



Generic Media™  
Publishing Service  
White Paper

December, 2001

## INDUSTRY OVERVIEW

Over the past several years, the streaming media market has enjoyed rapid growth and widespread adoption while establishing itself as a powerful and flexible messaging channel. According to Streaming Media, Inc., companies in all industries have begun testing the waters of streaming media, experimenting with different targeted applications and generating initially encouraging results. But while promising, Streaming Media also found that the nascent streaming market has been characterized by a confusing plethora of product and service offerings, delivery options, divergent pricing models and only a cursory nod toward effective management and measurement strategies.

Today, with so many open-ended questions about the future of streaming media, it is impossible for businesses to forecast and capitalize on the long-term value of their current media assets. The continued evolution in streaming and networking technologies as well as the emergence of new media-capable platforms will only exacerbate the complexities involved in streaming media, and hamper the progress or effectiveness of companies that decide to make significant investments toward integrating streaming media programs into their businesses.

As the streaming market evolves, the popularity and reach of each media player (RealPlayer™, QuickTime®, Windows Media™ Player, etc.) fluctuates while new formats and codecs gain acceptance. This progressive digital-media landscape can easily leave a company's media assets rendered obsolete. Moreover, streaming-media audiences continue to be unstable, as individuals and corporations switch not only their preferred media formats and connection speeds, but their computing platforms as well.

In order to effectively reach a wide audience with streaming media, companies must encode content in several formats and for a variety of bandwidths, for delivery to PCs, handheld devices, and cell phones. Faced with this growing multiplicity of audience segments and the tremendous expense of reaching them all, companies have had no choice but to limit their publishing formats to a select few, and hence limit their audience size.

The publisher is then forced to choose a set of formats that cater to particular audiences. The publisher may choose high-quality formats to make their content look better, but this excludes less-capable users (e.g., 56k modem users) who may represent a large segment of the target audience. The publisher may instead sacrifice quality to accommodate a larger audience, but then users with better connections or devices (e.g., DSL users) are left disappointed. The publisher may choose only certain streaming formats (e.g., Real vs. Windows Media), at the cost of losing a significant segment of their audience. Once they have chosen, the publisher has no easy way to measure the lost opportunity of not encoding in other formats. And worst of all, once the publisher has spent time and money encoding each asset, they must go through the whole process again when new streaming formats and devices become popular.

While businesses continue to discover meaningful applications for streaming media, it is imperative that the streaming industry address the technology's associated complexities, reduce the costs to publishers, and increase the long-term value of their assets. Only then will companies who publish streaming media find themselves on a stable foundation – a

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**45** percent more companies  
streamed this year than last

**86** percent increase in enterprise  
spending on streaming

**230** percent increase in total  
stream-hours delivered

— *Streaming Media, August, 2001*

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foundation leading to increased audience reach, better connections with customers, and a more productive and profitable future.

## COMPLEXITIES OF THE TRADITIONAL STREAMING MODEL

Companies that currently operate streaming media programs have found themselves saddled with an extremely unwieldy publishing model. Today's method of streaming content demands that the majority of a publisher's resources be diverted into production and technology management; resources that could be better spent on the creation and distribution of content.

While creating video has been simplified, encoding, storing and streaming that content has become increasingly complex, and requires a well-architected strategy that incorporates audience size and requirements, multiple delivery opportunities, integration with current systems and currently used media formats, content refresh rates, the ideal amount of content to offer, and the type of content to distribute.

This creates a huge technology burden on the publisher, requiring it to manage network capacity, storage systems and sophisticated streaming technologies – above and beyond the already sizeable challenges involved in creating compelling content. Unexpectedly, the success of a streaming program can often become a burden, as bandwidth and server stream-license costs grow. The increased load can often adversely affect the performance of a publisher's entire network.

When a company decides to take the traditional approach to streaming media publishing, it is immediately faced with compromises. With limited resources, companies must decide which streaming formats to support and at which bit rates. This trade-off, made before any content has even been offered, alienates segments of the publisher's potential audience. Some viewers will have the correct player, but find that their Internet connection speed isn't supported. Other viewers with fast connections will be disappointed by low-quality streams optimized for a dialup modem. Worse yet,

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**A whopping 63 percent of respondents are paying higher prices [for streaming services] than we have been able to obtain.**

— *Streaming Media, August, 2001*

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some viewers will find that they don't have the correct media player, and that in order to view the publisher's content, they will have to install an appropriate media player – something many consumers are unable or unwilling to do.

The sobering reality facing streaming media publishers is that this player/bit-rate complexity is only expected to grow as better technologies are introduced and users adopt new platforms with different connection speeds. Jupiter Media Metrix expects that divergence, not convergence, of rich media content will expand content providers' opportunities to reach customers. Today, we can already see the spread of 802.11b wireless networking, several roll-outs of new proprietary wireless Internet services for handhelds such as Palm OS and PocketPC devices, and the initial tests of high-bandwidth 3G cell-phone services.

But the trade-offs a company makes in its initial streaming strategy have a much more insidious affect than limiting the size of the potential audience – after all, the media formats one supports can always be updated to reflect the state of the market. And while that is true, it does not do anything to salvage the long-term value and viability of the company's growing archive of streaming content. For as that archive grows, it ages, and the format and bit rate it has been encoded in becomes less popular and less relevant.

No matter how well-architected a company's streaming program is, it will still prove to be a potentially expensive and disastrous undertaking. Creating valuable content is still a difficult proposition, and the costs of preparing and encoding that content are significant. Moreover, most companies have chosen to do much of this work in-house, often saddling their Web teams with the job, a challenge often outside their skill set. And when they do choose outsource services, according to analyst Streaming Media, the majority of companies are paying higher than market prices.

It's clear that the traditional streaming publishing model, with its associated trade-offs, is adversely affecting the ability of publishers to create elegant streaming initiatives with immediate success and long-term value. Publishers need a model that eliminates technological complexity while maintaining the flexibility and long-term viability of their streaming media assets, no matter where their audience is or how they choose to connect.

## THE GENERIC MEDIA SOLUTION

Generic Media Inc.'s mission is to enable companies to easily reach the widest audience possible while developing long-term value from their media assets. By redefining the economics and workflow of streaming media, Generic Media provides a unique streaming media publishing service radically reducing both the technical complexity and costs that have inhibited the development and adoption of streaming media.

## THE GENERIC MEDIA PUBLISHING SERVICE

The Generic Media Publishing Service provides a long-term strategy for publishing dynamically optimized streaming media. The Generic Media Publishing Service allows companies to create a single "streaming master" which when published is immediately available in a wide range of formats and bit rates, reaching the widest possible audience. The service manages all the technological complexities, allowing publishers to focus on what they do best, developing content and leveraging their media assets.

The Generic Media Publishing Service consists of three main components:

### **The Generic Media Transformation Engine**

The Transformation Engine is a just-in-time, multi-format processing engine for creating streaming media files in the requested format automatically and on-demand.

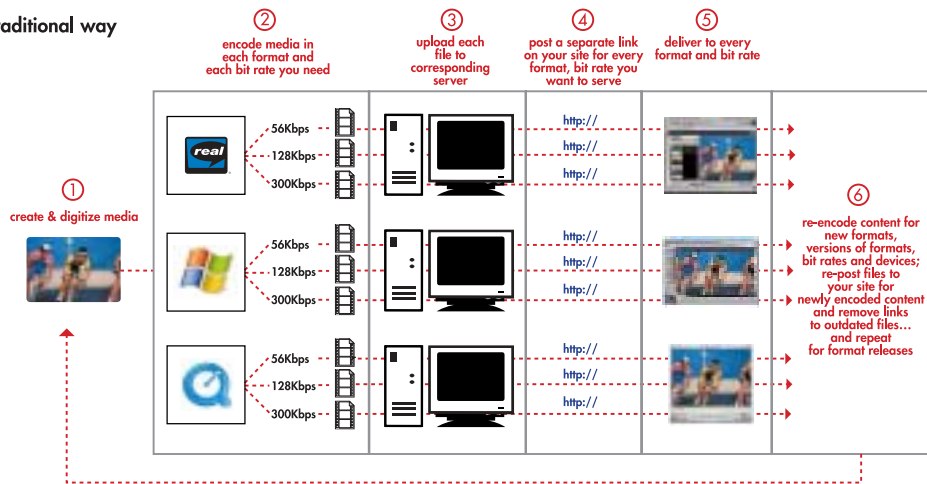
### **The Generic Media Delivery Manager**

The Delivery Manager ensures that viewers always enjoy a simple and responsive streaming experience by providing a media experience optimized for the viewer's configuration and managing end-user preferences.

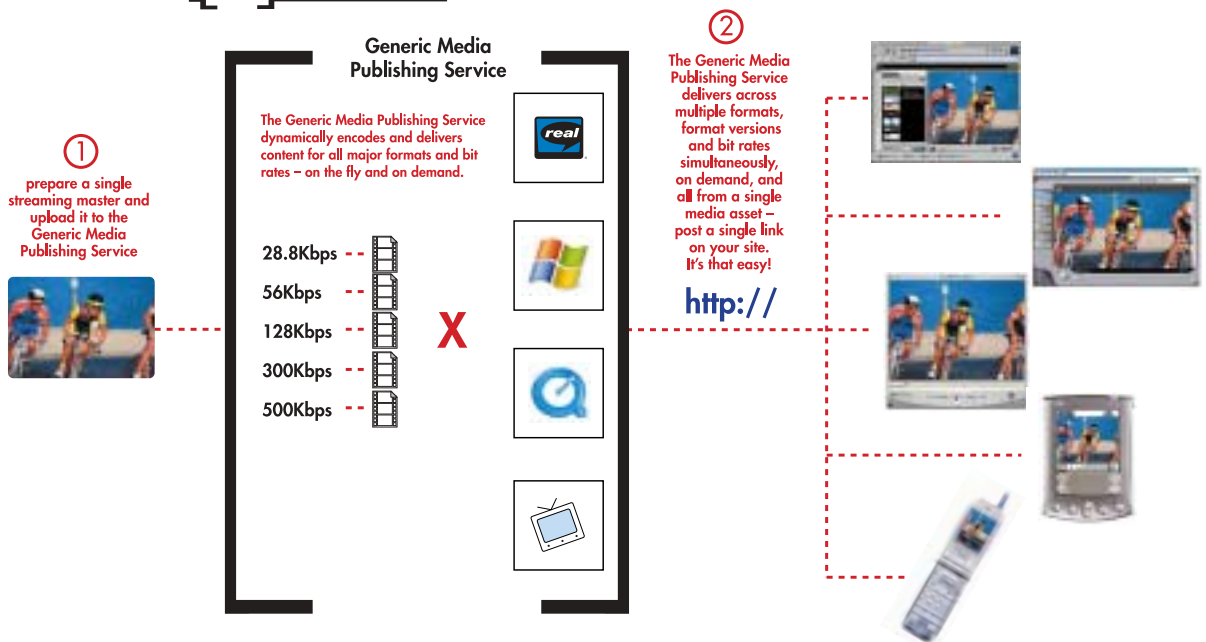
### **The Generic Media Publishing Manager**

The Publishing Manager is an intuitive, Web-based interface for managing media assets published through the Generic Media Publishing Service.

streaming the traditional way



streaming the generic media way



Supported input streaming master formats include a range of industry standards such as MPEG-2, MPEG-1, QuickTime, AIFF, AU, Wave, AVI, and MP3.



**image overlays**  
video can be enhanced and branded with graphic and animation-based logo images and messages that are applied on the fly as video is delivered – keeping the streaming master pristine for long term relevance.

Generic Media Publishing Service supports a wide and growing range of output formats, including Real Media, Windows Media, QuickTime Streaming, MP3, gMovie for Palm handhelds, and Windows Media for PocketPC.

Generic Media Publishing Service automatically delivers media across a broad range of bit rates ranging from 28.8 to 500 Kbps, serving audiences from dial-up to cable modem.

## THE GENERIC MEDIA TRANSFORMATION ENGINE

The Generic Media Transformation Engine is the core the Generic Media Publishing Service. The Transformation Engine improves the way media is streamed – from a manual, logistics-burdened process to a just-in-time, scalable and seamlessly progressive strategy. The Transformation Engine is a multi-format processing engine that enables numerous media transcoding operations to be performed simultaneously. It takes media encoding, a time-consuming manual or partially scripted process, and turns it into a simple, turnkey affair.

Generic Media is the only streaming media service that offers the on-the-fly transcoding capabilities of the Transformation Engine. The Transformation Engine supports several different streaming master formats, allowing publishers to easily adapt their current media archives and production tools to the Publishing Service. Adding content to the Publishing Service is simple: just upload a single streaming master file into the system.

Once uploaded, that content is immediately available in all supported player formats and bit rates. There is no delay, no pre-encoding process. This means that fresh content is more readily available, and the shelf life of a publisher's archived content, created in earlier days, is extended to present and future media formats and bit rates.

Because the Transformation Engine encodes and formats media on demand, master files can be managed as true "masters". Media files can be encoded as high-quality, high-bit rate files without regard to file size, increasing the file's applicability with future improvements in technology.

Video can be enhanced and branded with graphic and animation-based logo images and messages that are applied on the fly as video is delivered – keeping the streaming master pristine for long-term relevance. Overlays and watermarks are stored as Flash files, separate from media files, and integrated only when the requested media file is encoded. This allows publishers to easily and instantly change the overlays used in their content, simply by replacing a file.

The Generic Media Publishing Service has been designed on a robust and scalable architecture with redundant components to provide a high-availability service. The Generic Media Publishing Service employs true media servers, including RealSystem Server, QuickTime Streaming Server, and Microsoft Windows Media Server. Generic Media can scale processing and streaming server capacity on extremely short notice and without any downtime, ensuring that end users always enjoy a high-quality, responsive media experience.

### **Input: Supported Streaming Master Formats**

- MPEG-2
- MPEG-1
- QuickTime
- AIFF, AU, WAVE
- AVI
- MP3

### **Output: Supported Streaming Formats**

- Real Media
- Windows Media
- QuickTime Streaming
- MP3
- gMovie for Palm handhelds
- Windows Media for PocketPC

### **Output: Supported Streaming Bit-Rates**

- Cable modem/TI (500 Kbps)
- DSL/cable modem (300 Kbps)
- ISDN (90 Kbps)
- 56K modem (34 Kbps)
- 28.8K modem (20 Kbps)

## THE GENERIC MEDIA DELIVERY MANAGER

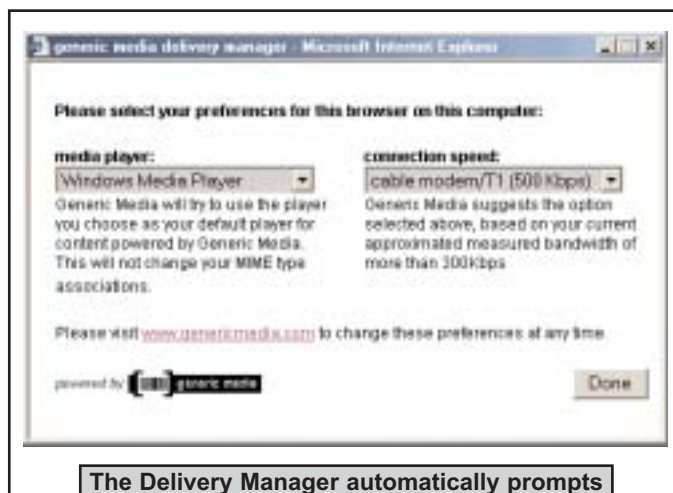
Generic Media understands that managing media files is only part of any streaming media initiative. Managing the needs of users and ensuring a no-hassle, high-quality experience is just as important.

The patent-pending Generic Media Delivery Manager ensures that viewing streaming media is a hassle-free experience. Upon an initial visit to a Generic Media-powered Web site, the Delivery Manager identifies installed media players, measures the user's bandwidth, and determines their computing platform. The Delivery Manager will then ask the user about their streaming media preferences, allowing the user to set their preferred media player and download speed. The user is not required to download any plug-ins or applications to support Generic Media services. The entire set up is performed within the Web browser.

All of the information collected by the Delivery Manager, the tests and user preferences, are saved in a browser cookie. The Delivery Manager is P3P compliant, and no personal information is collected, tracked or transmitted to Generic Media. The cookie only helps Generic Media serve the most appropriate streaming format.

Once a user sets their preferences, they are shared among all sites using the Generic Media Publishing Service. This allows users to forget about configuring their software and delivery options, and enjoy the media. The Delivery Manager supports the widest available range of popular media players and platforms, including Real Media, Windows Media Player for desktop and PocketPC devices, QuickTime, and gMovie for Palm handhelds.

This wide range of media support allows more users to view a publisher's content with greater ease than previously possible. And Generic Media is committed to supporting additional media formats and media players as they become available. This ensures that a publisher's media assets are always accessible through the most popular players, and that those assets stand the test of time. As technology and bandwidth improves, the quality of a publisher's streams will automatically improve as well. A publisher can also be assured that the Generic Media Publishing Service will also support older players and formats, so that no viewers are ever left behind.



The Delivery Manager automatically prompts a user for their preferred settings.

### Media Players Supported

- Real Player
- Windows Media Player
- QuickTime Player
- gMovie Player for Palm handhelds

## THE GENERIC MEDIA PUBLISHING MANAGER

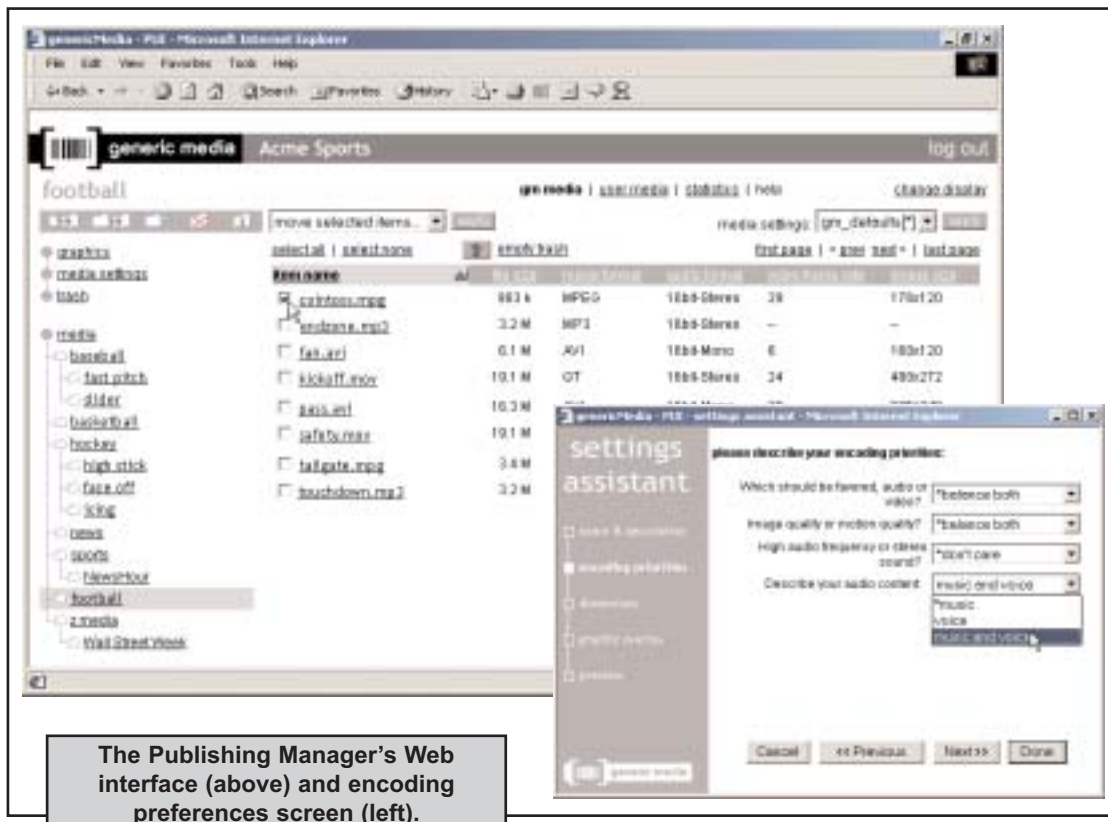
The Generic Media Publishing Manager is the primary interface for publishers to manage their media assets. The Publishing Manager is accessed through an intuitive Web-based interface, which provides complete control over the entire publishing process.

Streaming options are controlled using encoding preferences. All media stored in a folder immediately inherits that folder's preferences. This simplifies the management of encoding parameters, overlays (both text and graphic), and the published media dimensions. Streams can be previewed, making it easy to tweak settings so that they better suit the media.

The Publishing Manager can separate encoding preferences from media files precisely because the Transformation Engine encodes files on the fly. In addition to the drag-and-drop interface in the Publishing Manager, a publisher can upload content using any ftp or sftp (secure ftp) client. This facilitates automatic batch uploads and the integration of other media creation programs, such as Media Cleaner, which support ftp or sftp operations.

Well-structured URLs for each uploaded media file are generated automatically by the Publishing Manager, allowing them to be easily cut and pasted into Web pages. Additionally, Generic Media provides detailed instructions on the format of these URLs, allowing the URL-creation process to be integrated into fully scripted and automated applications for content generation and management.

The Publishing Manager includes reporting tools that allow publishers to manage their bandwidth costs and view usage statistics. Based on these reports, publishers can dial down their bandwidth usage by restricting their stream bandwidths to lower settings, thus saving money. Publishers find this an invaluable tool in helping manage bandwidth costs.



The Publishing Manager's Web interface (above) and encoding preferences screen (left).

## GENERIC MEDIA WORKFLOW

Generic Media vastly simplifies the streaming media workflow, allowing publishers to focus on streaming as a business proposition instead of a technology problem. The Generic Media Publishing Service requires no new capital expenditures on the publisher's part and eliminates many challenges associated with streaming – including encoding costs, supporting an expanding market of players and platforms, and managing in-house streaming servers.

Generic Media's "publish once, stream everywhere" approach manages all these publishing complexities, invisibly and seamlessly.

The Generic Media workflow begins with the creation of the streaming master file. This master will be transcoded into all supported streaming formats, so it is critical that it be created with quality in mind, from source material as pristine as possible. This ensures that streaming masters will have a long effective life span, and will transition to higher quality streaming formats that will inevitably emerge in the years ahead.

A lightly compressed file works best as a streaming master and the Publishing Service supports a wide range of popular formats, including QuickTime, AVI, AIFF, MPEG-1, MPEG-2, and WAV formats. (Publishers should note that licensing restrictions prohibit the use of Real or Windows Media files as streaming masters.)

Often, master files are already being used within a larger media publishing strategy. For example, MPEG-2 is widely used for DVDs and satellite broadcasting. A publisher with assets already in the MPEG-2 format would simply upload those streaming masters to Generic Media, via ftp software or the Web-based Publishing Manager.

Streaming masters can be created using a wide range of software or hardware products. A publisher's software options include, but are not limited to, any application that can export QuickTime files (e.g., Adobe Premiere, Media Cleaner 5, iMovie, QuickTime Player, Final Cut), or MPEG files (e.g., Megapeg, DVD authoring packages). For larger media libraries or longer clips, a publisher might opt for a solution that incorporates hardware compression, such as Dazzle Digital Video Creator or a professional-level Media 100 editing system.

Once the files have been uploaded into the Publishing Service, the publisher can set encoding parameters and other options that control how the media is encoded and streamed to users. These media settings include optimizing the streams for voice, motion or a balance of both; setting the frame size; choosing media formats, bit rates and Flash overlays.

Media settings are saved as sets, which are then applied to the publisher-created media directories (not the media files themselves). This separation of media settings from the files is a critical step for maintaining the integrity of the streaming masters. At no time do preferences permanently affect the masters, allowing the publisher unprecedented flexibility in managing their entire media archives.

The Publishing Manager also provides usage statistics that can help manage bandwidth. If bandwidth costs look they are getting too high, a publisher can easily dial back the maximum bandwidth of published streams through the media settings panel. For example, near the end of a month, a publisher might decide not to stream at 500 Kbps, saving valuable bandwidth while still being able to reach its audience across all supported media players.

Publishers interested in integrating the Generic Media Publishing Service into their workflows should appreciate the low start-up costs, the elimination of costly encoding time, and the ease of managing their media libraries that the Publishing Service provides. By turning media management into a simple, turn-key process, Generic Media enables

companies to refocus their streaming efforts toward creating compelling content and reaching end users. This leads to more powerful streaming initiatives that create more value and sustain that value longer.

## GENERIC MEDIA AND PARTNERING TECHNOLOGIES

In building the most flexible and easy-to-use streaming media publishing system available, Generic Media has committed itself to integrating best-of-breed partner technologies. By expanding its relationships with partner companies, Generic Media ensures that the Publishing Service provides unmatched quality of service and long-term viability in the ever-changing streaming media market.

As new players, platforms and technologies emerge, Generic Media has extended to meet these opportunities head on. Generic Media has worked with Virage, a leading provider of video-encoding applications, to add support for the Generic Media Publishing Service into Virage products. Generic Media has also committed itself to supporting PacketVideo's MPEG-4 standards-based platform.

The Generic Media Publishing Service has also integrated support for Akamai's content delivery service, offering the capability to seamlessly scale content distribution to large audiences while ensuring, through the Generic Media Publishing Service, that that content is optimized for divergent viewing devices now and in the future. There are no additional steps required to Akamaize content. The media player is redirected to the correct location to deliver Akamaized content, and Akamai and Generic Media handle all content-related negotiations.

These are just a few examples of the new technologies that Generic Media has integrated into its Publishing Service. Many more additions are being investigated and implemented. The streaming media market is on the verge of explosive growth, and customers will find that they can grow more easily with an expert partner like Generic Media working with them to navigate the complexities of the streaming media market and to avoid potential pitfalls.

## CONCLUSION

The Generic Media Publishing Service and all of its components were designed to improve and simplify publishing, delivering and managing streaming media – enabling companies to take full advantage of the opportunities it provides in areas of corporate communications, news and entertainment.

Companies using the Publishing Service will immediately benefit from the lower costs associated with a streamlined workflow and the freedom to focus on creating more value with their content. Additionally, publishers will benefit from the powerful media management tools that allow them unparalleled control over media output options, branding, and bandwidth budgeting.

Generic Media has committed itself to managing new developments in streaming media technologies for its customers, ensuring a superior long-term strategy. A publisher can rest easy knowing that their media assets will be accessible to a wider and wider range of devices and media players, while never requiring any re-tooling on their part.

Viewers enjoy a smooth media experience because the Generic Media Publishing Service uses the player they already have. This enables content publishers to reach the widest audience possible, and to provide that audience with a hassle-free experience.

The Generic Media Publishing Service provides companies with a stable streaming strategy in a landscape complicated with constant developments and changes.

## ABOUT GENERIC MEDIA

Generic Media delivers innovative streaming technologies and provides the industry's only comprehensive multi-format solution for hosting, dynamic encoding and delivery of digital media. The company's investors include SBVC (SOFTBANK Venture Capital), Sony and NTT Leasing. Generic Media, Inc. was founded in early 2000 and is based in Menlo Park, California.

The Generic Media team consists of pioneering engineers and executives from major technology companies, including Apple Computer, Pinnacle Systems, Silicon Graphics, Sun Microsystems, and Oracle. The company was founded by Peter Hoddie, former principal QuickTime architect and distinguished Apple engineer, and Angela Lai, former principal engineer for digital-video product lines at Silicon Graphics.

For more information, please visit [www.genericmedia.com](http://www.genericmedia.com) or call +1 650 324 0662.