BlueBox™ Technology

CD-Quality Multimedia Experiences in a Connected Environment

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Abstract

BlueBox Technology provides high-quality, multimedia experiences for the online environment. By combining a proprietary multimedia framework with tools and services specific to the online environment, ImageBuilder has created the next generation technology for delivering rich, connected experiences via the web.
The Connected Multimedia Experience

For years users have anticipated compelling, connected, multimedia experiences. Progress has been made in both the richness and the connectedness of the experience. However the two have rarely intersected except for a relatively small group of technically savvy individuals, those who enjoy shooting others in a virtual world.

By 1995, most people could experience multimedia delivered on floppy disks or CD-ROMs. Consumer demand pushed technology and design to support ever-higher levels of quality in the multimedia arena. Since then, technology improvements such as full-screen, real-time, photo-realistic rendered environments have allowed designers unprecedented freedom to produce rich applications. Today, users expect high performance technology and compelling applications.

At the same time the quality of the multimedia experience was escalating, the connected experience was also on the rise. In 1995, most people were not Internet-aware and probably did not know about web sites or browsers. That did not stop pioneering individuals from learning to use limited, text-based technologies such as email, newsgroups, and the occasional chat room to connect and collaborate with others to achieve their goals. Today, no one is considered a pioneer for using collaborative applications; we rely on email, web searches, and application service providers to deliver instant links to each other. People, even technically naïve ones, are no longer satisfied with an isolated experience; they demand connectivity.

People now expect a connected, multimedia experience; unfortunately the usual methods used to deliver this experience are lacking in important ways. Traditional multimedia applications are hampered by development processes that assume content is part of product delivery. This assumption, while convenient during development, requires not only that all assets be created before delivery of the product, but also that all assets be delivered with the product. This, in turn, produces products that require huge downloads or must even be delivered via CD-ROM. People, on the other hand, want nearly instant gratification.

Emerging methods to enhance the web experience with connected, rich multimedia are very restricting to publishers. There are many cross platform “standards” (such as Java, Shockwave, and Flash) as well as browser-specific “solutions” (such as ActiveX and Navigator Plug-ins) for improving the user experience within the browser. While each of these technologies improves the experience, they all share a common weakness. Any scheme to extend the browser will always be constrained by the browser itself and as such must rely on the browser for services like window space, focus management and menus. The cross platform schemes are additionally limited by either performance or capability. While the browser-specific extensions are generally not limited in these ways, they limit the available audience.

The New Platform

BlueBox™ Technology delivers high-quality, multimedia experiences in a connected environment. By combining a proprietary multimedia framework with tools and services to exploit connected environments, ImageBuilder has created the next generation technology enabling rich, connected experiences.

BlueBox Technology exploits the capabilities that make web development effective, such as standard communication protocols, extensibility after initial deployment and short turn-around time, while solving the problems that hamper rich, web-based experiences. Central to eliminating
these problems is the creation of a new delivery technology that seamlessly allows the browser to be sidestepped without interrupting the user experience. Normal web links can be used to activate previously downloaded applications with new content. If this is the first time the user has encountered the application, it will automatically be detected, downloaded and installed with a minimum of prompts as either a browser extension or traditional application. With this seamless interface between web browsers and BlueBox applications traditional problems, such as poor performance and a constrained environment, are removed.

**Proprietary Framework**

BlueBox Technology grew out of an object-oriented, multimedia framework developed over seven years—a proven technology that is the backbone of dozens of successful, shipped CD-ROM applications with high replay value. BlueBox applications allow many activities to be played over and over without a new download. Where as Shockwave and Flash require the user to download new episodes for each replay. In addition to being programmatically extensible, BlueBox applications are also extensible via additional resources. If users desire additional game levels, they only need to download the additional components for the new level which can even be downloaded during play.

**Independent Application**

Because BlueBox powered applications are not part of a browser, they are not limited by the constraints of the browser. As true applications, not plug-ins to some other application, they have complete and first access to all system resources available: CPU, virtual memory, file system, peripherals, etc. This allows BlueBox applications to provide higher quality as well as better-designed experiences than those applications experienced through a browser.

Many problems impact the user's web-based experiences. The usual in-the-browser experience imposes several confusing issues on most users. For example, if a normal browser component, such as a Shockwave game, does not have keyboard focus, it is not playable. Unfortunately most games have no indicator of focus, so when focus is lost the user is left confused, with no help to correct the problem. Menus, event filtering, screen resolution, interaction with the web page, and multiple instances are other problems that must be faced.

By stepping out of the browser, the user experience can be managed to avoid these limitations. In browser-based applications, the multimedia experience is confined to one part of a single browser window. The browser manages all keyboard input, all menus; it allows users to scroll the page, and forces the experience to be a small part of a larger window. BlueBox applications use a separate window; this allows controlling video resolution, hiding task and menu bars, and providing menus with features pertinent to the current activity. It also allows support for joysticks and other input devices and better support for keyboards. By taking the user out of the browser, the designer has more control and can deliver a better experience--anything the computer is capable of performing. This versatility gives BlueBox Technology a substantial advantage over traditional browser-based applications.

**Connectivity**

BlueBox Technology demonstrates one of its greatest strengths by providing experiences that connect people directly to each other. By delivering ways for designers to let users interact with both each other and a central host the disadvantages of client-pull are eliminated. BlueBox Technology leaps ahead of other web-based solutions that require all communication to be transmitted to the host and then downloaded before other clients can react.
In addition to the capability to simultaneously download while playing, BlueBox permits uploading during play; this allows activity to progress and results to be sent to the hosting site. For art and creativity sites, this would enable users to post their artwork to the sites’ galleries for viewing by other users. In sites that let users create sound mixes, animations, skits or stories, users could post their work to the host site as well. In game sites, high scores and new levels could be posted.

BlueBox Technology supports player-hosted games in which two to eight players directly connect and do not need a server. The optimal players’ computer is automatically elected as host for the activity and all communication goes through it. Using this mechanism BlueBox applications can support just about any small group game: first-person exploring/shooting environments as well as trivia games. BlueBox also supports automatic recovery for lost players, including the host, and allows players to join and leave a game while it is in progress.

Massively multi-player games are also possible with BlueBox Technology where a permanent server hosts the simulation. In this case each player’s computer communicates with the host to retrieve the current simulation data and connect to others within the game. For example, BlueBox applications could play bingo, trivia games, poker or parlor games. The range of possibilities for multiplayer games is extremely wide, including things not commonly thought of as “real” games, such as bulletin boards, polls, high score ladders, chat, and even game lobbies.

Easy Deployment and Management
BlueBox Technology allows applications to be designed, developed and deployed quickly. Modular resource deployment means an activity or game can be created and deployed while additional levels or extensions are concurrently being developed. The application can automatically detect new versions as they become available. BlueBox-based experiences can be deployed quickly, and enhanced over time with updated assets.

Many BlueBox applications will not require any server support beyond a typical web server to host web pages, the application and downloadable assets. For more advanced applications, such as receiving uploaded user information or simulating simple multiplayer games, a more advanced server can use a simple web server plug-in. By using plug-ins, existing infrastructure and expertise can be reused.

All BlueBox communication, except for player-hosted gameplay and some real-time multi-player games, is over standard HTTP. This means that all the traditional nightmares caused by proxy, firewall and network address translation can be avoided.

Security
BlueBox Technology offers a number of security features. By using proprietary file formats and grouping assets into asset packs most casual unintended use can be avoided. In addition, much of the data is compressed which deters almost all other editing and/or redistributing of sensitive branded materials. BlueBox also supports digital signatures to verify code and data for integrity. For sensitive material, encryption prevents unauthorized access, including eavesdropping.

Conclusion
BlueBox Technology allows high-quality, multimedia experiences to be delivered in a connected environment. Using an extensive multimedia framework, ImageBuilder has created the next generation technology for delivering rich, connected experiences wherever connectivity exists.