Address Allocation

In this chapter focusing on "Operating the Internet," the discussion revolves around methodologies for distributing internet messages within a campus setting and the intricacies of IP address allocation necessary for connecting a local network to the internet.

Message Distribution Methods:

1. Reflector Set-up on a Local Machine: A reflector forwards messages to a campus-wide distribution list, enabling a singular message to reach a broad audience efficiently.
2. Creation of an Alias for Notesfile Access: This allows messages to be placed in a notesfile, where campus users can access the latest information at their convenience.
3. Screening by the Campus Wide Area Network Liaison: The option to have messages screened for relevance or merit before forwarding them ensures that the information distributed is of value to the campus community.

IP Address Allocation:

- Unique IP Address Requirement: Before a network can join the internet, it must be assigned a unique IP address by the Internet Systems Consortium (ISI).
- Addressing Process: The process involves acquiring an application from ISI, completing it, and submitting it back, either electronically or via postal mail. An IP address is then assigned and communicated to the applicant.
- IP Address Format: An IP address is composed of four decimal numbers separated by periods (e.g., 192.17.5.100), representing a 32-bit value divided into octets.
- Classification of Networks: IP addresses are categorized into Classes A, B, and C to accommodate various network sizes—from large to small—based on hierarchical or flat organizational structures.
- Class A is designed for very large networks, Class B for medium-sized ones, and Class

C addresses support smaller networks.

- Class D and Class E addresses are reserved for multicast and experimental uses, respectively.

Strategies for Addressing and Routing:

- Subnetting for Efficient Addressing: To manage routing effectively, campuses or sites should limit the announcement of discrete network numbers to no more than two to prevent routing table overloads.
- Subnetting as a Solution: It introduces a method to utilize a single network address announcement while dividing the network internally into subnetworks using subnet masks, allowing for efficient internal and external address management.

Challenges and Considerations"

- Compatibility with Older Systems: Some older systems might not support the intricacies of subnetting, necessitating careful planning and implementation to ensure network compatibility.

In summary, efficient communication within an educational campus and the broader digital community requires strategic planning in message distribution and IP address allocation. The adoption of subnetting offers a solution to the challenge of maintaining an expansive and efficient network while ensuring compatibility with existing internet infrastructure.