



KAMKAR 3 SECURE NETWORK DESIGN

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PROJECT OVERVIEW

Objective: Design a secure, efficient network for a client relocating to a new office.

Goals:

- Optimize resource allocation
- Prioritize security
- Ensure scalability for future growth

Tools: Cisco Packet Tracer, Documentation, Presentation

NETWORK TOPOLOGY

Topology Type: Hierarchical Star Topology

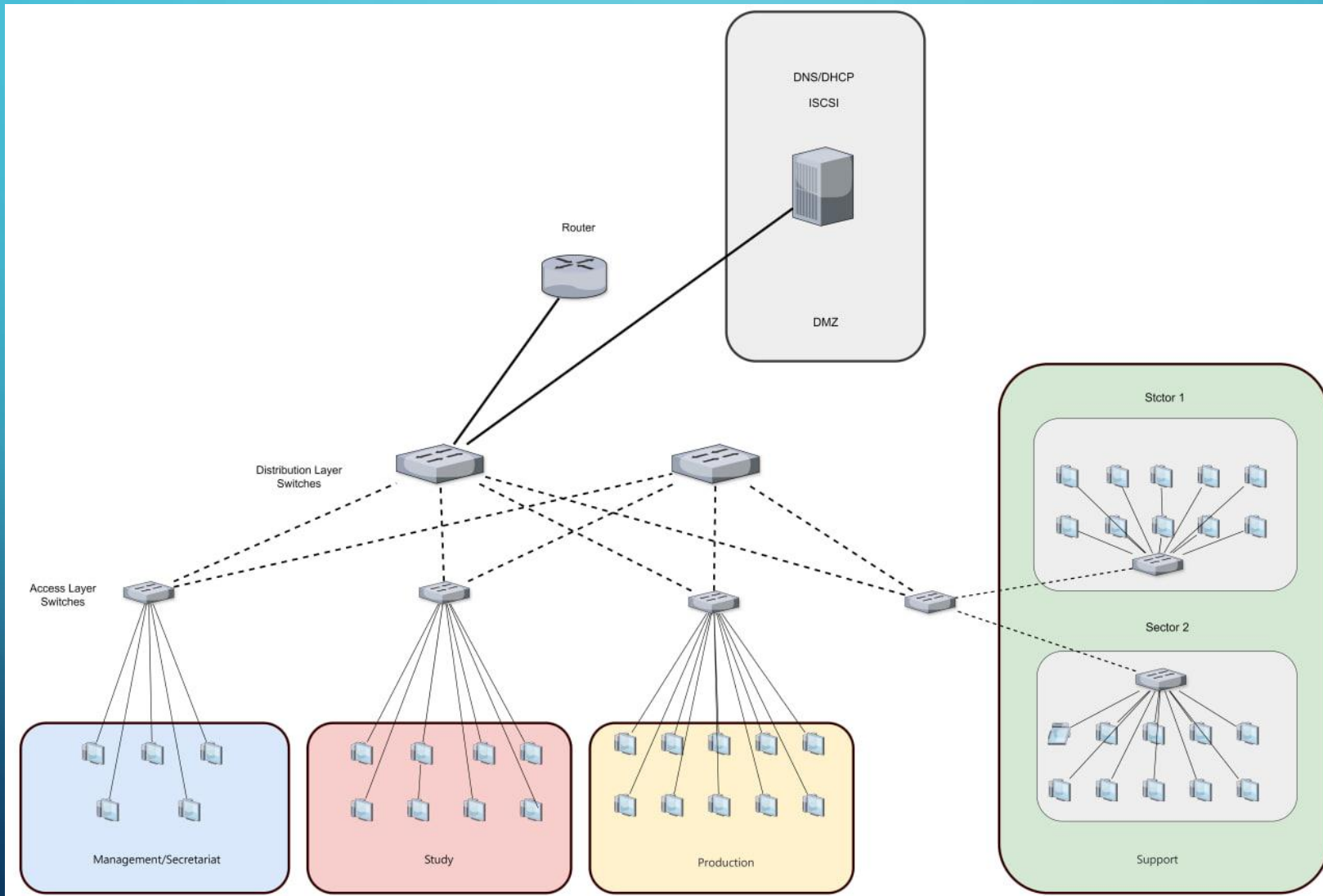
Core Device: Cisco Layer 3 Switch 3560Access

Layer: Four Access Switches (each for a different VLAN)

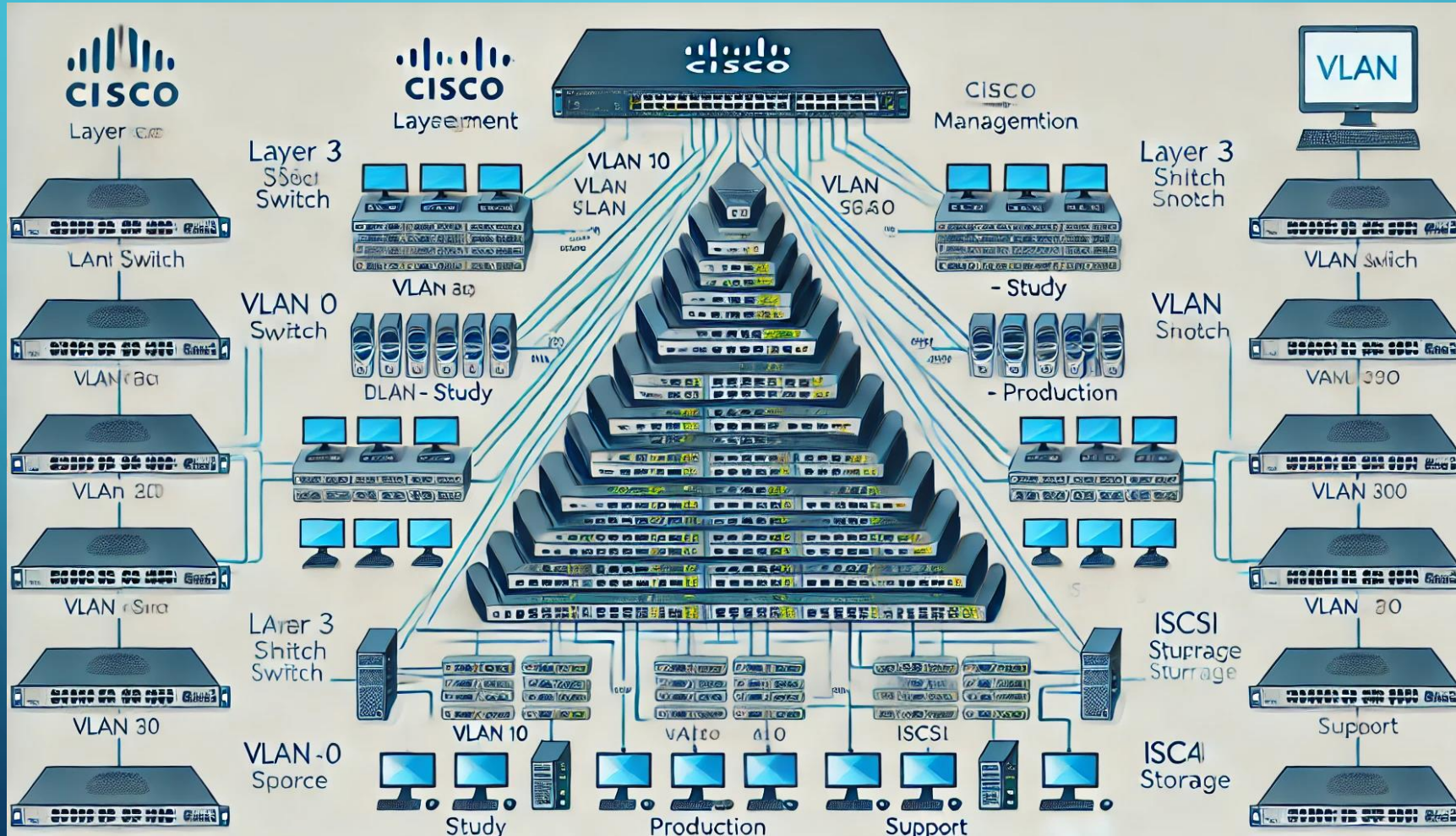
Logical Diagram: Show the logical network structure

Physical Diagram: Show the physical connections

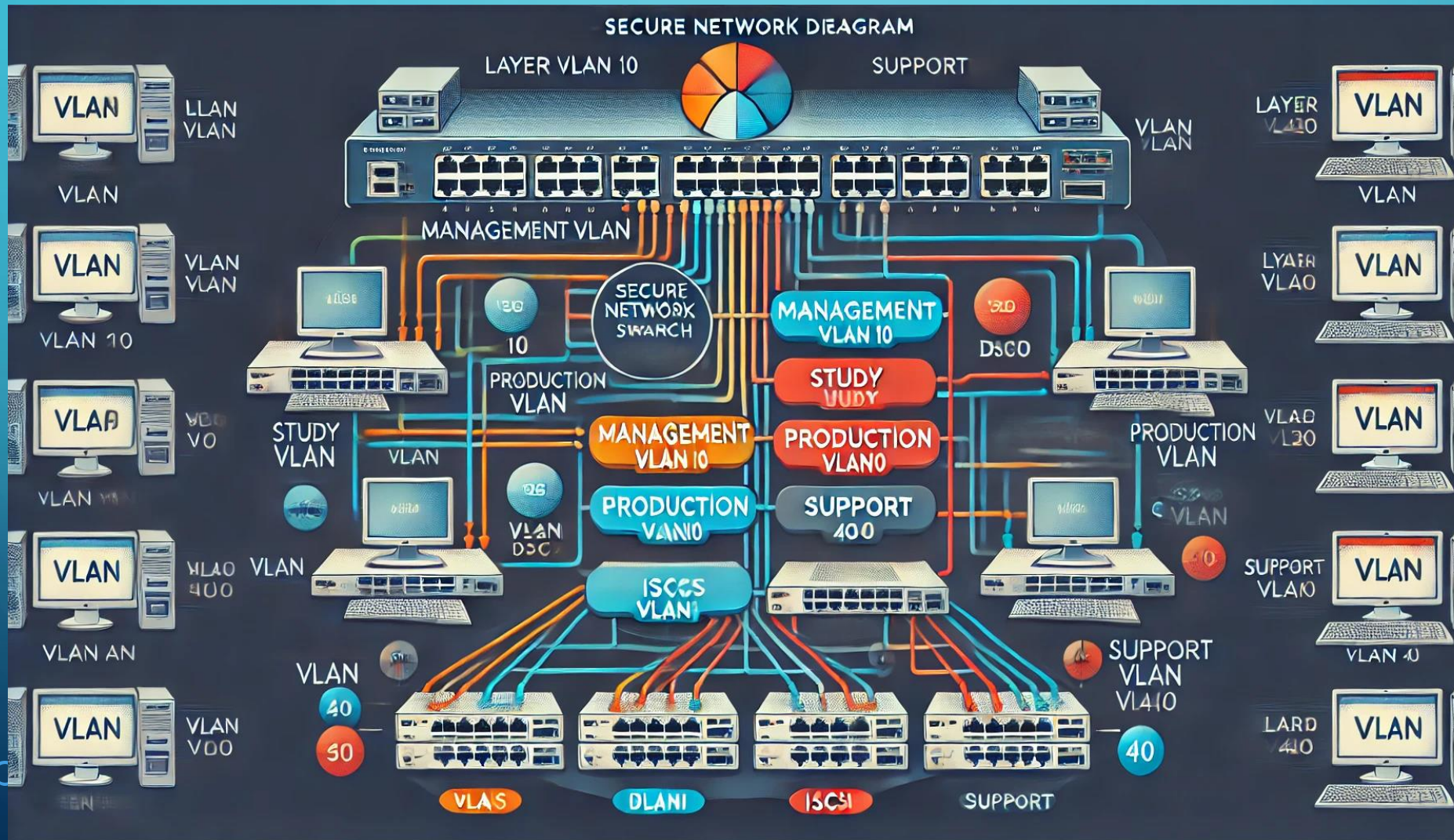
THE LOGICAL NETWORK STRUCTURE



THE PHYSICAL CONNECTIONS



THE PHYSICAL CONNECTIONS



Sectors	Number of devices	IP	VLAN	Gateway
Management/Secretariat	5 workstations	2.2.10.10/24	10	2.2.10.1
Study	8 workstations	2.2.20.10/24	20	2.2.20.1
Production	10 workstations	2.2.30.10/24	30	2.2.30.1
Support (sector 1)	10 workstations	2.2.40.10/24	40	2.2.40.1
Support (sector 2)	10 workstations	2.2.50.10/24	50	2.2.50.1
DMZ	1 server	2.2.1.2	60	2.2.1.1.

VLAN DESIGN AND SEGMENTATION

Management VLAN 10: 5 workstations (IP Range: 192.168.10.0/24)

Study VLAN 20: 8 workstations (IP Range: 192.168.20.0/24)

Production VLAN 30: 10 workstations (IP Range: 192.168.30.0/24)

Support VLAN 40: 20 workstations (IP Range: 192.168.40.0/24)

Purpose: Network segmentation for security and performance

IP ADDRESSING AND SUBNETTING

- **IP Range:** Class C (192.168.x.x/24)
- **Subnet Mask:** 255.255.255.0 for each VLAN
- **Address Allocation:** Unique subnet per VLAN for isolated communication
- **Summary Table:** Include IP range, subnet mask, and hosts per VLAN

DEVICE AND SERVER CONFIGURATION

Core Layer 3 Switch (Cisco 3560): Handles inter-VLAN routing

Access Switches: Manages VLAN-specific devices

Servers:

- DNS Server: IP Address 192.168.50.2
- DHCP Server: IP Address 192.168.50.3
- iSCSI Storage Server: IP Address 192.168.50.4

DMZ Concept: Servers in secure VLAN accessible to all sectors

SECURITY MEASURES

Access Control Lists (ACLs): Limit traffic between VLANs

RADIUS Authentication: Centralized user access control (optional configuration)

Strong Passwords: For device access and admin credentials

Physical Security: Placement of core devices in secure areas

COST BREAKDOWN

13. Cost of network deployment

Equipment	Quantity	Unit Price (EUR)	Total Cost (EUR)
Cisco ISR4331 Router	1	3000	3000
Cisco 2960-24PS Switch	2	1,000	2000
Cisco 2960-24TT Switch	6	1000	6000
Server	1	3,000	3000
Personal Computers	43	700	30,100
Cables	~58	Varies (~10-20 EUR)	730
Total			44,830