
INTERACTIVE STREAMING
THE CREATIVE FOUNDATION OF
MORE COMPELLING, MORE COMPETITIVE
WEB SITES

By Jon Leland

Contributing Editor, Videography magazine,
President & Creative Director, ComBridges,
and Publisher/Editorial Director, MediaMall.com

INTERACTIVE STREAMING

THE CREATIVE FOUNDATION OF MORE COMPELLING, MORE COMPETITIVE WEB SITES

Why You Should Read This:

It's not every day that you get invited to invent a new medium. As every Web site designer knows online communications is a new medium that is growing and changing faster than any medium ever invented. Now, streaming media has captured the leading edge of this unprecedented growth and these sometimes mind-boggling changes.

Streaming media is not only the next frontier of Web communications power, but it may well be the most important to date. We've all seen Web sites progress beyond text and graphics, and we've marveled at the market's astoundingly rapid adoption of Flash on the Web's animation front. Now, with the emergence of new features and more integrated tools, dynamic, rich media on the Web is taking center stage.

As bandwidth expands to converge with other mega-trends (like increased computing power and the Web's vast interactive, global network of users) Web developers and video producers are presented with a mission critical opportunity. In light of the new forms of interactive streaming that are explained in this document, the development of first generation Web pages begins to look inconsequential, something like "light appetizers." The "real meal" is yet to come. Bottom line, next generation streaming applications (referred to here as "interactive streaming") are setting the stage for a new breed of compelling, engaging and highly effective online content.

As a result, if you are a Web site designer or developer, gaining a better understanding of interactive streaming is perhaps the single most important strategic action you can take. In fact, Web site developers and video producers who are setting the example with their use of these next generation techniques are clearly defining themselves as market leaders. These interactive streaming producers are creating next generation Web sites that are clearly differentiated from the rest of an increasingly crowded and competitive field.

This White Paper describes today's emerging online "mediascape" with an eye toward new Media 100 tools that make producing these new styles of online presentations easier and more accessible than ever before.

We don't want you to miss this opportunity. That's why you should read this White Paper. When you do, you will learn that:

- Video is now taking center stage on the Web.
- You can get extraordinarily easy access to the many valuable benefits that online video offers.
- Streaming media has become a multi-dimensional media platform that involves viewers in far more engaging ways than linear presentations.
- The latest streaming technologies are delivering a new virtual menu of interactive options that create new ways for online video to be combined with other media types.
- New interactive streaming media tools make the production of rich media web sites much simpler by integrating easy access to important new features.
- With the support of easier to use interactive production tools, interactive streaming delivers a compelling and valuable opportunity that producers, designers and developers ignore only at their own risk.

I. VIDEO IS NOW TAKING CENTER STAGE ON THE WEB

The Web is evolving beyond text and graphics at an astounding rate, but don't just take my word for it. In a report prepared for the International Webcasting Association (<http://www.webcasters.org/industry/index.html>), broadcast and media business researchers, Paul Kagan Associates, stated that "Relative to the rest of the Internet sectors, we believe streaming media is under-hyped."

Furthermore, investment bankers, W.R. Hambrecht & Co. (www.wrhambrecht.com) project that, as of June, 2000, the market for streaming media services is approximately \$440 million and "may exceed \$2 billion by 2005."

But, it is also important to note that your efforts to capture a share of this expanding market will put your work in front of what is perhaps the most attractive audience on the Web. The value of the streaming audience is underscored in a report called "The Buying Power of 'Streamies'" (<http://www.arbitron.com/studies1.htm#ils4>) published by The Arbitron Company and Edison Media Research. First of all, these experts report that the streaming audience has grown in just the last six months from 34% to 43% of Web users. But, more importantly, this report states that "Streamies" (those who have watched or listened to streaming media on the Web) are "far more likely to buy online than those who don't listen or view Webcasts... Streamies spend over

80% more time online than Web users who don't listen/watch... (And Streamies are) far more likely to click on advertising.”

These online media trends combined with other major technological trends are pushing designers, developers and producers to create more dynamic, video and animation-based Web sites. These important and irrevocable trends include:

- Internet traffic, the number of web sites and pages will continue to grow exponentially. Washington, D.C. based Internet consulting company Cyveillance (<http://www.cyveillance.com/>) estimates that there are currently 2.1 billion unique, publicly available pages on the Web, growing at a rate of 7.3 million a day, so that the total number of pages will double again by early 2001.
- Moore's Law: PC power will continue to double roughly every 18 months. Powerful multimedia computers are now the standard.
- The accessibility of high bandwidth connections will continue to increase rapidly in businesses, both large and small, as well as within universities and homes. Researcher NetSmart predicts that more than one-third of online users will have high-speed Internet access by 2003.
- DV and other significantly less expensive forms of professional quality, digital videotape) are breaking down barriers to entry. Combined with easy-to-use and extremely low-cost video transfer formats for desktop systems, (many based on IEEE 1394 including Apple's FireWire and Sony's iLink), these new formats are making high quality video digitization dramatically more accessible to a much larger market.
- Network communications will continue to play an ever-increasing role for the delivery of training, marketing, corporate communications, and research.

Streaming is now more than just re-purposed analog media on the Web. Initially, the only video and audio on the Web were large and cumbersome files that needed to be downloaded; however over the last four years, streaming has surpassed downloads as the preferred delivery method because it gives viewers more immediate gratification. By combining the interactivity of the Web with a sophisticated system of caching files while they are being webcast, streaming delivers a near real time experience that give viewers what they want, when they want it.

These trends are even more apparent in businesses that traditionally use video as part of their marketing mix. For example, I recently met with a Bay Area video production/post-production company who traditionally used video demo reels to present their work to prospective clients. This video company has found that most of its prospects no longer require demo cassettes. Rather, their prospective clients now, more commonly, request streaming video samples from the company's Web site. These clients no longer want to wait for a tape to arrive in the overnight mail. Instantaneous video delivery with interactive interfaces is becoming the norm.

Likewise, just as movie trailers are an integral part of movie marketing, streaming video and audio have become an important and powerful new dimension of e-commerce. Just as QVC and the Home Shopping Network use video to sell literally billions of dollars in product, browse any large online music store, and you will now be offered audio samples as a matter of course. In the same way, LucasFilm used Terran's Media Cleaner Pro to distribute the StarWars, Episode I trailer to millions of fans; and the low budget, independent film, Blair Witch Project became a hit movie by using video "teaser" segments that were distributed on the Web.

Bottom line, Web users don't need more information, they need better communications. Streaming media is the solution to providing more visual, dynamic online presentations with new kinds of interactivity. This is perhaps the only way to ensure that Web browsers, who expect to get what they want, when they want it, will be satisfied with any particular Web site. The solution is interactive streaming which combines the dynamic, immersive power of video with the visual impact of Flash animations and the engaging interactivity of hyper-links to literally define a whole new medium.

II. VIDEO'S MANY BENEFITS ARE NOW MORE ACCESSIBLE

Being on the leading edge of the global Internet media revolution is exciting, but creating maximum effectiveness for your clients also means keeping ahead of the learning curve.

The benefits of leveraging video as a communication driver within Web sites are substantial. Web sites that feature video content:

- Cut through the clutter, are more memorable and are more likely to get their message across in an increasingly crowded online environment.
- Deliver the much sought after quality of "stickiness," i.e. users are more likely to return and they are more likely to spend more time at video-centric sites.
- Capitalize on the investment that companies and organizations have already made in developing video assets and video content. Re-purposing video content — when it's done interactively — can bring a whole new dimension to previously linear video programs.

At the same time, using streaming video may be easier and less expensive than you think. The tide is turning on ease-of-use issues that have previously discouraged video producers and Web site designers from integrating video within their Web site productions. Here are just some of the ways that interactive streaming video productions have become more accessible, even for Web site designers who have no previous experience with video:

- Inexpensive camcorders are utilizing mini-DV and other digital formats to deliver professional, high quality video footage at unprecedented low costs.

- These digital camcorders and digital video decks can now connect digitally with many desktop computers and editing systems via IEEE 1394 (Firewire, iLink, etc.). These and other digital connectors are helping to create digital production systems that are a small fraction of the cost of previous generations of video post-production systems.
- Previously, it was necessary to learn a myriad of different software tools in order to combine multiple media types into state-of-the-art Web sites. Now, products like Terran's Cleaner 5 (which is integrated with Media 100 i, see below) are integrating advanced interactive video tools within a familiar post-production environment.
- The on-going use of workflow friendly tools (like Media 100 i) promise to streamline the process of integrating video within Web sites.

III. STREAMING MEDIA IS NOW A MULTI-DIMENSIONAL PLATFORM

Streaming video on the Web is no longer a linear, narrative medium. Unlike the world of analog broadcasting, Internet video has progressed to the a new level that we call "interactive streaming."

Originally, most streaming video clips were nothing more than a re-purposed and compressed version of a linear video program. Producers thought that "a video is a video is a video," but as soon as you add interactive capabilities like the chapterization of segments, clickable "hot spots" within the video frame, and indexing through searchable keywords, the power of video as an interactive medium increases exponentially.

As a result of the latest interactive streaming features, the Web now delivers a richer kind of video experience. Where "rich media" frequently refers to sites that offer more than simply text and graphics, rich media itself (i.e. video and interactive animation) has become richer by utilizing new features that integrate interactivity as part of a video presentation, and thus increase viewer involvement and satisfaction.

Here are four examples of the use of new interactive streaming features as they are currently being presented on the Web. Each one of these examples demonstrates a different style of presentation and mode of user-controlled interactivity:

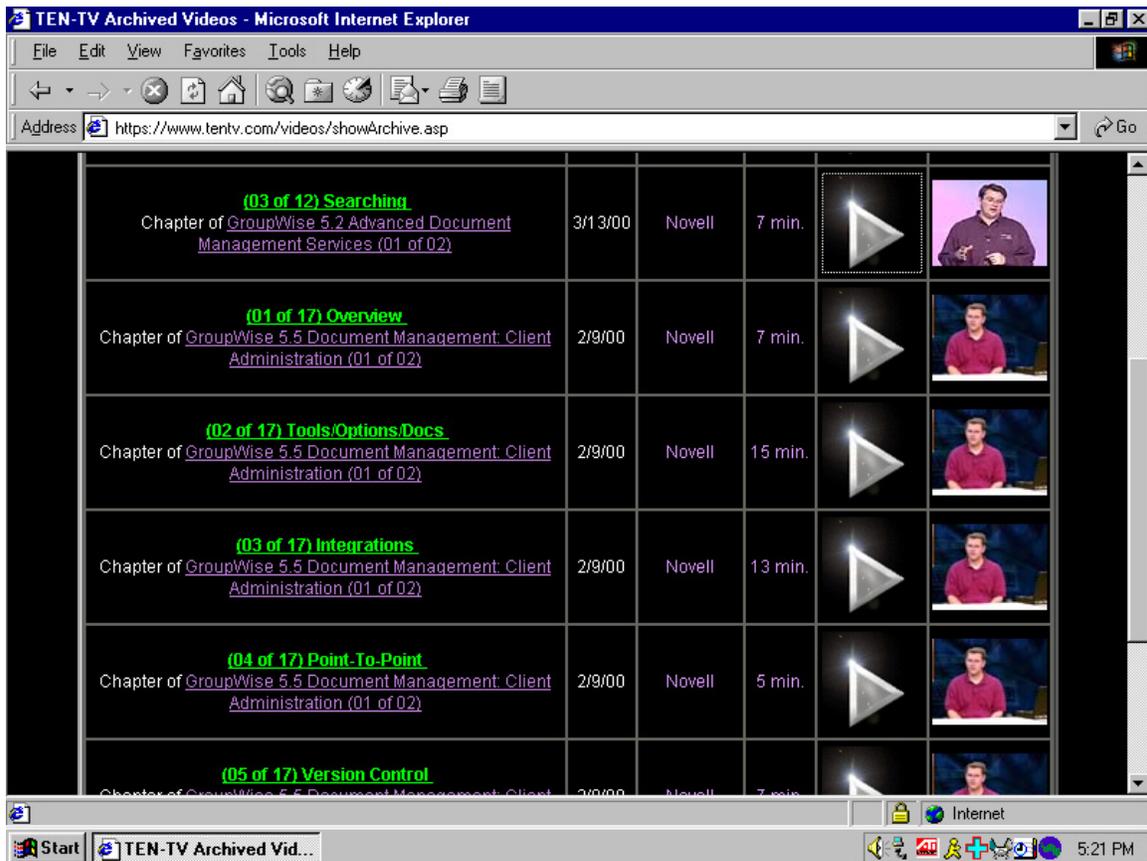
1.



A Flash animated graphical interface combined with streaming video. Video becomes just part of the presentation. In this case, using the RealPlayer and the SMIL language for layout, **CMPNet's Tech Web Today** high-tech news program offers more engaging, visual forms of message delivery by combining Flash animated program introductions and commercials with streaming video clips that are further supported by Flash interfaces and built-in interactivity. See for yourself at:

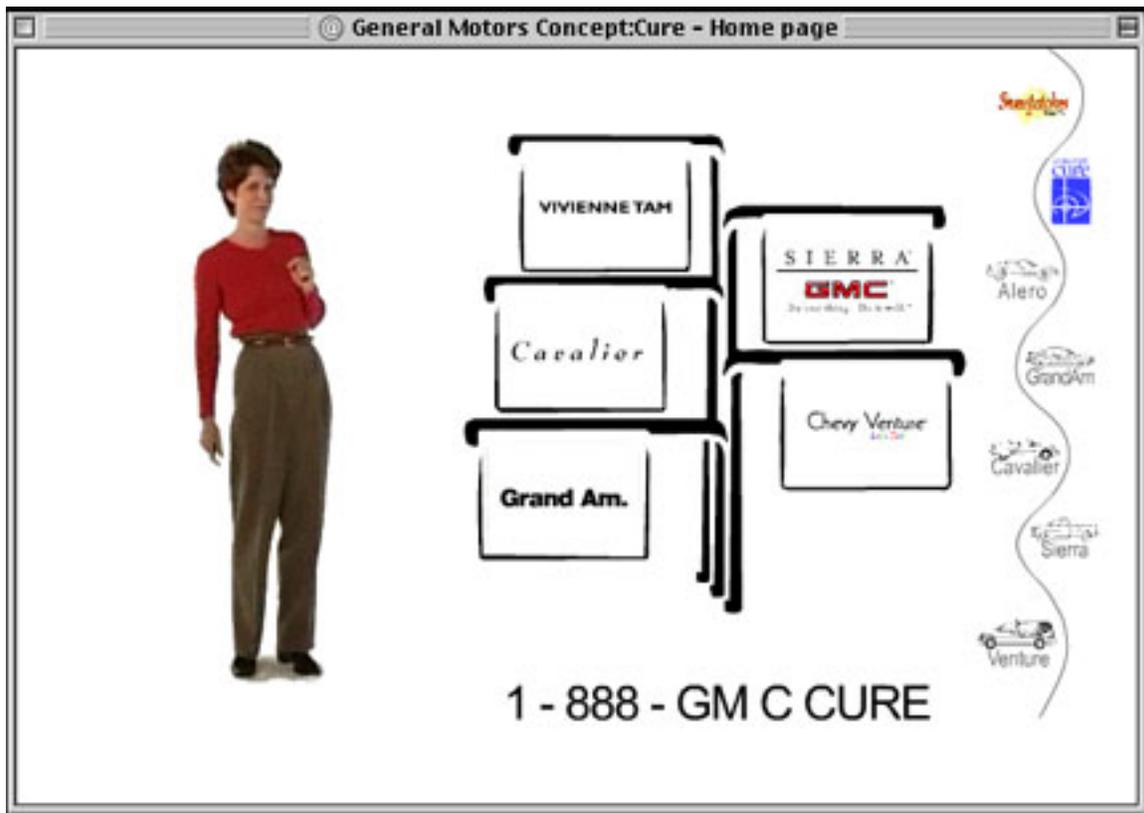
<http://media.cmpnet.com/twtoday/techWebtoday.ram>

2.



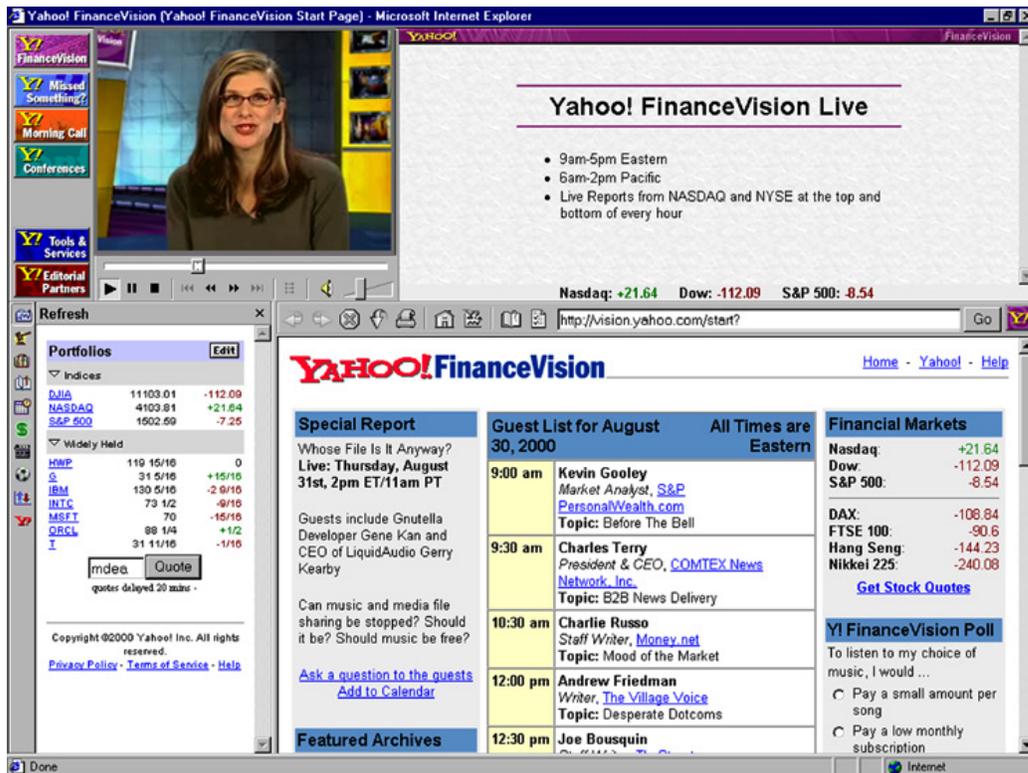
Segments of longer programs are accessed on-demand, as needed through the use of chapterization. Video viewers who frequently assume that accessing a video segment within a longer program requires time-consuming and frequently inaccurate VCR fast-forward and rewind functions are delighted with the pin-point control that is provided by the interactive streaming feature called “chapterization.” For example, in **TEN-TV’s “Experts on Demand”** I.T. training programs, users get “just in time” training where they can conveniently access a particular segment of a training video in order to learn what they need to know at the exact moment that they need to learn it.

3.



Video clips run side-by-side, synchronized with Flash animations. A whole new breed of online presentations uses the bandwidth-friendly power of vector animation (Flash in this case) and video to tell a story with “stereo visuals,” i.e. with two channels of visual information displayed in a Web browser. In this case, an online pitch by **General Motors** for its “**Concept Cure**” campaign against breast cancer uses a QuickTime video clip keyed against a white background so that it appears seamlessly along side the Flash animation. Both the video and the animation are embedded in a single Web browser window.

4.



HTML frames divide the screen into segments so that interactive data, Web text and graphics can complement streaming video. Here's another completely new way to create in an interactive and dynamic online presentation. Video footage (in this case, using the Windows Media Player) is only one component of **Yahoo!'s FinanceVision** (www.yahoo.com/r/fv), a new online financial news service that requires its own mini-application download. This service uses the entire Web browser screen to integrate video with dynamic, real time market data as well as relevant news links. All of the non-video elements are synchronized to complement the live video feed.

As you will see below, interactive streaming itself is a dynamic medium; and there are more new features than are illustrated above. Streaming media players now also have capabilities that include keyword search and indexing, the ability to launch "daughter windows," custom-designed navigation systems, and support for multiple media types such as streaming text, photographs, and much more.

IV. STREAMING NOW OFFERS NEW KINDS OF MORE COMPELLING INTERACTIVITY

As you can see, the presentation of video on the Web has moved beyond the presentation of a single, linear video clip. For web designers as well as for all kinds of media producers, these new features deliver a more dynamic palette of creative options including, for example, the ability to complement video with Flash animations and more interactive links. The result is an extraordinary opportunity — the ability to stand out in the marketplace by creating a deeper level of viewer participation.

Web sites that integrate interactive streaming can now use video as a central component of their design extending interactivity, triggering events based on a time-line, and thus, going beyond a simple, narrative experience.

By putting these new features to work, developers can gain a significant creative edge; but, in order to use these new options, they need to be better understood. Thus, this White Paper provides you with an overview of some of the most important features that these new media “platforms” deliver. Consider this a “virtual menu” of interactive streaming options:

- **Embed video in your Web page or integrate it in the media player.**

There are now multiple ways that clips can be displayed. The most important fundamental decision is whether to embed the clip within a Web page, or to launch the corresponding media player (usually RealPlayer, Windows Media Player, or QuickTime). When the media player is used, it becomes its own interactive streaming “platform.” When the streaming clip is embedded in the Web page, the presentation may or may not use HTML frames to integrate other content that can be displayed in sync with the video.

There are also options to display the media platform’s pause, fast forward and rewind controller, to not show the controller, or in most cases (with some extra effort) to customize the controller so that it appears to be a more integral part of your Web page’s look and feel.

- **Increase interactivity through hotspots, embedded links within the streaming clip, Flash interfaces and HTML links.** In the old days, the most interactive part of the viewer experience was either the channel-flipping remote control or the imprecise fast forward and rewind buttons on the VCR. Interactive streaming builds on its own pause, fast forward and rewind capabilities with new interactive options.

For example, streaming content can now trigger other Web page events with video clip-based “hot spots” that cause HTML page changes, synchronized graphics and animation changes, and/or links to other Web sites or e-commerce transactions. Because the video clip can be embedded within a Web page that offers other links, or be part of a larger media player window that, for example, can offer a clickable Flash interface with mouse roll-overs, interactive streaming offers whole new levels of user involvement. In addition, with a functionality that is similar to the way that many Web sites are now using JavaScript to launch smaller

interactive browser windows, media player windows are also being used to launch “daughter windows.” In this way, one media player window may be used as the controller of another window that shows only content (but no interface).

- **Create new access to video content through chapterization and metadata.** With analog media, the physical videocassette or the structure of the TV program schedule limit access to video programming. With interactive streaming much more user friendly points of access can be easily be created.

President Clinton’s impeachment deposition video provides a classic example. While only a few people wished to screen the many hours of his testimony, online viewers enjoyed a new kind of access when an indexed and searchable version of that video was posted on the Web. Companies like Virage have developed systems of metadata, which create searchable keywords that then provide the user with immediate access to relevant portions of a longer video program.

In a similar way, chapterization provides direct links to “chapters” of a video program. In the TEN-TV “Experts on Demand” menu above, the program editor has identified the subjects and locations within a training program so that users can have direct access to individual program segments. For example, in a two hour training presentation on NT network administration, at a given moment, a user may want to know only how to set up user groups. Chapterization provides immediate access to that specific clip without the need to edit the program into segments and without requiring the user to go through the time-consuming process of fast-forwarding and rewinding a cassette.

These multiple points of access deliver important interactivity that also takes streaming beyond the linear narrative. Designers, developers and producers now can use these features and their creativity to deliver a much more compelling, new breed of video experiences.

V. NEW STREAMING MEDIA TOOLS EASE THE PRODUCTION OF RICH MEDIA WEB SITES

Access to the video systems and software tools that enable the delivery of more compelling online content used to be much more expensive, complicated and cumbersome. Until this year, one type of video system was used to edit the program, while another system was used to compress the content for streaming, and then one or more additional software programs were required to add the kinds of interactivity that we have just described. As a result, costs were higher and the required technical know-how was far more daunting.

Now, rather than asking designers, developers and producers to buy and learn multiple tools, essentially “kluging” them together, Media 100 and its Terran Interactive subsidiary have brought all of the necessary pieces together into two easy-to-use and cost effective streaming media tools. They have done this by adding new interactive streaming features to Media Cleaner Pro (now called Cleaner 5) and extending the capabilities of their editing systems by integrating all of these features into Media 100 i. The result is a next generation of streaming media tools that directly address the needs of developers who want to take advantage of these new creative options, while also cutting overall system costs.

This is why I believe that Cleaner 5 and Media 100 i are rightly called “the first interactive streaming production solutions.” They deliver easier to use tools that make all of the power of interactive streaming much more accessible to a wider variety of web designers and media producers.

For example, by incorporating features called “EventStream™”, a streaming video program’s chapters are naturally defined as part of a project’s editing timeline. This integrated access to interactive streaming features provides the producer with a seamless workflow. And, perhaps more importantly, decisions about how the content should be delivered are conveniently made by the most appropriate person; and this person is the same one who is most immediately involved and familiar with the program’s content.

When chapterization required a separate software program, this kind of interactivity (if it was implemented at all) was frequently produced by a separate person who might not be as familiar with the program content and who needed to develop a specialized skill set. With these features integrated within the Media 100 i timeline, more creative individuals will be able to produce entire interactive streaming programs far more efficiently.

On the output side, the integration of Cleaner 5 also means that content can conveniently be compressed for multiple bandwidths (i.e. 56K, DSL and T1) as well as for multiple streaming platforms (i.e. RealPlayer, Windows Media Player and QuickTime) from within a single system. In the past, this would also have required multiple software programs. Cleaner 5 and Media 100 i streamline this process and make the delivery of the full spectrum of streaming options easier to access for many more people.

Furthermore, the integration of other EventStream™ features into Media 100 i also enables even more useful features to be easily integrated within the post production process. For example, web poster frames (that are used to invite users to view a streaming clip) are now also integrated as part of a single video system. In addition, clickable hot spots and other links within the video footage can also be defined within Media 100 i by using its EventStream™ features. And, finally, interactive streaming commands like “replace movie” and “open URL” (also known as “URL flips”) have likewise become more accessible to more people because they are now part of a single video system.

Bottom line, the integration of Cleaner 5’s interactive streaming commands within a powerful video system (like Media 100 i) means a shorter path between ideas and implementation. Reducing the number of software programs involved in the streaming media production process is perhaps the single biggest thing that can be done to address the challenges of complexity that have previously plagued this kind of rich media development.

**VI. CONCLUSION:
DESIGNERS, DEVELOPERS & PRODUCERS CAN GENERATE
UNPRECEDENTED LEVERAGE BY EMBRACING
INTERACTIVE STREAMING NOW**

Interactive streaming defines the next generation of online communications. It combines the dynamic, immersive power of video with the interactivity, hyper-linking and immediate gratification that have produced the Web’s success to date.

With the increasing availability of more bandwidth, more computing power, more affordable video cameras and systems, more online users, and with the way that Cleaner 5 and Media 100 i integrate EventStream™ features — Web site developers and video producers can more easily deliver the compelling benefits of interactive streaming.

Those who use these tools will produce not only more outstanding online presentations, but they will also clearly differentiate themselves in the increasingly crowded and competitive field of Web site design.

While this new kind of creative work does involve facing the challenges of inventing a new medium, creative professionals who commit themselves to taking the leadership in the interactive streaming space will position themselves as true market leaders. Those leaders are poised to reap the benefits — both creatively and financially — of setting the standard that others will follow.