Milestone List, Timeline, and Effort Matrix
2019.10.15

Milestone List

Milestone	Description	Delivery (wk)
v0.1.0	Back-end project framework and continuous delivery setup. Core infrastructure configured with OpenStack and Ansible on Cyber@UC servers. Front-end project framework and continuous delivery setup.	2
v1.0.0	MVP delivered: core back-end service mesh, API implemented, and authentication. Core features of front-end UI implemented. Back-end and front-end both deployed to infrastructure via continuous delivery.	5
v1.1.0	Iteration on back-end: Build out the various NoSQL and SQL data-store services. Implement container orchestration service in service mesh on top of OpenStack to emulate virtual machines. Use Elastic Stack and Kibana to aggregate data for network traffic. Iteration on front-end: Add visualization for network traffic.	8
v1.2.0	Final preparation and cleanup completed before presentation of project at senior design fair.	11

Timeline

Task #	Task	Start (wk)	End (wk)	Milestone
1	Investigate and identify real-world customer problems. Document what the needs of our customers are	1	1	v0.1.0
2	Obtain access to Cyber@UC server in ERC	1	1	v0.1.0
3	Research appropriate Frontend framework	1	2	v0.1.0
4	Setup frontend project	1	1	v0.1.0
5	Develop user interface prototype	2	4	v0.1.0
6	Test user interface with customers	5	5	v1.0.0

7	Refine user interface utilizing customer feedback			v1.0.0
8	Finalize back-end services design, API design, and data design	2	5	v1.0.0
9	Identify deployment strategy for back-end and front-end apps	1	1	v0.1.0
10	Set up continuous delivery / continuous deployment for back-end and front-end	1	2	v0.1.0
11	Research the deployment of an OpenStack operation as a foundation for our Infrastructure	1	2	v0.1.0
12	Build core backing services (Message Broker, Databases, Datastores, etc.) for custom services to interact with	2	5	v1.0.0
13	Test back-end app deployment strategy to Cyber@UC's servers in ERC	2	3	v0.1.0
14	Test front-end app deployment strategy	2	3	v0.1.0
15	Build API Gateway for interacting with the back-end	5	5	v1.0.0
16	Choose authentication strategy and service (possibly OpenStack Keystone)	2	3	v1.0.0
17	Research CLI Docker commands to launch containers that will emulate virtual machines	5	8	v1.1.0
18	Research how to set up Docker containers to communicate in networks	5	6	v1.1.0
19	Design and build container orchestration service for virtual machine and networking simulation	6	8	v1.1.0
20	Build core application services - Network, Traffic, and Software services	6	8	v1.1.0

21	Investigate the possibility of using the Elastic Stack and Kibana to visualize network traffic	8	10	v1.2.0

Effort Matrix