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# IP Drives Next-Generation ENG

## The TV industry's new tools for news

by Craig Johnston

SEATTLE

From research to mapping to shopping and more, many of us wonder how we ever got along without the Internet. Now the Web is starting to provide so-called next generation ENG for the TV industry.

Electronic newsgathering has long been the province of licensed frequencies and bulky, expensive equipment, designed to bring news stories back live from the field. But reliable and speedy wireless networks are now providing crews with new tools to bring back the news, via video over IP.

### ENHANCED BANDWIDTH

Streaming video over the Internet has been around for years, but viewer expectations have been set on small screen sizes, along with low quality, reduced frame rate video. To take advantage of the higher bandwidth wireless networks—principally WiMAX (Worldwide Interoperability for Microwave Access)—vendors have rolled out new tools designed to move broadcast quality video in from the field.

Mark Hershey, vice president of engineering at ViewCast, said that originally there wasn't much evidence there were customers for these new products. "We kind of took a chance when we came out with the GoStream," he said, "but now we're finding it's being used more and more for spontaneous collection of video, often related to news." ViewCast is now seeing stations using video over IP to bring back video from small venues, such as high school football games.

Telestream has gained a foothold in TV stations with its FlipFactory products,

designed to provide a universal way of exchanging media between the different formats of different devices at the studios.

"We took a look at [electronic journalists] a few years ago, and decided there was a bit of a hole there," said Anna Greco, director of business development and product marketing for Telestream.

Journalists were traveling, often as a one-man-band, to far-flung locations, shooting video and doing simple laptop editing. There was a need to get that video back to home base reliably, inexpensively and rapidly. That led the company to develop Launch, a software product that installs on the laptop used for editing.

"They can use the editor of choice, edit their piece, and send that file to Launch," she said. "The video gets transcoded into the format appropriate for delivery, and gets delivered over an IP connection to the station, wherever it needs to go."

The FlipFactory at the station receives the feed and transcodes it into the format needed for the next stage of the workflow.

Greco said one important feature of Launch is that if a video feed is interrupted, either with network problems or if the journalist needs to move to a new location, no time or effort is lost.

"When they get back in a situation where they have access to the Internet again, we just pick up where they left off," she said.

There's no need to send the entire feed again.

Streambox has provided video over IP transmission products to news crews for years, and recognized that with higher bandwidth services, such as WiMAX, broadcast quality video could be moved live from the



The Streambox ACT-L3 software encoder is used to send live shots from the field to the studio over IP.

field. "As these new services have come online," said Streambox CEO Bob Hildeman, "Streambox has been redesigned to take advantage of those networks."

Simplicity is one key. "We have a number of features to make it simple for a reporter to be able, in just a matter of minutes, to get the camera powered on and start sending video," he said. "A broadcaster is able to take advantage of both our live newsgathering capabilities as well as our file-based acquisition system, utilizing a low-cost network, such as WiMAX."

One traditional supplier of ENG equipment saw video over IP as an added feature set for its encoders.

"We have both options available [transmission via microwave or satellite, or via IP] on

the same encoder platform," said Matthew Goldman, vice president of technology, compression systems for Tandberg. If you have a direct Internet connection or leased lines for IP, you can use that. If it's not available, you can use satellite uplink."

### HOW MUCH IS ENOUGH?

How much IP bandwidth is enough for moving broadcast quality, standard definition video in real time, as in a live shot?

There has been a general agreement among these vendors that 2 Mbps is pretty much a minimum. Goldman cautions that though services such as WiMAX may generally yield that 2 Mbps benchmark, speed can drop.

"Usually you want some service with a guaranteed bandwidth," he said. "You can imagine you're at a remote site and you're trying to bring back an important news event, there's oversubscription on an uncontrolled Internet and your material gets dropped."

Though broadcast quality video is a target, it's become a rule for news video that the more important the story, the less important the video quality. "If you're using a cellular network, you're lucky to get much more than about 300 k[bps] out of it," said Hershey. "Sometimes in an emergency, where the quality of the video isn't as important as getting something from the event, that has to do."

"Two Mbps is the sweet spot for broadcasters," said Streambox's Hildeman, "[but] we probably have more customers using our solution for from 256 k[bps] to 500 k[bps], because that's where most wireless networks are today."

As reliable, higher speed wireless services become more widespread, ENG crews will rely more on video of IP for bringing home the news. ■

## 'WING'-ing It for ENG

In the mountainous area of Idaho Falls, Idaho, the capabilities of point-to-point microwave liveshots are quickly exhausted, and in that high ADI television market, a half-million dollar satellite uplink truck is not a reality.

Mark Danielson, general manager of KIFI, the ABC affiliate in the area, had been looking at wireless Internet solutions for several years. "It just occurred to me that with companies launching wireless Internet services, we ought to be able to send our video over that bandwidth," he said.

He found that most such services offered ample download speeds, but not much upload speed. To send video over the 'net, he needed just the opposite.

Then WiMAX provider Digital Bridge Communications of Ashburn, Va. came to town. "They were in my office to tell me about what they believed to be the first commercial application for WiMAX in the country," he said, "in of all places, Rexburg, Idaho, 40 minutes north of Idaho Falls."

Danielson explained to his guests how ENG worked. "They got very excited about it. They told me they never thought of this as an application, and they promised they'd work with me, they wanted to make this happen."

While Digital Bridge readied its system in Rexburg, KIFI shopped vendors for the right system to pair with the WiMAX service. They identified Streambox as a provider who could handle both live and file-based video over IP.

The station also coined the term "WING," for Wireless Internet Newsgathering, and built a WING truck, with a Streambox encoder housed within. "We tested it, we executed, and we got liveshots," said Danielson. "Rexburg, Idaho was our first one, even in a place where it had been impossible for us without a satellite truck."

KIFI's WING setup takes an upload speed of a bare minimum 1.2 Mbps, according to Danielson. "That's what we consider the bare minimum to execute a live shot that we consider acceptable for broadcast television," he said. "It gets better as you go up in speed, and they're working now to deliver 2 Mbps to us whenever we're up." Digital Bridge guarantees the station that uplink speed, a point that was critical to making the deal.

At the station end, the Streambox decoder received the data as a packet stream. "Sometimes there's packet loss, data gets lost and the decoder says to the encoder 'send that data again,'" Danielson said. "Of course it does it so fast you don't notice it, and that's what allows us to get a live shot."

Danielson said they've measured the total system delay at about three seconds. "In my opinion, it's usable," he said. "Your IFB has to be sent to the reporter with mixed minus. I believe our newsroom is cuing the talent just a little bit earlier, to make it seamless, as tight as possible."

To date, Digital Bridge has also now launched WiMAX service in KIFI's market in the Idaho communities of Idaho Falls, Pocatello, Chubbuck, and Twin Falls.



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