Production Ready Microservices

Rajeev N B
@rshetty on Slack

Production Ready

(Trust)

Microservices

Standardisation

(Checklist)

Why Standardise?

Standardisation brings
Freedom and Reduces Entropy

Goals
(Availability)

- Stable

- Performant

- Scalable

- Fault Tolerant

- Catastrophe Preparedness

Checklist

#1 Code Quality

Coding Practices

Easy to change

Linting/Formatting

Cyclomatic Complexity

#2 Testing

Unit/Integration

Load and Performance

Chaos

#3
Documentation

API Docs

Architectural Decision Records

Assumptions

Facts

#4 Resilience Patterns

Resilience Patterns

- Timeouts

- Hystrix

- Connection pooling

- Retries

- Rate-Limiting

#5 CI/CD

Deployment Checklist

Automation
(Build/Package/Publish)

Rolling Deploys

Rollbacks

#6 Observability

(Better Visibility)

Metrics/Monitoring

(latency, errors, traffic, and saturation)

USE
(Utilisation, Saturation, Errors)

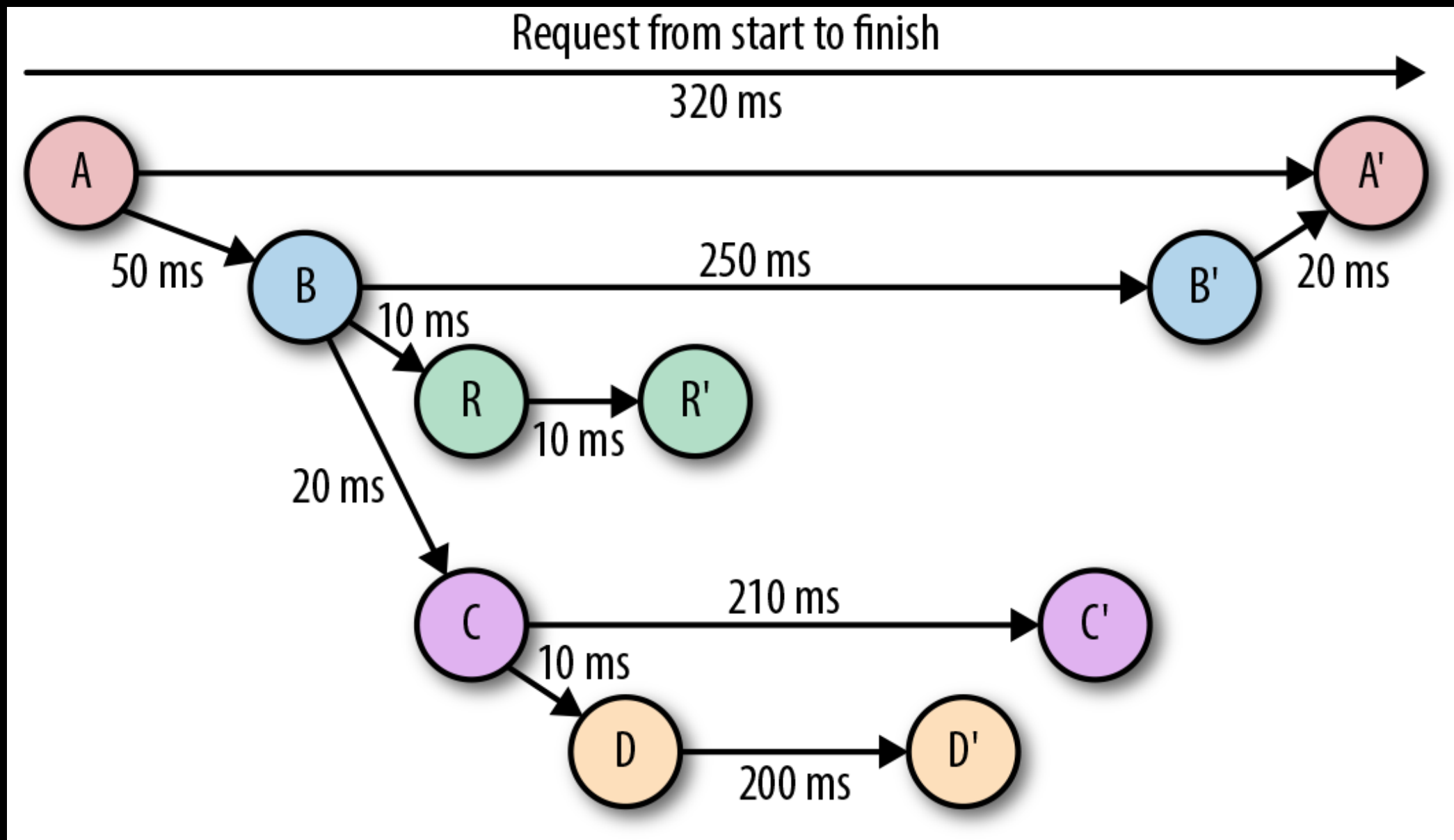# RED

(Request rate, Error rate, Duration of request)

Alerting

Error Tracking

Logging
(ELK ?)

Distributed Tracing

(Request scoped)

Request from start to finish

320 ms

A → A'

50 ms → B

250 ms → B'

20 ms → A'

10 ms → R

10 ms → R'

20 ms → C

210 ms → C'

10 ms → D

200 ms → D'

#7 Runbooks

Runbooks

- Compilation of routine procedures

- Carried out by people on support

- Helps Recover quicker

Ex 1: Slow Queries

- Find Slow running Queries

- If missing index ? Add Index

- If Shared Memory less ? Increase it

- Else Kill them ;-)

Ex 2: GOJEK Slowdown

- Find Kong Monitoring Dashboard

- If TCP Retransmits increased ?

- Find the bad Gate 2 HA

- Remove it from Kong upstream

#8 SLA

SLA

- Define SLA

- Agreement between provider and customer (other service)

- Uptime (4 nines)

- Latency (99.9th Percentile - 10ms)

#9 Capacity Planning

Capacity Planning

- Plan the capacity based on growth

- Qualitative vs Quantitative Growth

- Don't just throw money at the problem

- Elastic scaling (Kubernetes)

#10 Security

Threat Modelling

Secure Coding Practices

Authentication/ Authorisation

Whitelisting

Conclusion

Discipline

Availability

References

- Production Ready Microservices - Susan Fowler

- Google SRE Book

- TICK Stack

- Threat Modelling

- SLA

Questions ?
Thanks for listening