

Creating Infrastructure to support and automate CSG Labs application and website

Computer Security Group

President - Mathew Hartman

Vice President - Adam Isaac

Secretary - Zac Clifton

July 27, 2019

Abstract

The CSG at IUS is proposing a Senior Capstone Project that involves creating an infrastructure and Labs for our virtual training environment. This would not only be used for the Computer Science Group but would be open to the department to use for classes, events, and lectures. The specified scope is expanded in the objectives section and is subject to change as the product develops.

Introduction

The action that sparked this endeavor was Louisville Geek donating a server to the Computer Science Group (CSG). After we began to work on the application and infrastructure now known as CSGLabs. We have so far requisitioned our own domain, set up orchestration (Rundeck), Internal auditing, and a website, csg.ius.edu. We are continuing to improve and continue this endeavor into the 2019/2020 year.

Limitations/Problems

With our current set up we are able to host virtual machines but not at the scale we need. We are currently working with old servers and are trying to gain funding to gain better servers. However, the biggest limitation is the lack of man power the Club has. This is the reason for bringing in the Capstone groups to work on this project. This is also a very important project too because the school will be using this for classes and supplementary materials.

Objectives

The following tasks are expected to be completed by the infrastructure team:

1. Create databases to support applications as needed.
2. Administrate all CSG servers and workstations while the project is being worked on.
3. Automation of all manual tasks, so that the application, database, and workstations can function with minimal input from the maintainers.
4. Orchestration and load balancing of the network, website, and application.
5. Asset management.
6. VM management.

7. Security Audits.
8. Network Administration.
9. Support the web application team by assisting in the development of the back end of the application as needed.
10. Create backup solution and a disaster recovery procedure.
11. During the project it is expected that each member creates detail documentation of all work.
12. Once the main functionality is completed it is expected for each member to create at least one lab of a topic the member is interested in for the public consumption.
13. Responsible for any other infrastructure that may need maintenance or administration (file shares, switch, servers, etc...)

Assessment

Upon the the first meeting of the month a representative of the team is expected to present the teams work to the student body. Upon presentation they will receive feed back and will try to make the application better for the end-users and maintainers. The project will be considered complete when all core functionality is present and the operation can sustain all normal operation.

Leadership

As of this moment, anyone on this team will report to Adam Isaac as the infrastructure lead. His duties are:

1. Administer work to the infrastructure team.
2. Confirm all updates are properly tested.
3. Provide support and guidance to team members.

Adam Isaac will have the final say on infrastructure matter, but must take into consideration the majorities opinion.

As of this moment, anyone working on the project will report to Zac Clifton as the project Lead. His duties are:

1. Mange meetings and duties
2. Audit all work on a monthly basis to make sure the standards of the project are being met.
3. Provide support and guidance to all members.
4. Break any ties for any group decision.
5. Work in any lacking area that needs additional help.

These positions can change at any time, and the group will be notified of the change.

All work will be posed on cards on the CSG Trello board and should be accessed to figure our the work for the time allotted.

Conclusion

We want to think you for your consideration of this proposal. If you have any questions please contact us at the provided emails at:

Mathew Hartman - matdhart@ius.edu

Adam Isaac - acisaac@iu.edu

Zac Clifton - Cliftonz@iu.edu