

EE/CprE/SE 492 BIWEEKLY REPORT 3

sdmay24-03

25 February 2023 - 24 March 2024

Project title:

An Exploration of Turing Pi Based Edge Cloud

Client &/Advisor:

Dr. Akhilesh Tyagi

Team Members/Role:

Owen Perrin – Hardware developer

Nick Bergan – Hardware developer

Andrew Phelps – Software Developer

Cooper Caruso – Software Developer

Owen Henning – Software Developer

Kale Kester - Software Developer

Weekly Summary

This week, we showed our project in it's current state to another group. To do so we focused on development of the presentable aspects like the frontend pages and interlayer communication. We recieved feedback from the group that gave us considerations for security and some ideas for testing our product.

Past week accomplishments

Our accomplishments are separated per group member:

- Andrew Phelps: began work on full frontend integration with django
- Nick Bergan: Researched network settings for the CM4's and the Turing Pi. Experimented extensively with distributed computing of distributed data software.
- Owen Henning: Created a video frontend test page that runs locally.
- Kale Kester: Set up a test django -> rest -> react full cycle to ensure compatibility. Developed semi-functional frontend templates without any backend calls yet
- Cooper Caruso: Got django integrated with a postgres database
- Owen Perrin: Investigated and tested replicated Postgres instances.

Pending issues

- Andrew Phelps: n/a
- Nick Bergan: Turing Pi must be used off-campus per university firewall settings.

- Owen Henning: I do not have a great way of testing integration with hosted video. Hoping to use the backend infrastructure.
- Kale Kester: Modifying django configuration to accept our REACT project
- Cooper Caruso: Need to get the database on the hardware and make sure the django app points to that one
- Owen Perrin: Distributed Postgres can quickly become complex to setup; having a single master node for now and adding in replication later might be the best option.

Individual contributions

<u>NAME</u>	<u>Individual Contributions</u> <i>(Quick list of contributions. This should be short.)</i>	<u>Hours this Period</u>	<u>HOURS cumulative</u>
Andrew Phelps	Docker/frontend integration.	5	16
Nick Bergan	Experimented with distributed computing of distributed data.	3	10
Owen Henning	Video.js frontend	6	14
Kale Kester	Testing platform integration & developing front end pages	22	32
Cooper Caruso	Worked on setting up a database that can be connected to django	15	29
Owen Perrin	Investigated Postgres sharding and replication	12	22

Plans for the upcoming week

- Kale Kester: Get a full backend -> frontend working with our actual project (not a test). This includes adding proper frontend code to get/post, have this frontend scale with the content correctly, and configuring django to accept the frontend.
- Andrew Phelps: Assist with further frontend integration. Begin looking into account and user management.
- Owen Henning: Work on getting backend to communicate with frontend video
- Owen Perrin: Finish Postgres installation and integrate with software. Finish DFS installation.
- Cooper Caruso: Get the postgres software on the Pi and have the django app point to it
- Nick Bergan: Look for ways to prove the platform is secure for its use case and in general

Feedback

- The feedback we recieved...

- We gained several good bits of insight from our peer review team. There were some questions about the security of our platform that we haven't considered. Also, quite a few of them wanted to ensure we were doing tests on our usability to ensure the site would be "easy to use" like our requirements say.
- Taking some extra precaution to the security of our website remains a concern, but focusing on this would take time away from completing some of our requirements. Letting some less tech-savvy peers work with our finished product will also be a good usability study we will enforce as well. On top of that, there was a good suggestion to add a "Contact Me" section in case of any unexpected errors for potential future clientel for this test project.