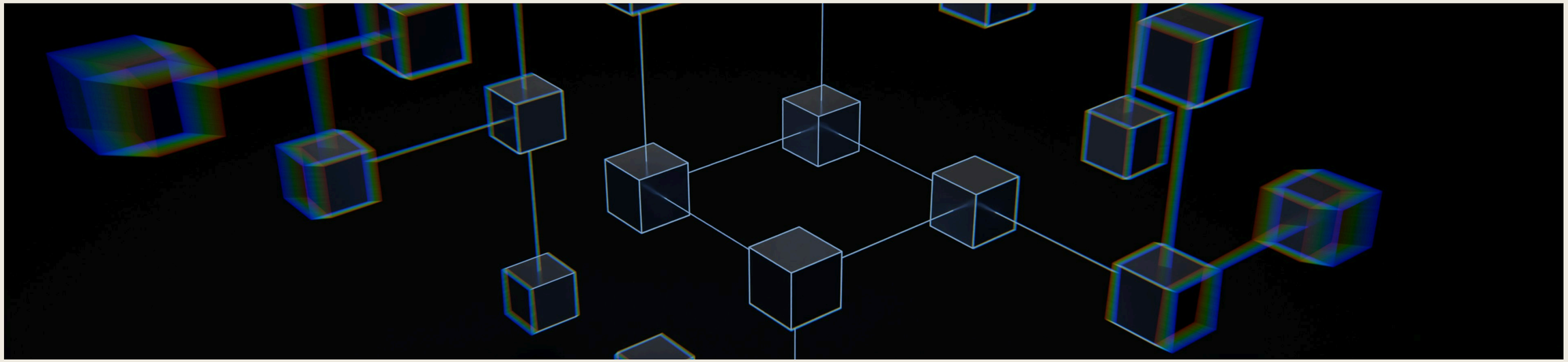
By: Packet's Path Finder Team



DEPI NETWORK GRADUATION PROJECT

MEET THE TEAM

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PROJEC OVERVIEW

- The project consists of four autonomous systems (AS) and incorporates various essential networking configurations, including:
- Configured VLANs 10, 20, 30, and 40.
- Configured Distribution Switches (Dist-SWs) as root primary and root secondary for Spanning Tree Protocol (STP).
- Implemented HSRP on Dist-SWs for high availability.
- Set up a DHCP server on routers.
- Configured a DNS server for name resolution.
- Established OSPF between Dist-SWs and routers.

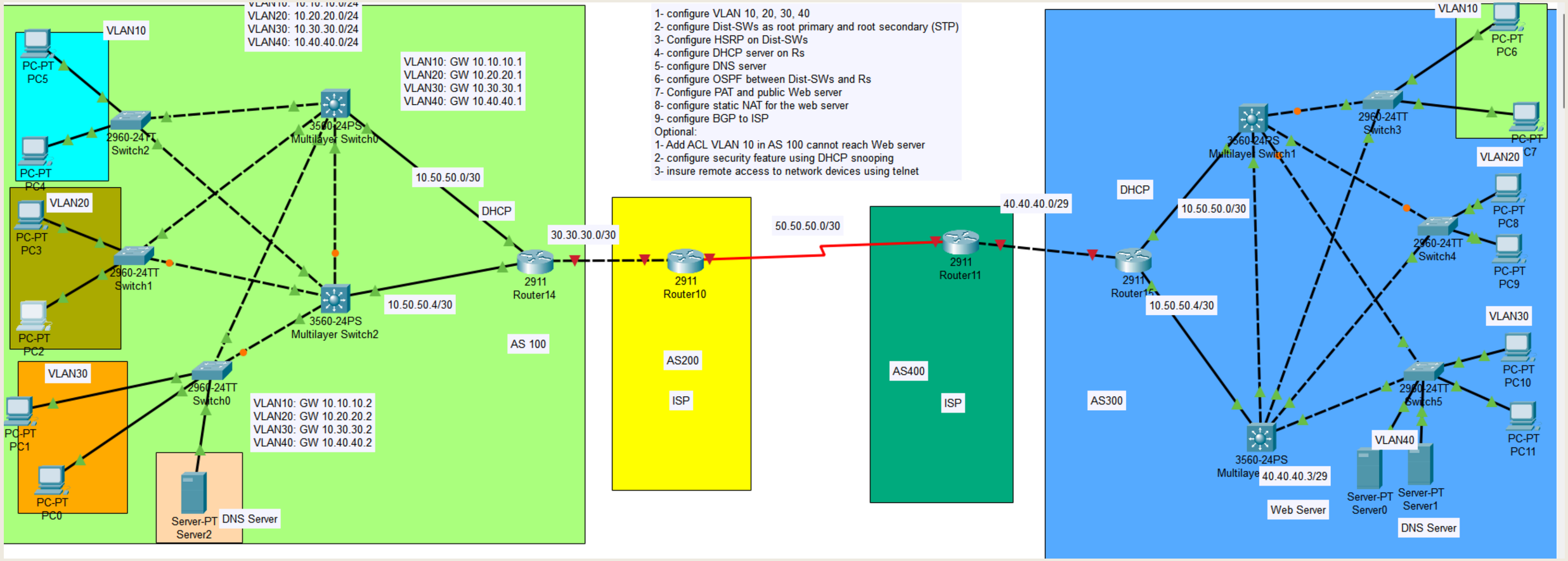
CONT,,,

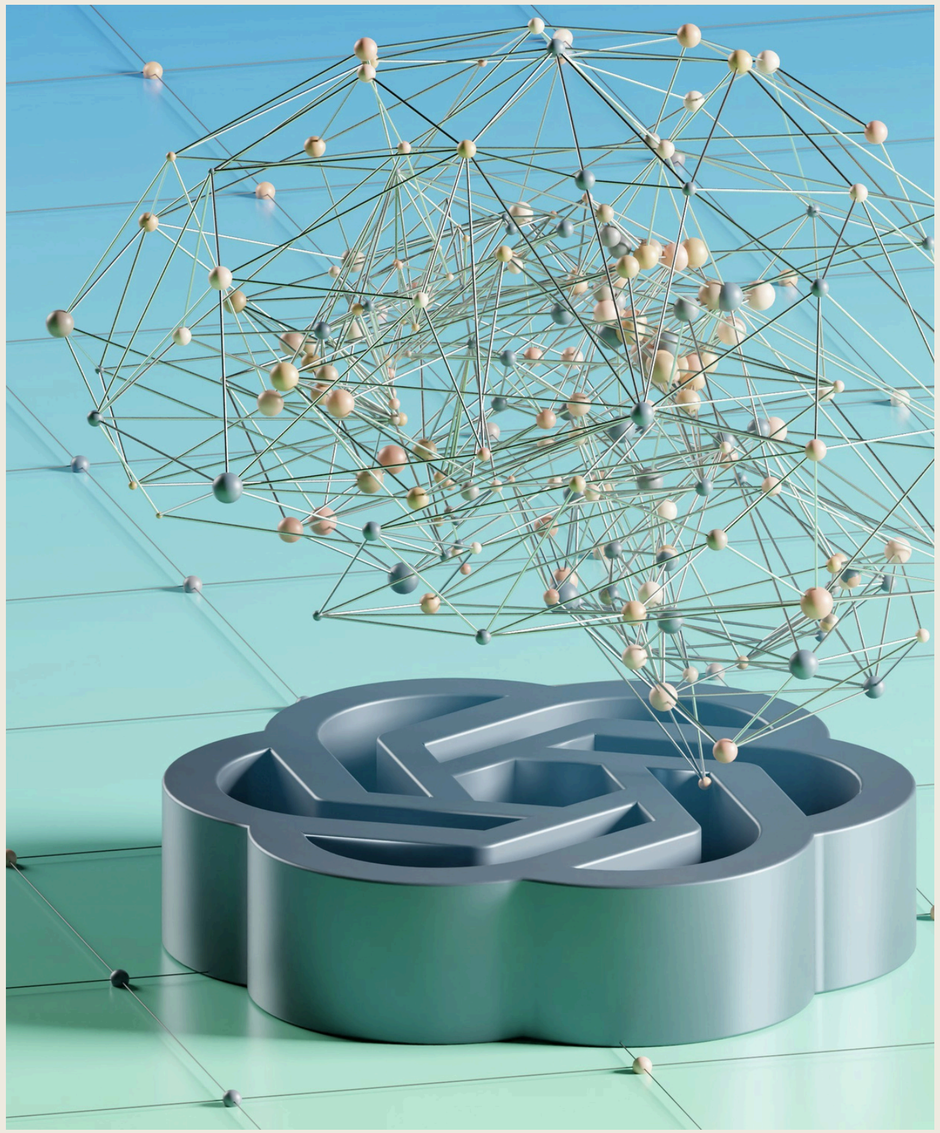
- Configured Port Address Translation (PAT) and a public web server.
- Set up static NAT for the web server.
- Implemented BGP to connect to the ISP.
- Added an Access Control List (ACL) to restrict VLAN 10 in AS 100 from reaching the web server.
- Enhanced security features using DHCP snooping.
- Ensured remote access to network devices using Telnet.

DEVICES USED:

- 12 PCs
- 6 Switches
- 4 Multilayer Switches
- 4 Routers
- 3 Servers (2 DNS and 1 web server)

NETWORK TOPOLOGY





PROJECT OBJECTIVE

The main objective of this project is to apply the knowledge we've gained throughout the scholarship. This project integrates all the topics we've covered and provides hands-on experience to maximize our learning outcomes.

PROJECT TIMELINE

- Week 1: **Initial planning and research.**
- Week 2: **Basic Device Configuration.**
- Week 3: **Advanced Configuration and Testing**
- Week 4: **Final review, refinement, and presentation preparation.**

WEEK 1: INITIAL PLANNING AND RESEARCH

- Defined the network requirements and brainstormed the topology.
- Designed the network topology and selected the main required devices.
- Determined the IP addressing scheme, including gateways and standbys.
- Selected devices and applied the topology using Packet Tracer.

WEEK 2: DEVICE SETUP AND CONFIGURATION

- Mapped out the configuration flow from access layer to the DIS layer to the core router to the ISP.
- Basic Config: Disabled no ip domain lookup and assigned the hostnames.
- Configured VLANs on access switches and set port types (access/trunk).

- Decided between static or dynamic VLAN setup; VTP chosen, with Dist-SW1 as server and the remaining are clients.
- applied the virtual IP routing.
- applied the OSPF on the ML switches and the core router
- Tested connectivity using static IPs for troubleshooting.
- Set up HSRP for redundancy between Dist-SWs.

WEEK 3: DNS, NAT, AND BGP SETUP

- Configured DNS server.
- Set up static NAT for the web server and PAT on the core router to connect to the internet.

- Applied BGP protocol to connect the core router to the ISP router.
- Troubleshooting throughout each step to ensure functionality.

WEEK 4: FINAL TESTING AND REFINEMENT

- Summarized the work and finalized troubleshooting.
- Tested all configurations and ensured all deliverables were functional.

- Conducted team meetings to review project outcomes.
- Worked on presentation preparation.

CONCLUSION

- Successfully set up a secure, scalable, and fully functional network.
- Integrated key networking protocols like HSRP, OSPF, BGP, NAT, and ACLs.
- Overcame challenges and gained hands-on experience with real-world networking configurations.
- This project has been an excellent opportunity to solidify our skills and prepare us for future networking roles.

THANK YOU!