Systems and Networking Capstone Project

Analyzing scalability of IRC command and control network

Members

- Kevin Malachowski (kchowski@vt.edu)
- Alex Shipley (alexs91@vt.edu)
- Reese Moore (ram@vt.edu)
- Rishi Ishairzay (windowasher@gmail.com)

Problem Statement

Rackspace needs to be able to reliably control a large number of geographically distributed compute nodes.

Potential Solutions

- Use RabbitMQ[1] to send messages between a "master" server and its "slaves," delegating reliability of commands being executed to the master.
- IRC command and control network, where every node subscribes to specific channels and executes commands sent to those channels.

After talking to Paul Voccio of Rackspace, he suggested that we use the straight IRC solution. Gabe Westmass agreed for now, but mentioned that we may need to move to a hybrid RabbitMQ-IRC solution to help with scalability.

Objectives

1. Reliability of delivery and execution (correctness)
2. Scalability
3. Speed

Timeline

- Write Bot monitoring software for VMs
- Set up Rackspace machines
  - Install simple IRC servers on two of the test machines (so we can test linking them together in a network)
  - Install our Bot software on the remaining nodes
- Develop method for scalability testing
  - Possible solutions:
    - Run multiple bots on each VM
- Report on our findings regarding the scalability of our solution.

[1] http://www.rabbitmq.com/