

WORLD

14

ADVANCED MEDIA SOLUTIONS

★ SYSTEM INTEGRATION ★ PRODUCTS ★ SERVICE



CHOCOLATE FACTORY

Visitor Attractions - Pages 11, 12, 13, 14, 15



TRAFFIC FLOW

Control Room Systems - Pages 4, 5, 6



WORLD AT WAR

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CORPORATE SYSTEMS

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BIG SCREENS

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Networked Images

★ Network technology is fundamental to Electrosonic's work, whether it is as the basis of large exhibit control and display systems or the basis of products.

The Trafik Stockholm control room (more details on Page 4) has a display that can show up to 36 real time video inputs derived from 800 cameras, and as many RGB images as may be required.

All images arrive over networks either as MPEG-4 images or in Electrosonic's RGB GLIMPSE format.

The Electrosonic VN-QUANTUM™ processor that drives the display is a highly network oriented product.

Electrosonic's Media Networks Division develops a range of high definition playback



The Trafik Stockholm control room uses Electrosonic VN-QUANTUM™, VN-GLIMPSE™ and VN-MATRIX™ image processing and network products.

products suitable for networked digital signage and digital cinema. The hardware products are supported by media management software and support services that help customers make the most of the technology.

iMediate™ in New York



★ CBS Outdoor is responsible for The Urban Panels Network, an expanding network of displays located throughout Manhattan at subway entrances.

The initial deployment of 85 panels consists of 57 inch Suncutter LCD displays on one side and Ceelite backlit transparencies on the other.

The LCD displays show high definition content from Electrosonic MS9500 HD FrEND network appliances. These are housed in conditioned sealed enclosures suitable for the outdoor environment.

Content is delivered to the displays over a Verizon EvDO wireless network. Electrosonic iMediate™ software is used to update content, organize playlists and scheduling, and to harvest the playback logs for proof of delivery.

Electrosonic expands, offers new services

★ ★ ★ Electrosonic is expanding both its geographical coverage and the range of services it offers.

In 2005 Electrosonic acquired Associates in Media Engineering (AME). The entire AME team moved into Electrosonic's Burbank facility, greatly strengthening the operation and immediately enabling Electrosonic to offer two new services.

One is Studio Services that provides an essential support to the, also newly created, Managed Media Services Division.

The other is Design Services. This specializes in system design (independent of construction) particularly for show facilities in the public attraction market. Main clients are sophisticated owners, architects and designers.

Geographical expansion has seen the recent opening of offices in Stockholm and Dubai. The Stockholm office supports the sale of Electrosonic's image processing and network products in the Nordic area. The Dubai office supports custom solutions and products sales in the Middle East. Both are being strengthened with the addition of installation and service staff.

The latest addition is a significant augmentation of the Media Networks Division. A new design office located in New Jersey has effectively doubled its product development resources.



Electrosonic has an office in Dubai.

Editorial

Over the past two years the Electrosonic Group has grown turnover by 57% and worldwide staff by 33%. This has been achieved by a combination of factors. Modest acquisitions, geographical expansion, and improved market conditions have all played their part.

However, the main driver has been a better appreciation of the markets that Electrosonic serves and a deeper understanding of client needs over the entire ownership life cycle. Thus acquisitions have been all about securing new talent, and the business focus has been on developing long term relationships with customer groups.

Electrosonic sees its markets in terms of "public spaces" (museums, concourses, theme parks etc) and "working environments" (control rooms, corporate AV facilities, collaborative imaging etc). It is determined to offer these markets an innovative and professional combination of products, specialized services and system integration.

ELECTROSONIC WORLD is the Group's means of sharing know-how and experience within the industry, and of celebrating with its customers and fellow project team members the success of a diverse range of work. Over the years ELECTROSONIC WORLD has provided an interesting historical record which, while tracking incredible advances in technology, also shows that underlying customer aspirations have remained the same.

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The Trophy Cabinet



✦✦✦ In the UK the AV Awards, managed by AV Magazine but judged by independent panels drawn from a wide range of disciplines, are the objects of much competition. It is therefore a matter of great pride to the Electrosonic UK team that in the period 2003 – 2006 it won every single AV Award that it was entered for.

In all four years it won the categories "Service Company of the Year" and "Systems Company of the Year". In the years 2004 – 2006 it won four "Installation of the Year" awards, and in both 2004 and 2006 it received the Grand Prix Award "AV Company of the Year".

On the International front Electrosonic is a member of the



TEA, formerly the Themed Entertainment Association. TEA gives out its much coveted THEA Awards. These are given to worldwide attractions that demonstrate outstanding features in their design and execution. So in this case Electrosonic would not qualify for an award directly, however it is a matter of much pride to Electrosonic that many of the projects that Electrosonic has worked on have been honored by the award of a THEA.

Recent projects that have been recognized include Ashes and Snow (Page 11) Georgia Aquarium (Page 14) and the Great Glass Elevator at Charlie and the Chocolate Factory (Page 13).



David Ambrose, Managing Director of Electrosonic Ltd, receives the 2006 Grand Prix AV Award from TV personality Quentin Wilson (left) and AV Magazine's publisher Paul Twite. (right).



Design Consulting in the US market

✦ A new service is Electrosonic Design Consulting (EDC). This provides independent expert advice and design services to owners, architects, exhibit designers, and general contractors on commercial audiovisual systems, media distribution networks, and digital asset management solutions. Using the service does not carry any obligation to employ Electrosonic as a contractor or equipment supplier.

The rationale for offering the service is the fact that the potential clientele often require expert help before they are ready to appoint contractors; and the specialized areas supported are ones where most commercial consultants have limited experience. Electrosonic's Design Consulting offering benefits from front line experience gained over more than 40 years.

The core team currently doing this work is based in Burbank CA, and is largely composed of experienced designers that joined Electrosonic as part of the AME acquisition mentioned on Page 1.

An example of EDC's work is the audio and AV design, and associated media management, for the currently touring Tutankhamun Exhibition organized by National Geographic Exhibitions, Arts and Exhibitions International and AEG Live.

Electrosonic captures the castle

✦✦✦ Visitors to Electrosonic's Burbank CA facilities have been only too well aware that space has been at a premium. In addition to the celebrated "castle" building, there was another building round the corner housing Managed Media Services, and Media Networks Division was in yet another building.

From mid 2007 the situation improved as Electrosonic secured a long lease both on the original "castle" and the larger part of the same building that it did not occupy. While the product development facility of Media Networks remains next door, all other activities are now under one roof – safe and secure in the splendid castle.



The Electrosonic Castle in Burbank CA.

Freedom of the Seas

✦ Electrosonic Lightinen of Helsinki has a long history of providing lighting control (and AV) systems to the Cruise Liner industry. One of its major customers is Royal Caribbean International.

Shown here is Freedom of the Seas which, at the time of its delivery from Aker Yards' Turku shipyard in 2006, was the world's largest cruise vessel – a 160,000 ton behemoth 1112 ft (339m) long, carrying over 3600 passengers and 1300 crew. The ship was also the eighth RCI vessel for which Electrosonic Lightinen provided comprehensive lighting control systems.

First of the Freedom family of ships, she features a networked Helvar Imagine™ lighting control system for the public areas. 17 Helvar Lighting Routers



are installed, each of which can handle 252 lighting channels. Over 500 lighting scenes allow for dramatic lighting effects



Photo courtesy Royal Caribbean International.

both during the day and especially during the night.

Electrosonic Lightinen also supplied a considerable quantity of Pulsar LED luminaires for the Royal Promenade, the Glass Bridge walkway and the Pool Deck.

Of course, the industry does not stand still, less than a year after Freedom appeared RCI introduced Liberty of the Seas, which is even bigger! Naturally it has an even bigger lighting control system delivered by Electrosonic Lightinen.



BT takes out a contract

Electrosonic offers a range of support services to customers whose Audio Visual, Video Conference or Display system is essential to their day to day activity or reflect the organization's image or brand. A principal offering is the Service Contract where for a fixed price Electrosonic provides a defined maintenance service to a customer's permanent installation. The installations concerned will not necessarily have been installed by Electrosonic.

A good example is BT (British Telecom plc). A lot of its business is carried out through call centers, and it is important that those working in the centers are kept informed of system performance and company news. Each center is



One of 30 BT call centers where the information displays are supported by Electrosonic.

equipped with a number of displays (monitors and videowalls) which provide the information, and it is Electrosonic's job to ensure that the displays are always working.

Electrosonic's service contract with BT requires it to support approximately 600 displays in 30 call centers throughout the UK, from Aberdeen to Truro, and from Cardiff to Lincoln. Each site receives two preventative

maintenance visits per year, and as many call-outs as may be required to ensure continuing service.

Contracts of this kind are offered wherever Electrosonic has the necessary resources in place. They are negotiated individually in respect of, for example, response time (often only four hours, but for less critical installations 24 hours) help desk support, substitute equipment,

replacement lamps and number of preventative maintenance visits.

Many of the installations described in this issue of ELECTROSONIC WORLD are supported by this kind of service contract, for example the World War I Museum (p16), the Highways Agency (p4), Georgia Aquarium (p14) and the United Airlines Terminal at Chicago Airport (p9).



The AV systems at Georgia Aquarium are supported by an Electrosonic service contract.

The Outsource Source

The outsourcing of the management and operation of AV and video conferencing facilities has become common, particularly within the corporate environment. Electrosonic is a significant provider of outsource staff in London, with 70 employees permanently based on clients' sites throughout the city. This aspect of Electrosonic's service business is currently being expanded to provide

greater geographical coverage, both in Europe and the USA.

A typical client for this service is the European Medicines Agency. Its London Headquarters at Canary Wharf hosts critical meetings and videoconferences on all kinds of medicines (for both human and veterinary use). It is essential that these meetings go smoothly, and are not interrupted either by technical faults or by inexperienced users of the necessary conference equipment. Electrosonic has two technicians assigned to the site to provide operating support and front line service.

This kind of service is all about customers needing "no hassle" in respect of their systems operation, and of minimizing cost of ownership. By providing a service to multiple sites, Electrosonic offers many operational advantages to the customer. Obvious



The European Medicines Agency is one of Electrosonic's outsource service customers.

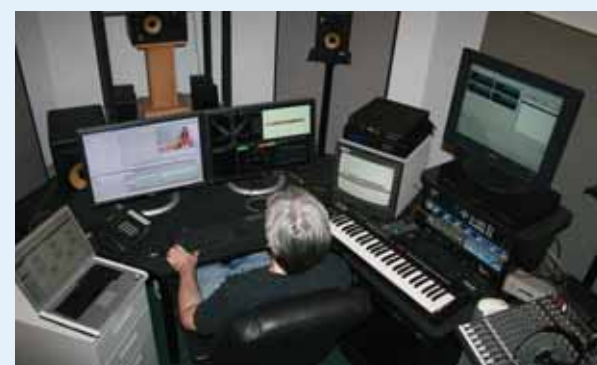
points are that more secure holiday and sickness cover can be provided, and that staff changes can be more readily handled. Less obvious is that the arrangement makes the operation of ISO quality procedures practical, and provides a better career path for the staff.

The services provided vary according to the site. Typically they embrace equipment set-up, equipment operation, equipment service, room

booking administration, the operation of helpdesks and similar tasks. The administration and measurement of the work is made easier by the fact that all Electrosonic staff providing the service use web based documentation. Both outsource and service contract customers have direct access to Electrosonic's call logging facility, allowing them to log faults and check job status reports directly.



The Canary Wharf area of London has a "cluster" of Electrosonic outsource sites.



Electrosonic Studio Services is Video Compression and more!

Studio Services

Electrosonic's Burbank CA operation now has a Managed Media Services Division (MMS) which supports mass HD video distribution. This activity requires an in-house facility for conforming clients' program content to the playout systems.

Electrosonic Studio Services provides the facility. It came "ready made" as part of the AME acquisition referred to on Page 1. It supports both the MMS activity and individual projects. It is set up to solve those awkward problems that sometimes delay projects. These include both SD and HD video compression, ensuring audio and video files are compatible, adding custom voiceover tracks (often in multiple languages) and transfer to the required physical or virtual media – in fact everything needed to ensure efficient media management and distribution.

Lamps for all

In the USA Electrosonic has many service contracts supporting users of multiple projectors (for example videowall displays, multiple exhibits within a museum etc). Often such users have difficulty obtaining replacement projection lamps, and one of the advantages of an Electrosonic service contract is that lamps are always available, either as complete assemblies, or as "burners" which are fitted into an existing lamp housing.

In principle, Electrosonic supports lamps used in the projection "engines" used in videowall cubes (and other projectors using the same type of lamp). These are Ultra High Pressure Mercury lamps in 100, 120, 150, 180 and 200W ratings. Typical products supported are DLP™ projection cubes from Barco, Electrosonic, Clarity/Planar, Toshiba and Mitsubishi, and LCOS cubes from Hitachi.



The UAL terminal at Chicago O'Hare airport has 210 back projection displays. Electrosonic provides the lamps as part of an inclusive service contract. See Page 9.

Location, Location

Electrosonic provides service support over a wide geographical area. The majority of service is carried out by company employees, but in some locations Electrosonic works with local partners.

In addition to regional service provided by the offices listed on Page 2, Electrosonic has its own service staff located in Chicago IL, Atlanta GA and Detroit MI in the USA, in Manchester and Leicester in the UK and in Frankfurt, Germany.

CONTROL ROOMS



Streets ahead

West Sussex County Council has a Travel Information Control Center at County Hall in Chichester (UK) and this is now fitted with an overview display installed by Electrosonic.

The initial installation allows any combination of 12 full motion video images and eight RGB computer images to be shown on a 2560 x 1440 pixel display made up from four Planar Margay DLP™ “cubes”. Processing is by Electrosonic VN-QUANTUM™, with RGB images being acquired by VN-GLIMPSE Adapters over standard LAN.

While concerned with traffic flow, the Center also handles all kinds of short and long term traffic information, including details of planned road works, accidents, parking spaces, bus schedules, and real time traffic congestion information.

Manchester upgrades with VN-QUANTUM™

The Greater Manchester Urban Traffic Control Unit (GMUTC) provides a professional traffic-signal control service to the ten Greater Manchester district authorities in the north west of England.

Manchester has the largest urban traffic control system in the UK outside London, and GMUTC is implementing a solution that supports the deployment of a car park guidance system.

During the development of the GMUTC control center in 2003, the need to provide control room operators with an overview display of high quality CCTV images and traffic management graphics was recognized. A display wall was installed consisting of four DLP™ rear projection “cubes” and a basic videowall controller. This provided the simultaneous display of sixteen CCTV images and traffic management software applications.

In 2005, due to the expansion of the UTC system, the display was doubled in size by adding a second row of display cubes.

In December 2006 the control center was re-located to a brand new facility close to Manchester Piccadilly station. During the planning phase, GMUTC recognized that, for the quantity of CCTV inputs they wished to monitor at the new facility, the display size and the capability of the existing videowall controller were inadequate.

Electrosonic provided a turnkey package for the dismantling and transportation of the existing 4x2 display wall from the old UTC center to the new site. Electrosonic supplied an additional two display cubes and carried out the re-installation and commissioning of a 5x2 configuration in the new UTC centre, but now complete with a VN-QUANTUM™ processor that initially allows for the simultaneous display of 48 real time video images (as well as any required RGB graphics images).

The VN-QUANTUM processor has yielded significant benefits to overall system performance, including the simplified configuration of display layouts and their re-call. Any CCTV image can now be displayed anywhere, at any size, on the wall; and individual window borders, with captions, can be added for additional clarification.

Keeping Highways Moving

The UK Highways Agency is responsible for operating, maintaining and improving the strategic road network in England. It has a number of Regional Control Centers that monitor traffic conditions and take corrective actions when required. The centers are run in conjunction with the police and emergency services.

In 2005 the Highways Agency decided to install overview displays in five of these “Regional Control Centers” at Godstone, South Mimms, Nottingham, Wakefield and Bristol.

Electrosonic won the contract to provide the displays. Two factors were important, image processing performance and service. Electrosonic demonstrated that it has a highly regarded service operation that would help ensure both uninterrupted operation and



Godstone



Nottingham

known costs for a five year support period. The Agency's demanding service criteria included 99.8% system availability and a 4 hour response time 24/7.

While the control rooms have different formats, the underlying principles are the same at each site. Image processing is by Electrosonic's VN-QUANTUM™ processor, which gives exceptional image quality, and accepts a huge number of sources (these installations can typically show 48 real time video sources simultaneously, and as many RGB sources as required). RGB sources are delivered over standard networks using VN-GLIMPSE™ Adapters.

The client specified the display cubes after demonstrations at Electrosonic. Mitsubishi displays are used at Bristol,



South Mimms



Bristol

and Toshiba displays at the other sites. Electrosonic worked through Tyco and Computacentre as main contractors, supervised by Atkins Highways and Transportation and Mouchel Parkman as consultant project managers.



Wakefield

Matrix in Stockholm

Trafik Stockholm (a joint venture between the City of Stockholm and the Swedish Road Administration, Vägverket) is responsible for traffic management on Stockholm City streets and on the state roads in Stockholm County and Gotland. Cameras, sensors and information systems that can be used to manage traffic have been set up along the major highways and in tunnels (see also picture on Page 1).

Trafik Stockholm's new control room display, engineered and installed by Electrosonic, is designed so that operating staff can take maximum advantage of the information flow coming in to the control room. The display is 2m high and 11m wide (6ft 8in x 35ft 8in) and is made up of 16 Mitsubishi 67 inch SXGA+ (1400 x 1050) projection “cubes”. It receives its inputs from an

Electrosonic VN-QUANTUM™ videowall image processor. 36 real-time video inputs, 2 real-time RGB inputs, and 8 additional RGB inputs (delivered over standard Ethernet using Electrosonic's VN-GLIMPSE™ technique) can be shown simultaneously on 19 high resolution displays.

There are 800 cameras in the system, and images are transmitted over networks using Teleste MPEG-4 compression equipment. At the control room the images are decoded using Teleste MoRIS decoders. Selecting which images are to be shown on the display is done by a combination of Electrosonic's VN-COMMANDER™ software and a custom application, CTS, developed for Trafik Stockholm by Serco.

Two outputs of the image processor feed



multiple image signals to a remote site. The headquarters of Vägverket itself are at Solna, some 2km away from the Trafik Stockholm control room, and staff there need to view real time full motion imaging from the control room. This is achieved using the Electrosonic VN-MATRIX™ streamer which is able to transmit high resolution real time motion images with negligible latency at low bandwidth.

Night time view of the Trafik Stockholm display.



One of the remote displays at Solna showing real time multiple images from a single network connection.



Los Angeles RTMC

✦✦ Caltrans has recently opened its Los Angeles Regional Traffic Management Center (LARTMC) to provide observation, management and incident response for the freeways of Caltrans District 7. The AV systems and overview displays at the Center were engineered and installed by Electrosonic, working to specifications prepared by consultants Delcan Transportation.

There are six areas within the Center which are AV equipped. Most impressive is the Command Center which has a display system

consisting of two LED message displays, two 3x2 cube videowalls, and one main videowall 4x3. The main videowall display structure is from ADF Visual displays using XGA Christie RPMS D100U projectors fitted with long throw lenses and the side cubes are Christie XGA 50 inch cubes.

In common with traffic monitoring systems worldwide, LARTMC uses a huge number of video cameras. This results in the need for a PESA 576x192 NTSC router that routes selected images to the main display and to the other areas.

In order to make the system manageable, Electrosonic has built an Access/SQL database to manage the camera

information. This is driven by a Crestron control system that provides a user interface for the video sources, the videowall display, and additional routers for RGBHV computer images and for audio signals.

The main videowall uses an Electrosonic VN-QUANTUM™ processor to scale and position any required combination of video and computer images.

The other areas, including two conference rooms, a dispatch center, a training room and a meeting space, use a mixture of 50 and 63 inch plasma and 46 inch LCD displays, and share with the command center the ability to view and record any audio and/or video source connected to the AV system.



Las Vegas Water

✦✦ Electrosonic worked with the Las Vegas Valley Water District (LVVWD) to meet their requirements for overview displays and AV presentation. The systems delivered included a main SCADA (Supervisory Control and Data Acquisition) display (below) another SCADA display at the River Mountain control room (above) a Security display for

CCTV, and a presentation room system at Lake Mead.

The operators in the control center rely on the SCADA display to monitor and control the status of wells, reservoirs, water flow, water quality and power usage, and on the Security display to monitor and control a huge CCTV installation.

This was a case where the particular requirements of the client led to Electrosonic specifying different types of equipment for the various applications.



Both the SCADA displays (one 5x2 array of Mitsubishi 67 inch cubes, one 4x2 array of Christie 50 inch cubes) use Christie processors because it was a requirement that the SCADA applications and videowall processing were carried in the same computer. The nature of SCADA displays is that there is very little motion within the images, so this arrangement is practical.

On the other hand the Security display, a 2x4 array of Mitsubishi 50 inch cubes, needed to show up to 72 real time video sources, and this can only be done by an Electrosonic VN-QUANTUM™ processor.



Metropolitan Police C3i

✦✦ The Metropolitan Police Service of London, UK, has commissioned two new Special Operations Centers in Lambeth and Hendon as part of its complete overhaul and updating of its Command and Control, Communications and Information (C3i) systems.

Both centers are equipped with videowalls based on Mitsubishi VS-XLF50U 50 inch front access DLPT™ cubes. Lambeth has one 6x2, one 4x2 and two 5x2 displays, and Hendon has one 8x3 display.

Working under sub-contract to main display

contractor Endealeo, Electrosonic was responsible for the supply of VN-QUANTUM™ image processing, and for the rack build for the videowall control and signal distribution equipment. It also carried out the Factory Acceptance Tests for the complete walls, and provided on-site programming and commissioning assistance.

VN-QUANTUM was selected for its ability to show a large number of real time video sources. The combined installed capacity of the MPS walls is 192 video images and seven

RGB images. The latter are acquired using VN-GLIMPSE™ and if more are needed they can be inexpensively added when required. Control of the VN-QUANTUM systems is seamlessly integrated into user interface software provided by Frequentis.

One room at Lambeth, known as "GT", is expected to monitor 500 public order events every year. It was first used to oversee the 2007 London Marathon, and is expected to play a major role at the 2012 Olympic Games.



Surveillance at Bradford

✦✦ CCTV surveillance systems are now an established part of security provision on many campus sites. The problem they share with all CCTV applications using a large number of cameras is that of having a meaningful display for the operators.

At the University of Bradford (UK) the control room had become difficult to use, in the sense it could not really cope with the expansion in camera numbers, the display layout was not flexible, and was certainly not optimized for the task of detecting untoward events.

The control room has now had a complete makeover, resulting in an uncluttered, efficient



operating environment. Key to the improvements is a 3840 x 1440 pixel display wall, installed by Electrosonic, made up from six Planar Margay displays which are only 44cm (17 inches) deep.

The display uses Electrosonic's VN-QUANTUM™ image processor to select, title, scale and position the images. At Bradford the system can show 24 real time video images, three PC graphic images (from access control, alarm monitoring and fire detection systems) and bit map images such as campus maps stored locally in the processor. The RGB

images are delivered over local LAN using Electrosonic's VN-GLIMPSE™ technology.

Electrosonic's VN-COMMANDER software is used to configure the display. Different layouts can be selected quickly to ensure operators have the right images to enable them to deal with particular situations.



BEFORE, a cluttered room.



AFTER, a neat display.

Nuclear QUANTUM



✦ ✦ GSE Systems Inc, with headquarters in Baltimore MD, is world leader in real time simulation for the process industries and, in particular, the power generation industry.

The training of operators for nuclear power generation presents a special problem. Real power plants run continuously and provide no down time for training; and in any case some of the training scenarios would be dangerous if carried out "for real". The solution is simulation, and GSE brings the training to where the operators are, by setting up Simulation Training Centers.

One of these has been set up as a joint venture with the University of Strathclyde in Scotland. The center consists of five student stations and a separate instructor station (all housed in neat furniture by Evans Consoles). An overview display of 4200 x 3150 pixel resolution is made up from six Mitsubishi DLP™ 50 inch SXGA+ displays.

GSE Systems selected Electrosonic as image processing partner for the project for two main reasons. One was the assurance of local technical support in regions where such centers were likely to be set up. The other was the power, flexibility and expandability of the VN-QUANTUM™ processor. The quality of the image re-sizing, giving crystal clear imaging from the simulation workstations, and the ability to handle a large number of high resolution sources (in real time if necessary) were seen as particularly strong points.

While the initial installation at Strathclyde uses four RGB high resolution image sources, delivered over standard Ethernet using Electrosonic's VN-GLIMPSE™ technology, the possibility for expansion is enormous. Additional RGB sources with low motion content can be added at minimal cost using VN-GLIMPSE adapters.

If full motion (60Hz real time) high resolution graphics, or multi-channel real time video were to be required, these could easily be added by fitting the appropriate input cards.

GLIMPSE & MATRIX



✦ In this edition of ELECTROSONIC WORLD there are several references to Electrosonic's VN-GLIMPSE™ and VN-MATRIX™ products. It might well be wondered why there are two products that seem to do the same thing – carrying high resolution RGB images over standard IP networks.

The background to the need for such products, and why they have significant advantages over other methods of streaming high resolution images, is given in a white paper that can be found on the website www.vn-matrix.com

Briefly, VN-GLIMPSE acquires RGB images with low motion content; there is no loss of spatial resolution. Decoding is done either in software or in products like VN-QUANTUM™. Already there are single installations using hundreds of these cost-effective units. VN-MATRIX on the other hand is for full motion (60Hz) images. It offers a huge range of compression ratios, minimum latency and good error concealment. It is offered as a codec (coder – decoder) normally used in pairs.

Images over WAN at Lockheed Martin

✦ ✦ Lockheed Martin has facilities located throughout the USA. Most of these are equipped with sophisticated visualization and simulation systems, so share real time image data over secure corporate WAN, both across individual sites and between sites, which can be thousands of miles apart.

The ideal is to be able to transmit images without loss of image quality across IP networks; however, there are serious practical problems to solve. The primary issue is bandwidth, but other factors such as latency, error concealment, and quality of motion rendering are also important.

Electrosonic's VN-MATRIX™ "streamer" puts high resolution (1600 x 1200, 24 bit, 60Hz) images onto networks. It operates over a huge range of bit rates making it suitable for all kinds of material from static high resolution images to full motion high definition video.

Lockheed Martin has deployed VN-MATRIX at six sites; Fort Worth TX, Omaha NE, Palmdale CA, Colorado



This area of Lockheed Martin's Center for Innovation (also known as The Lighthouse) in Norfolk VA is equipped with a 10 channel visualization recording system based on Electrosonic's VN-MATRIX technology.

Springs CO, Orlando FL, and Norfolk VA. The initial application is for audio visual collaboration over wide areas. For example simulation images have been successfully streamed between Omaha and Colorado Springs, as well as between Fort Worth, Palmdale and Norfolk. Individuals at remote sites are able to view the computer images with all the motion and fine detail they would experience if they were present at the origination site.

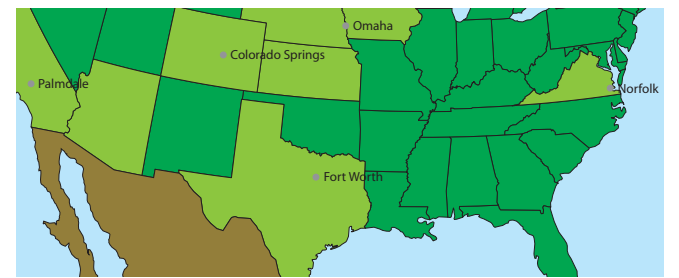
The highly efficient compression provided by VN-MATRIX has led to the development of the cost-effective VN-MATRIX Recorder. This device allows the imagery shown on

multiple screens and monitors to be efficiently recorded, and then played back (either locally or at a distant site) precisely in synchronization.

Lockheed Martin manages high-value programs for the US Military. It uses multiple electronic displays to present a set of data, situation awareness maps, terrain and action simulations, head-up

displays and instrument panels from aircraft, tank and humvee trainers, and live video of the individuals participating in the training. The majority of the content originates on computer screens, but live video is also integrated in the systems. VN-MATRIX Recorder allows all these images to be recorded together and played back simultaneously. A single operator can reproduce an identical visual experience for a customer or VIPs that were unable to attend the original simulation. Specific events can be marked and replayed, focusing review on the most important points.

Lockheed Martin's largest single installation of VN-MATRIX Recorder to date is a 10 channel system at its Center for Innovation in Norfolk VA.



The Lockheed Martin locations equipped with VN-MATRIX.

Medical MATRIX

✦ PCP (Paul Cleaver Productions of Stratford-on-Avon in England) has been providing technical support for live events for almost 20 years during which time the business has developed from simple corporate events to more complex specialized solutions. One area that is of special interest to owner Paul Cleaver is the medical sector, where PCP has been providing two-way links between operating theaters and lecture rooms.

The major limiting factor up to now has been cable runs. The normal solution has been the use of CAT-5 and fiber optic transcoders on the hospital structured cable network. But this arrangement has distance limitations and requires sole use of cables and fibers, not always available in busy hospitals. Solutions over a longer distance required the use of satellite links as there was no other way to achieve the image quality required.

By purchasing the VN-MATRIX™ system these limitations have been removed, and there are currently hospitals where PCP is providing links that simply could not have been achieved without VN-MATRIX.

A single network socket at each end is all that is needed to send two images (camera and physiology) and surgeons' voice to the lecture theatre, with camera picture and voice of the person asking the questions back to the operating theatre. This system enables a true two way conversation to take place, and a two way comms system enables the crew at each end to communicate.

The quality of image is crucial as the delegates have to see live X-ray, ultrasound and other physiology images clear enough to analyze them.

Using the VN-MATRIX system and DLP™ projection provides excellent results that are noticeably better



A live event with two way audio and video link at Kings College Hospital, London. Using the VN-Matrix system this sort of event can be done at more locations and over greater distances with an improvement in quality.

than the previous arrangement.

PCP has developed a system that operates over the VN-MATRIX RS232 port to enable crew at one end to operate the call system at the other, to operate the camera 'on air' tally system, and to enable presenters to have direct control of their presentations from the remote location.

Initial trials have attracted so much interest that PCP is currently planning to increase its inventory of VN-MATRIX units from four to twelve over the next few months to meet demand. The next challenge is to get the solution working over the internet, as there are some events lined up that require this facility.



Unilever in Helsinki

✦ Unilever's new corporate headquarters in Finland has been built in to a 1939 warehouse. The arch structure of the building has created interesting architectural possibilities, and some unusual opportunities to make use of AV techniques.

Electrosonic Lightinen designed and installed a comprehensive AV system covering the needs of nine

meeting rooms, a striking auditorium, a consumer demonstration kitchen, a canteen and a consumer products demonstration area. The demonstration areas and the auditorium are linked, so that, for example, images from cameras in the demonstration area can be seen in the auditorium.

All spaces except the canteen and four smaller

meeting rooms are fitted with wireless AMX control systems. All rooms have data/video projectors, and in addition the demonstration area has two 40 inch LCD displays.



Edinburgh Surgeons

✦ A church next to the Royal College of Surgeons in Edinburgh was converted into a conference and lecture space in the 1970s. Having served the College well for 30 years, it was recognized that the space needed improvement to accommodate larger numbers and to bring the presentation facilities up to date. Benjamin Tindall Architects, and Irons Foulner M&E Consultants were in charge of the project.

AVC Electrosonic was appointed to the project team, to design the AV systems and to provide essential input to the architects and engineers. The finished facility is a high quality conference space with architectural integrity that makes best use of contemporary presentation and communication technologies.

The Symposium Hall is fitted with a videoconferencing system which has



cameras to cover both presenters and the audience. The audio system uses Amina loudspeakers for speech reinforcement, which are built into the walls and plastered over. Program audio is played through appropriately sited Tannoy loudspeakers. Other equipment includes a Projection Design F3+ projector, Stewart Filmscreen electric screen and AMX control system.

The system is normally operated by the College's full-time technician, but the clarity of the control system's user interface allows it to be presenter-operated when this is preferred.

Following the success of this project, AVC Electrosonic has been contracted to design and install further systems for newly built teaching facilities in the Royal College of Surgeons Edinburgh campus.



Galaxy Technology

✦✦✦ The Galaxy Technology Center at Lockheed Martin's Omaha, Nebraska, facility is an example of a project that started as a job for Electrosonic's Design Consulting unit based in Burbank. The client was looking for an advanced multi-media presentation theater that could be used for both formal and informal events. Working with interior design partner John Sergio Fisher and Associates (JSFA) Electrosonic provided renderings which showed what could be done in the available space, and a technical specification to match.

Electrosonic's Minneapolis based video display engineering unit was then entrusted with realizing the project which is based on a wide screen using four Christie projectors with edge blending. An Electrosonic VECTOR™ image processor is used to provide the required overlapped and split images. The entire space is equipped with a Crestron control system, and prior to the



The as-built center.



The rendering prepared by Electrosonic and JSFA.

image processor a router provides access to many different image sources.

Radisson Submarina

✦ Marina Palace in the centre of Turku, Finland, was completely renovated in 2006 under the Radisson brand. The former nightclub of the hotel, Submarina, was converted into a multipurpose banquet room. The Audio Visual and Lighting Control facilities were designed and implemented by Electrosonic Lightinen and Audico Systems working as a team.

The room can be split into two separate areas, each with its own video projector, AMX control system and wireless touch panel. Lighting is a key element of the room design, with the translucent ceiling being illuminated by red, green and blue fluorescent lamps. The lighting is controlled by a sophisticated Helvar Imagine™ lighting control system that allows the selection of numerous colorful lighting scenes suitable



for any occasion. Scenes follow the room combinations and can be grouped or controlled individually. The control system includes an extensive interface to the building automation system, implemented by TAC Finland. The AMX control system integrates all the audio, video and air conditioning controls into an intuitive and easy to use touch panel.

John Deere Pavilion

✦✦ The John Deere Pavilion in Moline IL, recognized as the world's most comprehensive agricultural exhibit, provides visitors an interactive hands-on, climb-on experience. The focal point in the Pavilion's reception area is a videowall that displays a short high definition film called "Anthem," which runs continuously throughout the day. Silver Oaks Communications, also of Moline, recently upgraded the display, installing Electrosonic equipment for both source and image processing.

The John Deere Pavilion displays old restored tractors and other implements as well as new machinery. These machines are very large and are required to move in and out under their own power,

so the HD videowall has to be movable to allow the changing of displays. The wall is based on a 3x2 array of Mitsubishi 67 inch DLP™ displays driven by an Electrosonic VECTOR™ processor. The film, produced by Bad Dog Productions, is run from an Electrosonic MS9100P high definition player. The videowall can also show other content, for example presentations, for

special events.

Managing the multiple sources and their layout is Electrosonic's VECTOR processor and COMMANDER™ software package. VECTOR drives the wall outputting high-resolution, full-motion graphics to the Bounty Wall in digital format. The system was integrated into the Pavilion's existing sound system.



BROADCAST

The Situation Room

✦✦ CNN's popular weekday afternoon show "The Situation Room", uses videowalls to provide an interactive backdrop for the host, Wolf Blitzer.

Electrosonic supplied the videowall system which consists of 2x4 and 2x2 arrays of Planar Puma 50 inch displays sourced by an Electrosonic VECTOR™ image processor. It has become the videowall processor of choice for broadcasters as this and the following examples show.



The 82 cube videowall on Club Level 1 at Delaware Park (one 5x2 and two 9x4 arrays).

BBC NEWS



Following extensive evaluation, the BBC chose Electrosonic VECTOR™ image processing and COMMANDER™ control software to feed the displays. Seven VECTOR frames are in use (three in N6, and four in TC7).

In addition to supplying the equipment, Electrosonic provides 24/7 on call service support for the installation.



✦✦ BBC's news studios N6 (used for the One, Six, Ten News, HARDtalk/Extra Time, Have your say, Head2Head and Newswatch) and TC7 (used for Breakfast, Working Lunch, Newsround, Newsnight, Sunday AM and The Politics Show) were completely revamped in 2006. Both studios now have massive seamless videowall backgrounds using Barco 67 inch XGA DLP™ cubes with stitched screens.

AFTONBLADET



✦✦ AFTONBLADET, the popular Swedish newspaper that publishes 365 days a year, demonstrates that the line between print and broadcast media is being blurred. Quite apart

from making the paper itself available on the web, AFTONBLADET creates a lot of material in video format. Stories are acquired in the field using the latest in ENG equipment, and presented from the paper's own news studio which operates from the same space as the conventional newspaper.

The compact AFTONBLADET news studio is well served by 2x2 format videowall. The display was supplied and installed by Electrosonic and consists of four Mitsubishi 67 inch DLP projection cubes, and a matching VECTOR™ image processor. Installation was carried out in a way that did not disrupt normal operation of the studio.

TV3 Barcelona

✦ TV3 is the main Catalan TV station located in Barcelona, Spain. Their news set includes a videowall delivered by RGB Sono. After evaluating several systems, TV3 chose Mitsubishi 50 inch XGA cubes and Electrosonic VECTOR™ processing – selected for its ease of use, SD/DVI capability, and superb live video picture quality.



223 Cubes go racing

✦✦✦ Electrosonic delivered the large videowall display shown above in time for the 2006 season at Delaware Park Racecourse. For the 2007 season the cube count went up to 223 with the addition of four more arrays at 4x8, 2x8, 2x18, and 3x19.

All the projection cubes used in the videowalls are Hitachi 50 inch LCOS displays of XGA resolution.

Delaware Park offers patrons the opportunity to bet on nationwide sporting events, and the principal images shown on the wall displays are

feeds from racetracks of the US Racing Association. Most feeds are Standard Definition, and are shown on a mix of single screen, 2x2 and 3x3 arrays.

High Definition feeds (at present only available from broadcast network covered premium events like the Kentucky Derby)

are shown on 4x3 and 3x2 arrays, and here ES5555 IMAGESTAR™ image processors are used to split the images.

Electrosonic support the installation with a service contract that covers routine maintenance and emergency call-out.



The 3x19 videowall on Club Level 3.

Princess goes digital

✦✦ One of the important contracts held by the Managed Media Services Division of Electrosonic (based in Burbank CA) is that of distributing video content to 18 Princess Cruise Ships. Program material is correctly formatted and encoded by Electrosonic Studio Services (see Page 3).

This work follows on from the implementation of an all digital playout system on the fleet by AME just as it became part of the Electrosonic



One of the 18 Princess cruise ships.

Group (see Page 1).

Originally the ships were equipped with an all-analog source system based mainly on VHS tape. AME/Electrosonic replaced this with a digital system that takes up much less space, is more reliable, and offers new facilities.

Each ship offers multi-channel TV in the cabins. The channels include ship-specific channels, information channels, the Discovery Channel and films.

The project is a good example of how

Electrosonic supports a client over the long term, from initial design, through beta testing to final implementation; followed by through-life service.



BEFORE. Three racks of analog VHS players.



AFTER. Half a rack's worth of digital playout.

500ft long sign at Chicago

✦✦✦ Chicago Airport, in conjunction with its largest tenant, United Airlines, boasts what is probably the longest back projection sign in the world. It is made up of 138 fifty inch 16:9 ratio DLP™ displays, and runs the full length of the check-in area.

The signage system was designed by Sako & Associates, and was engineered and installed by Electrosonic. A requirement of the Sako specification was that it should be possible to synchronize the displays within the ribbon, and that they should be able to show full motion High Definition video content.

In addition to the ribbon display, three security displays, each consisting of four projection displays in line, are installed across the check-in area. Two FIDS (Flight Information Display



The ribbon sign runs the length of the check-in area. A large back-to-back videowall gives flight and travel related information.

System) displays show flight departure information for all United Airlines flights. These are made up of 4x2 arrays of projection displays.

Finally one "Grand Marquee" display is installed across the check-in area. It is two videowalls installed back-to-back. Each wall uses 20 projection displays arranged 5x4 to give an overall size of 18ft x 8ft (5.5m x 2.4m). Display content includes live video of aircraft on the

apron, weather maps, national travel information, news and sport tickers, and other travel related information.

The 210 modular displays used in all are Planar Margay, native resolution of which corresponds to the "720p" High Definition standard (1280 x 720).

All the ribbon displays are equipped with Electrosonic MS9100 High Definition players. The security and FIDS displays are sourced through VN-2400 videowall image processors, and the "marquee" videowalls use a VN-QUANTUM™ processor. Media management is by Electrosonic's iMediate™ software, and hardware management is by ESCAN™.



The "Grand Marquee" display shows a mixture of travel information and includes a news ticker.



Birmingham signage

✦✦ The National Exhibition Centre, near Birmingham (UK), is Britain's largest exhibition space with 200,000 sq m (2 million sq ft) of display area and four million visitors a year.

As part of a £40 million redevelopment Electrosonic has installed a networked display system consisting of thirty 46 inch LCD and three 61 inch Plasma displays. The system is used both for wayfinding and for showing information about current and forthcoming events.

The displays are arranged in clusters. Two 4x2 arrays and one 8x1 array are mounted on curved walls, and two 3x1 arrays are mounted on overhead girders above stairways. These all use NEC LCD4610 displays. In a multi-purpose open area a 3x1 array of NEC 61XM4 plasma displays is installed, and these can be set to run AV content, including off-air, when not needed for signage.

The system uses compact (1U) custom built PC players from DVS as image sources. A combination of SCALA® InfoChannel® Player 3 and Beaver Group's Global Media Manager is used for scheduling the system, managing the media and playing out content. The complete system is on the National Exhibition Centre's IT network.

14.5 Million LEDs in Beijing

✦✦ Electrosonic MS9200 High Definition video players and VECTOR image processing are being used to drive a vast video canopy installed in the central business district of Beijing.

The 6000 sq m (65,000 sq ft) canopy consists of 14.5 million LEDs which, when fully driven draw over 2MW. The 200m x 30m (656ft x 98ft) canopy is 25m (82ft) above floor level. The area it covers forms part of a development by AUZHOU called "The Place". The canopy is used at night and has a light background to act as a surface for lighting effects when it is not showing images. In addition



there is a large vertical LED screen that is used conventionally during the day.

The display was engineered by Opto Tech Corporation of Taiwan. Opto Tech chose Electrosonic as its image processing and HD image source partner because of Electrosonic's considerable experience in this kind of installation, and because of the outstanding performance of VECTOR in

respect of image scaling for multi-section displays.

Electrosonic provided technical sales and commissioning support to Opto Tech Corporation through its Hong Kong office. The support included consultancy on system configuration and on the best way to get all the different show elements to talk to each other, both for automatic and operator-controlled shows.



OMX Ticker

✦ OMX, a leading expert in the exchange industry, owns exchanges in the Nordic and Baltic region, and develops and provides technology and services to more than 60 companies in 50 countries in the securities industry around the world.

The atrium in OMX's Stockholm HQ is used as a meeting area, and as a "public space" for visitors. Installed 8m (26ft) above podium level is a dual ticker display 14m (46ft) long, with each section 44cm (17 inches) high. The top ticker shows the main stock indexes, and the bottom ticker shows the current price of selected stocks. The data is derived from OMX's own OMX-Link information system.

Electrosonic, working with creative partner Producenterna, supplied and installed the display, which is based on Daktronics Datastream™ product. The tickers are each 24 pixels high and can display three different colors. Electrosonic has also installed ticker displays at the OMX exchanges in Copenhagen (dual 4m display) and Helsinki (two 2.5m displays).

Threshold Wave in Perth



✦ Threshold Wave was conceived by artists Alex Hamilton and Richard Ashrowan. It is installed in Perth (Scotland) Concert Hall, and exists both as an artwork, and as a media background to welcome concert-goers. Computer software is by 55 Degrees.

AVC Electrosonic engineered the display system working to specifications prepared by AV consultant Derek Kemp. Twenty two 40 inch LCD monitors make up an image 19m (62ft) wide, to give an impressive "canvass" of 28,160 x 768 pixels.

The array is driven by Apple Mac Mini computers (one for each monitor) running Quicktime® 7. An eight channel audio system delivers complex soundscapes to complement the images.



RETAIL

Nokia Flagship Stores

✳️🇺🇸 Nokia has opened flagship stores in Moscow, Helsinki, New York, Chicago, Hong Kong and Mexico City. These are exciting places in which to socialize and to handle the latest Nokia products. They make stimulating use of sound, lighting, streamed video and interactive techniques. Electrosonic was responsible for the AV integration, and provides service support for the completed installations.

Each store features ribbons of 46 inch LCD displays (typically as many as 36 of them). The content is highly programmed, and designed to work in synchronization with the color lighting and the audio programming. Each display has its own computer source that can have its video content updated by a



Hong Kong



Chicago



Moscow

site server. Program updates are distributed to the stores by broadband internet.

When visitors to the stores pick up one of the Nokia products, surprising things happen. The display in front of the cell phone shows "pop-ups" that describe the phone and prompt the visitor to explore its features.

Technically the system is interesting because it uses the store security system to provide the trigger for the interactive response. All the products on show have security tethers that double as power feeds; the security system detects both when a product is lifted from its cradle (triggering the interactive display) and when a tether is broken. An AMX control system is used to provide an operating interface, to initiate lighting and audio commands, and



New York



Helsinki

to transfer the security system data to the networked computers.

Nokia itself directed the creative process of developing the stores. Execution of the store fit-outs was in the hands of P2 Group (shopfitters) Electrosonic (AV) Beam.TV (video content and programming) Two-dot-one (interactive pop-ups) and Safeway (security system).



OnSpot displays at Laguna Hills Mall; one of 50 malls across the USA equipped by Electrosonic.

2000 Screens for OnSpot

✳️🇺🇸 Electrosonic's Managed Media Services Division, based in Burbank CA, is expert at managing the big "roll out". The OnSpot Digital Network, a joint venture between Simon Property Group and Publicis Groupe, at present covers 50 Simon malls across the USA with 500 million shopper visits per year. The display systems for the network were installed by Electrosonic.

In each of the 50 malls there are between 12 and 20 display locations, and at

each location the displays consist of single, double, triple or quadruple plasma screens (mostly Samsung 50 inch) arranged in many different configurations. The total number of displays installed is in excess of 2000.

Besides being responsible for installing the displays, Electrosonic also engineered and supplied the head end signal distribution racks, CAT-6 balun sets, and display mounting hardware.

The most important and difficult aspect of the project was the massive co-ordination effort required. Five installation teams worked to a demanding schedule requiring completion of each mall installation in one week. Every site required a different inventory, and strong project management was needed to ensure that the right gear got to the right mall, and that malls were ready to receive the installation team.

HBO Shop shines out

✳️🇺🇸 HBO has opened its first retail store at its headquarters on the Avenue of the Americas in New York City.

The design aim was to "provide an enveloping, dynamic media experience to visitors and customers in a theatrical and scripted manner, while allowing them to purchase HBO related merchandise". Interior design was by Gensler - Studio 585, with AV consultancy by Scharff Weisberg. JT Magen & Co was the project manager, and Electrosonic was contracted to JT Magen to design, engineer and install the video displays system.

The design is based around four large vitrines suspended from the ceiling. These both display merchandise and house big



The HBO Shop from the street. At the front, the 4mm LED display, behind it the three vitrines with plasma displays, and to the left a 12inch high LED banner display.

image displays. The first one faces the street and its front is entirely occupied by a 96in x 54in (2.3m x 1.4m) 4mm pitch LED display from Daktronics. The other vitrines are fitted with Panasonic 65 inch plasma displays mounted portrait format.

The video system is networked, and is run as a single "show" using

Dataton "Watchout" to play out the content at high resolution. Overall show control is by a separate computer running Medialon software. Lighting (design by HDLC Lighting and Design One) plays a big part in the appearance of the store, and is programmed to match the mood of the content and the time of day.

Fountains at The Pier



✳️🇺🇸 The Show at The Pier at Caesars on the Atlantic City Boardwalk is a seven minute water extravaganza that runs every hour, day and night.

Thinkwell Design and



Production designed The Show to be a "must see" attraction at the high-end mall. It combines 149 individually controlled LED illuminated fountain jets, a rain curtain 55ft (17m) above

the pool with 96 individually controlled nozzles, a 36kW audio system, and a comprehensive lighting system.

In addition to the fully programmed music, lighting and fountain shows given on the hour, the fountain system can also interact with visitors. Thinkwell collaborated with Carnegie Mellon University's Entertainment Technology Center and Sona Research

to develop control software that uses video cameras to "track" visitors and follow them with plumes of water.

Electrosonic joined Thinkwell's team to engineer the audio and master control systems to Thinkwell's design. Overall control is by Electrosonic ESCANT™, and the audio system includes a 24 channel audio player, 36 x 124 BSS DSP audio processing, and 113 loudspeakers from Tannoy and Meyer.



Ashes and Snow in Tokyo

✦✦ Ashes and Snow is an exhibition of 100 photographic art works, a 60 minute film and two 9 minute films by Gregory Colbert; all explore the interaction between man and animals.

The exhibition appears in its own "Nomadic Museum". This was first seen in 2005 at Pier 54 in New York City, in 2006 it paid a visit to Santa Monica CA, and in 2007 it arrived in Tokyo. The architect is Shigeru Ben, and the museum is constructed from shipping containers borrowed at each venue.

Electrosonic is responsible for the AV



presentation (assisted by SC Engineering in Tokyo). The main film is shown on a 35ft x 20ft (10.7m x 6.1m) Stewart Greyhawk screen by a Christie 2k DLP™ 25,000 lumen cinema projector. The film is played back uncompressed at 24 fps by an Iridas server.

The short films are presented on 16ft x 9ft (4.9m x 2.7m) screens by Panasonic 7000 lumen DLP™ projectors. Here replay is by Electrosonic MS9100 HD players running "720p" HD files at 24 fps.

A comprehensive audio system supports both the films and ambient sound throughout the space.



Mount Vernon

✦✦ Electrosonic engineered the automatic presentation systems at the recently opened Ford Orientation Center at Mount Vernon, George Washington's home outside Washington DC.

The highlight is "We fight to be free" a dramatic 20 minute mini-epic movie featuring the defining moment of the Revolutionary War - Washington crossing the Delaware River.

The film was produced by Greystone Films and is shown in two theaters with staggered start times to maximize visitor throughput. One seats 300 and the other 150, but both have identical systems based round 40ft (12.2m) wide screens.



The systems operate in full "2K" digital cinema mode with 4:4:4 color and using dual HD-SDI links between the QuVIS Ovation servers and Christie CP2000X projectors.

The presentation features 5:1 surround sound played through Dolby CP65 decoders and JBL cinema sound systems.

Architects were GWWO Inc and Auerbach Pollock Friedlander were theater consultants. Initial consultancy on the playback system was undertaken by PPI Consulting (as advisers to Regan Associates, the Owner's representative).



Crystal Cathedral

✦✦ The Crystal Cathedral in Garden Grove CA is home base to the International Crystal Cathedral Ministries. Its huge space was recently the venue for a show written and produced by Carol Schuller Milner that blended live theater, computer generated film, aerial acrobatics, puppetry, original music and light, color and sound effects.

"Creation: Once Upon All Time" was



production managed by Ganson Productions of Dallas TX, and the massive two hour computer

generated content was produced by Threshold Entertainment of Santa Monica CA.

Electrosonic engineered the film projection system and the upgrade to the house audio system needed to present the show (working with Acoustic Dimensions of Dallas TX).

The show was presented on a massive 252ft x 28ft (77m x 8.5m) Harkness screen using seven Christie S+16 projectors. Playback was uncompressed High Definition from seven synchronized Iridas Frame Cycler servers.



VISIONARIUM

✦✦ In the words of its General Manager, Jordan Woo, the Singapore Discovery Centre (SDC) "uses interactive and multi-sensory exhibits to tell the Singapore story – and helps visitors to understand the security, economic and social issues of Singapore in a fun and entertaining way".

Electrosonic was responsible for engineering the show system for the Visionarium, a major attraction which forms part of the recently completed revamp of the SDC designed by Ralph

Appelbaum Associates.

The Visionarium is a gigantic globe with wrap around projection and 120 player stations. Audiences are divided into three groups of 40 (red, green and blue teams) and each competes to design the future Singapore. The Electrosonic show system uses six Christie DS+60 projectors with 3D Perceptions UTM processors to provide blended and distortion-free images. Each player station consists of a 10 inch LCD monitor, trackball and click button. Six

Dell XPS computers drive the projectors and 15 Dell GX series computers run the game stations.

The engineering for the Visionarium was undertaken by Electrosonic's Orlando office, with support from the Hong Kong office. Assistance with installation and ongoing service support is provided by Singapore based Electronics and Engineering. The original software concept for the game was by Cortina Productions, but it was completed by local company FX Media.

VULCANIA

✦✦ Vulcania is an edutainment attraction located near Clermont-Ferrand in the middle of France. It is devoted to seismic phenomena such as volcanoes and earthquakes.

A new attraction there is a Jules Verne inspired "Voyage of Magma III". Up to 36 people at a time board the craft and take a journey into the middle of a volcano.

The attraction was designed by Harmatan of Paris, and was realized by an international team. Groupe F and SFP Architecture from France; Farmer Attraction



Development and Electrosonic from the UK and Joravision and Bosch Rexroth from Holland.

Magma III is actually a

Rexroth hydraulically actuated motion base surrounded by five rear projection screens built in to the craft theming. The Electrosonic show system uses Projection Design F30 projectors, NEC 40 inch LCD auxiliary displays and 61 inch plasma display for pre-show. The five main screens are sourced from Seventh Sense high resolution players, and the preshow and auxiliary screens are sourced from an Electrosonic MS9308 eight channel video player.



SPORTS

Game, Set and Match

★☆☆ The All England Lawn Tennis & Croquet Club opened the all-new Wimbledon Lawn Tennis Museum in April 2006.

The exhibit design, by Mather & Company, does an excellent job of integrating audio-visual techniques. This helps enormously in the interpretation of the historical material, while also allowing the drama of today's game to be fully exploited.

Touch screen displays are used widely, both as stand-alone exhibits, and, most effectively, as a means of interpreting tennis memorabilia, tennis equipment and tennis culture.

Video is very well integrated into the displays, using a combination of projected images and large flat panel displays.

The entire AV system at the Wimbledon Museum works automatically. Each morning it can be started from a single key protected "start" button, and similarly at the end of the day a single button-press closes down all the AV based exhibits.

Electrosonic's role included the design, construction and installation of the AV System, and the provision of on-call after sales service.



Inside the "on the circuit" exhibit, where both flat panel and projected images are presented.



Entrance to "on the circuit" exhibit.



A 61 inch flat panel display integrated into an exhibit showing the influence of tennis on art deco design.



"Court on Camera" presents a 200° image of Centre Court play, combined with exciting computer graphic images revealing the science of Tennis.

Like all successful projects of this kind, Electrosonic was but one of a talented team that built the museum, and worked well with fellow team members, particularly the content providers (Centre Screen and English & Co) the designers (Mather & Co) and the exhibit fabricators (Galliford Try and Scena).

One of the highlights of the museum is "John McEnroe Live". Here John McEnroe appears in a reconstruction of the Gentlemen's Dressing Room of the 1980s, and relates stories conveying the drama of the Wimbledon Championships. He appears life size, and wanders round the room, finding his own locker, and even seems to walk behind the dressing room furniture.

The convincing illusion is achieved by Pepper's Ghost – but to be convincing the video image that is superimposed on the "real" set must be of high quality. McEnroe was filmed in High Definition in a New York studio with a black mock-up of the set to ensure his movements fitted the actual set. Playback is via an Electrosonic MS9200 High Definition video player.



Old Course

★☆☆ This page evidently being the "sports page" of ELECTROSONIC WORLD, it is only fitting that a story associated with the home of Golf be included.

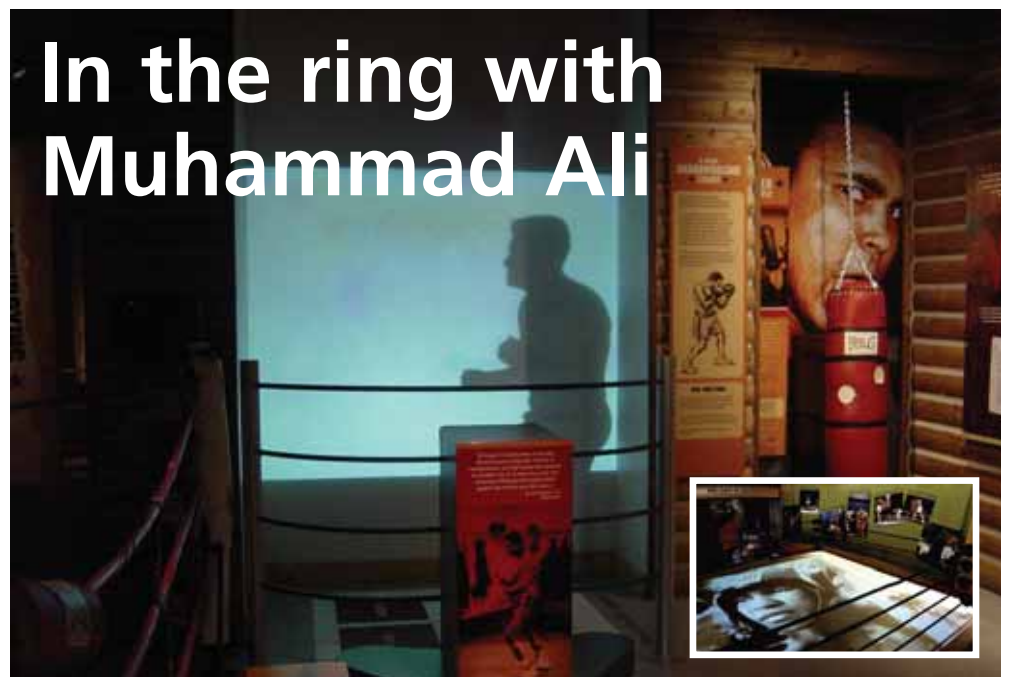
Over a two year period the Five Star Old Course Hotel in St Andrews, Scotland, has completely remodelled its conference and spa facilities. A team including Keppie Design (architects) Corporate Edge (interior design) Arup Scotland (M&E) and Tulloch Construction (main contractor) was joined by AVC Electrosonic as audio visual systems integrator.



The Spa required a high-quality, zoned audio system for background music, paging and local audio sources in fitness, relaxation and treatment rooms. The harsh environment had to be taken into account.

The Conference Wing required presentation facilities and audio systems appropriate to the needs of high-level corporate users running conferences and hospitality events. The complex consists of a large suite and a number of smaller rooms named after famous golfers.

In the ring with Muhammad Ali



One of the main shows is "The Greatest" which is projected onto a boxing ring. Visitors view the show from the floor above. The "Shadow Boxing" exhibit invites visitors to spar with Ali.

★☆☆ The Muhammad Ali Center, in Louisville, Kentucky, is a place that, in its own words, celebrates the values and worldwide influence of Muhammad Ali – a place that esteems his core values of peace, social responsibility, respect and personal growth.

The Center's main attraction is an exciting exhibition (designed and built by Formations Inc of Portland OR) that makes extensive use of audio-visual and interactive techniques. Electrosonic was responsible for the AV engineering throughout the Center, and Cortina Productions of McLean VA was responsible for program content.

The first main attraction is the Multi-screen Orientation Theater illustrating pivotal events in Ali's life.

Exiting the Theater, visitors follow four "Journey Lines", interactive

multimedia timelines of Ali's life. Next come themed pavilions, which explore the values by which Ali lives his life, "Confidence", "Dedication", "Giving", "Conviction", "Respect" and "Spirituality".

One of the most fun parts of the Center is a cluster of exhibits devoted to Ali's boxing career. "Train With The Greatest" and "Shadow Boxing with Muhammad Ali" are typical here.



One of the time line interactive exhibits. The four exhibits each use a twin rear screen arrangement using short throw projectors. In this one the interactive input is by touching the bicycle seat – the bicycle was stolen from Ali when he was 12.



"Spirituality" is projected on an overhead circular screen.

Two major presentations are "The Greatest" (see picture above) and "Lighting the Way" which includes Ali's unforgettable torch-lighting at the Atlanta Olympics.

Arsenal Museum



★☆☆ The Arsenal Museum in London can be visited on its own, but is more usually seen as part of the Emirates Stadium Tour. The idea is to give visitors a history of the club, based on memorabilia, artifacts and photographic records, and to impart something of the spirit of the club.

The first half of the museum describes the soccer club's origins in Woolwich, its move to Highbury, its progress to the present day and its legendary players. The second half develops the theme of the Spirit of

Arsenal, and traces its performance within the FA Cup, The League, and in Europe.

The exhibition was designed by Mather & Co, with graphics by 1977 Design and fit-out by Dysons. It makes considerable use of video and interactive exhibits. AIVAF was responsible for physical interactives, and Electrosonic installed the AV and computer screen-based interactive equipment. Content for the Electrosonic installed equipment was produced by Centre Screen.





The Great Glass Elevator, finale of the Chocolate Factory Ride. Photo Phil Hartley Associates.

Charlie goes HD

✳️ Alton Towers (Tussauds Group) has opened a new attraction for the family. Electrosonic was a member of the production team, and engineered a novel high definition projection system that features in the finale.

Charlie and the Chocolate Factory: The Ride (designed and produced by Tussauds Studios) takes families on an unforgettable adventure into the heart of Willie Wonka's wondrous chocolate factory. It is based on the classic Roald Dahl book and the original Quentin Blake illustrations.

The first part of the attraction is a boat ride; this takes visitors through the factory in a succession of scenes from the book. Each boat is fitted with a battery powered audio system designed and built by Electrosonic.

Sensors detect the passing of boats and initiate the required lighting, animation and ambient audio sequences for each scene. These include the "Juicing Room", the



Entrance to "Charlie and the Chocolate Factory".

"Chocolate Room", "Candy Frenzy" and the "Inventing Room".

Disembarking guests take a short walk through another part of the factory before boarding the Great Glass Elevator where they are whizzed through the heart of the factory and beyond in an exhilarating virtual tour.

This fully immersive illusion of flying in the elevator is created using a "virtual environment" consisting of a themed space with back projection screens on all four walls and the ceiling, augmented by a moving floor system providing "heave", "roll" and "forward/backward"

movements. The space is 6m square and 3.4m high.

This part of the attraction was realised by a team that included Falcon's Tree House, who, with nWave Digital provided the very lively and incredibly detailed show content. Phil Hartley Associates provided project management.

Electrosonic engineered the projection system, which is based on Christie DLP™ projectors and Electrosonic MS9200 High Definition Video players. Paradigm was subcontracted to Electrosonic to provide the screen structure and the moving floor was supplied by Rexroth Bosch.

Cadbury's Purple Planet

✳️ Cadbury World is one of the UK's leading visitor attractions; its irresistible chocolate theme is so popular that at most times of the year it is essential to book your visit. It is continually being developed and improved, and recently it opened a new interactive attraction, "The Purple Planet", that has proved hugely popular with the public.

Purple Planet was designed and built for Cadbury World by Event Communications. Conceived as a "virtual exhibition", with an emphasis on "whole



"Chocolate Infinity" at Cadbury World's Purple Planet has floor projected images that respond to both camera-based image sensors and pressure sensors in the floor.



"Chocolate Rain" has a deluge of chocolate buttons that react to the silhouette image of the visitors.

body interactivity", Purple Planet explores the chocolate theme in surprising ways.

Event Communications chose an experienced team to help realize its design. Newangle was commissioned to produce the software, Electrosonic was appointed AV systems integrator, and HB Source supplied the physical interactive components. Newangle appointed HMC MediaLab as its subcontractor to write bespoke application software.

Purple Planet is a realm of mirrors, wall-sized screens, hidden cameras, motion detectors and interactive projections that react when you touch them or move your body. They form a series of mind-stretching virtual exhibits including such features as chocolate rain falling from the sky and a photo experience that moulds people into cyber chocolate sculptures.

The photos here are from Event Communications and Newangle.



"Mould Me" asks visitors to "strike a pose". The image is frozen and turned into a chocolate sculpture in front of the visitors' eyes.

Hershey's Chocolate Tour



✳️ Electrosonic recently provided the AV and control systems for The Great American Chocolate Tour, the renovated chocolate making tour at Hershey's Chocolate World in Hershey, Pennsylvania – America's most visited corporate visitors'

center with more than three million visitors every year.

Gary Goddard Entertainment designed and produced the ride, and On Track Themes Inc was the Project Manager. On Track enlisted Electrosonic to engineer the AV element, and Adirondack Studios for



the scenic work.

Electrosonic's work included the provision of a multichannel audio system to cover the 1200ft (365m) of

standard definition multi-channel players.

The highlight of the tour is its big video based finale, designed by Jerome Salin Design. 18ft (5.5m) high curved walls display six scenes of America enjoying Hershey products.



The finale show uses Dataton Watchout as the image source system, with eight Panasonic 5000 lumen DLP™ projectors. Silicon Optix image warpers are used to adjust for the curved projection surfaces.

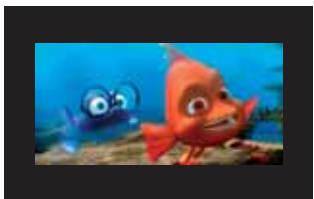


The Wave Wall at Georgia Aquarium.

Georgia Aquarium

★☆☆ Georgia Aquarium in Atlanta is the world's largest aquarium, and has been a phenomenal success with visitors, attracting over 3.5 million visitors in its first year.

It is divided into themed areas, for example "Cold Water Quest", "Discover our Coast", "Ocean Voyager", "Open Ocean", "Freshwater Mysteries", and "The Coral Kingdom". In addition there is a vast plaza featuring the "Wave Wall", and a separate 250 seat 4-D Theater showing the "Deepo Underwater Adventure", a combination of 3D animated film (shown by Electrosonic HD players), live action and synchronized special effects.



Deepo, star of the 4D show.



The Coral Reef. Waves break over visitors' heads. Note touch screens in foreground, and fish identification screen (one of two) to the side of the tank.

Electrosonic was responsible for the audio and audio-visual engineering throughout. This was a massive project, scheduled over an 18 month design and installation period. But the project did not stop with opening day – since then Electrosonic has supported the AV systems under a maintenance contract that includes preventative maintenance, no additional repair charges, unlimited emergency call outs, help desk support and a lamp

replacement program.

The creative team that contributed to the success of the exhibit aspect of Georgia Aquarium included TVS Architects (architect) PGAV (exhibit designer) Chedd Angier (AV and video content producer) Gary Goddard Entertainment (entertainment design consultant and producer of the Deepo show) JSFA Architects (4D theater design) and On Track Themes (Wave Wall content producer).

Hong Kong Wetlands

★☆☆ The Hong Kong Wetland Park occupies 61Ha (150 acres) next to Tin Shui Wai, a new town in the New Territories of Hong Kong. It is alongside Deep Bay on an important bird migration route, but while birds are a major element of the park, the overall focus is broader, looking at the importance of wetlands for mankind and wildlife.

Visiting the Hong Kong Wetland Park Visitor Centre is the practical way of learning about the park. Designed by Arch SD (Architectural Services Department of the Hong Kong Government) according to environment-friendly principles (and partly underground) it houses a fascinating series of exhibition galleries. MET Studio Design of London was both the master planner and exhibition designer for the Centre.

The main exhibition galleries "What are Wetlands?", "Living Wetlands", "Human Culture", "Viewing Gallery", and "Wetlands Challenge" provide plenty in the way of what is now



One of the exhibits in "Living Wetlands".



The long low building is the Visitors' Centre.



Exhibit in Wetlands Challenge.



Stereoscopic viewing in the central atrium.

often referred to as "edutainment", with dioramas, live crocodiles, interactive exhibits, and stimulating shows. The Viewing Gallery allows visitors to look out over the park and Deep Bay, and to use interpretation panels and telescopes to identify birds. Controllable remote video cameras provide close-up views of special points of interest within the park. Wetlands Challenge includes several complex interactive exhibits that require team working. Mandarin, Cantonese and English are the languages of the exhibition.

Electrosonic engineered the principal AV and computer interactive systems, under sub-contract to Beck Interiors, the main exhibition contractor. Other members of the team included Centre Screen, SEAC and Kiss the Frog (software producers) HB Source (physical interactive exhibits) and Asia Rock Art, Academy Studios and Scenic Route (scenic fabricators and modelmakers).



Central show in the Human Culture gallery.

The Falkirk Wheel



★☆☆ The Falkirk Wheel is the world's first and only rotating boat lift; it is the centerpiece of The Millennium Link Project which has restored the inland waterways of Scotland to use.

Boat trips on The Falkirk Wheel have been very popular with visitors, and in an upgrade of the existing tour presented by the boat skippers, technical and historical video modules are now shown to visitors by on-board monitors. Audio is broadcast in English with five other languages being delivered via audio tour handsets synchronized to the

video. Modules are selected by the skippers via a touchscreen panel, allowing them the flexibility in timing required, The Falkirk Wheel being a working part of a busy waterway system as well as a visitor attraction.

The AV installation for the tour upgrade was by AVC-Electrosonic of Edinburgh. Program content was produced by Sheena Irving AV, and project management was by Fraser Randall for British Waterways Scotland.



National Zoo

★☆☆ The National Zoo in Washington DC has opened a new "Asia Trail", featuring the giant panda, sloth bears, Asian small-clawed otters and other species from the Orient. As sub-contractors to Hadley Exhibits Inc, Electrosonic provided the AV technology for several different interpretative exhibit types, including nine "Curiosity Stations", two "Interactive signs", three "Story Screens", five "Dilemma Stations" three "How to read" stations, two "Wild signs" and a "Camera Trap". Many of the displays were supplied in environmentally conditioned housings for outdoor use.



The 42m (138ft) wide Media Panorama dominates the exhibition space.

Beeld en Geluid

(Netherlands Institute for Sound and Vision)

✦ Hilversum is the major center of broadcast media production in Holland. Its Media Park is now home to the Nederlands Instituut voor Beeld en Geluid.

Beeld en Geluid looks after 70% of the Dutch Audio-Visual heritage, comprising 700,000 hours of material. The building contains the archive in an underground vault; above ground, research facilities and public areas are housed in a huge cube decorated with striking images.

The public access the Institute's resources through the Beeld en Geluid Media Experience, an exhibition of 15 themed areas which between them give access to 10,000 hours of archived images and sounds. As they enter the exhibition visitors purchase an interactive ring which they use to "log in". Subsequently the ring is used to activate the interactive exhibits, and the system keeps a record of the choices made. When the visitor gets home the visit can be reviewed over the Internet.

The themed areas present material from the

Statistics	
Equipment racks	42
Computers	180
Flat screen displays	180
Projectors	20
RF tag readers	140
Loudspeakers	300
AVC handsets	42
Blade video servers	13
MS9304 4-channel server	1
MS9200 HD players	6
Video cameras	11
Webcams	25



The log-in stations. Notice the camera above and the RF tag reader below the screen.



The Beeld en Geluid building.



The log-in ring.



"Power of the media" interactive theater.

archives. "Feel like a star" introduces stars from past programs, and allows visitors to appear in front of the cameras and be a star for 15 seconds!

More seriously "Power of the media" shows how the relationship between politics and the media has developed, and "The world as a village" explores the influence of media developments on daily life. "This is the news" emphasizes the size of the news industry, and has "green screen" exhibits where visitors can become newsreaders.

Every hour the lights in the main exhibition area dim down, and exhibit screens display a message announcing that the

"Media Panorama" show, presented on a huge motorized roll down screen 42m x 4m (138ft x 13ft) is about to begin.

The Audio-Visual system behind Beeld en Geluid was engineered and installed by Electrosonic under sub contract to the Making a Scene consortium. 42 equipment racks were built at Electrosonic's Dartford facility and installed in four control rooms on site.

The Media Panorama show uses six Electrosonic MS9200 genlocked High Definition players both as sources and to provide the image edge blending.

Where school-childproof handsets are required, AVC Electrosonic heavy duty handsets are installed.

The Team

Client, concept, and direction	Nederlands Instituut voor Beeld en Geluid
Architect	Neutelings Riedijk Architecten
Façade design	Studio Jaap Drupsteen
Exhibition design and construction	Making a Scene, a consortium of: Hypsos Leisure, Northern Light and Swynk
Lighting	Arup Lighting, Lichtpunt
Electromechanical	Van Krieken Design & Engineering
Graphics	Captain Video
Computer interactive software	Kiss the Frog
AV Facilities and media production	Beeld en Geluid, eStation, Metropolisfilm, Ciris, NOB Crossmedia, CCCP, Tungsten, Medialandscape
AV Systems integration	Electrosonic



"Gogglebox children" the exhibit on children's TV programmes. Notice the use of AVC heavy duty handsets.



The Ingredients exhibit presented by cylindrical rear projection.

GUINNESS

✦ Guinness Storehouse in Dublin is Ireland's most popular visitor attraction. Opened in 2000 it now receives over 750,000 visitors a year. In early 2006 the exhibition area was extended and updated by Event Communications, and, as with the original exhibition, the extensive AV installation is by Electrosonic.

The exhibition areas cover topics such as ingredients, brewing, cooperage, transport and advertising.

They are well supported by both historic and modern video films presented by both plasma displays and projection, all neatly integrated within the exhibit design.



The "Guinness around the World" exhibit is presented on multiple plasma displays.

Museum on the Mound

✦ The Halifax Bank of Scotland (HBoS) HQ building is on The Mound in Edinburgh. In what used to be the strong room area a fascinating museum (design by Studio SP) presents the bank's history – and indeed the history of money in Scotland.

The high resolution AV displays supporting the exhibition were installed by AVC Electrosonic.



Photo by Paul Zanre.

World of Whisky

✦ Another installation by AVC Electrosonic of Edinburgh is at Dewar's World of Whisky in Aberfeldy, Scotland.

The exhibition area at this popular visitors' center has recently been upgraded (design by MKW Design Partnership and the Edinburgh Consultancy).

The Dewar's "Brand Family" exhibit illustrated here incorporates compact LCD screens to describe each brand, alongside the corresponding bottle. In a neighboring video cinema a 4m x 2m screen presents the Dewar's story.



Photos by Michael Wolchover.

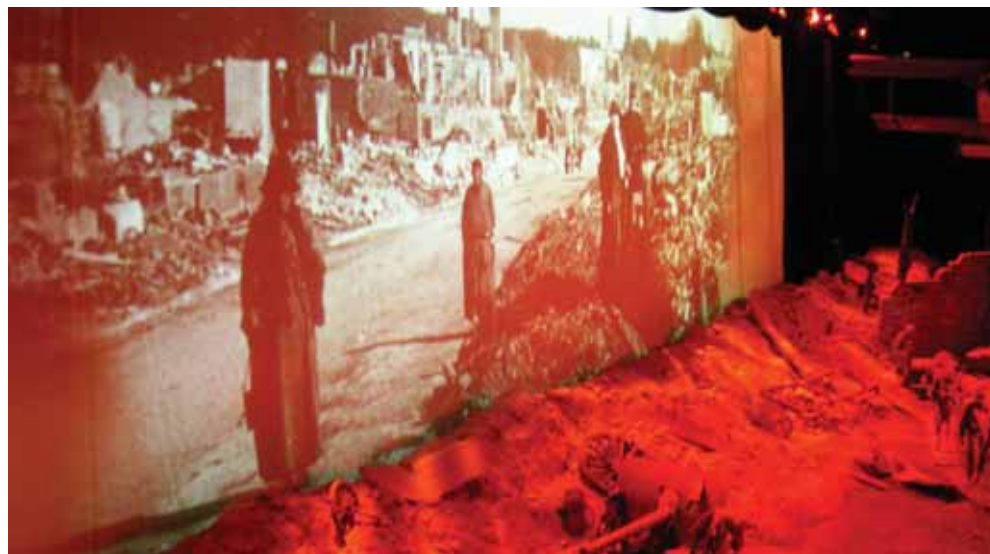


MILITARY MUSEUMS

World at War

✦✦✦ The National World War I Museum at the Liberty Memorial in Kansas City, Missouri, is the USA's only national museum dedicated to preserving the artifacts, history and experiences of what was called "the war to end all wars". Designed by Ralph Appelbaum Associates, the museum tells the story of the war through the experiences of those who lived it. Electrosonic was responsible for designing, engineering and installing the exhibit audio-visual systems.

The museum's 30,000 sq ft exhibit area is an annular



Part of the Horizon Theater at the World War I Museum. A 100ft (30m) wide screen is set behind a realistic reconstruction of the battlefield.



The Chronology Wall in the background. 1914 weaponry in the foreground

space directly beneath the Liberty Memorial (originally dedicated in 1926). As visitors pass through imposing bronze entry doors they first see the Portrait Wall Gallery. This consists of 10 portrait format displays showing individuals who participated in the war.

From here visitors walk across a glass bridge. Below it is a field of 9,000 poppies, where each poppy represents 1,000 military fatalities. The bridge leads directly to the Orientation Theater, where visitors see a High Definition film that explains the background to World War I.

Visitors then move into the exhibition area which surrounds the base of the monument. It is in three sections; the first deals with the years 1914 – 1917 when the war was fought by "European" participants, and the third covers 1917 – 1918, when the USA joined the War.

The first and third sections are symmetrical. Displays of weapons, uniforms, and contemporary artifacts are based on the museum's huge collection. The first section includes an impressive Trenches exhibit that features full scale models of English, French and German trenches.

The symmetry extends to the AV installation. Each of the two sections includes three Audio Alcoves, equipped with a touch screen that allows visitors to select historic music, poetry and prose recordings of the time, and reminiscences from both historic figures and "ordinary people".

Outside the alcoves is an interactive study area that features the Issues Table. A curved table forms a horizontal projection screen which is served by six DLP™ projectors sited overhead. Up to 12 participants stand either side of the display. In normal operation the table presents 12 different subjects, and visitors explore these using a tethered light pen which is directed to the relevant part of the projected image. Two video cameras, mounted underneath each translucent screen surface, capture the light pen location, and the

interactive computer sends the required image to the projector. Miniature array loudspeakers provide localized sound to each participant position.

Both exhibition areas feature a Chronology Wall that includes LCD monitors displaying contemporary film clips. Both also feature interactive Battlescape Maps based on 46 inch LCD displays with touch screen

overlay. In the 1914 – 1917 area video projection is used to animate the space, two projectors projecting on scrim screens that are part of a Mural, and projectors directed to the floor in the Air and Sea War exhibits. As visitors leave the exhibition, the last thing they see is a short film on The Peace.

Sited between the two exhibition areas is the spectacular Horizon Theater, featuring a dramatic reconstruction of a World War I battlefield scene, with all its mud, ruined buildings and barbed wire. Behind the full size tableau is a huge screen 100ft (30m) wide and 25ft (7.5m) high. A continuous running show is presented on the full width of the screen, augmented by programmed lighting and special effects that take place in the foreground.

The resources behind the Horizon Theater are formidable. OSix DLP projectors are mounted



Part of the Portrait Wall Gallery.



Part of the exhibition. The brighter of the images is a video sequence projected onto a scrim screen.



One of the Issues Tables.

pointing straight up, and are fitted with mirror brackets so they show a portrait format image. A combination of edge blending and image warping ensures a seamless and geometrically correct image. In addition to the six video projectors there are six moving head video lighting fixtures that show a mixture of video images and projected lighting effects.

The Team

The principal members of the team that created the exhibition at the new World War I museum at the Liberty War Memorial were as follows:

Exhibit designers
AV show production
Interactive production
Lighting design
Acoustic consultants
Exhibit fabricators
Sub contract fabricators
Display cases
Electrical contractor
Sensing system for Issues Tables
AV Systems design and integration

Ralph Appelbaum Associates
Donna Lawrence Productions
Second Story
Technical Artistry
SH! Acoustics
Explus
Display Innovations
Mayvert
Capital Electric
Potion
Electrosonic



The Cold War Museum at RAF Cosford. The photo was taken when the exhibits were being moved in, the open side is now covered in.

Cold War Museum

✦✦✦ Sited at RAF Cosford in Shropshire (UK), the National Cold War Museum is part of the RAF Museum. This outstanding exhibition makes intelligent use of audio-visual techniques to augment and interpret the physical exhibits. Electrosonic was the principal AV systems integrator.

The project was initiated to solve the urgent problem of storing part of the RAF Museum's inventory of historic aircraft, some of which were deteriorating as outdoor exhibits. The realization that the aircraft concerned were all of the Cold War era led to the idea of a Cold War Museum, and the exhibition includes aircraft and artifacts from both NATO and Warsaw Pact countries.

The Museum is in the form of two triangular spaces divided by a central walkway. The building was designed by architects Fielden Clegg Bradley.

The aircraft exhibits are augmented by displays of land vehicles, missiles and other bits of cold war apparatus. But all this needs interpretation, and this is done by exhibition "islands"



The Berlin Wall exhibit with built-in back projection screen.

located throughout the space.

The supporting exhibits were designed by Neal Potter. In keeping with the Cold War theme, the exhibition islands are presented as "Hotspots", and each recall some aspect of the Cold War and its impact on the everyday life of the populations that lived



The Submarine exhibit from above.

under its threat.

The Hotspot subjects are: Mutually Assured Destruction; Surveillance and the Cuban Missile Crisis; Berlin and the Berlin Airlift; The Far East and Global Conflict; Space and Missiles.

Each "Hotspot" is of cylindrical construction where the outside of the cylinder carries a series of graphic panels, and the inside forms a small show space where visitors see a mixed media show based on a combination of multi-channel video and lighting effects.

AV production was by Newangle and exhibit fabrication by Beck Interiors. Interactive kiosks were supplied under a separate contract by Spiral Productions.



Some of the aircraft exhibits at the Cold War Museum. The big red "H" denotes a "Hotspot" exhibition area.