

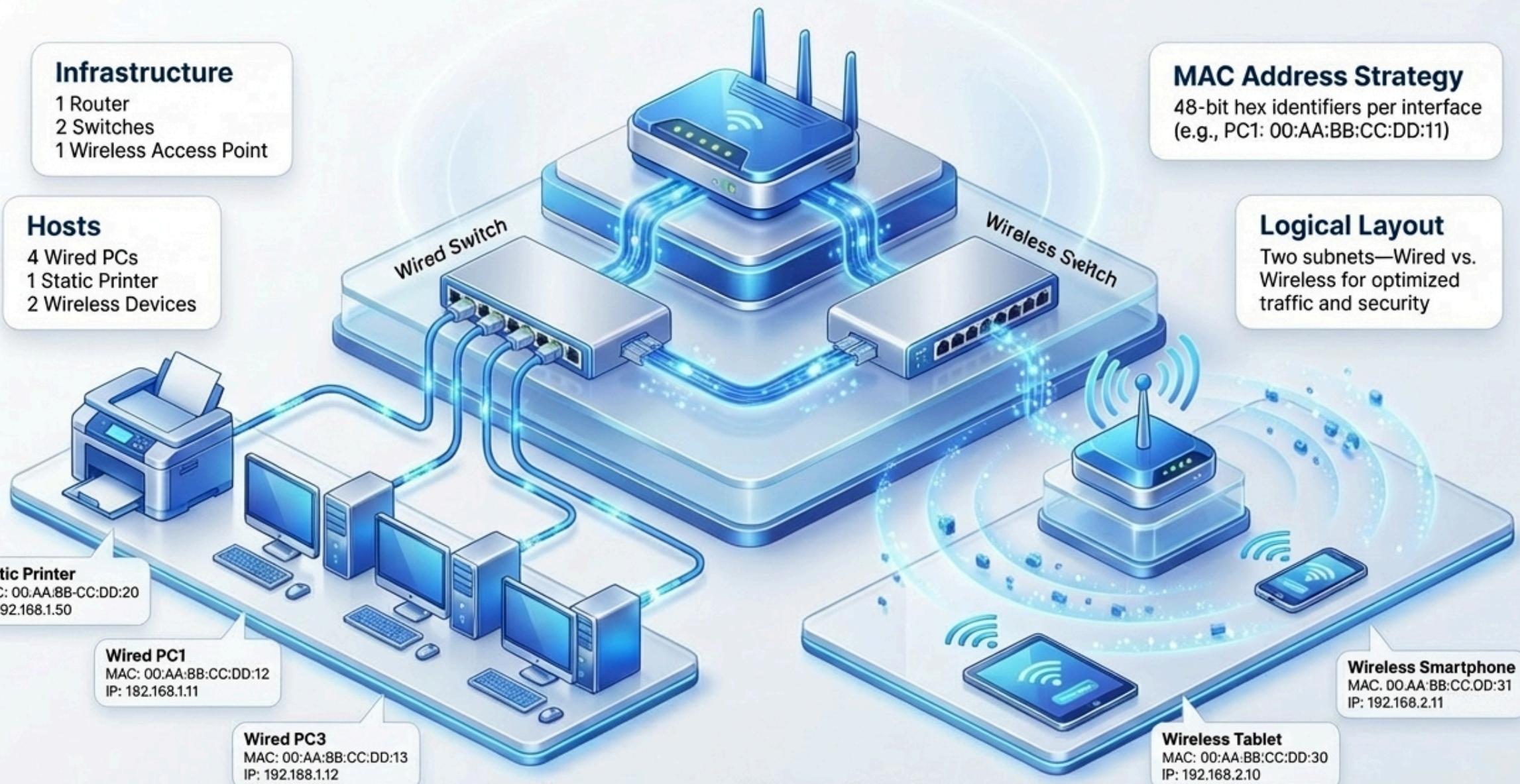
Local Area Network (LAN) Design and Data Flow Analysis

Understanding MAC/IP Addressing, Subnetting, and Routing Operations



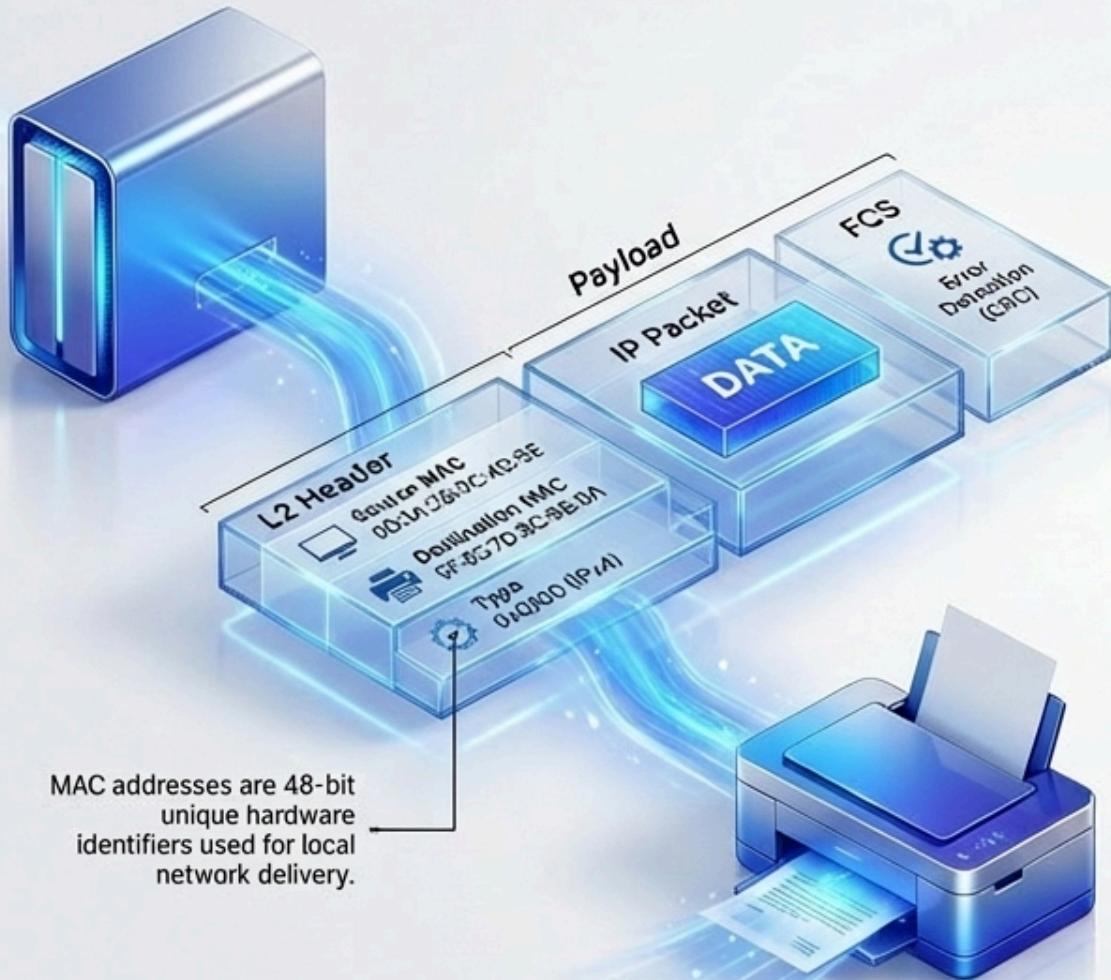
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Network Topology & Device Inventory



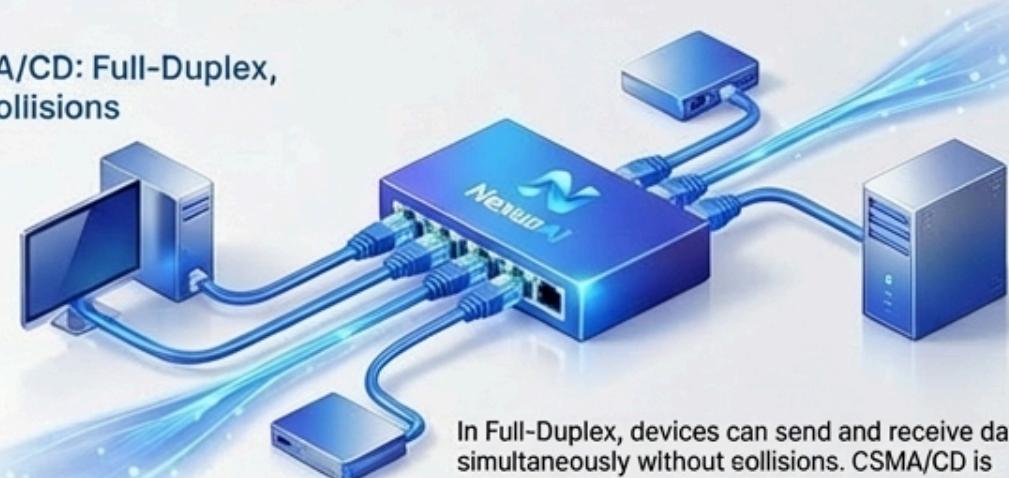
Part 1 - Data Link Layer (MAC & Frames)

Frame Structure



Collision Management

CSMA/CD: Full-Duplex,
No Collisions

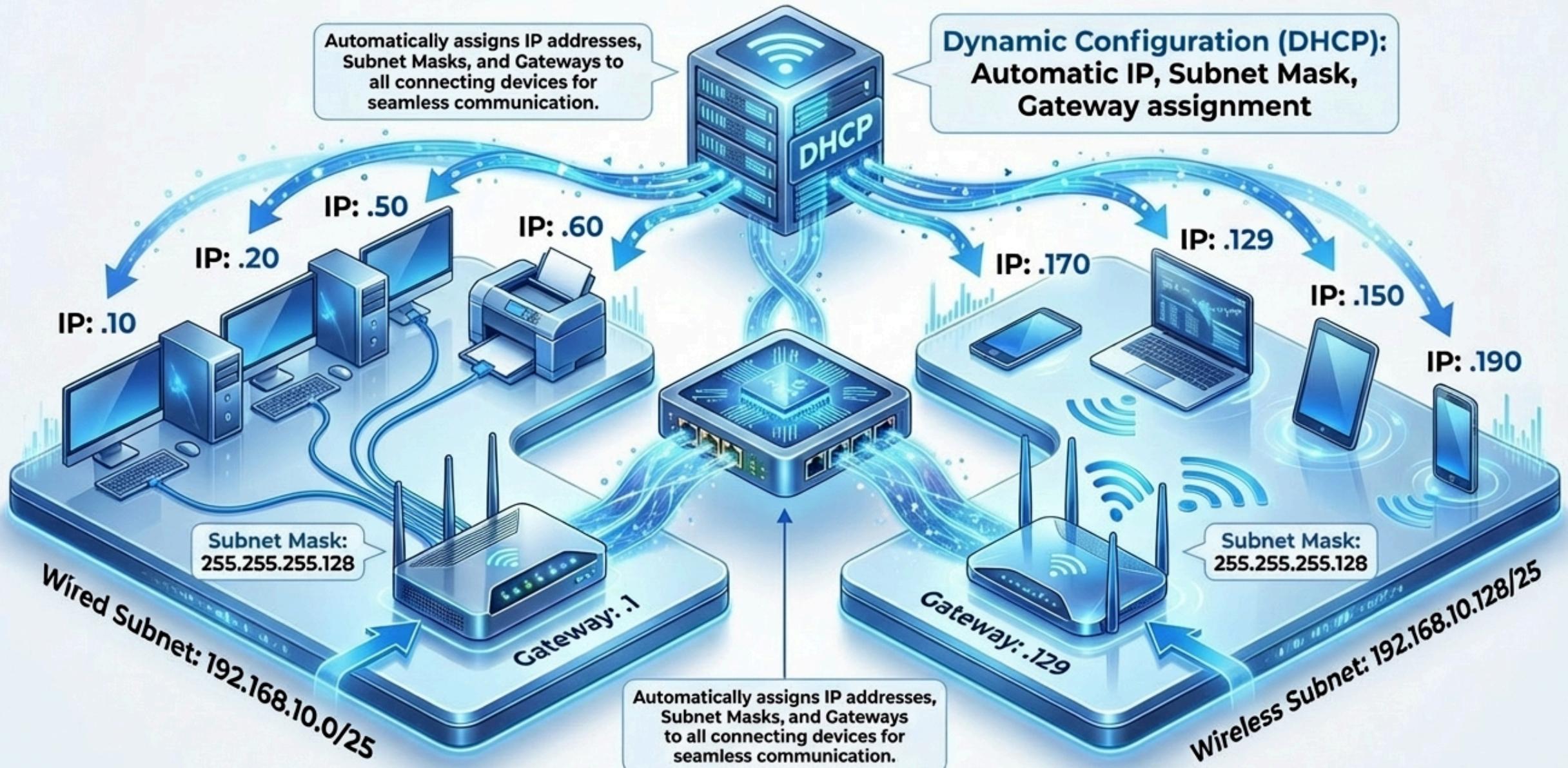


CSMA/CA:
RTS/CTS Avoidance



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Part 2 - IP Addressing & Subnetting



Part 3 - Packet Path: LAN to Internet



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Part 3 - NAT (Network Address Translation)

The Problem:

Private IPs not routable
on public internet



Summary & Conclusions

Key Principles of LAN Design



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