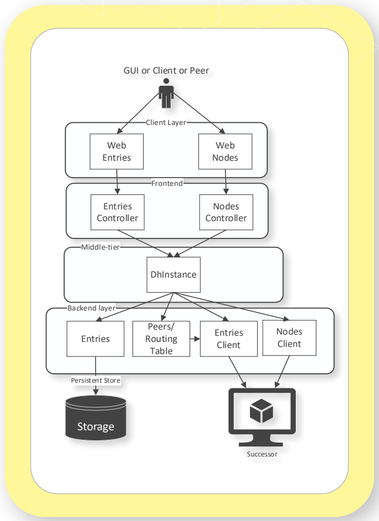
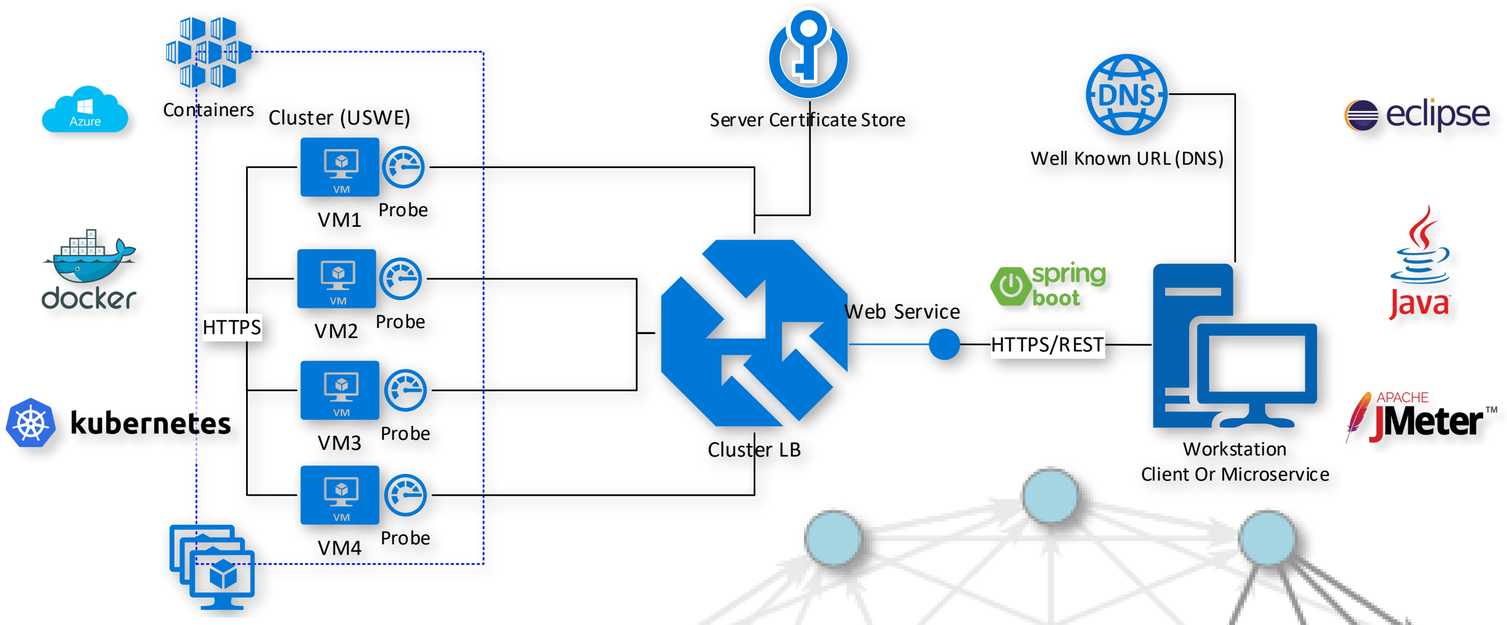
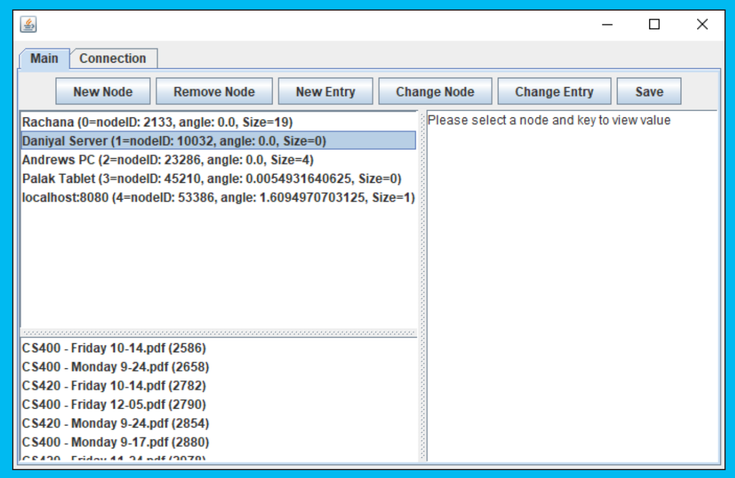
DISTRIBUTED HASH TABLE

SENIOR CAPSTONE PROJECT 2019 - 2020







General User:

A General User is just inclined to use the program as way to store data or files. They are not concerned with the underlying architecture of the network or nodes on the system. The general user will only use the system to perform CRUD operations on files (create, remove, update, and delete).

Network Administrator:

The Network Admin has a full view of the network and is aware of the nodes on the system. They can perform all operations that a general user is capable of, in addition, they can add and remove nodes, as well as look and update diagnostic information regarding each node. The Network Admins have a bird's eye view of the entire network and its properties.

TECHNOLOGIES USED:

- JAVA
- ECLIPSE
- WINDOWBUILDER
- SPRING BOOT
- DOCKER
- KUBERNETES
- JUNIT
- MICROSOFT AZURE
- POSTMAN
- APACHE JMETER

Our Team developed a Decentralized In-memory Data Storage Network using Distributed Computing. This network can be applied to run on local machines as well as on a cloud interface such as Azure or AWS. Each server on a network is known as a node in the system and is responsible for storing specific files of any data type. The heart of the network relies on the Chord peer-to-peer protocol for file distribution which allows its decentralized nature. The network alongside the Chord algorithm creates an environment that is scalable, reliable, and secure.

REFERENCES:

"Chord: A Scalable Peer-to-peer Lookup Protocol for Internet Applications", https://pdos.csail.mit.edu/papers/ton:chord/paper-ton.pdf

"Performance at Scale with Amazon ElastiCache", https://d1.awsstatic.com/whitepapers/performance-at-scale-with-amazon-elasticache.6a4eb08a74d1ff0a63b3d527b1b578e8974fbb31.pdf

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