Chapter 9
Web Hosting and E-Business Software
Learning Objectives

In this chapter, you will learn:

• How to find and evaluate Web-hosting services
• What the basic and advanced functions of electronic commerce software are and how they work
• How the size of a business affects its choice of electronic commerce software
• Which electronic commerce software works well for midsize to large businesses
Learning Objectives (cont’d.)

• Which electronic commerce software works well for larger businesses that have an existing information technology infrastructure

• How electronic commerce software works with other software to perform business functions
Web Hosting Alternatives

- **Self-hosting**
  - Running servers in-house
  - Most often used by large companies
- **Third-party Web-hosting service providers**
  - Offer Web services, electronic commerce functions
  - Often used by midsize, smaller companies
- **Commerce service providers (CSPs)**
  - Provide Internet access and Web-hosting services
  - Help companies conduct electronic commerce
Web Hosting Alternatives (cont’d.)

• Commerce service providers (cont’d.)
  – Offer Web server management and rent application software
  – Managed service providers (MSPs)
  – Application service providers (ASPs)

• Service provider hosting arrangements
  – Shared hosting
    • Client's Web site on a server hosting other Web sites simultaneously
    • Operated by the service provider at its location
Web Hosting Alternatives (cont’d.)

• Service provider hosting arrangements (cont’d.)
  – **Dedicated hosting**
    • Client Web server not shared with other clients
  – Service provider responsibilities
    • Owns server hardware, leases hardware to client
    • Maintains Web server hardware, software
    • Provides Internet connection
Web Hosting Alternatives (cont’d.)

• Service provider hosting arrangements (cont’d.)
  – Co-location (collocation or colocation) service
    • Service provider rents physical space to client
    • Provides reliable power supply, Internet connection
    • Clients install server hardware and software; maintain server
Web Hosting Alternatives (cont’d.)

• Web server-hosting decisions
  – Ensure hardware platform and software combination:
    • Upgradable when site’s Web traffic increases
  – Web server requirements
    • Directly related to site electronic commerce transaction volume and Web traffic
  – **Scalable** hardware and software combinations
    • Adaptable to meet changing requirements when clients needs grow
Basic Functions of Electronic Commerce Software

• Software and hardware products for building sites
  – Externally hosted stores with software tools
  – Sophisticated electronic commerce software suites

• Electronic commerce software needs determined by:
  – Expected enterprise size
  – Projected traffic and sales
  – Budget
  • Consider online store creation costs versus brick and mortar costs
Basic Functions of Electronic Commerce Software (cont’d.)

• External or in-house hosting considerations
  – Skilled staff
  – Adequate bandwidth

• All electronic commerce solutions must provide:
  – Catalog display
  – Shopping cart capabilities
  – Transaction processing

• Larger complex sites may include:
  – Software adding features and capabilities to basic commerce tool set
Catalog Display Software

- Catalog organizes goods and services being sold
  - May organize by logical departments
  - Web store advantage
    - Single product may appear in multiple categories
- **Catalog**: listing of goods and services
- **Static catalog**: simple list written in HTML
Catalog Display Software (cont’d.)

• **Dynamic catalog**
  – Stores item information in a database providing:
    • Multiple photos of each item
    • Detailed descriptions
    • Search tool for locating item and determining availability

• **Static and dynamic catalogs:**
  – Located in third tier of Web site architecture
FIGURE 9-1 Small electronic commerce site
Catalog Display Software (cont’d.)

• Large, well-known electronic commerce sites
  – Require sophisticated navigation and organization
  – Use dynamic catalog aides and tools

• Small online stores
  – Require simple products or categories list
  – Item organization not important
  – Can provide item photos with links
  – Use a static catalog

• Rule of all commerce: Never stand in the way of a customer who wants to buy something.
Shopping Cart Software

• Electronic commerce early days
  – Used forms-based shopping
    • Shoppers selected items by filling out online forms
    • Awkward if ordering more than one or two items
    • Cumbersome and error prone
**Gary’s Music Store Order Form**

**To Order:** Please complete order form and click the **Submit Order** button at the bottom of this page.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>429681</td>
<td>Easy Piano Series #5</td>
<td>3</td>
</tr>
<tr>
<td>788412</td>
<td>Intermediate Drum Drills</td>
<td>5</td>
</tr>
<tr>
<td>691127</td>
<td>Clarinet Reeds #2 Dz Box</td>
<td>2</td>
</tr>
</tbody>
</table>

**Shipping Address:**

- **Name:** James T. Toadvine
- **Shipping Address:** 9227 Mt. Helix Road
- **City:** West Lafayette
- **State:** IN
- **Zip:** 47906
- **Phone Number:** 574-555-2110
- **E-mail Address:** toadvine999@yahoo.com

**Billing Address:**

- **Check if same as shipping address**
- **Name**
- **Mailing Address**
- **City**
- **State**
- **Phone**
- **Zip**
- **E-mail**

**FIGURE 9-2** Using a form to enter an order
Shopping Cart Software (cont’d.)

• Electronic shopping carts
  – Now the standard method for processing sales
  – Keep track of items customer selected
  – May view cart contents, add items, remove items
  – Ordering requires a simple click
    • Item details stored automatically in cart
  – Button click executes the purchase transaction
    • Screen asks for billing and shipping information

• Shopping cart software
  – BigCommerce, SalesCart, Volusion
FIGURE 9-3 Typical shopping cart page
FIGURE 9-4 SalesCart shopping cart software page
Shopping Cart Software (cont’d.)

• Web: stateless system
  – Unable to remember anything from one transmission or session to another

• To retrieve shopping cart information later:
  – Use cookies
    • Allows information to be stored explicitly
    • Allows unique user identification

• If browser does not allow cookie storage:
  – Electronic commerce software automatically assigns temporary number
  – Example: ShopSite
  – Number discarded when browser closed
Transaction Processing

- **Transaction processing**: occurs when shopper proceeds to virtual checkout counter
  - Click checkout button
- Electronic commerce software performs necessary calculations
- Web browser software and seller’s Web server software switch into secure communication state
FIGURE 9-5 Basic electronic commerce Web site architecture
Transaction Processing (cont’d.)

• Most companies use accounting software package
  – Records sales and inventory movements
  – Requires integration with accounting software
• Web sites use software to update tax rates
• FedEx and UPS shipping rate software integrates with e-commerce software
• Other calculations
  – Coupons, special promotions, time-sensitive offers
• Large companies
  – Integration may be complex
How Electronic Commerce Software Works with Other Software

• Section topic
  – Electronic commerce software features
    • Needed in large companies

• Most large companies have:
  – Electronic commerce operations
  – Substantial business activity
    • Not related to electronic commerce

• Important to integrate
  – Electronic commerce activities into the company’s other operations

• Basic element: collection of databases
Databases

• Database
  – Collection of information
    • Stored on a computer in a highly structured way

• Business rules
  – How the company does business

• Database manager (database management software)
  – Makes it easy for users to:
    • Enter, edit, update, retrieve information in the database
  – Examples: Microsoft Access, IBM DB2, Microsoft SQL Server, Oracle
Databases (cont’d.)

• **Distributed information systems**
  – Large information systems storing data in many different physical locations

• **Distributed database systems**
  – Databases within distributed information systems

• Complexity leads to high cost

• **MySQL database software**
  – Maintained by community of programmers
  – Open-source software
  – Now owned by Oracle
Databases (cont’d.)

• Determine database support level
  – Provided by any electronic commerce software

• Better to have one database serving two sales functions (online and in-store retail)
  – Eliminates errors occurring when running parallel but distinct databases

• If inventory and product databases exist:
  – Only consider electronic commerce software supporting these systems
Middleware

- **Middleware** software
  - Takes sales and inventory shipments information from electronic commerce software
    - Transmits to accounting and inventory management software
- Companies can write own middleware
- Companies can purchase customized middleware
- **Interoperability**
  - Making information systems work together
  - Important goal when installing middleware
Enterprise Application Integration

• Application program (application software, application)
  – Program performing specific function

• Application server (computer)
  – Takes request messages received by Web server
    • Runs application program performing action based on request message’s contents
    • Actions determined by business logic

• Business logic
  – Rules used in the business
  – Example: Verifying customer password upon log in
Enterprise Application Integration (cont’d.)

• Application integration (enterprise application integration)
  – Creation of links among scattered applications
  – Interconnects organization’s business logic
  – Accomplished by programs transferring information:
    • From one application to another
  – Various program data formats differ
    • Must edit and reformat data
    • Increasingly using XML data feeds
Enterprise Application Integration (cont’d.)

• Types of application servers
  – Page-based and component-based systems

• **Page-based application systems**
  – Return pages generated by scripts containing rules
    • Present data on Web page with the business logic
  – Examples for small, midsized Web sites
    • Adobe ColdFusion
    • JavaServer Pages (JSP)
    • Microsoft Active Server Pages (ASP)
    • Hypertext Preprocessor (PHP)
Enterprise Application Integration (cont’d.)

• **Component-based application system**
  – Separates presentation logic from business logic
  – Preferred by larger businesses
  – Logic components created and maintained separately
    • Updating, changing system elements much easier
  – Common Web component-based systems
    • Enterprise JavaBeans (EJBs)
    • Microsoft Component Object Model (COM)
    • Common Object Request Broker Architecture (CORBA)
Integration with ERP Systems

- **Enterprise resource planning (ERP) software packages**
  - Business systems integrating all facets of a business
    - Accounting, logistics, manufacturing, marketing, planning, project management, treasury functions

- Two major ERP vendors: Oracle and SAP

- ERP software installation costs
  - Between $1 million and $50 million
FIGURE 9-6 ERP system integration with EDI
Web Services

• **Web services**
  – Software systems supporting interoperable machine-to-machine interaction over a network
  – Set of software and technologies allowing computers to use the Web to interact with each other directly
    • Without humans directing the specific interactions

• **Application program interface (API)**
  – General name for the ways programs interconnect with each other

• **Web APIs**: interaction over the Web
Web Services (cont’d.)

• What Web services can do
  – Offer improved customer service, reduced costs
  – Transmit XML-tagged data
    • From one enterprise integrated application to another
  – Provide data feeds between two different companies
Web Services (cont’d.)

• How Web services work
  – Key element
    • Programmers write software accessing business application logic units without knowing details
  – Machine-to-machine communication
    • Allows programs written in different languages on different platforms to communicate, accomplish transaction processing, and perform other business tasks
    • Originally accomplished with HTML
    • Implemented with XML today
Web Services (cont’d.)

• How Web services work (cont’d.)
  – More advanced example
    • Web services purchasing software used to obtain vendor price information
    • Purchasing agent authorizes purchase using software to submit order, track until shipment received
    • Vendor's Web services software checks buyer’s credit, contracts with freight company
  – More sophisticated Web services:
    • Make decisions rather than simply providing information to people who then make decisions
Web Services (cont’d.)

- Web services specifications

- **Simple Object Access Protocol (SOAP)**
  - Message-passing protocol defining how to send marked up data from one software application to another across a network

- SOAP protocol utilizes three rule sets
  - Communication rules
    - Included in the SOAP protocol
    - Full SOAP specification: W3C SOAP Page
Web Services (cont’d.)

• SOAP rule sets (cont’d.)
  – Web Services Description Language (WSDL)
    • Describes logical units characteristics making up specific Web services
    • Used to modify an application program so it can connect to a Web service
    • Allows programs to configure themselves so they can connect to multiple Web services
    • More information: W3C Web Services Activity pages
Web Services (cont’d.)

• SOAP rule sets (cont’d.)
  – Universal Description, Discovery, and Integration Specification (UDDI)
    • Set of protocols identifying Web services locations and associated WSDL descriptions
    • Used by programmers to find the Web services location before interpreting their characteristics (described in WSDL) or communicating with them (using SOAP)
    • More information: UDDI Web site
Web Services (cont’d.)

• REST and RESTful design

• **Representational State Transfer (REST)**
  – Principle describing how the Web uses networking architecture to identify and locate:
    • Web pages and elements making up those Web pages

• **RESTful design**
  – Web services built on the REST model
  – Sometimes called **RESTful applications**
    • Transfers structured information from one Web location to another
    • Accessible at any computer with Web browser function
Web Services (cont’d.)

• REST and RESTful design (cont’d.)
  – Atom Publishing Protocol
    • Most widely used RESTful application
    • Blogging application simplifying blog publishing process
  – More information
    • ProgrammableWeb site
Electronic Commerce Software for Small and Midsize Companies

• Section topics
  – Learn how small and medium-sized businesses use software to implement online business Web sites

• Web site created
  – Stands alone in its business activities
  – Does not coordinate completely with business’ other activities
Basic Commerce Service Providers

• Use of service provider’s shared or dedicated hosting services
  – Shifts staffing burden from company to Web host

• CSPs’ hosting services advantages
  – Same as ISPs’
  – Spread large Web site costs over several “renters” hosted by the service

• Reason for low cost
  – Host provider purchases and configures the server

• Host provider keeps server working through storms and power outages
Basic Commerce Service Providers (cont’d.)

• CSPs offer free or low-cost e-commerce software
  – Electronic commerce sites kept on CSP’s server
  – Cost: less than $20 per month
  – Software built into CSP’s site
  – Designed for small online businesses:
    • Selling few items (no more than 50)
    • Incurring relatively low transaction volumes (fewer than 20 transactions per day)

• Examples:
  – Gate.com, ProHosting.com, 1&1 Internet, Yahoo!
FIGURE 9-7 Yahoo! Merchant Services page

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Mall-Style Commerce Service Providers

• Provide small businesses with:
  – Internet connection, Web site creation tools
  – Little or no banner advertising clutter

• Charges
  – Low monthly fee
  – One-time setup fees
  – Percentage of (or fixed) amount for each transaction
Mall-Style Commerce Service Providers (cont’d.)

• Provides:
  – Online store design tools and storefront templates
  – Easy-to-use interface
  – Web page-generation capabilities
  – Page maintenance
  – Shopping cart software capabilities
  – Payment processing services

• Main mall-style CSP: eBay stores
  – Cost: less than $20 per month
  – Each small merchant has its own store
Mall-Style Commerce Service Providers (cont’d.)

• Another example: sell through Amazon.com
  – Individual sells certain used items
    • On the same page Amazon.com lists the new product
  – Merchants display offerings product by product
    • Mixed in with all other Amazon.com items

• Basic and mall-style CSPs provide data-mining capabilities
Mall-Style Commerce Service Providers (cont’d.)

• Data mining
  – Helps businesses find customers with common interests
  – Helps discover previously unknown relationships among data
  – Provides reports indicating:
    • Problematic Web pages in store’s design
    • Number of pages average customer must load and display before locating desired merchandise
### Estimating Operating Expenses for a Small Web Business

#### FIGURE 9-8 Approximate costs to put a small store online

<table>
<thead>
<tr>
<th>Operating costs</th>
<th>Cost estimates</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
</tr>
<tr>
<td>Initial site setup fee</td>
<td>$ 0</td>
</tr>
<tr>
<td>Annual CSP maintenance fee (12 x $20 to $150)</td>
<td>240</td>
</tr>
<tr>
<td>Domain name registrations</td>
<td>0</td>
</tr>
<tr>
<td>Scanner for photo conversion or digital camera</td>
<td>100</td>
</tr>
<tr>
<td>Photo editing software</td>
<td>60</td>
</tr>
<tr>
<td>Occasional HTML and site design help</td>
<td>100</td>
</tr>
<tr>
<td>Merchant credit card setup fees</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total first-year costs</strong></td>
<td><strong>$500</strong></td>
</tr>
</tbody>
</table>
Estimating Operating Expenses for a Small Web Business (cont’d.)

- Figure 9-8: payment-processing charges omitted
- Estimated costs for self-hosting a Web site
  - Setup and Web site maintenance
    - $2000 to $20,000 (one time)
  - High-bandwidth Internet connection
    - $600 to $12,000 per year
  - Secure server room: $5000 a year
  - Technicians to monitor and maintain equipment
    - $50,000 to $100,000 annually
  - Annual total costs: $60,000 to $100,000
Estimating Operating Expenses for a Small Web Business (cont’d.)

- Costs of larger sites: more difficult to estimate
  - Largest element
    - Integrating Web site with existing systems
  - Midsize businesses: start-up costs
    - $100,000 to $500,000
    - Recurring annual costs: about half that amount
  - Large businesses: start-up costs
    - $1 million and $50 million
    - 50 percent of the launch cost every year to operate, maintain, and improve the site
Electronic Commerce Software for Midsize to Large Businesses

• Section topics
  – Discuss software for implementing Web site electronic commerce features
  – Provide an outline of Web site development tools
  – Provide an overview of three specific midrange electronic commerce software products
Web Site Development Tools

• Possible to use Web page creation and site management tools from Chapter 2

• After Web site creation:
  – Add purchased software elements and content management software
  – Create the middleware

• Buying and using midrange e-commerce software
  – More expensive than using a CSP
    • $2000 to $50,000
Web Site Development Tools (cont’d.)

• Midrange software traditionally offers connectivity to database systems
  – Store catalog information
  – Connections into existing inventory and ERP systems

• Three midrange electronic commerce systems
  – Intershop Enfinity
  – WebSphere Commerce Suite by IBM
  – Commerce Server by Microsoft
Web Site Development Tools (cont’d.)

- Intershop Enfinity
  - Search and catalog capabilities and electronic shopping carts
  - Online credit card transaction processing
  - Ability to connect to existing back-end business systems and databases
  - Setup wizards and good catalog and data management tools
  - Built-in storefront templates
  - Web browser management and editing of a storefront
Web Site Development Tools (cont’d.)

• Intershop Enfinity (cont’d.)
  – Product inventory management module
    • Tracks inventory levels, shows available item quantity
    • Creates inventory transactions lists
    • Enters new products into inventory
  – Discount rules easy to enter
  – Database management system bundled
    • Alternative databases: IBM DB2 or Oracle databases
  – Includes automated e-mail facility
  – Supports secure transactions
  – Site and customer reports available
Web Site Development Tools (cont’d.)

- IBM WebSphere Commerce Professional
  - Set of software components
  - Includes:
    - Catalog templates, setup wizards, advanced catalog tools
    - Useful for B2B and B2C applications
    - Provides smooth connection to existing corporate systems
      - Inventory databases, procurement systems
    - Runs on many different operating systems
Web Site Development Tools (cont’d.)

• IBM WebSphere Commerce Professional (cont’d.)
  – Wizard used to create starter store
  – Large collection of functions, utility programs, commands
    • Create customized online store experience
    • Requires JavaScript, Java, C++ expertise
  – Connects to existing databases, other legacy systems
    • Through DB2 or Oracle databases
  – Can administer several stores through interface
Web Site Development Tools (cont’d.)

• IBM WebSphere Commerce Professional (cont’d.)
  – Standard electronic commerce features
    • Shopping cart tools
    • E-mail notifications upon sale completion
    • Secure transaction support
    • Promotions and discounting
    • Shipment tracking
    • Links to legacy accounting systems
    • Browser-based local and remote administration
  – Costs: between $50,000 and $300,000
Web Site Development Tools (cont’d.)

• Microsoft Commerce Server
  – Tools included for:
    • User profiling and management
    • Transaction processing
    • Product and service management
    • Target audience marketing
  – Wizards help users build site in several steps
  – Program code required for specific user needs
  – Bundled with Microsoft Visual Studio .NET tools
    • Allows site customization
Web Site Development Tools (cont’d.)

• Microsoft Commerce Server (cont’d.)
  – Provides customer-oriented tools to:
    • Engage customer (marketing and advertising)
    • Complete order
    • Analyze sales information
  – Includes:
    • Predefined reports
    • Storefront templates
    • Wizards for setting up and initializing store
    • Ability for database connections
    • Shopping cart
Web Site Development Tools (cont’d.)

• Microsoft Commerce Server (cont’d.)
  – Includes: (cont’d.)
    • E-mail confirmation for completed sales transactions
    • Ability to support secure transactions
    • Ability to connect to existing accounting systems
    • Site administration through Web browser
  – Runs on Windows Server operating system and SQL Server database system
  – Costs: between $7100 and $21,000 per processor
    • Other licenses: additional $7000 per processor
    • Typical installation: between $30,000 and $300,000
Electronic Commerce Software for Large Businesses

• Larger business requirements:
  – Same advanced capabilities as midsize firms
  – Ability to handle higher transaction loads
  – Dedicated software applications
    • Handling specific online business elements

• Distinction between midrange and large-scale electronic commerce software
  – Price
  – Extensive support for business-to-business commerce
Electronic Commerce Software for Large Businesses (cont’d.)

• **Enterprise-class software**
  – Commerce software for large-scale systems

• **Enterprise**
  – Describes system serving multiple locations of one company
  – Encompasses all areas of the business or enterprise

• **Software provides tools for B2B and B2C commerce**

• **Interacts with wide variety of existing systems**
  – Database, accounting, ERP

• **Costs:** $200,000 to $10 million
Enterprise-Class Electronic Commerce Software

• Requirements
  – Several dedicated computers, Web server system, firewalls

• Enterprise-class product examples
  – IBM WebSphere Commerce Enterprise, Oracle E-Business Suite, Broadvision products

• Provides tools for linking to and supporting supply, purchasing activities
Enterprise-Class Electronic Commerce Software (cont’d.)

• Provides standard electronic commerce activities
  – Secure transaction processing and fulfillment
  – Interaction with firm’s inventory system
  – Making proper stock adjustment
  – Issuing purchase orders for needed supplies
  – Generating other accounting entries
Enterprise-Class Electronic Commerce Software (cont’d.)

- B2C situations
  - Customers use Web browsers to locate and browse company’s catalog
  - Electronic goods downloaded directly
  - Forms completed online: hard-copy versions of the products shipped
  - Web server linked to back-end systems
  - Merchant server houses the e-business system and key back-end software
    - Processes payments, computes shipping and taxes, and sends a message to the fulfillment department
FIGURE 9-9 Typical enterprise-class electronic commerce architecture

E-Business, Tenth Edition
Enterprise-Class Electronic Commerce Software (cont’d.)

- Large companies may use specialized software
  - OpenMarket: delivers and charges for music or videos on mobile devices
  - Enterprise-class commerce Web sites must:
    - Integrate with supply chain management software
    - Software that automatically manages and rotates Web site content
      - Provide useful, fresh content attracting visitors
  - Customer relationship management software
    - Improve relationships with customers
Content Management Software

• **Content management software**
  – Controls large amounts of text, graphics, media files

• Importance heightened due to:
  – Increased use of social media and networking as part of online business

• Content management software should be tested before commitment
  – Straightforward procedures for regular maintenance
  – Facilitates typical content creation tasks
Content Management Software (cont’d.)

• Companies needing many different ways to access corporate information
  – Use content management software

• IBM and Oracle
  – Provide software as components in other enterprise software packages

• Software costs
  – Between $100,000 and $500,000

• Customization, configuration, implementation costs
  – May add three or four times the cost of software
Knowledge Management Software

• **Knowledge management (KM) software**
  – Systems managing knowledge itself
    • Rather than documentary representations of that knowledge

• Four main tasks
  – Collect and organize information
  – Share information among users
  – Enhance ability of users to collaborate
  – Preserve knowledge gained through information use
    • For future users’ benefit
Knowledge Management Software (cont’d.)

• Includes tools to read:
  – Electronic documents, scanned paper documents, e-mail messages, Web pages
• Includes powerful search tools
  – Use proprietary semantic, statistical algorithms
• Collects knowledge elements by extracting them from normal interactions users have with information
• Major software vendors: IBM, Microsoft SharePoint, CustomerVision
• Costs: $10,000 to $1 million plus
Supply Chain Management Software

- **Supply chain management (SCM) software**
  - Helps companies coordinate planning and operations with industry partners
- **Two general function types: planning and execution**
- **SCM planning software**
  - Develops coordinated demand forecasts
    - Uses information from each supply chain participant
- **SCM execution software**
  - Helps with warehouse and transportation management
Supply Chain Management Software (cont’d.)

• Two major firms offering SCM software
  – JDA Software and Logility

• SCM software components manage:
  – Demand planning: examine buying patterns, generate continually updated forecasts
  – Supply planning: coordinates distribution logistics, inventory-level forecasting, collaborative procurement, supply allocations
  – Demand fulfillment: order management, customer verification, backlog control, order fulfillment
Supply Chain Management Software (cont’d.)

- Most supply chain management software
  - Developed for manufacturing firms
    - Manage inventory purchases, manufacturing processes
- JDA Software
  - Originally managed retail order entry and sales side of inventory control
  - 2006 Manugistics purchase
    - Allows software offerings for every operation in the supply chain
  - Purchased i2 Technologies obtaining:
    - Supply planning and demand fulfillment software
Supply Chain Management Software (cont’d.)

- JDA Software now encompasses every operation in the supply chain:
  - From raw materials purchase to the delivery of finished products to consumers
- Cost of SCM software implementations
  - Varies tremendously
    - Depends on number of locations in the supply chain
  - Example: retailer with 500 stores
    - $2 million and $10 million
Customer Relationship Management Software

• Goal
  – Understand each customer’s specific needs
  – Customize product or service to meet those needs

• Idea
  – If customer needs met exactly
    • Customer will pay more for goods or services

• Customer relationship management (CRM) software
  – Obtains data from operations software
  – Gathers data about customer activities
  – Uses data to conduct analytical activities
Customer Relationship Management Software (cont’d.)

• Basic form of CRM
  – Uses customer information to sell more goods or services

• Advanced form of CRM
  – Delivers extremely attractive, positive customer experiences

• CRM business importance
  – Maintaining customer loyalty
  – Maintaining positive, consistent contacts at the purchasing company
Customer Relationship Management Software (cont’d.)

• 1996 to 2000
  – Early days of CRM software implementation
  – Tool for identifying changing customer preferences and responding quickly to those changes
    • Hoped to gain sales and reduce marketing costs
  – Bad experience with millions of dollars spent
• CRM software sales dropped
• Companies learned from the bad experience
  – CRM used to solve smaller, more specific problems
  – Popular target: call center operations
Customer Relationship Management Software (cont’d.)

• Tealeaf: specialized software used by Bluefly
  – Identified shopping cart technical problem
  – Used to examine specific elements of customer experience and
    • Bring about changes increasing Web site effectiveness, profitability
Customer Relationship Management Software (cont’d.)

- CRM software source
  - Companies create their own
    - May use outside consultants and own IT staffs
  - Most companies likely to buy CRM software package
  - 2005: Oracle acquired Siebel
    - Oracle CRM On Demand
  - SAP CRM: another vendor
  - Costs: $25,000 to millions of dollars
Customer Relationship Management Software (cont’d.)

• New developments in CRM software market
  – Companies offering software for use on their Web site
    • Advantage: buyer does not have to install CRM software on its own servers
    • Example: Salesforce.com
Cloud Computing

• Practice of replacing a company’s investment in computing equipment by selling Internet-based access to its own computing hardware and software
  – Example: Salesforce.com
  – Companies have software without installation and maintenance
  – Companies pay subscription fee
Cloud Computing (cont’d.)

• Popular cost-reduction strategy for many companies of all sizes
  – Small: avoid time and money investigating, evaluating complex technology choices
  – Midsize: avoid capital investment in computing infrastructure
  – Large:
    • Gain flexibility in launching new operations
    • Helps handle unexpected large volumes of transactions
Summary

• E-commerce considerations for different size businesses
  – Software functions, selection decisions
  – Host provider considerations

• Electronic commerce software has several key elements

• Web services implementations
  – Basic CSP and mall-style hosting services
  – Electronic commerce software packages

• Larger businesses need customizable systems with flexibility
  – May include CRM, SCM, and others