Case Study: IntuVision
Intelligent Video Surveillance

Background

Video surveillance is used anywhere from military reconnaissance to theft control in high-end retail establishments. Over time, analog video tape systems have evolved into high quality digital recordings with seemingly endless storage systems. But no matter how much technology has advanced, surveillance has been limited by the ability of humans to view and analyze the footage, especially given the explosive growth that is being seen in this area today.

Challenge

Not every camera can be monitored in real time 24/7. In many security environments, there may only be one person assigned to 25+ monitors. Add in potential human errors and it is often by luck that any suspicious activity is captured at all.

Solution

IntuVision's Panoptes software uses the processing power of NVIDIA Tesla GPUs to finds things in video that humans don't notice in real-time. It also evaluates large quantities of video quickly and accurately, which would take far too much time for a person to do manually. A high end dual CPU is limited to around 3-4 frames per second across 4 (1080p) HD video streams - not fast enough to be able to quickly and consistently make out movement in many cases. By adding just one Tesla GPU to a CPU server, the speed increases by up to 12 times. This means that for real-time processing, the addition of a single GPU could increase the number of simultaneous surveillance video streams from 4 to over 40, or could speed the time to actionable intelligence by a factor of 12.

Impact

Panoptes was used to analyze video shot from tower mounted cameras on ground based surveillance system prototype developed for Marine Expeditionary Units. The camera collects data on an unsecured area prior to main units moving in. The video collected can now be analyzed and acted upon much faster - within an hour of receiving it vs waiting half a day.
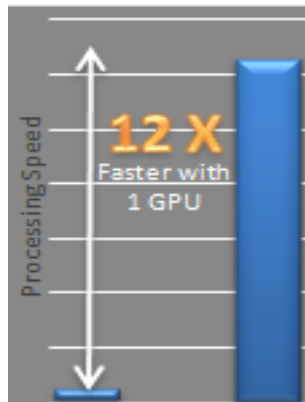
"With the advent of affordable parallel computing, we've harnessed the computational power of GPUs to develop products which help humans analyze incredibly complex video environments," said Dr. Sadiye Guler, founding President of IntuVision. "For the first time, security officials can truly monitor every second of video – allowing levels of security never available before."