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BBT's DCAS Set-Top Passes Test, Prepares to Ramp Up

By Jonathan Tombes

As reported in the June 28 issue of *CableFAX Daily*, **Beyond Broadband Technology** has completed a successful trial of its downloadable conditional access system (DCAS). That fulfills a promise BBT made to the **Federal Communications Commission**.

"We had told the FCC that we would have this operational, prior to the first of July," said Bill Bauer, BBT partner. "We're able to do that."

One of three BBT partners, Bauer is also president and CEO of **WinDBreak Cable**, encompassing two small cable systems in Nebraska, and of **InterTECH Corp.**, an Internet service provider (ISP) that provides support and provisioning services for cable operators.

The DCAS trial was completed on June 26 at the **R.L. Drake** facility in Franklin, OH. It used a live test bed consisting of satellite signals, a satellite receiver, and two QAM (quadrature amplitude modulation) channels fed over an RF access plant to a set-top reference design that could tune, decode, demodulate, and display both MPEG-4 and MPEG-2 signals.

The DCAS test itself involved turning on and off channels by way of a headend controller communicating with the secure microprocessor linked to the set top. "It was fully operational," Bauer said. "It really works. It's not theory. It's fact. And now it's just execution."

"Execution" means producing "thousands to hundreds of thousands of boxes a month," Bauer said. And although Drake is the prime hardware partner at this stage, if demand reaches that high-end projection, BBT will need more manufacturers. "We are talking to a lot of them right now," Bauer said.

Keys, partners and pricepoints

This project, some four years in the works, involves Drake, **STMicroelectronics** and **Avail Media**. Linking ST's microprocessor and Avail's encrypted media assets is not only Drake transcoding technology, but also a headend controller, which handles the CA keys, among other tasks.

That piece was tweaked slightly in the test. In a live system, Avail would have sent key data for the CA system with the programming across the satellite transponders. "What we did was send (the key data) via Internet to the headend controller computer instead of getting it off the satellite," said Steve Kubler, Drake vice president of research and development.

Drake's larger piece to the solution is what it calls an SCT 2x4, or a satellite-to-cable transcoder that can receive up to 140 Mbps of MPEG-4 data (about 60 programs) from two transponders and pump out four 256-QAM channels to cable operators, who can pick and choose their own lineups. The SCT 2x4 also features an ASI input for additional channels, from a local encoder, for instance.

Drake is also supplying an out of band (OOB) modulator, which is used at the headend to send mapping and key data to the set-tops. Kubler said the OOB approach frees the set-top from having to tune constantly to a digital channel. The BBT set-top design, whose production Drake will manage, includes one tuner, but with the capability of demodulating 8-VSB (vestigial sideband) over-the-air signals.

To answer the question of how to switch out and temporarily coexist with the (non-MPEG-4) installed base, Bauer said the BBT design uses infrared (IR) blast technology, much like **TiVo**, to send commands to the legacy digital box. "Not terribly difficult, but absolutely needed for us to be able to transition."

In addition to over-the-air reception, IR blasting, and both MPEG-2 and MPEG-4 decoding, the set top design includes three sets of **HD** outputs (component analog, HDMI and **IEEE 1394**) and features two USB ports, enabling it to support an outboard digital video recorder (**DVR**). Given the "creeping elegance" of such additional features, Bauer said the box's price point moved beyond the

original goal of \$50 into the \$100 to \$200 territory.

"Highly confidential"

Of course, it also has that secure micro, which enables DCAS, the low-cost alternative to the CableCard, the industry's current answer to the removable security dictate. STMicroelectronics Market Development Engineering Manager Tom DeDominico said that the micro is an "8-bit microprocessor ... that allows you to implement code and different security features."

DeDominico also said there were only two people at ST who were in a position to know how it really works. (Editor's note: ST generates \$10 billion in annual revenues and has 50,000 employees.) "It's very, very highly confidential," he said.

Such a processor enables any number of security schemes, including but not limited to "BBT Heavy," the system that Bauer has devised. "If we weren't using BBT Heavy but something else, such as **Nagravision**, then it could get downloaded to this secure micro."

Bauer met his goal of proving this technology operational by July 1, but the next milestones are approaching. He may have to fight mission creep. One of yet another of his objectives is to create a video on demand (VOD) system that works for the small operator.

The kernel of his solution resides with a company that designed a VOD system for a 747-class airliner some 10 years ago, he said. Such systems appear to be popping up these days. See, for instance, the dispatch from *LightReading's* Jeff Baumgartner en route to last week's **C-COR** IP Summit on the French Riviera. (*Comment dit-on 'voyage aux frais de la princesse' en Anglais?*)

Moving ahead on Bauer's small system VOD solution, however, would require adding a return path to his set-top design. One more elegant addition. For now, he said initial deliveries of the set-tops would begin in January 2008.

- Jonathan Tombes