Ethernet Extenders for Metro Surveillance

Overview
Metro surveillance is highly stressed along with the aggressive evolvement of intelligent technology and imperative demand of social security. In order to augment the level of metro surveillance in South Taiwan, the city government decided to install cameras in each major traffic interaction structuring with an IP based surveillance system. Considering all potential metropolis renewal plans in the future as a whole, the project chose digital surveillance systems, instead of traditional analog type, to integrate with real-time alarming and graphic control systems. Images are captured by mega pixel IP cameras then transmitted back to the host. The whole new system provides great definition and data accuracy. It simply solves the problem persecuted by the analog CCTV surveillance system.
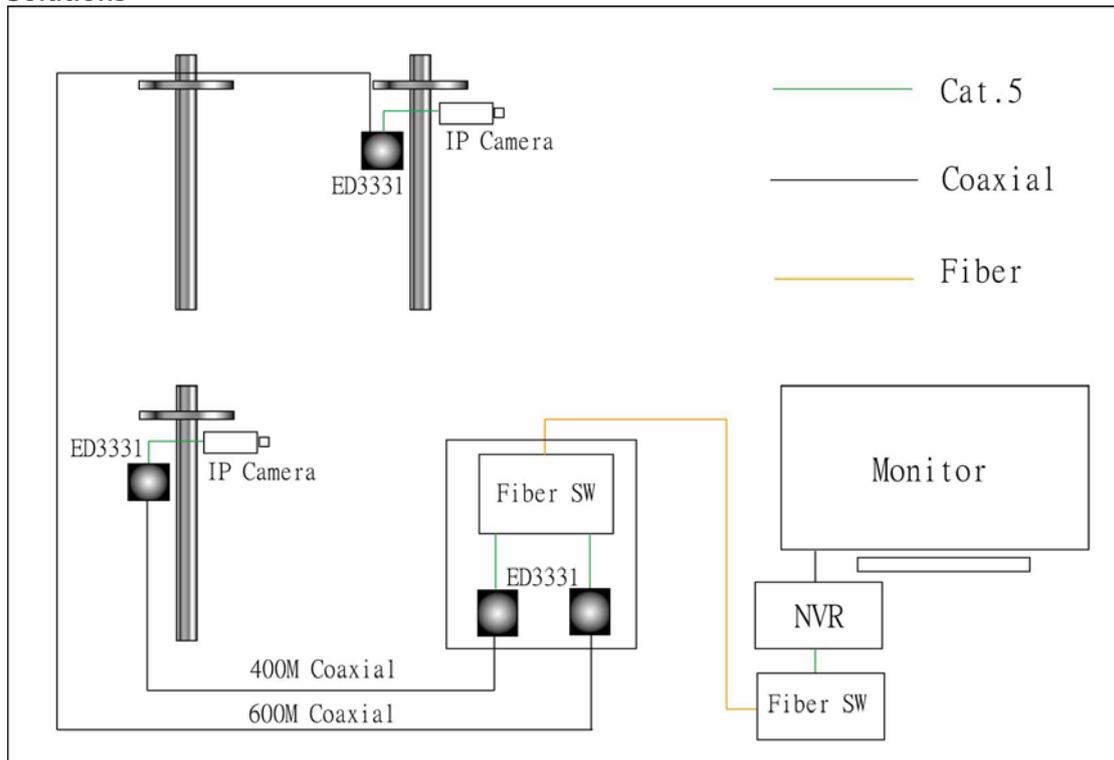
Technology
Approximate 50 cameras are installed in a city as the testing site before spreading out the solution to all South Taiwan. The distance from point to point may be various from some meters to a couple of kilometers. Most important, the connecting devices are sitting outdoor not protecting by air conditions. The idea is to use an industrial grade Ethernet equipment to transmit data and images over existing coaxial cable installed back in the time of analog CCTV systems. The centralized control center obtains all images in a digital format. All can be monitored and controlled remotely over IP. The new structure will obsolete couplers, amplifiers, regulators, and seperators etc.

Challenges
Standard CAT5 cables always limit the transmission distance within 100 meters. The project requires an average point-to-point distance at 400-600 meters which is not reachable thru regular CAT5 cables. Fiber connection used to be the only option however not affordable and feasible in this specific project. EtherWAN's ED3331 Ethernet Extender is an industrial grade product bearing an operating temperature range from -10C to 60C. Most importantly, it is designed to use Ethernet over a coaxial cable. The performance can still be about 70Mbps under the asking distance not a problem to handle mega pixel camera connections. It completely meets the project requirement and apparently helps the project system integrator construct a cost-effective and technically-competitive IP based surveillance system.

Solutions

Legend:
- Cat.5
- Coaxial
- Fiber

IP Camera, ED3331, Fiber SW, Monitor, NVR, 400M Coaxial, 600M Coaxial

Results

The project owner has successfully installed 50 cameras for the initial field test. More will be added in all South Taiwan major cities. The system integrator also learned that EtherWAN provides another option of Ethernet Extender running Ethernet over regular phone line. This may help to create more opportunities when long-distance Ethernet is needed however cost is an issue. Moreover, EtherWAN has hardened grade series to support the same idea under more critical conditions such as -40C to 75C operating temp range. The management feature for remote monitoring Ethernet transmission quality is also an option from EtherWAN's Ethernet Extenders.