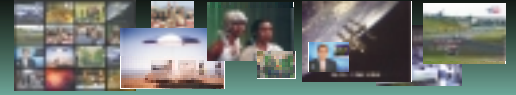


MultiViewer Solutions



Zandar Technologies plc is a worldwide supplier of **MultiViewer** video display products to the broadcast and professional video markets. Our client base includes high profile broadcasters and professional users. Applications are numerous and include multi-channel monitoring, camera monitoring, multi-view displays, command and control, videoconferencing and electronic program guide.

Here are a few ideas - the more common and interesting uses to which our customers use the Zandar MultiViewers. You can see that the MultiViewer is a neat solution to an old problem and sometimes the only solution for a new problem. Almost always, there is a saving on monitors, space, power & cooling requirements, bandwidth and money!!!

Video Server Confidence Channels Applications

Video Servers are multi functional within the broadcast television facility, being used as an edit suite for live or news, spot cache, program server or time delay device. With so much going on, often directly from disk to air, the need to monitor this activity gains importance.

The use of a multi-image displays makes sense - it provides a compact, cost effective and quick way to view activity and make decisions.

This synergy is all the more obvious when you see the prolific use of Zandar's MultiViewers throughout the various trade shows, including NAB and IBC, on the stands of the big players in the server business - including the Grass Valley Group, Pinnacle Systems and SeaChange International.

Richard Hartley of the **Grass Valley Group** also explains their "need to show 32 separate serial digital channels playing back in real-time. The alternative is 32 Monitors!"



"The profitable exhibiting of multi-channel broadcast servers warrants the use of many high quality video monitors, that are expensive, take up space, draw excessive power and generate heat - also true in a master control or edit suite environment. Thanks to the people in Zandar, we have found a better way", said Bruce Harvey, formerly of **Pluto Technologies**, at NAB 2000.

Production/Post-Production Applications

Zandar MultiViewers can be used in a post-production environment to provide video effects such as Picture-in-Picture, quickly and cheaply. As a static 2D DVE, the MultiViewers can be used during production, for example in the newsroom for multiple head shots during a group interview or multiple views during action filled news-breaking stories.



The ability to combine many channels into 1 logical channel has proved convenient and cost-effective in Multi-image distribution - from the trading floor to the production studio. In addition, using the multiple video capture facility, much more information can be routed to the desktop for analysis.

Also frequently used for editing purposes, the multi-view of various camera and VTR outputs allows the producer to pick and choose footage without the time-consuming viewing of individual tapes.

Hats off to **VPRO** in the Netherlands for a most innovative use of the Zandar's Multi-video display technology. They present an Interactive Children's Game Show, called "Typo Toons" which spans the Internet, Television and Games. Children compete first via the VPRO website (www.vpro.nl). Four children are then selected to appear in the studio the

following week, based on their word skills. In the studio, the Typo Team children take part in a superbly animated game, where interactivity, creativity with language and dexterity play a major role.

The Zandar MVG16 multi-image PCI card is used to show simultaneously the four children and the game. A camera is focused on each child's face and hands to capture the concentration and emotion of the child who has entered a 3-D virtual world as a letter brought to life in an adventure story. The effect is to create a tense and exciting finale!

TV/Broadcast Applications

Zandar offer the perfect solution for multi-channel monitoring in broadcast environments. By making possible the simultaneous display of multiple real-time sources - analog or digital - to a single large monitor, plasma display or projector, MultiViewers effectively replace or complement a control room monitor stack and provide a virtual video wall.

Sky* Latin America chose Zandar Technologies plc to provide multi-channel monitoring equipment at their remote backup facility for the International Satellite Broadcast Center in Miami, Florida. The project was managed by Television Systems Limited (TSL), based in Maidenhead, England and Sky Tech Co Partners. The VMX-16 MultiViewers are located in the Port Saint Lucie center and allow operators in Miami and locally to display and monitor more than 100 channels on just 11 monitors. The use of MultiViewers gives large savings in costs of monitors, monitor stacks, room space, power and air conditioning capacity.

TSL's Dave McGregor further explains how "the MultiViewer outputs are transmitted back to Miami via fibre links for monitoring there, something that would be impossibly expensive to do if all the pictures were transported back individually".



33 Zandar VMX-16 MultiViewers were installed in **DIRECTV** Latin America's Network Management Center (NMC) facility in Buenos Aires, Argentina, to control

the display of video images in plasma displays. The MultiViewers are used, in conjunction with 28 Sony 42" Plasma Displays, to monitor more than 400 television channels sent back to the Earth by DIRECTV's DTH satellite. Most of the plasma displays are configured to display 16 images, others are dedicated to specific monitoring needs, such as monitoring special, sport or musical events. For these applications, different configurations are saved in the PC controlling the MultiViewers so that the Network Controller on-duty can display the images of the events in several ways, at the click of a mouse. The turnkey project was managed by Sony BPLA.

"Zandar Technologies plc has impressed us as a company with a quality product that performs as promised; they complied with our aggressive schedule, delivering and installing on-time;" said Ronald D. Allen, Vice President of Engineering and Technology for DIRECTV Latin America.

BBC News & Current Affairs facility in London has more than 100 reporters and news researchers monitoring some 120 news channels from around the world on Zandar MultiViewers, searching for ground breaking news as it comes down the wire. An internal network routes each channel and the output of 7 of MultiViewers to the desktop of each researcher, who can view 16 news channels simultaneously on each MultiViewer channel. As soon as the news breaks, the researcher can tune to the appropriate channel using a keypad and respond immediately for BBC World News.

The BBC also use VMX-16 MultiViewers in conjunction with Pioneer 50" Plasma Displays to monitor and display up to 48 video feeds in the Presentation Control Area.



The 3 MultiViewers are located in an equipment room and are remotely controlled over RS-232 by the duty Editors from the control desk.

The slim-line displays and remotely reconfigurable split-screen systems facilitate a smaller, more efficient monitoring environment, cutting down on the space and Air-conditioning requirements typical of traditional monitor wall type control rooms.

RTÉ the Irish national broadcaster chose a MultiViewer solution from Zandar for camera monitoring in OB7, the latest outside broadcast vehicle in the RTÉ fleet. Used at sport's events around the country, the Technical Supervisor views up to 12 live cameras on a single Sony 20" monitor, rather than using valuable real-estate for multiple monitors.

CNN in both Atlanta and Washington have developed custom software to allow them to use VMX-16 MultiViewers to monitor all their remote feeds and indicate to producers and directors which feed is being recorded. By monitoring the tally output of all VTR associated with each feed the CNN engineers use RS-232 commands to change the border colour of individual video windows to indicate VTR status.

ABC, Australia use Zandar MultiViewers in an on-air News environment. The News Director can view any source full screen with the touch of a button and choose which source from the Tek Profile servers goes live.

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Barker Channel/Programme Guide/Pay Per View Applications

Zandar Technologies plc offer the Multi-channel Service Operator a vital tool to improve their service to valuable subscribers. Zandar "Barker Channel" Generators more than pay for themselves in increased revenues and reduced subscriber churn. With so many channels and services available to subscribers, it is essential to present in a clear and visual way what is on offer. Text based scrolling TV Listings are fine, but a Visual Programme Guide or "Barker Channel" lets the viewer see what is on where, right now. It is stylish, dynamic and extremely useful for presenting channel information, promoting Pay TV services and digital bouquets and for keeping viewers tuned-in.

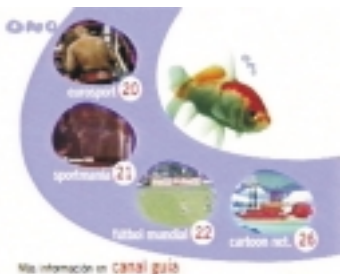
Channels can be grouped by genre and presented in sequence or on separate themed channels. Pay Per View services can be energetically promoted. Local Programming or advertising can be included to boost revenues. The result - The MSO builds a better relationship with his subscribers and keeps them informed, interested and loyal.

Canal Satélite Digital

(CSD) in Spain and Canal+ in Holland, use the MVG6 cards to provide enhanced sports coverage of Formula 1 Grand Prix Racing. Canal+ are the major Pay Per View operator in Europe.



Mr. Pablo Martinez, Senior Engineer of CSD, is delighted with his Mosaic Channel Solution with foreground graphics from Zandar and explains "the mosaic channel is a dedicated programme to allow our subscribers to view all programmes of Formula-1 at the same time, and to select the desired programme at full screen. It also has ambient sound with comments from journalists".



Cableuropa is one of Spain's largest Multi-Service Operators, offering video, telephony and Internet services under the **ONO** brand, which has been carefully developed through the ONO Barker Channel,

traditional advertising and even their billing process.

The ONO Channel is an exciting blend of video and animated graphics - a combination of Zandar's VMX-64 Switching MultiViewer and Vector-3's Vector Box. The MultiViewer provides the background placement of video windows, the Vector Box directs the video switching of live and stored sources, graphical overlay and titling for a very sophisticated automatic service channel.

Valex Engineering has placed a VMX-64 Switching MultiViewer with **Comcor**, Moscow, to provide an auxiliary channel to all subscribers, showing a sequence of pages. The sequence includes the standard package of TV channels delivered via fibre and a page to preview each of the other packages on offer. The network organisers expect this service to interest subscribers, encourage the take-up of other packages and pay channels, and to generate greater revenues. The channel features a different audio program per page (Audio Switching Option) and the entire system is remotely controlled (Ethernet option).



TeleDanmark KabelTV

is the largest cable TV operator in Denmark and provides a variety of interactive (ITV) services via their Open TV based "Selector" digital set-to box including an excellent Visual

TV-Guide or Electronic Program Guide (EPG). Using their SuperZapper, subscribers have access to general programming information, in-depth descriptions and a variety of search functions, including by genre or time. At the heart of this Mosaic based visual service lies MVG16 card technology, developed and integrated for TeleDenmark by SmartTV.

Benefits to the MSO:

- Subscriber Loyalty
- Better Promotions
- Improved take-up of PPV
- Advertising Revenues
- Perception of Quality



Benfits to the Subscriber:

- Visual Channel Guide
- Clear navigational instructions
- Easy ccess to relevant information
- Confidence
- Customer satisfaction

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MultiMedia Display Applications

Freedom Forum's Newseum is a "News Museum" in Arlington, VA, that takes news from around the world each day and produces programs for the museum patrons. These programs are combined onto one screen using VMX-16 MultiViewers. The final outputs are routed through several hardware/software applications to eight touch screen interactive kiosks. Patrons are presented with a multi-view of different types of programming and again with a multi-view of available programs of the preferred type, before viewing the selected program in full screen with audio. RS-232 commands enable control and configuration at the various stages.

Unitek Displays is the UK based designer of Megascreen, a giant outdoor LED video screen targeted at the screen rental market for live events and pop concerts. The MVG cards are used to generate split screen and picture-in-picture effects for the ultimate stage backdrop.

Videoconferencing Applications

The MVG Cards can provide multi-video transmission from one location, or, as a component in a Multipoint Control Unit, provide real "continuous presence".

The Mayo Clinic, Arizona, fully realise the benefits of videoconferencing, holding about 400 conferences per month to improve administration and conduct medical consults. The sites are linked over T1, ISDN, ATM and satellite to a central location, where a multipoint control unit performs decoding/encoding, video routing and audio mixing. The value of "continuous presence" is also clear and MVG6 cards are used in their system to provide a composite image of participating sites in that conference. This system allows up to 7 sites to participate in a conference. Custom software allows conference controllers to switch the active site to full screen, to a larger window or to facilitate multiple windows of equal importance, depending on the conference requirements.

Carlton Cabletime's Media Star is a video networking solution for the controlled delivery of video and audio to multiple users. When combined with videoconferencing facilities this becomes an even more powerful tool - especially with continuous presence.

MD Nick Bradford claims "the strength of the MVG6 lies in the ability to view any number of participants, up to 6, but also to view the speaker in a dominant screen, under chair control. A quad just isn't flexible enough".

Mr. David Dunning explains why **Harp Visual Communications**, the UK's largest installer of display wall systems, choose one of Zandar's products - "we used a Zandar MVG6 card to provide four, full motion video images within moving windows on a plasma panel.

As the overlapping windows slide around the screen they each come to the front in turn. The result is an eye-catching centre piece to the client's reception area, and it creates quite an impression with their customers".

WRAL Television (CBS) is using the VMX-16 to display 16 Department of Transportation Traffic Cameras on their newest set. The news/traffic anchor-person views the 16 camera shots on a giant projector, where they can spot traffic bottlenecks or grid-locks and decide which camera view to route to full screen for an in depth analysis of potential delays and problems.

Other Monitoring Applications



The **Spaceport Florida Authority**, which oversees state-wide space-related economic and academic development chose multi-video

window display cards from Zandar Technologies in ten of its mission observation consoles at its demonstration site. The MVG6 delivers six simultaneous video feeds to a standard PC from crucial information gathering cameras located throughout the facility.

Eaton Corporation, a manufacturer of highly engineered products that serve industrial, vehicle and aerospace markets, has installed MVG6 cards into 3 development trucks. The cards are used on a concept Blind Spot Vision Aid product that integrates with the Eaton VORAD radar-based collision warning system.

The Blind Spot Vision Aid System features side and rear mounted video cameras to allow improved visibility around the vehicle. High-quality real-time video images are displayed on an in-cab display when the driver activates the indicators or puts the truck in reverse gear. With this system, the driver can also manually select any camera view, thus enabling him to expand his view during passing and manoeuvring. The aim - to save lives, prevent injuries, reduce damage, lower liability insurance and saves fleets' money.

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