

# IT Technology Network SS3

## **Paloalto Networks Academy**



**Lillebaelt Academy**  
**University of Applied Sciences**  
IT and Electronics Engineer  
3 semester IT-Network

### **Authors:**

Fernando Coello Kjartansson  
Abdalmannan Shek Nasan

Wednesday 08 December 2016

# Table of Contents

- Introduction ..... 3
  - Objectives** ..... 3
  - Intended Audience** ..... 3
  - Prerequisites** ..... 3
- Project Management ..... 4
  - Organization**..... 4
  - Schedule**..... 4
  - Responsibilities** ..... 4
  - Costs**..... 4
  - Risk**..... 5
  - Evaluation** ..... 5
  - Communication Strategy**..... 5
  - Lesson Learned**..... 5
- Project Overview ..... 6
  - Prerequisites** ..... 6
  - Implementing**..... 6
  - Testing**..... 6
- Conclusions ..... 7
  - Fernando**..... 7
  - Abdalmannan**..... 7
- Appendix ..... 8

# Introduction

When we talk about network security in computing context a firewall is one of the most important security tools. According to the evolution of firewalls there are: 1<sup>st</sup> generation “packet filter”, 2<sup>nd</sup> generation “stateful filter” and 3<sup>rd</sup> generation “application layer”. The last one is where Palo Alto firewall fits but with extra features so they call it “Next Generation Firewall”.

This project has been developed by Fernando and Abdalmanan. Students from Lillebælt Academy in Odense Denmark, during the 3<sup>rd</sup> Semester in IT Technology Networks. And propose by the teacher Morten Nielsen.

The purpose of this project consists of obtaining the basic knowledge of Palo Alto firewalls following the Palo Alto course material<sup>1</sup>.

## Objectives

This document will give to the reader an overview and possible problems to achieve the Palo Alto training course in a measureable time and should be able to pass the free exam ACE7 and prepare for PCNSE7 exam.

## Intended Audience

This project describes the steps to get familiar and get the basic knowledge for configuring Palo Alto firewall VM-PAM.

## Prerequisites

The person who follow this documents should have basic networking knowledge, basic VMware ESXi 6.0 or VMware Workstation knowledge and an account in [www.panacademy.net](https://www.panacademy.net) to access to the Palo Alto Network Academy course or training.

---

<sup>1</sup> Palo Alto Networks Course Material <https://www.panacademy.net>

# Project Management

## Organization

The project had been developed by Fernando Coello Kjartansson and Abdalmanan Shek Nasan sharing the role of Project Management.

## Schedule

The project began on November 27, 2016 and will continue until December 07, 2016. The first week start with the initial plan based on Defining Project<sup>2</sup> and setting up the system to work on Palo Alto firewall. The last week had been working on the final report and putting together the documentation we saved.

To check details of our schedule, use this link <sup>3</sup>

## Responsibilities

Project Management	
TASK	NAME
Initial Project Plan	Fernando
HLD design	Abdalmanan
From Lab 1 to Lab 7	Abdalmanan
From Lab 8 to Lab 11 and Lab 13	Fernando

Final Report	
Subtasks	NAME
Introduction	Fernando
Project Management	Fernando
Project Overview	Abdalmanan
Editing and assemble document	Abdalmanan

## Costs

In this project we got all the hardware and software without any cost, because it was provided by Lillebaelt Academy. The only measureable cost had been the development time in this project.

---

<sup>2</sup> ITT Project Management – Defining Project  
<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/ITT-SD-Project-management.pdf>

<sup>3</sup> Microsoft Project – Schedule <https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Schedule.pdf>

## Risk

The most significant risk we identify is if some of the members of the group get sick with a high impact but low probability.

The other high impact risk was possible problems with the servers where we run our system. The probability is moderate, considering the servers room is accessible to many persons.

## Evaluation

During this project we achieve 15 tasks of 17 tasks we proposed according to our schedule<sup>4</sup>. The task we achieve was on time and getting the expecting results.

We miss the Lab 14 and Lab 15 because we don't foresee the time in last week something that will consider in future projects reserving more time.

In general, we are satisfying with the progress of this project and how we handle the documentation and planning.

## Communication Strategy

The team utilized basically three communication methods to collaborate with each other: Meetings every Thursdays morning, telephone calls, chat and google drive to share notes and documentation.

Every Friday the team meets with an another groups to share the knowledge making presentations and explaining the progress and achievements of their projects.

## Lesson Learned

During the project we had gain many new skills referencing to a Next Generation Firewall and Project Management.

About Palo Alto Firewalls, we got familiarized with Palo Alto Firewall environment and learned how to start implement security features on this firewall.

Is the first time we work with a New Generation Firewall including application filter. We were very impress with features like: decryption and pattern filtering. Also the possibility to define custom objects to different purposes.

Regarding to the Project Management we want to make it better than in SS1 and SS2. To avoid the same mistakes, we document every task taking screenshots and testing for the final report. We have meetings every Thursday morning to evaluate the progress in our project and to share notes and knowledge. Because we were a small group "two members" take decisions was easier than in other projects like SS1 and SS2. The communication with another groups made faster resolve the different kind of issues.

---

<sup>4</sup> Microsoft Project – Schedule <https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Schedule.pdf>

# Project Overview

## Prerequisites

According to our High Level Design<sup>5</sup> we need a hypervisor to run the virtual machines in our system.

Hardware: We inherited a server with VMware ESXi 6 from Special Subject 2 for more information: High Level Design<sup>4</sup>

Software: We get an ova file with Palo Alto Firewall and licenses key provided by Morten Nielsen and we installed a Windows 10 provided by EAL, two Linux Machines and we also have the VMware software and keys provided by EAL.

## Implementing

After we install and setup our system we start to follow the training course material provided by Palo Alto<sup>6</sup>, divided in different LABs, from LAB 1 to LAB 13. In LAB-resume<sup>7</sup> you can see a resume how we achieve each LAB.

Obs. Is mandatory have an account in Palo Alto Networks to access to training material.

## Testing

After each LAB we testing to confirm the results are correct. In LAB-resume<sup>7</sup> is a resume of each LAB testing and screenshot.

To test each Lab we use generally one of the virtual machines and after checking the logs in the Palo Alto Firewall.

---

<sup>5</sup> HLD High Level Design <https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/HLD-Palo%20Alto.pdf>

<sup>6</sup> Palo Alto Networks Course Material <https://www.panacademy.net>

<sup>7</sup> LAB-resume <https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/LAB-resume.pdf>

## Conclusions

### Fernando

Working with Palo Alto Firewall have been a really good experience and I feel I obtain a lot of new knowledge, not only related to the Firewall also I acquire the knowledge respect the VMware and networking when I start and during this project.

In relation to Project Management I try to prevent the same mistakes I did in the previous SS1 and SS2. During this SS3 I realized exactly how should look the FINAL PROJECT REPORT. I did that searching some examples on google. I also realize how should be the initial plan “different report” and the “progress report”.

### Abdalmannan

What I learn in special subject 3, before to start any project I should have a project management and the high-level design it's very important, we tried to prevent the same mistakes we have it before in SS1 and SS2 in this project we succeed.

The documentation and notes about some of stuff it's also very important if you want to recreate this project again and you should know for who you write this document.

The team meetings have been great and have helped with everything, we followed tasks and have finished the project.

In this project, I learned a lot of basic stuff about Palo Alto Networks that I will need in my internship in future.

With the Palo Alto Networks is able to bring single application visibility and control back to the IT department and it allows administrators to define traditional firewall policies to control their application traffic, it's very good experience for security network

# Appendix

Palo Alto Networks Course Material

<https://www.panacademy.net>

Palo Alto Network – To create a free account.

[https://paloaltonetworks.csod.com/LMS/catalog/Welcome.aspx?tab\\_page\\_id=-67&tab\\_id=20000157](https://paloaltonetworks.csod.com/LMS/catalog/Welcome.aspx?tab_page_id=-67&tab_id=20000157)

ITT Project Management – Defining Project

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/ITT-SD-Project-management.pdf>

Microsoft Project – Schedule

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Schedule.pdf>

LAB-resume:

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/LAB-resume.pdf>

## **Presentations Links:**

Initial presentation. High Level Design:

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Presentation-0.pdf>

Progress Week 2 presentation.

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Presentation-1.pdf>

Progress Week 3 presentation:

<https://github.com/Neolibertylove/PaloAlto-Networks/blob/master/Presentation-2.pdf>