

Island A – Test project – Linux Environments

WSC2013_TP39_CH_ISLAND_A_pre_EN

Submitted by:

Name: Danny Meier CH

Member Country: Switzerland

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EXAM

CONTENTS

This Test Project proposal consists of the following document/file:

1. WSC2013_TP39_CH_ISLAND_A_EN

INTRODUCTION

The competition has a fixed start and finish time. You must decide how to best divide your time.

DESCRIPTION OF PROJECT AND TASKS

You are working for a book and movie library in Leipzig.

As the library is growing, a relocation was planned. You have been assigned with building the network infrastructure at the new location.

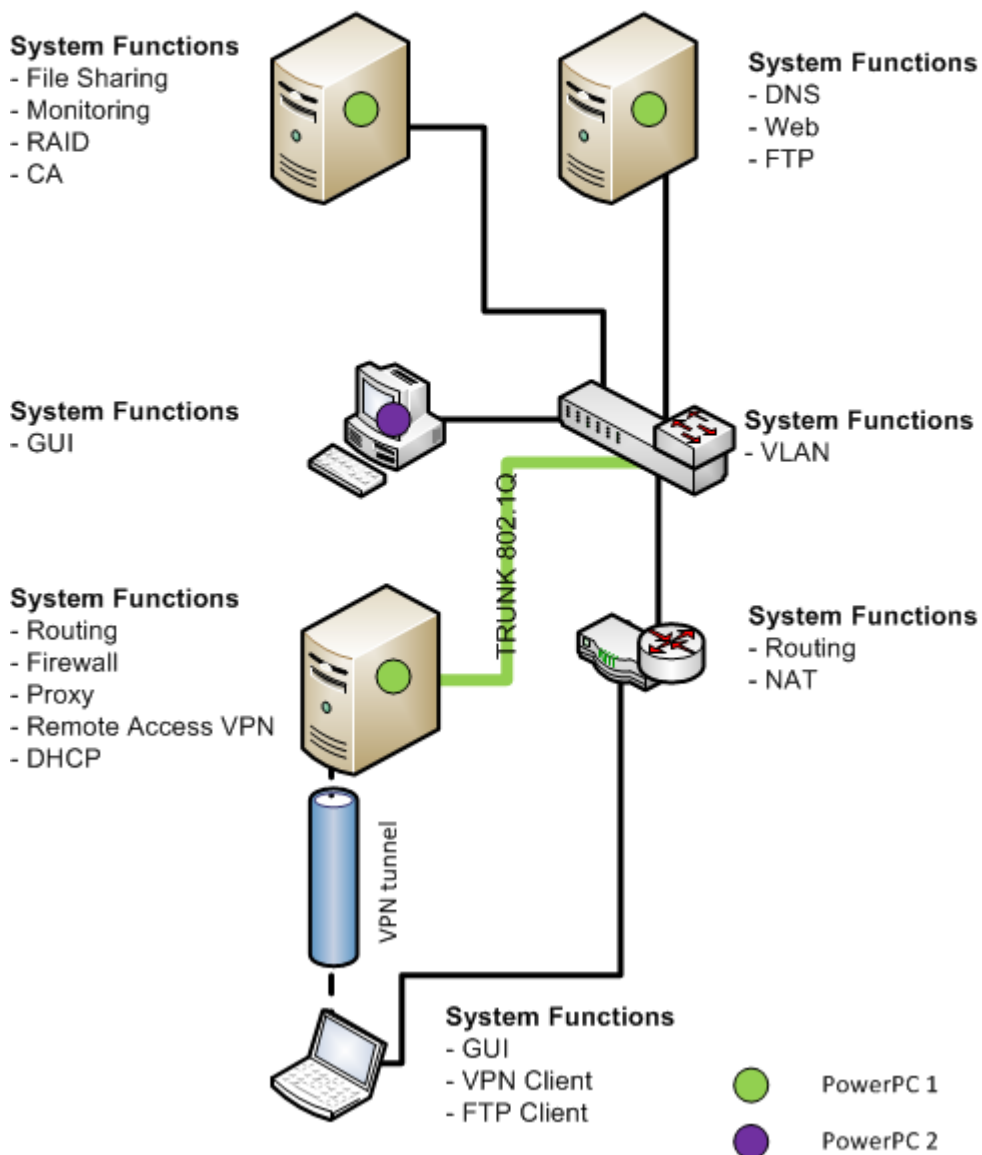
For the employees, you have to setup a server for file sharing as well as ensure access through VPN by road warriors.

The visitor area is equipped with a few guest computers for browsing local and internet webpages. For speeding up internet access, a caching proxy should be used.

You are also responsible for setting up the webserver, which hosts internal as well as external web sites. Additional information is provided in the appendix.

QUICK SPECIFICATIONS

Day 1 – Quick Specifications



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PART 1

Work Task Installation (Inxrtr1, Inxsrv1, Inxsrv2)

Note: Please use the default configuration if you are not given the details.

- Set up the servers with the operating system (Debian 6). Ensure that all components are correctly installed
- Configure the disk and partitions:
 - Disk 0 (8 GB)
 - / 3 GB
 - /tmp 500 MB
 - swap 1 GB
 - /var rest of the space

Work Task Server Inxrtr1

Note: Please use the default configuration if you are not given the details.

- Configure the server with the settings specified in the appendix
- Install the services:
 - Routing
 - Enable routing
 - Configure rtr1 as default gateway
 - Firewall (iptables)
 - Prohibit access from DMZ to Guest or to Internal VLAN
 - Prohibit access between Guest and Internal
 - Prohibit HTTP access from Guest VLAN to any network
 - Forward all HTTP traffic from Guest VLAN to local proxy
 - Proxy (squid)
 - Configure in transparent mode
 - Configure caching for requests to internet websites
 - Do not cache local websites from the webserver located in DMZ
 - VPN
 - Configure VPN access to Internal VLAN
 - Make sure that VPN clients can only access server Inxsrv2
 - For login create a user “vpn” with password “WorldSkills2013”
 - Use address range 172.17.118.200 to 172.17.118.255 for VPN clients
 - DHCP
 - Scope for Guest VLAN:
 - Range: 192.168.20.10 – 192.168.20.254
 - Gateway: 192.168.20.1
 - DNS: 8.8.8.8
 - Scope for Internal VLAN:
 - Range: 172.17.117.0 – 172.17.117.255
 - Gateway: 172.17.116.1
 - DNS: 8.8.4.4
 - DNS-Suffix: library-leipzig.local

Work Task Server Inxsrv1

Note: Please use the default configuration if you are not given the details.

- Configure the server with the settings specified in the appendix
- Install the services
 - Webserver (Apache2)
 - Install apache2 including php5
 - Enable HTTPS only
 - Use a certificate signed by Inxsrv2
 - Make sure no certificate warning is shown
 - Create websites “library-leipzig.de” and “intranet.library-leipzig.de”
 - Make sure “intranet.library-leipzig.de” is protected by authentication

- No authentication is needed from Internal VLAN
- Use user "library" with password "WorldSkills2013"
- Show on both websites the website name and the current date and time
- DNS (bind)
 - Make sure both websites are resolvable to the external IP address of rtr1
 - Requests from internal networks (DMZ, Guest, Internal) for both websites should be resolvable to the internal IP address of Inxsrv1
- FTP (proftpd)
 - Create a FTP user account for each website of the webserver
 - User "library-leipzig" with password "WorldSkills2013."
 - User "intranet" with password "libraryInt13"
 - Make sure the users are jailed in their website document root directories
 - Secure FTP with SSL (FTPS)
 - Use certificate signed by Inxsrv2

Work Task Server Inxsrv2

Note: Please use the default configuration if you are not given the details.

- Configure the server with the settings specified in the appendix
- Configure the disk and partitions:
 - Disk 1 & 2 (10 GB)
 - /data 10GB RAID1 (mirrored)
- Install the services:
 - File sharing
 - Share "internal"
 - Path is /data/internal
 - Give access only to user "library" with password "WorldSkills2013"
 - Make sure the share is not shown in the network browser of the clients
 - Share "public"
 - Path is /data/public
 - Enable read-only access to everyone
 - Monitoring (nagios)
 - Change admin-user to "admin" with password "WorldSkills2013"
 - Add switch and router device
 - Add DNS and HTTPS monitoring of Inxsrv1
 - CA (openssl)
 - Configure as CA
 - CA attributes: use appropriate values (country code, organization, etc.)
 - Create a root CA certificate

PART 2

Work Task Network swi1

Note: Please use the default configuration if you are not given the details.

- Connect LAN cables and configure IP addresses according to the network diagram in the appendix
 - Port 1: rtr1
 - Port 2: Inxrtr1
 - Port 3: Inxsrv1
 - Port 4: Inxsrv2
 - Port 5: Inxclt2
 - All other ports should be configured for clients of Guest network

Work Task Network rtr1

Note: Please use the default configuration if you are not given the details.

- Connect LAN cables and configure IP addresses according to the network diagram in the appendix
 - Port 0: Inxclt1
 - Port 1: swi1

- Enable routing
- Configure source NAT for internet access
- Make sure FTP, DNS and HTTPS traffic from external is forwarded to Inxsr1

PART 3

Work Task Installation (Inxclt1, Inxclt2)

Note: Please use the default configuration if you are not given the details.

- Set up the client with the operating system (Debian 6). Ensure that all components are correctly installed
- Install a GUI (graphical user interface) of your choice

Work Task Inxclt1

Note: Please use the default configuration if you are not given the details.

- Configure the client with the settings specified in the appendix
- Make sure the client can connect to Inxrtr1 via VPN
- Make sure the root CA certificate of Inxsr2 is trusted
- Install FileZilla FTP client

Work Task Inxclt2

Note: Please use the default configuration if you are not given the details.

- Configure the client with the settings specified in the appendix
- Make sure the share "internal" on Inxsr2 is being mounted to /mnt/share at startup
- Make sure the root CA certificate of Inxsr2 is trusted

APPENDIX

SPECIFICATIONS

Inxrtr1

Organization:	library-leipzig company
Computer name:	Inxrtr1
Domain name:	library-leipzig.local
User name:	root
Administrator password:	WorldSkills2013
IP addresses:	192.168.10.2 192.168.20.1 172.17.116.1

Inxsr1

Organization:	library-leipzig company
Computer name:	Inxsr1
Domain name:	library-leipzig.local
User name:	root
Administrator password:	WorldSkills2013
IP addresses:	192.168.10.10

Inxsr2

Organization:	library-leipzig company
Computer name:	Inxsr2
Domain name:	library-leipzig.local
User name:	root
Administrator password:	WorldSkills2013
IP addresses:	172.17.116.10

Inxclt1

Organization:	library-leipzig company
Computer name:	Inxclt1
Domain name:	library-leipzig.local
User name:	root
Administrator password:	WorldSkills2013
IP addresses:	81.6.63.113

Inxclt2

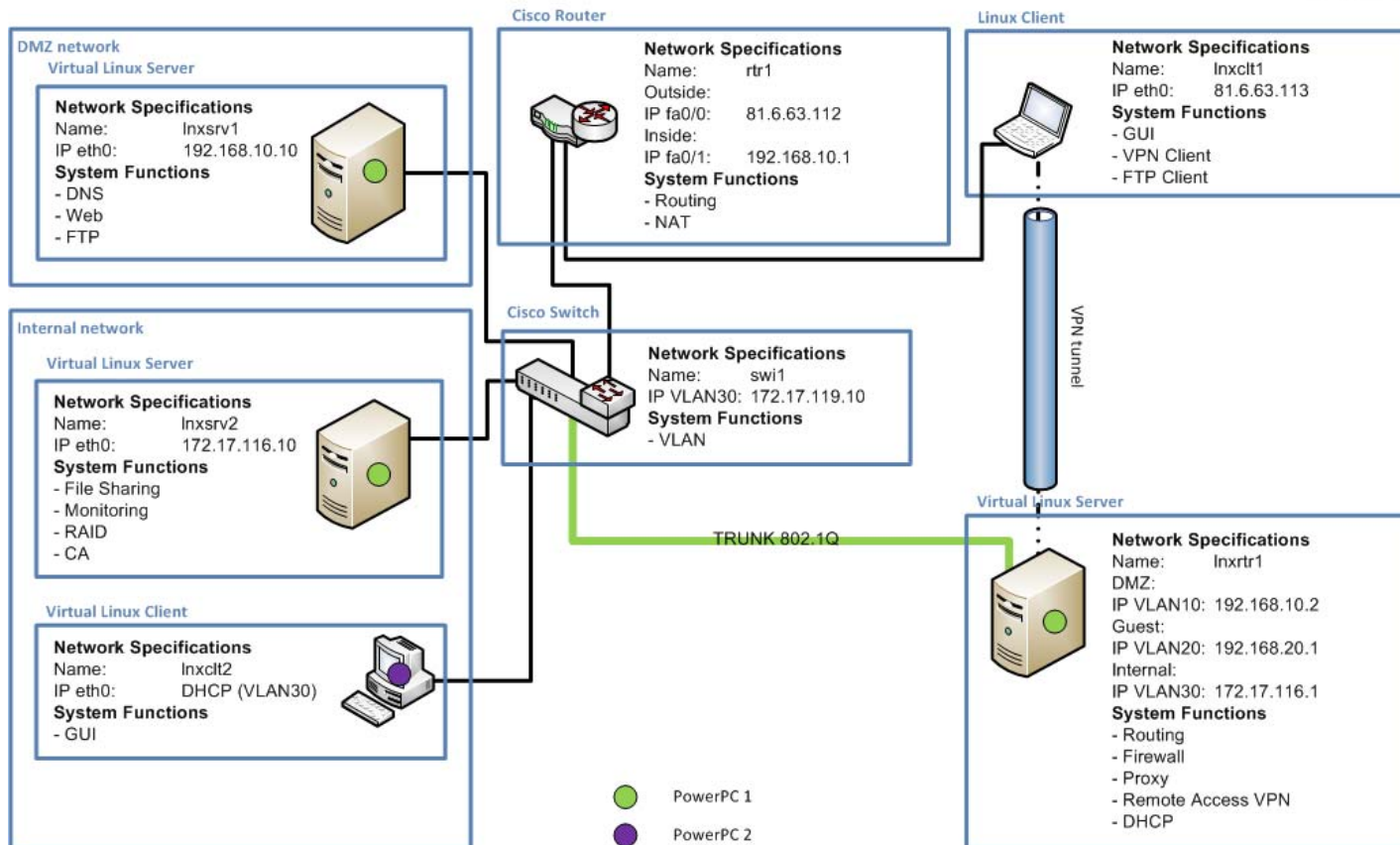
Organization:	library-leipzig company
Computer name:	Inxclt2
Domain name:	library-leipzig.local
User name:	root
Administrator password:	WorldSkills2013
IP addresses:	DHCP (VLAN 30)

NETWORK SPECIFICATIONS

External network	81.6.63.111 /30
VLAN 10 (DMZ)	192.168.10.0/28
VLAN 20 (Guest)	192.168.20.0 /24
VLAN 30 (Internal)	172.17.116.0 /22

NETWORK DIAGRAM

Day 1 – Linux Environments



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INSTRUCTIONS

INSTRUCTIONS TO THE COMPETITOR

- Do not bring any materials with you to the competition.
- Mobile phones are not to be used.
- Do not disclose any competition material / information to any person during each day's competition.
- Read the whole competition script prior to starting your work.
- Be aware of different tasks attract a percentage of the overall mark. Plan your time carefully.

EQUIPMENT, MACHINERY, INSTALLATIONS AND MATERIALS REQUIRED

PowerPC 1:

- Performance PC with 8Gb memory with 3 network cards
- VMware Workstation preinstalled
- VMs are preconfigured
- Inxrtr1 and Inxsrv1
 - 1x Disk 8GB
 - 1GB memory
 - 1 CPU
 - 1 network card in bridged mode
- Inxsrv2
 - 1x Disk 8GB
 - 2x Disk 10GB
 - 1GB memory
 - 1 CPU
 - 1 network card in bridged mode

PowerPC 2:

- Performance PC with 8Gb memory with 2 network cards
- VMware Workstation preinstalled
- VMs are preconfigured
- Inxclt2
 - 1x Disk 10GB
 - 2GB memory
 - 1 CPU
 - 1 network card in bridged mode

Laptop:

- Laptop without WiFi and Bluetooth

Network:

- 1x Switch Cisco 2960
- 1x Router Cisco 1941 - SEC/K9 (IOS UNIVERSAL - S190UK9-15104M)

Additional software:

- Operating System (Debian 6) (DVD1-8)
- Drivers for peripherals

Additional equipment:

- None