Project Initiation Report

Professional Bachelor WINS 2017-2018

Team members

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Introduction

For our project we have decided to include many services that are included in most of the modern day businesses. We have decided to set up our project as we are building a small business named: **Lynx Networks**. The company will have approximately 100 permanent users. There will also be around 50-70 guest users.

Our team members are: Bolbol, Piere Alexis, Marco, Ronaldo, Jehad, and Babak.

The main services include: DNS - BIND, Firewall, FTP, Apache, NAS, Asterisk, postfix mail virtualizer, supervision, active directory, DHCP, Radius, and VOIP.

Tools used

Hardware:

Two Dell servers will be used for virtualization and two pc's will be the clients. Router and switches, firewall, RG45 cables, and IP phone.

Software:

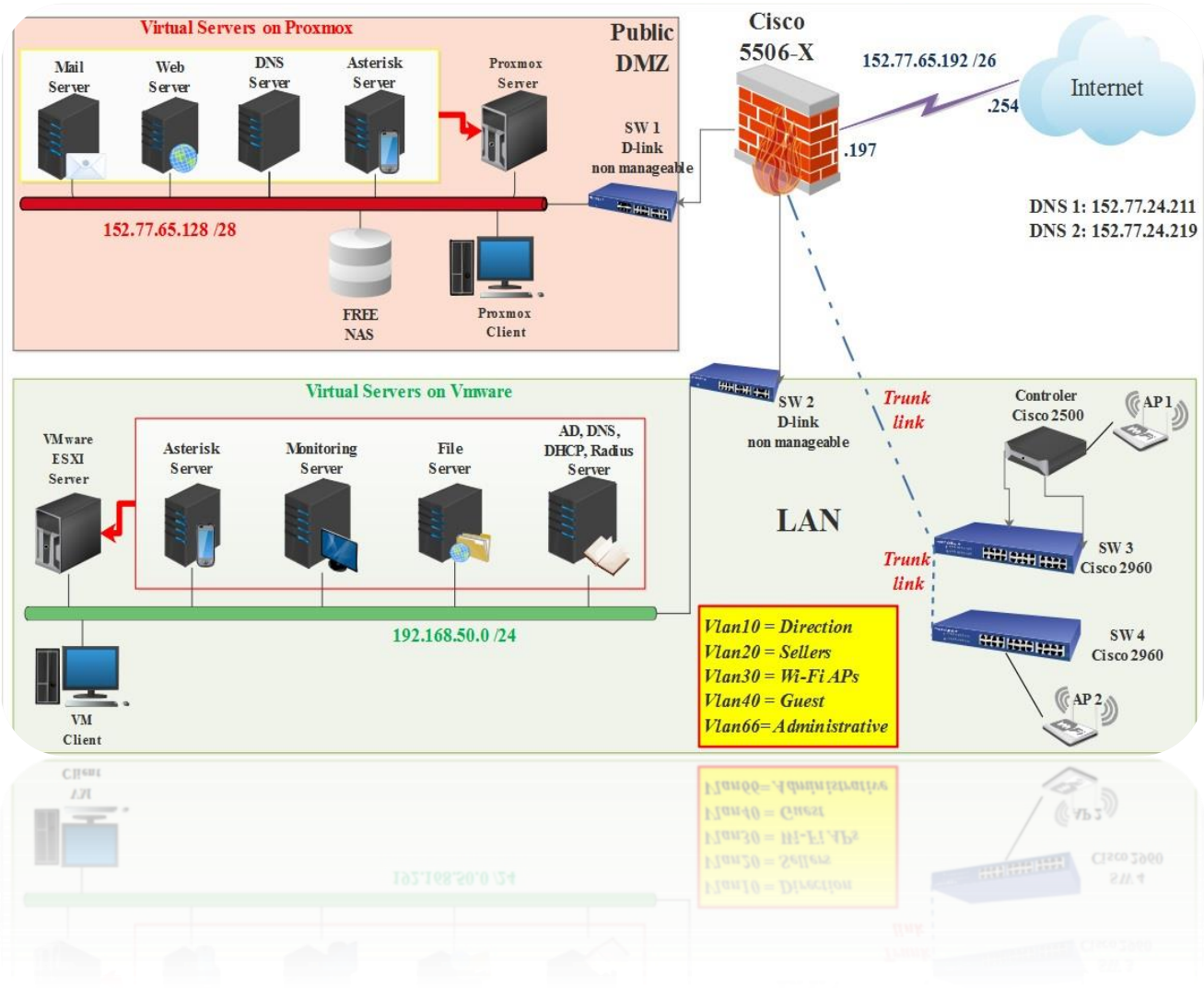
For the division of the tasks we used the productive programs called: Asana and Gantt.

Other programs used: Windows 2016 server, windows 10, proxmox, VMware, Centrino, Linux CentOS7, Postfix, Asterisk, and FreeNAS,

Equipment

- 2x Firewall (5506)
- 2x Cisco switch (2960)
- 2x non-admin, D-Link switch
- 1x wifi controller - WLAN 2500 (MFG 2016)
- 2x Access point CISCO (CAP17)
- 2x VOIP phones (Grandstream)
- 2x Dell Server

Network Infrastructure map



IP Map

IP				Mask	Type of Adress
152	77	65	197	255.255.255.192	ISP IP@ for FW WAN interface

DMZ ZONE						
152	77	65	128	255.255.255.240	IP@ of Public Network	DMZ
152	77	65	129	Static 255.255.255.240 /28	Bind DNS	
152	77	65	130		Apache Web Server	
152	77	65	131		Postfix Mail Server	
152	77	65	132		Asterisk Phone Server	
152	77	65	133		Proxmox Virtualization Server	
152	77	65	134		FreeNAS NAS	
152	77	65	135		PC to access to VM	
152	77	65	136		-	
152	77	65	137			
152	77	65	138		-	
152	77	65	139			
152	77	65	140		-	
152	77	65	141			
152	77	65	142		Router interface IP@	
152	77	65	143	255.255.255.255	Broadcast	

SERVERS ZONE						
192	168	50	0	255.255.255.0	IP@ of Private Network	SERVERS ZONE
192	168	50	1	Static 255.255.255.0 /24	AD (Windows server 2016)	
192	168	50	2		FTP	
192	168	50	3		Asterisk Phone Server	
192	168	50	4		Monitoring Server	
192	168	50	5			
192	168	50	6			
192	168	50	7			
192	168	50	8			
192	168	50	9		VM Client	
192	168	50	10		VMware ESXI Server	
192	168	50	11->253		Free range	
192	168	50	254		Router interface for Vlan40 on FW	
192	168	50	255	255.255.255.255	Broadcast	

Direction (VLAN 10)						
192	168	10	0	255.255.255.0	IP@ of Private Network	Direction
192	168	10	1	By DHCP 255.255.255.0 /24	PC1 Window 10	
192	168	10	2		PC2 Window 10	
192	168	10	3		PC3 Window 10	
192	168	10	4		PC4 Window 10	
192	168	10	5		PC5 Window 10	
192	168	10	6		PC6 Window 10	
192	168	10	7->253		Free range	
192	168	10	254		Router interface for Vlan 10 on FW	
192	168	10	255	255.255.255.255	Broadcast	

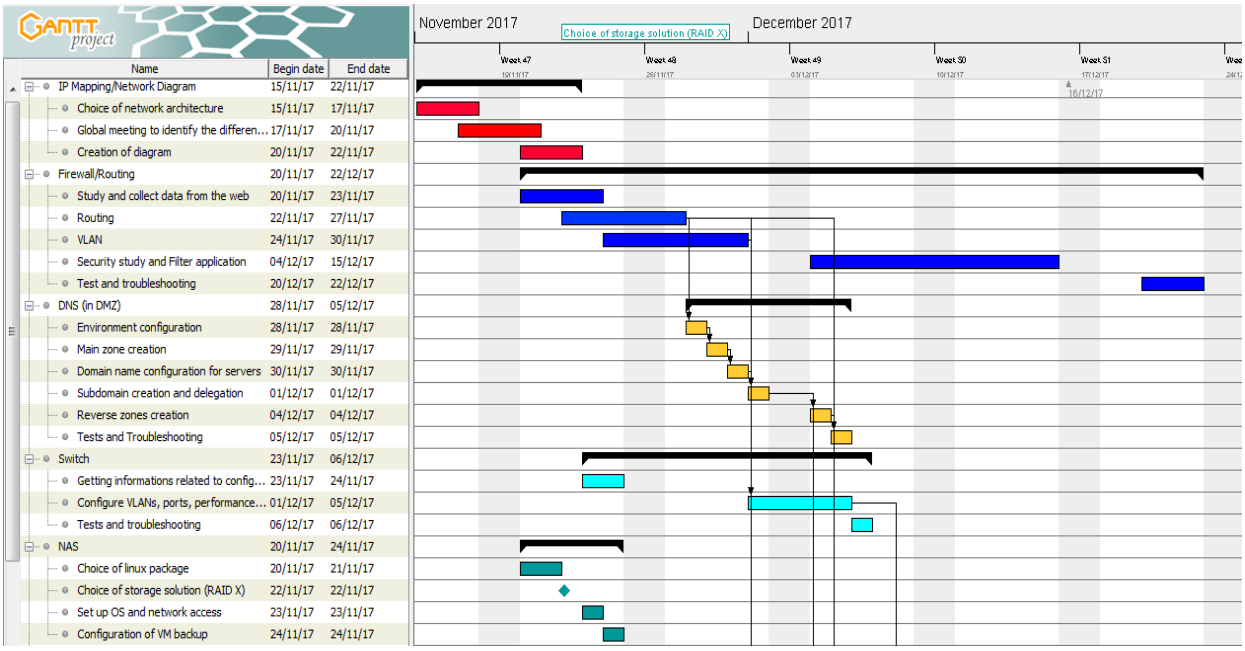
Sellers (VLAN 20)						
192	168	20	0	255.255.255.0	IP@ of Private Network	Sellers
192	168	20	1	By DHCP 255.255.255.0 /24	PC1 Window 10	
192	168	20	2		PC2 Window 10	
192	168	20	3		PC3 Window 10	
192	168	20	4		PC4 Window 10	
192	168	20	5		PC5 Window 10	
192	168	20	6		PC6 Window 10	
192	168	20	7->253		Free range	
192	168	20	254		Router interface for Vlan20 on FW	
192	168	20	255	255.255.255.255	Broadcast	

Wi-fi-AP (VLAN 30)						
192	168	30	0	255.255.255.0	IP@ of Private Network	Wifi AP
192	168	30	1	By DHCP 255.255.255.0 /24	PC1 Window 10	
192	168	30	2		PC2 Window 10	
192	168	30	3		PC3 Window 10	
192	168	30	4		PC4 Window 10	
192	168	30	5		PC5 Window 10	
192	168	30	6		PC6 Window 10	
192	168	30	7->253		Free range	
192	168	30	254		Router interface for Vlan 30 on FW	
192	168	30	255	255.255.255.255	Broadcast	

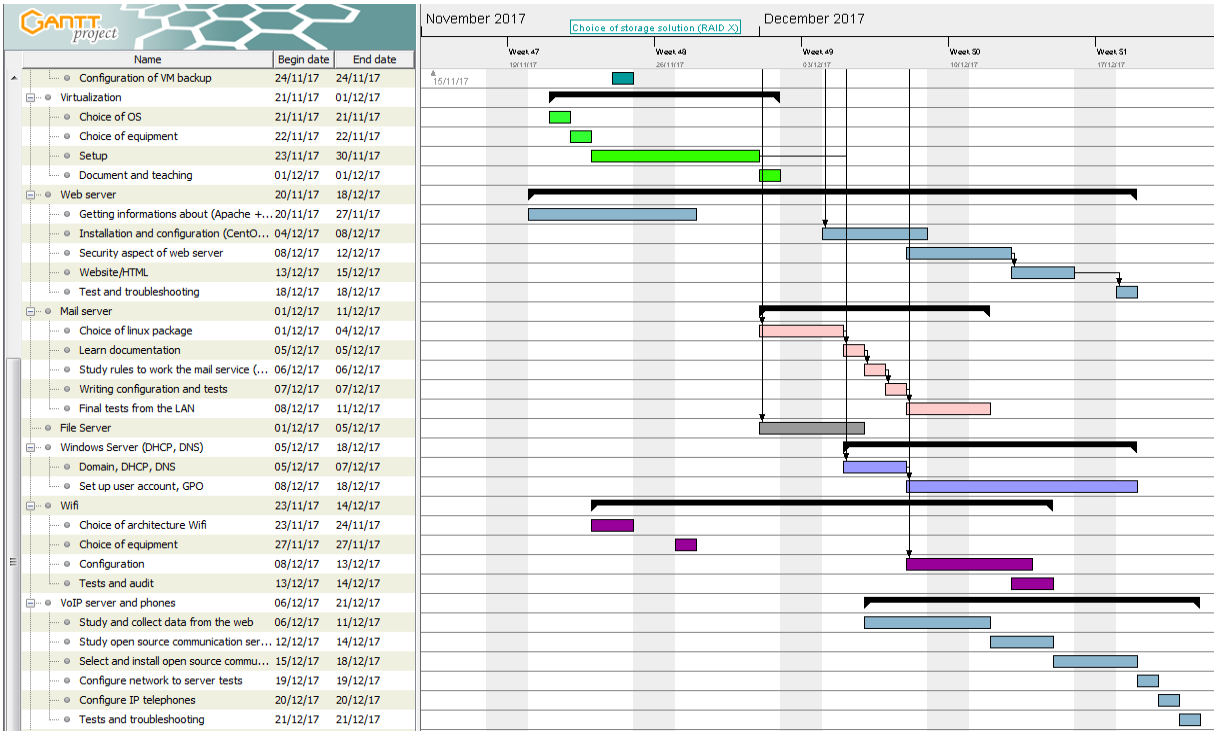
Guest (VLAN 40)						
192	168	40	0	255.255.255.0	IP@ of Private Network	Guest
192	168	40	1	By DHCP 255.255.255.0 /24	PC1 Window 10	
192	168	40	2		PC2 Window 10	
192	168	40	3		PC3 Window 10	
192	168	40	4		PC4 Window 10	
192	168	40	5		PC5 Window 10	
192	168	40	6		PC6 Window 10	
192	168	40	7->253		Free range	
192	168	40	254		Router interface for Vlan 40 on FW	
192	168	40	255	255.255.255.255	Broadcast	

Administrative (VLAN 66)						
192	168	66	0	255.255.255.0	IP@ of Private Network	Administrative
192	168	66	1	Static 255.255.255.0 /24	Controller Cisco 2500	
192	168	66	2			
192	168	66	3			
192	168	66	4			
192	168	66	5		IP for Vlan 66	
192	168	66	6			
192	168	66	7->253		Free range	
192	168	66	254		Router interface for Vlan 66 on FW	
192	168	66	255	255.255.255.255	Broadcast	

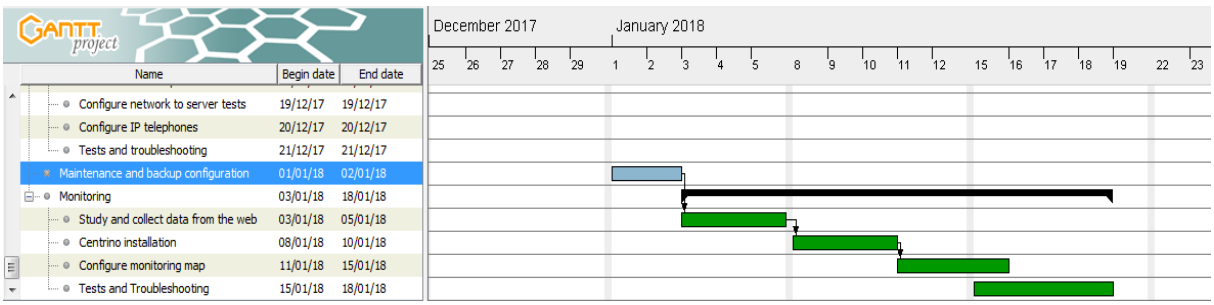
Schedule – Tasks



Name	Begin date	End date
IP Mapping/Network Diagram	15/11/17	22/11/17
Choice of network architecture	15/11/17	17/11/17
Global meeting to identify the differen...	17/11/17	20/11/17
Creation of diagram	20/11/17	22/11/17
Firewall/Routing	20/11/17	22/12/17
Study and collect data from the web	20/11/17	23/11/17
Routing	22/11/17	27/11/17
VLAN	24/11/17	30/11/17
Security study and Filter application	04/12/17	15/12/17
Test and troubleshooting	20/12/17	22/12/17
DNS (in DMZ)	28/11/17	05/12/17
Environment configuration	28/11/17	28/11/17
Main zone creation	29/11/17	29/11/17
Domain name configuration for servers	30/11/17	30/11/17
Subdomain creation and delegation	01/12/17	01/12/17
Reverse zones creation	04/12/17	04/12/17
Tests and Troubleshooting	05/12/17	05/12/17
Switch	23/11/17	06/12/17
Getting informations related to config...	23/11/17	24/11/17
Configure VLANs, ports, performance...	01/12/17	05/12/17
Tests and troubleshooting	06/12/17	06/12/17
NAS	20/11/17	24/11/17
Choice of linux package	20/11/17	21/11/17
Choice of storage solution (RAID X)	22/11/17	22/11/17
Set up OS and network access	23/11/17	23/11/17
Configuration of VM backup	24/11/17	24/11/17



Name	Begin date	End date
Configuration of VM backup	24/11/17	24/11/17
Virtualization	21/11/17	01/12/17
Choice of OS	21/11/17	21/11/17
Choice of equipment	22/11/17	22/11/17
Setup	23/11/17	30/11/17
Document and teaching	01/12/17	01/12/17
Web server	20/11/17	18/12/17
Getting informations about (Apache +...	20/11/17	27/11/17
Installation and configuration (CentO...	04/12/17	08/12/17
Security aspect of web server	08/12/17	12/12/17
Website/HTML	13/12/17	15/12/17
Test and troubleshooting	18/12/17	18/12/17
Mail server	01/12/17	11/12/17
Choice of linux package	01/12/17	04/12/17
Learn documentation	05/12/17	05/12/17
Study rules to work the mail service (...	06/12/17	06/12/17
Writing configuration and tests	07/12/17	07/12/17
Final tests from the LAN	08/12/17	11/12/17
File Server	01/12/17	05/12/17
Windows Server (DHCP, DNS)	05/12/17	18/12/17
Domain, DHCP, DNS	05/12/17	07/12/17
Set up user account, GPO	08/12/17	18/12/17
Wifi	23/11/17	14/12/17
Choice of architecture Wifi	23/11/17	24/11/17
Choice of equipment	27/11/17	27/11/17
Configuration	08/12/17	13/12/17
Tests and audit	13/12/17	14/12/17
VoIP server and phones	06/12/17	21/12/17
Study and collect data from the web	06/12/17	11/12/17
Study open source communication ser...	12/12/17	14/12/17
Select and install open source commu...	15/12/17	18/12/17
Configure network to server tests	19/12/17	19/12/17
Configure IP telephones	20/12/17	20/12/17
Tests and troubleshooting	21/12/17	21/12/17



Name	Begin date	End date
Configure network to server tests	19/12/17	19/12/17
Configure IP telephones	20/12/17	20/12/17
Tests and troubleshooting	21/12/17	21/12/17
Maintenance and backup configuration	01/01/18	02/01/18
Monitoring	03/01/18	18/01/18
Study and collect data from the web	03/01/18	05/01/18
Centrino installation	08/01/18	10/01/18
Configure monitoring map	11/01/18	15/01/18
Tests and Troubleshooting	15/01/18	18/01/18

Task Division

Team member	Tasks	Number of tasks
Ronaldo	Mail server (PostFix), Wind Serv(DHCP, DNS, File Server), Web server/HTML	3
Jehad	Web server/HTML, DNS (in DMZ), VLAN, Monitoring	4
Babak	Wind Serv(DHCP, DNS, File Server), Monitoring, Management	3
Bolbol	Firewall/Rooting, VLAN, IP Mapping/Network Diagram, Wifi	4
Marco	DNS (in DMZ), Firewall/Rooting, VoIP server and phones	3
Pierre-Alexis	Mail server, Wifi, NAS, Virtualization	4

Tasks	Team member	Number of persons
Firewall/Rooting	Bolbol, Marco	2
IP Mapping/Netwok Diagram	Bolbol	1
VLAN	Bolbol, Jehad	2
DNS (in DMZ)	Marco, Jehad	2
Website/HTML	Jehad, Ronaldo	2
NAS	Pierre-Alexis	1
Mail server	Pierre-Alexis, Ronaldo	2
Wifi	Bolbol, Pierre-Alexis	2
VoIP server and phones	Marco	1
Monitoring	Jehad, Babak	2
Wind Serv(DHCP, DNS, File Server)	Babak, Ronaldo	2
Virtualization	Pierre-Alexis	1

Risk analysis

Because of the many aspects of the project there will be some risk.

Firewall:

Gravity: 3
Probability: 2

- The firewall is the core part of our entire project.
- Closing ports for protocols keeps our project separate. Our zone will be separated.
- Documentation could pose a problem. There aren't enough protocols to define rules. The firewall routing map may also create problems.
- The initial setup of the firewall takes around 1-2 weeks. However, constant modifications will have to be made on the firewall until the end of the project; therefore the risk will not be eradicated until the end of the project.

Security filtering (firewall or server):

Gravity: 3
Probability: 2

For the security filtering one of us might have to close a port this will affect the work of another colleague. So no other user can connect to the active directory.

Active directory:

Gravity: 3
Probability: 2

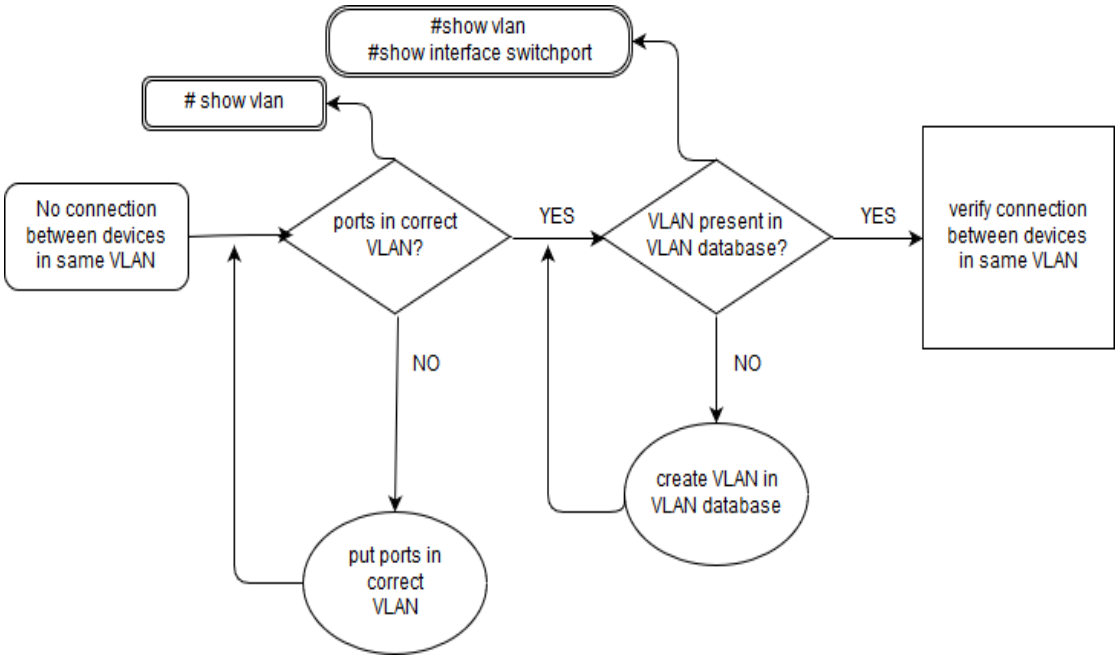
Active directory is tricky because the client is in a different network. Therefore there could be a problem linking them.

Babak and Ronaldo (who work on AD) are very dependent on other colleague's progress and this can slow down the pace of the entire project.

VLAN:

Gravity: 3
Probability: 2

VLAN misconfiguration between two VLAN's can be a problem. As we have several VLANs they will not be able to interact with one another if there is any misconfiguration. Dynamic VLAN: if this is misconfigured the machine will not recognize a new device which is attached. Since documentation may be a problem we need to pay attention to the port numbers and know the gateways.



The web server:

Gravity: 3
Probability: 3

The webserver is hard because we have poor knowledge about HTML language program and this can also slow down the project. As we have to learn about the HTML language throughout the project.

Also the aspect for the part of security needs to be done in a secure manner. As it pertains to logs and user account management. The permissions for the users are a very difficult part to configure.

VoIP :

Gravity: 0
Probability: 2

The VOIP part has a relatively lower amount of risk because it has little impact on the other parts of the project. In case of setup failure only this service is affected and not the many other services of the project.

DMZ DNS:

Gravity: 2
Probability: 2

The aim of the DMZ DNS is to serve domain names outside. It means that if this DNS stops operating, the local network can keep working. Besides, the local DNS can replace DMZ DNS tasks for the local network using the cache. Because of this, the importance of DNS is high and needs to be taken into account, but it is not the highest of all services.

The are other services with more priority to get a minimal network working. Most aspects of DMZ DNS will be working at the proper time. Nevertheless, problems with the compatibility between the Bind domain delegation and Microsoft Active Directory might occur.

Conclusion

The initial project schedule has been set up. There are many tasks that have been divided almost equally. Like in any major project we do expect modifications especially around the schedule. If despite our efforts the risks become reality there will be delays in the project and modifications will have to be made as a team. Since some aspects of the project are new for some of us and the time for the project is short we have to multi-task. We have to read, learn, execute virtually at the same time. This will have to be done in a very accurate manner to avoid delays and major modifications to the whole project.

LYNX Team