

Why Bother?

Lots of businesses get robbed and the criminals get away. The investigators often appeal to the public for help by publishing the images from the video system in a newspaper or on TV. The problem is, the image quality is so poor that not only can you not tell who it is. You can barely tell if it is a human. Is it a man? Woman? Alien? Was it me? You just can't tell.

Wanted



Over the last several months I have met with Security Directors from a variety of different businesses and evaluated their systems. I found there are basically 3 causes for poor video quality.

In some cases businesses were still using VCRs. They wanted to save money on the system and the proprietary DVRs were simply too expensive. There is no shame in saving money but if your system doesn't deliver what you need were they really saving money?

In other cases they would splurge for a DVR but wanted to get weeks of recording on a small hard disk since it was so expensive to add disks to a DVR. To accomplish this they would compress the images to files down to 10K bytes or less. In other cases they would use temporal compression algorithms like wavelet or H.263 that "guess" at what is happening and try to reconstruct images based on what they think was happening. These compression techniques let you put more images on the disk but its not for free. When you replay these ultra-compressed, interpolated images, you quickly learn that compressing images comes at a great cost; you can't see details.

The third problem I saw was due to the cameras. In some cases there were digital systems that had the ability to record at higher resolution but the cameras that were connected to the system were limited to analog resolutions (704x480 pixels).

The facility managers were frustrated as they had spent a lot of money but had systems that were, for the most part, useless. With all the techno-speak and specification games that manufacturers play it is no wonder that businesses often end up with significantly less than they what they need. Many problems are rooted in the bid specification process. I met with the facility manager of a distribution facility who was sifting through responses to their RFP (Request For Proposal). The original RFP was drafted with the help of a salesman from a local Security Integrator. There were pages of minutia but it was basically an RFP for a 18-camera system with all cameras recording at 30 images/second for 14 days. 6 cameras needed to be mounted outdoors, the rest were for indoor.

The responses varied dramatically. Some claimed they could meet the specification with 320G of storage, others required Terabytes. Prices ranged from \$15K to \$80K. The facility manager was now even more confused. After listening to what he wanted I

pointed out that the RFP had tons of techno-speak but nowhere did it mention what he wanted. He wanted to be able to read license plates of cars coming and going through the parking lot. In their warehouse, he wanted to see 8 loading dock doors and recognize faces as they walked through. In the lobby he wanted to get facial details from people coming in the front door and at the front desk and in the Credit Union he wanted to monitor the tellers.



Megapixel image – Inset is a digital zoom of the Megapixel image

In the end they went with multi-megapixel IP cameras and NAS (network attached storage). They chose the multi-megapixel cameras because they would store images when there was motion and they were able to monitor the parking lot with two cameras instead of six traditional CCTV cameras they were told they needed. Two multi-megapixel cameras at the loading dock gave them better detail than the eight NTSC cameras originally proposed. Finally, for the cafeteria and credit union they substituted a single multi-megapixel IP camera in each location where two CCTV cameras had been specified. They chose the NAS over a DVR because it provided all the storage they needed at about $\frac{1}{4}$ of the cost. In the end the system consisted of 6 multi-megapixel network cameras with 480G of Network Storage device and video management software. All for less than \$15K.

There are lots of wonderful technologies out there. If we are going to use it to catch the bad guys we need to apply it appropriately. We need to focus on solving the customer's problem, not just winning the job. Sales people need to listen to what the customers want before they try selling them something. In the words of Stephen Covey, "Seek first to understand, then to be understood." For the Architects and engineers, make sure the technical specifications include measurements that are aligned with the customer's desires. Because in the end if system you specify can't identify the bad guys, why bother?

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