Simple Segmentation of Small Networks (S3N)
Milestone 1 Progress Evaluation

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Current Progress of Milestone 1

Task	Completion	Aaron	Stephen	To Do
1. Create Software Requirements Specification	100%	50%	50%	
2. Create Test Plan	100%	50%	50%	
3. Research and select tools for route and traffic rules	80%	40%	40%	Research applying rules to multiple router types
4. Research GUI design approaches and authentication	75%	37.5%	37.5%	Research specific design patterns
5. Research methods of identifying (categorizing) devices	65%	32.5%	32.5%	Research device metadata availability

Description of Task Progress

Task 1: The requirements document contains not only the requirements but also the user stories. Generating example user stories allowed us to easily envision requirements. Requirements are split into functional and parafunctional requirements. We expect to amend both the stories and requirements, refining them as we continue development and discuss the project further with our client/sponsor.

Task 2: The test plan includes our deliberated list of test techniques we plan to use for this project. Most of the actual tests will be designed later in the development alongside the various features. Therefore we expect to elaborate on the test details as we progress. The test plan will be updated accordingly.

Task 3: Our research has provided several potential methods of setting and controlling routes. It also led us to discussing the details and implications of segmenting devices and potentially using a permissions-based model to define allowed device behaviour within a segment. Potential methods of controlling routes include iptables (cumbersome), SSH/Telnet, accessing the router APIs, and using a router's web interface programmatically.

Task 4: We have identified several tools available to us, such as Dartlang (frontend) and SpringBoot (backend) for web interface development, and we have experimented with designing

sample AJAX applications with these tools. For user login security, we have identified and experimented with the OAuth2 protocol and researched SSL login via webserver.

Task 5: We have identified several techniques for acquiring metadata from network devices. We still have to resolve how detailed that data is and how distinct our identifications can be. We also have to find out how reliable gathering metadata is across devices. Some of the tools/techniques we have identified are; nmap, TCP/IP fingerprint, SNMP (and similar protocols), passive monitoring.

Contribution of Each Team Member

Aaron Nies: Prior knowledge of GUI technology, which jump-started research for task 4. Experimented with Router management interfaces. Researched device identification (categorization) for devices and performed experiments with tools. Collaborated on requirements and test plan documents.

Stephen L'Allier: Had prior knowledge of routing terminology and route setting using iptables, and therefore knew where to start researching for task 3. Researched methods of device categorization, as well as GUI design and web authentication. Collaborated on requirements and test plan documents.

Milestone 2 Task Matrix

Task	**Aaron**	**Stephen**
Create Software Design Document.	50%	50%
Implement, test, and demonstrate prototype S3N GUI that allows rules to be sent to the router.	50%	50%
Implement, test, and demonstrate basic control of the router by S3N.	50%	50%

Discussion of Milestone 2 Tasks

Task 1: We expect our design document to change considerably as we design the S3N. As such, we plan to design for the big picture of each application layer. We plan to have UML diagrams of the classes of each layer and design the overall structure of the S3N system.

Task 2: GUI prototyping will be done independently from the backend. We want to focus on an easy-to-use experience to insure the system is usable by non-technical users. The prototype GUI

should demonstrate navigating through the application and how the application will look and feel.

Task 3: Our goal is to choose one (or two) methods of controlling network routes and implement the method(s) in a basic program. From there, we will implement the ability to create and destroy routing rules (accept, drop, forward, etc) for specific subnets.

Sponsor Feedback

Milestone 1:

Task 1: Requirements Document

1. There are no user stories on monitoring the traffic in the segment, or functional requirements to do that and present the results to the user, and perhaps take some defensive actions.
2. Story 2: You introduce "Strict" as a mode here, are there any other modes? Maybe "strict" shouldn't allow anyone to join?
3. Story 3: R.e. segmenting according to preference. The more interesting idea is how does she know that it's not to here preference? A better story might be: "Kiera has a device on her network that needs to access her home photo library". How does the system help her figure out what she has to do to get her device to connect?

Task 2: Test Plan

1. In the Application Stack Approach, you are being very general. Shouldn't you at least give an idea of what will be used? Selenium, junit, … And how? And some way of automating the tests would be nice, rather than having to do it manually…
2. Unit Testing: Will you be using dependency injection either through tools or through coding? You mention developing in separate branches, but you haven't said anything about code organization or source control.
3. Integration Testing: what will you measure and how will you present the results?
4. Regression Testing: How will you do it? Using what tools?
5. Configuration Testing: what are you guaranteeing to do? 3 routers? 5?

Task 3:
Task 4:
Task 5:

Sponsor Signature: _____ Date: 10/3/2016