



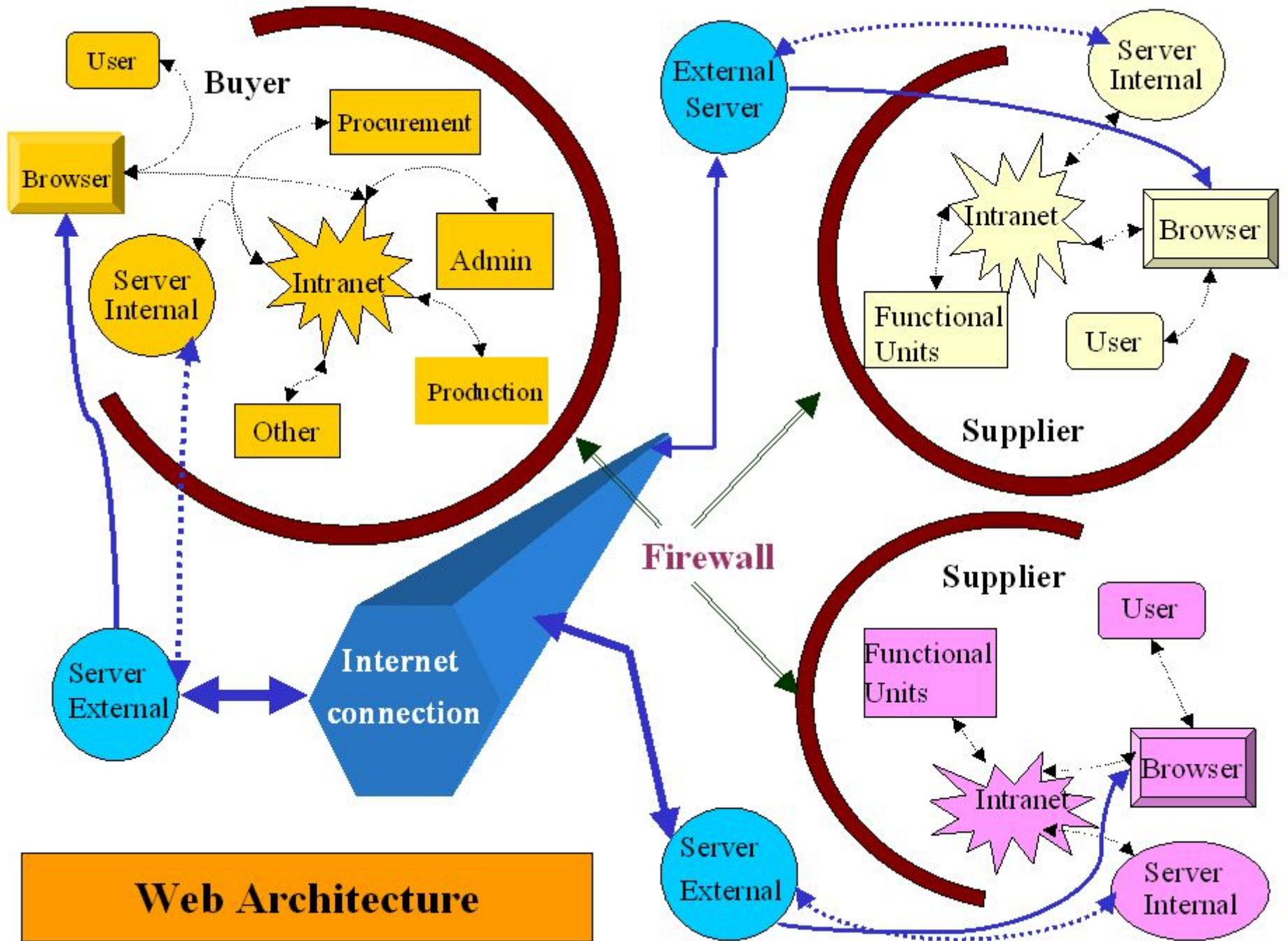
World Wide Web, Intranets and Extranets

Henry C. Co
Technology and Operations Management,
California Polytechnic and State University

CERN

- In 1990, Tim Berners-Lee of CERN (the European Laboratory for Particle Physics) developed the World-Wide Web (www) and several communication protocols that form the backbone of the web.
- The www allows computer users to locate and view multimedia-based documents (i.e., documents with text, graphics, animations, audios and/or videos) on almost any subject.



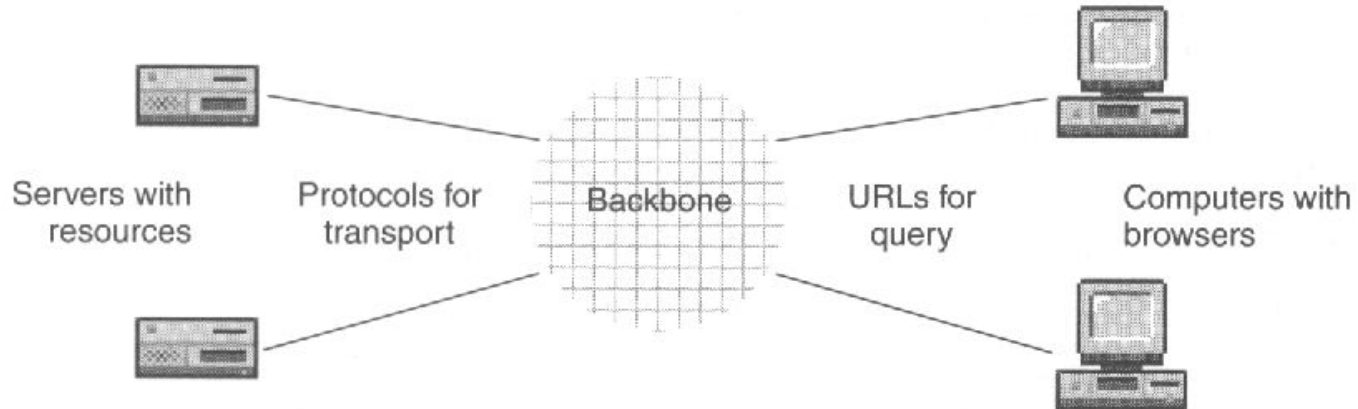


The World-Wide Web

- Not the Internet
 - WWW is one of many services on the internet.
 - WWW can be considered to be a user-friendly interface to information on the internet.
- Enabled by a standard: HTML... and VRML, Java, PDF, ...
- Uses URL (Uniform Resource Locators): a unified address scheme that allows information to be exchanged using a variety of exchange techniques:
 - Hypertext: <http://www.whitehouse.gov/>
The white house
 - FTP: <ftp://ftp.iicm.edu/pub/Vrweb>
to access virtual library at Graz University of Technology in Austria
 - Telnet: <telnet://fedix.fie.com:23/>
to access the Federal Information Exchange



Uniform Resource Locator



- URL identifies a specific resource on a server in a domain
- URL tells what protocol to use to access the resource
- URL format:

http://www.csupomona.edu/~hco

how://where/what



Other URL Protocols

- https: secure, encrypted HTTP
- ftp: file transfer protocol
- mailto: email
- telnet: remote login
- news: obtain Usenet news
- irc: Internet Relay Chat
- finger: obtain information about a user
- gopher: indexes of text files
- archie: ftp databases



Browser

- Implements HTTP (HyperText Transfer Protocol)
 - Displays web pages
 - Access authentication
 - Caching, freshness control
- Font mapping, e.g. Unicode
<http://www.unicode.org/iuc/iuc10/x-utf8.html>
- Compression, decompression
- Handles multimedia, manages plug-ins
- Interprets scripts
- Executes Java applets
- Maintains cache, history
- Manipulates cookies



Effects of the Internet

- The effects of the Internet are entirely produced by the electronic transmission of information ... and how that information may be used.
 - Marketing and public relations
 - Cost containment
 - Entertainment
- ... and how that information may be found.
 - Information Retrieval
 - Distributed information



-
- ... and how that information may be shared or exchanged.
 - Electronic Commerce
 - Collaboration – outsourcing
 - Coordination – Electronic Data Interchange(EDI)
 - Groupware
 - ... and how that information may affect our lives
 - Political/social/economic issues – e.g., privacy
 - Corporate structure
 - Government/industry policy
 - The global village and virtual communities
 - “Anything, anytime, anywhere...”





Intranet and Extranet

TCP/IP Network

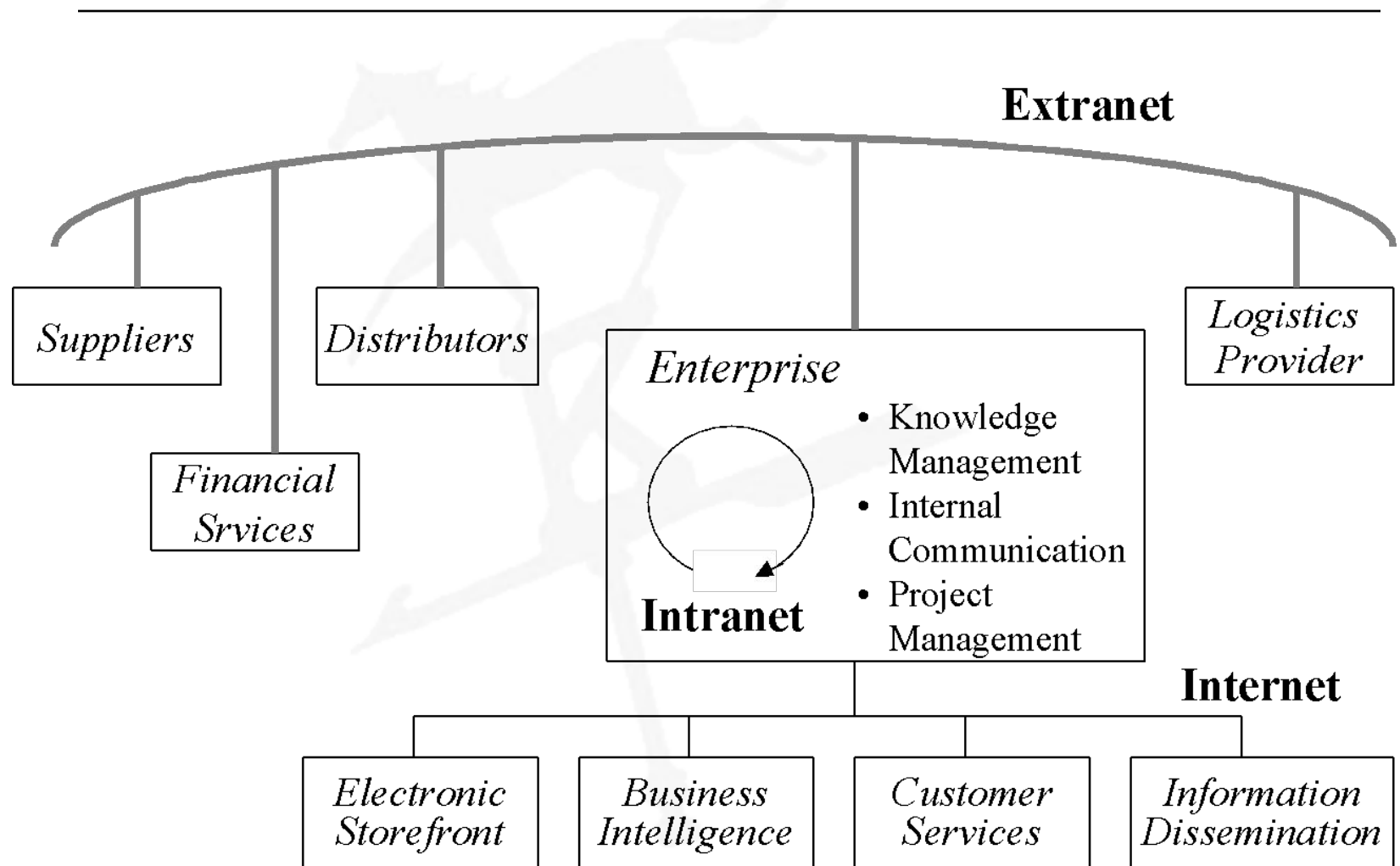
- Intranet

- A private TCP/IP network, often found in corporations. Typically protected from the Internet by a firewall.

- Extranet:

- A network connecting an organization with its trading partners, suppliers, and customers.
 - Extranet provides an exterior boundary that protects the organizations from the open network, while providing low security boundaries for greater sharing of information among the partners.





Intranet applications

- Technology-driven marketing
- Logistics and supply chain management
- Finance and accounting
- Human resources
- Decision support/workflow management



Benefits and Drawbacks

○ Benefits

- Publishing ease
- Cost
- Ease of use
- Low maintenance
- Scalability
- Easy software distribution

○ Drawbacks

- Collaborative applications for Intranets are not as powerful as those offered by traditional groupware.
- Short-term risk.
- Less back-end integration.

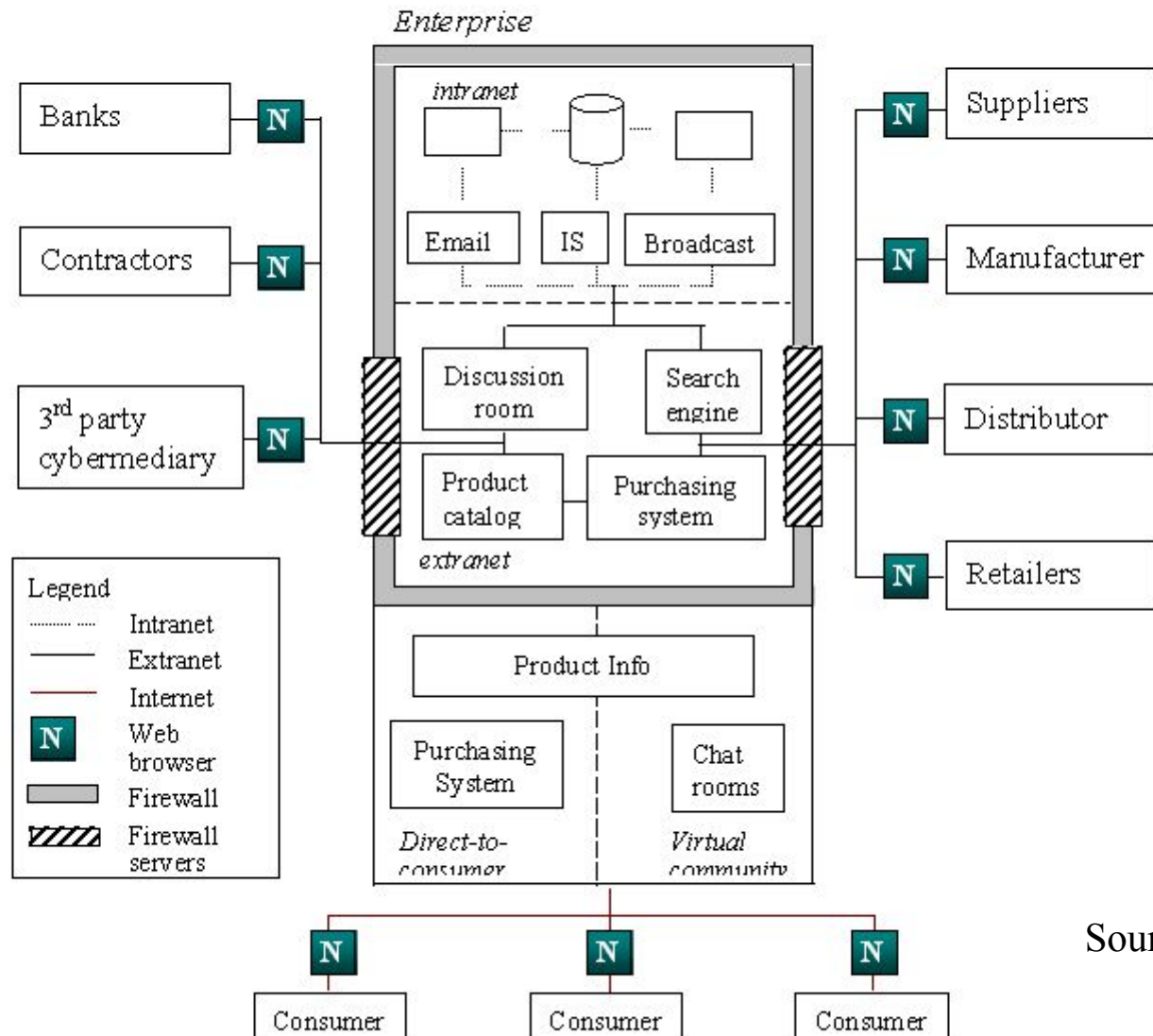


Why Extranet?

- Leverage existing investment in technology since most companies already have their documents online and Internet access.
- Extranet applications developed to Internet standards are virtually guaranteed to work with Web browsers
- Extranet applications can be customized to individual partners. Furthermore, the applications are accessible on a 24-hour basis, improving customer satisfaction.
- Issues:
 - Security and access privileges
 - Web site management and maintenance



Extranet Architecture



Source: (Shaw)

Extranet Components

- Extranet servers—house the tools required for a Web presence, including:
 - Security and access control
 - Transaction management
 - Site operations
 - Extensible and scalable architecture
 - Site operations and hosting
 - Multiple platform compatibility
- Extranet applications—business applications that allow people to communicate, exchange files, purchase goods or services, conduct info searches, monitor business details, etc.
- Interface layers—bridges between system software and graphical user presentation .



Extranet-enabled Strategies

- Information sharing
 - improving coordination between business activities.
- Content providers
 - allowing strategic partner-suppliers to provide up-to-date content.
- Revenue generator
 - offering new online products and services.
- Improved customer service
 - providing customers with useful production information and tips.
 - personalizing customer service through consumer profiles
- New sales and distribution medium
 - providing customizable, direct-consumer-sales.
 - immediate delivery of digitizable products.



Extranet

- Goal: Allowing business partners to access an enterprise's information system and databases via the Internet network. Although current
- Issues:
 - Security and privacy—Setting up proper protocols to prevent illegal access and ensuring the privacy of sensitive data transmission.
 - Management—Need someone to manage and maintain the extranet⇒3rd party brokers
- Benefits:
 - A low-cost solution for enabling enterprises to be linked together without the heavy investment to build explicit networks.
 - Allows enterprises to build expandable and dynamic IS networks that match current business partners.
 - Allows cross-industry SCNs.
- Drawback: The technology is still primitive, does not fully support supply chain process integration.
- Current applications: Mainly used for procurement transactions.



Virtual Private Network

- VPN connects a company's LAN to those of its suppliers and to its mobile employees
- The network runs over the Internet and is therefore cost-effective
- Encryption is used for security
- VPN software at the server and the client end provide controlled access to resources



Virtual Private Network

