

# **An Solution of Network Service Oriented Operator Network Intrusion Prevention**

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## **Abstract**

An anti-intrusion system is provided, including the front-end information collection system, network operator platform, or operating system and peripheral systems. The system can prevent network intrusion efficiently.

*Keywords: Intrusion prevention, monitoring, data logger*

## **Introduction**

Intrusion prevention is related to all aspects of society in important areas, important units such as airports, cultural monuments, military installations, government agencies, radio, television, communication systems, etc., the security work of these units is extremely important, it is also the focus of security. However, for the airport, 10 km from the periphery or for a few kilometers of the district boundary, need around the clock security, to protect the security of these places would be the application of advanced unmanned technology to achieve timely warning, real-time remote control and timely monitoring. Enclosures intrusion prevention system consists of anti-intrusion section, the ground portion of the anti-intrusion, anti-intrusion underground part, to achieve the enclosures to achieve all-weather, real-time monitoring of all-time.

## **System Architecture**

The whole anti-intrusion system is divided into the front-end information collection system, network operators, platform or operating system and peripheral systems, which is shown in fig 1.

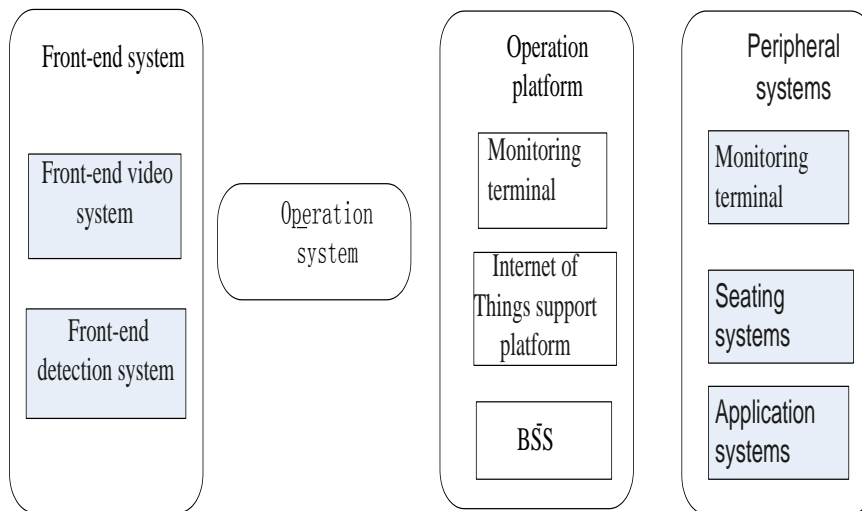


Fig1. System overview

The front-end Information collection system is responsible for collecting video, audio, alarm signals. Other front-end systems and video surveillance zone is responsible for collecting data sensing probe tip detection system by sensor networks. Front-end information collection systems need to have a high level of detection ability, which can eliminate interference from weather, the environment, animals and other intrusion detection systems. The system can use a variety of combined sensing means, taking into account the important area of special geographical environment, climatic conditions and electromagnetic environment, observational data from the front or the verdict of a number of different sensors are fused to form a more complete, more accurate judgment, the next important area of the complex environment to achieve all-weather, all-time safe and reliable monitoring. The video surveillance system is very important in intelligent video image recognition and other functions.

The network Include a variety of fixed network, mobile network, such as leased line, ADSL, WLAN, Ethernet, GSM /WCDMA /LTE and so on. operation network for the data acquisition system front-end information collected to provide reliable carrier-class transmission channels, combined with operating system or platform (video monitoring center platform, networking and business support platform, BSS-OSS), will further promote the important areas to enhance security capabilities, help explore the establishment of anti-intrusion system wide business model, expand coverage intrusion prevention system information to the user, provide users with real-time, remote management and early warning at the same time, provide operators with comprehensive information services to changes provide important content providers.

Peripheral systems face a variety of system users directly, can show the anti-intrusion system information section.

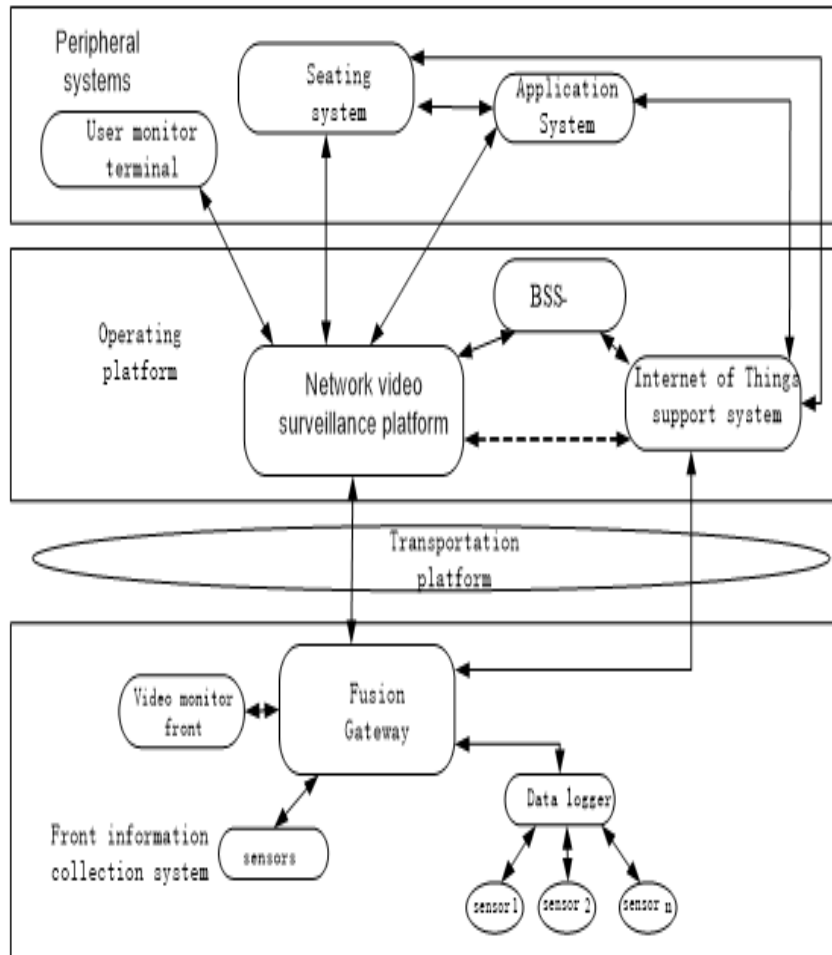


Figure2. system architecture

The elements of the system are shown is fig 2.

### Sensors

Sensors collect the data required for the application in the monitoring target environment, can access video surveillance and data collection terminal through the fusion of data logger, can also directly access the video surveillance and data collection terminal fusion.

### Data logger

Data logger connected sensors via RS485, RS232, USB and other interfaces, data can be collected from the sensors and stored. Data logger can be connected via a gateway integration RS485, RS232, USB, Ethernet, wireless and other interfaces, to achieve access to data from the data collection instrument and reverse control.

Data collection instrument input interface includes digital input interface, analog input interface and digital input interface. The client can send control command to the data collection instrument through the platform, the integration gateway such as start, on time and so on.

### **Front-end video surveillance system**

Video front-end surveillance system with intelligent image recognition function, access network video surveillance system through the integration gateway, is the system's front-end intelligent recognition module. It can be realized from the input video to identify the required information, and outputs the recognition result. Required network video surveillance platform can be customized integration policy configuration to the gateway, and then press configure policies to control video surveillance systems through the integration of front-end gateway.

### **Fusion Gateway**

Gateway integration with video capture, audio capture, digital acquisition, data acquisition and intelligent image analysis function, specific device optionally supports several of capacity. Each capability should be based on the application needs to support multiple channels.

Information interaction between the gateway and the network video surveillance platform includes original monitoring class of business, networking data. The original class of business use the existing monitoring network video surveillance integration gateway management, and sensor data fusion gateway collection, identification class data networking protocol in accordance send business management platform Things encapsulated or through networking platform forwarded to the user application systems, network video surveillance platform to match the relevant data and video, subtitles superimposed, alarm linkage process.

### **Network transmission systems**

Network transmission systems include various network operators, such as leased line, ADSL, WLAN, Ethernet, GSM/WCDMA/LTE.

### **Network video surveillance platform**

Network video surveillance platform is responsible for the integration of video surveillance and data collection terminal access and management, network video

surveillance platform configurable data acquisition and integration gateway intelligent recognition features, requirements can be configured gateway transmission mode for each data channel, including the protocol (TCP, UDP, SMS), select the direct connection /forwarded through the data processing unit, the destination address (directly connected).

Network video surveillance platform includes a data processing unit, a data processing unit for network video surveillance platform belongs to NE, accepting its management, may exist depending on a variety of industry applications, data processing unit, a data processing unit functions include: 1) data exchange with Internet of Things Platform, 2) data processing, based on industry applications, there may be different treatment in different ways; 3) data forwarding, networking platforms will be forwarded to the application data from the system; 4) data storage.

### **Internet of Things support platform**

This platform responsible for terminal management and monitoring, and provide industry application data forwarding function for intermediate platform application system. The main functions include terminal access control, networking terminal management, application system access, data forwarding industry applications, operations management, self-service terminal management interface and platform management. The management platform can support operators, terminal manufacturers, industrial customers, SP and other relevant administrator or operator terminal management.

The support platform and network video surveillance platform exchange information through a standard interface protocol.

### **BOSS**

BOSS system comprising: 1) billing and settlement system for processing billing data collection and grant price, settlement. 2) business and accounting systems, operating system, user acceptance and processing of service requests, billing system is the formation of user traffic usage billing. 3) customer service system. Customer service system to provide customers with quick and convenient service; and open new business in future cases, the system can provide the appropriate functionality to ensure timely. 4) decision support system, through dynamic, selectively collect and update the data source at the Ministry of useful information and business-related information, intelligently analyze, process, forecasting, simulation, and ultimately to the decision-making at all levels of management or professional provide timely, scientific and effective analytical reports, good information and intelligence support.

### **Application system**

Application system connect video surveillance applications platform and networking business support platform, and provide terminal management capabilities and sensor data forwarding capability for applications. The system can use data and video through a unified interface calls. Video information can be acquired from video monitoring center platform, sensor data acquired from networking support platform.

User monitoring terminal is the user interface with the central platform, responsible for the information provision, and the user's actions feedback.

The surveillance terminals including video wall monitor, PC client, WEB client, and mobile client.

## **Seating systems**

Provide friendly graphical interface, easy operation, intuitive, efficient, support universal seating system features system settings and permissions management, and also supports video linkage based GIS platform, real-time display alarm location and the surrounding geographic information to improve the duty officer processing speed.

## **Front-end information system**

Gateway device is data and interface control interface between the sensor network and other network, is the key to the physical world of information and information fusion of human society, is the link between the disorder and the real physical data business applications connected.

Uplink transmission of data fusion gateway is divided into two categories, for demanding security and QOS settings, such as airports, integration gateway transmit data to back-end systems via dedicated network; other occasions such as school, community, integration gateway transmit data through public transport network.

## **Operating network**

Anti-intrusion data (including video, audio, sensor data) transmitted over the network, to ensure a higher level of security, otherwise excessive omission, false alarm and false alarm rate can influence anti-intrusion. There are three ways to achieve security data transmission of intrusion prevention, one is to provide a physical connection to the public network isolated line network, another one is to provide a virtual private network that uses VPN connected network, the last one is an intrusion prevention circuit domain transfer data via highly reliable 3G /4G network.

Video monitoring center: Video monitoring center consist of service management server, media distribution servers, access servers, video management servers, video storage unit and location servers

## **Monitoring terminal**

Monitoring terminal is the user interface with the central platform, responsible for the information presented to the user, and feedback the user's actions.

Monitoring terminal is an important part of the video surveillance system, which is a concentrated expression system functions. Users can access monitoring terminal location information system to monitor any point of the image as well as a front-end mobile monitoring points. And can achieve many functions controlled storage, video inquiries. monitor terminal including surveillance video wall, PC client, WEB client, mobile client four forms,

## **Application system**

Application system access platforms via UAAP, on the other hand get video information from the video surveillance platform. Service support platform providing integrated solutions and video surveillance platform, give full play to the advantages of screen monitor.

## **Seating systems**

Seating system provides duty-friendly graphical interface, easy operation, intuitive, efficient, support universal seating system features system settings and permissions management, and also supports video-based linkage GIS platform, real-time display alarm location and the surrounding geographic information to improve duty processing speed.

## **Conclusions**

An operator network intrusion prevention system is provided, and it is proved to be efficient in practice.

## **Acknowledgements**

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