

Project-2: An Attack Tree for the VLANs

Kulesh Shanmugasundaram
kulesh@isis.poly.edu

Vikram Padman
vikram@computer.org

Posted: November 6th
Checkpoint-0 due: November 13th
Checkpoint-1 due: November 20th

This is a two-week long assignment to build an attack tree for VLANs. The goal of this assignment is to develop a comprehensive attack tree for the VLANs. In the first week, you will study the design and implementation of VLANs in general, review attack trees, and learn details of a specific implementation of VLAN (either Cisco or HP VLANs we have in the ASSET would do). This assignment is broken into two segments. Therefore, at the end of each week there will be a report due. Please have your reports in PS or PDF format and email the reports to me *and* Vikram on or before the due date.

1 VLANs

Virtual Local Area Networks (VLANs) can be viewed as a group of devices on different physical LAN segments which can communicate with each other as if they were all on the same broadcast domain. We have covered this topic in detail in our earlier meetings. Furthermore, we also studied couple of implementations of VLANs used in ASSET and reviewed attacks on them as well. Now, it is time to structure this knowledge systematically such that improvements to VLAN implementations can use this knowledge.

1. **Review of VLANs.** It is strongly suggested that you review your notes on VLANs. Understand the need for VLANs, where they fit in a network, and what are the benefits of having VLANs.
2. **Attacks on VLANs.** In order to develop an attack tree you first need to know the attacks on the system. Therefore, review proposed attacks on VLANs.
3. **An Attack Tree for the VLANs.** Read “An Attack Tree for the Border Gateway Protocol” presented in [1]. You will be using this document as a guide in developing the attack tree for VLAN.

2 Handins

You will submit two reports for this assignment. First report is due at the end of the first week and the last at the end of the second. In the first report, include a summary of VLANs, the need for VLANs in networks, and attacks on VLANs. In the second report, you will include an attack tree you built for the VLAN and suggestions to improve the security of VLAN implementations. (Just pick an implementation and describe improvements to it.) Grade will be awarded based on the comprehensiveness and accuracy of the attack tree.

References

- [1] S. Convery, D. Cook, and M. Franz. An attack tree for the border gateway protocol. In *Internet-Draft*, November 2002.