CN typically refers to **Computer Networks**, which is a broad field in computer science and information technology. Computer Networks focus on the interconnection of computers and devices to share resources and communicate across various physical or wireless media. The context of CN involves the design, implementation, management, and optimization of these systems to ensure secure and efficient data exchange.

Key Concepts in Computer Networks (CN):

1. **Networking Models:**
    - **OSI Model (Open Systems Interconnection):** A conceptual framework that standardizes the functions of communication systems into seven layers: Physical, Data Link, Network, Transport, Session, Presentation, and Application.
    - **TCP/IP Model:** A simplified four-layer model consisting of the Link, Internet, Transport, and Application layers. It is the foundation for the internet and most networking systems.
2. **Types of Networks:**
    - **LAN (Local Area Network):** A network confined to a small geographic area, such as a building or campus.
    - **WAN (Wide Area Network):** A network that covers a large geographical area, often across cities or countries.
    - **MAN (Metropolitan Area Network):** A network designed to cover a larger area than a LAN but smaller than a WAN, typically spanning a city.
    - **PAN (Personal Area Network):** A small network, usually around an individual person, such as connecting smartphones, tablets, and laptops via Bluetooth.
3. **Data Transmission:**
    - **Analog vs. Digital Transmission:** Analog signals are continuous, while digital signals are discrete. Digital communication systems are more robust and commonly used in modern computer networks.
    - **Bandwidth:** Refers to the data transmission capacity of a network, typically measured in bits per second (bps). Higher bandwidth allows more data to be transferred at a faster rate.
    - **Latency:** The time it takes for data to travel from the sender to the receiver. Lower latency is essential for real-time communication applications like video conferencing.
4. **Network Devices:**

- **Router:** A device that forwards data packets between computer networks, typically connecting different networks and routing data efficiently.
- **Switch:** A device that connects devices within a LAN and uses MAC addresses to forward data to the appropriate device.
- **Hub:** A basic networking device that connects multiple computers in a network, though it is less efficient than a switch.
- **Modem:** A device that converts digital data into analog signals and vice versa for transmission over telephone lines or other media.

5. **Protocols:**
   - **TCP/IP (Transmission Control Protocol/Internet Protocol):** The most widely used protocol suite for networking. TCP ensures reliable data transmission, while IP handles addressing and routing.
   - **HTTP (Hypertext Transfer Protocol):** A protocol used for transferring web pages and data over the internet.
   - **FTP (File Transfer Protocol):** A protocol used for transferring files between computers over a network.
   - **SMTP (Simple Mail Transfer Protocol):** A protocol for sending emails across networks.
6. **Wireless Networks:**
   - **Wi-Fi (Wireless Fidelity):** A technology for wireless local area networking using radio waves.