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Data Integration Helps Smart Cities Fight Crime

Hitachi public safety visualization solutions use Intel® technology to enhance real-time intelligence, situational awareness, and investigative capabilities

The goal of Hitachi Visualization is to help agencies share real-time insights that enhance situational awareness—and investigative capabilities—when an incident occurs.

Integrating and Analyzing Public Safety Data

To better understand and combat criminal activity, today's public safety and law enforcement agencies need to bring together data from various systems, including video surveillance, emergency systems, criminal records, and more.

Hitachi Visualization integrates public safety solutions and makes information easy to share between public and private agencies. Intel® hardware within the Hitachi Visualization Platform* (HVP*) powers data capture, analytics, and workflow, from edge devices to the cloud and data center. The Hitachi Visualization Suite* (HVS*) provides software that visually correlates data. These solutions break down barriers that plagued older security information management systems and are leading to exciting new possibilities, like predictive crime analytics.

Slow Data Sharing Delays Emergency Response

Today, public safety and law enforcement agencies have more crime-fighting tools to work with than ever before: video monitoring systems, computer-aided dispatch (CAD)/911 systems, license-plate recognition devices, gunshot sensors, records management systems, and a range of other evidence-detection solutions.

However, this data is often siloed and difficult to access. In the event of an emergency—such as an active shooter—agencies need to quickly track down and share data from disparate public and private systems. For instance, surveillance cameras posted on private buildings, such as banks, can help identify a suspect. Quick transmission is critical as agencies work to prevent casualties and other damage.

Harnessing data to fight crime is part of a larger transition to smart cities, in which buildings, railways, buses, airports, areas of traffic, and utilities all need a way to integrate and secure the data they receive from third-party sensors. With fast, secure data integration and analysis, smart cities can take energy management, security, and public safety to new heights.
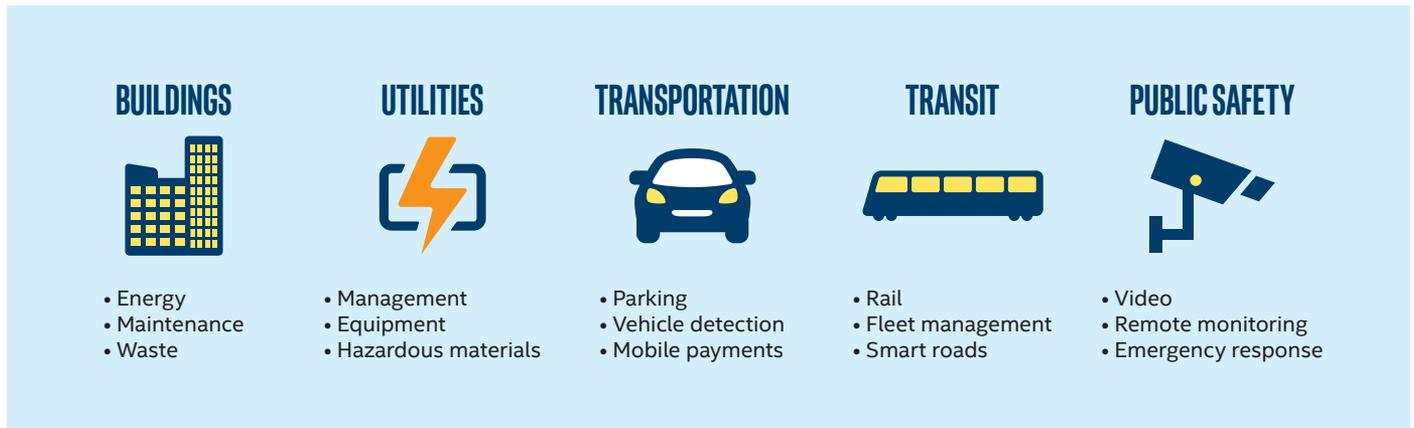
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Figure 1. Smart cities are exploring ways to integrate data from buildings, utilities, transportation, transit, and public safety systems.

Austin Police Monitor Hotspots for Crime

The City of Austin, Texas, was an early adopter of public safety technology—it won awards when it replaced videotape-based devices in police patrol cars with modern digital cameras. More recently, the Austin Police Department (APD) implemented a real-time observation project based on the Hitachi Visualization Platform.

As part of its High Activity Location Observation (HALO) initiative, the APD installed edge-capture camera pods in strategic hotspots for crime throughout the city. The camera pods use the Intel® NUC and support:

- Gunshot detection
- License-plate recognition
- Radioactive isotope detection
- Video management systems, access control, and radar
- CAD/911 systems
- Video analytics, intelligent routing, bonding, and failover
- Cloud-managed bandwidth monitoring and configuration
- Third-party cameras

In addition to providing real-time criminal monitoring, HALO has better prepared officers to respond to emergency calls. The camera pods also offered a way for APD to stretch its budget while making a big impact on criminal activity.

Real-Time Insights for Public Safety

Hitachi Visualization was created to solve two key problems in public safety. First, agencies need an application that can easily integrate various point systems or public safety solutions, such as third-party video feeds, CAD/911 systems, and gunshot and license plate sensors. Second, the application must be easily accessible to outside agencies for video sharing.

The goal of Hitachi Visualization is to give agencies real-time insights that enhance situational awareness—as well as investigative capabilities—when an incident occurs. This cloud-based application gives agencies a single pane of glass for video and data sharing. So far, Hitachi has deployed visualization solutions in major cities in the Caribbean and across the United States, including Washington, D.C.; Austin, Texas; and Atlanta, Georgia.

The ability to correlate data is leading to exciting new possibilities. In 2015, Hitachi launched a predictive crime analytics platform as part of its visualization suite. For example, a city's police department might feed a list of registered sex offenders into the Hitachi Visualization Suite and correlate data about offenders, such as where they live, with other criminal data and sensor-based information. This would help show police departments the highest relative threat areas, enabling a proactive rather than reactive police presence.
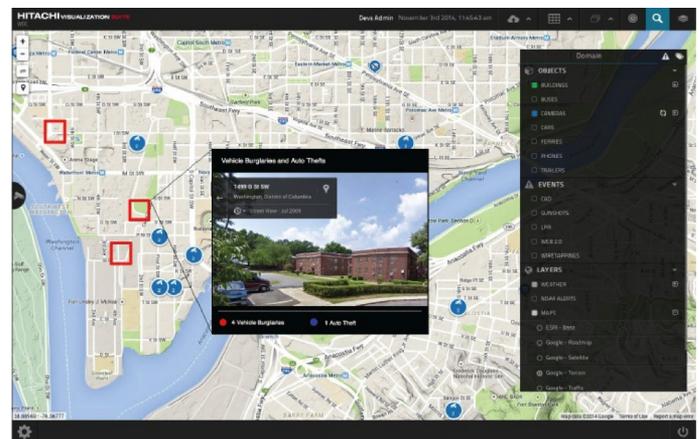

Figure 2. The Hitachi Visualization Suite* provides crime heat maps to help police departments target hotspots.
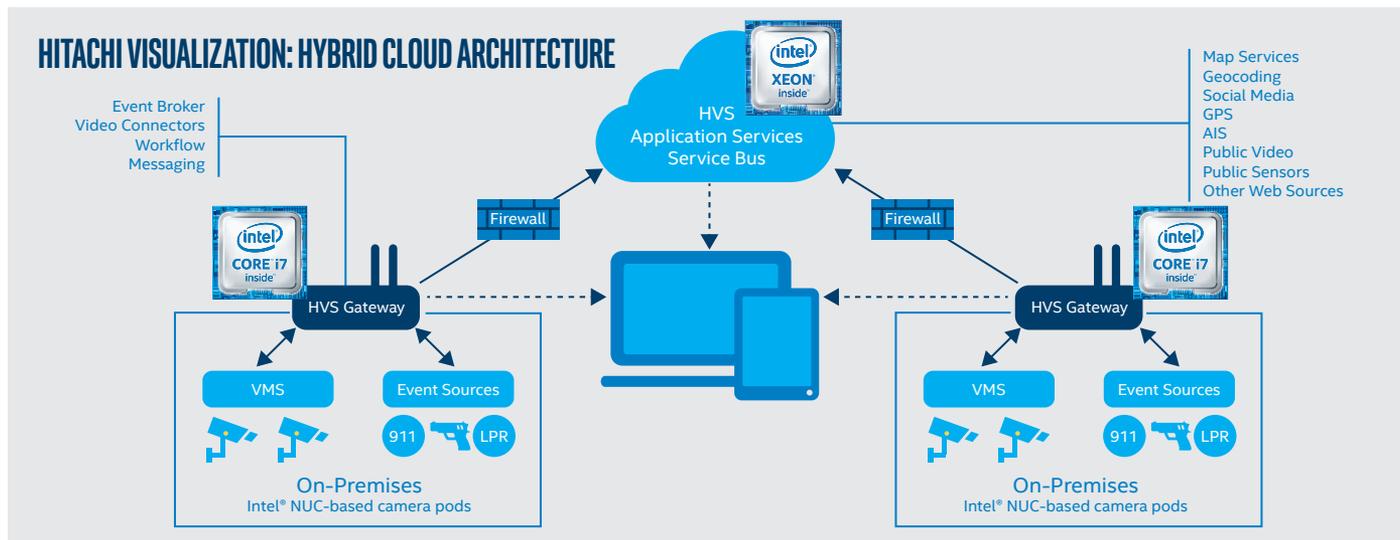
Figure 3. Data from video cameras, gunshot detection systems, and other sources are routed through gateways that help normalize and filter the data. Then, data is sent to the cloud-based Hitachi Visualization Suite* for analysis.

Hitachi Visualization

Hitachi Visualization is an integrated hardware and software solution. The **Hitachi Visualization Platform** encompasses the hardware devices used for edge capture, analytics, and workflow:

- **Camera pods** are integrated camera and communication devices that can be easily deployed on city poles and building infrastructure. The camera pods quickly and securely transmit high-definition video and data straight to the cloud.

- **Gateways** integrate third-party video systems and perform transcoding for live cloud streaming and recording. Gateways also serve as a data ingest service for sensor data. Small form factor gateways feature an Intel® Core™ i7 processor for powerful processor and graphics performance at the edge.

- Hitachi's **Video Management Platform** is a hyper-converged compute and storage appliance hosted by Intel® Xeon® E5 processor-based servers. It's optimized for video management storage and retrieval, allowing the solution to consume large amounts of video streams and store them on the premise or in the cloud. It's also certified on many of the largest third-party video management systems in the video surveillance market.

- A variety of **transmission options**—including cellular 4G LTE and wireless mesh or point-to-point—are ideal for wide area deployments.

Hitachi Visualization Suite provides the software for visually correlating ingested data and video. For example, when a gunshot is detected, the event is shown on the map. Cameras nearby are automatically pointed in the direction of the gunshot via the software's workflow engine, and the closest live video is pushed to the operator's desktop. HVS runs in the cloud for high availability and scalability, and utilizes the power and performance of Intel® Xeon® processor-based servers.

6TH GENERATION INTEL® CORE™ PROCESSORS FOR IOT

Manufactured on the latest 14 nm technology, 6th Generation Intel® Core™ processors offer dramatically higher CPU and graphics performance compared with the previous generation, a broad range of power options, and new advanced features to boost edge-to-cloud IoT designs. These processors maintain a standardized thermal envelope for 65W and 35W designs, and are an ideal option for low-power solutions that demand high-performance video and graphics.

Better Data for Safer Cities

Hitachi Visualization's latest public safety solutions can help agencies connect and correlate data, resulting in smarter and safer cities. Intelligent edge-capture devices make it possible to rapidly deploy and manage robust communication networks across wide areas, while cloud-based software enhances actionable intelligence.

Hitachi Visualization breaks down the barriers that traditionally plague older physical security information management architectures by leveraging the ubiquitous nature of the Internet and software as a service (SaaS) deployment model. It's an intelligent model for forward-thinking cities, made possible by the performance and edge-to-cloud scalability offered by Intel IoT solutions.

Learn More about IoT

For more information about Intel® technologies in IoT, visit intel.com/iot. To learn more about Intel® IoT Gateways, visit intel.com/iotgateways. To learn more about Hitachi Visualization, visit hds.com/go/social-innovation/smart-cities.