Special Report

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ICT Builds Safe Cities

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Today's Safe City solutions need the cooperative efforts of partners in an open ecosystem to provide comprehensive, well-integrated functionality. >>

The range of Safe City technologies is continuing to expand from an original focus on public safety and transportation management, urban administration, and emergency command. Today, cities are also using the technology for the management of many other key activities, including early disaster warning and safety monitoring of industrial facilities that require coordination between law enforcement, fire, search and rescue, and infrastructure management.

In short, Safe City technology has evolved to become a platform for comprehensive public safety and security administration. Encompassing pre-event, live-event, and post-event management, the technical components include the core Information and Communications Technology (ICT) resources of servers, storage, and networks with the addition of video surveillance and Internet of Things (IoT) devices such as sensors, alarms, and actuators. Safe City solutions are more versatile than at any point in history and much less costly through the migration of Information Technology (IT) systems to the cloud and transformation toward Software-Defined Networking (SDN).

Reconstructing Safe City Solutions

The key element for the successful implementation of complex Safe City solutions is the ability to integrate the technologies into a comprehensive system. One small example for a typical Safe City security system is the association of surveillance cameras with gunshot and smoke detection systems. Multi-part subsystems are further combined to become multi-dimensional solutions.

To help expedite such development efforts, Huawei provides an enterprise Software Development Kit (eSDK) that allows integrators to add custom camera operations and test functionality without modifying the underlying application.

Big Data-based Intelligence-driven Services

Visibility into events and the ability to collaborate between government agencies — both in real time — are two of the most important benefits of Safe City installations. Visibility means more than video surveillance, as the use of Long-Term Evolution (LTE), Unified Communications (UC), and Geographic Information Systems (GISs) allows for a single display to present multiple layers of information with appropriate prioritization.

More broadly, collaboration refers to the sharing of video and data generated by Safe City systems across municipal agencies, and even beyond immediate regions to provincial and federal departments.

Whether collaboration covers multiple cities or several areas of a one large city, real-time sharing of video and data is a core issue for ensuring efficient cooperation of agencies and personnel. Therefore, Safe City implementations are definitely evolving in the direction of intelligent functionality based on Big Data analytics.

Although Big Data analytics have been applied in some ways, many more challenges and opportunities remain for the rapid processing of certain types of unstructured data.

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Huawei's portfolio of practical solutions includes the following:

- Multi-dimensional Safe City defenses based on IoT and agile network technologies
- LTE-based broadband trunking for visualized emergency communications
- Cross-agency command supported by converged voice, video, conferencing, and GIS
- Cross-regional intelligent analysis of leads based on a video cloud platform
- Intelligence mining and analysis system based on a Big Data platform
- Cross-regional, distributed, cloud-based data centers

Innovation Ecosystem

To meet today's Safe City needs, vendors representing different fields must collaborate. Huawei pursues joint innovation with partners to build Safe City ecosystems based on open-source software. The result leads to the integration of innovations into comprehensive solutions. One such partnership is with Hexagon-Intergraph, a leading supplier of Computer-Aided Dispatch (CAD) systems. The Intergraph suite of incident management software provides capabilities for call handling and dispatching, intelligent mapping, field communications, data reporting, and analysis to achieve a common operating picture for intelligent response. Huawei's Safe City solutions that have integrated Hexagon functionality are currently deployed in the Middle East.

Similarly, Huawei has established a growing number of partnerships throughout the world:

- Tyco (U.S.), a leading security company for IoT-enabled urban sensing
- BGS (U.S.) and Accenture (U.S.), consulting firms
- Safaricom (Kenya) and NCS Technologies (U.S.), system integrators

· Milestone Systems (Denmark), iOmniscient (Australia), SAP (Germany), Pramod Software Solution (India), and Agent Vi (Israel), application software vendors

Huawei's Safe City ecosystem includes 100+ ICT partners and almost 700 service partners. The Safe City solutions provided by Huawei now cover more than 100 cities in over 30 countries and serve more than 400 million people. Huawei also has a global network of maintenance and delivery offices, including three global and nine regional Technical Assistance Centers, as well as 45 logistics and spare parts centers. This network serves customers in more than 170 countries.

In Kenya, Huawei collaborated with Safaricom, the largest Kenyan telecom operator, to commission a number of Safe City systems, including police dispatch, enterprise LTE (eLTE) broadband trunking network, video surveillance, and intelligent vehicle analysis. More than 18,000 policemen are better connected using these systems, which provide End-to-End (E2E) visualized command. A 24/7 high-definition camera and a license plate recognition system enabled Kenyan police to catch a hit-and-run suspect within one day. In 2015, the system proved effective in securing a visit to Nairobi by Pope Francis; no major incidents occurred while managing a 300,000-person crowd. According to the annual police report of Kenya in 2014-2015, the crime rate in areas covered by the Safe City project decreased by 46 percent.

Providing Customized and Differentiated Solutions

The major regions of expansion for Safe City vendors are Africa, Latin America, the Middle East, South Pacific, and Europe. For a variety of reasons, each of these regions has a different set of requirements for their Safe City solutions.

Countries in Africa, Latin America, and Asia-Pacific regions that are focused on improving their infrastructures are especially in need of comprehensive solutions that include consultation and planning.

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The Middle-East and Asia-Pacific regions need to develop ICT applications that have been adapted to meet their particular conditions.

For European and North American countries with mature infrastructures, the primary task is to widen the utilization of Big Data, intelligent analytics, and other technologies.

Economic and Social Benefits

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Kenya presents an interesting example. Tourism is traditionally the African nation's second largest source of foreign exchange revenue, after agriculture.

In recent years, however, safety and security concerns have seriously affected tourism. To cope with the situation, the Kenyan government chose Huawei to deliver a Safe City project in the capital, Nairobi, in collaboration with Safaricom. The two companies worked together to deploy an E2E solution consisting of dispatch, notification, and other security-related systems as well as a command center that integrates the resources of police, fire, transport, and healthcare agencies. This approach broke down information silos that had separated the agencies and, into the future, will prevent duplicate investments and reduce public resource waste. Thanks to the coordination of resources, there are significant improvements throughout Nairobi in the safe and efficient handling of major incidents. Just one example is that a six times increase in call-center capacity helped to improve the rate of success for reported alarms from 30 to 85 percent.

Huawei has built Safe City projects in Saudi Arabia, Singapore, Mexico, Germany, China, and other countries with the expectation that even more cities around the world will benefit from the transformative power of ICT. ▲