COMP 3317 Computer Networks, Fall 2021
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Term Report on
Commercial Network Simulation Tools

Revision 1.0
27.12.2021

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1. Introduction

This term report is about commercial network simulation tools. Throughout this term report, you will see about commercial network tools and their features. First of all, Network Simulation Tools, then the purpose of use of these tools, the structural differences with each other, and the network tools with commercial and open system structures, then Commercial Network Simulation Tools will be examined one by one.

2. Network Simulation Tools

Today, the rapid development of technology also shows its effect in the field of Network. With the developments in consumer electronics and the increase in the number of technological products and users connected to the Internet, Network also increases its importance. At this point, Network simulation tools continue to be as important as before.

Network simulation is a kind of simulation that allows a real Network system to be observed. In order to provide this simulation, Network Simulation Tools makes use of the interactions of elements such as routers, nodes, switches, among themselves. In summary, Network Simulation Tools is a kind of software that predicts the behavior of computer network.

The reasons for using Network Simulation Tools are to observe, find errors and make improvements on an existing network system. In addition, it is one of the purposes of Network Simulation Tools to get maximum efficiency with minimum cost by simulating a network system that is planned to be established in advance. However, they are also used for educational purposes by academic studies and students studying in this field.

Various observations can be made in many areas using Network Simulation Tools. After adding the necessary network elements and creating the desired network system, the errors, performance, etc. of the network system can be observed.

Today, many Network Simulation Tools are much more equipped with updates than their original versions. They support us in designing network systems suitable for many new technologies such as 5G, IoT, Wireless Systems, among today's technologies.

Network Simulation Tools contain many variants. Some are GUI based and some are CLI based. In addition, some are open system and some are commercial. For example, while OPNET and QualNet are commercial, Cloonix and IMUNES have a open system structure. In this article, we will focus on commercial Network Simulation Tools.

3. Commercial Network Simulation Tools

In this section, some of the Commercial Network Simulation Tools will be reviewed.

The list of Commercial Network Simulation Tools that will be reviewed:
OPNET, QUALNET, NOCTİON, PRTG, NETSIM, CISCO PACKET TRACER, MICROSOFT VISIO, SOLARWINDS, DATADOG, SITE24X7, MANAGEENGINE.

3.1. A Review Of Commercial Network Simulation Tools

Riverbed OPNET

OPNET is a software for performance management for computer networks. After acquired by Riverbed Technology company, it names as Riverbed OPNET. It mainly focus on some base cases, mostly performance issues. It is using by research purposes and students mostly.

Advantages of OPNET:
It has a good customer support.
It has a good documentation,
It has useful tools for measuring performance issues.
It has a easy UI and thus its easy to use.
It can work on Windows and Linux platforms.

QualNet

QualNet is a simulation tool by Scalable Network Technologies Company. This tool using for performance testing issues, planning and training mostly.

Advantages of QualNET:
It has a good documentation.
It has a simple UI thus its easy to use.
It can work on Windows and Linux platforms.
It is a good tool for performance issues, testing, planning and training.

Noction

Noction is a simulation tool by Noction Company. This tool mainly use for monitoring network system.

Advantages of Noction:
It is a good choice for monitoring network system thanks to its easy to use UI and monitoring structure that use basic tables for giving information about network system.
It has a simple UI.
It has good documentation and trainings.
It is a cloud-Web based tool.

PRTG

PRTG is a monitoring tool by Paessler company. It has 3 different type, Network Monitor, Enterprise Monitor and Hosted Monitor.

Advantages of PRTG:
It has many extensions thus it can be customize for various network monitoring scenarios.
It can work on Windows, Linux and MacOS platforms.
It has a large language support.
There is a good documentation for PRTG.
It has a good customer support.
It has a automatic update system.

Disadvantages of PRTG:
UI is a bit old fashioned and complex. So its not easy to use like QualNet or OPNET.
Its Licencing price is a bit expensive.

NetSim

NetSim is a network simulation tool by Boson company. It is mainly using at Universities for academic and educational purposes.

Advantages of NetSim:
It is a good tool for students who are new to network systems.
It has a good terminal usage.
Customization options are great.
It can work on Windows, Linux, MacOS platforms.
It has a simple but functional interface with a fluid structure.

CISCO PACKET TRACER

Cisco Packet Tracer is a network simulation tool by Cisco Systems Company. It is the most famous network simulation tool. This tool is a good starting tool.

Advantages Of CISCO PACKET TRACER
It has good documentation and educational contents.
It has good customer support.
It can work on Windows, Linux, MacOS, Android, IOS platforms. It’s a good thing that it can run on mobile devices.
It has a modern and easy to use UI.

Microsoft VISIO

Visio is an application developed by Microsoft. Although it is actually a diagram creation tool, it can do good work in modeling network systems.

Advantages Of Microsoft VISIO
Good, rich and easy to use UI.
It has nice tools for creating charts, diagrams that can be used modeling network systems.

Disadvantages Of Microsoft VISIO:
It is expensive especially using for just creating diagrams for network systems.

SOLARWINDS

SolarWinds is a network performance monitoring tool by SolarWinds Company. Main aim of this tool is observing network system's performance via monitoring it.

Advantages Of SolarWinds:
It has many network simulation and monitoring tools.
It is a good choice for big projects.

Disadvantages Of SolarWinds:
It's documentation and training resources are not rich.
It is not a good choice for small projects.

DATADOG

Datadog is a network performance monitoring tool by DATADOG Company. It's main aim is monitoring the performance issues of network systems for observing, testing and error checking.

Advantages Of DATADOG:
It is a cloud based system.
It can make live network mapping.
It is a good choice for performance issues.
It has a easy to use and really clean UI.
It has scalable monitoring options.
It is using real time structure.

SITE24X7

SITE24X7 is a network tool by Zoho Company. It is a feature rich tool but especially should use for error reporting on network simulation.

Advantages of SITE24X7:
It has a real time structure.
It has simple and easy to use UI.
It has a free version for just testing.

Disadvantages of SITE24X7:
It has many tools and features thus, it can be hard to get used to all features.
Documentation and training resources are not rich.

MANAGEENGINE
ManageEngine is another network tool by Zoho Company. It is mainly using for observing performance issues.

Advantages Of MANAGEENGINE:
It can work on Windows and Linux platforms.
It has good network mapping.
Customization options are really rich.
It has many tools and features so this is a feature rich tool.

Disadvantages of MANAGEENGINE:
This tool does not support MacOS platform.
Documentation and training resources are poor.
Because of its feature rich structure this tool is a bit complex.

4. Conclusions

After giving a small introduction to network simulation tools in this article, we review commercial network simulation tools one by one.This article does not cover all commercial network simulation tools, but the most well-known and useful tools have been selected.
For future work, commercial network simulation tools and open system network simulation tools can be reviewed and compared.

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