



Telegraft: flow and deployment

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Runtimes For Concurrency and Distribution

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Goals

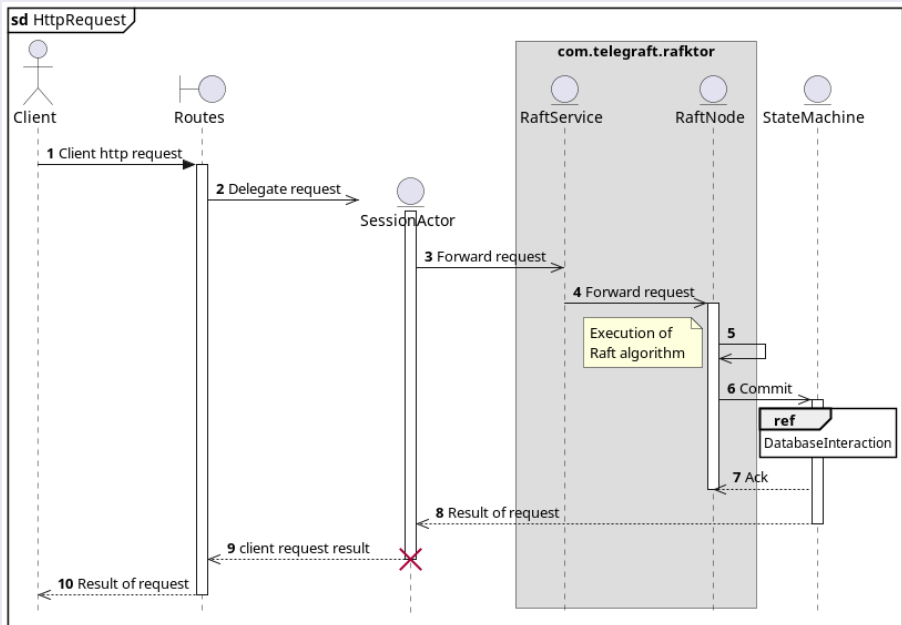
- Understand Raft consensus algorithm
- implement Raft consensus through actor model
- build meaningful benchmarks
- understand how Raft is used in real word scenario.

Telegraft application

A simple chat application with a replicated storage with no support for authentication and sessions.

- Use of actor model and technologies from the Akka framework
- Postgres database
- Kubernetes deployment.

Generic client interaction



Database interaction

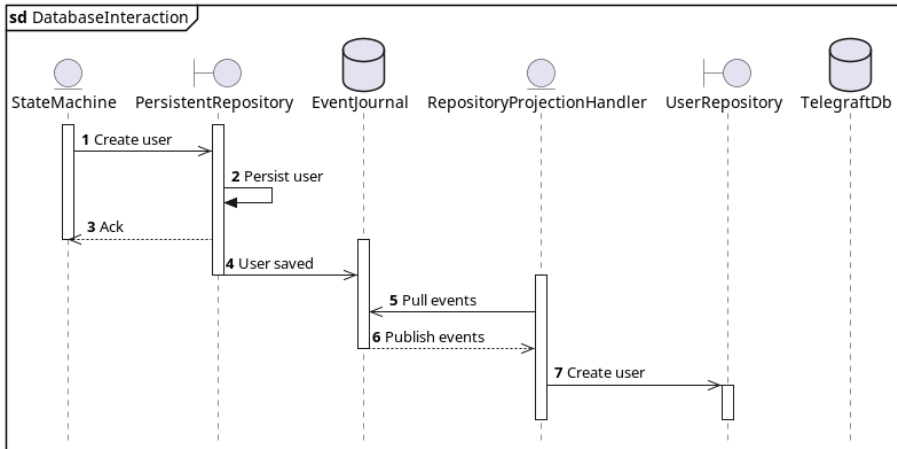
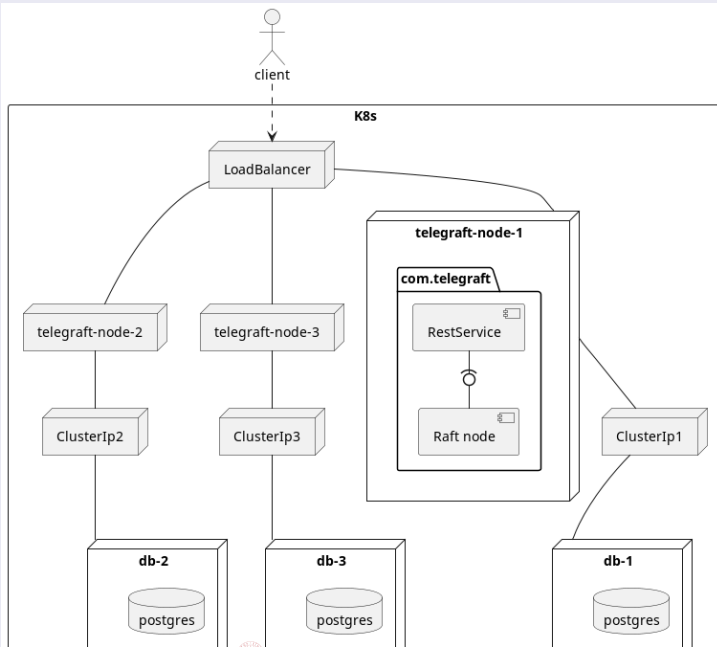


Figure 2: Sequence diagram interaction with database

System architecture

Follows a representation of the deployment architecture.

With Raft implementation



CockroachDB

- Distributed replicated database
- Postgres wire compatibility
- uses Raft protocol.

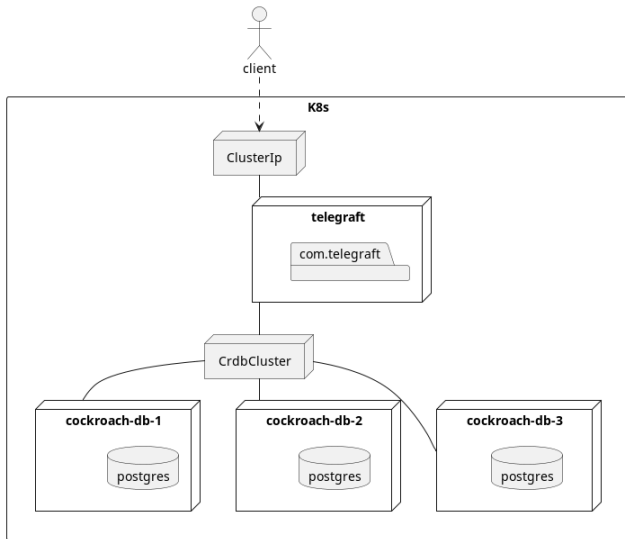


Figure 4: Component diagram of CockroachDB deployment

References I

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- [3] T. Polgar, “How to Store Data with a Few Million Akka Actors,” *Medium*, May 2019. <https://medium.com/@TamasPolgar/what-to-do-with-5-000-000-akka-actors-381a915a0f78> (accessed Oct. 04, 2022).
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References II

- [5] D. Ciocîrlan, “A Scala project with Akka, Cats and Cassandra,” *Rock the JVM Blog*, Apr. 2022. <https://blog.rockthejvm.com/akka-cassandra-project/> (accessed Oct. 04, 2022).
- [6] “Akka Documentation.” <https://doc.akka.io/docs/akka/current/index.html> (accessed Oct. 04, 2022).
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