sgi™

Real-Time 3D Graphics Makes the News

"In the news business, there are only two races—to be right and to be first. It's better to be both, and the SGI technology and Peak Systems software enable us and our affiliates to win both races."

—Steven Jacobs, Deputy General Manager for CBS News Media

The White House film is ready and the anchor is coming out of makeup. All that's left to do is count it down. Then, across the wire comes an announcement that tornadoes in three midwestern states have destroyed dozens of homes during the past hour. It's too big a story to wait for the 11 o'clock edition, so the only decision is how, not if, to present the breaking events.

With just 10 minutes to air, the team decides to lead with the storm bulletin. As the anchor scans the story data, the producer quickly pulls up a map of the region, touching screen icons to add specific tornado locations to the graphic. He will show the map, then run some video clips from the National Weather Service illustrating the magnitude of these latest storms. It probably won't even take the full 10 minutes to be ready to air. The broadcast team is familiar with late-breaking news and had already prepared the formats. Now, thanks to the Silicon Graphics® Onyx2™ InfiniteReality® system, they just have to plug in the details.
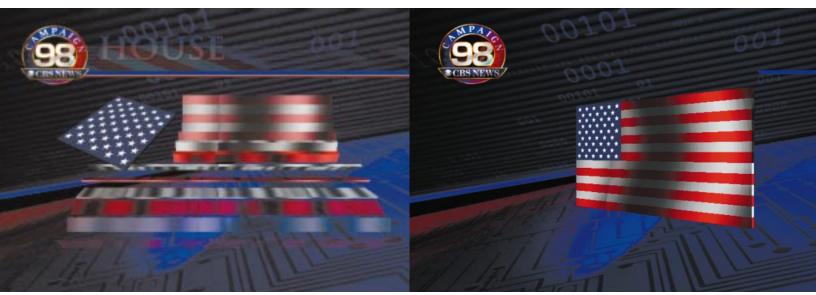
Combining SGI™ platforms with innovative graphics application software, news broadcasters attract, inform, entertain, and hold their television audiences. They use many of the same visual effects once reserved for big screen productions—and they are doing it in real time, often updating complex 3D graphical images just minutes before air. Whether they are producing the nightly news or a special event, the broadcast solutions providers and their network customers depend upon SGI systems to deliver the reliable performance needed in the live-to-air environment.

Template Graphics: Speed and Sophistication

To achieve such effects in real time, producers use graphical templates that provide the desired program style or network image. During live news programs, the template is filled in with actual data such as financial results, election returns, or other wire-feed information. These templates can be either standard or high-definition format. Data is manually or automatically plugged into the template and then broadcast, sometimes literally within seconds of the event occurrence.

Templates can be designed to position graphics anywhere on the screen and to incorporate extremely sophisticated images, including detailed 3D models complete with textures, multiple lighting sources, and even animation. The multidimensional, moving graphics help producers create unique telecasts with sophisticated looks and up-to-the-minute information that help attract audiences.

At the Fox News Channel, producers use Discreet frost* template-based broadcast graphics systems to design a variety of election coverage templates, as well as news event reenactments. Gerry O'Sullivan, the Fox News vice president of operations and engineering, explains the need for template graphics in both sports and news programming: "Template graphics are essential for certain applications. We harbor information and have to get it to the viewer as quickly as possible in the most aesthetically pleasing way. Template graphics provide a way of organizing information to be placed into a graphic immediately so we can get it to the screen. Production teams may have been wary at first, but since they've seen the results on the screen, they love it and want more."

Images courtesy of CBS News and Peak Systems

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Doing More with Less

The systems not only enable the real-time display of the latest data, but in many cases allow the network or affiliate to combine multiple functions such as title generation, video playback, and special effects that otherwise would require the integration of four or five pieces of equipment. The SGI solutions are easy for producers to use, often requiring only the push of a button or selection of a touchscreen icon. Producers can generate more high-quality displays, complete with 3D graphics, animations, and full-frame transitions, with fewer people and in less time compared with traditional "black boxes."

Most broadcast graphics systems, like those developed by Shoreline Studios and used on the Weather Channel, also offer customization capabilities that can even give broadcasters the look of familiar black box controls. These types of user-friendly features make it possible for directors, production assistants, operators, or even news anchors to better manage live productions. The production team can handle many day-to-day tasks without taking on-set computer experts or graphics designers away from more complex development projects.

Steven Jacobs, Deputy General Manager for CBS News Media, uses Peak Systems' Everest on-air graphics software product in CBS productions that to date have included the Dan Rather-hosted 1998 elections and several daily news programs. Says Jacobs, "The real-time capabilities of the SGI platform and Everest's 3D animation and touchscreen technology make it easier and faster for us to get better graphics on air. In the news business, there are only two races—to be right and to be first. It's better to be both, and the SGI technology and Peak Systems software enable us and our affiliates to win both races."

CBS News, like CBS Sports, is also employing Pilot News automation control software that provides tools for searching a local or global database for graphic and other assets that are directed to Everest for real time "on-air" rendering. The CBS Evening News opening animation, along with its nightly stock market index, are fully templated and controlled via Pilot News. Changes may be made at any time.

The Right Platform

Each of these solutions providers and customers chose SGI systems for three important characteristics that make them uniquely suited to the on-air broadcast environment: flexibility, performance, and reliability.

Flexibility. Broadcast solutions providers develop systems to meet the needs of their network, affiliate, or local clients. From low-end Silicon Graphics® O2® to powerful Silicon Graphics® Onyx® systems, the SGI product line offers a broad selection of performance, capacity, and features that can be configured to meet specific network or telecast requirements and easily scaled to accommodate future needs, including HDTV.

Performance. SGI provides an unparalleled combination of CPU, I/O, and graphics performance to handle the varied application demands of live on-screen productions, including real-time 3D rendering.

Reliability. SGI systems perform dependably in the unforgiving on-air environment. Worldwide 24x7 service guarantees fast response to critical events.

SGI platforms can also streamline the entire program development process. The performance of the system and the broad availability of development software make it possible to integrate all phases of production—editing, special effects, broadcast graphics, and even virtual set development—on a single, scalable system.

The Solutions Providers

Over the past year, real-time 3D graphics technology has been successfully put to the test in some of the most demanding on-air environments. Following are some of the companies providing SGI solutions, including a sampling of innovative ways their broadcast customers use these technologies to enhance programming.

Discreet

Discreet develops visual effects, editing, and broadcast graphics systems and software used in the creation of digital moving pictures for video, HDTV, the Web, feature films, and broadcast graphics. Combinations of these systems have been adopted by major networks, affiliates, and independent stations worldwide for daily news, sports, and special events coverage and in graphics rooms for station IDs, show promos and openings, and 2D/3D graphics. Discreet tools have also been extensively used for special event graphics, including U.S. presidential elections and the 1999 NFL Super Bowl.

News customers/applications:

ABC News/Nightline opening, event re-creation Fox News Channel/Election coverage SAT1 (Berlin, Germany)/Nightly news TV Azteca (Mexico City, Mexico)/Virtual studios, special reports

SGI platforms:

O2, Octane®, Onyx2

Peak Systems

Peak Systems supplies complete on-air graphics systems and virtual sets to broadcasters on a global basis. Full training, production support, and technical support services back up these systems. The core technologies employed are Everest real-time graphics generation and rendering software and SGI computer systems.

News customers/applications:

CBS News/1998 Election coverage, morning/evening news

SGI platforms:

O2, Onyx2 InfiniteReality

Pilot Broadcast Systems

The Pilot Broadcast Systems family of products includes Pilot News, Pilot Touch, Pilot Weather, Pilot Object Store, Pilot Live Event, Pilot Template Wizard, and GeoNews, a comprehensive global mapping database. Pilot products, developed by a broadcaster for video professionals, deliver improved productivity with a consistent on-air look and feature user-friendly template graphics, asset management, and automation for news, sports, and other programs that utilize real-time 2D/3D graphics. Pilot offers its customers complete support services, including the development of custom requirements.

News customers/applications:

TV2 (Norway)/News, sports, information programs and program promotion

CBS News/Elections and network news programs

CBS Sports/NFL Football, NCAA Basketball "Final Four" auto racing, and golf

CNN+/Madrid, Spain-based all-news channel

Telenor/Telephone Norway, visual presentation, and system status displays

Nelonen (Finland)/News, sports, and information programs, including production and automation

TV4 (Sweden)/News, sports, and information programs

Norsk Tipping/Norwegian lottery results broadcasts, including production and automation

TVN (Norway)/News, sports, and information programs

SGI platforms:

O2, Onyx2 InfiniteReality

Shoreline Studios, Inc.

Shoreline Studios develops applications utilizing real-time 3D graphics and animations for live television broadcasts. Shoreline Studios sells turnkey real-time graphics products, builds custom systems for specific applications based upon its proprietary architecture, and provides a range of production services to broadcasters.

News customers/applications:

CBS News/Election maps, event re-creation

NBC News/Election maps, demographic voting results

The Weather Channel/Severe storm desk

SGI platforms:

O2, Octane, Onyx2

Visit these SGI solutions provider Web sites for additional information:
www.discreet.com
www.peak.cc.com
www.pilot.no
www.shoreline-studios.com