The Internet, the Web, and Electronic Commerce

Chapter 2

**Computing Essentials 2023
O'Leary**

Learning Objectives

1. Explain the origins of the Internet and the web.

2. Explain how to access the web using providers and browsers

3. Compare different web utilities including filters, file transfer utilities, and Internet security suites

4. Compare different Internet communications, including social networking blogs, microblogs, webcasts, podcasts, wikis, e-mail, text messaging, and instant messaging

5. Describe search tools, including search engines and specialized search engines

6. Describe how to evaluate the accuracy of information presented on the web

7. Identify electronic commerce, including B2C, C2C, B2B, and security issues

8. Describe cloud computing, including the three-way interaction of clients, Internet, and service providers

9. Discuss the Internet of Things (IoT) and the continuing development of the Internet to allow everyday objects to send and receive data

Introduction

The Internet

- Interconnected mesh of computers and data lines
- Connecting millions of people and organizations

Foundation of the digital revolution

- Allowing people around the world to share words, images and any digital file almost instantaneously

The Web

- Provides a multimedia interface to Internet resources

To be effective and efficient

- End user awareness of the resources available on the Internet and the Web

The Internet and the Web

The Internet

- Large global network connecting smaller networks all over the globe

The Internet launched in 1969

- The United States funded a project to develop a national computer network

- ARPANET (Advanced Research Project Agency Network)

World Wide Web or WWW was introduced in 1991

The Internet and the web are NOT the same

- The Internet is the physical network

- The web is a multimedia interface to the resources available on the Internet

Web

Web 1.0	Web 2.0	Web 3.0	Web 4.0
• **1st generation** • **Linking existing information focus** • **Search programs were created**	• **Dynamic content creation** • **Facebook is most common in Web 2.0**	• **Identifies relationships between data** • **Personalized content creation for users**	• Called the mobile web • Similar to Web 3.0 but includes information from mobile devices

Common Internet Uses
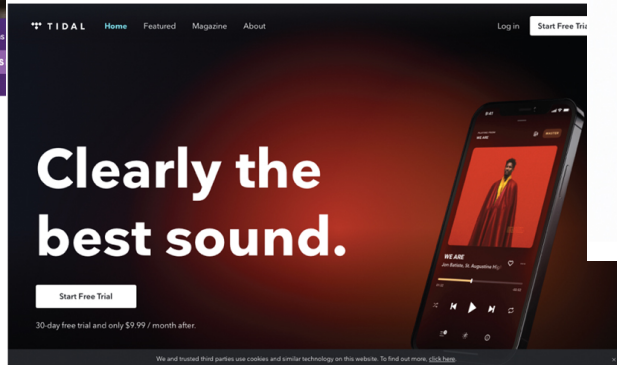
Communicating

Shopping

Searching

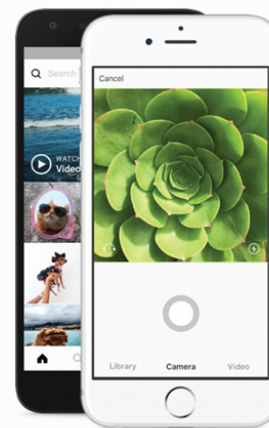**Education or e-learning**

Online Entertainment

Making IT Work for You – Online Entertainment

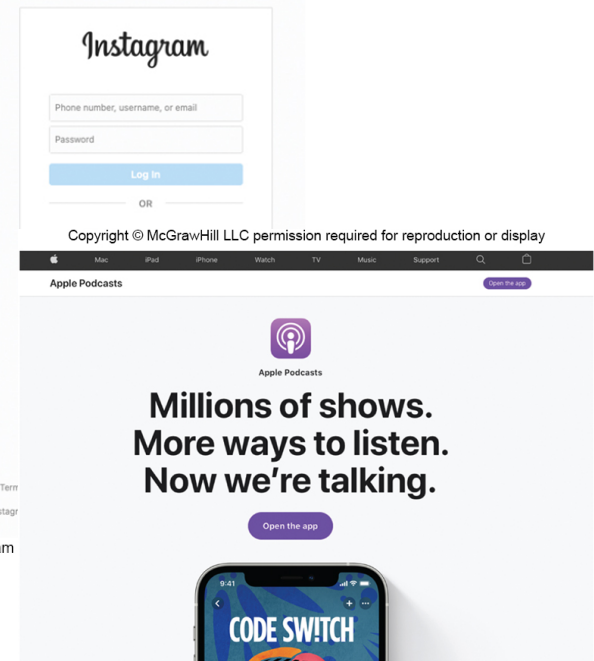Online options for TV, movies, music, books, social media, news feeds

- Hulu, Amazon Prime, Netflix, Amazon Kindle, CNN, Instagram, Tidal, HBOMax, Apple Podcasts

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Aspiro AB

Instagram

Apple Inc.

Internet Access Providers

Internet Service Provider (ISP)

- Common way to access the Internet

- Provide a path to access the Internet

- Use digital subscriber line (DSL), cable, and/or wireless connections

Most common providers

- Verizon, Comcast, Sprint, T-Mobile, AT&T
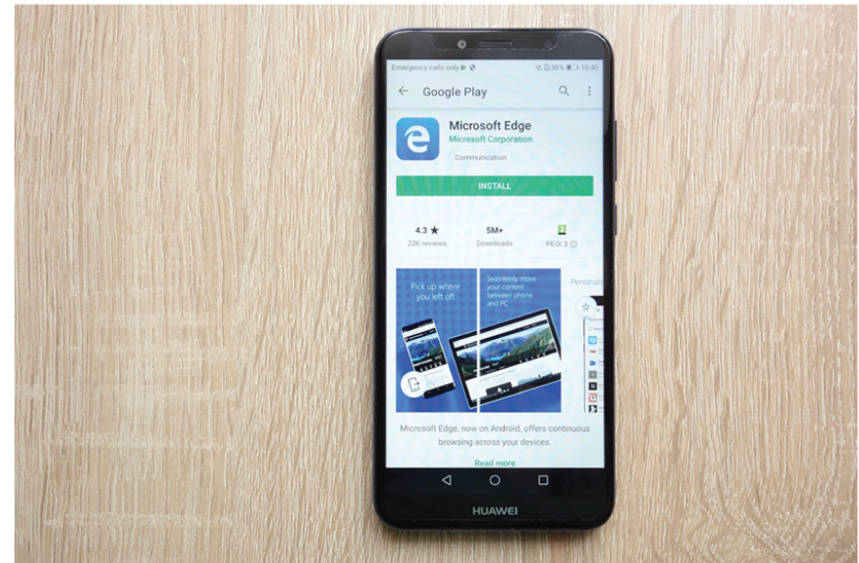
Browsers

Provide access to web resources

Allow you to explore the web

- Connect to remote computers
- Uncomplicated interface to the Internet
- File transfer
- Display many varieties of multimedia

Popular Web browsers include:

- Mozilla Firefox
- Apple Safari
- Microsoft Edge
- Google Chrome

Piotr Swat/Alamy Stock Photo

URLs

Uniform Resource Locator

- Location or address of resource

- https is the most common for web traffic

Two parts

- Protocol

    Rules for exchanging data

- Domain name

    Where resource is located

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protocol

top-level domain

https://www.mtv.com

domain name

Figure 2-4

Top-Level Domain (TLD)

.com	Commercial
.edu	Educational
.gov	Government
.mil	US Military
.net	Network
.org	Organization

HTML and Hyperlinks

Hypertext Markup Language

- Markup language for displaying web pages

Browsers interpret HTML commands

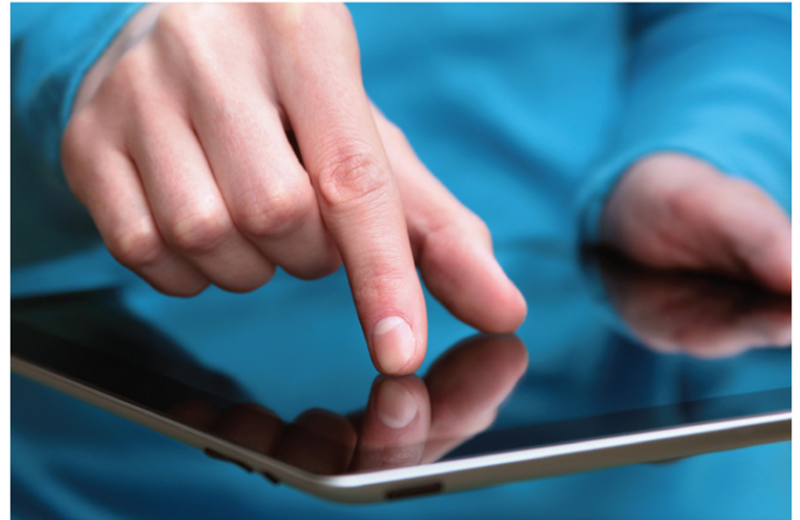- Display document as a web page

Hyperlinks or links

- Connect to other web pages
  - Text files
  - Graphic images
  - Audio and Video Clips

Interactive Web Sites

Technologies used to provide highly interactive and animated websites

- JavaScript

- PHP

- Cascading Style Sheets (CSS)

- Mobile Browsers

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outline205/Getty Images

Web Utilities

Specialized utility programs that make using the Internet and web safer and easier

- Filters
- File Transfer Utilities
- Internet Security
  Suites

Filters

Block access to selected sites

Set time limits

Monitor total time spent on the Internet and at individual web sites

- Net Nanny

- Qustodio Parental Control

- Circle with Disney

- Symantec Norton Family Premier

Bob Dormon/theregister.co.uk

File Transfer Utilities

Upload and download files to and from the Internet

- Downloading

- Uploading

Three popular types of programs

- Web-based file transfer services

- Bit-Torrent

- File transfer protocol (FTP) / Secure file transfer protocol (SFTP)
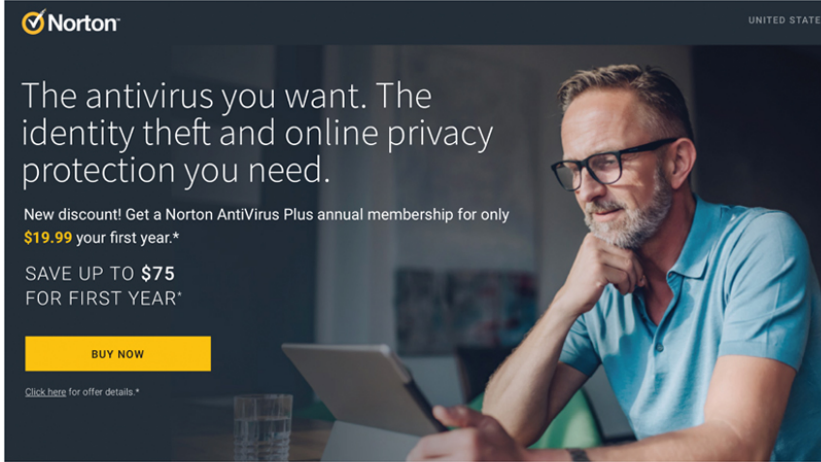
Internet Security Suites

Designed to maintain your security and privacy while on the web

Two best known suites

- Symantec Norton Internet Security

- Bitdefender Internet Security

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NortonLifeLock Inc.

Communication

Communication is the most popular Internet activity

- Social Networking

- Blogs, Microblogs, Podcasts, and Wikis

- Messaging

- E-mail

Social Networking

Connecting people and organizations that share a common interest or activity

- Common features
  - Profiles
  - Pages
  - Groups
  - Friends
  - News feed
  - Share settings

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Jirapong Manustrong/Shutterstock

Blogs

Blogs

Microblogs

Worawee Meepian/Shutterstock

Webcast, Podcast, and Wikis

Podcast

- Delivered over the Internet
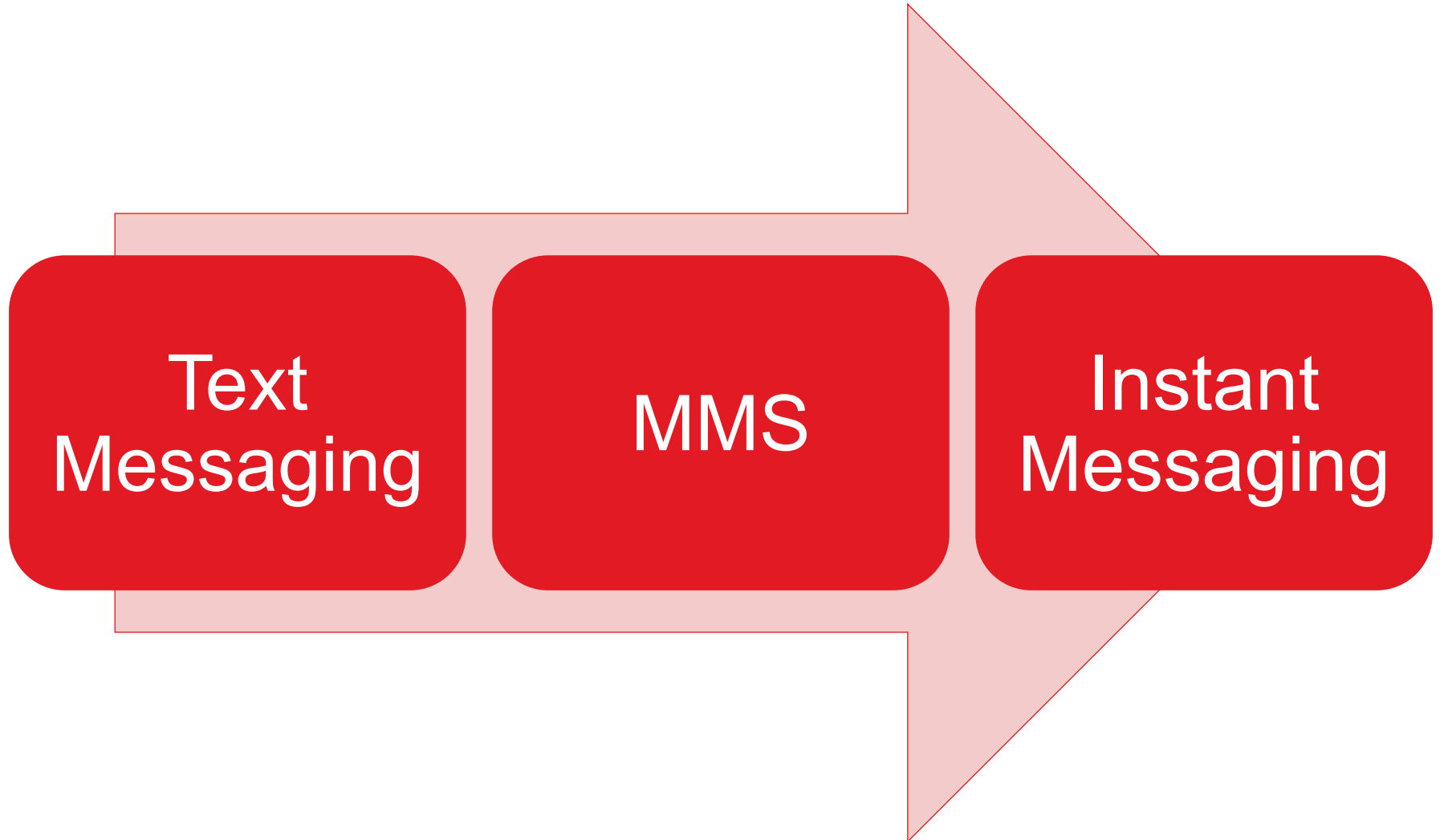- Typically one audio program in a series of related podcasts

Wiki

- Specially designed Web site
- Allows visitors to edit the contents
- Supports collaborative writing

Cyberstock/Alamy Stock Photo

Apple

Messaging

Text Messaging → MMS → Instant Messaging

E-Mail

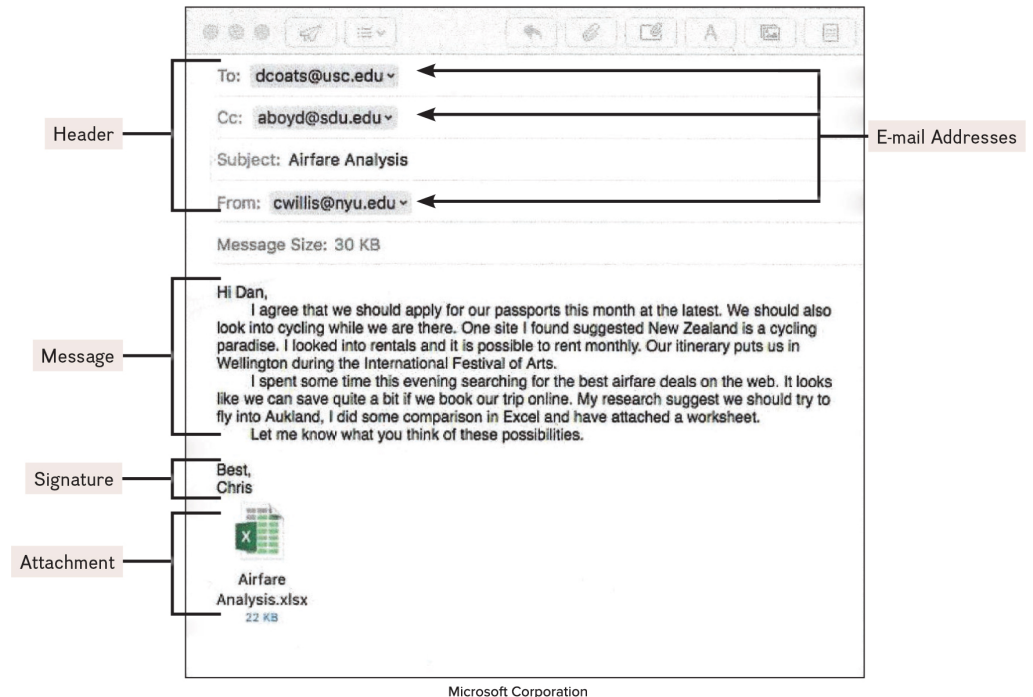Transmission of electronic messages over the Internet

Four basic elements

- Header
  - Address
  - Subject
- Message
- Signature
- Attachments

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dcoats@usc.edu

user name · top-level domain · domain name

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To: dcoats@usc.edu
Cc: aboyd@sdu.edu
Subject: Airfare Analysis
From: cwillis@nyu.edu
Message Size: 30 KB

Header — E-mail Addresses

Hi Dan,
    I agree that we should apply for our passports this month at the latest. We should also look into cycling while we are there. One site I found suggested New Zealand is a cycling paradise. I looked into rentals and it is possible to rent monthly. Our itinerary puts us in Wellington during the International Festival of Arts.
    I spent some time this evening searching for the best airfare deals on the web. It looks like we can save quite a bit if we book our trip online. My research suggest we should try to fly into Aukland, I did some comparison in Excel and have attached a worksheet.
    Let me know what you think of these possibilities.

Message

Best,
Chris

Signature

Attachment

Airfare Analysis.xlsx
22 KB

Microsoft Corporation

E-mail Systems

Client-based

- E-mail client
- Must be installed on computer
    - Apple's Mail
    - Microsoft Outlook

Web-based

- Webmail client
- No installation necessary -- free
    - Google's Gmail
    - Microsoft's Outlook
    - Yahoo!'s Yahoo! Mail

SPAM

Spam	• **Unwelcome e-mail**
Computer viruses	• **Destructive programs**
CAN-SPAM Act	• **Antispam laws**
Spam Blockers/ Filters	• **Identify and control spam**

Search Tools

Search Services

- Operate websites

- Spiders

Search Engines
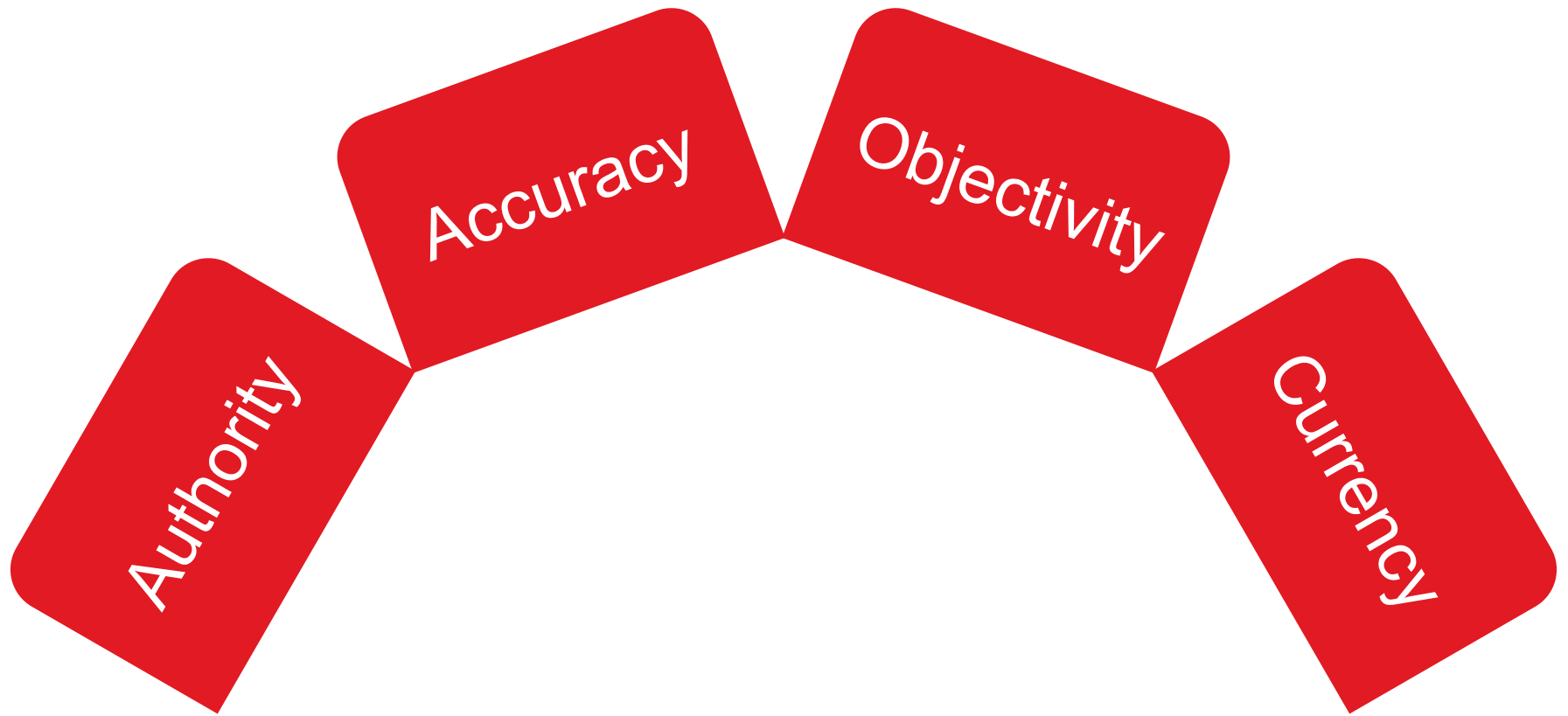
- Assist in locating specific information

Content Evaluation

- Information on the web is often not reviewed to ensure accuracy

Search Service	Site
Bing	www.bing.com
Duckduckgo	www.duckduckgo.com
Google	www.google.com
Yahoo!	www.yahoo.com

Content Evaluation

Authority   Accuracy   Objectivity   Currency

Electronic Commerce

Business-to-consumer (B2C)

Consumer-to consumer (C2C)

Business-to-business (B2B)

Business to Consumer (B2C)

Sale of product or service to general public

Fastest growing type of e-commerce

Three most widely used B2C applications:

- Online banking

- Financial trading

- Shopping

Amazon.com is one of the most widely used B2C sites

Consumer to Consumer (C2C)

Consumer-to-consumer e-commerce (C2C)

- Individual to individual

Web auctions

- Buyers and sellers seldom meet
- Bids are submitted electronically
- Online auction sites

Business to Business (B2B)

Sale of a product or service from one business to another

Primarily a manufacturer supplier relationship

Security

Payment methods must be fast, reliable, and secure

- Provide a convenient way to submit buyers' information

Two options

- Credit card

  - Fast and convenient

- Digital cash

  - Internet's equivalent to traditional cash

  - Converts digital cash to currency through 3rd party

  - Cryptocurrency uses public ledgers, known as blockchains, to record all transactions
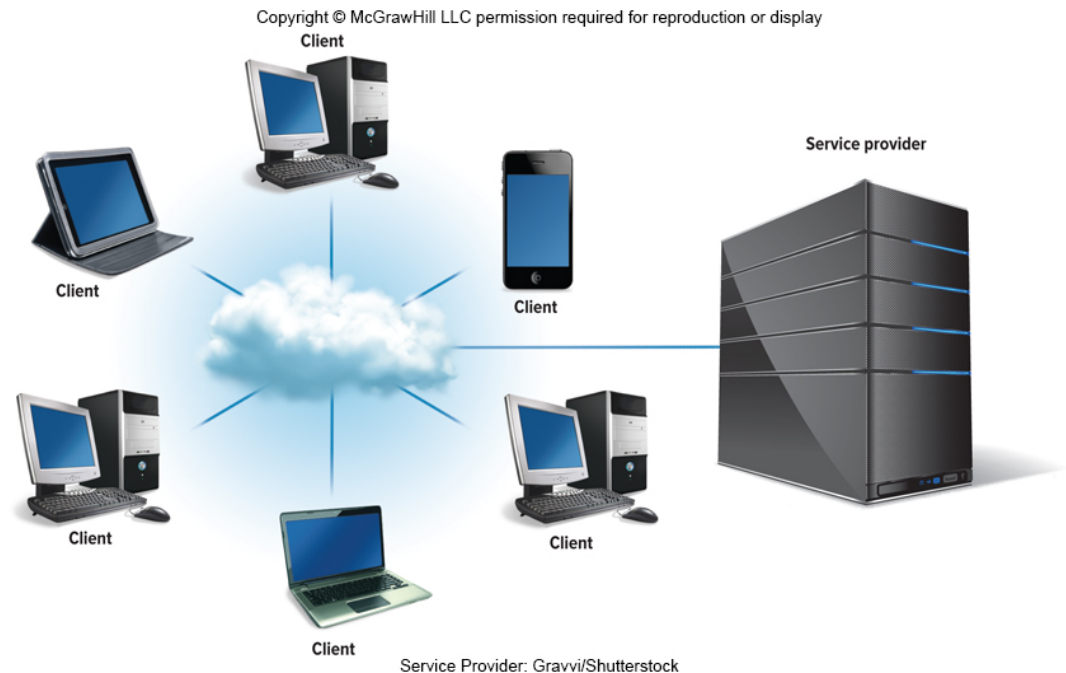
Cloud Computing

Shifts computing activities from users' computers to computers on the Internet

Frees end-users from owning, maintaining, and storing software programs and data

Three basic components:

- Clients (end-users)
- The Internet
- Service providers

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Service Provider: Gravvi/Shutterstock

Internet of Things (IoT)

Continuing development of the Internet

Allows objects embedded with electronic devices to send and receive data

- Smartphones

- Wearable devices

- Coffee makers

Uses Web 3.0 Applications

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Chinnapong/Shutterstock

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Careers in IT - Webmasters

Develop and maintain websites and resources

- Backup of company website

- Design and development of websites

- Work with the marketing team

- Increase site traffic

- Development of web promotions

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A Look to the Future

Home Smart Home

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Open Ended Questions

1. Discuss the Internet and web, including their origins, the four generations of the web, and the most common uses.

2. Describe how to access the Internet. What are providers? Define browsers, and discuss URLs, HTML, CSS, JavaScript, AJAX, PHP, and mobile browsers.

3. What are Web utilities? Discuss filters, file transfer utilities, and Internet security suites.

4. Discuss Internet communications, including social networking, blogs, microblogs, podcasts, wikis, client-based and web-based e-mail, and messaging.

5. Define search tools including search services. Discuss search engines. Describe how to evaluate the content of a web site for Authority, Accuracy, Objectivity, and Currency.

6. Describe electronic commerce, including business-to-consumer, consumer-to-consumer, and business-to-business e-commerce, and security.

7. Discuss the Internet of Things (IoT). Describe how Fitbit and Apple's Health App are examples of how an IoT device can interact with a Web 3.0 application.

8. What is cloud computing? Describe the three basic components of cloud computing.

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