East Europe Strives for News

Pool Service Tries to Remain in Operation Amid Changing Times

by Charles Recknagel

PRAGUE

As Eastern Europe strives to make economic headway in the free-market world of the West, its fledgling regional news pool is struggling to get back on its feet.

The service, known as TransNews and funded by the U.S. non-profit media group InterNews, was designed to increase the amount of news shared between Eastern European stations beyond what is available through the European Broadcasting Union (EBU).

The service, which operated out of the switching center of the former Organisation International de Radio et Television (OIRT) here in Prague, interrupted its program in March after little more than a year of service using the Intersputnik satellite system. This left broadcasters in Eastern Europe with access to EBU feeds, but no way to deliver their own feeds to the rest of the world on a regular basis.

RUSSIAN SOURCES

"To date, the principal source for news on the exchange has been the two Russian state television channels," said Zdenek Stepinek, TransNews' director, "but in the Spring, it appeared they no longer would be able to afford to uplink to the satellite."

A reorganization within the Russian government threatened to put the different elements of the once monolithic Russian television structure onto its own financial footing, so that the stations would have to pay for the use of telecommunications lines.

"Now, we are suspending operations while we wait for the situation to stabilize and also to conclude new agreements with the stations," Stepenek said.

News from Russia was the most frequently demanded item on the exchange, which shared information between television stations in Bulgaria, the Czech Republic, Russia, Poland, Romania and Cuba, as well as with the U.S. service Cable News Network (CNN).

The interruption of the news exchange is the latest bump on an already rocky journey for TransNews to preserve the former OIRT switching center, which it has kept open since the OIRT ceased to function in late 1992.

NEW LIFE

During the communist era, the OIRT coordinated exchanges of news, sports and entertainment programs via Intersputnik between all the socialist nations and, later, during Perestroika, with the West through the EBU. But shortly after the collapse of Soviet Union in 1989, the Czech government, like others in the region, lost interest in the network and its capabilities. The switching center links with the Intersputnik

(continued on page 6)

SSSssuper Animation:

This image from South Africa's Video Lab Group was created using the Quantel Henry, Harry and Paintbox.

For a review, see page 30.
Shoot Long, Low and Fast

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THE WORLD'S FIRST FULL CASSETTE PROFESSIONAL S-VHS LOLEX 3 CCD CAMCORDER

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The JVC X2.
NEW KU-BAND SERVICE EYED

VERNON TOWNSHIP, N.J.

Another satellite service is in the works aimed at providing U.S. programmers access to the European market.

Orion Atlantic, an international satellite partnership, has teamed up with Micronet Inc. to launch a compressed digital video satellite service across the Atlantic.

Under the agreement, the service would begin with the launch later this year of an Orion 1 satellite at 37.5 degrees West. The service will provide Ku-band feeds between North America and Europe.

The service will be geared mainly to organizations delivering programming to Europe. Orion will provide entrance links, turnaround services, 4.1 digital compression, standards conversion, uplink operations, transponder space and downlinking throughout the U.S. Part-time service will also be available.

Micronet will provide equipment to Orion's Glenwood earth station in New Jersey, as well as terrestrial connections to Washington, D.C., Philadelphia and New York.

Founded by Orion Satellite Corp., Orion Atlantic is a private partnership consisting of the U.K.'s British Aerospace and Kingston Communications, Canada's COM DEV, the U.S.'s Martin Marietta, France's Matra, the Nippon Iwai Corp. of Japan, and Italy's STET.

JAPAN FURTHERS NETWORK PLANS

 TOKYO

Nippon Telegraph and Telephone Co. has ordered video servers and other multimedia devices from Silicon Graphics to be used in Japan's interactive video tests planned for the end of 1995.

Silicon Graphics is providing similar equipment to an advanced network in Ohio, Florida, being constructed by Time Warner. However, that project has been delayed from its original launch date of this past April to the end of the year.

In Japan, NTT hopes to begin testing a system in 1995, with a full-scale launch in 1998. Unlike the Time Warner project, which is designed to provide consumer programming, the NTT system will concentrate on providing digital services to corporations.


events

MONTEUX ALIGNS WITH SMPTE

MONTEUX

Organized by the International Television Symposium (ITS) and the German section of the Society of Motion Picture and Television Engineers (SMPTE) have agreed to mutually support the 1996 European SMPTE Conference.

To be held in Cologne September 22-24, 1996, the event will be titled "The 1996 European SMPTE Conference — Organized by the European Sections of the SMPTE and the Montreux International Television Symposium." The event will take place within the Photokina Professional Media Fair.

In addition, the SMPTE will participate in the Montreux show in 1995.

The partnership comes at a time when Montreux is waging a battle with the International Broadcasting Convention, which has announced it will become a yearly show beginning in 1995. Traditionally, the two shows were held in alternate years.

SBC AIRS SPOTS FROM DISK

Singapore

The Singapore Broadcasting Corp. has taken a step toward airing material from disk with the recent purchase of two Odcie Machines.

The Cache Machines, a disk-based spot playback unit, will allow SBC to eliminate the need to compile all spots to a single reel for playback.

Each unit is configured with a Digital Betacam TCS90 cart machine, an LEMOV expansion module and two Tektronix Profile disk recorders.

Each system can handle 10,000 spots and will be used to automate the commercial presentation on Channels 5 and 8.

In other news, The Discovery Channel Asia, launched earlier this year on the Palapa B2P satellite, has acquired an Odcie TCS90 cart machine.

REGULATION

DVB PROBES PROOF OF ANTIPIRACY ISSUE

FRANKFURT

Citing increased opportunities for signal theft in the digital future, the European Digital Video Broadcasting Project (DVB) has called on the European Commission to up its anti-piracy efforts.

The group is calling for the Council of Europe's Recommendation (91)14 on the protection of encrypted services to be adopted, along with other measures.

In addition, the DVB has asked the EU to "examine the appropriateness" of harmonizing measures to protect encrypted content.

The group is also asking that anti-piracy measures be included in the Europe Agreement and Association Agreements and he brought up for discussion at the Prague Ministerial Conference on Mass Communication in December.

COMMODORE ENTERS REORGANIZATION

NASSAU, Bahamas

Rumors and speculation continued to swirl around Commodore International Ltd. in June, following the company's announcement that it had entered voluntary liquidation.

The company is reported to have racked up more than $300 million in debt in the United States and is said to be in high-level negotiations with a number of companies interested in a buyout.

Among the names of potential buyers being circulated as of press time were Sony, Hewlett-Packard and Philips.

However, two other companies — CEI of Miami and Samsung — have emerged as central players in the negotiations, according to sources. CEI (Creative Equipment International) is the lesser known of the two, but it has a long history with Commodore as a major distributor, especially in South and Central America.

According to one source, it appeared that CEI would end up as a minor shareholder to Samsung's majority interest in the buyout, though this assertion could not be verified.

Samsung officials involved in the negotiations could not be reached for comment.

BRAZIL HOSTS BROADCAST SHOW

SAO PAULO, BRAZIL

Amid a growing cable television, satellite, and terrestrial broadcast market, the Fifth Video Expo/SetSouth American Broadcast Equipment Show is set to take place from August 14 to 17 at the Anthemi Convention Center.

The show will offer Brazilian and international manufacturers the chance to tout their latest developments to the South American market. Among the products lines on display will be audio systems — including amplifiers, mixers, recorders and monitors — camera and support gear, digital effects equipment, editing systems, switching products, automation systems, test and measurement gear and transmission producers for cable, satellite, terrestrial and microwave systems.

The show will run concurrently with the South American Multimedia Show-'94 and the 1V Brazilian Congress of Television Engineering.

Video Expo-Set is being sponsored by the Sociedade Brasileira de Engenheira de Televisão (SET). For further information, contact Certame Eventos Promocionais Ltda., Rua México, 112, 05-01, CEP 00331-144, Rio de Janeiro - RJ - Brazil; telephone: +5521-220-3386, FAX: +5521-240-8195.

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Next issue: IBC & Amsterdam
The time has come.

Sony announces the DVW-700P and BVW-D600P digital cameras – two camcorders that signal a new era in documentary and drama acquisition.

Arm yourself with the DVW-700P for Digital Betacam recording, or the BVW-D600P when you’re using Betacam SP. You’ll find that both camcorders offer acoustic noise, weight, and size no greater than their analogue equivalents.

Advanced Digital Signal Processing circuitry, featuring our Hyper HAD 1000 CCD chip, means better picture quality than any other camcorder. New lithium-ion batteries give longer recording times. The DVW-700P even allows colour playback in the field without an external adapter, and is also available as a switchable widescreen version.

You get a wide range of setup parameters, plus a user-configurable viewfinder menu which makes light work of the setup procedure.

And all settings can be stored on a removable Setup Card. It means rapid camera readjustment, as well as the ability to configure more than one camera in the same way.

Join the movement for component digital acquisition. And shoot with the confidence provided by true digital quality.
Dear TV Technology:

It is understandable that Mario Orazio is a pseudonym, allowing the author to protect himself from the consequences of his writing (Fiber in My Plant? I Think I'll Stay). However, points out some real-world problems in using optical fiber where power must be delivered along with the signal. However, he is a little overzealous in his criticism of fiber, and I am certain I will be only one of several to comment.

Optical fiber is not suited to all communications applications. The relative cost of the total installation, with EO/conversion, may cost more than copper, and there are other considerations that may favor copper. Power transmission presently is solved only by hybrid cable. Connectorization, splicing and testing have become so simple and reliable, they are not worthy of major concern. The author does allude to the advantages of fiber, but he gives them less credit than they deserve. Immunity from EMI — including lightning and ground loops — light weight and high bandwidth are tremendous advantages, and the cost of fiber installation, sometimes even including the EO interfaces, can be less that of copper.

More specifically:

• Concerning triax, fiber optic rotary joints, the optical equivalent of a slip ring, have been available for 15 years from several manufacturers to serve the remote applications. Hybrid cable does make sense.

• No one in his right mind is going to lay fiber optic cable without strength members across a golf course. And yes, there is fiber optic cable in production across which you can run a main battle tank and tie knots without damage.

• If POT'S is all you want to transmit on fiber, then many would agree that it is not cost effective or acceptable to the user to provide battery power to run fiber to the house. Fiber to the curb will do. However, if integrated services, including HDTV, are delivered along with POT'S, fiber will be necessary. Hybrid cable again is increasingly becoming a popular option. To think that these services are a long time coming would be a very risky position for service providers.

• Yes, all fiber optic communications operate in the near infrared range, most of it at 850 nm or 1,300 nm. You can see 850 nm (Mario cannot see electrons), and there are inexpensive equivalents of a logic probe to detect signals and measure wavelengths, making the high capacity of fiber possible. Many applications, especially those that require transmission distances of less than 2 km, utilize LED light sources, not laser diodes, and eye safety is not a problem. Even with laser diodes, FDA regulations must be met, and manufacturers' warnings are explicit about direct coaxial viewing.

• Has Mario ever used a fault locator? They DO work just as well as they say they do.

• Serial digital already is providing video on fiber at high transmission rates, and can be used where uncompressed video is unattractive and more than the 500-feet limitation on coax is necessary. A SMPTE standard for serial digital is under review, and should be released late in 1994.

To answer his question, Mario is probably not unreasonable, just a tad biased.

Wendell Hensley
Force Inc.
Christianburg, Virginia

P.S.: Hensley is not a pseudonym.

Mario replies:

Gee, it has been a long time since anyone called me a tart. Anyone Indian, too, for being someone in the fiber optic business who recognizes that it is not ideal for everything.

Your pal, Mario

No government strings

Dear TV Technology:

In the April issue (Vol. 12, No. 4) of TV Technology, I was quite surprised to find an article regarding the progress of television in our small republic. The article entitled “Czech Republic Gets First Private Network” is proof of world recognition of the Czech republic’s capabilities as a fast-growing economy.

However, there is one inaccuracy in your article and it has to do with the so-called “state-run” Czech television. The fact is that the Czech government has absolutely nothing to do with television. After the revolution of 1989, Czech TV cut itself off from government funding in order to stay immune from any manipulation. Now, the station is run as a public broadcasting station funded mainly by viewer subscriptions. As a high quality and highly respected magazine, I would expect better information gathering and better editing to be done when reporting the news. Especially when this news is not new.

Thomas Muecla
Czech Television
Prague
BroadcastAsia Surges Forward

by Maggie Dugan

SINGAPORE

The theme of the Broadcast/Asia '94 exhibition and conference in Singapore in June was the question: "Where do we go from here?" But most of the discussion at the conference seemed to be centered on "How do we go from here?" as broadcasters and manufacturers played tug of war over incredible advances in available technologies and the explosion of the Asian broadcast market.

Broadcasters in Asia are hungry for equipment, technology and programming, but there is concern, at least from the state-run operations, about how quickly the Asian market can adapt to the fast-coming menus of services being offered by the West.

"There is a need for a set of guidelines for region-wide programming and technical standards," said Hugh Leonard, secretary general of the Asia Pacific Broadcast Union (ABU) in his opening address to the conference.

CULTURAL INVASION

Leonard warned of the cultural invasion of non-territorial broadcasters.

"These intruders will not go away," he said. "We will just have to learn to live with them."

Teo Chee Heun, Singapore's minister of state for finance and communications, who was guest of honor at the opening ceremony, said the issue of programming control is not only a question of standards.

"It makes business sense that services must provide (what is) relative to the culture and the language of the different Asian audiences," he said.

Although the show boasted 17,000 visitors, most exhibitors at this, the third BroadcastAsia show, agreed that they had less traffic by their booths during the four-day conference than at previous shows. However, the visitors who did come by seemed ready to talk seriously about their broadcast equipment and service needs.

"The show's been a little slow, it is so close to the NAB in Las Vegas," said Alex Delay of transmitter manufacturer Larcen-TTC.

The buzz at the conference was the explosive growth of the radio market in Asia, especially compared to more depressed American and European markets.

"This region is very exciting," said Randy Ng, manager of Sony's Hong Kong sales efforts. "New satellites are being launched, transponders have been reserved, a lot of people want to know how to operate cable, there are new television joint ventures, and they can all buy the latest technology. Things are really happening."

Harris-Allied has been doing business in the region for at least 50 years and supplied products to virtually every country in Asia. Still, Jack O'Dear, director of international sales for Harris-Allied, said that does not make it easy.

"There is loss of competition here. Nobody is making a lot of money," he said. "It's booming, sure, but it is very competitive."

But the word is out that Asia's broadcasting industry is growing, and this year's BroadcastAsia is in evidence that Western product suppliers want to take advantage of the boom. At least 430 exhibitors from 30 different countries attended this year's conference. 20 percent more than the last conference two years ago.

NEW FACES

In 1992, the show was dominated by American and British manufacturers. Noticeable on the exhibit floor this year was the increase in smaller European suppliers. The exhibit roster was filled with Italian, German, French and other European suppliers, many of them making their debut in Asia.

"It is really important to be here at the beginning," said Astrid Carver, production manager for French manufacturer Dalet Digital Media Systems. "The aim here is to train our new distributors (Dxuxo), but it is helpful to be here to see new people. They are very aware and asking focused questions."

Huw Grywyn, product specialist at audio and video manufacturer AMS/Neve, noticed how open the Asian broadcasters are to technology.

"They immediately understand what the technology can do for them, unlike in more mature markets like the U.S. and the U.K. where people are more reluctant to change. But while companies do not tell us here that they find broadcasters more flexible and interested in the newest technology and equipment, the ABU is sending a strong message to Western programmers and equipment suppliers: slow down."

"Everyone concedes that the long-term future resides in advanced technologies, but the future is not tomorrow," said ABU Technician in Director. "And if the Asian broadcasters would not want to jump into quality at the expense of existing audiences. We will use the same technology that allows quality, but use it instead to make improvements in quality over the current technology we are using."

Some manufacturers are sympathetic to Khushty's point. Gabriel Soimović, manager of Radyo for the French computer design company SoftImage, said the company demonstrated new equipment at NAB, but withheld it from Singapore.

"We were uncertain demonstrating a product, only to be too overwhelming," he said. "To localize does not just mean translation, it means interpretation and promoting products that this market is ready for."

Satellite and Audio Gear Are In High Demand

by Mark Timpany

SINGAPORE

Audio and satellite gear drew the major share of attention on the exhibit floor of BroadcastAsia '94 in June.

A few of the more well-known manufacturers' names have changed since the last BroadcastAsia in 1992, mostly as the result of mergers. Comark exhibited under the Thomson banner, which now also includes ABB Infocom and, most recently, service parts for RCA broadcast transmitters.

Sales of the company's IOT transmitters have been very strong in Asia, where they provide the efficiency required for high power UHF facilities for several rapidly expanding commercial networks.

ON THE FLOOR

TTC was again an exhibitor, this time as part of Larcen. Crow Broadcast Systems of Singapore became IPK-Crow since the last show. In addition to the U.K. alliance, Crow also represents Continental Electronics transmitter products here.

Audio was not neglected at this year's exhibit. Show organizers created a special "Professional Audio Technology" section to group together some of the leading manufacturers of audio equipment.

Equipment on display at the Harris-Allied booth was predominantly radio, including the "Digital" digital FM exciter. The unit incorporates AES/EBU inputs and maintains the audio signal in the digital domain through the stereo generator.

BroadcastAsia is not usually the showcase for new products. But this year there was at least one. Tektronix displayed its AM700 audio measurement set, the audio equivalent of the VM700.

The AM700 incorporates the functions of an audio generator/analyser/spectrum/FFT analyzer with a digital signal generator and interface test. It is capable of being programmed for automated testing and can be interfaced by IEEE-488 (GPIB).

All the satellite manufacturers were busy demonstrating their hardware implementations of the MPEG 2 compression standard. This is seen as a means of generating more program carriage capacity while allowing flexible use of standard transponder space.

MOBILE SNG

Multicomput System Communications was promoting its C-band flyaway SNG systems at the show. Use of video compression reduces the antenna size required for uplinking from temporary sites.

Although there is a shortage of Ku-band transponders currently serving Asia, most of the satellites scheduled for launch in the next few years have Ku-band capabilities. But for the moment, the use of digital compression techniques is needed to allow coverage of events removed from permanent uplink sites.

The universality of the international MPEG standard has already generated enough production volume so that hardware implementations of MPEG will soon be comparable priced to proprietary equipment. The major manufacturers and audio/data multiplexing. The next year is expected to see several vendors finalize their LSI implementations of MPEG 2 and are beginning large-scale production of chip sets and boards.

Judging from this year's show, it is certainly clear that BroadcastAsia has grown dramatically in size and scope since its first year. And it is likely that manufacturer support for BroadcastAsia '96 guarantees that it will remain a permanent fixture in the Asian broadcast market.
Unpredictable shooting interruptions that occur with primitive "low battery" indicators are now history. Through a special InterActive® circuit in Sony camcorders, such as the new BVW-D600 Betacam SP DSP camcorder, actual remaining battery capacity is transmitted to the viewfinder from the Anton/Bauer Digital battery’s fuel computer. During operation, this highly accurate fuel gauge is displayed in the viewfinder and constantly updates remaining battery capacity to the cameraman.

Short runtimes, cumbersome battery belts and battery change disruptions are history. The Anton/Bauer InterActive battery and charger system deliver the high level of performance, reliability, and versatility demanded by the Sony Digital 1000 camcorders. A single high capacity Digital Propac® battery perfectly balances the camera on the shoulder and powers camera, recorder and Ultralight for 2 hours.

High wattage on-camera lights, wasted battery power and "interrogation room" interviews are history. The advanced low light sensitivity of the BVW-D600 is enhanced dramatically by the Studio Quality Ultralight 2. Automatique®, an exclusive control circuit standard on all new Sony camcorders equipped with an Anton/Bauer Gold Mount®, synchronizes the on/off function of the Anton/Bauer Ultralight® with the VTR stop/start button. The Ultralight's photometric design matches ambient light to transform a shadow-filled scene to a studio image.

These history making advances are possible only with the Anton/Bauer InterActive system, part of the innovative technology and creative solutions in the BVW-D600.

The worldwide standard

For your FREE "Video Battery Handbook" call (in U.S. only) 1-800-422-3473 or fax (203) 929-9935

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InterActive viewfinder and Ultralight Automatique are also standard features on Sony BVW 400A and UVW-100 camcorders.
Your Sony representative can provide you with details on Anton/Bauer InterActive Systems for all Sony products.

See Us at IBC Booth # 8.310
Ending the Threat of Radiation
Naptex Fabric from German Manufacturer Protects Workers Despite Tower That is Loaded with Antennas Operating at Full-Power

by Donald T. Doty
President
Doty-Moore Tower Services

After just settling down for a good night’s sleep last November, the phone rang and it was my old friend and colleague, Dallas-based consultant, William J. B. Smith. Bill informed me that KDAP, Channel 33, in Dallas had just suffered a massive failure of its transmission system and that it was off the air. Thus, with one phone call, one of the most interesting and challenging antenna repair projects we have ever experienced had begun.

A couple of phone calls later, a crew was assembled which immediately reported to the tower site. Smith and the Doty-Moore crew concluded that the failure was definitely in the antenna. Further investigation determined that the antenna was beyond field repair and could not be serviced locally. Changing the antenna was the only alternative.

BACK-UP UNIT

We ordered a standby antenna from Andrew Corp., which was due to arrive the next day, and immediately began an evaluation of the tower, a 1,500-foot guyed structure with a candela-style top section. The tower held three UHF antennas on top, including the Channel 33 antenna which suffered the failure. Directly below the top platform were two eight-bay panel radiation levels well above the safety limits prescribed by both the American National Standards Institute (ANSI) and the U.S. Federal Communications Commission (FCC).

We examined three options as to how the work should proceed. We could arrange backup antennas for all stations that would be affected; a very expensive proposition. Our second option was to comprise a schedule where all of the work would be done at night so that the affected stations could reduce power or go off the air. However, this option would have dramatically increased the work time required, not to mention being a major inconvenience to all of the broadcasters.

Our third option was to take exhaustive measurements of the tower and the work area and determine how the work could be accomplished using RF protective clothing. In this way, all of the stations could remain at full power and work could proceed with a minimum of inconvenience.

We decided to pursue the third option using protective clothing made of Naptex, which is manufactured by NSP of Germany. We have been using this product for over two years, but had never faced a challenge as great as the Channel 33 antenna replacement with all stations on the tower running at full power.

We found a defective bullet in one of the steel lines to guard against arcing and resonances from the high power antennas nearby. Special grounding procedures were developed to help in this endeavor.

The materials used by Naptex can be repeatedly laundered without any discernible loss of shielding ability. The fabric is breathable and can be worn all day in complete comfort. If you can work in regular coveralls, you can work in Naptex.

The materials have a wide range of shielding ability from below 10 kHz to above 20 GHz. It can be subjected to continuous fields as high as 125 mW/cm² (milliwatts per square centimeter). The shielding ability ranges from 0 dB below 1 MHz to 20 dB above 20 GHz.

The RF mapping of the tower indicated that the electric field levels ranged from about 13 mW/cm² to almost 60 mW/cm² in the area near the antenna. Some areas of the tower were within acceptable levels. The power levels in the upper portion of the tower are well in excess of the FCC/ANSI standards.

The emergency standby antenna was flown in from Andrew and was installed on the platform directly opposite the failed Channel 33 antenna. This was done to keep the radiating elements as far away from the work area as possible. The standby antenna was connected to the transmission line and broadcast operations began at one half power, as this was the maximum power the standby antenna could handle.

UP AND RUNNING

With the station back on the air, we started to plan strategy as to how to proceed. During the entire project it would be necessary to work at RF levels well above the allowable maximum. Personal RF protection would be required at all times. Measurements were taken before and during work periods to assure that proper safety values were observed and recorded.

The project began with a complete layout of procedures so that all stress values on the tower could be evaluated. There was a need to install all 75 feet of fiberglass, temporary steel scaffolding to allow erection of hoisting booms and other erection apparatus. It was decided to replace the old antenna with an RFE replacement, so that additional structural evaluation would be required.

During most of December, the tower was being prepared for the antenna replacement. Lines, hoisting lines, tag lines, jib booms, gin poles and many other erection features were installed as the tower was prepared for the lowering of the failed unit and erection of the new antenna. Special consideration had to be given to some of the steel lines to guard against arcing and resonances from the high power antennas nearby. Special grounding procedures were developed to help in this endeavor.

During the entire period, the crew was working in the high RF fields without any signs of discomfort. Readings of RF levels were taken daily to make sure that all of the working areas were not exceeding the measured maximum allowable level within the protective suit.

When the hoisting gear had to be made on top in order to have the new antenna lifted on the proper face of the tower and attached at the proper orientation. The interference with our two-way radiol system, caused by all of the high RF fields, was a major problem during lifting, but we worked out other methods of communication.

After the new antenna was bolted into place, the temporary falswork had to be removed and other temporary erection features taken down. A wattmeter and spectrum analyzer were used to make a final inspection check of the antenna and rigging and other supports for the reinstallation of the transmission line were attached.

BUMPS IN THE ROAD

The actual transition to the new antenna went very smoothly, but after about ten minutes of operation, the station suddenly went off the air. We went back up the tower to check for possible problems, and we found a defective bullet in one of the elbows. It was replaced and the station went back on the air.

This time it worked for about 40 minutes, then went off and stayed off. We decided to transfer back to the standby antenna while we rechecked the new antenna. Since there was no test equipment left on the transmission line, we brought in a calibrated wattmeter and spectrum analyzer. After some time we found the problem was the gas barrier. A temporary repair was made to the barrier and the station returned to the air at full power on the new antenna.

A few days later a new gas barrier was received and installed. The crew held their breath while more tests were conducted and everything checked out OK. The station remained on the air for the remainder of the year. The project was a success, thanks in large part to the protection afforded by Naptex.

Donald T. Doty is president of Doty-Moore Tower Services Inc., a San Francisco consulting firm.

For further information on Naptex, contact Gunter Bruckner at NSP (telephone: +49-8271-1031; FAX: +49-8272-2222); in South America, contact James May (telephone: +1-214-733-1040; FAX: +1-214-733-1420), or circle Reader Service 65.
satellite system and has access via microwave and hardwire links to 41 television stations, mostly in ex-Soviet and once allied countries in Asia and the Middle East.

UP FOR GRABS

Before TransNews became interested in the facility, the Czech Telecommunications Company intended to dismantle it. In late 1992, the headquarters buildings of the ORT, where 120 people once worked, were put up for rent and the equipment in the switching center was auctioned. "Fortunately, we were able to get almost everything in the auction that we needed to operate the facility, except for adding some transcoders," said Robert Horvitz, a board member of TransNews. "Most of what we needed, such as the video matrix switchers and the audio coordination circuitry, was not useful to the ex-ORT television stations, which had first building rights."

After start-up costs of less than US$100,000, the non-profit group originally planned to pass along the approximately US$15,000 per month operating costs to new private television stations expected to emerge in the region. However, only a few private stations have started, and most are beset by financial difficulties. Instead, TransNews, which received and offered news to state television stations free of charge, continued to fund all costs of the exchange itself. "We were afraid that if we waited for the private stations to arrive before we began, it would mean losing the chance to use the ex-ORT centers," Stepanek said. "So we had to begin immediately without them."

Until suspending the service in March, TransNews exchanged a daily 30-minute program of four to eight items through the switching center. Often, the news was footage offered by state television stations for exchange via the EBU but refused by the EBU because of lack of space or member interest. "The EBU aired an average of one or two stories a day, but that is just not enough," Horvitz said. He added that the rapidly changing societies of Eastern Europe and the former Soviet Union need information about each country's activities in order to overcome long histories of national and ethnic rivalry, as well as current political conflicts over trade and migration.

Today, TransNews is trying to find new uses for the ex-ORT network to help support reviving its service. In June, while the world witnessed a nuclear standoff between North Korea and the West, the center was used to feed programming to the EBU from North Korean state television. North Korea is isolated from the EBU because it is not a member and only has ground stations with C-band capabilities for communicating with the Intersputnik system. The EBU is accessible only through Ku-band stations to the Eirel satellites.

KOREAN ACCESS

"I thought we had a unique capability for getting North Korean news, so I contacted the North Korean state television station via satellites," Stepanek said. Prior to TransNews, Stepanek worked at ORT for 24 years, and he said he was surprised to find that after two years, all of the contact people in North Korea still remained.

"As far as I know, we are the only people North Korea has agreed to pass footage to," he said.

The EBU has verbally agreed to accept the footage on a case-by-case basis, depending on member interest.

Stepanek said he believes the switching center can also provide unique access to countries such as Cuba and South Yemen, which are isolated because their ground stations tie only to Intersputnik.

"We have the possibility of getting footage from their state television systems very inexpensively," he said. "Someone like CNN would have to go in with a portable ground station, and they might find the cost too prohibitive."

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Checking for Errors Bit by Bit

by John Watkinson

The serial digital interface is steadily taking over as the video interface standard for the digital age, but the original standard had no provisions for data integrity checking. Error Detection and Handling (EDH) is an option for serial digital which goes a long way to rectifying the problem.

Once video and audio are converted to the digital domain, they become data, or numbers, and if those numbers can be delivered to the other end of a digital interface unchanged, then the interface has not caused any loss of quality. This is one of the strengths of digital technology. In the absence of data reduction techniques, the quality is determined in the conversion process and can then be maintained in transmission and recording.

ANALOG LOSS

In contrast, analog signals are subject to generation loss in every recording and to noise and distortion in every transmission. This analog heritage has led to a philosophy where the analog waveform is monitored at every stage so that some adjustment can be made to minimize the quality loss. The waveform monitor and vectorscope mind-set is so strongly imprinted that in the transition to the radically different digital technology few people thought to question monitoring methods.

DATA CHECKING

Data integrity checking uses many of the techniques of error correction systems, but it is not itself a form of error correction. Although error correction can be used with digital broadcasting to the home receiver, it cannot be used for production purposes because it causes delay. In order to use error correction, data must be interleaved and coded on transmission and then de-interleaved on reception. The data must be held up until a whole block is received and checked before it can be corrected and released.

These delays are unacceptable in a production system, and so professional digital audio and video interfaces run without error correction. They are designed instead to transmit data transparently so that error correction is unnecessary. Data integrity checking is essential to ensure that this condition is met.

One of the strengths of the digital approach is that data integrity checking is completely automatic and needs no human supervision. The drive toward greater cost effectiveness in all aspects of facility and broadcast work will ensure that automated digital systems will displace manual analog systems on running cost alone. The fact that digital techniques permit better quality is definitely a secondary consideration in today's economics.
Figure 2 shows an EDH-equipped SDI transmission system. At the first transmitter, the data from one field is transmitted and simultaneously fed to a Cyclic Redundancy Check (CRC) generator. The CRC calculation is effectively a kind of mathematical division and the result is a form of remainder. The remainder is transmitted in a special ancillary data packet that is sent early during the vertical interval, before any switching takes place in a router. The first receiver has an identical CRC generator that performs a calculation on the received field. The ancillary data extractor identifies the EDH packet and demultiplexes it from the main data stream. The remainder from the ancillary packet is then compared with the locally calculated remainder. If the transmission is error-free, the two values will be identical. In this case, no further action results. However, if an error results in an error in the data, the remainder will not match.

DIGITAL WORDS

The remainder is a 16-bit digital "word" that guarantees to detect up to 16 bits in error anywhere in the field. Greater numbers of errors are not guaranteed to be detected, but this is of little consequence as enough fields in error will be detected to indicate that there is a problem.

Should a CRC mismatch indicate an error in this way, two things happen. Firstly, an optically isolated output connector on the receiving equipment will present a low impedance for a period of 1 to 2 microseconds. This will result in a pulse in an externally powered circuit to indicate that a field contained an error. An external error monitoring system wired to this connector can note the occurrence in a log or sound an alarm or whatever is programmed to do.

As the data is incorrectly received, the fact must also be conveyed to subsequent equipment that then must be able to pass on a mismatched remainder. The center unit in Figure 2 must pass the data as received, complete with errors, but it must calculate a new CRC which matches the erroneous data. When received by the third unit in Figure 2, there will then only be a CRC mismatch if the transmission between the second and third devices is in error. If this is correct as the job of the CRC is to locate faulty hardware, and clearly if the second link is not faulty the CRC comparison should not fail. However, the third device still needs to know that there is a problem with the data, and this is the job of the error flags which also reside in the EDH packet.

One of these flags is called EDH (error detected high) and will be asserted by the center device in Figure 2. The right hand device in Figure 2 will receive EDH and transmit EDP (error detected previously). There are also flags to handle hardware failures (e.g., over temperature or diagnostic failure). The IDH (internal error detected here) and IDP (internal error detected previously) handle this condition. Locally detected hardware errors constantly drive the error output socket to a low impedance state to distinguish from the pulsing of a CRC mismatch.

A slight extra complexity is that error checking can be performed in two separate ways. One CRC is calculated for the active picture only, and another is calculated for the full field. Both are included in the EDH packet. The advantage of this arrangement is that while regular program material is being passed in active picture, test patterns can be sent in vertical blanking, which can be monitored separately. Thus if active picture is received without error but full field gives an error, the error must be outside the picture. It is then possible to send, for example, pathological test patterns during the vertical interval that stress the transmission system more than regular data to check the performance margin of the system. This can be done alongside the picture information without causing any problems.

AUTOMATIC ERROR LOCATION

In a large system, if every SDI link is equipped with EDH, it is possible for automatic error location to be performed. Each EDH-equipped receiver is connected to a monitoring system that can graphically display on a map of the system the location of any transmission errors. If a suitably logging system is used, it is not necessary for the display to be in the same place as the equipment. In the event of an error condition, the logging system can communicate with the display by dial-up modem or dedicated line over any distance. Logging allows infrequent errors to be counted. Any increase in error rate indicates a potential failure, which can be rectified before it becomes serious. 

John Watkins is an independent consultant in digital audio, video and data technology and is the author of seven books on the subject, including The Art of Digital Audio and The Art of Digital Video, acclaimed as definitive works. He is a Fellow of the Audio Engineering Society and is listed in Who's Who in the World. He regularly presents papers at conventions of learned societies and has presented training courses for students, broadcasters and facilities around the world. He is currently writing a book on video and audio data reduction.

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Figure 2. — The EDH packet in the vertical interval contains CRC and flags. A receiver detecting a CRC error raises a local error signal and produces an EDH (error detected here) flag. The next receiver converts the EDH to EDP (error detected previously).
Developing the Art of Teaching

A Technique Known as Progressive Mastery Can Bring Your Trainees Up to Speed

by Craig Johnston

Watching my three-year-old swim during a recent vacation to Mexico reminded me of a training concept I have heard about several times during the past few years. It has been referred to by different names, most recently as Progressive Mastery.

When teaching a child to swim, you do not ask them to make it all the way across the pool the first time. Instead, my daughter’s swimming teacher held her in the water and asked her to reach and pull with her arms, and to hang onto the side of the pool and kick. Then it was a couple of strokes on her own. Then several more. All of this takes a lot of time; every ounce of progress is rewarded with applause and encouragement.

Sink or Swim

The Progressive Mastery concept has you do the same thing with new employees or existing employees moving to a new job. Break the job down to learnable components. Teach them in a logical order. Reward every bit of progress with applause and encouragement.

Those learnable components should be written down. I would not suggest singularly sitting down and writing out these lists. It is a good idea to gather several employees who have achieved competency at a given job to share in writing the list of job components.

The first reason you do not want to write the list alone is that, chances are, you do not know everything about the job. If you ever did the job in the first place, you most likely have not done it regularly for a while. And even old pros will benefit from input about the job components and the order in which they should be taught.

The second reason to ask for help with the writing is buy-in. You are going to rely on these accomplished crew members for much of the training. If they have helped develop the training program, they are a lot more likely to deliver the training in the prescribed manner.

There may find an additional dividend in these group discussions about the components of a particular job. In looking at the individual components of a task, the group may discover there are better ways to do the job.

Learning Components

Once the job is broken down into learnable components, a rough timetable can be established, such as how long should it take to master the first component, the next, and then the next. To me, this timetable is every bit as important as the job component list itself.

The timetable informs you, the supervisor, as to when you should formally ask about the employee’s performance. Has the employee learned the appropriate job components based on the amount of time spent in training?

Reward every bit of progress with applause and encouragement. What if the employee is falling behind the timetable? There may be reasons for that failure beyond the employee himself.

Your training program may have problems. Those doing the training may be not be paying much attention to the training, while actually making the new employee learn on his own. They may be pushing the individual to learn too many steps at once, or learn the steps out of order.

It may be that your timetable is unreasonably short. The schedule may need some fine tuning in the beginning.

And then it could be the employee. If you have shared the job component list and timetable with the employee from the start, the fact that progress is running behind schedule should not be news to that individual.

Working with an employee who is not making adequate progress toward learning the job is a delicate process. You are trying to encourage, not discourage. At the same time, you have to be realistic. You are probably well served to remember the rule: “Focus on the problem, not the person.”

And in the end, you may have to determine whether the employee is suited to the job. By monitoring the employee’s progress at regular points along the timetable, you have had the opportunity to do everything you can to help them catch up.

Craig Johnston is the production manager at KDRV-TV in Medford, Ore. Write him care of TV Technology.
A n 8-bit Signal, Be Prepared to See Some Distortion

That six-digit number in the last paragraph looks funny because I took it to more accuracy than it is usually used. A bit offers a factor of two increase. So two bits is a factor of four. Signal-to-noise ratio (SNR) is 20 log noise voltage ratio. 20 log 4 = 20 x 0.6020599 = 12.0412. Mantissa do not lie, which is more than I can say for spec sheets.

As it is more commonly construed, a bit is 6 dB, which is close enough for television. So 16 bits, the number used in CDs, is 96 dB. So how come 16-bit digital audio equipment gets rated at 98 dB? It is even worse in video. Look up an 8-bit video product's specs. See something like 54 dB? Take away eight bits, and what's left? 6 dB. That means that a zero-bit system has a signal-to-noise of 6 dB. If you use one of those systems you are back up to 54 dB without using a single bit?

This is not exactly a mathematical parlor trick where someone proves that all numbers are zero, but it is probably worth muttering over in your mind next time you are sure you know everything — or that anyone else does. The point of all this ranting so far is just to indicate that bits and signal-to-noise ratios are directly related. If you are not happy with your SNR, you need more bits.

ON A RAMP-AGE

The funny thing is, some people pretend that bits do more for you than signal-to-noise. Incorrectly used, that is true enough. For instance, there is a classic demonstration of supposedly Why-8-Bits-Are-Not-Enough, the ramp dissolve. Take a picture that ramps vertically from white to black. Take another that ramps from black to white. Dissolve one from the other. In an analog system or a properly designed digital system, the blacks and whites fade toward grey. The picture then becomes completely grey for an instant in mid-dissolve, and then it ends up with black and white reversed. It is so simple, even I can do it.

The trouble is, in an improperly designed system, instead of that nice all-grey moment, there are horizontal bands that appear and disappear. What is happening is quantization distortion. When you resolve between two 8-bit signals in the digital domain, you generate a 16-bit signal. If you come back to eight by chopping off the least significant bits, you are left with distortion caused by insufficient quantizing levels to cover every shade of grey. The result is bad pictures, mainly alias lines where there should not be any. Sony likes to show this as one way that Digital Betacam might be better than D-1. Eight bits: lines; 10 bits: no lines. I had people coming up to me last year after they had seen the Digital Betacam demonstration as though they had just seen the most lucid explanation possible of the difference between 8-bit and 10-bit video.

I am not 100 percent sure, but I think the first time I saw that demonstration was around 10 years ago, and it was not Sony doing it; it was Quantel. It also was not 10-bit video that saved the day because Quantel still uses eight.

I have been accused of being a Quantel lover lately, so I guess it behooves me to say a few rotten things about them before proceeding (sorry, dearies):

1. They seem to have a thing about competition.
2. They seem to have a thing about general-purpose computers.
3. They seem to have a thing about pricing some equipment in the mortgage-your-firstborn range.
4. The old DVS-5000 was a — well, I will just point out that the use of the word "quantel" as a noun or verb relating to digital video effects is no longer prevalent, which is probably just as well because it is not a good sure your output signal is noisy enough. If it is (and it is the right noise), the noise eliminates the distortion.

Quantel has a slightly different idea about how to eliminate the problems, mainly because dither convolution is not the easiest thing in the world for a circuit to do and noise is not necessarily something you would like to keep introducing in a picture, no matter how much of it you might be going down a thousand generations or so. They call it Dynamic Rounding, and it is simple enough for even a pea-brain like me to understand, but, since Quantel seems to get jollies from scaring people, I think maybe I will just let them do the explanations of proprietary techniques this one.

As far as I am concerned, Dynamic Rounding works. There are other people who think so, too, which is why you might see the technique in the products of other manufacturers, like, for instance, Panasonic. Quantel, you may recall, has 8-bit products. Some of those other companies have 10-bit products.

This is not necessarily silly. I already told you that every additional bit adds 6 dB to the signal-to-noise ratio. If you would like to spend your money on a 100 dB SNR, please do not let me stand in your way. It is your prerogative. Eight bits works. Ten bits works, too, but 12 dB cleaner.

The problem comes in when you intermix them. Actually, going from eight bits to 10 bits is not too much of a problem. Most dealers will just add a couple of zeros at the end of the eight-bit word.

The trick is getting back from 10 to 8. If anything happened to the signal while it was in 10-bit-land — a level adjustment, a distortion effect — those extra two bits are not extra anymore. Chop them off, and you are back to distortion. That is where I see just a little bit of trouble down the road. At NAB, I found 10-bit products that do the right thing in the 10-bit domain just waiting to be connected to 8-bit products. I inquired as to whether anything was done to the least significant bits. "Yeah, but I am not sure at all," they'd say. I am not sure of anything.

MAYBE I WOULDN'T?

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Checking The Temperature

by Doug Lung

Remote control manufacturers usually offer temperature probes, at a price. Here is a direct reading temperature sensor that costs as little as three dollars U.S., works with anywhere from five to thirty volts of DC, and reads temperature on a linear scale — no calibration required. I am referring to the National Semiconductor LM34 (Fahrenheit) and LM35 (Celsius) precision temperature sensors. These three-pin devices which look like transistors have one degree accuracy with no adjustments.

**POSITIVE SENSOR**

Figure 1 shows a circuit for a simple temperature sensor. This circuit only works for positive temperatures. I have used this circuit with an LM34 at a station in Odessa, Texas, where the sensor not only monitors temperature but also controls the room’s air conditioner via the Genier remote control. Although I experienced no difficulty with this circuit, National Semiconductor advises decoupling the device from capacitive loads such as shielded cable.

Figure 2 shows a circuit with bypassing for RF as well as decoupling. There are two ways to measure negative temperatures. R1 in Figure 2 is optional. It goes to a negative supply -Vs. Choose R1 so that it equals -Vs divided by 0.0005. This will allow the LM34 to work down to -50 degrees F and the LM35 to work down to -55 degrees C. Maximum temperatures are +300 degrees F for the LM34 and +150 degrees C for the LM35.

Less expensive versions of the sensors have less range — see figure 1. If an isolated single supply is available, two 1N914 diodes can be used to raise the ground on the sensor above the supply ground to allow negative temperatures to be measured. Figure 3 shows the circuit without decoupling. Note that the metering MUST be referenced to the sensor’s ground, not the power supply ground.

One warning when using these IC’s. I found that using too large a value of R2 while soldering to the IC leads permanently changes the calibration — in my case the IC read a couple degrees high after soldering. To avoid this, use a heat sink. National Semiconductor advises that lead temperature will directly effect the die temperature and hence the reading.

To improve response time and accuracy, use thermally conductive epoxy to glue the case and leads to a small piece of brass or PC board. They claim the metal case version can be soldered directly to a pipe for fluid temperature measurements. In any event, do not forget to insulate the leads (in some cases the ground one will NOT be insulated).

If you are using liquid baths for calibration checks — install the leads! Also, if the connections will be exposed to warm moist air outdoors, protect the solder connections with shrink tubing or epoxy. Use thin wire to connect to the LM34/35 to minimize the affect of the wire on the die inside.

If you discover a unique application for these devices at your transmitter site, let me know and I will share it with others.

**8-BIT QUALITY**

If you have read my columns on the “Cheap Remote” you may not think of this converter as a high end calibration tool. But what good is a digital remote control if you cannot change readings in big steps. One reading might show 100.1 percent power and the next reading might show 98.5 percent power. You never see a 99.0 percent reading. How does this happen, and how much does the accuracy of the A/D converter affect it? Eight bits of resolution (256 steps) might not be enough for laboratory analysis, but it is enough resolution to duplicate the accuracy of an analog meter scale if you properly scale the input voltage.

The Micro’s 8-bit A/D, with its five volt maximum limit, cannot resolve voltage differences less than 5.0 volts divided by 2 to the 8th power, or 256. 5.0 volts / 256 = 0.0195 volts resolution.

If our input has a maximum reading of 1.00 volts and this A/D converter is used, a 0.001 percent error is 0.02 volts. Although a two percent error is marginal in many applications, is there any way it can be reduced? Most importantly, beware of using full scale input voltage levels far below the A/D converter’s maximum voltage for that particular telemetry system. Even with 10-bit A/D converters, very low voltages may not be measured accurately. Many of the new PC based remote controls do calibration in software, so you can have a half volt 100 percent power reading and make it read 100.00 percent on the meter.

But do not expect to see the readings change in 0.01 percent steps. Note that when you are using power diagnostics, when voltage sample off of an RF probe, you have to square the voltage reading to get a power reading. Remember Ohm’s Law? E squared over R equals power. 

If you have been reading these columns regularly, you have probably noticed that I have included an “Internet” address at the end of the column — it is 70255.460@compuserve.com. For those who are unfamiliar with it, Internet is a massive computer network that not only includes computers in the U.S. (including the Compuserve commercial network where I spend much time and money) but also computers in universities and scientific agencies around the world.

I just dropped in “Word of Windows” which I was using to write this column and logged onto an Internet gateway in Atlanta, Georgia. Using a program on the Internet called “Gopher” I did a quick survey of the sites available on the network. Africa was not too well represented. There were several computers in South Africa I could connect to, but Durban (at the University of Natal) sent a note that I could not connect.

Asia did much better. I found several sites in Thailand, Hong Kong, Korea, Taiwan, Japan, Malaysia, and Singapore. I also found a "Chilalongsorn University" (I did not log on to find out where it is) and a system in Bombay, India. Also in the Pacific, there were several sites in Australia and New Zealand, as well as one site noted as Antarctic Research Center and another in Tasmania.

Latin America was well represented with several sites in Mexico and others in Argentina, Brazil, Ecuador, Venezuela, Chile and Peru. Russia had its own heading, but I did not investigate what cities were connected.

**GETTING CONNECTED**

If you have a friend at a nearby university computer center, he or she may be able to get you access to their computer connected to the Internet. Once you have that access, you can connect with any of the other computers and exchange mail, read messages and collect information from them. For example, you can send me a message at 70255.460@compuserve.com and let me know you need a reprint of the original Cheap Remote article along with the program for the Blue Earth Micro.

I give you an idea of some of the institutions using Internet in your area if you want to contact me via a more convenient means. Here’s how you can find me. First you need to send a request through the mail to 70255.460@compuserve.com. U.S. Mail will work too, eventually, if you fill in the form and mail it to me at 2265 Westwood Blvd., Suite 553, Los Angeles, CA 90064 U.S.A. If you want to try a long distance call, use +1-305-884-9664 between 10 p.m. and 11 p.m. GMT or fax notes to me at +1-305-884-9661 anytime. As always, your comments, ideas and tips to share with other engineers or questions are welcome.
Sachtl's new solid state igniters work quickly and quietly now in all Sachtl daylight systems.

1

Sachtl's new solid state igniters work quickly and quietly now in all Sachtl daylight systems.

2

Reporter 200 DI - introducing the latest reporter daylight from Sachtl: more light output from 200 watts than ever.

3

New electronic ballasts for Sachtl's reporter daylights: Batronic 1 for 125 W and 200 W, Batronic 2 for 125 W, 200 W and 270 W. The Batronics automatically sense which one of these fixtures is connected and will power it accordingly. Four LEDs indicate how much running time remains. A switch allows selecting the proper dimmer range for HMI and MSR bulbs.

4

Sachtl Belt Pack, the well proven NiCad battery powers the whole range of Sachtl reporter daylights. Available in two sizes for 30 and 45 minutes of full light output from a Reporter 200 DI. Shaped to fit the human body and forming a compact unit with the Batronic.

5

The Speedcharger, controlled by its microprocessor, senses the state of the battery and charges it speedily and safely.

6

Netronic 2: The all new mains powered electronic ballast for continuous operation of all Sachtl Reporter fixtures.

The most sophisticated reporter daylight system on the market today. By Sachtl.
All current BTS are now switchable.

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Tomorrow's television's going widescreen. And if you want to go with it, you'll have to be able to switch, SDTV to EDTV and back again. Easily and economically.

Now you can. And you can also do it instantly. Thanks to the new switchable BTS 1/2" and 2/3" Frame Transfer sensors.

Just choose the camera to meet your needs from the current BTS range.

The LDK 9W studio camera, for a top performance that's matched by its portable companion the LDK 9PW. Or if you need a multi-role solution, the LDK 93W. All featuring a new BTS 1/2" widescreen sensor.

If you're already operating an LDK 9, LDK 9P or an LDK 93 switching's easy and cost-effective too. It can simply be a question of replacing the existing 1/2" sensor block with one of the new widescreen variety. As easy as that.

And if that choice is still not big enough, then take a look at the remarkable new LDK 10 camera and the portable LDK 10P, with their unique 2/3" DPM (Dynamic Pixel Management) sensors.

Naturally, with all switchable BTS sensors there's no need for changing optical blocks or costly electronic conversion. And Frame Transfer techniques of course, mean no smear and no lag. Just top performance through high dynamic resolution, a high dynamic range and outstanding sensitivity across the full range of f-stops.

So if you want to switch, the choice is yours... BTS.

Ask for your brochures today.
Cutting Down Rendering Time

here on the bleeding edge of video technology, there is still plenty of opportunity to experience the heady satisfaction of being a pioneer. There are new things to learn about, new fields to roam. Ultimately, though, the main thing is to put together a system that meets your particular needs, and that usually means a lot of digging for relevant information. You read the magazines (like right now), you collect the product literature, and you talk to people who have been there. Often, it is this last resource that reveals what is "between the lines" in all the literature — what makes a product work well (or not) when you have to live with it day-to-day. The trick is in finding the right people to talk to, which can be pretty difficult when the subject is specialized (after all, "desktop video" is not quite a household word yet).

You can join a professional organization, go to user groups, or, as more and more people have started doing, you can go on-line. For years, computer users have swapped technical tips and information on computer bulletin-board systems (BBS), and these often address areas of interest beyond computing, as such. Now that the Internet is in wider use, there also is a wealth of BBS information collectively known as Usenet, a common feature of net life. Also called "newsroups," these special-interest on-line "discussion" groups are carried by most Internet access providers. Interests range from particle physics to gardening to rock bands.

There are so many of these groups that they are arranged in a series of hierarchies. The "rec" series, for instance, is for recreational interests. "Rec.video" is a general group for video enthusiasts; under that, there are more specialized ones such as "rec.video.production" and "rec.video.cable-tv." Don't let the "recreation" label mislead you — whether amateur telescopes or pros, the participants are engaged in getting actual products to do actual work.

Mostly, the equipment discussed in rec.video-production has been mid-range and high-end gear, and it is not limited just to editing equipment. However, a couple of months ago a new newsgroup was formed called "rec.video.desktop." According to its charter, this newsgroup covers computer-based editing systems in the under-US$15,000 range, including hardware, software, peripherals and resources.

One contributor, for example, said he just bought a PowerMac and asked the group how well it will work with a particular capture board; another replied that the board does not yet work with PowerMacs, but the company is working on a fix.

Recently, at the NAB show, on our first morning out, we got into a conversation with a fellow on the bus going to the convention center. As the topic turned to desk-top video systems, he became very emphatic.

"You know," he said, "there was quite a rush, a lot of enthusiasm at first, and a lot of people went out and bought these devices because of how much easier they made editing — especially with the nonlinear systems, you can keep your train of thought without having to shuffle tapes back and forth. You can sit with your client, trying different things to see if he likes it.

"The thing is," he went on, "they did not stop to find out until it was too late that with a lot of these systems, they do not do the effects and the transitions in real time. You are putting your scene together, and then you have to sit and wait five minutes while it renders the transition. On top of that, your client, who is probably behind schedule, wants you to finish it yesterday. And now you are making him wait for the effects to render."

Oddly enough, this chance encounter/polemic could well be taken as a good sign. For one thing, it shows that the industry may have matured at least to the "honeymoon-is-over" stage, when users have had the chance to learn what it is like to live with their systems for a while on a day-to-day basis. Quirks that may seem minor on the drawing board sometimes accumulate over time into major complaints. People are starting to think about their next system, and they know exactly what they want from it, as well as how much they are willing to pay.

This particular complaint — effects rendering-time — seems to have been heard by more than a few manufacturers, because it was a recurring theme at the NAB this year. Sony and Panasonic both introduced high-dollar non-linear editing systems (Sony's was a "non-linear upgrade" to its existing DES-510 Destiny edit works
t

by Terence Dyke & Paul Smolen
The intelligent AC Power Controller (IPC) from Puluzzi Engineering enables the user to control power at an unattended remote location from anywhere via modem. The Controller’s RS-232 port links the unit to any compatible terminal, and the user can initiate or change control sequences from a remote or local terminal.

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**REMOTE CONTROL**

**TELETEXT ANALYZER**

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**GRAPHICS WORKSTATION**

Pesa's CG Plus graphics workstation combines a real-time character generator, full paint and draw, still store and a linear keyer to do composites of text, graphic images and live video.

The CG Plus also includes a comprehensive template system and a database manager for handling large amounts of graphics and text for instant recall during live events.

For further information, contact Vishe Vasudeva in the U.K. at +44-223-242642; FAX: +44-223-410007, or circle Reader Service 90.
Cut Rendering Time

Electronic. This list for US$14,295, but it is not complete; add a PC and a large disk, and figure that the system comes in at about US$20,000.

Other systems in the mid-range are starting to address the problem to one degree or another, but the result is sometimes kind of "hedgey": "real-time fades and fast dissolves," claims one manufacturer. Well, sure, but a fade is not nearly as computer-intensive as a page-turn.

Another popular short cut is to allow you to store several of your favorite transitions you have already rendered out to files on the disk, so they are ready to go when you need them. Actually, this may be entirely satisfactory for your needs; but, like our friend on the bus, the main thing is to know what you are willing to pay for.

Another symptom of a maturing industry is the seemingly inevitable shakeout phase, and we may be seeing the first stages of that already.

At the NAB, CoSA announced its "new" non-linear system, Hitchcock; it is a product that was actually developed by Digital FX, but the company folded and was acquired by CoSA, which kept Hitchcock. The company reportedly is looking to sell the rest of Digital FX's line to another concern because they are "not in the hardware business." CoSA was acquired last year by Aldos, of PageMaker fame. More recently, Commodore, makers of the Amiga computer, announced that it has put itself into voluntary liquidation. (See related story, in NewsWatch) This is a real milestone, in a solemn sort of way, because the Amiga is the platform for NewTek's Video Toaster, which pretty much started all of this desktop video business.

NewTek is doing just fine, of course, although there is no word as yet on how it is planning to deal with the situation. Apparently, large stockpiles of Amigas exist here and there. Sources at RGB Computer & Video, makers of the Amiga-based AmiLink controller, say the company has "a guaranteed supply" of Amigas warehoused in Florida that will last them "well into 1995."

Meanwhile, groups of developers, investors and others close to Commodore are scurrying around to see if there is some way that rights to the Amiga's design might be picked up by another manufacturer. Stay tuned.

Terence Dyke and Paul Snodlen are the principals of Media Methods, a communications design and production firm in Austin, Texas. They may be reached at telephone: +1-512-476-0422.

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AFTER more than 12 years as a "business machine," the IBM compatible has finally become an effective low-cost graphics computer. Today, 24-bit (16.7 million color) capability is a common — in fact, standard — component of the low-end VGA display card.

Also, due to the sheer size of the IBM clone market, many developers of graphics software for other platforms are porting their products to the IBM and, in most cases, MicroSoft Windows. One notable example is Adobe's Photoshop, which originated on the Macintosh and has become an industry standard. My guess is that with the recent liquidation of Commodore International, many Amiga developers will begin porting their products to Windows. (See related story, in Newswatch.)

TOP OF THE LINE

Computer graphics displays intended for professional use have been available since TrueVision introduced its Targa card in 1985. These special-purpose cards were developed with professional graphics production in mind. They also carry a professional price tag.

In recent years, as Windows has increased in popularity, many companies — including TrueVision, Matrox, ATI and Orchid — have developed display devices designed specifically for Windows applications that include hardware acceleration for fast rewriting the screen. Two years ago, these cards cost as much as US$4,000. Today, the same capability can be acquired for as little as US$200.

By adopting the Windows platform and using a high-performance VGA card, it seems like it would be possible to choose many of the best software titles from the IBM, Macintosh or Amiga platforms. In a perfect world, it would be that simple. Unfortunately, there is a drawback to this approach. Display adapters are troublesome on the IBM clone.

To understand why this is true requires a bit of history.

Back in prehistoric times, IBM introduced its PC. The original IBM PC did not display graphics. (Computer graphics was a pretty radical concept in 1981.) The IBM PC was instead a character-based computer, and its hardware was designed to display information as a simple ASCII character set — usually as green letters on a monochromatic tube.

The purpose to get color graphics out of the IBM PC was a plug-in adapter simply named the Color Graphics Adapter (CGA). This add-on card (the ancestor of many to follow) gave an IBM PC the ability to show color graphics when software called for them. The CGA screen was 320x200 pixels and was considered very low resolution. Four colors could be displayed on-screen at a time, from a hardware palette of 16 hues. CGA also offered a crude high-resolution mode 640x200 pixels wide, but the same capability, I believe, had to offer the serious graphics producer.

GRAPHICS SUPPLEMENT

CGA was later supplemented by the Enhanced Graphics Adapter (EGA). EGA produced a resolution of 660x330 pixels and could display up to 16 colors on-screen from a hardware palette of 64 colors. Ten years later, most MS-DOS and Windows applications (including the Windows interface itself) are still tied to a 16-color palette.

IBM introduced VGA, or the IBM Graphics Array in 1987. The original specification offered a resolution of up to 640x480 pixels and the ability to display 16 colors from a palette of 256 colors. The VGA standard was compatible with the previous CGA and EGA standards.

Two years later, IBM introduced the 8514A high-resolution extension to the VGA, which provided a resolution of 1024x768 pixels and the ability to display 256 colors out of a color palette of 262,000 total colors.

Unfortunately, the 8514A standard was incompatible with CGA, EGA, and VGA, and it required a computer using IBM's Micro Channel Architecture. You might occasionally see a 8514A/Windows driver, but the standard has otherwise been forgotten.

IBM tried again in 1991 with an Extended Graphics Array (XGA) display. XGA was a clear step forward, and, unlike the 8514A/A, it was VGA-register compatible. Unfortunately, it was difficult to upgrade to XGA unless you were using IBM hardware. Although many industry pundits predicted a natural progression from VGA to XGA, manufacturers of IBM compatibles had drifted far from the influence of IBM and had already created what they called "Super VGA."

The development of Super VGA (800x600 pixels) as well as higher resolutions (1024x768 and 1280x1024 pixels) has been haphazard at best. Display cards are typically incompatible with each other. Every manufacturer of a Super VGA graphics card is required to write a number of custom display drivers for applications such as Windows, AutoCAD, 3D Studio, AutoShade, OS2, GEM, Lotus, and dozens of other popular DOS applications. Using a high-performance, or even a cheap VGA card means loading and living with the proper display driver for your particular application. A dozen DOS applications might require using a dozen specialized display drivers.

VESPA EXTENSION

There has been an attempt at standardization with VESA (Video Electronic Standards Association) standards. The VESA Super VGA BIOS Extension is an attempt at giving DOS applications a way to determine what display they are loading onto and what to do about it. Of course, as one frustrated DOS developer has pointed out to me, VESA would be more effective if its standards were not "optional."

Still, a VESA driver can be a good ploy to get a stubborn DOS application to run on your new high-tech display card. Incompatible display drivers (as well as memory address and hardware interrupt conflicts) are enough to encourage me to keep dusting off my Amiga. Fortunately, the situation is far from hopeless. Display drivers are perhaps one of the best excuses for the existence of Microsoft Windows. A single Windows display driver runs every Windows application; you do not have to worry whether your Super VGA display will crash your application. With the large number of graphics applications presently being developed for or ported to Windows, a Windows-capable display adapter is a good way to approach PC computer graphics. Of course, Windows is always slower than straight DOS, and for graphics applications an accelerated display card capable of millions of colors is necessary. There are dozens of excellent cards, many of which are now quite affordable.

While I will not recommend any one in particular, it is useful to discuss the ATI Graphics Ultra Pro I purchased about six months ago. I bought this card to make my 386 PC act more like one of my Amigas, and I am happy to report that it has worked.

The ATI card costs less than US$400 and provides screen resolutions of 640x480 up to 1280x1024 pixels. At both the 640x480 and 800x600 resolutions, the card can display its full 16.7-million-color palette via perfect for image processors, paint programs and animation programs.

MEMORY PROBLEMS

I should mention that the card proved difficult to set up, at least initially. It seemed to work fine, but I found I had a problem with random computer crashes and strange behavior within Windows applications. A call to ATI solved the problem: I had a memory conflict. The ATI Windows accelerator routines require that a fairly large block of upper memory be reserved for the card. This memory block is directly above the 640K address and it must be reserved with an exclude statement in the CONFIG.SYS start-up file. During the course of debugging this card, I learned more than I ever wanted to about upper memory blocks, linear memory addressing, and hexadecimal memory addresses. (This is the hazard of IBM-compati-


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Mixed Media Relies on Matrox

By Jean Ménard
Owner/Producer
Mixed Media Production

TOronto

The Matrox Studio is a PC-based video post-production platform. It controls multiple VTR machines for editing, performs traditional switcher transitions, has three channels of 2-D DVE, manipulates graphics and audio files as well as other broadcast and includes a character generator (Inscriber CG) and offers optional hardware for 3-D DVE manipulations and so on. In fact this box will provide service equivalent to a traditional post-production facility.

Beginning in Spring of 1993, Mixed Media Production began operating in Toronto using the Matrox Studio configured with four Sony PWS Betacam SP decks. A second PC workstation provided graphics and animation using Time Arts Lumena and Crystal Topas.

EASY START-UP

The list of equipment may seem pretty basic, but it is really all you need with the Studio: Plug in the decks, answer a few questions in the Windows configuration dialog box, hook up an inexpensive sync generator and several monitors and you are in business. Technical operations, such as timing and time base correction, are done on the boards.

The actual editing is done via a relatively simple graphical interface on the VGA screen. Using the standard principles of creating collections or bins of selected material, the production is then assembled on a multilayered timeline where clips are assembled, overlapped and modified with transitions and special effects.

The reasons for selecting this platform were quite simple. Mixed Media's market niche was going to be broadcast programming, and we needed equipment that would deliver a broadcast quality product. We wanted to provide on-line editing services since our clients would want to do final program packaging with us: create openings, do some keys, add titles, add transitions.

The system also needed to be tape-based. Clients would walk in with Betacam tapes in the morning, and would walk out with a finished master at the end of the day. Non-linear editing was not an option in this scenario. The effects needed to be real-time, the editing software efficient and the keysers up to Grass Valley standards. The Matrox Studio seemed to fit the bill.

CLOSE TO THE ACTION

Mixed Media is located in the heart of Toronto's film and television district, next to the Canadian Broadcasting Centre, an ultra-modern, all-digital facility and home to the Canadian Broadcasting Corporation. We knew that overflow work from the CBC would be a significant part of our business. Over the last year we used the Studio to edit two network documentaries, package dozens of weekly shows, produce countless special effect sequences and create openings for the CBC as well as other broadcasters and corporate clients. There is no question that the Matrox Studio was up to the job, and our record track is there to prove it.

However, there were a few bumps along the way. Targeting a high-end market with a desktop system that was barely ready for market at the time was risky. First, we had to deal with the predictable problems of the early software, and then our clients had to adapt to working in a desktop suite. Some of them loved it, not only for the novelty but because they appreciated the additional power offered by a completely computerized system. Others felt that the conventional push-button analog suites were faster and easier to use. Overall the majority of our clients appreciated the cost/benefit ratio that Matrox Studio provided. Ironically, two of our corporate clients were so pleased with the Studio that they purchased their own Matrox suites.

The main advantage of the system is cost. We knew that even broadcasters like the CBC were operating on shrinking budgets. For example, one of our broadcast clients brought us weekly chroma key segments to compose, preferring the key from the Studio to that of other systems.

COMPUTER BENEFITS

In fact a number of clients adopted the Matrox Studio because it is a computer. Desktop systems offer a number of advantages because they are computers. For example, the EDLs are generally more complete on a desktop system: all key levels, audio levels, crossfades, graphic inserts and so on are stored in memory, which means that changes can be made or sections of the program reprinted to tape without readjusting any of the variable parameters. It is a time-saving feature which still cannot be found in conventional editing suites.

Exploiting the advantages of the computer greatly increases productivity, and the clients are smart enough to realize that. The ability to cut and paste settings, variables and sections of EDLs is essential to formula packaging where repetitiveness is a time saver. Other basic computer functions, such as the use of SAVE AS and RENAME files, boost the productivity of the editing process. Aside from productivity, the issue of speed and operation is an interesting one. Because post-production is an expensive process, speed of operation has always been an issue with clients. They like to work with fast editors, in facilities that have been optimized for speed. Whatever platform you adopt, speed will be the criterion on which you will be judged, no matter what advantages you might be able to offer.

Since most desktop systems operate from a graphical interface and a mouse, there is a lot of clicking, scrolling, opening of dialog boxes, etc., in order to edit and perform effects. I find this process to be generally slower than that of a conventional post production suite, where a fast editor can literally fly on a GVG edit controller, a cascading switcher, an ADU or all of the above.

Full suites typically are outfitted with 20 years of matured technology, tuned and refined to maximize speed. In spite of constant improvement, I do not believe desktop computers can match the operational speed of classic edit suites. But what they lack in speed they make up in other areas of productivity.

Ironically, two of our corporate clients were so pleased with the Studio that they purchased their own Matrox suites.
Germany’s VCC Chooses Grass

by Heike Eberle
Post Production Supervisor
VCC

HAMBURG, Germany

When we originally purchased the VPE from Grass Valley Group, it was primarily because of its compatibility with the Grass Valley Vision mixers. Storing full mixer setups in the EDL is invaluable when you could be making versions of the program for months to come.

Although linear editing has become increasingly threatened by new technologies, we have found the transition to random access disk systems to be far from Grass Valley Group, it was primarily Post Production Supervisor for months to come.

The VPE-521 models, certain extra functions are included. SWAP allows operators to exchange the record deck with any source, which is obviously very useful when doing multilayering work with D-1 or disks. With the VPE linked to a routing switcher, it will change the input to the monitoring and preview switcher as recorders are swapped. Up to eight different edit lists can be on-line at the same time.

In these days of non-linear editing, list adaptability has become very relevant. EDLs from Avid and Lightworks can be incorporated via the MS-DOS utility or, in the case of Avid, directly from an RT-11 disk made on the Avid. Additional utility programs such as 409 not only offer the possibility of optimizing an EDL but also generating a C-mode list for auto-assembly. Other useful tools include a conversion program for EDLs created by other edit controllers and engineers tools like diagnostics.

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The VPE runs a programming language called RT-11. It seems to be very stable. We have only experienced a crash, on average, once every six months. However, the main frame contains a back-up battery, so in the event of a crash or power failure, it is virtually impossible to lose a list. A warm or cold boot takes next to no time as the systems software is held in RAM.

Editor’s note: Heike Eberle has worked at VCC as both an editor and post production supervisor since 1993. She previously worked at Complete Post in Melbourne, Molinare in London and Arris-TV in Munich.

For further information on the VPE line of editors, contact Grass Valley Group (telephone: +1-916-478-3000, FAX: +1-916-478-3411), or circle Reader Service 41.

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USER REPORT

BTS RIO Impresses Brase

by Jim Brawner
Owner
Brase Communications Group

CAMPBELL, California

For the last 15 years, I have been an independent video producer. In other words, every month I am working on a different project for a different client.

Even though my clients range from ABC News, Apple and AT&T to DHL, HBO and CBS, industry experts often try to tell me that being a free-lance producer is not possible. They are right. There never seems to be enough profit margin after the project staff has been paid. So, how do I avoid starving? I pay myself as the writer, camera operator, lighting technician, director and editor. And then sometimes there is enough left over for the producer.

QUALITY EQUIPMENT

But how difficult is it to operate a Betacam SP on a Sachtler? After a few years of lighting mistakes, it is not hard to learn that the quality and variety of the equipment you choose can make you look pretty good. The only area in which I was still spending too much of my budget was in post. There are a lot of post houses between California and New York, and they all seem to be set up differently. Most insist that you use their personnel.

Unfortunately, I have never found an editor with the same vision of a project as my own. Time is money and lack of either can stifle creativity.

Some post houses let you do your own editing, but the learning curve in familiarizing yourself with their setup and edit controller has proven to be too time-intensive in most instances. In a perfect world, I would be able to walk into a facility, sit down at either an off-line or on-line system, and begin editing in five minutes.

That is where the new BTS RIO Bravo desktop edit controller has made my life easier. Actually, I have noticed three features of the RIO Bravo that seem to impress every producer.

The most obvious is the way the screen is set up. It makes sense. From the first minute I sat down, I was doing A/B/C roll DVE effects with programmed audio cross-fades. The screen is so self-explanatory, an apprentice could be up and running in a few minutes. RIO Bravo works in the Microsoft Windows graphics environment, with on-screen graphic modules that emulate virtually every major VTR control panel from D-1 to Hi8.

LIBRARY OPTIONS GALORE

Another feature that seems too good to be true is the RIO Bravo’s ability to control any transport device. In other words, my recorder could be a Sony BVH 2300B source A could be a JVC 3/4-inch source B could be an Hitachi Hi8 camcorder, and source C could be a Panasonic D-3.

All machines will preroll and perform with such accuracy, you would think they shared the same protocol. As a matter of fact, with 239 choices, including both real and virtual devices, the Rio Bravo has a large library of interface options.

But this interface capability does not mean that I am getting up and rewiring every time I want to change from an S-VHS source to a laser disk. Selecting a new device is as simple as pulling down a large menu and clicking on the machine I want. Within five seconds, I have resumed my edit session, now with a new source.

A third feature of the Rio Bravo is its ability to interact between non-linear and linear almost instantly. This makes capturing the video scenes I want to store on disc very easy, but it also allows me to offline and online at the same time or even work in the same session, my offline as I am doing my online.

But the reality of the post production world in 1994 is that you need both linear and non-linear capabilities. RIO Bravo’s non-linear editing extension is easy to use and understand, in addition to being very sophisticated. For example, it offers an internal switcher with a full MB bank, 15 various autorun options, DMC triggers, split edits, ripple record and auto-cleaning of EDLs.

But with current storage cost problems and quality irregularities of non-linear, I still rely on videotape to provide the best quality and storage.

After trying every edit-controller on the market for 15 years, I have liked some, learned to tolerate others and hated quite a few. The BTS RIO Bravo was the first editor I liked right away. It has helped me to achieve a world in which an independent producer can truly be independent without sacrificing time or creativity — and avoid starving.

Editor’s note: As a writer/director, Jim Brawner has received numerous national awards and is currently producing a pilot for television called “The Sporting Chef.” He is also the chief editor at a Rio Bravo beta site in San Jose.

The opinions expressed above are the author’s alone. For further information, contact your nearest BTS representative, or circle Reader Service 12.
CMX Omni Saves TVOntario

by Brian Elston
Senior Production Editor
TVOntario

TORONTO, Ontario

Not too long ago, the usually unflappable director of the science show I edit came to me with a worried look on his face. The show scheduled to air in about an hour and a half that night had a spelling mistake in the credits, and it happened to be the name of the new executive producer. We had been cultivating a new co-production agreement for many months, and this was the premiere show with our new partners.

I knew that the credit sequence for closing the show was not a simple undertaking. We had two backgrounds created on the Aurora graphics system that run from Betacam sources throughout the closing. Keyed over this, we had another tape foreground routed through an Ampex ADO that displays program material, and the Chyron Infini credits were keyed on top of all this, spelling mistakes and all.

FAST SET-UP

While the tapes were being retrieved from the library, I loaded the edit decision list (EDL) into the CMX Omni 1000E. I toggled into the window that enables a function called "prompt for device." This feature ensures that during an assembly, the correct reels will be placed into the same machines that played the material when it was first recorded.

In addition, I had earlier enabled the system to upload all of the time base corrector information from each machine and placed it in the EDL, when each of the original edits was made. As well, all of the video switcher data from our Grass Valley 200-2 switcher was stored edit-by-edit into the EDL.

Data from such digital audio mixers as the Graham-Parten DFX8 were treated in the same way, stored edit-by-edit in the EDL. This enables precise realignment of all switcher and audio settings in a situation such as this, where we want to recreate exactly the same settings that were there when the edit was originally performed.

I retrieved the ADO file for the foreground, then recalled the misspelled Chyron page. I made the changes in spelling and then simply hit the assemble key on the CMX keyboard. The CMX Omni 1000E system executed a seamless match frame edit into the master tape and replaced the material, this time with the correct spelling.

I replayed the seamless repair for the director as I recalled how difficult an undertaking this would have been just a few years ago.

TVOntario is a predominantly government-funded public broadcaster producing programs in English and French. In addition to science and art programs, we do children's and curriculum-based instructional programs covering a broad range of disciplines. Our production schedule is busy and tight.

We market much of what we produce to such international broadcasters as the BBC, PBS and Nickelodeon, as well as ABC in Australia, NHK in Japan, and others.

Excellent asset of the integrated CMX system. The philosophy of downward compatibility shaping two decades of technology is one from which many manufacturers could learn a lesson. You are never abandoned with a CMX product and you can always upgrade from what you have purchased to what meets your current needs. Edit decision lists created on a 20-year-old CMX 340 are retrievable on a state-of-the-art CMX Omni 1000E.

Editor's note: Brian Elston is a charter member of the Editor's Advisory Panel for CMX and demonstrates and teaches the Omni editing systems for CMX.

The opinions expressed above are the author's alone. For further information, contact CMX (telephone: +1-408-988-2000; FAX: +1-408-986-0452), or circle Reader Service 39.
Avid's Media Composer

Media Composer really changed the way shows are cut and practically blew the minds of our clients. We have looked at other systems and found the Avid to be the best system currently available. Although the speed of the system is one of its greatest advantages, it can be a drawback as well. Converting one-light EDLs to Avid EDLs using the Avid EDL translator does not fully maximize the Composer suites. Now, EDLs as well as cutlists are created in the film room, allowing the Media Composer to be fully operational.

And since our facility can translate video timecodes into negative edgestones, no workprints are required to cut negatives, providing our clients additional savings in their post production budgets. Plus, negative cutting now becomes a shorter and more accurate procedure and we avoid the errors that can lead to damage, such as scratches on the negative. In this way, feature film producers keep their negatives in the same condition they were in when they left the processing lab.

Pre Post Upgrades to Avid

by Danon Wieenze

MANILA, Philippines

Pre Post was the first company to introduce non-linear editing to the Philippines using the Avid Media Composer.

We began operations in December of 1992 with one Avid Media Composer. Initially, we set out to service the advertising industry by editing two commercials, on-off-line, and have cut more than 200 commercials since then.

We are currently moving into a bigger office, which will accommodate two Media Composer suites, a film cutting room equipped with an Onyx and keycode reader, an interlock room hooked up to both Avid suites, plus support facilities.

Our efforts in research and testing for edit decision lists (EDLs), cutlists, edgestone, timecode relationships, etc., both internally and with the on-line post houses and film labs around the region, plus the expertise of our personnel, have now attracted people in the feature film industry looking to explore non-linear editing.

We have created a strong feature film lab here (Xung Saun Xa Man Naron and Kung Moualwa Ka Pu, both by Reynaflim) and are currently competing Sepacida by Star Cinema and a television movie entitled Ang Maguedapel by ROC Productions.

As for maintenance, the Studio deserves full marks for being completely hassle-free. Not a single hard or software maintenance call was required over a full year of operation. That is a very strong contrast to the traditional suite, which requires regular maintenance attention, or technical expertise from the editor to resolve minor problems. Imagine a year where not a single minute of downtime could be attributed to a switcher timing error, time base correction problems or other such electronic glitch. The only maintenance necessary in one year has been on the Betacam deck.

Most importantly though, Studio is easy to use and accessible to anyone who has a video production background. The learning curve is relatively short — two weeks on average. Then, all that is required is a little practice.

I am not an editor by trade. I have had much more local experience than the last 15 years of my life as a producer/director, working in news and current affairs, directing live programming. I knew what I wanted to do. All I needed was the enabling technology giving me the means to control a greater part of my programs, especially in the crucial post-production phase of my projects.

Because Matrox Studio's interface runs under Windows, the prospect of doing my own post production work did not seem so daunting. Now, some of our clients are given a crash course on the interface. They come to our facility to select their material and perform rough cut edits on their own. Our editors step in for the final phase of the process to add the post production effects, mix the audio and so on. The clients feel more involved in the editing process, and save some money along the way.

The Matrox Studio gave us a lot of bang for our buck. A US$20,000 hardware and software package can put you in the major league of editing. Post production adds value to programming, therefore, this platform guarantees a generous return on your original investment.

Because it resides in the PC realm, the Studio is a very "organic" product, constantly changing with software upgrades and third party developer add-ons. It is now starting to ship with a non-linear option, making it, in my opinion, the most integrated and the most flexible platform for on-line or off-line. It is an open-ended system where all Windows applications can be used in conjunction with it. Matrox works. It does its job, and is now ready for prime time.

Editor's note: Jean Menard is a video producer living in Toronto, and owner of Mixed Media Production, a Toronto post production facility serving broadcast and corporate clients. Mixed Media was one of the first commercial houses in Canada to use desktop video for network broadcast production.

The opinions expressed above are the author's alone. For further information on the Matrox Studio, contact Marc Nadeau at Matrox (telephone: +1-514-685-2630, FAX: +1-514-685-2833), or circle Reader Service 64.

Panasonic is The Key At Antietam Cable TV

by Cindy Garland

Production Manager
Antietam Cable Television

HAGERSTOWN, Maryland

Antietam Cable Television serves more than 30,000 subscribers. As hefits a station named for a major Civil War battle, Antietam specializes in local documentaries and public interest programming.

Yet our biggest growth area is our advertising division, the Regional Cable Network, which produces television commercials for local advertisers and other local cable companies in nearby areas. Antietam has three of the first cable stations in the nation to undertake commercial advertising assignments.

Early in 1993, the station upgraded its M-BII acquisition and production facility. Previously, our 3/4" gear was under the control of a Palrex convergence editor. Since the Convergence system did not talk to our new M-II equipment, we invested in Panasonics' AU-950 production edit controller.

The AU-950 orchestrates an AJ/VC roll configuration comprised of the AU-651H M-II EnHanced Series studio recorder (our master deck), AU-62H/63H EnHanced studio players and a 3/4-inch player as the three source decks, plus a Pinnacle DVE unit.

We also use a Grass Valley switcher and a Panasonic WV-F700 digital signal processing camera docked to an AU-410 M-BII recorder/player for acquisition. All this equipment is used interchangeably for the station's programming and for our commercial spot production work.

With the ability to connect to seven VTRs, the AU-950 delivers direct control of up to five VTRs, as well as a switcher, mixer, and 2000-event EDL. Other key features include its frame-accurate slow-motion control and powerful list management. Variable speed events can be "learned" in rehearsal and automatically triggered during editing.

In addition, the keyboard of the AU-950 is designed for fast, two-handed operation. Serial switcher and mixer interfaces (RS-422) are standard. These industry standard ports can be used to control a variety of production equipment from various manufacturers. Auto assembly with the AU-950 can recall special effects from switchers and mixers with effects memories.

Ten GPI outputs can be used to trigger character generators, digital video processors, audio tape recorders, and other devices. All GPIs are stored in the list for later recall.

CRTs and CMS: 3600 compatible lists can be stored and recalled via industry-standard 3.5-inch disks. System configurations can be dumped to disk for later recall, allowing the user to configure the system easily for each application's requirements.

The edit controller has dramatically sped up our overall editing. For instance, when I edit, automatically configures the out-point as the new in point.

We have used the AU-950's variable speed capabilities to produce some real-time edits. Centipede's control is a big plus. In addition, our staff has found the system to be user-friendly and intuitive. Even the station's college interns who have quickly can use the controller.

The AU-950 is a powerful system with a multitude of options that we have not even begun to explore.

Editor's note: Cindy Garland joined Antietam Cable more than 12 years ago, and directed the station's successful entry into the cable broadband world. A graduate of Hagerstown Community College and Frostburg State University, she is currently working on an M.B.A. degree.

The opinions expressed above are the author's alone. For further information, contact your nearest Panasonic representative, or circle Reader Service 19.
Raycol Speeds Up with Fast

by Paul A. Collins
Director
Raycol VideoArt

LANCASTER, U.K.

Raycol VideoArt was established in October 1989 and at that time specialized in high-quality wedding videos using a two-camera shoot. During this early period we used both Hi8 and U-Matic SP for acquisition, and in the case of Hi8, edited onto S-VHS.

Very quickly this progressed into the corporate promotion and training video market for companies and institutions. At that time, the equipment, we realized, was unsuitable. We had a requirement for equipment which could be used from an open desk environment, and which we would be able to take to clients and install. The equipment had to be flexible to suit the needs of the client and our requirements. During this process, we also realized that the benefits of fast, efficient service utilizing the full potential of Video Machine.

This is especially true in the area of updates to existing productions. We are able to load the relevant clips onto the videotape, remove and replace the out dated section and re-record the master in a fraction of the time it took previously.

An area which needs careful planning, there will be growing pains and frustrations, but as the market matures, these issues will lessen. In my opinion, by adopting desktop video you can keep ahead of the competition so long as you have an open mind and are prepared to put in the time occasionally you will have to make compromises. It is also worth noting that due to the flexibility of desktop video, the learning curve is twice as long as that required for traditional equipment. But on the whole the benefits are enormous.

Within the next few months we will upgrade our edit suite to include a digital playback/recorder, in order to further increase productivity. This facility will allow us to offer computer-generated animations using a combination of 3D Studio from Autodesk and Video Machine.

Ediflex Brings Power to the PC

by Andrew Cohen
Freelance Editor

CULVER CITY, Calif.

It was good news when Director Paul Schneider called me to edit his film. I initially thought: Father and Mother: The Story Of Why Menendez Murders. The bad news was that we had six days from the last day of shooting to deliver the final cut to the Fox Network. But my concern at that time proved to be an easy feat, thanks to the Ediflex Digital by Ediflex Digital Systems Inc.

Having begun my editing career in film, I segued into electronic editing in 1986. It was “goodbye film...hello videotape” with the Ediflex tape system. I remained quite happy in the non-linear world until January 1994.

I am often asked by my colleagues how editing could get any better until I utilized the Ediflex Digital. It now’s “goodbye videotape...hello digital hard drive.”

STORAGE POWER

The Ediflex Digital system is comprised of a 486DX2/66 with 32MB RAM, 240MB system drive, NTSC encoder, digital audio/video board, 19-inch super VGA monitor, 20-inch Sony video monitor, VITC/CLTC reader, keyboard, mouse and custom controller.

The system provides 23 hours of storage on 1.4GB hard drive and one 1GB hard drive. The small and the large drives are exclusively used for audio. The environment is Windows 3.1.

There are currently several “digital” editing systems on the market, and they all serve their users in very similar fashion: immediate access of material, quick manipulations of the material, immediate viewing of a cut, etc. All of these systems are based on protocols, with their success dependent on the emergence of well-designed software that allows the editor to accomplish goals in the most efficient way possible.

The Ediflex offers features that set it apart from other systems on the market. First, the script page is displayed on the computer screen along with all the function icons. Eliminating the constant referencing of your eyes — looking down to a script page then up at your computer screen — makes for less fatigue at the end of a 10-hour day.

Secondly, and probably the most valuable of all, is the “scan across” feature. You can, with a click of the mouse, highlight any line of dialogue or action, and play that particular line of dialogue or action as it is performed in every take printed — in immediate succession.

With the Menendez project, the director printed no less than two to three takes of every setup. The courtroom footage was endless. The performances were fantastic, and it was not as if apparent which take was considerably better than the next.

However, when you can instantaneously watch a scripted line of dialogue performed 13 times in five different angles, it becomes clear which performances should stay in the film and which stay in the trim boxes.

The standard features for making a picture cut or track overlaps are extremely easy. For editors who have never worked in the world of electronic editing, the Ediflex system makes for an easy crossover.

The most difficult aspect of leaving “film” editing for electronic editing is the departure of a physical environment. That is to say, you cannot see, touch or physically manipulate your film in a synthesizer, motovia or flat bed. The Ediflex provides a simple visual display of your cuts in the form of a time line. Making changes to your cuts has a very comparable film look on the computer screen.

DEADLINE MAGIC

Because this was my first experience in a digital editing format, I had my share of difficulties getting acclimated. In fact, knowing our tight schedule, I admit I had moments of panic right before we started shooting, wondering whether I made the right decision in jumping into an unfamiliar editing system.

The Menendez picture was a 20-day shoot. We were getting in about 50 minutes of dailies per day. The first week was extremely difficult, as the post house was delivering dailies that were not in perfect sync, in addition to other technical flaws.

By the end of the first week, we were already four days behind, waiting for acceptable dailies to be input into the system. Once the telecine department got its act together, we kicked into high gear. After three days, I reached a very acceptable level of expertise. After a week, there was no holding me back. This system was “lightning in a bottle”.

The last day’s dailies were delivered on Saturday, first cut on Sunday; director’s cut on Wednesday; screen for the network on Thursday. The new technology allowed me to maintain a high level of quality in the face of a “moving deadline.”

The Fox executives responded to our film with concerns that the murder sequence was too violent. Succumbing to pressures from Washington and the anti-violence coalition, everybody was in a tailspin as to what to do.

Fox executives wanted to clean themselves and cut the murder scene entirely, which sent the director and producers reeling. Everybody came into the editing room where, in a matter of a few hours, we succeeded in yielding no less than 20 versions of the murder sequence, each one less violent than the previous. Saving cuts and different versions, combining versions, and resequencing lifts were all a snap. I was able to provide something for everyone.

Lastly, the Ediflex Digital offers an indispensable feature that has no button or icon to click on — the service and technical support of Ediflex Digital Systems. Any problem or “how to do” was only a phone call away. Even when I pressed the wrong buttons and could not find my way, Ediflex tech support came to the editing room at midnight to get me out of my troubles.

Since my initial experience with the system, Ediflex Digital Systems has made countless improvements in the software, hardware and workstations from Ediflex II and others. As a whole, I am most happy with my investment in the system.
Quantel Shines at Video Lab

South African Facility Installs Edit Box To Complement a Long List of Quantel Gear

by Mike Smit
Chief Executive
Video Lab Group

JOHANNESBURG, South Africa

The Video Lab Group has provided a broad range of production and post production facilities to the television industry in South Africa for the past 12 years. We have traditionally used analog one-inch Betacam SP and more recently D-3. When the trend moved toward linear digital post production, we delayed upgrading as these first-generation component digital editing systems offered little extra besides the improved technical quality, specifically multigeneration capabilities.

COMPOSITE FUTURE

We already had a Flash Harry, a Sony D-1 machine and a Rank 4:2:2 telecine achieving excellent results and productivity. The existing edit suites — equipped with Grass Valley 200s, ADOs and D-3 machines — were efficient and reliable, giving us little reason to take the major step of upgrading to a component digital suite.

When we heard about the introduction of the Henry, we sent two of our staff to London for the launch. They came back very impressed, although the system seemed to have a few flaws when comparing it with linear digital suites. Still, the potential was there. What appealed to us was the “toral solution in a box.”

This image from Video Lab shows Henry’s titling and grading ability.

At that time, we were in the planning stages of a new post production facility in Cape Town, and the Henry provided us with the perfect solution. Our objective was to build a small high-end post production facility utilizing technology that would minimize infrastructure and maintenance costs.

POST IN A BOX

The Henry was purchased because we get a complete edit suite and painting and compositing facility in a box. Another deciding factor was the minimal amount of engineering and maintenance skills required, as this was a small facility and we did not want to employ the same level of expertise that we had in our Johannesburg office.

The system was installed, and although the first software version was not the greatest, it improved with every release. The service we provided quickly became very acceptable to our customers. We now offer a complete range of video services.

Paul Merrington, our senior Henry operator in Cape Town, reports that the Henry is the finest machine he has every operated. “Its capabilities of auto-conforming EDLs, editing, color correction, texture, keying, DVE facilities and variable speed are the cleanest and most versatile I have ever encountered,” he said. “The Paintbox in the edit process adds another dimension to multi-user editing and special effects, allowing matteing and painting to be achieved simply and accurately.”

The new software package due to be released at the end of July will not only speed up post production but will enable clients to play a more constructive role in the process of post production. For once, the service from a manufacturer has been excellent and all problems have been dealt with efficiently and professionally. One criticism I have is the reliability of the software, although it is improving all the time.

WAIT AND SEE

After experiencing the potential of the Quantel Henry at our new Cape Town facility, we postponed our decision to install a linear digital editing system in Johannesburg. The only reason to consider such a system in the first place was the fact that it seemed more cost-effective because much of the infrastructure existed, like an editor controller, D-1 machines and monitors.

Quantel has now launched the Edit Box, which suits us because we are already familiar with the Henry. The great advantage of the Edit Box is that it can be purchased as a basic digital editing system, and then options can be added as required.

In January of this year, we installed an Edit Box fully optioned with paint, textures, masks and a third layer that has proven hugely successful. The only reason we would consider a linear tape-based digital edit suite is for long form work, but we will wait the release of the new software package for the Edit Box before taking this route.

However, for most other types of jobs, our only question is the viability of replacing a conventional edit suite with an Edit Box. We are very interested in the works. We now watch the development of this line of products with great anticipation.

Editor’s note: As chief executive of Video Lab Group, Mike Smit is responsible for all facility operations and is instrumental in the design of new equipment.

For further information on the Henry or the Edit Box, contact Quantel (telephone: +44 635 48222, FAX: +44 635 46361), or circle Reader Service 36.

KTVL Goes On-Line with Immix

by Kingsley Kelley
Program Dir./Operations Mgr.
KTVL-TV

MEDFORD, Oregon

As a commercial television station in a small market, KTVL competes not only for advertiser dollars, but for production revenue as well. The dilemma we faced was finding more editing time for our advertisers without investing in a second edit suite. Our answer was the ImMIX Videocube.

KTVL’s decision to purchase the Videocube was based on the ImMIX system’s capability of its output quality — it was clearly superior to anything else on the market for the price.

IN THE MIX

Our intention was to use the Videocube exclusively to produce commercials for local advertisers. We could get a client’s ImMIX spot on the air for less money, and with a quicker turn around time. To our surprise, we discovered that the low hourly rate has made the Videocube ideal for production of short form industrial and institutional programs.

The basic ImMIX Videocube system has a fixed storage capacity of one-hour of information (a purchase option can add up to four hours of additional hard storage). But through use of a Cipher Tape Drive, we can archive up to one hour of audio/ video information on individual client tape.

This adds infinite storage capacity, but the real-time information transfer rate is rather tedious and the user interface is clumsy, so pre-planning is essential.

In daily operation, the use of the Videocube exploded after KTVL acquired Alan Balzer, Apple Macintosh user and video pro. He is also the station’s producer/director and primary ImMIX producer/editor.

Balzer says that if users understand editing basics and the “ins” and “outs” of Macintosh operation, then they can run this system. In just five months, Balzer has become proficient using the ImMIX in practically any situation.

Balzer works directly with clients on the Cube. They are initially in awe of the novelty, but then they begin to realize just how functional it can be. The effects are not “pre-programmed-looking,” and most of the time they allow you to input your own creative personality.

This system also works well with other software, including drawing programs and even word processors. We can create our own artwork or take telephone poles out of a shot. Our clients also bring in their own artwork on disks.

ENHANCED MOVES

The software upgrades from ImMIX have been good at addressing our problems and enhancing our capabilities. Balzer says the latest upgrade, for example, added the ability to combine multiple elements into one, allowing for digitally clean, complex layering of images or effects. It also added title rolls and a slow-motion/ fast-motion motion function.

We look forward to ImMIX making the titling system more like a traditional character generator, because right now the applications are limited.

If ImMIX continues to respond so well to user suggestions and continues its excellent support when we call with a problem, the company is going to be hard to beat.

After struggling through some early bugs in the system and spending some time suggesting improvements to the manufacturer, the ImMIX Videocube has become an essential part of the KTVL Creative Services operation.

In the not too distant future, I suspect there will be something very much like an ImMIX workstation at each producer’s desk, and probably hooked up to every advertiser’s home video camera as well.

Editor’s note: Kingsley Kelley is KTVL-TV’s program director/operations manager. Alan Balzer is producer/director. Together, they have worked in broadcast production in the Medford market for a total of 20 years in a variety of positions and facilities. KTVL Creative Services creates and produces commercials and programs for local and regional clients, as well as special broadcast programming.

The opinions expressed are the author’s alone. For further information, contact Helen Shortal (telephone: +1-410-783-0600; FAX: +1-410-783-0600), or circle Reader Service 36.
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