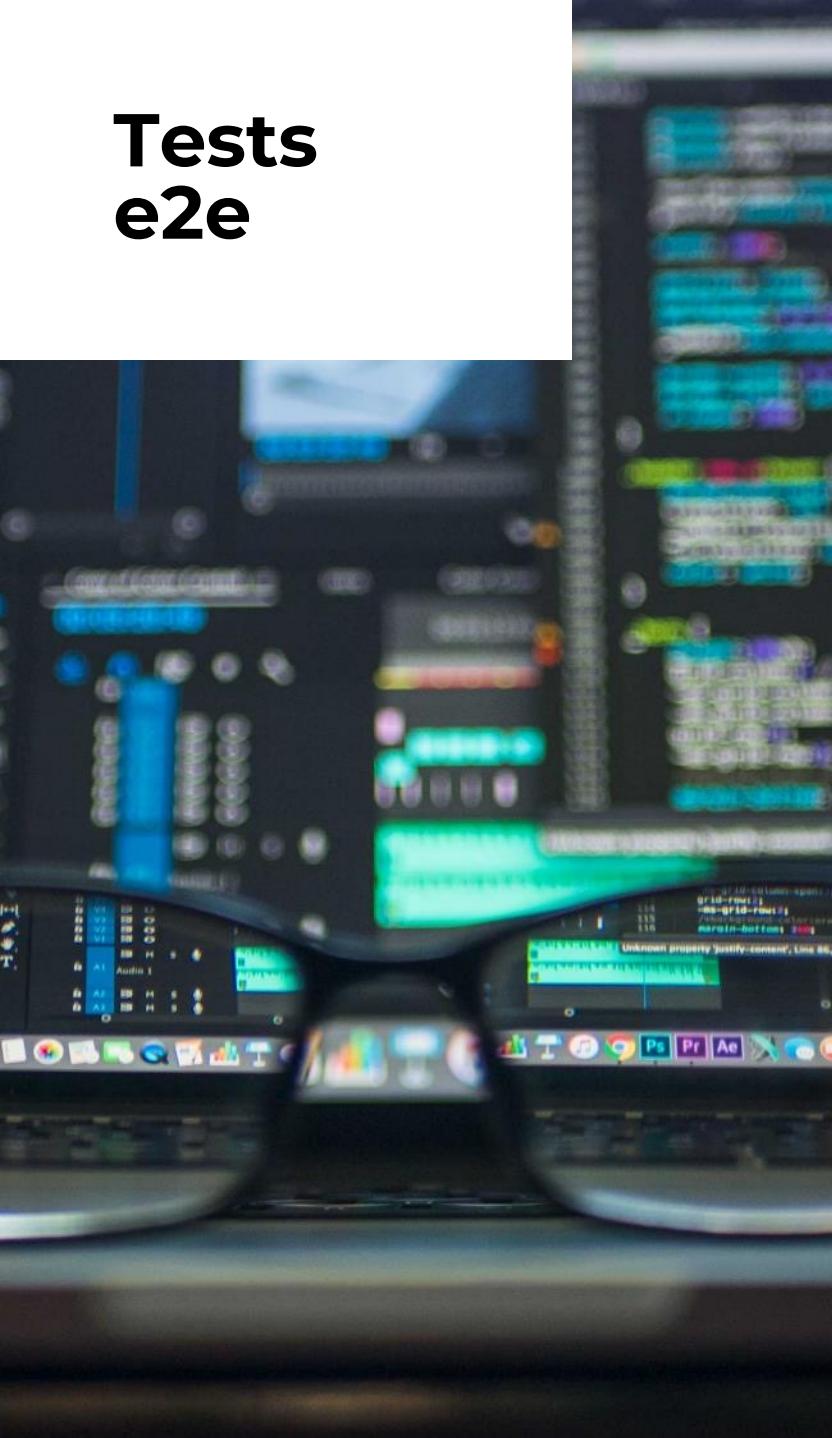
Tests
e2e



grape up®

**Difficult
False negative**

Tests
e2e



grape up®

Difficult
False negative
Positive false

Fighting API and UI testing with Karate

25.04.2022 time: 18.00
place: Cechowa,
Warszawska 6 Street



Patrycja Mundzik
Quality Consultant

Qawelin
by grape up®

**Top Dogs
of Quality
Assurance**

Chaos Testing

04/2022

How to start?



Code

- Timeouts
- Requests wrapper



Communication

- Required questions
- Fallbacks
- Consumer Driven Contracts



Autonomy

- Process–microservices mapping
- Boundaries verification

Summary

- 1. Monolith (modular) first**
- 2. Async over sync**
- 3. Plan B (Fallback)**

Thank you

Q&A