INFO 3607 – Fundamentals of WAN Technologies (2023/2024 Semester II)

Group 4 Project Assignment

Date Given: **2024/03/17**

Percentage towards coursework: **35%**

This is group work and collaboration are expected. Discussions and questions can be done in the forum for your group.

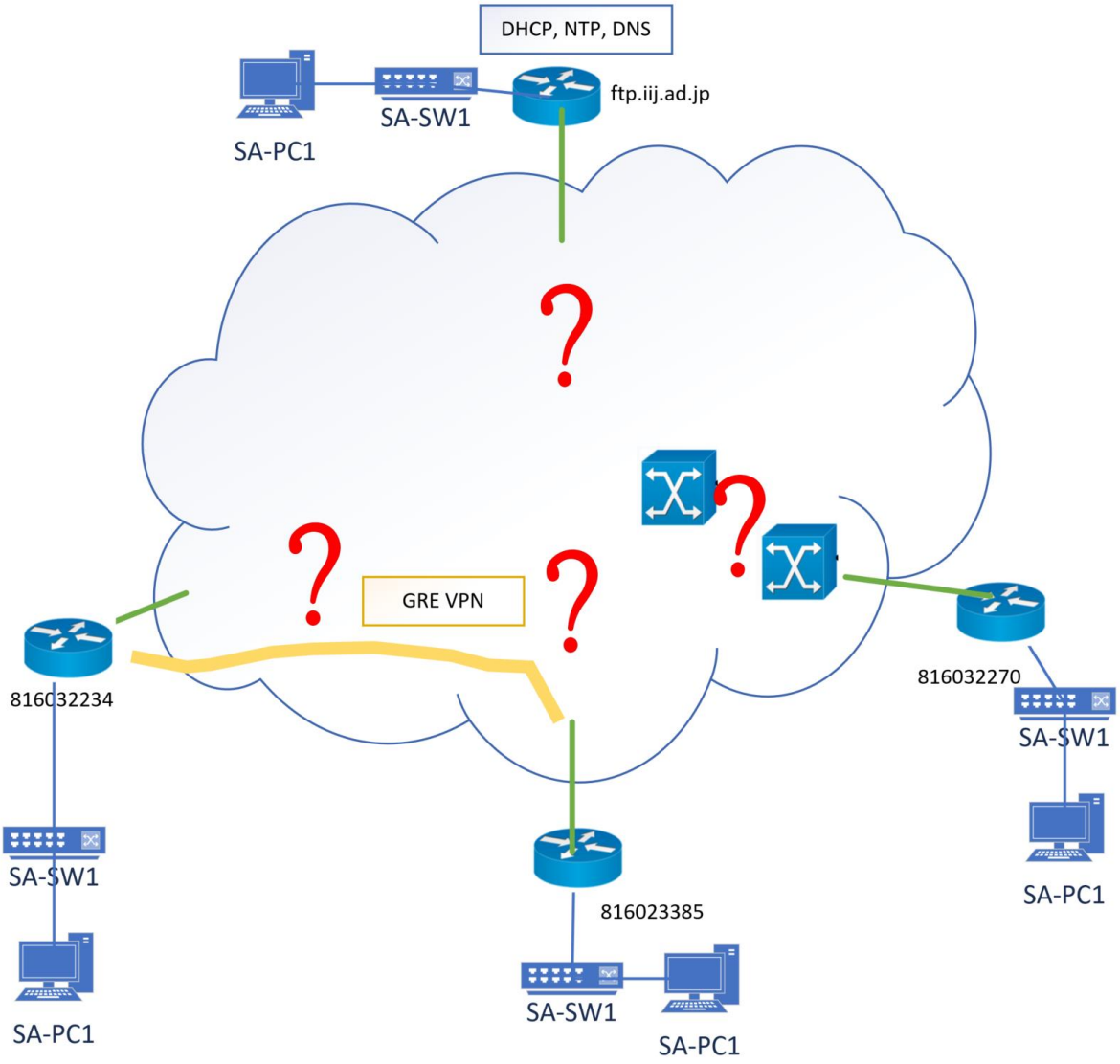
This group project is out of **70** marks.

The group project report (and a draft copy of the presentation) is due midnight **Friday 12th April 2024.**

Presentations are expected to be done on **Saturday April 13th 2024**. The final copy of the presentation will be submitted afterwards.

Group Members:

816032234
816023385
816032270


DHCP, NTP, DNS
SA-PC1
SA-SW1
ftp.iij.ad.jp
?
?
?
?
GRE VPN
816032234
SA-SW1
SA-PC1
816032270
SA-SW1
SA-PC1
816023385
SA-SW1
SA-PC1

Requirements

1) Each group member is to use the **tracert** tools on the following IP address from your **home network**: **ftp.iij.ad.jp [202.232.140.10]**
    a. More information on this IP address can be found at https://ipinfo.io/202.232.140.10
2) Document the routes and ip addresses discovered including screenshots.
    a. Documentation will include a rough diagram of each router hop.
    b. Consider each consecutive pair of IP addresses in the trace route as the two interfaces on a router.
3) Calculate and document ip addresses, ranges, subnets and IP addressing schemes.
4) Implement all **three (3)** of your traceroutes network in a single **GNS3** project with the documented IP addressing scheme.
    a. Depending on your ISP, the networks should be similar/different, which will then merge to the tracerouted IP.
    b. It is expected that a router may have more than two network interfaces/subnets.
    c. **NB: Very Important!!** If your computer memory is not enough use the VMs provided in the computer labs. Use routers with low memory (RAM, e.g., 64MB) requirements.
5) **eBGP**
    a. Setup eBGP between **ALL** of the routers
6) **VPN**
    a. Setup a GRE VPN between **816032234** and **816023385**
7) **DHCP, NTP and DNS**
    a. ftp.is.co.za will be the DHCP, NTP and DNS server for all client computers.
    b. DHCP replay will be required.
8) **ACL (Access Control Lists)**
    a. ACL table layout

SiteA	SiteB	Allow	Deny		Comments
816023385	816032270	HTTP/HTTPS eBGP, ICMP, DHCP, NTP, DNS, SSH	Any		
816032234	ftp.iij.ad.jp	FTP, eBGP, ICMP, DHCP, NTP, DNS, SSH	Any		

9) In addition to the above: Implement at least two (2) instances of the following between the routers:
    a. HDLC
    b. PPP
    c. PPP PAP
    d. PPP CHAP
    e. Frame-Relay full mesh.
    f. NAT/PAT between **816023385** and the devise behind it.

Assessment:

You will be assessed as follows:

a) Documentation (from your report) of the process and your network information, IP addressing scheme, etc. **[10 marks]**
b) Working GNS3 project file configured as close as possible to the proposed diagram. **[10 marks]**
c) FrameRelay **[5 marks]**
d) eBGP **[10 marks]**
e) VPN **[10 marks]**
f) DHCP, NTP, DNS **[5 marks]**
g) ACL implementation. **[5 marks]**
h) Working servers and devices. **[5 marks]**
i) Group Presentation (with screenshots of tests). **[5 marks]**
j) Group peer assessment where each member uses the Self-Peer Evaluation Form below (submit forms individually via Peer Assessment submission link). **[5 marks]**

Execution Plan:

a) Use the group forum to post questions related to the project.
b) Ensure each member has connectivity to a computer with GNS3.
c) Break up the project into sub-components
    i) IP addressing scheme
    ii) Tracerts
    iii) Configure Frame Relay network
    iv) Static IP on routers, eBGP
        (1) Ensure eBGP works
    v) Setup VPN and test
    vi) Setup DHCP, etc
    vii) Creation of test plans
    viii) Collection of documentation of steps, configuration commands, Frame Relay mappings, eBGP.
d) Two members will work on each sub-component.
    i) Typically, one work while the other check/confirm/verify. Switch the roles along the way.
    ii) With 3 group members it's expected that a member will be working on at least 3 of these sub-components.
e) Record all commands and place in the report as an appendix – set paragraph to no point spaces, single line to save on page space.

Assignment Notes

- It is expected to have word documents, GNS3 project file, PowerPoint presentation, any other additional files.
- Use the pages below (use Word to open the PDF and convert into a word document)
- All files should be **zipped** with the filename in the following format: **INFO3607 - Group 4 Project – [id number1, id number2, id number3].zip**. Submission is done via **My eLearning LMS Group Project** submission page.
- Full internet research may be required and be sure to cite your sources using http://www.citationmachine.net/ (recommended for this group project) or https://www.zotero.org/ (more complex) or EndNote (http://libguides.uwi.edu/endnotex7, also complex) and also to create your list of references and/or bibliography.
- Plagiarism will **NOT** be tolerated:
    - https://sta.uwi.edu/resources/policies/Anti-Plagiarism.pdf .
    - https://sta.uwi.edu/resources/documents/postgrad/Policy_plagiarism.pdf .

/ns

IP Addressing and Networks (Copy and complete in your work document)

IP Addresses on interfaces for routers facing other routers.

Name	Interface	IPv4 Address	Subnet Mask	Network Address	Broadcast Address	Gateway	Comments

IP Addresses on interfaces for computers and the routers (some information will be duplicated from above).

Name	Interface	IPv4 Address	Subnet Mask	Network Address	Broadcast Address	DNS

Commands Used

[*used this as an example to place your commands in your work document*]

INFO 3607

Group No: _____

Self-Peer Evaluation Form (5% of Group Project)

In rating yourself and your peers, use a one-to-five point scale, where:
5 = Best work possible, on task and self-motivated: a group player
4 = Pretty good work, some reminders needed
3 = OK Work, would be better with more effort or focus
2 = Not so great. Off task a lot and not really helping with group. Needs more effort.
1 = Major distraction to the group. Others had to do your part.

Names (begin with your own)	**Participated in group discussions or meetings**	**Helped keep the group focused on the task**	**Contributed useful ideas**	**Quantity of work done**	**Quality of work done**	***Total scores***	**Comments**

Strength(s) of the group:

Weakness(s) of group:

Ways you resolved conflicts:

What could you have done better during this group project?

Additional Comments: