UC-275 Network Simulation Software: Analysis of Alternatives

INTRO/ABSTRACT

The goal of this project was to research currently available networking simulator software and choose the most ideal candidate for classroom usage. The simulators were ranked against a series of 25 requirements from the project sponsor. After the selection, a lab manual and guide was created to walk through creating a simple network using the simulator.

METHODS

Final simulator selection was made using cosine similarity with the ranked requirements and the collection of scores for each simulator made into vectors. The vectors of the for simulators were compared against the vector for the ranked requirements

$$\cos(\theta) = \frac{\mathbf{A} \cdot \mathbf{B}}{\|\mathbf{A}\|\|\mathbf{B}\|} = \frac{\sum_{i=1}^{n} A_i B_i}{\sqrt{\sum_{i=1}^{n} A_i^2} \sqrt{\sum_{i=1}^{n} B_i^2}}$$

Fig.1 Depiction of the Cosine Similarity function

RESULTS

Cisco Packet Tracer was the simulator that most matched the requirements provided by the project sponsor. A guide for a routing/switching network using both IPv4 and IPv6 was created for classroom use.

Resources:
https://machinelearningmastery.com/a-gentle-introduction-to-vector-space-models/

Research found that Cisco Packet Tracer is the most appropriate networking simulator for classroom usage.

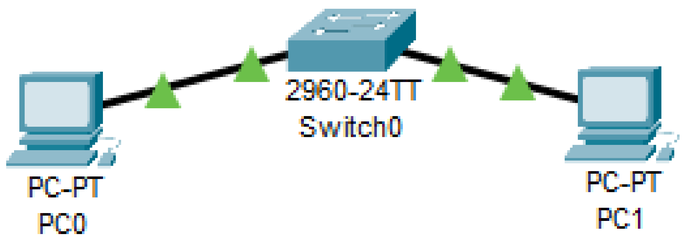

Fig.2 Screenshot of a simple Packet Tracer network

SCAN ME

KENNESAW STATE UNIVERSITY
COLLEGE OF COMPUTING AND SOFTWARE ENGINEERING

Author(s): Justin McCannon, Nidhi Marsonia, Michael McInnis, Tiffany Nguyen, Azm Uddin
Advisors(s): Professor Donald Privitera