Where Video Analytics is Today

Miami, Fla. – At the annual Video Content Analysis Conference for North America presented by IMS Conferences being held March 10 and 11, 2009, in Miami, Fla., industry researchers, product and system developers, integrators, and end-users have come together to assess the current state of the video analytics industry. What is to be seen is an industry niche that is maturing, but is still somewhat in its infancy.

Presenting information which he had collected in his position as director of research for security and identification for IMS Research, Simon Harris spoke of the barriers that video content analysis (VCA) technology has found in the security space. Chiefly, Harris noted that the industry is trying to get beyond a time when unreasonable expectations were set for video analytics, creating what he termed a "bubble of exuberance." Now in 2009, he says that the initial exuberance about video analytics has left the building, and integrators, product vendors and end-users are being forced to be much more realistic about how quickly the technology – which can do things such as identify an intruder and track their movements or recognize abandoned objects – will be adopted.

Lest you think otherwise, said Harris, the industry is not in dire straits. A list of all publicly known VCA deployments shown as a slide during Harris' presentation on Tuesday, March 10, expresses the scope that video analytics is reaching. On that list is a high number of airports, public transportation systems and even some military sites, but Harris' main contention is that analytics is appearing in the commercial sector as well, and he references such installations as the Statue of Liberty, City of Seattle, Foxwoods Casino Resort, DHL, Best Buy, Hertz and others to prove there's a larger installed based than many would initially believe. Admittedly, he says, well over 80 percent of these installations would still be classified as pilot projects, but the spread into commercial sector indicates that the VCA field is gaining real traction.

But for that traction to stick, says Harris, the industry has to overcome some major hurdles. Besides the aforementioned challenge of reasonable expectations, Harris says that more equipment manufacturers have to get behind video analytics and make this more common place in regular video surveillance components like NVRs, DVRs and video management systems. There's also the problem of cost; video content analytics on a surveillance system can quickly ramp up the installation costs of a system as the analytics rules engines are set up and as cameras are especially fine-tuned in their placement to ensure correct field of view to capture things like perimeter breaches without being distracted by unimportant events happening in the background.

Finally, Harris noted that the industry is sorely needing some standards to help develop overall confidence for analytics. On that front, both the ONVIF and PSIA groups are actively looking at VCA metadata standards as part of their overall video surveillance standards. There is also work to develop standards being done by the Department of Homeland Security. Dr. Joseph Kielman, a science advisor for the DHS, presented on the first day of the conference about how VCA fits into the DHS efforts for overall interoperability. There is also research being done by the technical standards working group of the American Public Transport Association (APTA) to help classify the different algorithms, create standards on VCA adoption in public transit, and to present best practices for APTA members who are implementing leading technologies like networked video systems and video analytics. The APTA's work was presented by Dave Gorshkov, chair of the APTA's technical standards working group.

Because of these problems – cost, standards, expectations – the technology still gets lumped, right or wrong, into the "future technologies" bin.

"People generally still perceive this as a technology for the future – something that they may invest in but they are not ready to invest in yet," said Harris.

The APTA's Dave Gorshkov echoed the same sentiments, noting that the APTA members aren't often willing to be the first ones to take a dive on a new technology area until it's been proven again and again.

Even faced with such challenges, the industry is finding sales and adoption. According to the IMS Research numbers, $50 million was spent on PC-based (server-based) VCA projects in 2008, and IMS predicts that could reach $140 million by 2012. At the same time, IMS Research is predicting that edge-based video analytics (where the analytics are in the cameras or encoders) will be ramping up in terms of overall sales and will actually drive much of the purchases in mass market spaces for retail and commercial installations for the coming years.

The appeal of video analytics – which is the appeal that a camera-based system could recognize events automatically and help alert security personnel of problems at a facility -- hasn't been lost on Mike May, the president and CEO of iVerify US, and a speaker at the VCA conference being held by IMS. May's firm provides audio and video security monitoring services and is rapidly growing, with plans to rapidly increase the size of its video monitoring staff to be able to take on new clients. The company's video monitoring staff currently can verify alarms with remote video; they also provide services like remote guard tours via installed surveillance cameras. But the company is also using video analytics and is curious to see what this can add to the offerings iVerify has for its

some 35 percent of his video monitoring clients are already employing some form of video analytics. With customers that include some of the top energy utilities, May said he's already watching energy sub-stations and utility plants, and he says he can see a definite value proposition for analytics to help his monitoring team spot perimeter intrusions. In the commercial monitoring space, his team is looking at applications for using analytics in retail store monitoring to catch shoplifters using algorithms that recognize things like multiple reach-ins to a single shelf.

According to May, his firm processes over 28,000 false signals a month because of video motion detection – a common surveillance technology that sends alerts based on pixel-changes in a surveillance cameras scene capture. By stepping from video motion detection to real video analytics, May thinks that number can be reduced and at the same time that iVerify can produce even better service to his monitoring clients.

Like iVerify's Mike May, Bernard Geiben, the director of safety and security for UK-based retail firm the Carrefour Group, sees potential promise for video analytics applications if it can help him reduce shoplifting "shrink." Geiben was a speaker at the VCA conference and heads security for the second largest mass retailer worldwide. He is in charge of a worldwide team of 16,000 full-time security professionals working for Carrefour and some 500,000 video cameras at the company's stores and properties. Geiben told conference attendees that he is looking at video analytics to expand the benefits he already has of a such a high number of cameras and security professionals.

In the retail/loss prevention space, Geiben said he was particularly interested in analytics applications such as automated exception reporting, facial recognition (to spot known shoplifters), repetitive motion detection (which could be used to spot shoplifters clearing out a shelf of their wanted goods), automated tracking of a suspect inside the sales area, and even license plate recognition to help retailers manage their parking lots.

Like Carrefour with its 500,000 cameras worldwide, Dr. Joseph Kielman of the Department of Homeland Security puts his hopes in the idea that video analytics could help sort through the high volume of data that's being pumped out from surveillance cameras – with even more being installed every day. By 2010, he says that the U.S. will be producing almost 1 zettabyte of data per year – that's equal to 1 billion terabytes of data.

"We are getting very good at collecting data," said Dr. Kielman. "What we need now are the capabilities to analyze this data."

And that ability to wade through information to be able to recognize useful information from normal scene "noise" is where the integrators and product vendors attending this conference seem to pin their hopes for video analytics' growth.

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