

INTRODUCTION TO MULTI-REGION DATABASES WITH COCKROACHDB



Cockroach Labs

WHY ADOPT A MULTI-REGION DATABASE?

IS YOUR DATABASE RESPONDING SLOWLY TO SOME USERS?

- If you have a heavily distributed customer base and some users are experiencing slow responses from the database, using a multi-region database may be able to help.



CAN YOU SURVIVE BIG FAILS?

- If your database needs to be able to survive and recover from catastrophic data center or network failures, adding a multi-region database to your disaster prevention and recovery plans could help you.

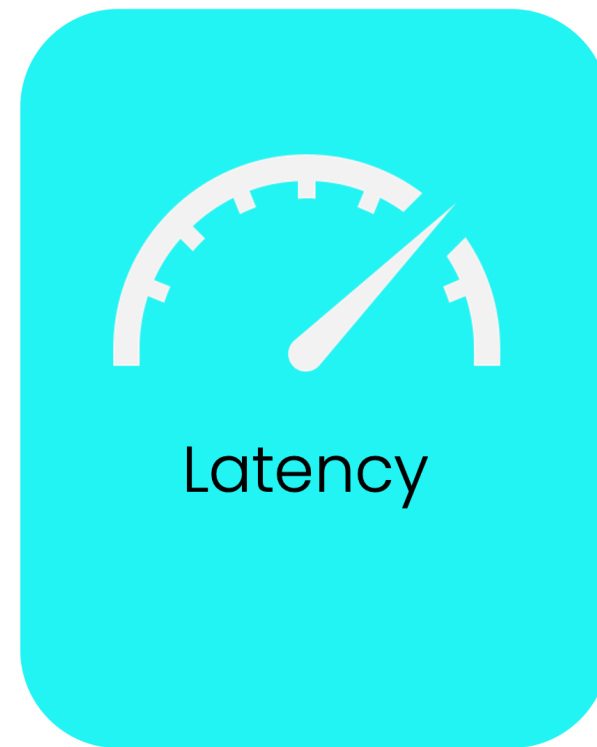


DO YOU NEED TO RESTRICT DATA BY GEOGRAPHY?

- If your application is subject to geographically based rules for data governance, using a multi-region database could help you.



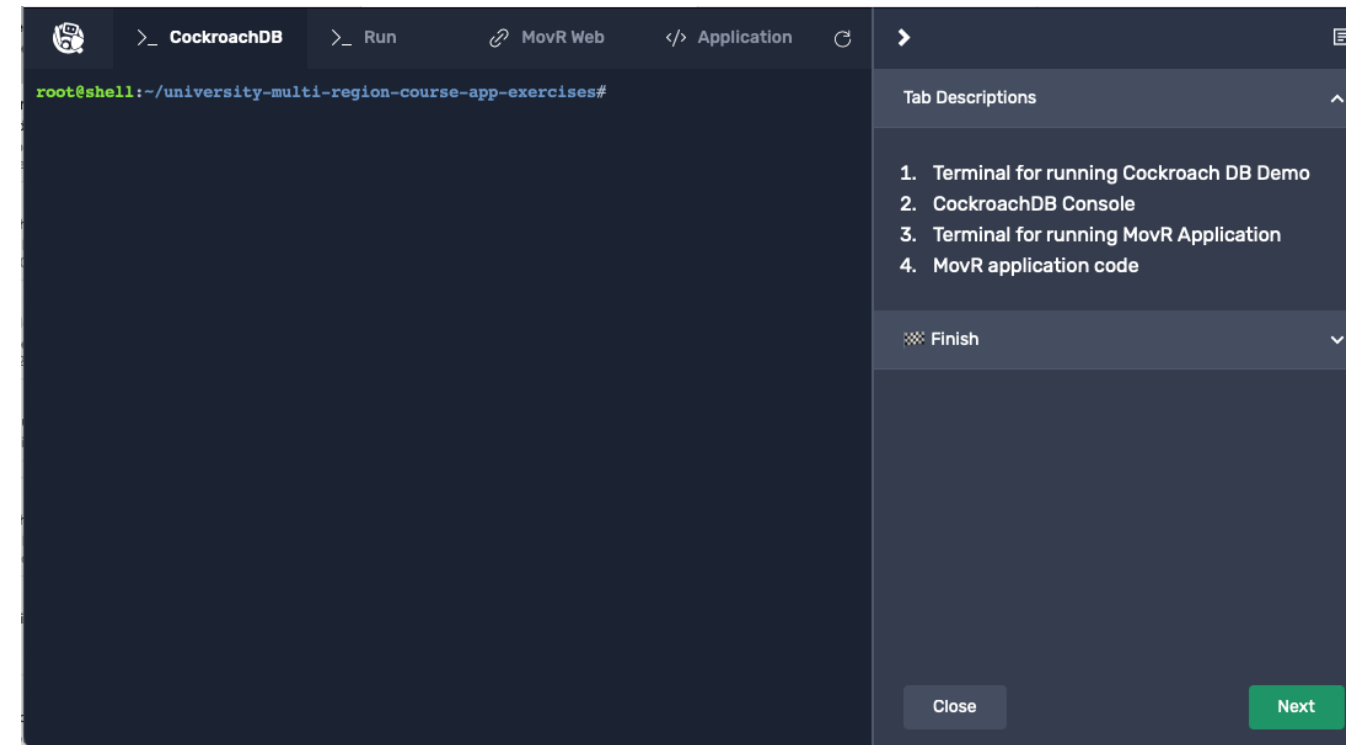
A MULTI-REGION DATABASE CAN HELP YOU TO



- manage latency when your user base is geographically distributed
- improve resilience across your database topology
- adhere to geographically-based data placement restrictions



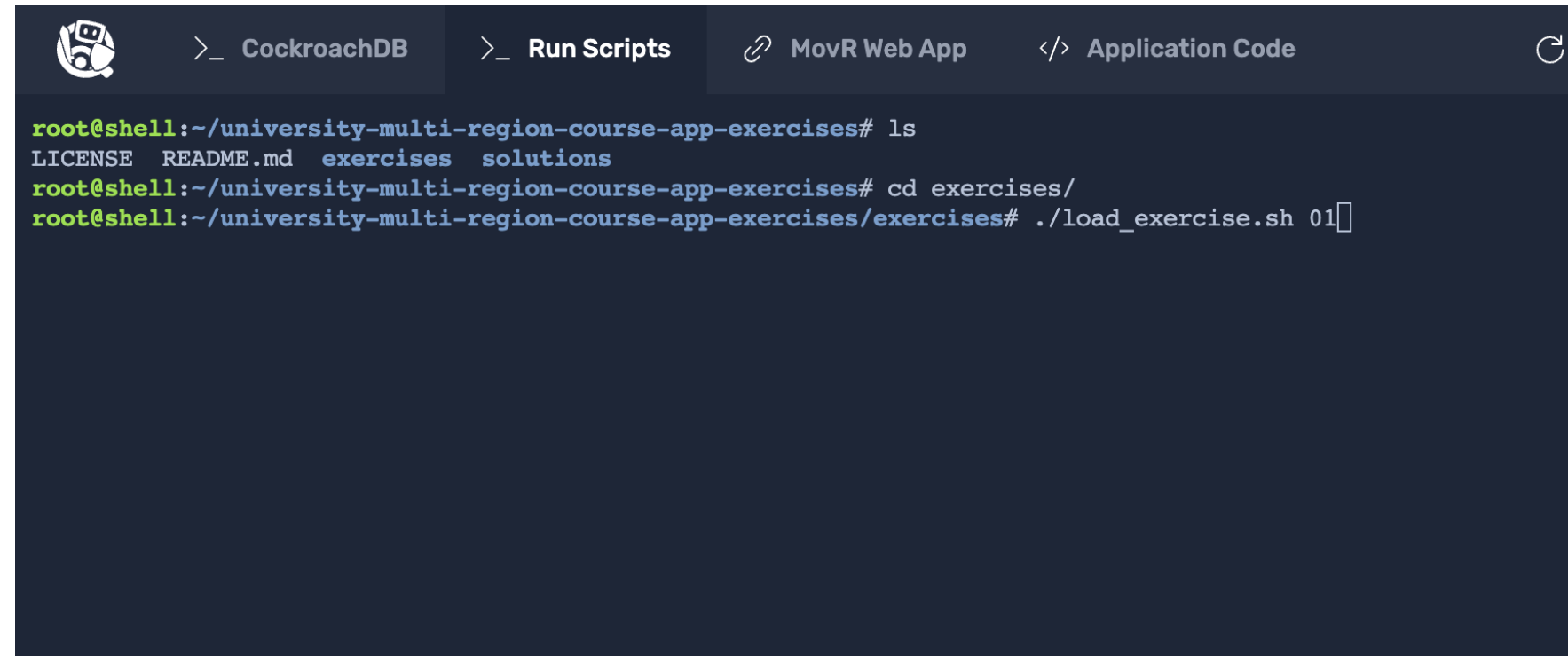
DEMO ENVIRONMENT FOR EXERCISES



- A web-based virtual development sandbox (Simplest!)
- Local development environment
- The course uses the `cockroach demo` tool to try multi-region features



NAVIGATING EXERCISES



The screenshot shows a web application interface with a dark theme. At the top, there is a navigation bar with several tabs: a robot icon, ">_ CockroachDB", ">_ Run Scripts", "MovR Web App" (with a link icon), and "</> Application Code" (with a code icon). Below the navigation bar is a terminal window. The terminal shows the following commands and output:

```
root@shell:~/university-multi-region-course-app-exercises# ls
LICENSE README.md exercises solutions
root@shell:~/university-multi-region-course-app-exercises# cd exercises/
root@shell:~/university-multi-region-course-app-exercises/exercises# ./load_exercise.sh 01
```

- Load exercise when starting

```
./load_exercise.sh 01
```

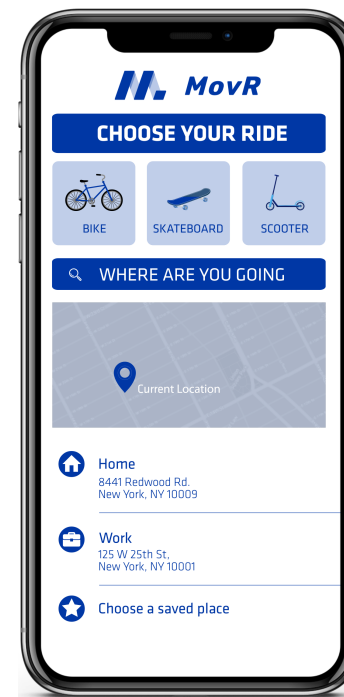
- Load solution in case you're ever stuck

```
./load_solution.sh 01
```

- Warning: loading the solution will overwrite your code



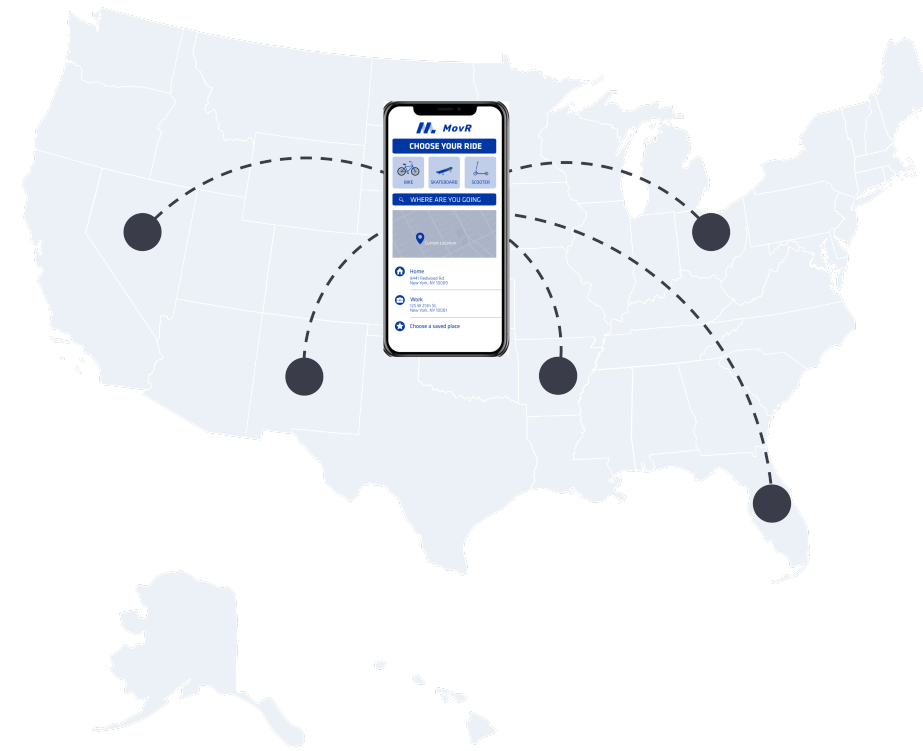
COURSE BUSINESS USE CASE



- MovR, fictional micro-mobility company with a growing user base for its web application
- MovR is expanding across the United States and Europe



MOVR CHALLENGES



- MovR is experiencing some scaling challenges with regard to
 - providing high speed reads and writes to all MovR app users
 - protecting users from the impact of certain types of outages
 - adhering to geographically-based data compliance rules

