5.6: Summary

5.6.1: Networks: Past, Present, and Future

Our hyperconnected world relies on the invisible fabric of networks that took root decades ago. In the 1960s, early networks like ARPANET emerged, pioneering the decentralized computing concept. This evolved into the global Internet through innovations like TCP/IP, email, and the World Wide Web.

Today, networks enable how we learn, work, collaborate, and get entertained - from video chat and streaming to remote collaboration and multiplayer gaming. The future promises faster 5G networks, global satellite-based Internet, and virtual worlds accessed through augmented reality.

However, there are always two sides. Our dependence on networks also introduces risks like hacking, identity theft, and denial-of-service attacks. Being mindful of threats is essential as networks continue advancing.

By understanding the pivotal role of networking across time, we can reap the benefits while being realistic about potential downsides. Networks provide opportunities to connect worldwide but also carry responsibilities to use them wisely. This knowledge prepares us to thrive in our modern, digitally networked world.

Technical Terms

ACL - Access Control List, method of controlling access to a network resource.

ARPANET - Early prototype network created by ARPA in 1969, gave rise to the Internet.

BSSID - Basic Service Set Identifier, identifies a wireless router.

BYOD - Bring Your Own Device, using personal devices at work.

CAN - Campus Area Network connecting buildings on a campus.

CSMA/CD - Carrier Sense Multiple Access/Collision Detection, Ethernet protocol.

DHCP - Dynamic Host Configuration Protocol, auto-assigns IP addresses.

DNS - Domain Name System, resolves domain names to IP addresses.

FTP - File Transfer Protocol, transfers files over the network.

HTTP - Hypertext Transfer Protocol, enables web browsing.

IP - Internet Protocol, method for addressing devices over a network.

IPS - Intrusion Prevention System, monitors traffic and blocks threats.

LAN - Local Area Network connecting nearby devices.

MAN - Metropolitan Area Network spanning a city/campus.

NAT - Network Address Translation, maps internal IPs to a public IP address.

OAuth - Open Authorization, allows third-party access validation.

PAN - Personal Area Network for wearable and portable devices.

QoS - Quality of Service, mechanisms for optimizing bandwidth usage.

SAN - Storage Area Network for data storage devices.

SMTP - Simple Mail Transfer Protocol, handles email.

SSID - Service Set Identifier, identifies a wireless network.

TCP/IP - Fundamental network protocol suite enabling internetworking.

VPN - Virtual Private Network for secure remote access.

WAN - Wide Area Network spanning long distances.