

A HD Surveillance System without Worry about Cyber Hackers

Site Name	Top Bank in Taiwan
Country/City	Taiwan
Industry	Bank
Solution	DTV Full-HD Surveillance System
Solution Provider	A-Tec Subsystem Inc.
Reasons of Adoption	<ul style="list-style-type: none">■ Full-HD Video■ Others (High Security Level)



CUSTOMER NEEDS AND PROBLEMS

In 2016, for the first time in Taiwan's finance history, an astronomical amount of money was heisted from bank ATMs due to information security vulnerability. A criminal ring from East Europe used superb techniques to hack into 41 bank ATMs and plant malware to remotely force them to spit out thousand-NT-dollar bills. The "runners" waited at the ATMs and took over NT\$83.27 million dollars. Although Taiwan's Criminal Investigation Bureau quickly broke the case, the information security caught people's attention, especially management of financial institutions.

The customer of this case was the branch management of a Top Bank in Taiwan. Seeing what happened to fellow banks, they decided to review all security-related systems and surveillance system was one of them. The branch occupied two floors. On the first floor, there are the main lobby, treasury, and central control room; while on the second floor, there are VIP rooms, managers' offices, and the administrative support department. In the branch, both the manager and the administrative staff needed to have access to the surveillance system. In the past, they had to install CMS (Central Management Software) in their notebooks or computers to fetch the video recording stored in the DVR through internal network.

At the end of 2016, the existing CCTV surveillance system had been in operation for ten years and were about to be upgraded. The branch management had it all arranged to adopt full-HD IP CAM because of the trend of digitization and the need of full-HD products. However, after the bank heist event, the public had been educated that any connection to the network could possibly be a security hole to the hackers. The branch manager was neither comfortable about using network-based IP CAM, nor about installing CMS or VMS (Video Management System) in his notebook. One administrative staff member also mentioned his worry that the criminal may hack into the surveillance system and replace the video to prevent the security guard from seeing the criminal invasion to the bank. All the security concerns had driven them to find solutions other than IP CAM, and they finally found DTV product which was HD, but not network-based, and A-Tec, who provided DTV solutions.

CUSTOMER BENEFITS

A-Tec's DTV full-HD surveillance system adopted the ccHDTV chip and technology, developed by ITE Tech. Inc., a Taiwan IC design house. The ccHDTV chip was based on DVB-T digital TV standard. The "TV-like" features of DTV CAM allowed A-Tec to proposed to their customer a very refreshing coaxial-cable-based DTV surveillance system, which not only made use of the existing LED TVs in the bank branch through A-Tec's DTV accessories, but also solved the potential network hack problem.

Like IP CAM, DTV CAM is all-digital. Not like IP CAM, DTV CAM's AV signals can be transmitted on the highly secure and reliable coaxial cables. A-Tec first replaced the old CCTV cameras with DTV cameras. They then used their in-house developed HDMI to DTV converter to extend the screen of the DVR in the central control room to the LED TVs at the manager's and the administrative staff's offices on the second floor. What the manager and the administrative staff had to do was to turn on the TV and they could monitor the lobby and other locations all the time. Because the amount of video data is large, for example, with H.264 compression, 1080P video has a data rate about 4MB/s, which occupies network bandwidth, resulting in packet

lost and data traffic jam. DTV uses dedicated coaxial cables, leaving the internal network for the regular bank business.

Being digital does not mean being hacked. The features of DTV allow the system integrator to design different architecture for different applications and customer needs. For example, the coaxial cable plus digital TV architecture that A-Tec proposes to their customer has successfully shut the hackers outside the door.



Figure 1. Block diagram of CCTV+CMS. The use of network may expose the surveillance system to the threat of hackers.

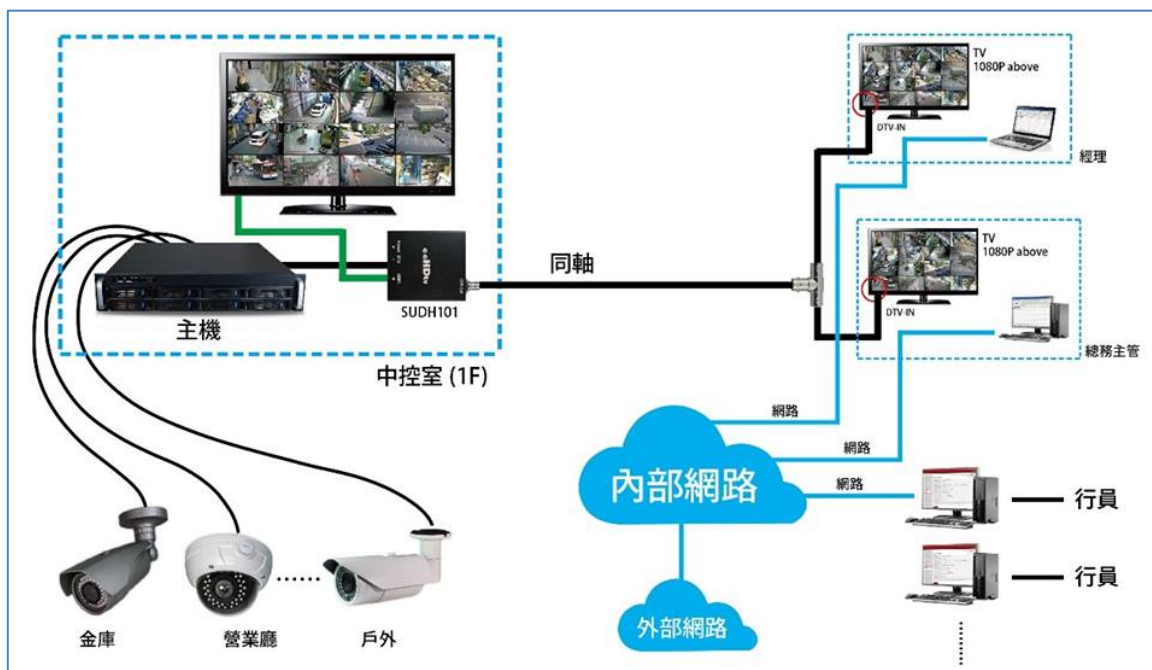


Figure 2. Block diagram of current DTV system. The independent surveillance system prevents it from being hacked.