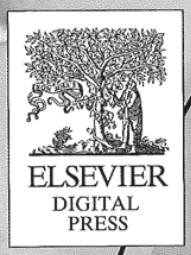
SECURITY



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1.3.1 IM and Its History

In our fast-paced world there are times when even the rapid response of e-mail is not fast enough. There is no way for you to know if the person you are sending e-mail to is online at that moment. This is one of the reasons why IM has gained popularity, acceptance, and become a desired tool in the workplace. IM provides us with the ability to maintain a list of people, often called a buddy list or contact list, whom we want or need to interact with. IM monitors our list of people and their status of being online or offline. If they are online, we can send messages back and forth. Businesses today are increasingly viewing IM as an excellent productivity and communication tool that complements voice mail and e-mail. In order for there to be complete acceptance, there needs to be specific security, accountability, and uniformity among IM solution providers. There needs to be policies that protect critical organizational interests and comply with federal mandates and regulations. Corporations want IM solutions that provide seamless security, full audit trails, identity controls, and administrative controls. Most corporations agree that message encryption is essential.

There are three basic types of IM, as follows:

1. Public messaging
2. Enterprise messaging
3. Wireless messaging

In 1987, a computer scientist at MIT developed an instant-messaging program called Zephyr in order to provide a system that was faster than e-mail, which had begun to be bogged down, so that urgent messages regarding the school's network and server could be received instantly in case, for example, the school's network server was going down. Soon, students adopted Zephyr as a form of easy communication that could be used while they worked at their computers. This technology was quickly adopted by other universities, and the simple early warning system that Zephyr was originally designed to be was repurposed, becoming a popular tool of conversation and information exchange called IM. IM as we know it today was created in July 1996 by four young Israeli entrepreneurs. Yair Goldfinger, Arik Vardi, Sefi Vigiser, and Amnon Amir, started a company called Mirabilis in order to introduce a new way of communication over the Internet. They created a technology that would enable Internet users to locate each other online on the Internet and create peer-to-peer communi-

cation channels easily. They called their technology ICQ (I seek you) and released it in November 1996. Within six months, 850,000 users had been registered by Mirabilis. By June 1997, Mirabilis was able to handle 100,000 concurrent users and had become the world's largest Internet communications network. Mirabilis and ICQ were acquired by America Online, Inc., in June 1998 for $287 million. AOL had also created its own Instant Messenger system. By that time, Microsoft had created its own IM client and service, MSN Messenger, and another Internet heavyweight, Yahoo!, created one as well. Because IM services evolved from proprietary systems created by companies to make a profit, their systems remain unable to interoperate because of the desire to control the IM market. AOL and ICQ, even though owned by the same company, are not interoperable. ICQ currently has two clients: ICQ4 Lite Edition with Xtraz (Figure 1.1) and ICQPro™ (Figure 1.2) [5,6].

The AOL and ICQ clients cannot communicate with one another, and AOL maintains both systems and market dominance in the IM field. All this may change soon. Conditions of the AOL–Time Warner merger required AOL to open up its IM systems [7]. In its analysis of IM, the FCC concluded that the merger would combine an essential input of AOL's dominant IM service and future IM-based services—chiefly, the Names and Presence Directory (NPD)—with assets of Time Warner, including its cable

Figure 1.2
ICQ™Pro.

facilities and Road Runner ISP. An IM provider's NPD consists of a database of its users' unique IM names, their Internet addresses, and a "presence detection" function, which indicates to the provider that a certain user is online and allows the provider to alert others to this information. The FCC noted that these features created a market with strong network effects. AOL, with by far the largest NPD, resisted making its IM services interoperable with other providers' services. The merger brought Time Warner's cable Internet platform and content library under AOL's control and gave AOL Time Warner a significant and anticompetitive first-mover advantage in the market for advanced, IM-based high-speed services (AIHS). Potential AIHS applications include those using streaming video (lengthy, high-quality, one- or two-way video). The merger would frustrate the objectives of the Communications Act by preventing the emergence of a competitive and innovative market for advanced, IM-based services. This would violate key Communications Act principles, including the further development of healthy competition in the Internet and interactive services arena. The FCC did not establish an interoperability protocol. Rather, the FCC's remedy requires AOL Time Warner to follow a protocol developed by the industry or to create a protocol with other IM providers pursuant to contracts. Thus, the FCC did not create and will not review an Internet protocol.

The FCC imposed an "IM condition" on the merger to avert market harm now so that it would not be required to regulate IM in the future. Given AOL Time Warner's likely domination of the potentially competitive business of new, IM-based services, especially advanced, IM-based high-speed services applications, the FCC ruled that AOL Time Warner may not offer any AIHS steaming video applications that use a Names and Presence Directory (NPD) over the Internet via AOL Time Warner broadband facilities until the company demonstrates that it has satisfied one of three pro-competitive options filed by the FCC. AOL Time Warner must file a progress report with the FCC, 180 days from the release date of the order and every 180 days thereafter, describing in technical depth the actions it has taken to achieve interoperability of its IM offerings and other offerings. These reports will be placed on public notice for comment. The IM condition was set to sunset five years after the release of the order.

AOL Time Warner was directed to show that it had implemented an industry-wide standard for server-to-server interoperability. AOL Time Warner had to show that it had entered into a contract for server-to-server interoperability with at least one significant, unaffiliated provider of NPD-based services within 180 days of executing the first contract. AOL Time Warner also had to show that it entered into two additional contracts with

significant, unaffiliated, actual or potential competing providers. AOL Time Warner was given the opportunity to seek relief by showing by clear and convincing evidence that this condition no longer serves the public interest, convenience, or necessity because there has been a material change in circumstances.

Since the FCC ruling, several competing companies have joined together to advocate an IM protocol similar to those that allow the interoperability of e-mail systems. Other companies have taken a different approach rather than wait for an agreed-upon standard. Jabber is one company that has created a client program capable of communicating with various IM systems. In less than two decades, the concept of IM has become an international tool of communication.

1.3.2 IM as an Integrated Communications Platform

The IM platform can be the basis for true integrated communications by incorporating additional technology (such as extending it into the wireless realm with mobile phones and personal digital assistants [PDAs]) or by adding other means of communication (such as voice chat or video chat). With the addition of IP telephony (VoIP) capability, the messaging service can even extend to telephony, making it possible to communicate with anyone at any time. It can be used as a personal communications portal to create a single point of contact for all methods of communication, allowing a user to initiate any kind of communication from one place, using a single contact list. Using IM as an integrated communications platform allows for one-click communication. Instead of having to run through a list of home, office, mobile, pager numbers, and e-mail addresses, someone trying to reach another person can simply click on that person's name. It also enables users to control how others communicate with them. If they prefer that calls go to their mobile phones when they are away from the office, they can set their profile so that the system directs calls that way. The system would route communications according to that person's preferences. When additional features such as integrated communications, reachability, and communications profiles are part of IM, the market for IM will increase from personal to professional use, creating better business markets for messaging services and making these services more of a revenue-generating opportunity for service providers [8].