PROJECT PROPOSAL: ENTERPRISE NETWORK DESIGN AND IMPLEMENTATION USING HUAWEI DATACOM

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INTRODUCTION

- This project aims to design and implement an integrated, scalable, and flexible enterprise network using Huawei Datacom technologies. The proposal outlines the project's motivation, objectives, methodology, and expected outcomes.

PROBLEM STATEMENT

- Modern organizations require robust, scalable, and secure network infrastructures that support daily operations, security, and future expansion. Many networks fail due to poor planning, limited scalability, lack of documentation, faulty of devices and cables, and poor security.

OBJECTIVES

➢ Gain comprehensive practical experience

➢ Build a complete, organized, and scalable network

➢ Understand corporate network structure (Access, Aggregation, Core layers)

➢ Enable integration of new technologies after deployment

➢ Develop planning, documentation, and security skills

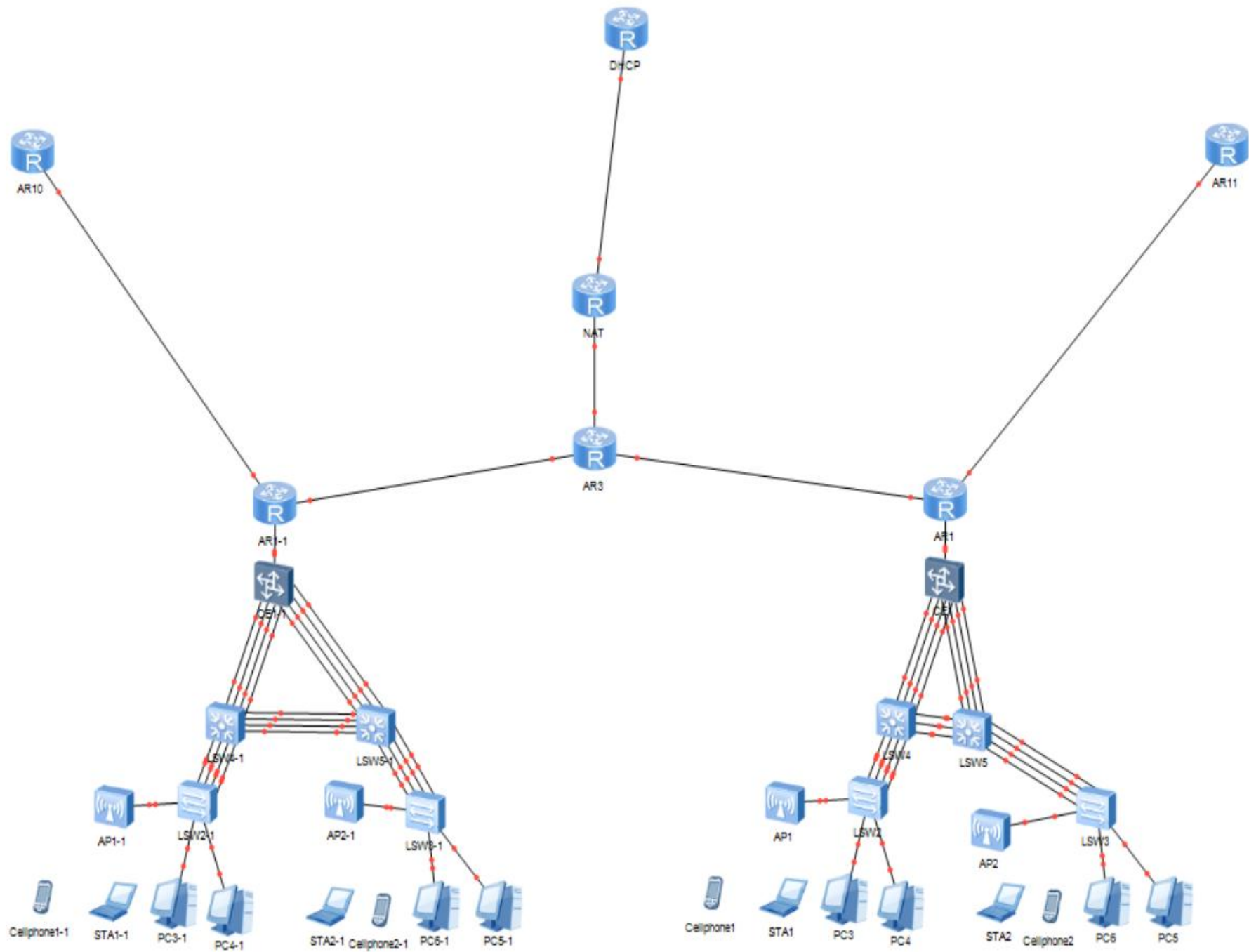➢ Implement enterprise-grade services (DHCP and Telnet)

SCOPE OF WORK

- Layer 2: Switching (Core, Aggregation and Access switches, STP protocol, Link Aggregation, VLAN, INTER-VLAN)

- Layer 3: Routing (Routers, OSPF, NAT)

- security techniques: ACLs, AAA

- Network Services: DHCP, Telnet

- LAN, WAN & WLAN implementation

METHODOLOGY

- Planning & Design: Topologies, Devices selection

- Implementation: Configure switches and routers, and Implementing all necessary protocols, security requirements and services.

- Testing & Verification: Connectivity, redundancy, security, performance

- Documentation: Configurations, Topologies, guidelines

DHCP

AR10

AR11

NAT

AR3

AR1-1

AR1

CB 1

CBV

LSW4-1

LSW5-1

LSW4

LSW5

AP1-1

LSW2-1

AP2-1

LSW3-1

AP1

LSW2

AP2

LSW3

Cellphone1-1　STA1-1　PC3-1　PC4-1　STA2-1 Cellphone2-1　PC5-1　PC5-1

Cellphone1　STA1　PC3　PC4　STA2　Cellphone2　PC6　PC5

EXPECTED OUTCOMES

- Fully functioning enterprise-level network using Huawei Datacom

- Enhanced understanding of network planning and implementation

- Practical experience with security, routing, and switching

- Scalable design that supports future technologies

TIMELINE

- Planning & Design: Week 1 → Network diagrams and Topologies, requirements

- Implementation: Week 2 → Configured network devices

- Testing: Week 3 → Validation reports

- Documentation: Week 4 → Final project report

RESOURCES REQUIRED

- Huawei Datacom devices and tools (Switches, Routers, PCs, ACs and Cables)

- Network simulation tools (eNSP)

- Documentation software (Word, PowerPoint)

CONCLUSION

- This project will provide hands-on experience in enterprise networking with Huawei Datacom, equipping the team with practical knowledge in planning, implementation, and security while ensuring scalability for future growth.