SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE

AI IN WEB TECHNOLOGY
III YEAR - VI SEM

UNIT 1 – INTRODUCTION TO WEB TECHNOLOGY AND DESIGN

INTRODUCTION TO WEB TECHNOLOGY AND DESIGN

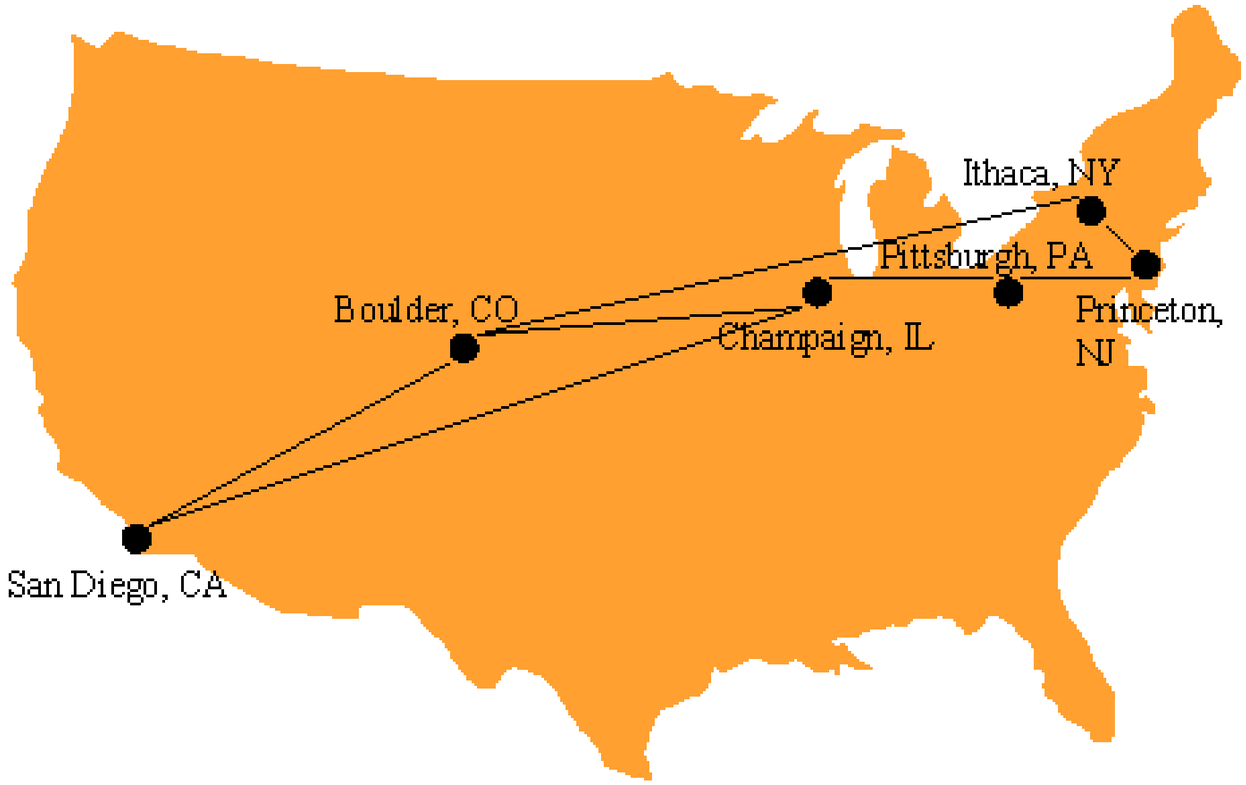
The Internet

- Technical origin: ARPANET (late 1960's)
  - One of earliest attempts to network heterogeneous, geographically dispersed computers
  - Email first available on ARPANET in 1972 (and quickly very popular!)
- ARPANET access was limited to select DoD-funded organizations

The Internet

- Open-access networks
  - Regional university networks (e.g., SURAnet)
  - CSNET for CS departments not on ARPANET
- NSFNET (1985-1995)
  - Primary purpose: connect supercomputer centers
  - Secondary purpose: provide backbone to connect regional networks

The Internet



The 6 supercomputer centers connected by the early NSFNET backbone

The Internet

- Original NSFNET backbone speed: 56 kbit/s
- Upgraded to 1.5 Mbit/s (T1) in 1988
- Upgraded to 45 Mbit/s (T3) in 1991

- In 1988, networks in Canada and France connected to NSFNET
- In 1990, ARPANET is decommissioned, NSFNET the center of the internet

The Internet

Internet Protocol (IP)

What is Internet Protocol (IP)?

Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the internet. Each computer -- known as a host -- on the internet has at least one IP address that uniquely identifies it from all other computers on the internet.

The Internet

- Internet: the network of networks connected via the public backbone and communicating using TCP/IP communication protocol
  - Backbone initially supplied by NSFNET(**National Science Foundation Network**), privately funded (ISP fees) beginning in 1995

Internet Protocols

- Communication protocol: how computers talk
  - Cf. telephone “protocol”: how you answer and end call, what language you speak, etc.
- Internet protocols developed as part of ARPANET research
  - ARPANET began using TCP/IP in 1982
- Designed for use both within local area networks (LAN’s) and between networks

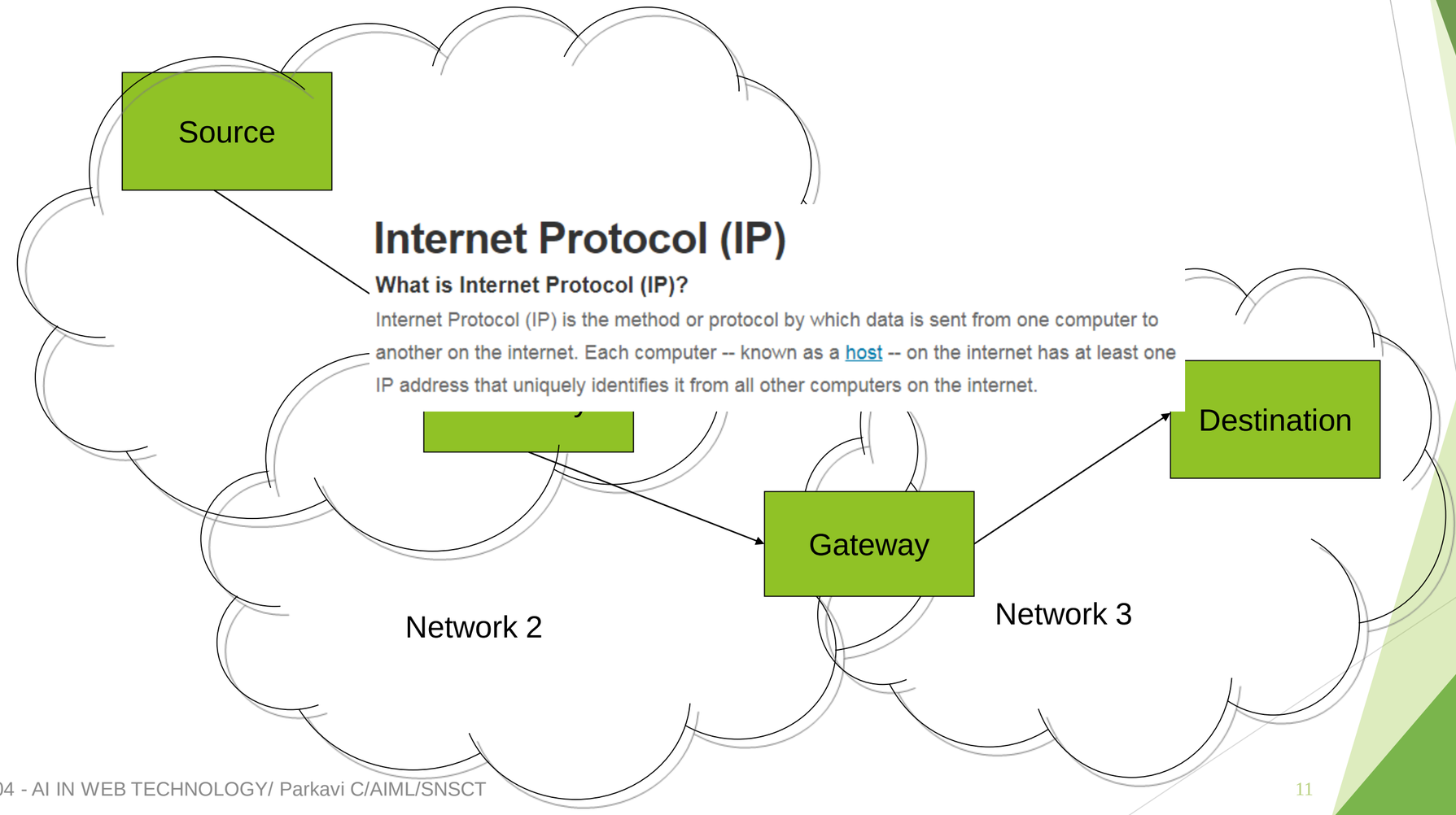
Internet Protocol (IP)

- IP is the fundamental protocol defining the Internet (as the name implies!)
- IP address:
  - 32-bit number (in IPv4)
  - Associated with at most one device at a time (although device may have more than one)
  - Written as four dot-separated bytes, e.g. 192.0.34.166

Internet Protocol (IP)

- IP function: transfer data from source device to destination device
- IP source software creates a packet representing the data
  - Header: source and destination IP addresses, length of data, etc.
  - Data itself
- If destination is on another LAN, packet is sent to a gateway that connects to more than one network

IP


Source
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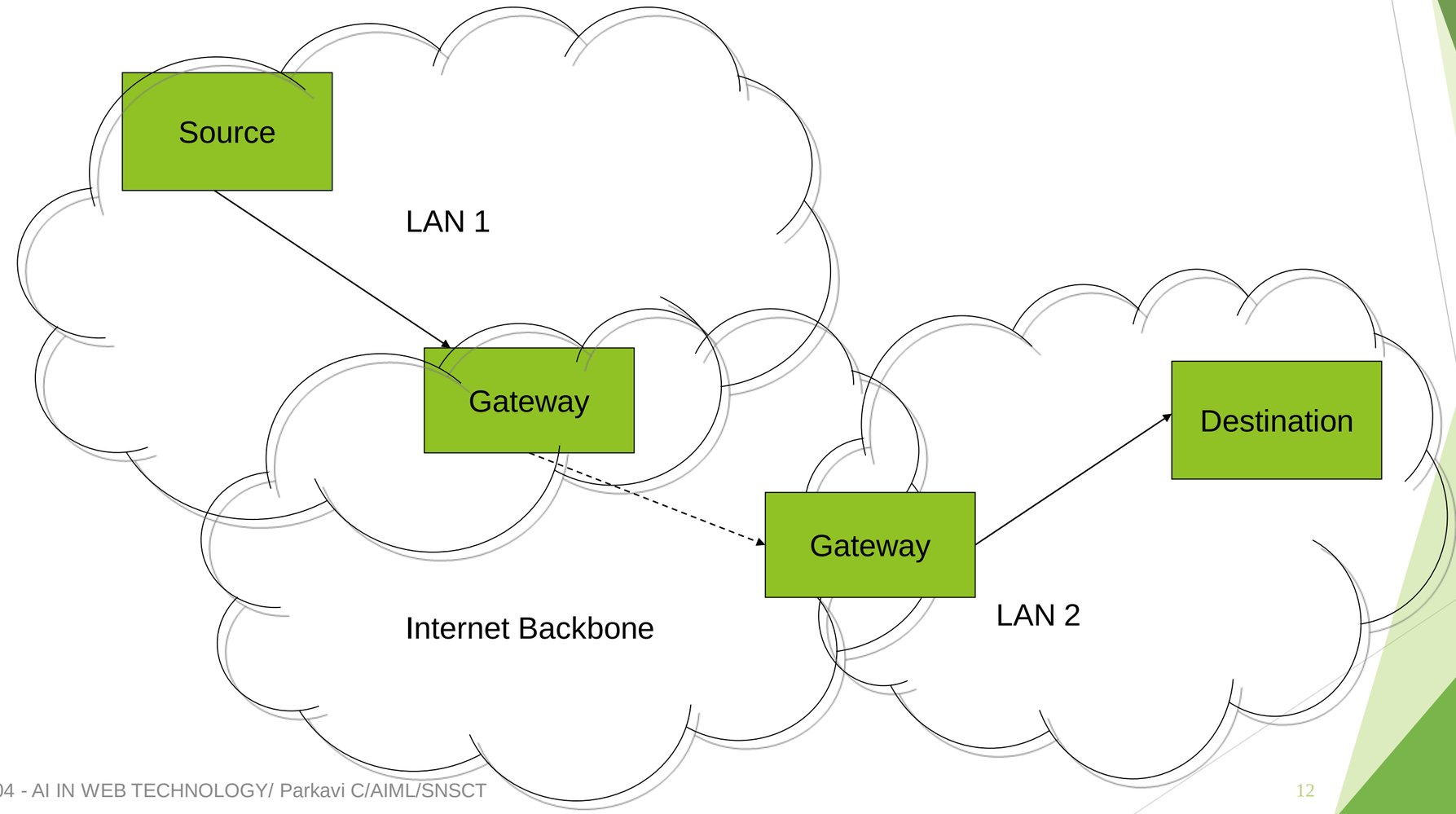
Destination
Gateway
Network 2
Network 3

IP


Source
LAN 1
Gateway
Destination
Gateway
Internet Backbone
LAN 2