Project Part 2: Network Design

Introduction

As discussed so far in this course, the configuration of a network affects the options available for security and network defense. Using the network survey produced during the first part of this project, together with host vulnerability assessments and access requirements, you need to design an updated network structure.

Scenario

You have been working as a technology associate the information systems department at Corporation Techs for a while now. You have discovered so far that all of Corporation Techs' computer systems share the same Class C public IP address range, including workstations along with servers providing authentication, e-mail, and both secure and public Web sites.

Your next task in this project is to construct a basic network design. An important requirement for the network design is to reduce the number of public addresses needed as the subnet lease results in very high ISP costs.

Tasks

Construct a basic network design, separating private and public services within the Corporation Techs' network. To do so, you must:

1. Access the PCAP files using NetWitness Investigator, and browse the Nmap scan (XML format), topology fisheye chart (PDF format), and Nessus report (HTML format).
2. Identify vulnerabilities and clear-text information transfer.
3. Conduct research and determine the best network design to ensure security of internal access while retaining public Web site availability.
4. Identify any opportunities for reduced ISP costs through port redirection or address translation.
5. Design a network configuration, identifying network gateways, port or address redirection systems, and the location of hosts within private and protected network segments.
6. Create a professional report detailing the information above as supportive documentation for the network security plan.
7. Create a report that includes a basic network diagram and research results.

Evaluation Criteria and Rubrics

Evaluation Parameters	Percentage Weight
Did the student demonstrate an understanding of the competencies covered to date?	30
Did the student identify all vulnerabilities identified in the packet trace and host vulnerability scans?	30
Did the student produce a network design that will fulfill the stated requirements, separating private network resources and protected DMZ bastion hosts?	40
Total	**100%**