MANAGEMENT INFORMATION SYSTEMS 8/E

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Chapter 3

Using Information Technology to Engage in Electronic Commerce

Objectives :

- Realize that electronic commerce can encompass all of the firm's computer-based activities.
- Know what business intelligence is and how firms can use the computer to stay up to date on the elements in their environment.
- Be familiar with the concept of the interorganizational system (IOS).
- Know what electronic data interchange (EDI) is and the best way for a firm to approach implementation.
- Know what value-added networks are and why they appeal to business firms as they pursue electronic commerce.
- Have an introductory knowledge of the Internet and the World Wide Web, and how they are changing basic business processes.

Electronic Commerce

- Electronic commerce is the use of computers to facilitate the firm's operations
  - internal (finance, marketing, manufacturing, ...)
  - external (customers, suppliers, government, ...)

Environmental Responsibilities of Functional Areas

	Finance	Human Resources	Information Services	Manufacturing	Marketing
Customers	X				X
Suppliers			X	X	
Stockholders	X				
Labor Unions		X		X	
Government	X	X	X	X	X
Financial Community	X				
Global Community					
Competitors		X			X

Electronic Commerce Benefits

- Improved service, especially to customers
- Improved relationships to suppliers and the financial community
- Increased return on stockholder and owner investments

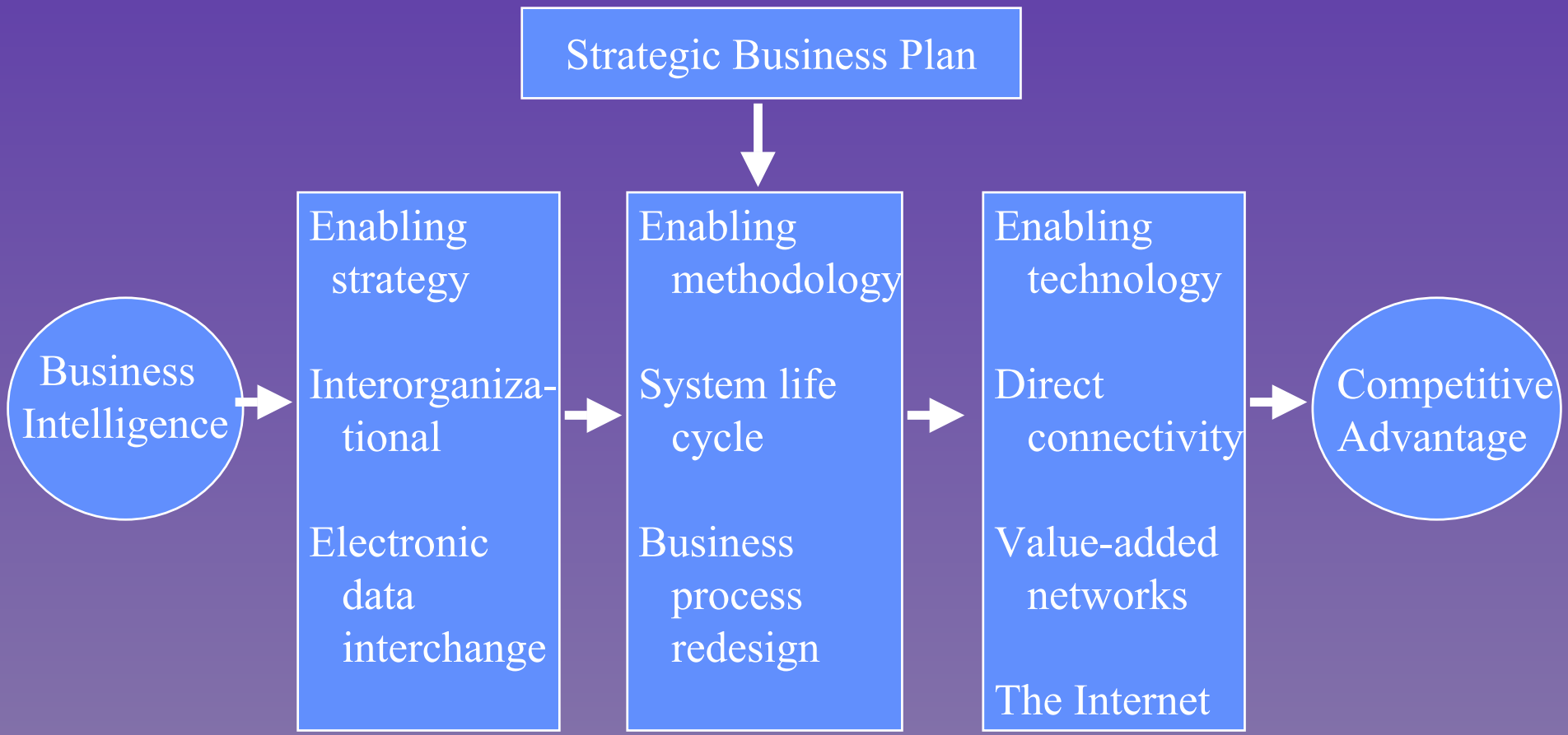
Electronic Commerce Constraints

- High costs
- Security concerns
- Immature or unavailable software

New Electronic Commerce Era

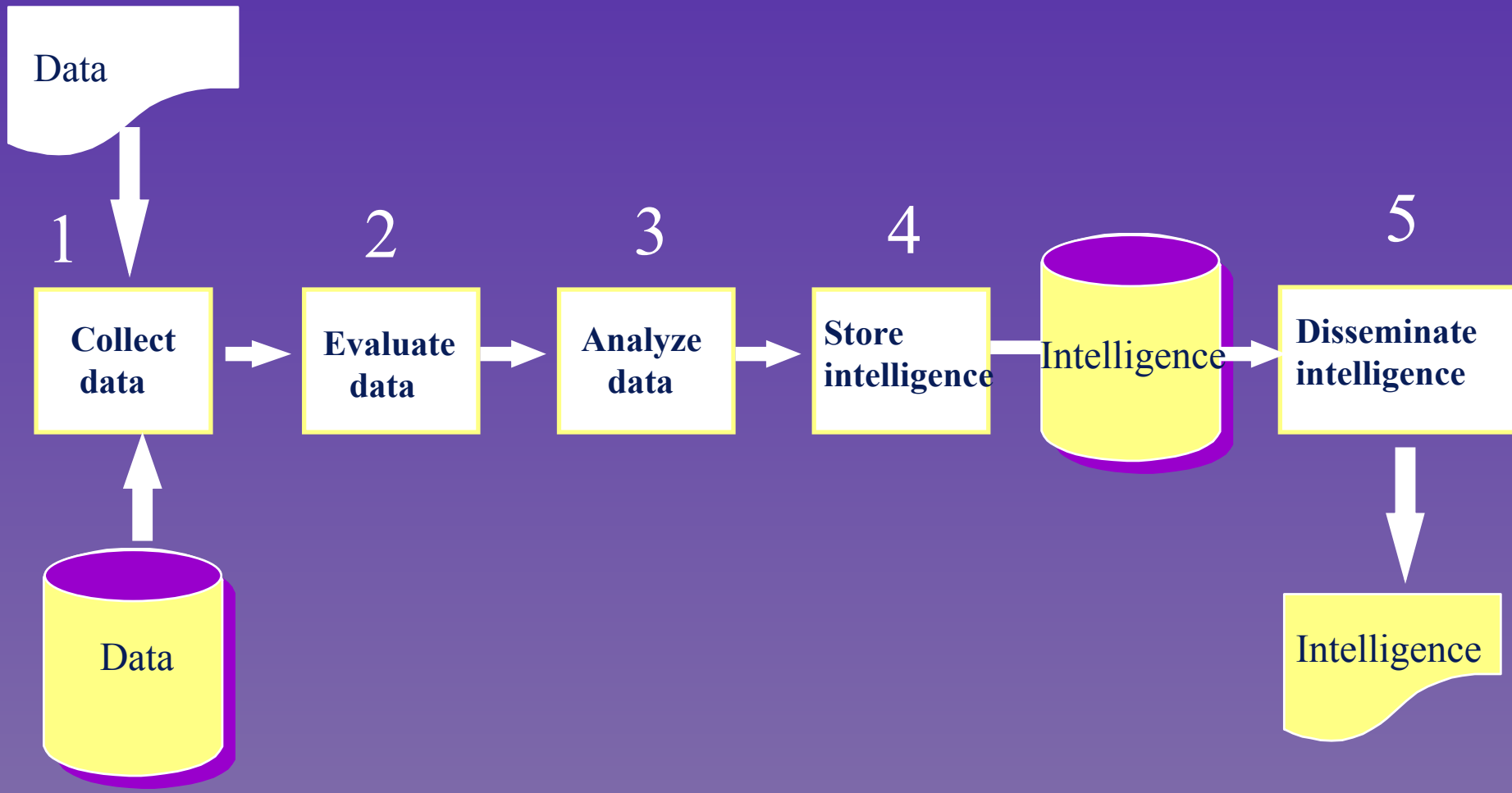
- Instead of specialized software, firms are designing systems to use Internet Browsers
- Making a common interface for customers and electronic commerce partners

Selection of Electronic Commerce Strategy, Methodology, and Technology



Business Intelligence (BI)

- Evolved from simply gathering data about competitors to data gathering about all environmental elements



The Five Basic Intelligence Tasks

External Databases

- Important commercial databases that provide information on virtually any subject
  - LEXIS-NEXIS, DIALOG, DOWJONES.COM
  - Over 1,000 data service sites listed by YAHOO.COM
- Less expensive to use database services than to perform research

Search Engines

- Special computer programs that ask users for a word or group of words to be found at Internet sites
- Yahoo, Excite, AltaVista, HotBot, Lycos, and Webcrawler are examples
- Government databases

Extranets

- Allow sharing of sensitive computer-based information using Internet technology
- Limited to trusted suppliers and large customers
- Security and privacy issues
  - Firewalls

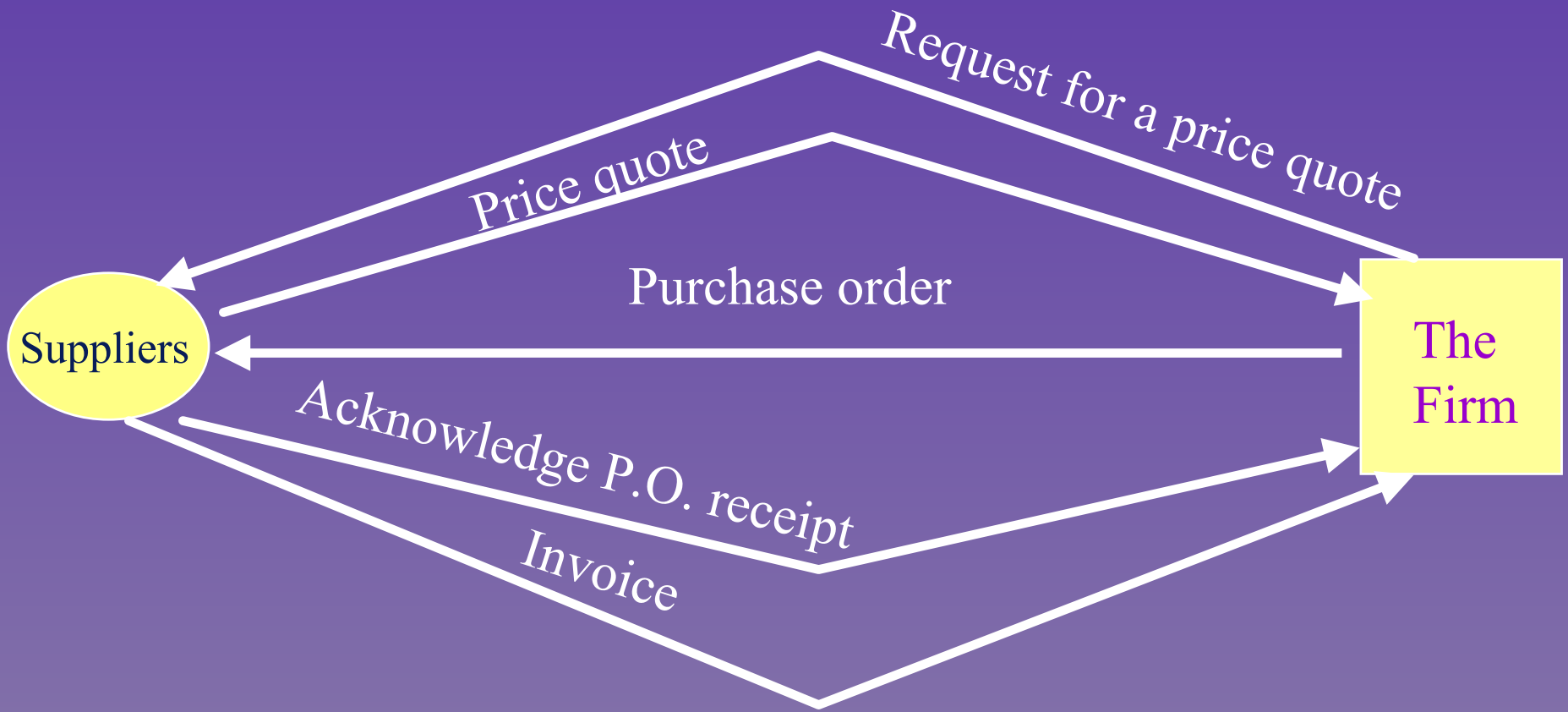
Interorganizational System (IOS)

- These link two or more firms so that they function as a single *system* to accomplish a common goal
- Generate internal efficiency in addition to interorganizational efficiency
- Provides customers with unique product features, reduced search-related costs, and raises the customer's switching costs

Electronic Data Interchange (EDI)

- Consists of direct computer-to-computer transmissions among multiple firms of data in a machine-readable, structured format
- Typical linkages
  - Supply side
  - Customer side
  - Transaction set
- Vendor stock replenishment (VSR)
- Electronic Funds Transfer (EFT)

Electronic Data Interchange (EDI) Adheres to Standard Formats



ANSI ASC X12 - North America

EDIFACT - International

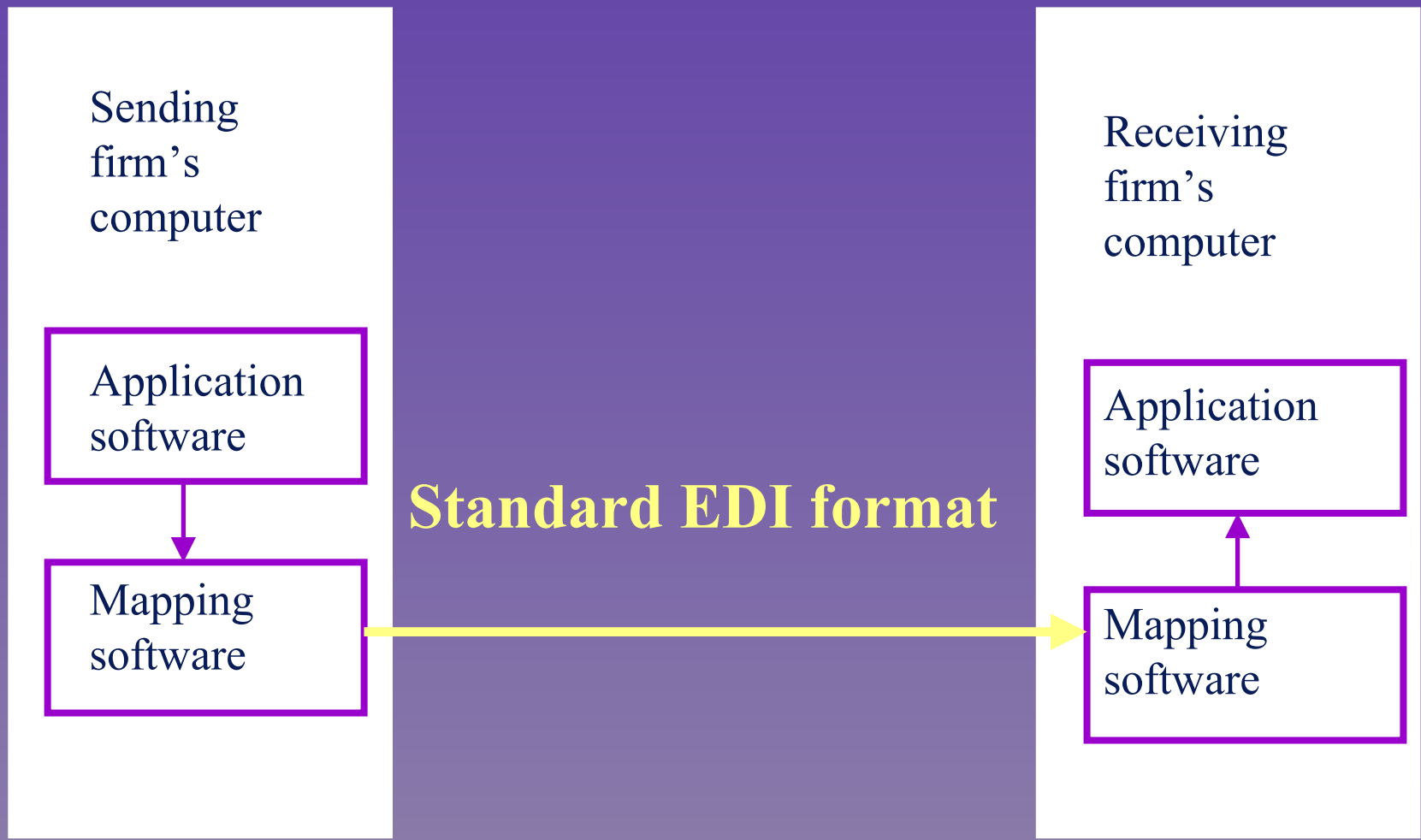
Selected EDI Transaction Sets and Sample Invoice Data

104 Air Shipment Information
152 Statistical Government Information
311 Canadian Customs Information

- Name
- Address Information
- Marking, Packaging, Loading
- Industry Code
- Quantity
- Currency
- Tax Information
- Pricing Information
- Item Physical Details
- Terms of Sale / Deferred Terms of Sale
- Carrier Detail
- Product / Item Description
- Invoice Shipment Summary
- Transaction Totals

130 Student Educational Record (Transcript)
300 (Booking Request) (Ocean)
810 Invoice

Mapping Software Translates Data to and from Standard Formats



Degree of EDI Implementation

- Level-one users
  - One or two transmission sets sent to limited trading partners
- Level-two users
  - Many transaction sets transmitted to large number of trading partners
- Level-three users
  - Many transaction sets transmitted to large number of trading partners and firm's computer applications are tailored to EDI approach

Adoption Influences

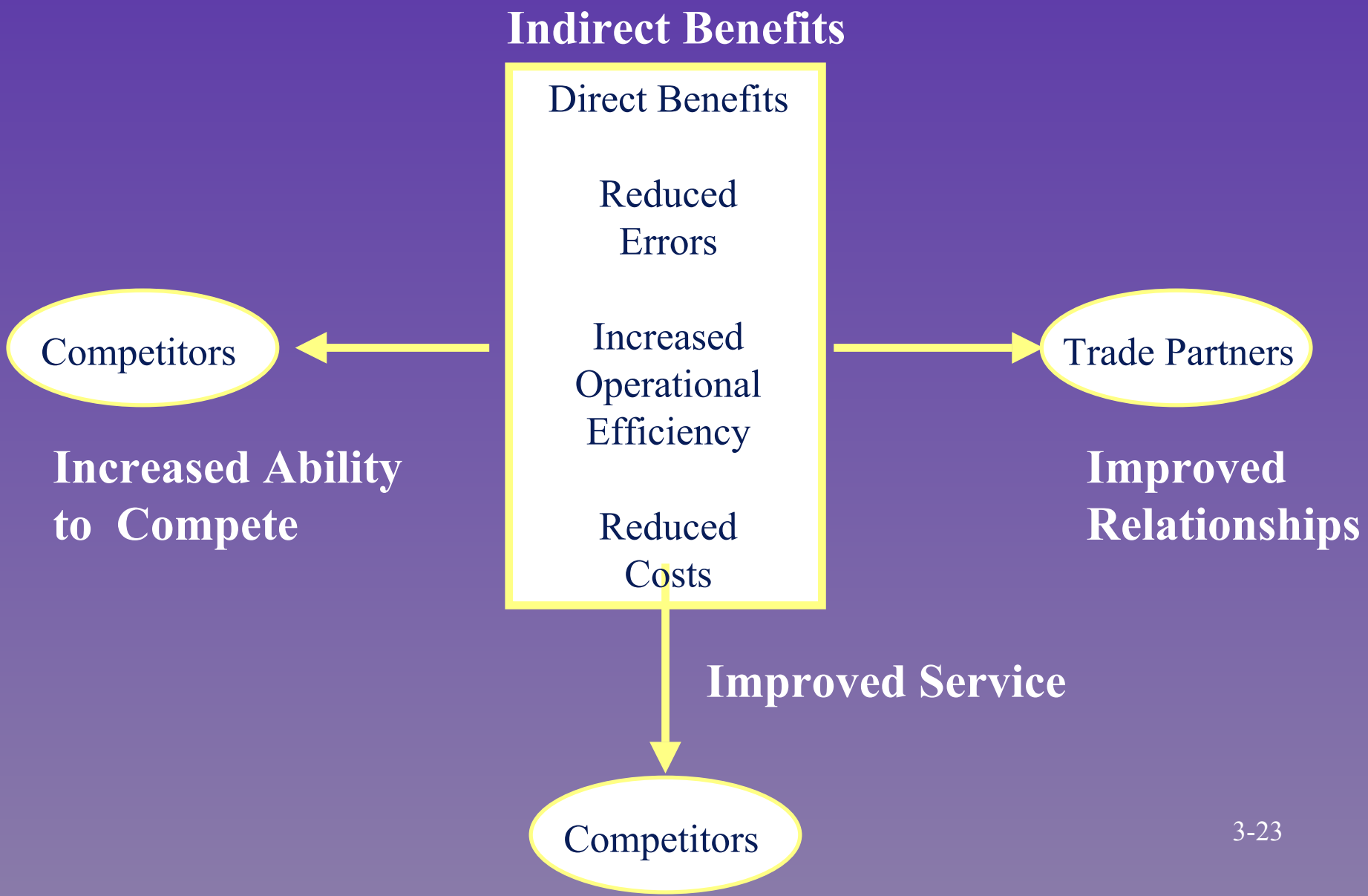
- Competitive pressure, *this is reactive*
- Exercised power, *this is proactive*
- Internal need, *this is proactive*
- Top management support, *this is both proactive and reactive*

Internal and Environmental Influences on EDI Adoption

EDI Benefits

- Direct
  - Reduced errors
  - Reduced costs
  - Increased operational efficiency
- Indirect
  - Increased ability to compete
  - Improved relationships with trading partners
  - Improved customer service

EDI Direct and Indirect Benefits



A Challenge to EDI

- Extensible markup language (XML)
  - Extension of HTML
  - Provides file formatting structure and means for describing data
  - Allows Web pages to perform many EDI functions

Electronic Commerce Technology

- Direct Connectivity
  - Uses dial-up or private lines to connect
- Value-Added Networks (VANs)
  - Circuit provided by vendor
  - Vendor provides additional services
- The Internet
  - Global communications network

Internet Evolution

- Derived from the Advanced Research Projects Agency network (ARPANET)
- Designed to let computer-to-computer communications continue even during military attacks
- ARPANET joined with Computer Science Network (CSNET) and National Science Foundation Network (NSFNET) to form today's Internet

Internet Evolution (cont.)

- During the 1970's various other networks were connected
- This led to the 1980's Internet concept which means each network can seamlessly interconnect with other networks
- Businesses began using the new Internet with workstations and local area networks
- The Internet has become a network of networks

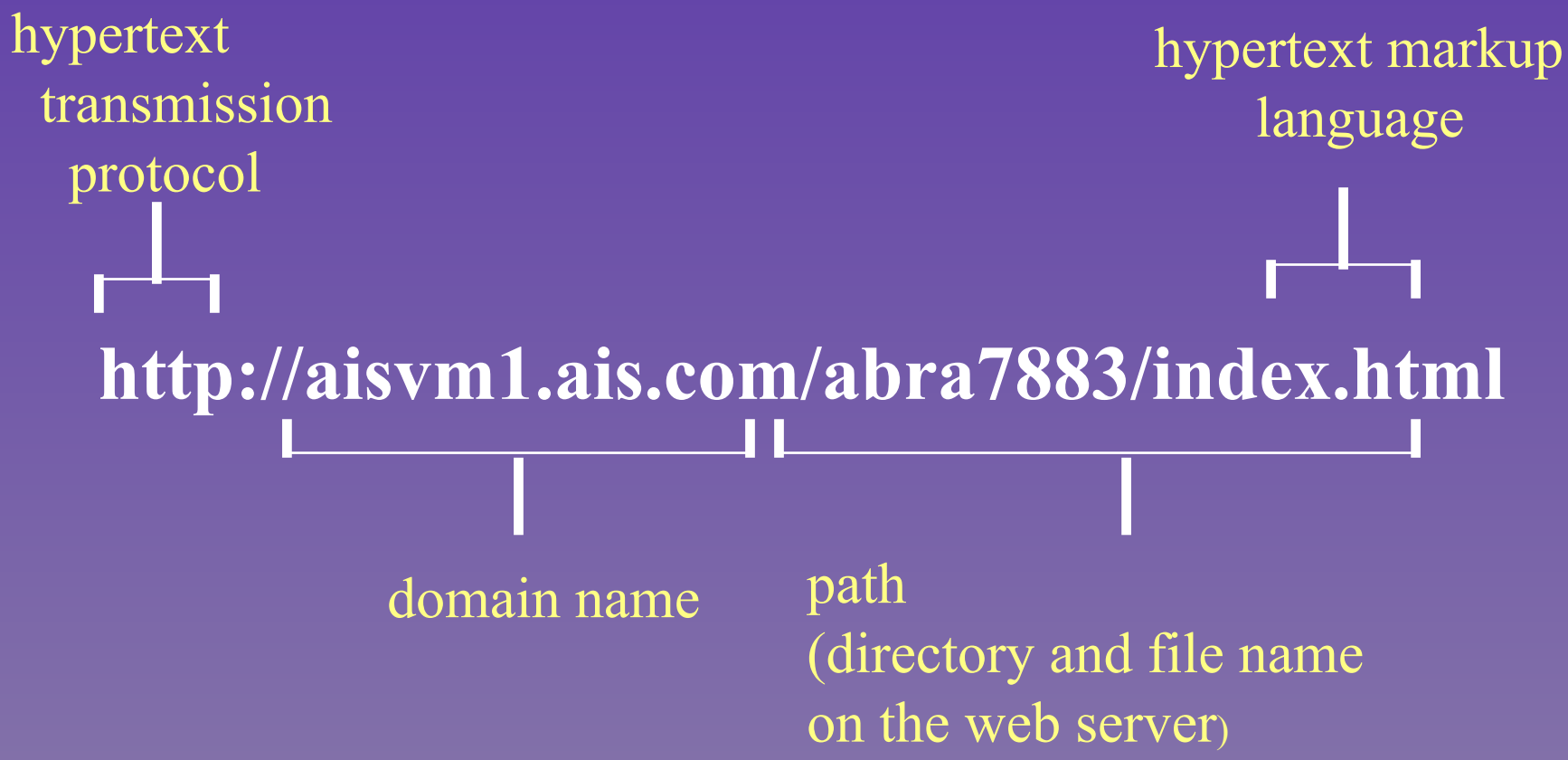
Internet Evolution (cont.)

- In 1989, Tim Berners-Lee of CERN came up with the hypertext concept
- World-Wide Web is really the application of hypertext documents and other materials
- Hypertext is conceptually a ‘speed dial’ feature in that a user points to and presses the hypertext link and the system automatically goes to that location

Key Web Terminology

- Website
- Hypertext link
- Web page
- Home page
- Universal resource locator (URL)
  - Protocol
  - Domain name
  - Path
- Browser
- FTP (File Transfer Protocol)

Parts of a URL

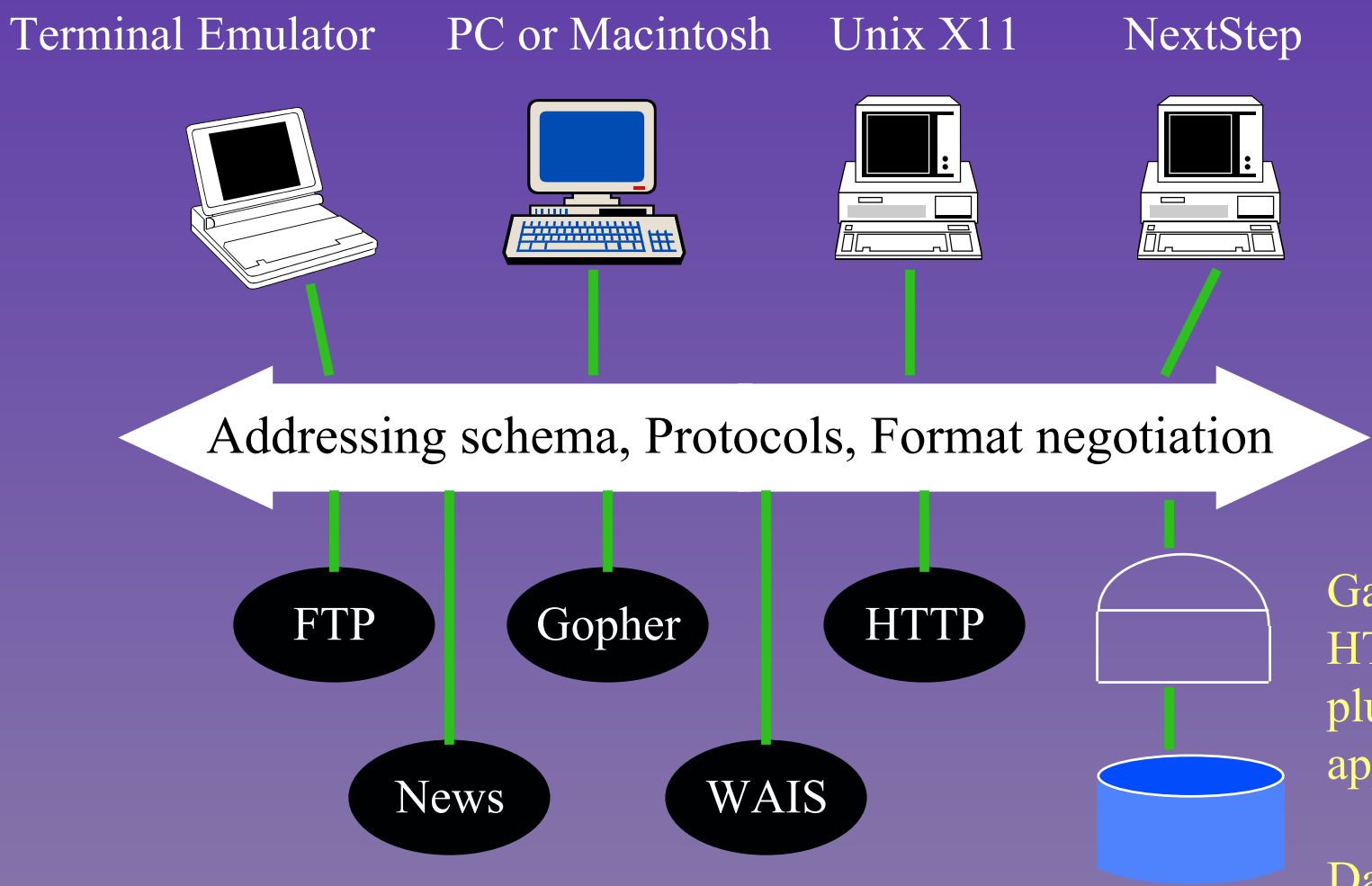


Internet Client/Server Information Retrieval Systems

- Gopher
- Wide Area Information Servers (WAIS)
- USENET

Each of these predates the WWW and represents a major step forward in Internet Use

Internet Client/Server Architecture



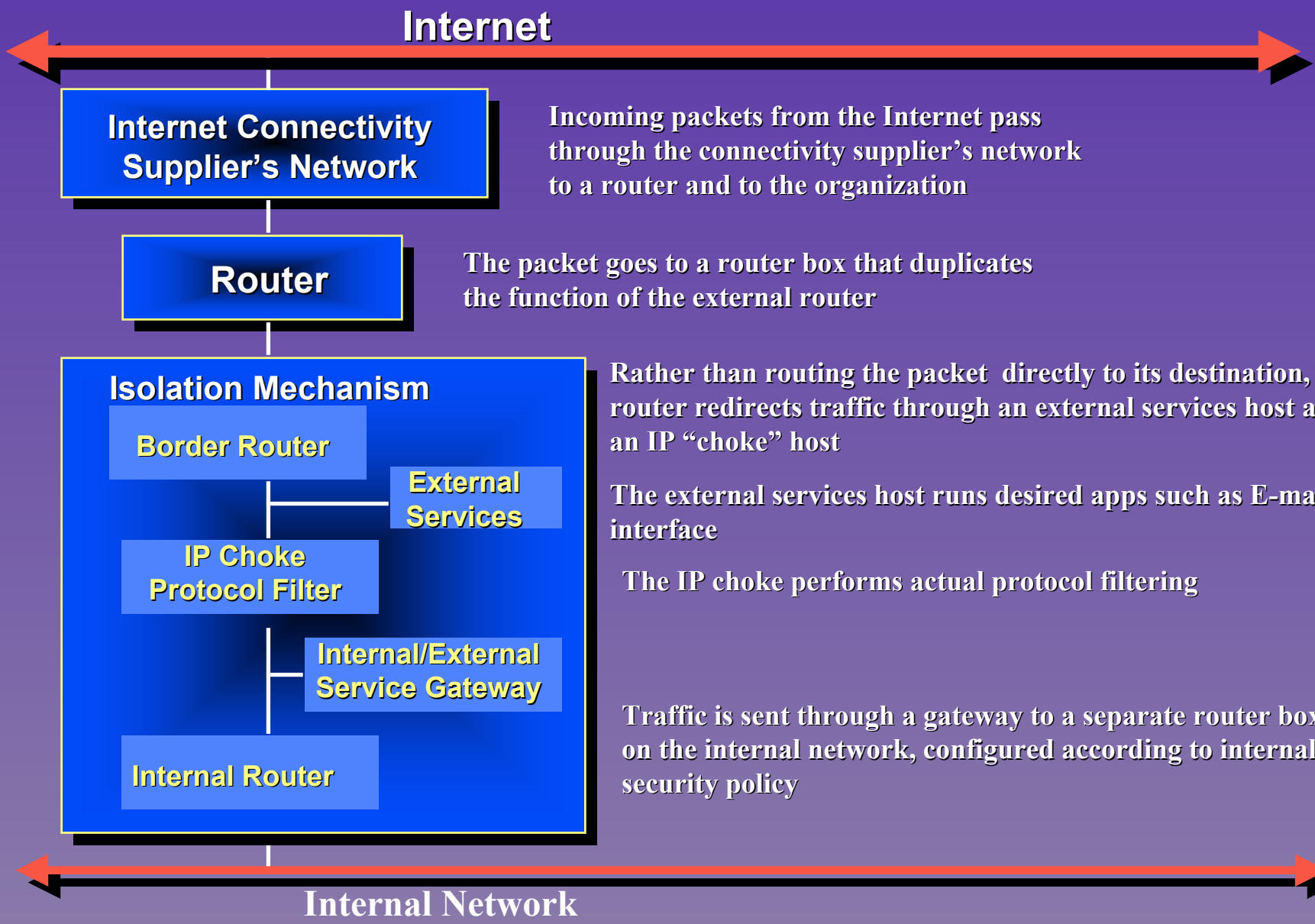
Gateway is HTTP server plus other application.

Database, info system, etc.

Internet Security

- Any resources linked to data communications have risk
- Security by physically separating the Web site from the firm's computer resources
- Security by using passwords that allow access to computing resources
- 'Firewalls' using routers, intermediary computers or application-level methods

An Application-Level Firewall



Incoming packets from the Internet pass through the connectivity supplier's network to a router and to the organization

The packet goes to a router box that duplicates the function of the external router

Rather than routing the packet directly to its destination, the router redirects traffic through an external services host and an IP "choke" host

The external services host runs desired apps such as E-mail interface

The IP choke performs actual protocol filtering

Traffic is sent through a gateway to a separate router box on the internal network, configured according to internal security policy

Intranet

- Internet technology used for internal communications and applications
- Used for many business applications requiring communication

Business Applications for the Internet

- Marketing research
- Competitive intelligence
- Retailing applications
- The future impact of the Internet on business is enhanced as the National Information Infrastructure programs become established

Successful Internet Use

- Make sure your Web site is robust
- Make sure your browser and database structure are both flexible and intuitive
- Update often
- Look beyond customers
- Target content to specific users' needs
- Make the interface intuitive
- Be in the right Web location
- Create a sense of community
- Get help if you need it

Summary

- E-Commerce begins with business intelligence
- Primary and secondary data comprise business intelligence
- Reasons for IOS
  - Comparative efficiency
  - Bargaining power
- Three levels of EDI

Summary [cont.]

- Internet
  - Network of networks
  - Security concerns
  - Firewalls
- Intranets
- National information infrastructure