



NetApp Software-Defined Core Infrastructure Team-Pitt Capstone Project Spring 2020

Extending a Microservice Architecture and Developing a Test Framework

Project Background:

The microservice model is commonly associated with the “back-end” of an application. In this style of architecture, the logic behind an application is composed from independent and loosely coupled microservice pieces. A shopping website, for instance, might have a microservice for retrieving inventory details, another microservice for managing the shopping cart, and yet another microservice for payment processing. Each piece can be developed independently, and then composed together to form the larger application. This is one of the many benefits of the microservice architecture as they are independently deployable.

In order to make sure the highest quality software is delivered; it needs to be tested while it is being developed. For example, if a new microservice is added to the application, we need to run some integration testing to make sure nothing has regressed with the addition of a new microservice. This is especially important when multiple teams are working on the application.

Project Summary

The students will develop a proof of concept testing framework for a containerized application. They will utilize and extend the infrastructure created by previous capstone students to create an automation suite that will run tests when new microservices are added to the application. As a stretch goal, students can create a test script generator that will automatically generate test cases for new microservices and run those tests once the microservice is checked into the code line.

Project Details

Over the course of this Capstone project, students will accomplish the following high-level goals:

- Plan and manage their own Agile-style development project.
- Gain real-world experience participating in a collaborative, product-engineering environment
- Research and engage with container technologies, including Docker, Kubernetes
- Implement a continuous integration testing framework
- Learn about the REST and microservices architectures



About NetApp

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Our team is passionate about customer success. Our company culture and work environment support that dedication. Together with our global network of partners, we are united in one goal: to help our customers achieve the outcomes that matter most to them. To learn more, visit www.netapp.com.

The project is driven by the Software-Defined Core Infrastructure team which provides the cluster infrastructure to support ONTAP for FAS and software defined environments. The team owns and maintains the clustering software components that drive the core functionality and scalability of ONTAP.

NetApp At-A-Glance

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- Great Place to Work Institute's "World's Best Multinational Workplaces" list
- Great Place to Work Institute's "Best Companies to Work for in APAC" list
- Great Place to Work Institute's "Best Companies to Work for in Europe" list
- FORTUNE Magazine's "100 Best Companies" list
- A FORTUNE 500® Company
- Member of S&P 500 and NASDAQ
- Stock symbol: NTAP
- Close partnerships with global industry leaders.