CLOUD COMPUTING

◗ **Is the Web dead?** A 2010 *Wired* magazine cover announced "The Web is Dead." That pronouncement was premature, but Facebook, Twitter, and Google Apps have sent computing in new directions. Local applications are being eclipsed by cloud computing, which characterizes the fourth phase of the digital revolution.

◗ **What is cloud computing?** **Cloud computing** provides access to information, applications, communications, and storage over the Internet. Before cloud computing, most computers ran software based locally. For example, to use a word processor, you might fire up the latest edition of Microsoft Word, which you'd installed on your computer's hard disk. Prior to the cloud, you stored data locally, too. E-mail, documents, photos, and music all resided on your computer's hard disk or flash drive.

With cloud computing, all that changes. You can use your browser to access word processing applications that run from the Internet, instead of software that you have installed on your local hard disk. You can use online applications to manage your e-mail, create floor plans, produce presentations, and carry out a host of other activities. You can store your data in the cloud, too, making it available no matter what computer you're using as long as it has an Internet connection.

The cloud gets its name from diagrams like the one in Figure 1-7, which shows Internet-based applications, storage, and other services outlined by a cloud-like shape designed to help you visualize the idea that cloud services are "out there" somewhere on the Internet.

◗ **What is convergence?** The expansion of cloud computing is due in part to **convergence**, a process by which several technologies with distinct functionalities evolve to form a single product. Your computer plays movies. Your cell phone has a camera. Your clock has a radio. Your watch functions as a compass. You can store data on your iPod touch. All these are examples of technological convergence.

Convergence worked its magic on cell phones, computers, portable media players, digital cameras, GPSs, watches, and ebook readers. Now you get features from all of them by purchasing a single digital device. Whether you purchase a full-size computer, a sophisticated mobile phone, or even a game console, you generally have access to software, music, photos, ebooks, movies, communications, and the Web (Figure 1-8).

Convergence is important to the digital revolution because it created sophisticated mobile devices whose owners demand access to the same services available from full-size computers on their desks.

Your smartphone isn't usually in range of the cable modem in your house, so it needs a different way to access the Internet. Your iPad is too small for a huge hard disk, so it needs an alternative place to store data and applications. Touchscreen devices are not great for typing tasks, so cloud-based apps can be specially designed to suit the use of gestures, rather than the use of a mouse and keyboard. You can see how these mobile devices require a solution such as cloud computing to provide a full spectrum of digital services.

FIGURE 1-7

The "cloud" represents Internet-based services, such as applications and social media, that are available from computers and handheld digital devices.

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FIGURE 1-8

Smartphones such as the iPhone and Droid offer a huge selection of applications and Internet access.

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