ASSESSMENT TOOL

Assessment Title: Project

Cluster: Complex Networks

This document must be read in conjunction with the Delivery & Assessment plan

Cluster	Complex Networks
Semester	2, 2012
Assessor	Clyne Kirk
Resources	Networking equipment and PCs including access to Internet and specialized system software at Polytechnic West, Thornlie Campus – Network Lab 8G21 Please ensure that you regularly check the cluster online resources available on http://mymoodle.polytechnic.wa.edu.au Campus Library contains a good collection of books and CD's of Networking and Security
Instructions to Assessors **Instructions to students**	This project covers all the units of competency in the cluster and requires the students to demonstrate an understanding of design at a systems level as well as the sub-systems and components level. The project requires students to demonstrate self-directed application of knowledge and skills, with substantial depth in some areas; as well as to cooperate in a group to achieve the aims of the project. The skills and knowledge gained during the semester will be critical for successful outcomes. This is a group project - 3 or 4 members per group is recommended for best results. Read all the instructions and the requirements of the units of competency in your cluster and use them to guide your work. Talk to your lecturer about what equipment and information you will need to enable you to complete the project tasks. Pay particular attention to safety and ensure that the equipment is used with care. Record your steps and keep your project file up-to-date with relevant evidence materials to prove that you prepared for and carried out the tasks as required. Visit the class Moodle web site regularly and read the references suggested by your instructor. Repeat the tasks if necessary to make sure that you fully understand them. This is a group project; the group is to contain about 3 members, but if you wish to complete this individually please see your lecturer. The process of planning, documenting and collating the necessary information will be shared. Your lecturer will provide guidance and mentoring. Assessment will be conducted during weeks: 17 – 18 Due: End of Week 18
OH&S requirements	Students are expected to follow all relevant OH & S requirements during this assessment to avoid unnecessary risk to themselves, fellow students and staff.

Units & Elements being assessed

SIN	National ID	Title
		Please refer to Delivery & Assessment Plan for details

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Lecturer's Details:	
Name: Clyne Kirk	**Phone:** 9267 7674
Email: Clyne.Kirk@polytechnic.wa.edu.au	**Location: Polytechnic West** – Thornlie Campus.

INSTRUCTIONS

TO THE ASSESSOR

Type of Assessment	**Project**
Duration of Assessment	2 weeks
Location of Assessment	Network Lab (8G21), and home.
Conditions	This is a group project (3 – 4 members). This is a complex project but if you wish to complete this individually please see your lecturer. Allocate roles and submit all team minutes with close-out. Your lecturer will provide guidance and mentoring.
Elements and Criteria	As detailed in the assessment plan.

TO THE STUDENT

Purpose of Assessment	Assessment must confirm the student's ability to: ➢ Plan, design and deploy complex networks including infrastructure, security, and authentication requirements.
What is Assessed	As detailed in the assessment plan.
Assessment Duration	2 weeks
Allowable Materials	Weekly Readings, Class notes, Text books
Required Resources	Access to Internet and Moodle class site.

Project Activity

Scenario

Silicon Traders is an international company planning to open offices in Perth, Western Australia. The Company is expanding its operations, and as part of its expansion strategy, it has hired you and your team to develop a plan for their ITC systems in WA. Once the plan is approved they would like you the bench test key sub-systems of the proposed system and prepare a project report on your proposal.

Requirements for head office:

The CEO of Silicon Traders has contracted you and your team to prepare a network design document and system proposal, for their WA branch. Silicon Traders has instructed you to focus your design on easily available conventional equipment and technologies. At this stage in their operations, they do not want to deploy sophisticated technologies and costly equipment solutions such as expensive data centers etc. Liaise with management and develop a design for the business network. After gaining agreement, bench test the design in the Lab and prepare a project report on your findings.

In general you will need to:

1. Determine business and user needs
2. Produce an ICT network architecture design
3. Design and test a security and authentication strategy
4. Plan and design complex network infrastructure and services to meet business requirements
5. Plan, design and implement voice and video business communications solutions.
6. Install and configure servers and network devices for the network.
7. Implement and manage and test different levels of security
8. Ensure that user accounts are verified for security access and monitored
9. Test security and internet access.

The sub-systems to be tested in a simulated environment are:

a) Remote access to the domain will be required, initially, for five executives. Implement a secure VPN solution and submit designs for alternative solutions.

b) All office staff will require Internet access on their computers. Implement RRAS.

c) Remote clients that do not meet health requirements will be denied access to the domain. Remediation may be arranged. Implement Network Access Protection (DHCP NAP) and submit designs for other ways of enforcing NAP.

d) Implement a Distributed File System (DFS) for fault-tolerance and efficient access for critical files.

e) Protect network connections through encryption and through the enforcement of trusted communication. Implement IPSec using Local policy, domain policy, and connection security rules.

f) Investigate VoIP and videoconferencing services and the use of a communications server for the system.

g) Use a variety of utilities to protect and manage the AD DS database.

h) Account management using manual and DS commands.

i) Conduct an AD DS performance analysis using both WRPM and WSRM to view the performance of the servers.

Branch Office Requirements:

Silicon Traders is planning to open a new branch office in West Perth. The branch office employee user accounts will be located in a separate organizational unit (OU). In order to control logon traffic, the decision has been made to create a separate site for the new branch office, and to create a read-only domain controller (RODC) on a server core installation in the site.

You have been tasked to create and configure the domain controller for the new branch office in West Perth. You will use an existing server, SRV2, which is a server core installation. In order to bench-test your design for this scenario, you will need to perform the following tasks in AD DS:

- Pre-configure the account for the RODC of the branch office.
- Create an OU named Branch Office Employees that will contain user accounts.
- Create user accounts for the branch office manager and branch office user.
- Create a global group named BranchUsersGG, and then add the branch office users to it.

Only the branch office employees will have their passwords cached on the RODC.

Subsidiary Company Requirements:

Silicon Traders has also recently purchased a new subsidiary named Gemcutters, Inc. You have been tasked with creating the domain for Gemcutters, Inc. You will need to create, secure, and administer a trust relationship between the silicon.com domain and the gemcutters.com domain. A team of product developers at Gemcutters will require access to a shared folder in the Silicon domain.

A trust relationship will be required to enable authentication of Gemcutters users in the Silicon domain. But, before creating this trust relationship, it is important for DNS to be functioning properly. Each domain must be able to resolve names in the other domain. There are several ways to support name resolution between two forests. In this scenario, you will create a stub zone in the silicon.com domain for the gemcutters.com domain and a conditional forwarder in the gemcutters.com domain to resolve silicon.com.

In your simulated Lab environment, create a one-way trust between silicon.com (the trusting domain) and gemcutters.com (the trusted domain). Validate the trust relationship before continuing.

Provide access to the Project folder, to trusted users (Product Team) in the gemcutters.com domain, and to users (Product Developers) in the silicon.com domain. Follow best practice and use a domain local group (ACL_Product_Access) in the silicon.com domain to provide access control to the Project folder.

Implement selective authentication by restricting the ability of users from gemcutters.com to authenticate with computers in the silicon.com domain. In this case, the product team from gemcutters.com should be given permission to the shared folder (Project). These users, however, cannot authenticate with any other computer in silicon.com. Also, no other users from gemcutters.com can access resources on DC1.silicon.com.

The domain will be named Gemcutters.com, and will have a separate domain tree in the Silicon forest. Use an existing server, SRV1, to become the new domain controller. Rename the computer to be GemcuttersDC. Create a separate site for the Gemcutters domain that uses the 192.168.0.0 subnet, and configure the GemcuttersDC computer with the IP address of 192.168.0.10. Configure replication between the Perth site and the Gemcutters site to occur every 4 hours, between the hours of 1800. and 0600. Install and configure the DNS service on GemcuttersDC to hold a secondary zone of Silicon.com. Finally, promote GemcuttersDC to become the domain controller for Gemcutters.com.

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Important: Before undertaking the design and testing of this project, you must clearly define and confirm client requirements and network equipment required. Identify key information sources and gather data through formal processes. Your lecturer will assist you with clarifications and information sources.

Evidence portfolio

Place a cope of all evidence you have gathered (this may be electronic or hardcopy) into your Evidence Portfolio and submit it to your lecturer for feedback by the due date.

Additional Information

The following information is to be read in conjunction with the Delivery and Assessment Plan and Polytechnic West's Student Handbook and/or Course Information Booklet.

Please see Course Information Booklet or the Swan TAFE Student Handbook for more details on Recognition of Prior Learning/Skills Recognition and national recognition. The handbook will also provide information regarding appeal and grievance procedures as well as support services available to students with special needs e.g. disability, language and literacy and or other.

Reasonable Adjustment

Where a legitimate reason exists your lecturer may be able to adjust your delivery and or assessment schedule. It is your responsibility to discuss any issues with your lecturer as soon as possible

Project Requirements Check List

	Required Items	Completed	Evidence Provided	Assessor Comments
1	ICT architecture design of whole system.			
2	Network diagram for each sub-system.			
3	Equipment specifications for servers and network devices.			
4	Sub-system configuration and testing details. a) Remote access VPN b) RRAS			

	c) DHCP NAP d) DFS e) IPSec – including the use of certificates for securing the connection f) VoIP – Comm Server proposal g) AD DS database management h) Account management i) Performance analysis			
5	Branch office – RODC and services			
6	Subsidiary Company Requirements			
7	Project Report - Business requirements - Network installation and configuration - Internet Infrastructure and services - Complex network considerations - Communications server – VoIP, videoconferencing services - Servers design and configuration - RRAS - Installation and configuration - Testing			

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ASSESSMENT - Project

Unit/s of competency:		Network Security and Controls Cluster		
Candidate name:		**Student ID:**		
Assessor name:		Clyne Kirk		
Date of assessment:		Weeks 17-18, Semester 2, 2011		
Task Description:		Project Activities		

Did the candidate perform the following skills:		**Satisfactory Progress**	**Satisfactory Progress not yet demonstrated**
Network diagram of whole system.			
Network diagram for each sub-system.			
Equipment specifications for servers and network devices			
Sub-system configuration and testing details. j) Remote access VPN k) RRAS l) DHCP NAP m) DFS n) IPSec o) VoIP – Comm Server p) AD DS database management q) Account management r) Performance analysis			
Branch office – RODC and services			
Subsidiary Company Requirements			
Project Report - Business requirements - Network installation and configuration - Internet Infrastructure and services - Complex network considerations - VoIP – Comm Server proposal - Servers design and configuration - RRAS - Installation and configuration - Testing			

The candidate's performance was:	**Satisfactory**	**Not Yet Satisfactory** ❑
Is student eligible for reassessment	**No** ❑ **Yes** ❑	**Reassessment: Week 20**

	Feedback to candidate			
Candidate signature:		**Date:**		
Assessor signature:		**Date:**		