

PROJECT

KOMUNIKASI DATA (WEEK 3)

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DATE

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CLIENT

JURUSAN SISTEM KOMPUTER (S1)

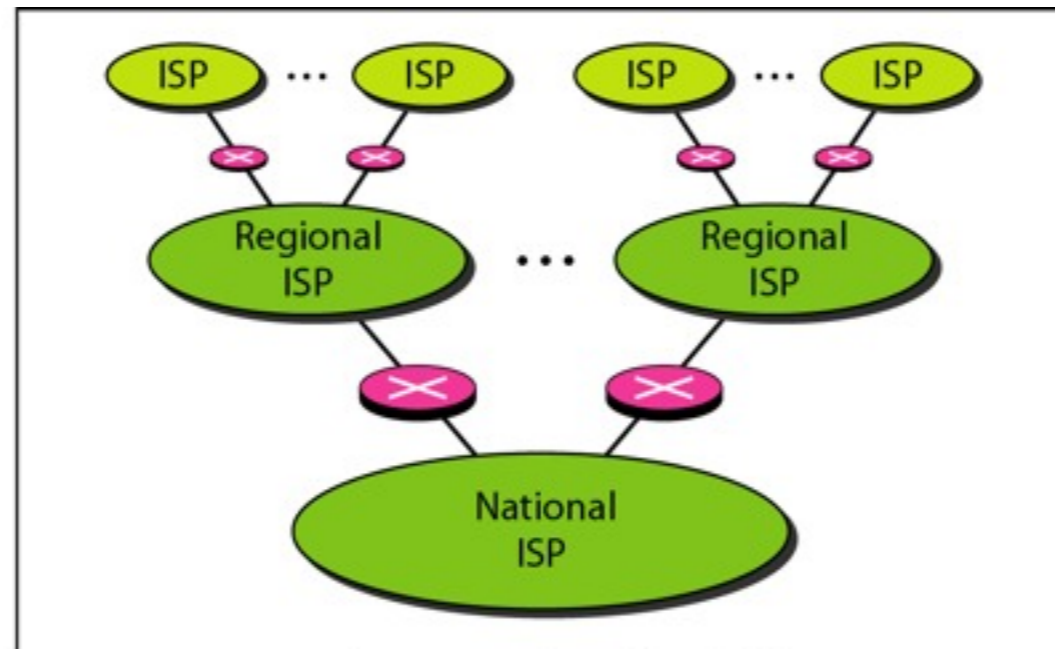
The Internet

- The Internet has revolutionized many aspects of our daily lives. It has affected the way we do business as well as the way we spend our leisure time. The Internet is a communication system that has brought a wealth of information to our fingertips and organized it for our use.

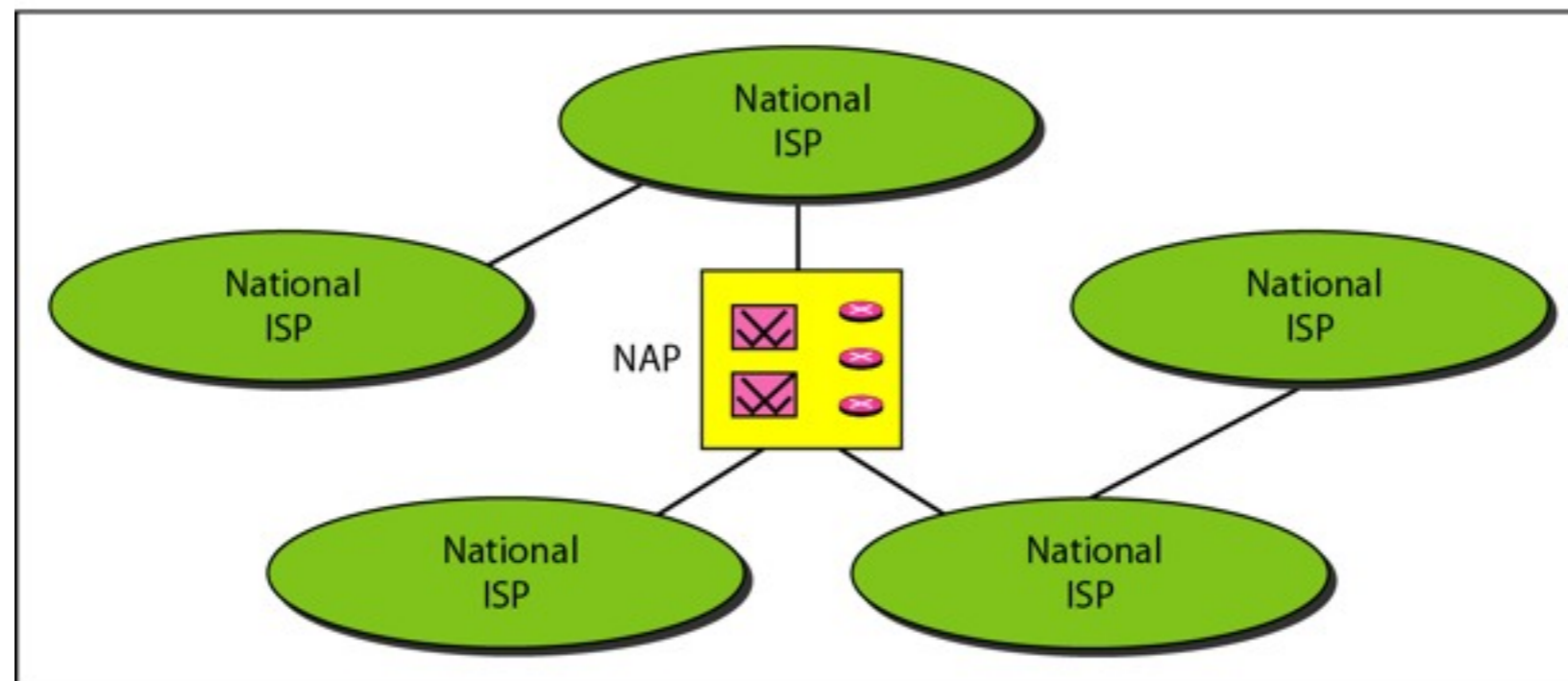
Topics that discuss in this section

- A Brief History
- The Internet Today (ISPs)

Hierarchical Organization of the Internet



a. Structure of a national ISP



b. Interconnection of national ISPs

Protocols and Standards

- In this section, we define two widely used terms: protocols and standards.
- First, we define protocol, which is synonymous with rule. Then we discuss standards, which are agreed-upon rules.

Agenda

- Protocols
- Standards
- Standards Organizations
- Internet Standards

Protocols

- In computer networks, communication occurs between entities in different systems.
- an entity is anything capable of sending or receiving information.
- However, two entities cannot simply send bit streams to each other and expect to be understood.
- For communication to occur, the entities must agree on a protocol.

Definition

- A protocol is a set of a rules that govern data communication
- A protocol defines what is communicated, how it is communicated, and when it is communicated
- The key element of a protocol are syntax, semantics and timing

- **Syntax**, refers to the structure or format of the data, meaning the order in which they are presented
 - for example, a simple protocol might expect the first 8 bits of data to be the address of the sender, the second 8 bits to be the address of the receiver, and the rest of the stream to be the message it self
- **Semantics**, refers to the meaning of each section of bits. How is a particular pattern to be interpreted, and what action is to be taken based on that interpretation
 - for example, does an address identify the route to be taken to the final destination of the message?
- **Timing**, refers to two characteristics: when data should be sent and how fast they can be sent
 - for example, if a sender produces data at 100 Mbps, but the receiver can process data at only 1 Mbps, the transmission will overload the receiver and some data will be lost

Standards

- Standard are essential in creating and maintaining an open and competitive market for equipment manufactures and in guaranteeing national and international interoperability of data and telecommunication technology and processes.
- Standards provide guidelines to manufacturers, vendors, government agencies, and other service provides to ensure the kind of interconnectivity necessary in today's marketplace and international communications

Standards

- Data communication standards fall into two categories: *de facto* (meaning “by fact” or “by convention”) and *de jure* (meaning “by law” or “by regulation”)
- De facto: standards that have not been approved by an organized body but have been adopted as standards through widespread use. De facto standards are often established originally by manufacturers who seek to define the functionality of a new product or technology
- De Jure: Those standards that have been legislated by an officially recognized body.

Standards Organizations

- Standards Creations Committees
 - ISO (International Standard Organization)
 - ITU-T (International Telecommunication Union - Telecommunication Standard Sectors)
 - ANSI (American National Standard Institute)
 - IEEE (Institute of Electrical and Electronics Engineers)
 - EIA (Electronics Industries Associations)