

Lecture 7

Technology, Internet



LECTURE 7 * What 3 things must be present for communication to occur? * Transmission media, data transmission, cooperation * Define Bandwidth * Amount of data can be transferred from one point to another in a certain time * Define attenuation * Loss of power in a signal as it travels from sending device to receiving device * What is a protocol and why is it important in electronic communication? * Rules governing data communication including error detection, message length, speed * What is the difference between a switch and a router? * Modem — Modulator Demodulator. Connects user to internet. Not required for wifi * Switch — main linking device within a network * Distinguish between main two types of conducted media (wired media) * Electrical Conductors — Twisted pair cable consists of two copper lines twisted around each other — Coaxial cables used for long-distance telephone transmissions and local area networks * Light Conductors — Fiber-optic cables are glass tubes surrounded by concentric layers of glass to form a light path through wire cables * Distinguish between centralized data processing, decentralized data processing and distributed * Centralized — Processing done at one central computer. Can exercise tight control on system operations and apps. Can be lacking responsiveness. Not common * Decentralized — Each user/department has own computer for processing. More responsive to users. Lacks coordination/high cost/duplicates efforts * Distributed — Centralized control and decentralized operations. More compatible, more features, more responsive. Dependence on communication. Incompatibility between equipment. More challenging management. * Examples of WAN, MAN, LAN * WAN — Wide area network. Spans several cities/states/countries.

* MAN — Metropolitan area network. Comm for multiple organizations in a city. * LAN — Local area network Connects hosts that are in close proximity. * If network topology is star/ring/bus/hierarchy or mesh network * Represents networks physical layout * Star — Central computer with a series of nodes * Ring — Each computer manages its own connectivity. Each node connected to two other nodes * Bus — Connected nodes along network segment. Ends of cable aren't connected * Hierarchical — Combines computers with different processing strengths in different organizational levels * Mesh — Every node is connected to every other node * What is packet switching? Advantages / disadvantages * Slicing digital messages into packets, sending along different comm paths as available, reassembles at destination. * Advantage — Adaptive routing for efficient line usage. Don't need same data rates. Can be prioritized. * Disadvantage — Delay due to multiple node decision points, variable delays cause jitter, extra overhead * Two main protocols from basis of the industry standard suite of comm protocols? * TCP/IP — standard. Enables internet communication. TCP — transmission control protocol. IP — Internet protocol. * Client/Server Computing — Powerful clients (PC) connected to network with one or more server computers performing common function. Presentation, application, data mgmt. * Explain convergence in data communication. * Integrating voice, video, data so multimedia information can be used for decision making. It required network upgrades. Common apps- ecommerce, entertainment, conferencing. LECTURE 8 — INTER/INTRA/EXTRA NETS * Identify 3 phases of internet evolution, approximate year of transition from one to next * Innovation Phase (1961-1974) * Institutionalization (1974-1995) *

Commercialization (1995-Present) * Who is credited with inventing the WWW
* Tim Berners-Lee * Differences between domain name/IP address/ URL *
Domain name — identifiers of network addresses on internet expressed in
natural lang. * IP address — Assigned by internet corporation for Assigned
Names and Numbers (ICANN) * URL — Uniform resource locators. Addresses
used by browsers to identify location of web page. * Two types of top level
domains * Organizational (Generic) (. com, . edu, . int, . gov, . net, . org) *
Geographic (country code) * Difference between HTML / XML * HTML —
Hypertext markup language. Easy to use, fixed set of markup tags. * XML —
eXtensible Markup language. Describe data/information. Tags defined by
user. * HTTP protocol associated with what application? * Hyper Text
Transfer Protocol — Resources on Web * SMTP protocol associated with what
application? * E-Mail, instant messaging, internet telephone * Difference
between directory and search engine. * Directory — organize information
into categories. Based on keywords in documents. * Search engine — Look
up information and resources on internet. Enable users to retrieve data from
web by searching for terms. * Explain how google works, innovation of
google instant search * Runs over 1 million servers globally. Processes over
1billion search requests, 24 petabytes every day. * Instant — Refined in real
time. Reduces search time from 9 sec to 4 sec. Delivers more ads * Zillow.
com? * Real estate portal * Web 2. 0? Main applications associated? * Web
applications more interactive than traditional web apps. SOCIAL
NETWORKING. * Web 3. 0? * Semantic web. Provides context for searching
online information. Focuses on intelligent web apps using various apps of
artificial intelligent technologies * Intranet? * Network within organization

uses internet protocols and technologies for internal use. * Extranet? DMZ? * Extranet — uses internet and web tech to connect intranets to business partners. Supply chain systems. * DMZ — demilitarized zone, area of network that's separate from the organizations LAN. Between intra and extra. * Interorganizational system? Types of IOS? * IOS — Electronic funds transfer (EFT). Electronic data interchange (EDI). XML. Radio frequency identification (RFID) LECTURE 9 — E-COMMERCE * Network externalities? Identify when important in e-commerce. Other names for this? Difference between positive and negative externality? * * Distinguish e-business and e-commerce * E-business — Activities companies perform for selling and buying products/services, using computers and communication technologies * E-commerce — Buying and selling goods and services over the internet * 4 supporting activities and 5 primary activities of Porter's Value Chain? * * Discuss 3 advantages and disadvantages of e-commerce compared to traditional commerce * Improved customer service * Increasing flexibility, customer involvement * More information * Around the clock operations * Better relationships * DISADVANTAGES — Bandwidth capacity problems, security, accessibility, acceptance * Different e-commerce revenue models discussed in class/text * Merchant Model — Selling products * Brokerage Model — Collecting transaction fee * Advertising Model — * Informediary Model — Sell user information * Subscription Model — * Affiliate Model - * Current trends in online retailing * Emphasis on better shopping experience * Selection of goods online increases * Multi-channel integration? 2 examples * Online order w/ in-store pickup. * Web promotions * In-store kiosk or clerk web order * Difference between B2C and B2B e-commerce and which is

larger * B2C * Companies sell to consumers. * B2B * 10x larger than B2C. * Fastest growing segment. * Partners use intranets/extranets, EDI, EFT * Lowers production costs and improves accuracy * 4 major B2B e-commerce models * Seller — sellers to markets jointly create common marketplace * Buyer — buyer/group of buyers opens electronic marketplace * Intermediary (third party) — revenue from fees for matching buyers/sellers * Trading partner agreements — automate negotiation process/enforce contracts (XML) * M-Commerce * Mobile commerce * Based on wireless application protocol. Using smart phones/PDA's * Explain how 2 different e-payment systems work * Electronic payment * Exchanged only electronically * Smart Cards * Credit card sized, contains embedded chip storing important financial info * Search Engine Optimization * Method for improving volume or quality of traffic to web site

LECTURE 10 — GLOBAL INFORMATION SYSTEMS

* Why companies have strong emphasis on going global, why info systems need to be global systems * A demand for integrated global services is created * Trends in global adoption of internet * Africa: quadrupled from 2007, with annual growth over 60% * Middle East: tripled, annual growth 35% * Latin America: doubled, annual growth 25% * End of 2013, Asia will have half of all internet users * How global IS influence organizations approach to organizational control and coordination * Control requires: * Centralized architecture for data * Standard formats * Defined behaviors * Coordination requires: * Decentralized architecture * Ability to communicate standards to/from departments * Collaboration system * Key issues must be considered when developing global IS * Prerequisites for successful GIS — understanding laws, tech issues, business needs * Organizational issues *

Economic Issues * Technical issues * 4 common types of global organizations. Each, identify important characteristics of their IS needs. *

- * Multinational — Production, sales, marketing decentralized
- * Global — Highly centralized information system
- * International — Operates like multinational, but subsidiaries depend on headquarters for processes and production decisions
- * Transnational — Parent and subsidiaries work together in designing policies, procedures, logistics

* IT outsourcing and rationale for doing outsourcing. What is offshoring? *

- * Offshoring — Alternative for developing information systems

* Key obstacles for developing global IS? *

- * Lack of standardization
- * Diverse regulatory practices
- * Cultural differences
- * Poor telecommunication infrastructures
- * Lack of skilled analysts and programmers