

INTEGRATIVE PROJECT

Computer Networks

Creation of a new IT Room for FAESA

Developed by *Matheus Dias Tecchio*

Purchase of equipment

For the project of creating a new computer room, the first thing is to think the equipment needed for the new room, all the equipment will be new, by observing the need and capacity of the room, both physical and operational. The following is a list of the equipment purchased and their respective specifications, or equivalents:

- 10 Computers** with latest generation i3 processor, 8GB RAM;
- 1 Laser printer** with RJ-45 network connection;
- 1 Wireless Router** up to 300 Mbps;
- 1 Switch of 16 ports** type 10/100/1000 Mbps;
- 1 14" Network Rack**;
- 1 File Server** up to 1Tb
- 100 Metres of Cat5e Network Cable**

Equipment Position

After the acquisition of the equipment, we need to position in the best possible, 10 computers (5 at the top and another 5 at the bottom of the room), 1 printer in the upper-center side and 1 wireless router in the lower-center side.

On the upper right side of the room, 1 network rack was installed with 1 Server for all the computers in the room, and in this same rack 1 Switch was also installed, which organizes the LAN network data in the new FAE room.

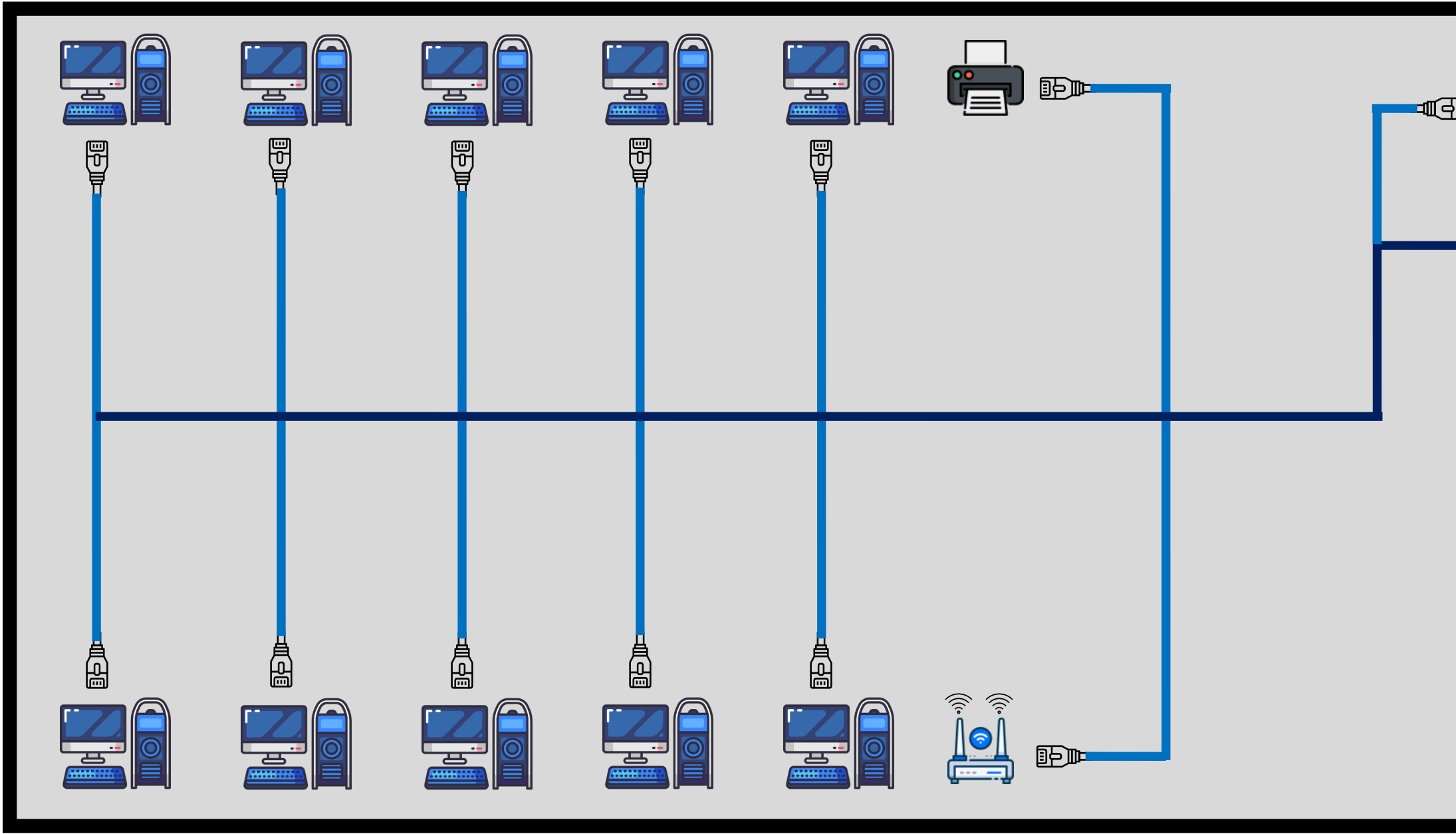
Network Architecture

After positioning and installing the devices, let's connect the LAN Network of FAESA. To this end, a Star Network Topology was architected, where all devices in the room are centralised in the Switch, which directs the data in the best possible way.

The Switch in the room is an L2 and is connected to another Switch, which is an L3.

All devices are connected by Cat5e twisted pair cables with RJ-45 connectors, as it has speeds of up to 1000Mbps, which is the best value for money for this project.

The following is a drawing of our project:



Drawing legend



Computers with latest generation i3 processor, 8GB RAM



Laser printer with RJ-45 network connection



Wireless Router up to 300 Mbps



14" Network Rack
File Server up to 1Tb



16-port 10/100/1000 Mbps **switch**



RJ-45 connector

Legend for the colour of cable



Individual
Network Cable



Multiple
Network Cable



Network
to

Configurations and Testing

When everything is properly connected and tidy, we should configure the devices on the LAN network. We will configure the Switch, all computers, the printer, the router and the server, everything should be properly connected to the LAN network.

Once connected, we will test and see if everything is working, if the printer is communicating with the computers, if the file server is connected, test the network speed and check if there is packet loss, or bottlenecks.

At the end of the project, we will present the room to the rectory of FAESAL.