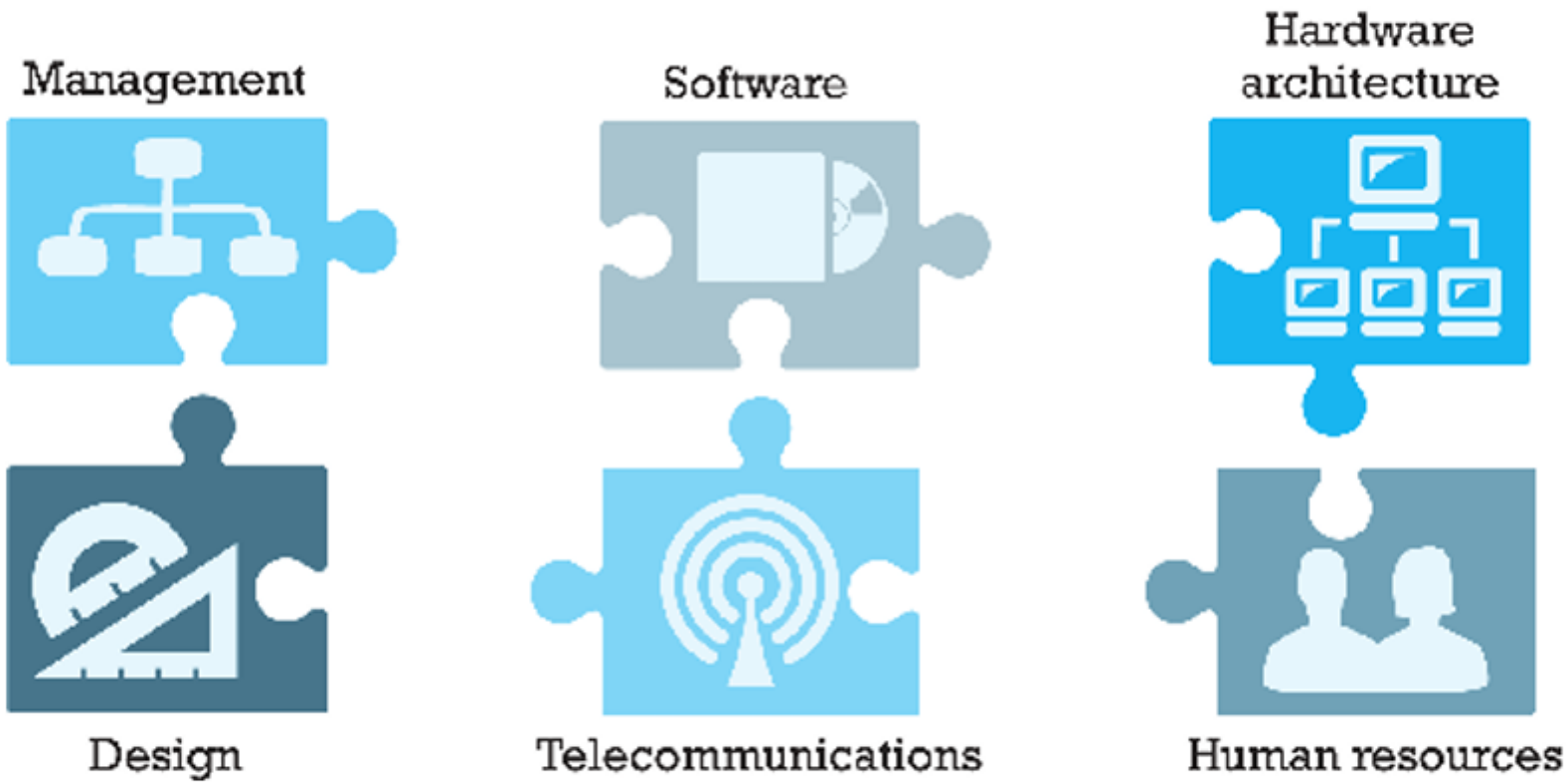
Building an Ecommerce Presence: A Systematic Approach

FIGURE 4.4 FACTORS TO CONSIDER IN DEVELOPING AN E-COMMERCE PRESENCE

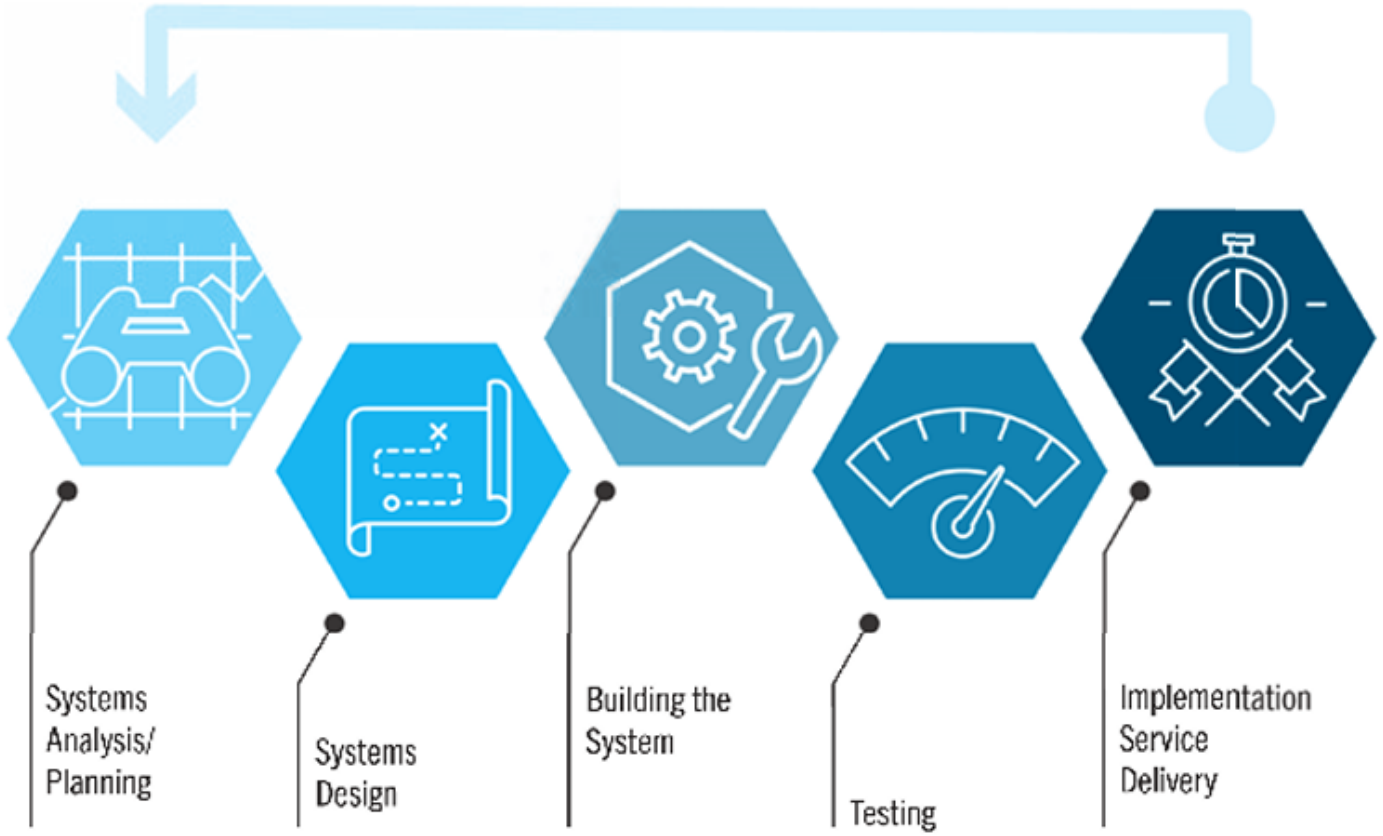


Building an e-commerce presence requires that you systematically consider the many factors that go into the process.

System Development Life Cycle

The systems development life cycle (SDLC) is a methodology for understanding the business objectives of any system and designing an appropriate solution.

FIGURE 4.5 SYSTEMS DEVELOPMENT LIFE CYCLE



Best Practices

Continuous availability 99%+ • Design for scalability • Build in management for end-to-end delivery • Plan for growth • Design system for high-speed performance • Understand and optimize workload on system

Systems Analysis/Planning:

business objectives
capabilities you want your site to have

system functionalities
types of information systems capabilities you will need to achieve your business objectives

information requirements
the information elements that the system must produce in order to achieve the business objectives

TABLE 4.2 SYSTEM ANALYSIS: BUSINESS OBJECTIVES, SYSTEM FUNCTIONALITIES, AND INFORMATION REQUIREMENTS FOR A TYPICAL E-COMMERCE SITE

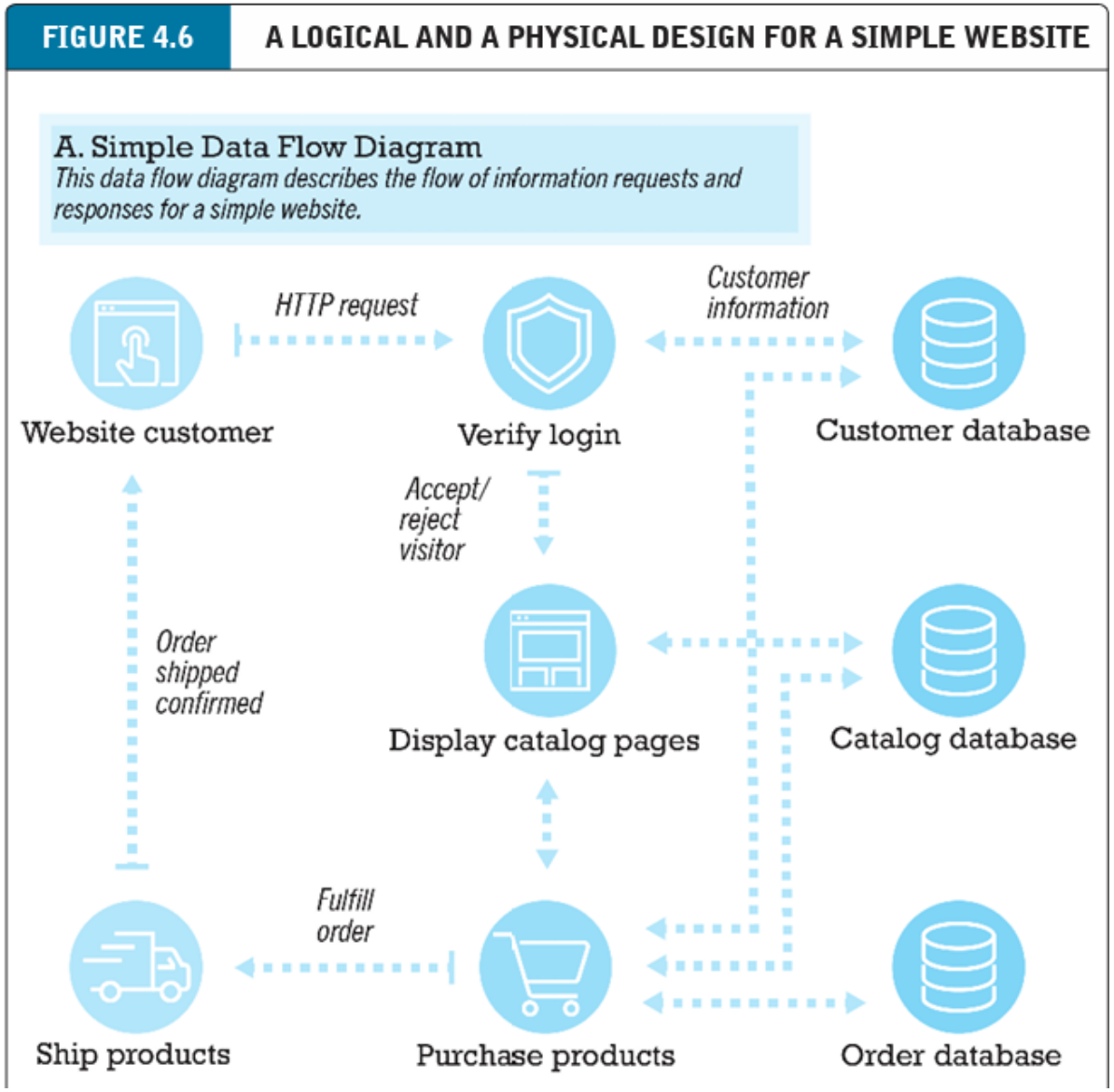
BUSINESS OBJECTIVE	SYSTEM FUNCTIONALITY	INFORMATION REQUIREMENTS
Display goods	Digital catalog	Dynamic text and graphics catalog
Provide product information (content)	Product database	Product description, stocking numbers, inventory levels
Personalize/customize product	Customer on-site tracking	Site log for every customer visit; data mining capability to identify common customer paths and appropriate responses
Engage customers in conversations	On-site blog; user forums	Software with blogging and community forum functionality
Execute a transaction	Shopping cart/payment system	Secure credit card clearing; multiple payment options
Accumulate customer information	Customer database	Name, address, phone, and e-mail for all customers; online customer registration
Provide after-sale customer support	Sales database	Customer ID, product, date, payment, shipment date
Coordinate marketing/ advertising	Ad server, e-mail server, e-mail, campaign manager, ad banner manager	Site behavior log of prospects and customers linked to e-mail and banner ad campaigns
Understand marketing effectiveness	Site tracking and reporting system	Number of unique visitors, pages visited, products purchased, identified by marketing campaign
Provide production and supplier links	Inventory management system	Product and inventory levels, supplier ID and contact, order quantity data by product

Systems Design

logical design
describes the flow of information at your e-commerce site, the processing functions that must be performed, the databases that will be used, the security and emergency backup procedures that will be instituted, and the controls that will be used in the system

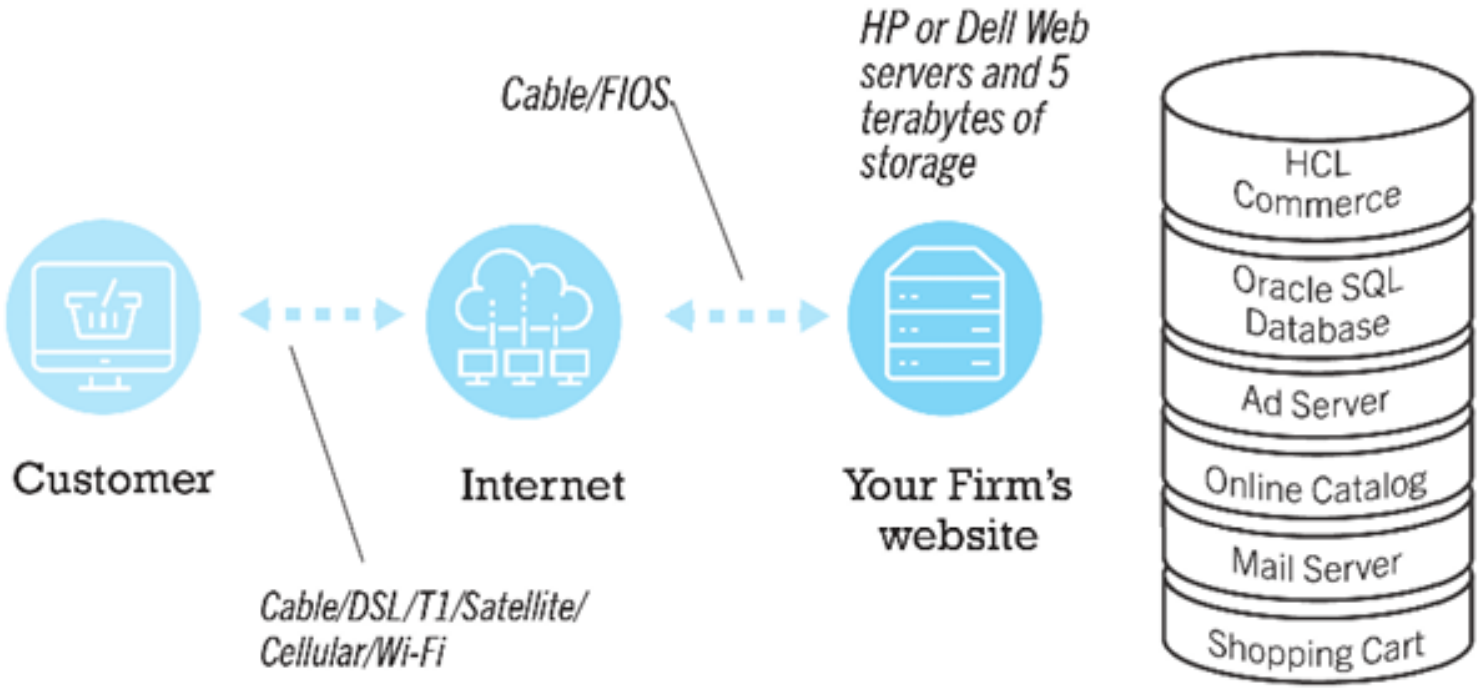
physical design
translates the logical design into physical components

FIGURE 4.6 A LOGICAL AND A PHYSICAL DESIGN FOR A SIMPLE WEBSITE



B. Simple Physical Design

A physical design translates the high-level logical into the physical components, such as the computers, telecommunications links, and software necessary to carry out the logical design.



Building the System: Inhouse Vs. Outsourcing

outsourcing
hiring an outside vendor to provide the services you cannot perform with in-house personnel

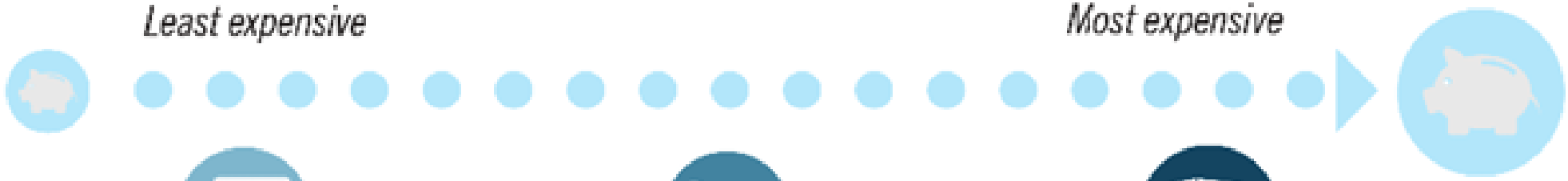
FIGURE 4.7 CHOICES IN BUILDING AND HOSTING

HOSTING THE SITE \ BUILDING THE SITE	In-house	Outsource
In-house	COMPLETELY IN-HOUSE Build: In Host: In	MIXED RESPONSIBILITY Build: Out Host: In
Outsource	MIXED RESPONSIBILITY Build: In Host: Out	COMPLETELY OUTSOURCED Build: Out Host: Out

content management system (CMS)

organizes, stores, and processes website content

FIGURE 4.8 THE SPECTRUM OF TOOLS FOR BUILDING YOUR OWN E-COMMERCE SITE



Use prebuilt templates	Build from scratch	Use packaged site-building tools
Weeby	HTML/HTML5/CSS	Sitecore Commerce
Wix	SQL databases	HCL Commerce
WordPress	Dreamweaver CC	
Shopify	Visual Studio	

co-location
when a firm purchases or leases a web server (and has total control over its operation) but locates the server in a vendor's physical facility. The vendor maintains the facility, communications lines, and the machinery

TABLE 4.3 KEY PLAYERS: HOSTING/CO-LOCATION/CLOUD SERVICES

Amazon Web Services (AWS) EC2	Hostway
Bluehost	IBM Cloud
CenturyLink	Liquid Web
Digital Realty Trust	Microsoft Azure
GoDaddy	Rackspace
Google Cloud	Verio

Testing the System

unit testing
involves testing the site's program modules one at a time

acceptance testing
verifies that the business objectives of the system as originally conceived are in fact working

system testing
involves testing the site as a whole, in a way the typical user will use the site

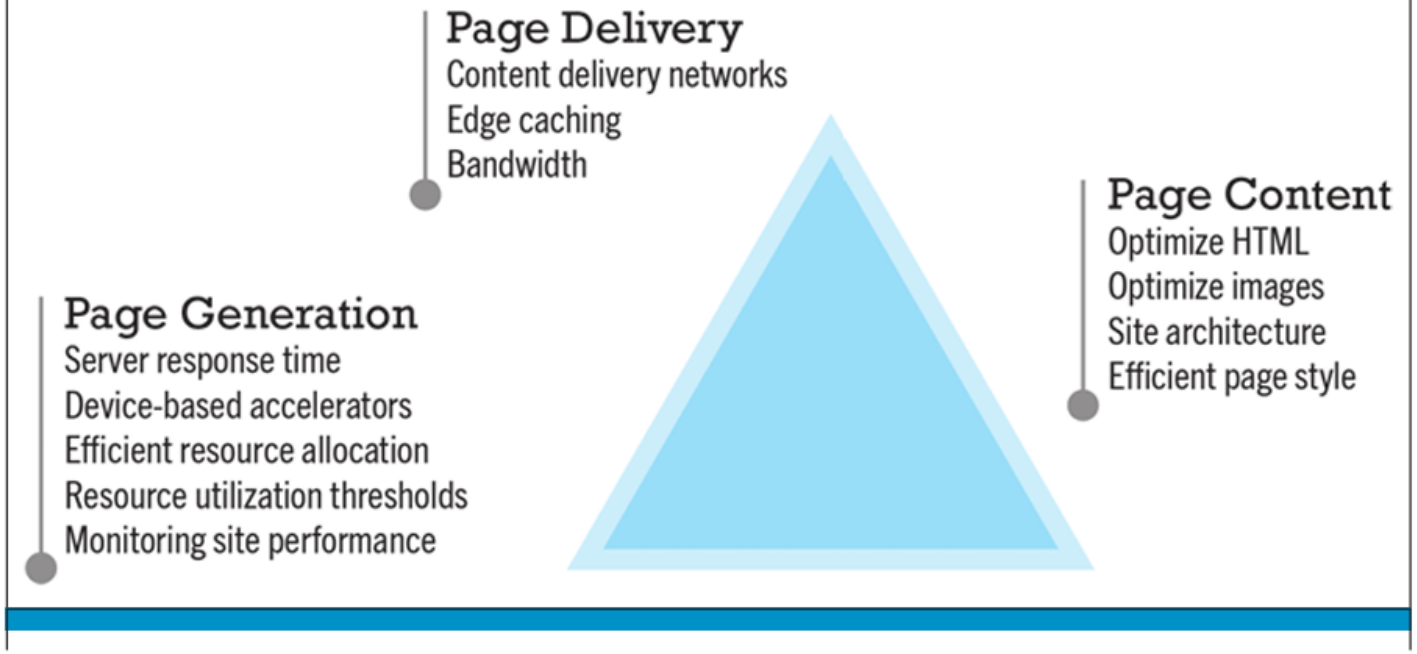
A/B testing (split testing)
involves showing two versions of a web page or website to different users to see which one performs better

multivariate testing
involves identifying specific elements, creating versions for each element, and then creating a unique combination of each element and version to test

Implementation, Maintenance & Optimization

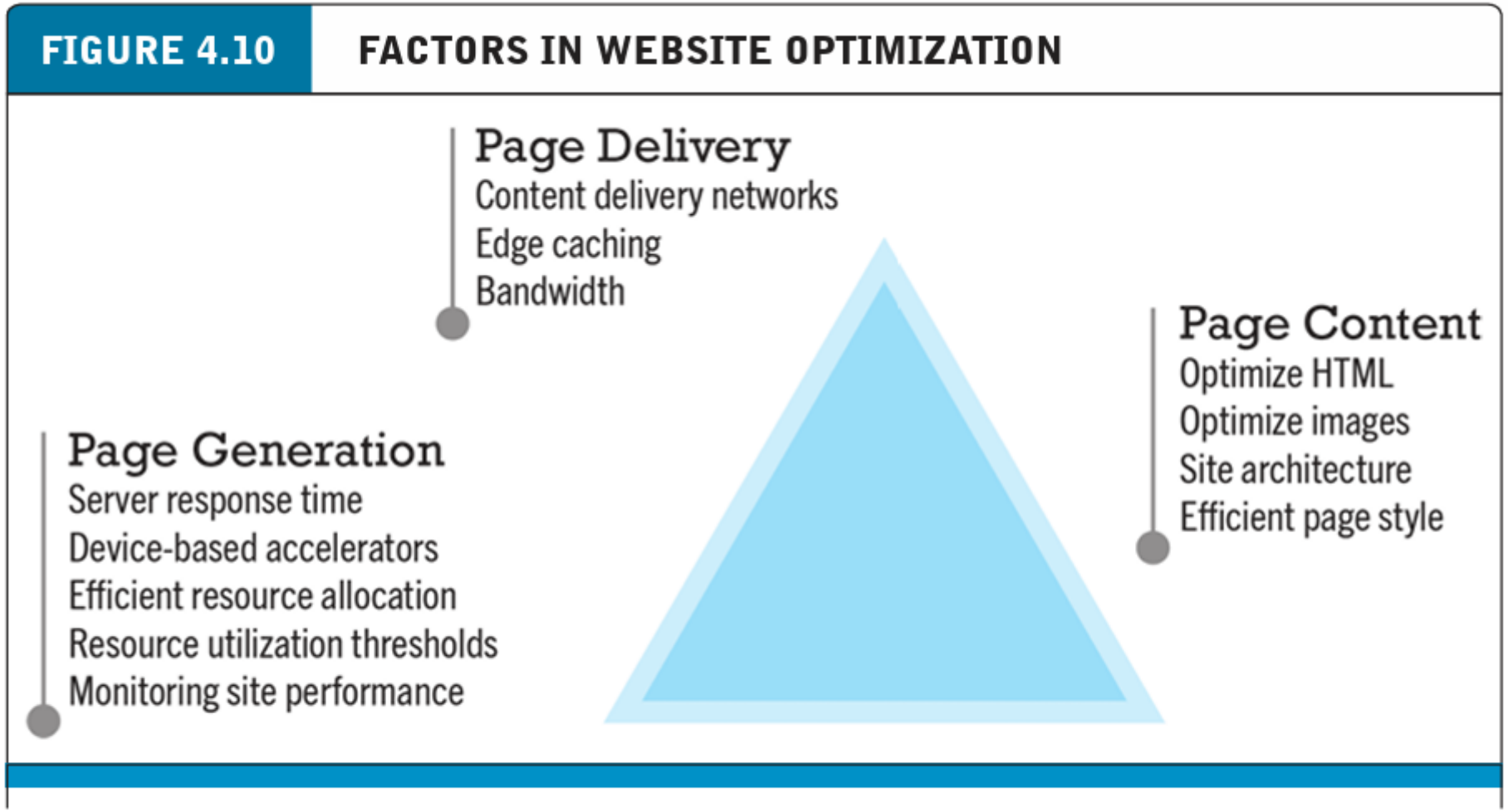
benchmarking
a process in which the site is compared with those of competitors in terms of response speed, quality of layout, and design

FIGURE 4.10 FACTORS IN WEBSITE OPTIMIZATION



Website optimization requires that you consider three factors: page content, page generation, and page delivery.

FIGURE 4.10 **FACTORS IN WEBSITE OPTIMIZATION**



Website optimization requires that you consider three factors: page content, page generation, and page delivery.

Alternative Web Development Methodology

prototyping
consists of building a sample or model rapidly and inexpensively to test a concept or process

agile development
breaks down a large project into a series of smaller subprojects that are completed in short periods of time using iteration and continuous feedback

Alternative Web Development Methodology

Scrum

type of agile development that provides a framework for managing the development process

DevOps

builds on agile development principles as an organizational strategy to create a culture and environment that further promote rapid and agile development practices

Choosing Software

system architecture
the arrangement of software, machinery, and tasks in an information system needed to achieve a specific functionality

Web application servers, are specialized software programs that perform a wide variety of transaction processing required by e-commerce.

two-tier architecture

e-commerce system architecture in which a web server responds to requests for web pages and a database server provides backend data storage

multi-tier architecture

e-commerce system architecture in which the web server is linked to a middle-tier layer that typically includes a series of application servers that perform specific tasks as well as a backend layer of existing corporate systems

FIGURE 4.11 **TWO-TIER AND MULTI-TIER E-COMMERCE SITE ARCHITECTURES**

A. Two-tier Architecture

In a two-tier architecture, a web server responds to requests for web pages and a database server provides backend data storage.

B. Multi-tier Architecture

A physical design describes the hardware and software needed to realize the logical design.