Cisco Network Security Designs for Gia Bao Technology Company

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***Abstract*—This thesis studies selected Cisco network-security techniques and applies them in a simulated infrastructure for Gia Bao Technology Company in Hanoi. The report introduces information-security concepts and models local- and wide-area network controls. Its practical chapters document switch and router settings, DHCP snooping, access control lists, and a Cisco ASA firewall, together with selected configuration checks. The author reports that the planned LAN, WAN, and firewall scenarios were constructed and inspected. The evidence is a simulation and configuration exercise; it does not establish a measured reduction in security incidents or a production rollout at the company. Some claims about quantitative evaluation are stated in the conclusion, but this summary does not add unverified numerical results. The design offers a basis for testing against actual devices, traffic, and organizational policies.**

***Index Terms*—Cisco, network security, DHCP snooping, access control list, ASA firewall**

I. Introduction

A company network needs controls that match its topology and business access requirements. This thesis considers Gia Bao Technology Company as a case for exploring Cisco security mechanisms. It reviews threats and defensive principles before defining a network model with local and wide-area components. The objective is to demonstrate configuration of several security controls. The study does not present a verified history of incidents or a production baseline for the company network [1]. Earlier ICTU student work on related designs is included here for context [2], [3], [4], [5], [6], [7], [8], [9], [10]. These contextual works were selected for this English summary; they are not asserted to appear in the original thesis bibliography.

II. Methods

The author builds network scenarios and documents Cisco commands for switches, routers, and an ASA firewall. The practical chapter includes DHCP snooping, access control lists, VLAN-related controls, and firewall configuration. Tables explain commands and their intended effects, and selected checks inspect whether the configured controls behave as planned. The method is technical modeling and simulation; no independent penetration test or sustained operational monitoring is documented [1].

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III. Results

The source provides topology and configuration material for LAN, WAN, and firewall scenarios. It shows example checks of DHCP snooping and access-control behavior and describes the observed response to selected test traffic. The conclusion reports that the security techniques were modeled and evaluated. The manuscript does not present a reproducible company-wide security outcome or establish that its proposed settings were deployed on the actual Gia Bao infrastructure [1].

IV. Discussion

The modeled controls address different network risks: DHCP snooping helps constrain address-assignment abuse, access control lists restrict traffic, and the ASA firewall applies boundary rules. Correct operation depends on trusted ports, address plans, rule order, and maintenance. Simulation checks demonstrate intended behavior for selected cases, but they cannot capture every operational condition or attacker strategy. Field validation and policy review would be needed before implementation [1].

V. Conclusion

The thesis documents Cisco-based network-security configurations for a Gia Bao company scenario, including LAN, WAN, DHCP snooping, access rules, and ASA firewall controls. Its practical material supports a technical demonstration and selected configuration checks. It does not verify a production deployment or a reduction in real incidents. The design can be used to plan a more complete evaluation with actual devices and traffic [1].

References

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