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Abstract
Recently, network devices such as switches or routers have massively equipped within enterprises for working on Internet, Intranet, or Extranet business. For occupying most of the market population, each of companies producing those network devices strictly asks their products to be with high performance and high quality. To guarantee the produced devices with higher performance and quality, each company would strongly demand that each device produced should be tested and pass through a test procedure. However, most of current test procedures consist of several limitations: (1) manual operation of 90 percent, in which the greater part of those operations is status configuration setting during the test procedure, and (2) the limited number of device under test (DUT) at a test. Therefore, there exist lots of spaces for improving current test procedures to be efficient enough to guarantee higher performance and higher quality of each network device to be on the shelf.

According to the process of current test procedures, network protocol tester, who is in charger of testing DUTs, repetitively deals with the process of debugging after the network protocol is devised and verified. Such a test process costs a lot in terms of human efforts and time — money. In other point of view, current test procedure will improve a lot if the repeated debugging process can be automated.

In this thesis, a distributed testing system using CORBA is proposed. The purpose of the testing system is to improve the efficiency of current test procedures by (1) automating the process, which is manual operation before, (2) a formal test script technique to modulate the test procedure for versatile configured test to guarantee the quality of network devices, and (3) a distributed test system environment to flexibly perform the testing.

By taking the three improvements mentioned above into the implementation of the CORBA-based test system, the system can test several DUTs simultaneously and automatically. Using the proposed test system, the tested DUTs will be with the guarantee of higher performance and quality at the expense of cost less than before.
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