

- Instant messaging, with contact lists
- Peer-to-peer file sharing of MP3s, pioneered by Napster

Interestingly, the first two killer applications came from the research community, whereas the last two were created by a few young entrepreneurs.

The period from 1995 to 2001 was a roller-coaster ride for the Internet in the financial markets. Before they were even profitable, hundreds of Internet startups made initial public offerings and started to be traded in a stock market. Many companies were valued in the billions of dollars without having any significant revenue streams. The Internet stocks collapsed in 2000–2001, and many startups shut down. Nevertheless, a number of companies emerged as big winners in the Internet space, including Microsoft, Cisco, Yahoo, e-Bay, Google, and Amazon.

1.7.5 The New Millennium

Innovation in computer networking continues at a rapid pace. Advances are being made on all fronts, including deployments of faster routers and higher transmission speeds in both access networks and in network backbones. But the following developments merit special attention:

- Since the beginning of the millennium, we have been seeing aggressive deployment of broadband Internet access to homes—not only cable modems and DSL but also fiber to the home, as discussed in Section 1.2. This high-speed Internet access has set the stage for a wealth of video applications, including the distribution of user-generated video (for example, YouTube), on-demand streaming of movies and television shows (e.g., Netflix), and multi-person video conference (e.g., Skype).
- The increasing ubiquity of high-speed (54 Mbps and higher) public WiFi networks and medium-speed (up to a few Mbps) Internet access via 3G and 4G cellular telephony networks is not only making it possible to remain constantly connected while on the move, but also enabling new location-specific applications. The number of wireless devices connecting to the Internet surpassed the number of wired devices in 2011. This high-speed wireless access has set the stage for the rapid emergence of hand-held computers (iPhones, Androids, iPads, and so on), which enjoy constant and untethered access to the Internet.
- Online social networks, such as Facebook and Twitter, have created massive people networks on top of the Internet. Many Internet users today “live” primarily within Facebook. Through their APIs, the online social networks create platforms for new networked applications and distributed games.