

sddec18-07: Software-Defined Moving Target Defense

Week 5 Report

March 5 – March 9

Clients: Dr. Benjamin Blakely and Joshua Lyle (Argonne National Laboratory)

Faculty Advisor: Dr. Hongwei Zhang

Team Members

Andrew Thai — *Project Manager*

Connor Ruggles — *Quality Assurance*

Emily Anderson — *Delivery Manager*

Ryan Lawrence — *Communication Manager*

Weekly Summary and Accomplishments

We were able to get our OpenDayLight Software Defined Network Controller fully connected to the Xenserver with the ability to connect to the Internet by adding a flow to not drop any traffic that goes out of the server. We also worked on setting up protocols on our domain controller and started research into the top types of network attacks and how to mitigate them.

Summary of Weekly Client/Advisor Meeting

We met with our client and advisor this and discussed details of what our final deliverable will be. We came to the conclusion that we will be designing a controller and turning in a prototype along with full documentation of how it works and what is happening. We are going to choose 2-3 vulnerabilities we think are the most important to protect against. We also decided that we do not have enough done so far to use it while competing in the CDC, so we may have to do that next fall instead. A few smaller details we discussed were how to better manage our project and coming up with a project name.

Pending Issues

Current issues that we are running into are when connecting our XenServer vSwitch to our controller, the switch is able to successfully connect to the controller but once it is connected, the switch isn't able to route traffic outside of the network so we can't run any scans from outside the network.

Plans for Upcoming Week

We are working on determining how to create flow rules using the OpenDayLight controller because it seems to configure rules it requires PUT requests into the server using either an XML or JSON configuration. We are researching the correct structure that is needed to get the flow of traffic to work. We are also still working to find which 2-3 vulnerabilities we want to focus on protecting our network against.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Andrew Thai	Worked on deciphering the openflow protocol and researching the XML and JSON configurations that are needed to configure the flow rules for OpenDayLight.	4	31
Connor Ruggles	Researched how to use protocols to direct traffic through the network.	4	28
Emily Anderson	Researched common types of attacks and how to detect/stop them.	4	29
Ryan Lawrence	Worked on setting up protocols on the domain controller and did some research on network attacks.	4	30