COURSE TECHNOLOGY
CENGAGE Learning™

E-Business
Tenth Edition

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

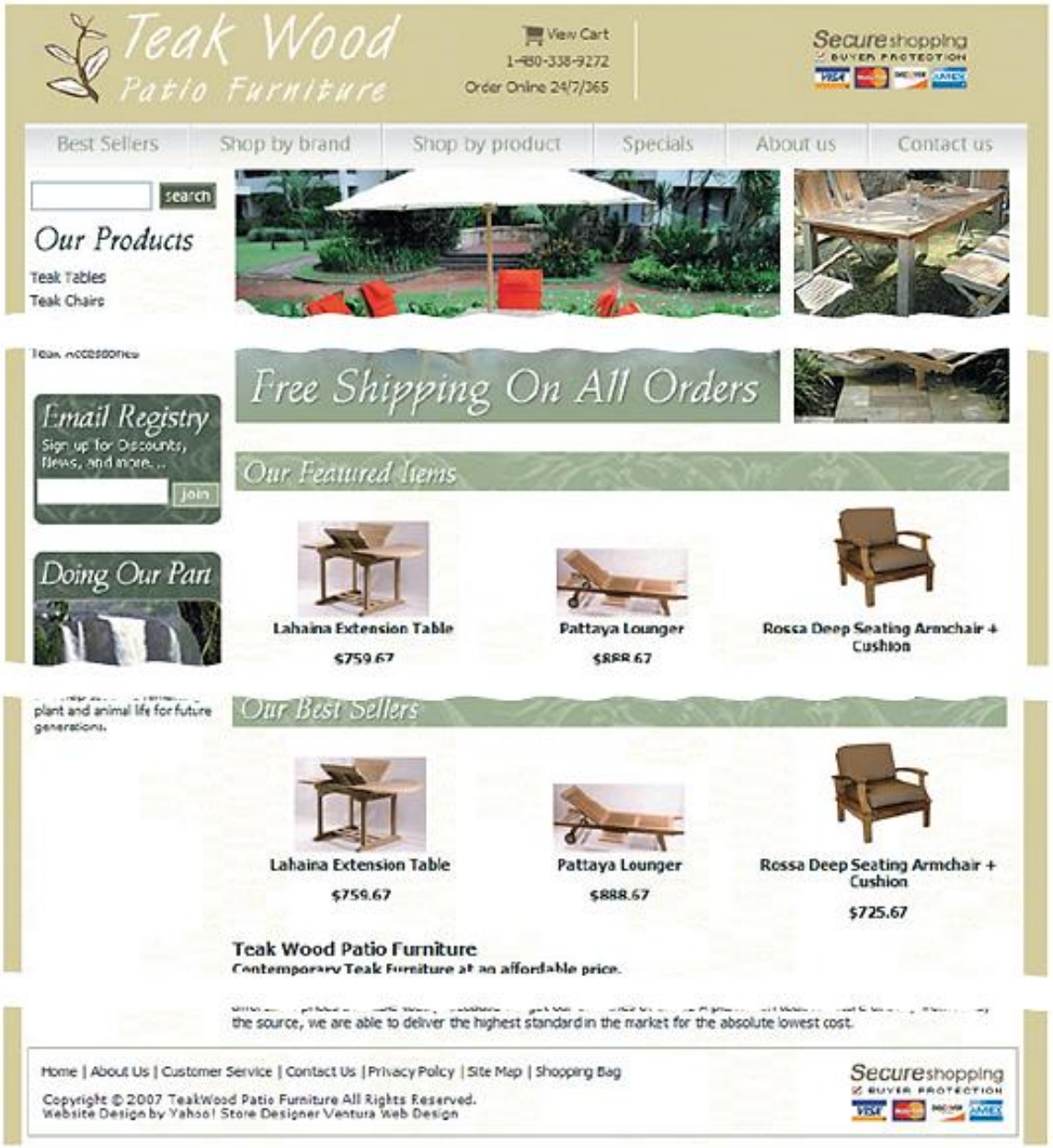

FIGURE 9-1 Small electronic commerce site

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

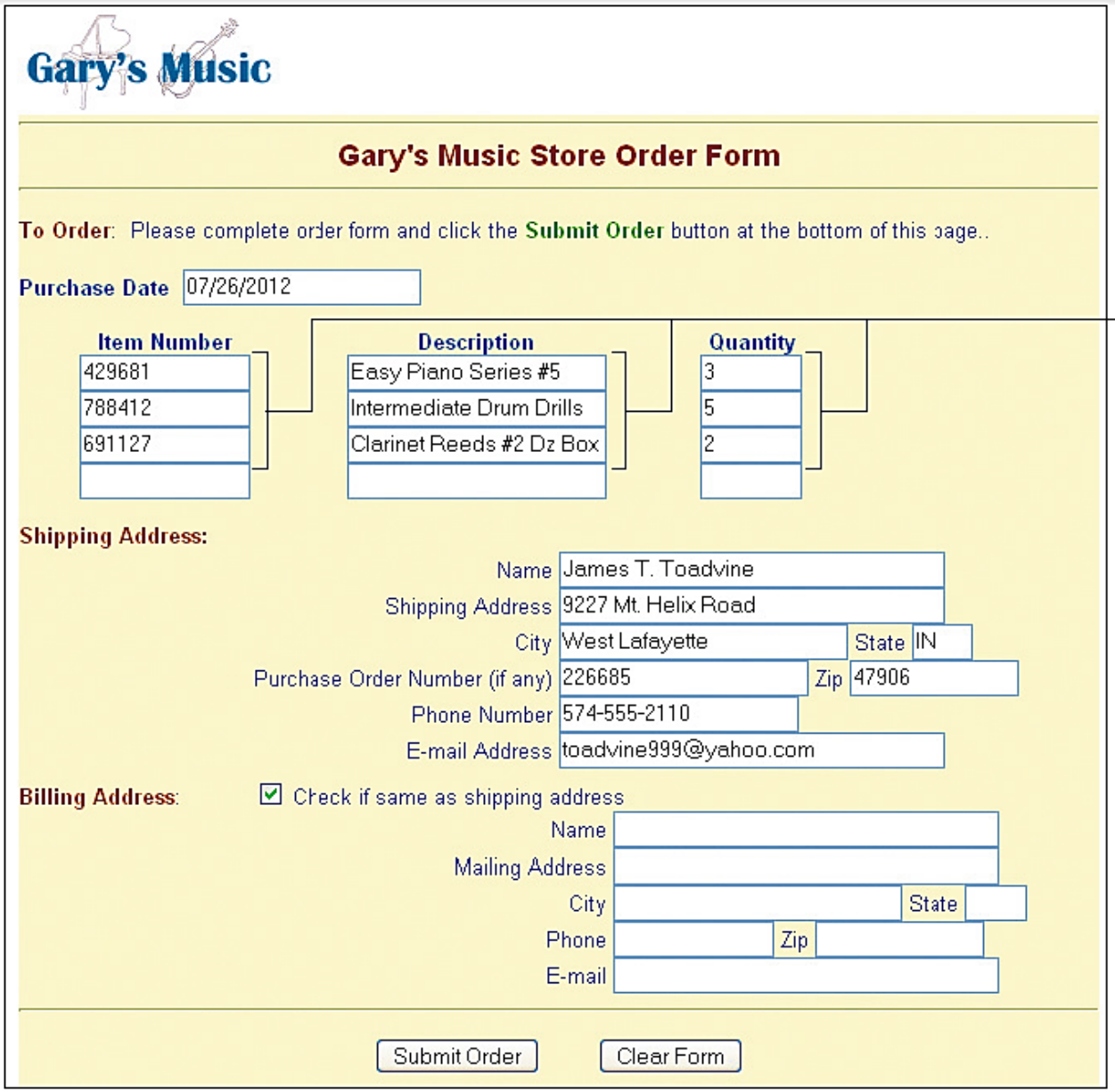

FIGURE 9-2 Using a form to enter an order

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

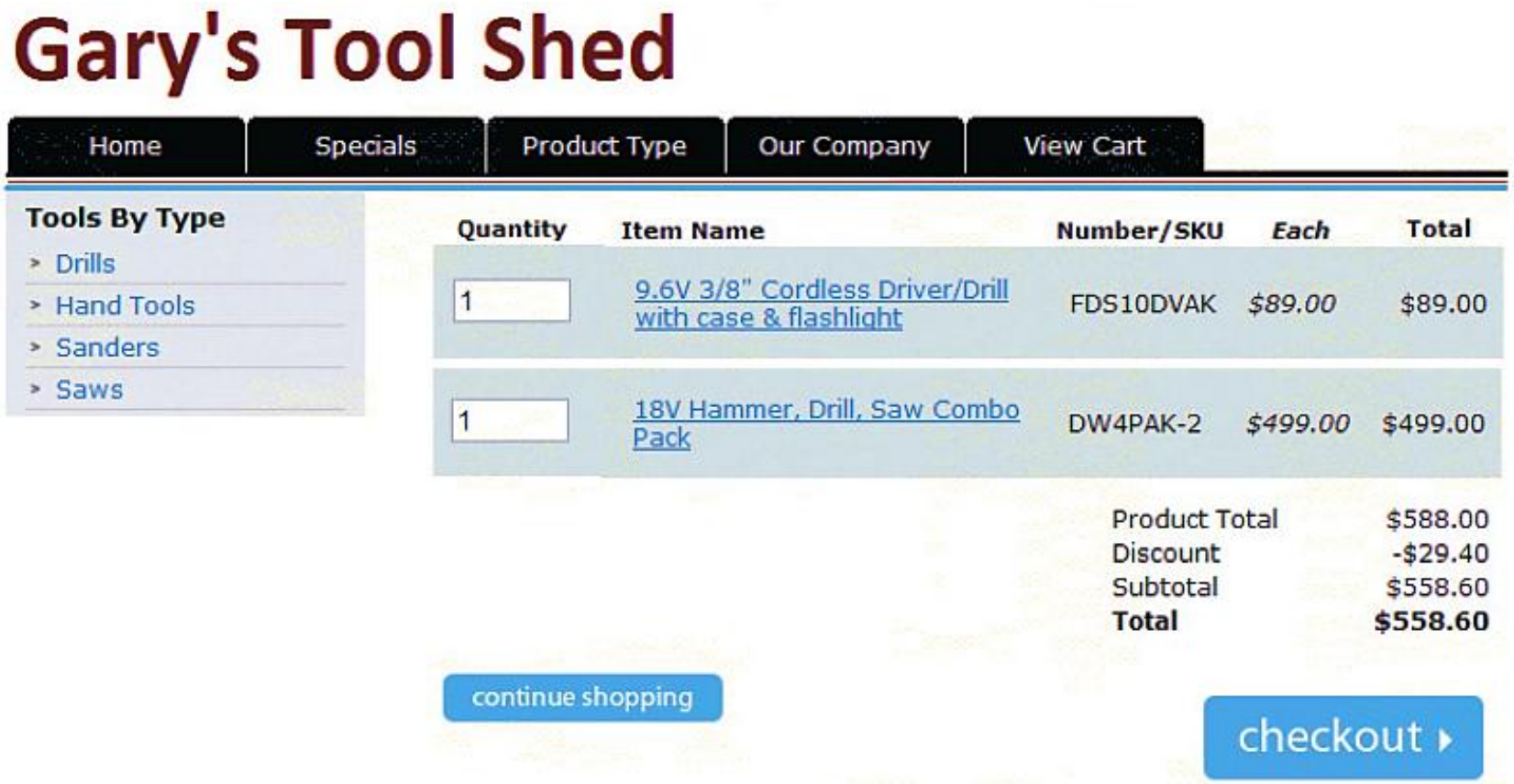

FIGURE 9-3 Typical shopping cart page

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

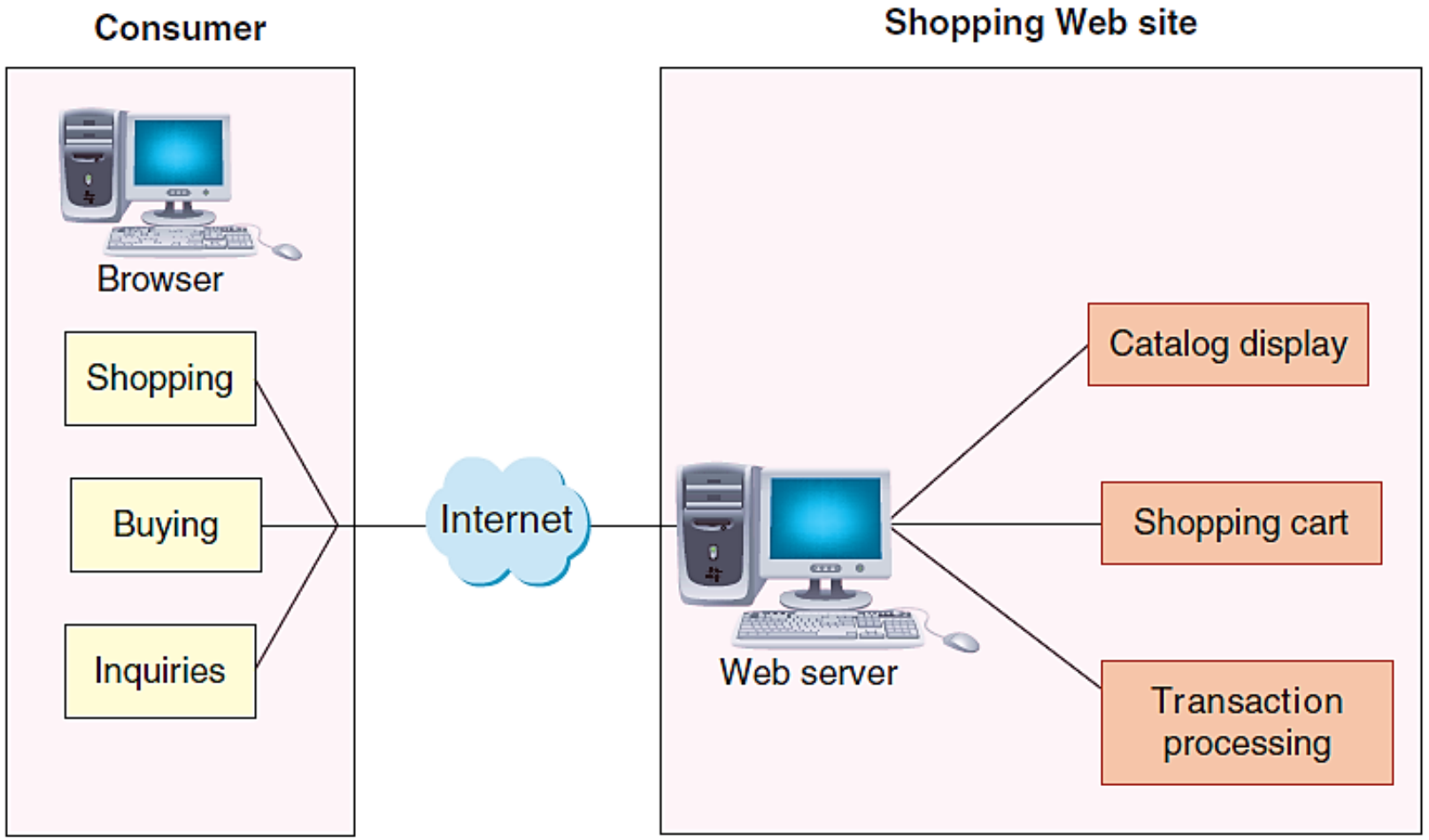

FIGURE 9-5 Basic electronic commerce Web site architecture

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

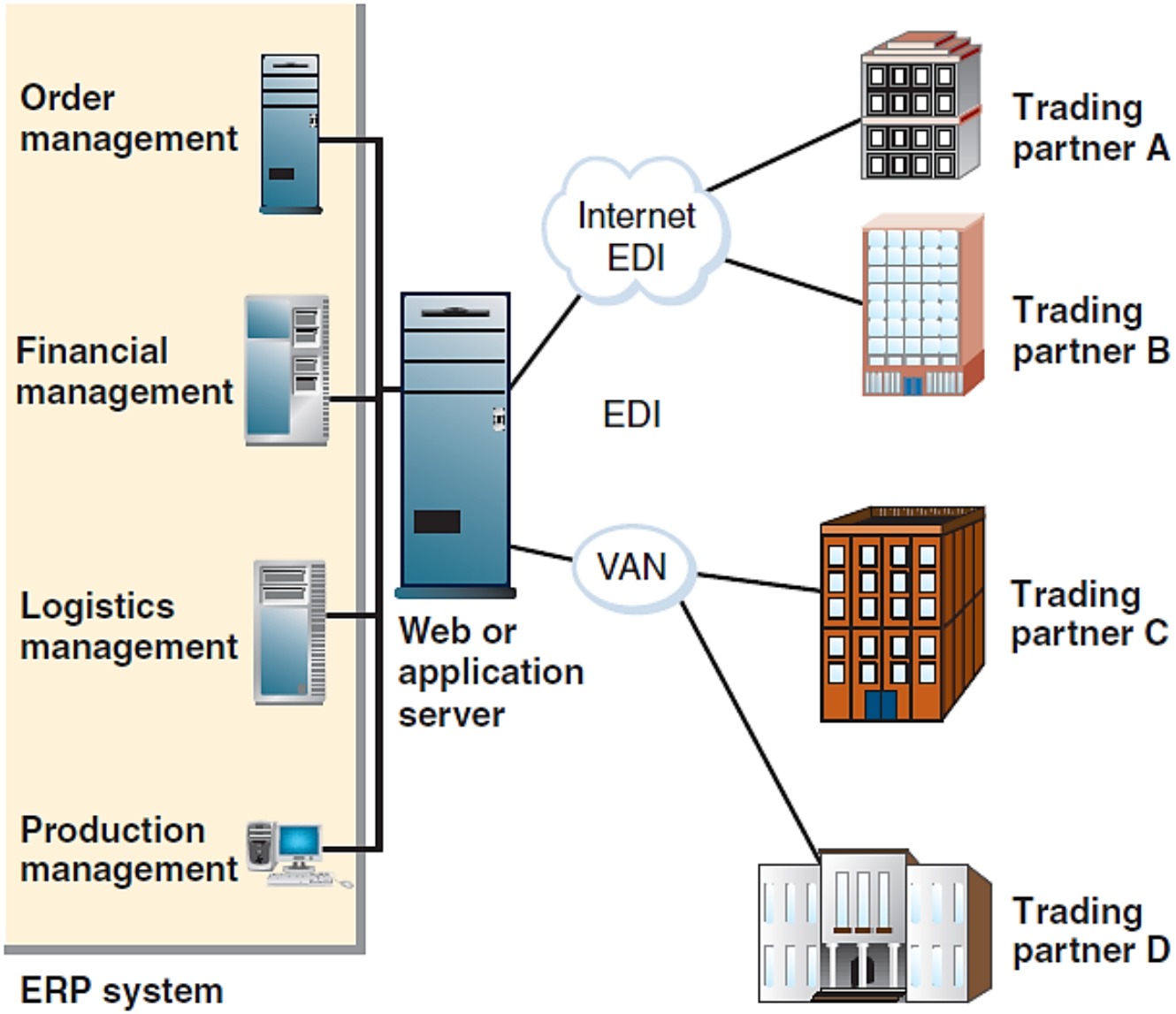

FIGURE 9-6 ERP system integration with EDI

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!

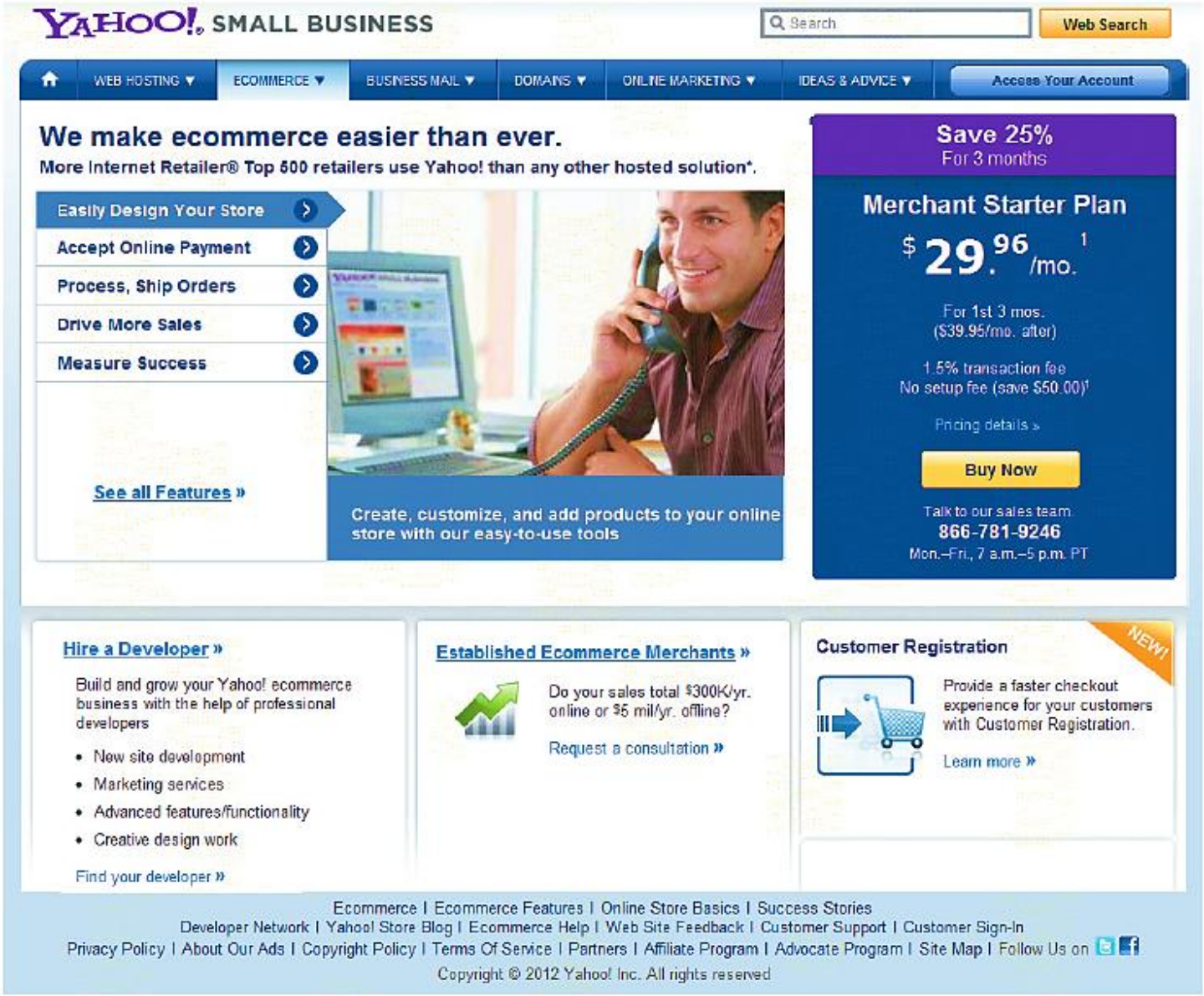

FIGURE 9-7 Yahoo! Merchant Services page

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

Operating costs	Cost estimates	
	Low	High
Initial site setup fee	$ 0	$ 200
Annual CSP maintenance fee (12 x $20 to $150)	240	1800
Domain name registrations	0	300
Scanner for photo conversion or digital camera	100	900
Photo editing software	60	800
Occasional HTML and site design help	100	800
Merchant credit card setup fees	0	200
Total first-year costs	$500	$5000

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

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

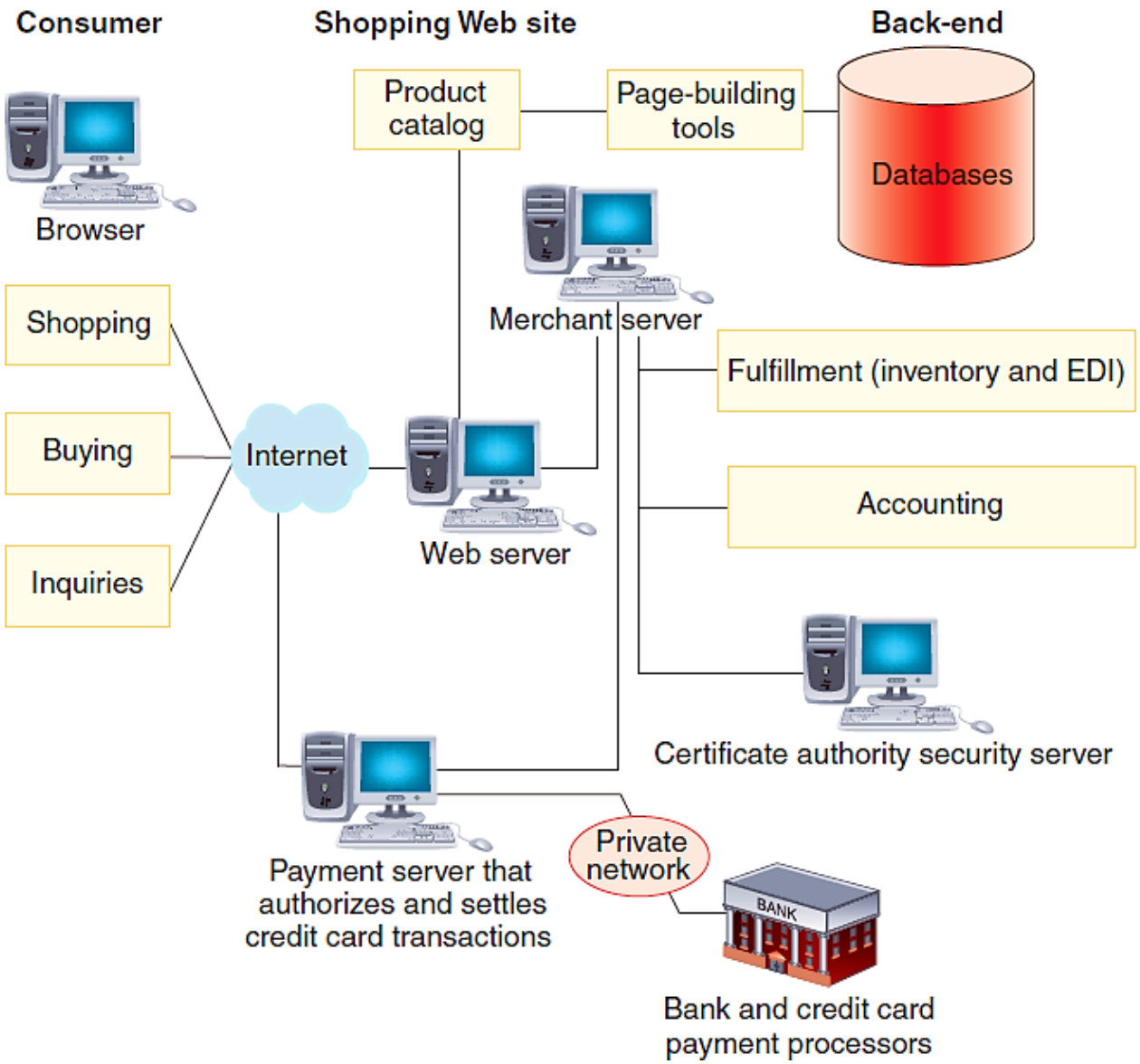

FIGURE 9-9 Typical enterprise-class electronic commerce architecture

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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