

Lab2:Design of software to design data centers with a leaf-spine architecture with a given oversubscription ratio.

Input: This software will take the size of Tor and Spine switches which could be different and also take the oversubscription ratio.

Output: The output will be the required number of Tor and spine switches to build an L2 leaf and spine, there is also a possibility to plot the number of switches (ToR/spine) to build a data center in the function of the number of servers if “1” is entered by the user, to do so I found an equation as found in class that represents the number of servers and switches as a function of the number of layers.

Data Structures: I only used variables to find the solution of this Lab.

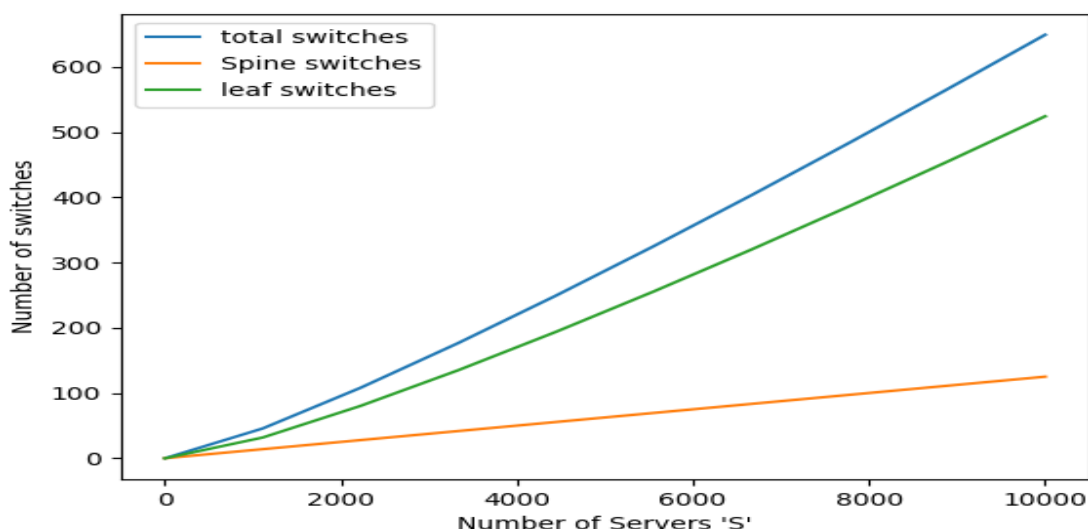
Instructions to run from the command line:1)Windows: First, you need to install the python interpreter on windows “<https://www.python.org/ftp/python/3.10.0/python-3.10.0-amd64.exe>” then open windows PowerShell or CMD go to the directory where the main.py file by using cd, and simply write” python3 main.py”

```
C:\Users\USER>cd Desktop
C:\Users\USER\Desktop>cd LAB2STDC-main
C:\Users\USER\Desktop\LAB2STDC-main>python3 main.py
Input oversubscription ratio in form a b: 1 4
Input number of ports of leaf switches and of spine switches in form a b: 50 20
Number of switches in total is: 30
Number of spine switches is: 10
Number of leaf switches is: 20
press 1 to print total number of switches as function of number of servers: 1
```

2)Linux: First install python interpreter “sudo apt-get install python3.8” then run the code by “ python3 ‘file main.py location’ ”.

In both cases, dedicated software as pycharm can be used.

Results:



The above graph shows number of spine and leaf switches as function of number of servers.

Command Prompt

```
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Input number of ports of leaf switches and of spine switches in form a b: 50 20
Number of switches in total is: 30
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```

The command used to generate the above graph