2PC

NEW*

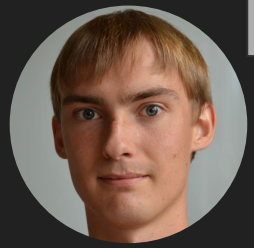
Byzantine fault tolerant

Full video on YouTube

Douwe

Michael

Miguel



Patrik

* new implementation by us

Agenda

Introduction

Implementation

Evaluation

Demo, Wrap-Up

Q&A

What is a BFTDCP? *A look at the paper*

A Byzantine Fault Tolerant Distributed Commit Protocol

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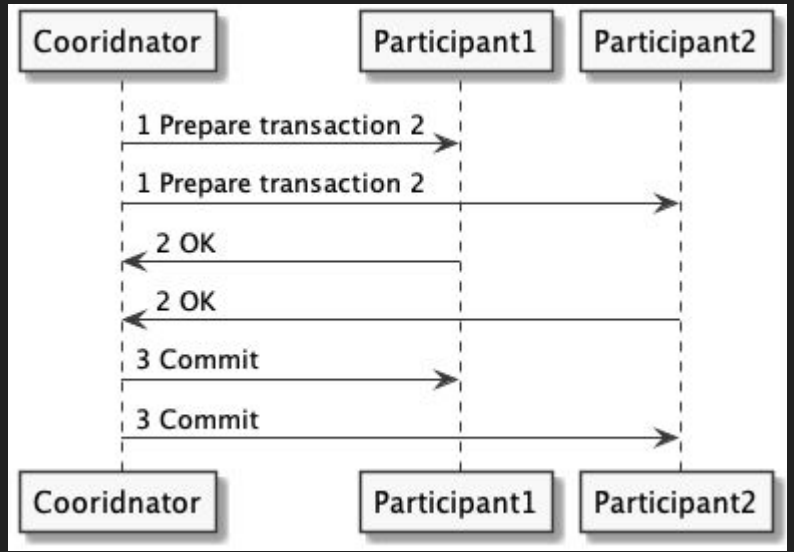
Background to BFTDCP?

A commit protocol

Only benign faults

2PC



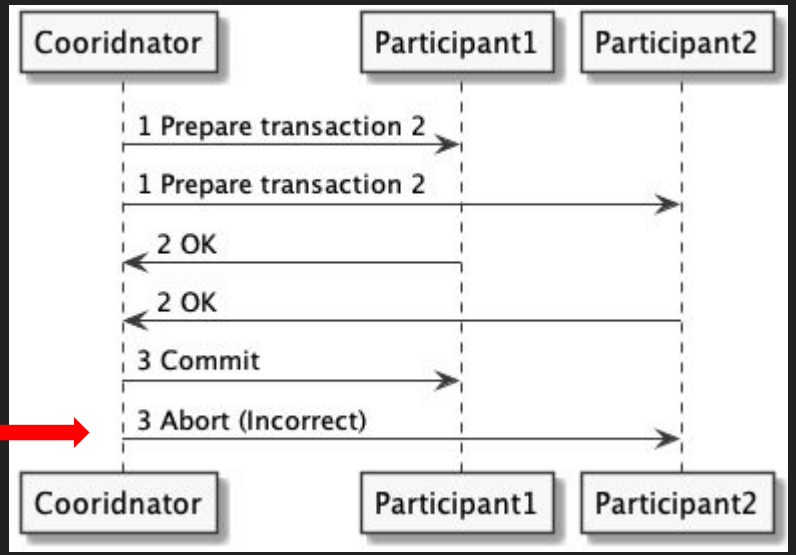
What is the problems?

Byzantine faults

One coordinator

Different truths

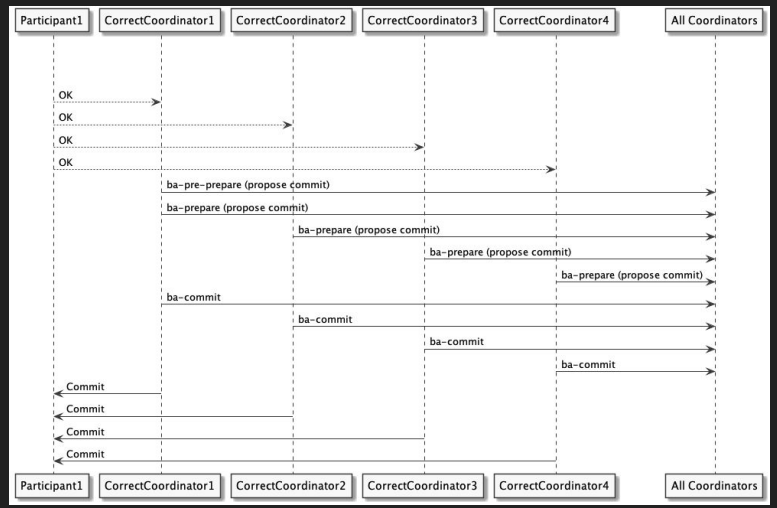
2PC faulty



Why BFTDCP? *A look at the paper*

Byzantine
Fault
Tolerant
Distributed
Commit
Protocol

1. Byzantine agreement on registered participants
2. Byzantine agreement on the participants votes



Implementation

Actor framework:  typed.

Programming language: 

Local implementation :

- BFTDC Protocol
- Byzantine Agreement Algorithm
- Signed messages
- Timeouts

Not implemented :

- ❏ View changes
- ❏ Akka remote artery

Evaluation *Functional Tests*

```
"A transaction" must {
  "succeed with 1 coordinator and 1 participant" in {
```

Commit

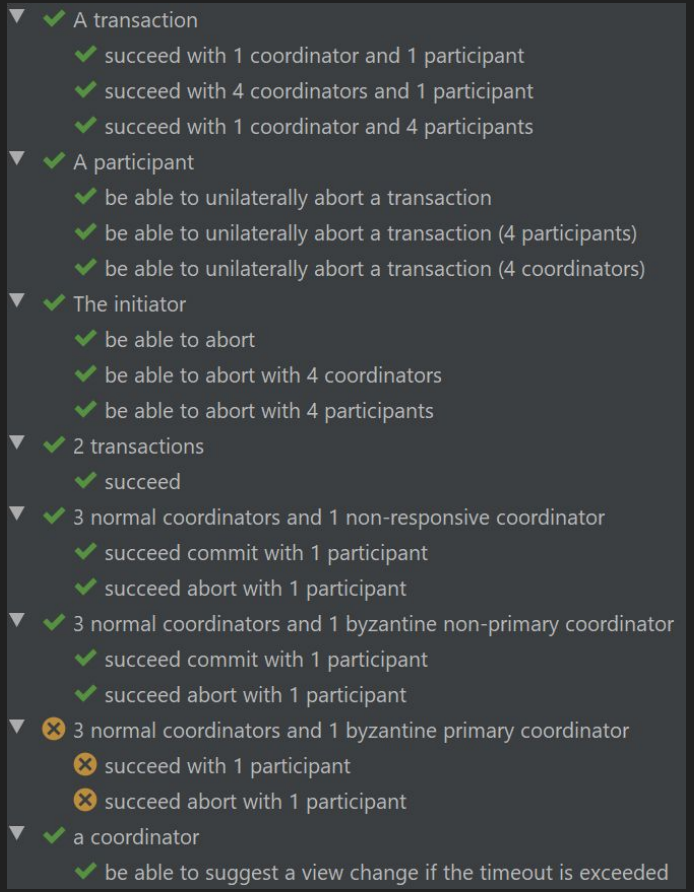
Participant aborts

Initiator aborts

Unresponsive coordinator replica

Byzantine coordinator replica

```
  }
}
```

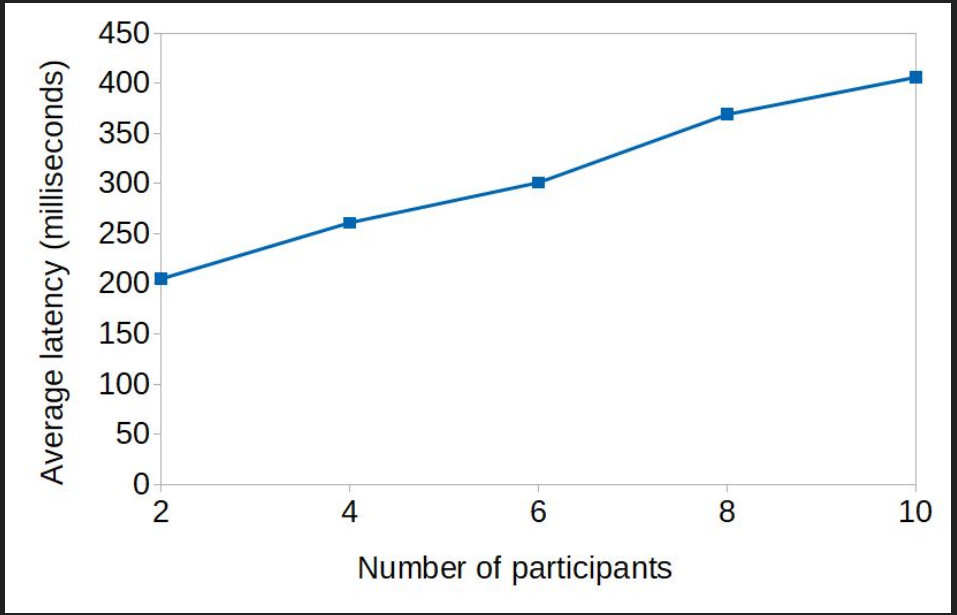


Evaluation *Non-Functional Tests*

Latency test with sequential commits

4 coordinators

500 commits

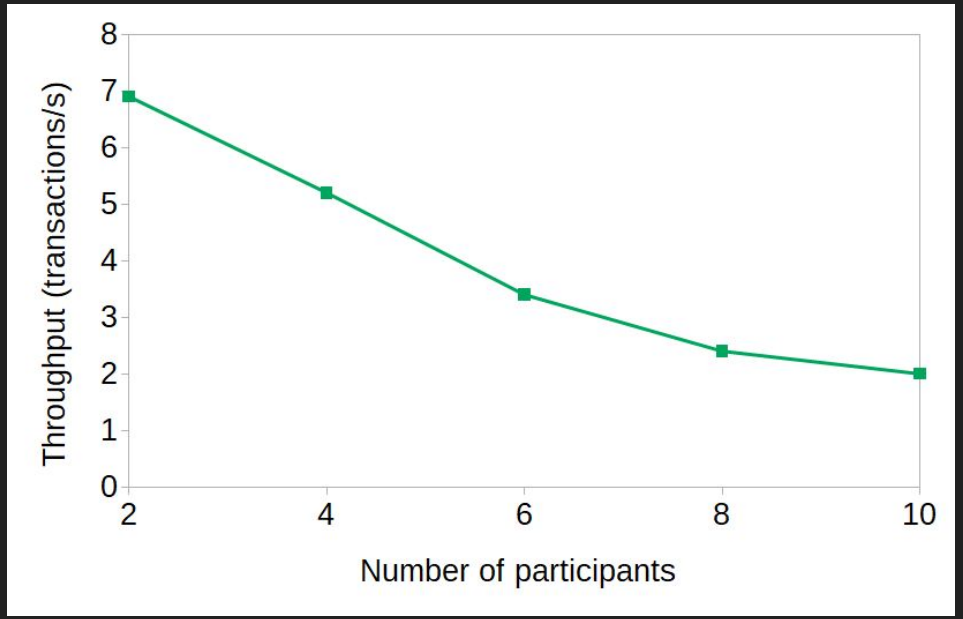


Evaluation *Non-Functional Tests*

Throughput test with high queue depth

4 coordinators

500 commits



Demo

Q&A