



RealNetworks

*Research Associate
Margaret Johnston
(MBA '98) and
Assistant Professor
Suresh Kotha
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RealNetworks is a streaming-media software firm located in Seattle, Washington. The firm's streaming software products enable multimedia content developers and others to stream both audio and video content over the Internet and Intranets to end-users.¹ End users, in turn, can view this content with the firm's "player" software, known as RealPlayer. Within three years of its founding, the firm has managed to create a strong demand for its streaming server software products and become a leader in this important segment. Many aspects of its business model are currently being imitated by competitors.

The firm permits users to download its RealPlayer software for free at its Web site, <http://www.real.com>. With over 40,000 downloads a day, the firm claims that over 18 million RealPlayers have been distributed globally. Recently, the firm signed an exclusive licensing agreement with Microsoft Corporation, the world's dominant PC software firm, to bundle RealPlayer with every copy of their Internet Explorer that Microsoft distributes. Microsoft's Internet Explorer is the world's second most popular Internet browser software, after Netscape's Navigator. However, despite its rapid growth and well-entrenched position, top management at RealNetworks faces a host of challenges.

This case discusses the genesis of RealNetworks, its rapid growth and approach to competition in the audio and video streaming on the Internet and Intranet markets. It highlights the issues faced by the firm as its top management formulates its strategy to continue its rapid growth in the face of different uncertainties and challenges.

¹ Streaming technology enables the transmission and playback of continuous "streams" of multimedia content, such as audio and video, over the Internet and Intranets and represents a significant advancement over earlier technologies.

COMPANY BACKGROUND

Founded in April 1994 RealNetworks (formerly known as Progressive Networks) has quickly established itself as a pioneer and industry leader in the delivery of real-time audio and video content over the Internet. The firm was the brainchild of Rob Glaser, a former Microsoft executive. Early in 1994, Rob was toying with the idea of using interactive multimedia technology to create a “cable channel focused on politics and culture.” Robert Reid, who has chronicled the early growth of the Web and Rob Glaser’s contributing role in its evolution, points out that:

The notion of interactive television (ITV) was by then [early 1994] all the rage. Many smug pundits were even viewing the PC as downright dowdy. For his part, Rob was at first agnostic about whether to use ITV or the PC as the medium for his half-formed vision. Then he encountered Mosaic—a ‘total epiphany,’ he remembers. He almost immediately concluded that ‘interactive TV was going to be stillborn,’ and that ‘the whole mechanism that Mosaic had used to bootstrap itself, A, was a big deal in its own right, and B, once established, itself could be used as a bootstrapping mechanism for other stuff.’ That *other stuff*, or rather some of it, turned out to be RealAudio.²

According to a report in *The Wall Street Journal*: “Mr. Glaser sank about \$1 million of his own money into a start-up that would first produce software for compressing and transmitting sound. With additional funding from friends such as Lotus founder Mitch Kapor, RealAudio 1.0 quickly made its debut in April 1995.”³ It had been exactly one year since Rob founded RealNetworks.

Despite some disdain from the Internet elite, because of the tinny sound which created an unsatisfying experience, RealAudio 1.0 broke the Web’s sound barrier. Soon, however, the product began to win industry favor. Notes Reid:

RealAudio debuted on the Web on April 10, 1995, along with content from ABC News, National Public Radio (NPR), and others. Tiny Progressive was soon covered by such publications as *The New York Times*, *The Wall Street Journal*, and *The Economist*. *USA Today* characterized RealAudio as ‘The technology of the ‘20s meeting the technology of the ‘90s,’ while *Time* [Magazine] meanwhile assured the image-conscious that ‘Glaser’s system is not just for geeks.’⁴

Within a month, Netscape, the world’s largest browser-software firm, began shipping RealAudio as part of its Navigator browser software. By August of that year, RealNetworks had sold its server products to several large Internet media companies including Starwave, Ziff-Davis, and ABC News.

Just months later in October 1995, the firm released a newer and more advanced version of its server and player (RealAudio 2.0) products. The firm’s player software won the Internet World Magazine’s “Outstanding Software Product of the Year” award in April of 1996. By September of 1996, the firm released yet another version, this time RealAudio 3.0. Shortly thereafter Prodigy, a leading Online Service Provider, began bundling the firm’s player software with its custom browser. Although there were a handful of other firms providing audio-streaming solutions, none matched the rapid growth of RealNetworks.

Having established itself as a leading provider of audio-streaming software, the firm turned its attention to video streaming. According to a report in *Wired*:

In December 1995, while attempting to vacation in Hawaii, Glaser got some email from a two-person San Francisco company, FreeVu, which had an Internet videoconferencing tool under development. Glaser took a

² R. Reid, *Architects of the Web*. NY:Wiley, pp. 77.

³ A Web pioneer does a delicate dance with Microsoft, *The Wall Street Journal*, February 12, 1998.

⁴ Reid, p. 79.

look, was impressed, and persuaded FreeVu's principals to sign on as Progressive employees. RealVideo's development effort had begun.⁵

In February of 1997, the firm released a product that combined video and audio streaming, RealPlayer 4.0. At this time however, unlike when audio-only player was released, there were several video-streaming providers Xing Technologies, VDOnet, Vosaic and VXtreme who already marketed products on the World Wide Web (WWW). Recognizing this, Rob signed an exclusive licensing agreement with Microsoft to bundle RealPlayer with Internet Explorer. With such an agreement, the firm has had little difficulty in achieving a dominant position in video streaming on the Internet.

In September 1997, the firm changed its name from Progressive Networks to RealNetworks and filed for an initial public offering (IPO). The IPO was undertaken to raise capital to continue to fund further product development. During this period, the firm also introduced its fifth major upgrade of its server (RealSystem) and player (RealPlayer) software.⁶ On October 3, 1997 the firm went public on the NASDAQ Stock Exchange with a 3.5 million-share offering. The stock opened at \$12.50 per share and then moved higher to \$19 per share before settling around \$16. Net proceeds for the offering were approximately \$38.5 million. The stock has remained healthy throughout the fall of 1997, despite the slump in over-the-counter stocks of other Internet companies. Within a three-month time period, Rob had successfully partnered with Microsoft, launched a major upgrade of the product system, and had taken RealNetworks public.

With frequent product upgrades, RealNetworks has garnered widespread support and won many industry awards. For example, writing about its latest product upgrade, Allen Weiner, an analyst with Dataquest, notes that the firm has demonstrated superiority in all areas of streaming:

With the release of RealSystem 5.0, RealNetworks is taking the streaming media market by storm...RealNetworks' emphasis on innovation, coupled with its cross-platform architecture, incredible brand recognition and majority market share, continues to place it at the forefront of the streaming media market."⁷

Most importantly, RealNetworks has managed to compile an impressive list of companies that use its server software to transmit multimedia content over the Internet. This list includes all three major US television networks (NBC, ABC and CBS), two major long-distance telephone carriers, the United States Senate, and many of the biggest companies in the music industry, including SONY. In just four years since its founding, RealNetworks has produced over eight product varieties and has grown to over 350 employees. For 1997, the firm as a whole reported total revenue of \$32.7 million, an increase of 134% from \$14.0 million in 1996. However, the net loss was \$11.2 million for 1997, compared to \$3.8 million for the previous year (see **Exhibit 1**).

PRODUCTS, MARKETS, AND COMPETITION

RealNetworks competes in two different markets—the Internet and the Intranet markets. The potential Internet customers include the Web site creators and the end users that access those Web sites. The potential Intranet customers include all businesses that have internal networks that connect employees.

⁵ R. Reid, Real Revolution. *Wired*, Issue 5.10, October 1997.

⁶ When the firm releases a new product, it releases both the server and player versions simultaneously. For example, the most recent product released by the firm is the RealSystem 5.0. Customers can acquire either the server or player version of the new software. The new RealVideo servers are always backward compatible with older server products and can stream audio only, or video and audio content.

⁷ RealSystem 5.0 Experiences Rapid Market Adaptation, *RealNetworks Press Release*, December, 1997

The Internet Market

Core Products The firm's core products include: the RealPlayer and RealSystem server software. The RealSystem server software allows developers to display, or "stream," video content to viewers via the Internet. The RealPlayer software enables individuals to view a video clip being "streamed" from a server. The player software can be downloaded for free directly from the firm's Web site. The firm also offers RealPlayer Plus, an enhanced version for \$29. This version includes several easy to use features including memory buttons that are not included in the free version. It can be purchased separately in a retail software store or purchased bundled with products such as modems. It can also be downloaded and paid for directly from RealNetworks.

When using the RealSystem product, customers have the choice of either streaming video "live" or "on-demand." In order to stream video on-demand to Internet end-users (viewers), a customer or developer must take three steps. First, using the RealPublisher tool that is included with the RealSystem software she converts the video content into digital-video file. Special video-editing equipment not included with the RealSystem software is needed for this process. Second, the customer uploads this file on to a server computer that end-users can reach. When end-users link to the server using a browser with RealPlayer software (a plug-in) properly installed, the player software will automatically begin streaming the video from the server on to the viewer's computer.⁸

As noted before, the most recent product release from RealNetworks is RealSystem 5.0. This version includes capabilities that were not part of earlier products (see **Exhibit 2**). Since its release in the fourth quarter of 1997, the number of Web pages using streaming media has grown by 50%. According to industry experts about 80% of those Web pages now use RealAudio, RealVideo or RealFlash content.

Despite the growing popularity of video streaming, the quality of the video streamed over the Internet does not compare to that of broadcast TV.⁹ Although the quality of the streaming video has improved with each new product release, the video images still look jerky when customers use a 28.8 Kbps modem to access such content. But for customers who use higher-bandwidth access lines such as an ISDN connection, the video quality is markedly better.

Other Products and Services In addition to selling software products, the firm offers a range of consulting services. These services include training sessions on (a) how to set up and administer the firm's server software, and (b) creating RealAudio and RealVideo content. For large customer installations, the RealNetworks consulting staff often assist in re-designing the customer's information systems to best adapt and incorporate its streaming technology. Although some of the consulting services offered by the firm are free, many are fee-based and charges for such services vary with individual client requirements.

An additional source of revenue for the firm is its content aggregation and hosting business on the Internet. On the firm's Web site, customers can view different types of content (audio or video)

⁸ The approach used for streaming media live is similar. The difference between live streaming and on-demand streaming is that the content is converted to streaming format as it is being created. For example, a customer could stream a live video of a conference speaker. To view the speech, a person would have to be at his or her computer at the same time of the actual presentation. Live streaming media content can be recorded for on-demand viewing at a later time.

⁹ Television video (using NTSC standards) has a basic rate of roughly 100 megabits per second. Encoding this signal at 100 Kbs implies a compression ratio of 1000:1. By comparison, audio is typically compressed at a rate of roughly 15:1. Clearly, the process of video compression is challenging. Solutions typically involve dramatically reducing (sub-sampling) the size and frame rate of the images. However, such tactics induce visual artifacts in the reconstructed images. Artifacts are noticeable differences between the original images and the encoded images that can be identified and characterized.

assembled on many different Web properties. Although many are by managed by RealNetworks, some of them are owned and maintained by others. But all of these sites are hosted by RealNetworks (see **Exhibit 3** for a detailed list). By combining different sites, the firm hopes to demonstrate the capability and superior quality of its streaming technology solutions (relative to its competitors), provide exclusive access to interesting multimedia content to Web surfers, and generate revenues from advertisement sales based on the sites' ability to attract traffic. Finally, the firm operates a virtual store called RealStore, where customers can purchase products such as content-creation utilities, training videos, modems, and other software products.

Competitive factors in this market include: (a) the quality and reliability of software; (b) features provided for creating, editing and adapting multimedia content; (c) the ease of use and interactive user features provided as part of the system; (d) issues pertaining to scalability and cost per user; and (e) compatibility with the user's existing network components and software systems.

Customers The firm's Internet customers can be broadly segmented into two groups: server and player customers. These two segments can be further divided by customer requirements. For the player segment, there are three basic types of customers—beginner/light users, experienced/light users and advanced users. Beginner/light users are interested in a viewing solution that is easy to install and use. These customers are likely to choose the \$29 RealPlayer Plus product over the free version distributed by the firm. This is because this “plus” version includes a manual that provides installation and set-up instructions. The more experienced/light users are likely to choose the free version of the RealPlayer product. Finally, the advanced users, may or may not choose the Plus product depending on how much they value the extra features offered by that version relative to competitor products.

The Internet server customers can be divided into the following five specific segments that include:

- Media Companies. These include companies such as *The Wall Street Journal*, CBS, Fox News, and Warner Brothers who create content and fund parts of the infrastructure for delivering that content.
- Commercial Web Site Developers. They include businesses with Web sites that are used for revenue generation. Examples include Yahoo!, Lands' End and numerous others. Some of these sites generate revenue via transactions, while others focus on generating advertising revenues based on the traffic attracted to the sites.
- Non-Commercial Web Site Developers. These are firms that operate Web sites to distribute information. Examples include government agencies, schools, and private clubs that could potentially include streaming content on their sites.
- Internet Service Providers (ISPs). ISPs are the businesses that sell access to the Internet. In addition to access, ISPs often offer Web site development and management services to their customers. These types of businesses may wish to offer their customers streaming capabilities and thus purchase streaming server products directly from RealNetworks.
- Streaming Service Providers. Some businesses exist solely to develop and manage sites with streaming content. US-West Enterprise Networking and Digital Nation are examples of “hosting” service businesses.

As of December 1997 there were an estimated 40 million Internet users in the world. According to NetRatings, a market research firm, by the year 2000 this number is expected to grow to 200 million. In January of 1998, a little over 21% of all US households had access to the Internet. Of these, about a quarter had signed up only in the preceding six months. Hence, the size of the potential consumer market for the firm's products is growing rapidly, but so is the competition.

Competition The market for software and services for the Internet (and Intranet) is relatively new, constantly evolving, and becoming intensely competitive. In a broad sense, audio and video streaming technology faces competition from traditional media such as TV and radio broadcasting, and storage devices such as VCRs and CD-ROMs. A major limitation of current streaming technology

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