The Application of Network Simulation Software
NS-2 Based on SVM

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Abstract. Network simulation is an effective means of studying network technology. Simulation methods include the use of special software or preparation of the corresponding simulation procedures. As a powerful network simulation software, NS-2 is favored by researchers, more and more people begin to study and use NS-2. This article mainly introduces the ways of studying and using simulation software NS-2 and illustrates the basic principles of it. Moreover, the article also achieves a simulation example of TCP and UDP protocols, offers the simulation program, explains how to put the simulation procedure into the file and displays the analytic results by tools.

Keywords: NS-2, network simulation, simulation program, TCP, UDP.

1 Introduction

NS (Network Simulator) is the literal translation of the network simulator, also known as the network simulator is a network technology for open source, free software simulation platform. Is the NS-2 Network Simulator version 2, or Network Simulator version 2, developed with the UC Berkeley researchers can easily use the network technologies [1].

NS is generally believed to have originated in 1989 by the UC Berkeley network simulator developed by REAL (REAL network simulator). In fact, REAL network simulator developed at Columbia University Network Testbed NEST (Network Simulation Testbed) improved on the basis of. REAL network simulator is mainly used for simulation of a variety of IP networks. The software was originally developed for UNIX systems based on network design and simulation carried out. 1995, NS Development of the U.S. military DARPA VINT (Virtual InterNetwork Testbed) project funded by the USC/ISI, Xerox PARC, LBNL, and UC Berkeley to develop [2]. Currently, NS-2's development has been DARPA SAMAN (Simulation Augmented by Measurement and Analysis for Network) project and the U.S. National Science Foundation-funded project [3].

2 Principle of NS-2 Introduction

NS-2's general architecture. NS-2 contains the Tcl/Tk, Otcl, NS, Tclcl. Which is an open Tcl scripting language used to program the NS-2; Tk is the Tcl graphical interface development tool that helps the user in a graphical environment to develop graphical
interfaces; Otcl is based on Tcl/Tk for object-oriented extensions, there are Its class hierarchy; NS-based core package is an object-oriented simulator, written with C++ to Otcl interpreter as a front end; Tclcl NS and Otcl provides the interface to make objects and variables appear in both Language [4]. For visual observation and analysis of simulation results, NS-2 also offers an optional Xgraphy and Nam. NS-2 structure shown in Figure 1.

NS-2 function modules. NS-2 simulator package a number of functional modules, the most basic is the node, link, agent, packet formats, the following were to introduce each module.

Event Scheduler: NS is a discrete event driven network simulator. It uses the Event Scheduler hope to complete all components of the work and plans of the working time occurred in the list and maintenance. NS-2 currently offers four different scheduler data structures, namely the linked list, heap, calendar and real-time scheduler.

Node (node): Objects by TclObject composite components, the NS-2 can be expressed in the end nodes and routers.

Link (link): Composite made by a number of components used to connect to the network nodes. All the links are in the queue to manage the group in the form of the arrival, departure and discarded.

Agent (agent): Responsible for the network layer packet generation and reception can also be used in all levels of protocol implementations. Each agent is connected to a network node from the node to assign it a port number.

Packet (packet): The NS-2, a "package" consists of a header (Header), Stack (Stack) and an optional data spaces. In general, packet header only, no data part. This is because, in a simulated environment, the actual data transfer is meaningless.