CS158B Fall 2021

9/22/2021 7:19:18 PM

Network Management Project

You were hired as a Network Management consultant for mid-size business company. The company required you to setup a POC (Proof of Concept) for a small network, which has approx. 12 devices and 3 different platforms

You were asked to implement a network management solution which provide the following features:

1. Able to discover the entire network
2. Able to receive syslog from network devices
3. Able to receive snmp messages from network devices
4. Able to receive event when interface or device is down
5. Able to run snmp mibwalk
6. Able to compile a new snmp mib when customer purchase a new device
7. Able to make changes through snmp set operation
8. Able to monitor device resources such as memory, bandwidth and cpu utilization
9. Able to run automation script (python, C++, C, Ruby…etc) to query and set device attributes
10. Able to setup an automatic task operation, dynamic topology***

Overall Project Delivery [500 points in total]

Item#	Description	Point
1	Team presentation 7 – 10mins	125
2	Teamwork & Collaboration among team members	25
4	Project Report (PDF or Word document)	100
4	Feature delivery [9 features in total]	100
5	Using any opensource to build simulator network, minimum 3 hops, minimum 12 devices, at least 3 different platforms	25
6	Demonstrate of using NMS tools	50
7	Able to setup an automatic task operation and dynamic topology discovery	50
8	Handling Q&A	25
	Total	**500**

Team#:

Team Names:

No.1	Description	MaX Point	Grade & Feedback
1	• All team member takes turn in presentation	125	
2	• Teamwork & Collaboration among team members	25	
3	Project Report Few PowerPoint for highlight of the project Word/PDf document about the project implementation User guide (word/pdf)	100	
4	1. Able to discover the entire network 2. Able to receive syslog from network devices 3. Able to receive snmp 4. Able to receive event when interface or device is down 5. Able to run snmp mibwalk 6. Able to compile a new snmp mib when customer purchase a new device 7. Able to make changes through snmp set operation 8. Able to monitor device resources such as memory, bandwidth and cpu utilization 9. Able to run automation script (python, C++, C, Ruby…etc) to query and set device attributes	100 (total)	
5	Present simulate network: • Minimum 10 devices • Minimum 3 hops between devices • Minimum two different platforms • Device reachable through host. Able to ping to check for connectivity • Connection between devices can be setup as static or dynamic route • Present both RIP and OSPF protocols	25	
6	Demonstrate of using NMS tools, just examples: MGsoft: browse few OID MGSoft: able to compile a new MIB and add to MIB tree MGsoft: able to setup SNMP Trap alert PRTG:	50	
7	Able to setup an automatic task operation and dynamic topology discovery	50	
8	Handling Q&A	25	
	Total	**500**	

Notes:

a. On each network device, it should have the following:
    1. Disable DNS lookup
    2. router name (R1/R2/R3 accordingly in the diagram)
    3. domain name cs158b.com
    4. encrypted priviledged EXEC password cisco
    5. console access password with password: cisco
    6. create local admin account: admin/cisco
    7. set login on vty lines to user local database
    8. set vty lines to accept telnet all
    9. encrypted the clear text password
    10. configure a banner "Welcome to CS158B"

b. Each device should have a label to indicate hostname of that device,
c. For each segment, it should have a network label.
d. On the report, it should include
    1. Project Introduction: what is this project about
    2. Proposed solution:
        - Which tool being used to simulate network devices
        - Topology
        - Protocols being used
        - How connectivty being tested?
    3. Validation of all requested features
    4. Conclusion