URN etd-0407109-183718-1432
Author Hung-Lin Hsu
Author's Email Address No Public.
Statistics This thesis had been viewed 60 times. Download 0 times.
Department
Year 2007
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title An Embedded Network Intrusion Detection System Based on ARM9 Processor
Date of Defense 0000-00-00
Page Count 62
Keyword
Snort; ARM9

Abstract
Due to the rapid advance of internet, the security issue becomes more and more serious. Network Intrusion Detection (IDS) is now one of the most important security issues. It is known that pattern matching is the essential way for an IDS software to identify illegal behaviors, warms, and viruses from the outside world. This has been an effect approach, however, very time consuming. Take the famous IDS software SNORT for example, it has been reported that nearly 1/3 computation time is spent on pattern matching. Now, the challenge of IDS comes from how to maintain real time inspection, while the speed of data transmission on the internet and the patterns to be matched keep growing. Purely software solution may not meet the ever increasing demand of performance. Therefore, some solutions based on hardware/software co-design strategies are developed. In this paper, we propose an embedded IDS system. The embedded O.S. adopts Linux kernel[2.4.18]. We have ported the SNORT software to the system. The hardware system contains an ARM9 32-bits micro-processor. The most time consuming part, the pattern matching, is done by a specific hardware circuit realized in an FPGA chip.
We used Aho-Corasick algorithm for pattern matching. It can do multi-pattern matching at a comparable lower time complexity. We also give some experimental result to demonstrate the effectiveness and efficiency of our design.
Advisory Committee Wang, Lih-Yang - advisor

Files No Any Full Text File.
Date of Submission 2008-01-17