

Files to Video Journalists, a Case Study of Organizational Change At KRON 4 in San Francisco

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ABSTRACT

This is a case study of the technology that enabled sweeping improvements at KRON 4. The goal of these improvements was to create an un-bounded and completely efficient workflow that enables contribution from anywhere without regards to formats. This meant more than just digitizing the existing workflow; it meant developing an entirely new and incredibly productive solution from capture through archives. It also meant the removal of the archaic and resource intensive processes required for video tape while at the same time improving the news product as only file based solutions can. But in addition to being a case study on the technology advancement that in the end had overall efficiency improvement analogous to moving from letters and stamps to e-mail... this is also a case study in managing Organizational Change. In the end, this change affected every person within KRON 4 and how they contributed to getting high quality news to air. And by realizing this was as much an Organizational Change project as it was a technical advancement project, KRON 4 was prepared on both fronts, resulting in their great success.

THE BIG PICTURE

KRON is one of the largest news producing stations in the nation, broadcasting 8 ½ hours of news every weekday, over 50 hours per week. The reason behind this massive organizational change was to eliminate wasteful duplication of effort while enhancing the quality of their news product. At the heart of this change was the engineering management's vision of a fully network centric production environment. Network centric meant that the network is the foundation of the system connecting users, media servers and playout systems. The technology was completely non-proprietary and conformed to the network infrastructure at KRON. This way the flow of video information would be unbounded throughout the organization and there would be no barriers to re-purposing video assets anywhere in the KRON organization. The ability to easily access, edit and contribute content from any desktop in the organization has had a positive impact on every part of KRON.

The "process people" that are needed in a linear tape environment are now creating content or doing more productive work. The creative people are given the tools they need to better express their creativity and simplify the way they do their jobs. They save a lot of time looking for media because it is now accessible by anyone in the organization with a few keystrokes. .

Key factors:

- Simplify the news production process
- Eliminate Duplication of Effort
- All content immediately accessible by everyone
- Contribution from the field is vastly simplified
- Lowest Total Cost of Ownership
- Utilize existing high performance gigabit Ethernet network
- Integrated online Archives accessible by anyone in the station
- Reduce the time to air
- Fully supports the Video Journalist's workflow
- Format agnostic

WORKFLOW COMPARISONS – TAPE VS. FILES

Tape based workflow

KRON's tape workflow was relatively standard for any major market television station. Content was acquired on DVC Pro and primarily edited in the news vans on tape to tape by field editors and fed back to the station by Microwave. Due to the traffic in the Bay Area and a lack of parking in San Francisco, most of the stories were submitted by Microwave. In the feed room or ECR a person would record the inbound feeds from trucks, satellite and the KRON 4 helicopter. Raw video was organized in a rack by days of the week with tapes being recycled after 7 days. In the field photographers would either keep their tapes or recycle them as needed.

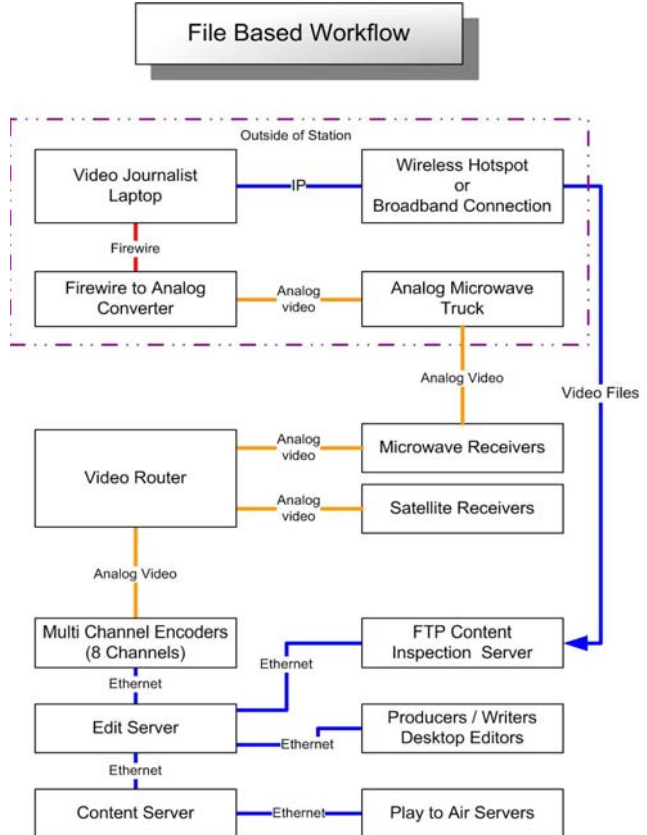
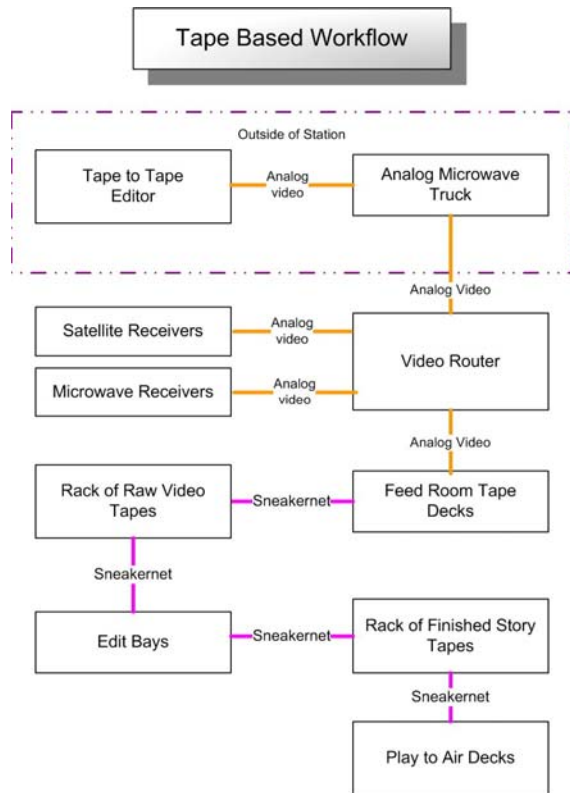


KRON 4 Newsvan making a rare appearance at the station.

File based workflow

KRON uses a variety of cameras and formats. Acquisition is either on tape or on a hard drive and is typically in a DV 25 format. The Video Journalist edits their story on a laptop and saves it as an 8 Mbps MPEG-2 Long GOP file. The file is then submitted over a broadband connection to the station. This connection can be any public wireless hotspot or the journalist's own broadband connection at home. From the microwave equipped news vans the journalist has the option to play the timeline of the notebook out analog over the microwave where it is encoded to MPEG-2 back at the station or submit the story as an MPEG-2 file over broadband. The journalists in the trucks can control the encoding remotely through a browser interface that is accessed with a cellular based broadband card in their notebooks. It is possible to submit stories as one step directly to the rundown going to air, however KRON Management decided to allow the show's producer to attach their story to the rundown to ensure they view the story before it goes to air.

In the station, copies of the tape were given to the editors who cut the video to the script. Also writers and producers could request a copy of the tape to preview and log the video to generate a cut sheet. The cut sheet and tape would then be walked over to one of the 8 edit bays where it was edited and delivered to the tape playback operations. The tape was placed in a rack based on its place in the rundown and played to air. Keeper tapes were also generated with all the stories for a show on one tape. The tapes were manually cataloged with a card in the tape case showing the time code for each story.



There are four ways stories can be inserted into the system to go to air: 1. Save to the show and story within that show directly from the editing interface. 2. Drop the story video on the content server in a folder named with the story slug and media ID. 3. Copy the media ID in iNews to another place in the rundown or another rundown on the same day or a different day as long as it is within 7 days. 4. If a story is already in the system the video can be re-attached to a different story through the browser interface.

Raw video in the station is managed on an editing server that is capable of supporting up to 20 simultaneous edit sessions at DV 25 or 50 sessions at 8 MBPS MPEG-2. Raw video is organized in folders with a day of the week organizational structure that was designed by the KRON news team. Content ages off the editing server automatically after 7 days.

Archives are integrated into the BitCentral Précis system allowing immediate access to all content since late September '05 when KRON went live with the new system. Content is retrieved from the archive through the Précis browser interface. By using a browser interface journalists in the field can browse the archive and access material as needed. Once the desired video is found it is exported to a folder which also shows up in the bin of the Edius editor. Now that all content is immediately accessible from any desktop, Producers and writers now edit all their own material for their own shows.

Some of the processes that were automated or eliminated were:

- Recording Feeds – This can now be controlled by the person who wants the video at their desktop.
- Logging Tapes – The producer or writer just makes the cuts instead of logging and developing cut sheets that were given to the editors.
- Linear Editing – All editors, producers, writers and photographers are using the same software for non linear editing.
- Tape Duplication – Since a video file can be simultaneously edited by anyone in the station there is no need to duplicate tapes for multiple users.
- Dependence on a video path – Video can be submitted from anywhere over a broadband wired or wireless connection.
- Tape Playback – The preparation of hundreds of tapes per day and the person plugging them into decks has been eliminated.
- Archive Tapes – Everything that goes to air is automatically archived and can be instantly retrieved. We can now store video on spinning disks cheaper than buying tape stock.

- Finding Tapes – It is amazing how much time is wasted in a station determining and looking for the right tape.
- Tape Deck Maintenance – The entire process is now managed by one rack of non-proprietary industry standard servers. Maintenance and support of these servers is substantially less than the decks they replace.

CONTRIBUTION FROM THE FIELD

Fleet Week is one of San Francisco's biggest annual events featuring the Blue Angels and some of the Navy's finest ships and aircraft carriers. A KRON reporter was sent to San Diego to travel on an aircraft carrier as it made its way up the coast and came into San Francisco under the Golden Gate. While underway the reporter edited the stories on his laptop computer and sent the finished packages to KRON over the ship's satellite Internet link. You cannot do that with a tape based workflow.

In a file based workflow, video can now travel over any wired or wireless broadband connection. Broadcasters can now take advantage of the huge momentum in broadband internet and choose between many different options for file transmission. Currently, most stories are sent from the field to KRON over wireless or wired broadband connections. The Video Journalists have now discovered the "Hot" Hot spots in their beat delivering the fastest connections. Some use their broadband connections at home or at the KRON bureau. With Standard Definition 8Mbps MPEG-2 video, the time to transmit a typical story ranges from 3X real time up to 6X real time. Using different compression or higher bandwidth connections will be needed when the switch is made to High Definition.

KRON is now testing the WiMax Standard for broadband wireless which is based on IEEE 802.16. A local wireless internet provider is deploying a WiMax network in the Bay Area and currently has 20 locations or "towers". The distance from the tower to the user can be up to 20 miles. Customers can buy full duplex data transmission rates from 1 to 7 Mbps. The VJ would set up a 12" square flat antenna on a tripod and point it towards a local tower. The system uses a pilot carrier to establish a connection with the tower and automatically assigns the user channels. This makes setup straightforward and practical for the Video Journalist operating out of their compact KRON 4 Pontiac Vibes. Because the field contributors and the station are all on the same network it is possible to use this type of connection to contribute live video.



KRON 4 - VJ Vibe

Submitting stories from the field over broadband instead of microwave trucks is a big benefit because of the substantially reduced capital resources needed to support the field team. KRON went from 8 Vans with 2 person crews to 45 VJ systems with everyone having electronic contribution capability. In the past broadcast field contribution has required expensive and specialized equipment. By taking advantage of low cost commonplace components, KRON is able to stay on the cutting edge of technology and accomplish more than they ever could before.

TIMELINE OF CHANGE

The process started in September of 2005 and ended in December of the same year. The first phase was the implementation of the BitCentral Précis system in September. This started with training editors to use Canopus Edius non linear editor as well as the Précis news management interface. This was difficult at first because many of the editors were already using a leading non linear editing package and were reluctant to change. After 3-4 weeks they grew accustomed to the new interface and have become very proficient using Edius.

Having all the editors able to produce content under pressure was essential for the next step of going to air. The going to air process started with general training and orientation sessions for the producers, writers and directors. This was followed by control room rehearsals. During the transitions the editors would put content into the Précis system as well as dub tapes. Once the editors were able to get all stories edited with Edius and into the system and the control room personnel were trained, it was time to go to air, which started in late September. The morning shows were first because they are less complex than the evening shows. It also allowed BitCentral training crews to focus on the morning shift until they were fully going to air before moving on to the later shift. Overall there were over 100 people fully trained and transitioned from the old workflow to the new workflow in less than 3 months.

VIDEO JOURNALISTS

KRON achieved this goal of creating an entirely new workflow with the implementation of Video Journalists and an all file based workflow both in and outside the station. One of the key elements of this transition was to eliminate duplication of effort and streamline the news process as much as possible. By training Photographers, Producers, Writers and Reporters to edit their own stories, they unleashed the full potential of these creative professionals. By splitting up many of their 2 person news crews and training many of their editors to be Video Journalists, KRON has moved from approximately 20 two person crews in the field to 45 Video Journalists. The capital to support this field team has come down significantly as the number of broadcast trucks is greatly reduced. There are still a few traditional reporter/photographer pairs that contribute stories and live shots.

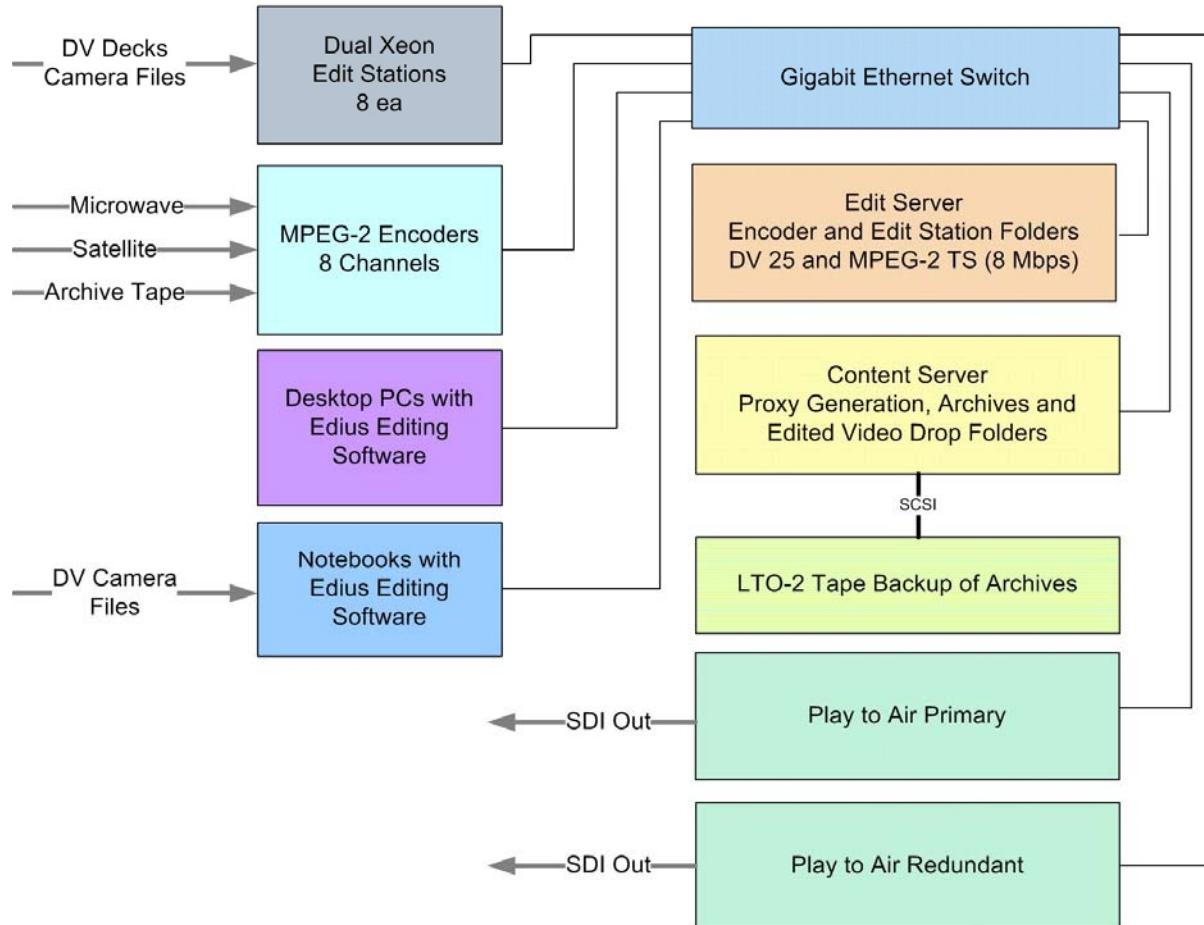
The sheer number of reporters now in the field and the file based workflow that enables them to submit their stories from the field, reduces drive time and gives them more time to spend on the quality of their stories. The file based workflow has eliminated many steps and provided new tools to these talented and creative individuals who are entirely responsible for their stories. Stories now reflect the personality of the VJ which adds a nice touch to the news.

The key elements to ensure the long term success of this organizational change include extensive training, open technology and a management team with vision and perseverance.

KRON is finding that once a person has the ability and knowledge to edit their own material, they will take full advantage of it to expand their contribution to the newscast. In January 2006 during a visit to KRON I asked a number of people how they like being Video Journalists and would they go back to the old way? Even those who were the most vocal opponents of the change back in September said they would not go back today.

The on air quality of the product now has a much higher production value with the editors taking advantage of the features in non-linear editing. Because there is so much content submitted each day from so many crews, about 30% of the stories do not make it to air. By selecting the top 70% each day KRON is delivering its viewers the highest quality content available. Ultimately this should have a positive impact on ratings and revenues.

KRON Network Diagram



CRITERIA FOR SELECTION OF HARDWARE AND SOFTWARE

Editing

- Ability to be used on moderate performance desktops and notebooks
- Ability to edit off common storage over a standard windows Gigabit Ethernet network
- Same software would work efficiently on edit stations, desktops and laptops
- Capable of supporting multiple formats on the timeline simultaneously without slowing down
- Real time transitions and effects without stopping to render
- Editing features comparable with other top editing packages
- Reasonable cost per license (KRON has 72 licenses)

News System

- Network Centric utilizing industry standard networking
- Non proprietary with full access to all data and video files
- Utilize Long GOP MPEG-2 video encoded at 8 MBPS with embedded audio which maximizes efficiency and simplifies management of files
- Integrated archives with real time search and retrieval of all material
- Able to accommodate DV and other formats
- File submission from the field using Long GOP MPEG-2 to facilitate practical transmission times

For both editing and the entire news system, the transition to HD newsgathering will be a requirement quite soon. It is important that the system supports all SD and HD formats and still operates at high speed.

Canopus Edius was selected as the non-linear editing platform because it has similar capability as other leading editing software, however KRON found it has a shorter learning curve and works very efficiently with any video format including SD, HD, HDV, MPEG and DV.

Précis is fully integrated with Edius so KRON producers/editors simply save to their stories within their show. The entire news staff continues to do all their work in iNews, which drives the Précis system, so users don't have to retype any information. Now people can see video status and are able to preview their video from within iNews.

ORGANIZATIONAL CHANGE

The biggest change to manage was not the technology; it was the overall organizational and cultural change... just as with a diet where it takes a lifestyle change to lose weight or the weight simply builds back up. At KRON the entire organization needed to take on a new mindset and fully embrace the new way of doing business or the transformation would not have sustained.

It started with Young Broadcasting, the corporate owners of KRON, who saw the necessity for change. The management team, starting with the GM on down, not only fully embraced the change, they worked as a cohesive team to bring it about in a remarkably short period of time. The total process from the installation of Précis to all VJs being operational and on the street took less than 4 months.

The reasons for change are substantial. It has doubled the number of people in the field creating content at a lower basic cost. The management team shared a common vision and they were able to keep their eyes on the goal. They were able to keep the employees focused, negotiate with the unions and keep the process on track.

The tentacles of this system touch everything in the station. It opens the production environment to everyone in the station. The use of the system spreads like wildfire where even Public Affairs people saw how they could edit at their desktops and are now doing so. Now they can do whatever they need to do regardless of where they are in the station.

Every part of the station is affected by the file based system. Even sales can preview a sponsored segment and send the customer a WM-9 file or a link to the proxy.

There seemed to be the assumption that non-linear editing systems were so difficult to use that they could only be used by specially skilled individuals. What they found at KRON was that anyone with interest and desire to edit could learn quickly and soon edit video as adeptly as they use word processors and spreadsheets.

The goal of the management was to spend resources on the editorial process and not managing physical content. The Newsroom strata is gone. Besides the managers and assignment desk, everyone is contributing to the creation of content. The "Process People" have been reassigned. They were the people in the feed room, extra editors and anyone needed to manage the physical tape based workflow. The process people were needed because tape based technology required a specific skill set to perform many of the functions. Tape is linear and physical, the time required to manage the process of getting news to air required extra time and extra people.

The decision to move away from tape based news systems was largely driven by the ability to enable new efficiencies and ways to contribute content. At KRON the emphasis was not on just digitizing the existing workflow but redefining a new workflow that is enabled by digital video files.

KRON now operates from the field at lower costs and in ways that brings news in faster. In addition KRON is not constrained to locations served by their microwave and can contribute from anywhere with bandwidth. KRON can now send reporters to cover major events out of the market area and they can operate just as easily using public broadband access and their notebook computers.

The KRON engineering team had been searching for a network centric production environment since the mid-nineties. Now that the organizational change has been implemented it is really a quantum change over competitive systems and it just gets better and better. The progressive imagination of the KRON team will allow them to take Précis even further in 2006 and beyond.