Public Space Surveillance

Making ‘Smart’ Transitions from Legacy Systems

SYNECTICS

Introduction

Public space protection and surveillance technology have a long and interesting relationship. Ever since London's 'ring of steel' was implemented in the early 1990s – widely regarded as the world's first true city-wide security solution – surveillance technology has become almost synonymous with protecting towns and cities across the globe.

It has also become an expected and widely supported service. In 2013, a poll by the New York Times found that 78% of people support the use of surveillance cameras to protect public spaces, a YouGov poll commissioned by Synectics in 2014 put the figure at 86% in the UK.

The increase in global terrorism attacks has undoubtedly swelled support from a security and investigative perspective – video footage, for example, proved crucial in the aftermath of the Boston Marathon bombings. But backing for innovative use of public space surveillance from a city efficiency and safety standpoint is also strong.

High-profile examples, such as Singapore, are leading the way for the rise of 'Smart Cities'. In the case of Singapore, in addition to traditional public space protection, an integrated city-state solution is facilitating services such as cleanliness monitoring, crowd density alerts, and transport trends mapping.

But how exactly do towns and cities make the leap from 'traditional' public space surveillance to a Smart City style solution? Amidst budget, regulatory, political, and logistical constraints, the path forward is not always clear. This white paper explores this topic in more detail, identifies the possible transition processes, and explains how those responsible for public space protection have an opportunity to leverage legacy technology in order to prepare for a smarter future.

A Smart Vision of the Future

SMART INTEGRATION SNAPSHOT:

In Glasgow, specially designed street lights, fitted with smart sensors, get brighter when motion is detected and record a range of data that can, for example, be used to indicate issues to central surveillance operators and guide police officers to potential disturbances.

So what exactly is a 'smarter' future in terms of public space surveillance? It is a question that needs addressing before any planning for progression can take place.

There is no universally accepted single definition of a Smart City (which can of course apply equally to towns and in some cases entire regions). All definitions, however, revolve around one core proposition: the integration of digital and physical infrastructure to secure and manage key assets and public areas, ultimately to improve the lives of residents.

Surveillance technology alone does not achieve this, or define a Smart City, but increasingly those responsible for public space protection are looking towards surveillance in order to achieve this level of integration and harness the power of data.

Surveillance driven integration

Surveillance 'command and control' technology facilitates data analysis, management, and multi-agency collaborative working by unifying vital public safety, security, transport, and utility solutions within a single system environment. In short, it provides the essential framework needed to implement a 'Smart' approach to public space protection.

Visual and audio data, alarms, and any number of unrelated sub-systems – operating in and across multiple geographical locations – can be brought together via the command and control solution. This sub-system information is collated by software capable of recognizing anomalies and events that require action, through analyzing and cross-referencing data patterns.

Systems that can be intelligently integrated this way might include: surveillance cameras, communication systems, transport and traffic management, telecare, community alarms, meteorological alerts, emergency incident alarms (fire, smoke detection, explosion detection, etc.), and public lighting.

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The Here and Now

If Smart Cities are the future, where does that leave us now? The answer to this will vary from country to country and, crucially, according to legacy surveillance investment.

In the UK, for example, a long history of public space surveillance means many towns and cities invested heavily in analog surveillance during the 80s and 90s boom era. In fact, almost £40 million of Government funding was made available to local authorities to implement CCTV programs during this time. Estimates from the BSIA suggest that up to 5.9 million cameras are currently deployed in the UK (public and private sector), with around 1 in 70 controlled by local authorities.

For the UK and countries with a similar public space surveillance heritage, the reality is therefore that vast surveillance infrastructures exist with analog technology backbones. This legacy technology cannot be ignored, particularly during such times of economic austerity and budget cuts. Such infrastructure can therefore be perceived as a barrier or challenge to new technology implementation.

Maximizing existing assets is key, and with the sophisticated integrations commonly associated with Smart City surveillance so closely aligned with IP-based solutions and HD camera technology, the gulf between present and future can seem intimidating.

In this sense, late adopters of public space surveillance could be viewed as having a distinct advantage. For instance, though the US was arguably decades behind the UK in its adoption of public space surveillance, its position means it has less 'infrastructure baggage'. Forward planning in these settings can therefore focus more on what is needed in the future, without being as restricted by what was implemented in the past.

IP-based surveillance solutions that enable truly intelligent integration by unifying city-critical operational and control systems are, for many US towns and cities, an immediate option rather than a technological future impeded by a series of gradual system upgrades and adaptions.

The Way Forward – Options and Opportunities

Upgrades and adaptions do not have to inhibit progression towards a Smart City public space solution. It is a common misconception that achieving Smart City objectives is only possible through migrating to a fully integrated IP-based system, and that the process of migration has to be 'all or nothing'. There are, in fact, a number of ways those responsible for public space protection can prepare for the future and move their approach forward.

Report rather than replace

At a basic level, Smart City public space initiatives are about collecting and analyzing data that can then be used to inform decision-making – whether those decisions relate to specific security incidents or, for instance, the strategic implementation of public services. In fact, a recent poll of public officials in the US about Smart Cities highlighted "improved decision-making made possible through new or better streams of data" as the number one perceived benefit.

Most surveillance solutions, regardless of whether they use analog technology, will have extensive reporting functionality built in, enabling different scenarios, incidents, and outcomes to be monitored, recorded, and reported according to specific needs. But in reality, this functionality is often not fully explored or understood, and as such either not implemented or under-utilized by operators.

While some upfront investment may be required in terms of training, unlocking the potential of reporting is more cost-effective than implementing entirely new systems. Many authorities that use the reporting capabilities of their surveillance system produce monthly updates that highlight incident levels, types, and locations. These reports can be used to justify/attract budget and also communicate and coordinate with external stakeholders from the police and public transport operators to members of the public.

Harnessing hybrid

Hybrid systems that seamlessly integrate analog and IP video are, for many, an ideal solution as they facilitate manageable progress while maximizing the utility and value of legacy investment.

They work by using video encoders to transform analog signals into a digital stream, which is then integrated by, and managed within, an open protocol surveillance command and control platform – alongside IP camera footage and third-party system data.

It is a setup that opens up a wealth of possibilities without the financial and logistical burden of significant infrastructure replacement, enabling authorities to invest in technologies such as HD megapixel cameras gradually in areas likely to have the biggest impact, for example locating them in key crime hot spots or near essential public assets.

SMART INTEGRATION SNAPSHOT:

When Islington Council in the UK merged and upgraded separate surveillance systems on a hybrid solution, it meant the surveillance team could monitor six times as many cameras from a central control center, providing a better picture of crime and anti-social behavior across the London borough. Operators are able to access and collate data from more than 1,000 cameras within a single environment, including 3G mobile cameras deployed to 'hot spot' areas – locations often identified through incident type/rate analysis facilitated by the solution's audit trail functionality. Read our case study: **https://bit.ly/4bJ6tIH**

One collaboration at a time

Adopting open architecture command and control surveillance software as the cornerstone of a hybrid solution opens up almost limitless potential for integration. This does not mean, however, that town and city authorities have to integrate a wide range of systems from the outset in order to see any benefit. A small number of strategic integrations, perhaps focussing on a single key organizational collaboration at a time, can make a huge difference.

A good, and increasingly common, starting point for authorities taking the Smart City journey is to look at integrations that will facilitate more effective collaborative working with the police.

Integrating remote evidence management software, for example, facilitates secure 24-hour access by key third-party organizations such as the police and HMRC, in line with data protection principles. Selected organizations can request to 'view' and 'seize' footage without having to physically attend the surveillance control room – thus reducing man hours and costs, and ultimately speeding up investigations.

Open architecture, open door

As budget and resource permit, authorities can then look to scale-up their system with additional cameras and integrations that are tailored to specific local community needs – with the open architecture framework delivering the flexibility to achieve this without any negative impact on previous investment.

Transport system integrations are a key trend here, with road, rail, and bus networks recognized as having a direct and significant impact on both public safety and town/city efficiency.

Initially, this may take the form of straightforward communications system integration between surveillance control rooms and transport operators, with automated workflows prompting cross-organizational notifications in response to threats/risk scenarios detected. Gradually, the number and complexity of integrations can be increased to incorporate, for example, city mapping, traffic management, meteorological events, and even on-vehicle surveillance to afford authorities a holistic view of their town/city and the residents travelling within.

SMART INTEGRATION SNAPSHOT:

In Madrid, a large central control room receives and integrates data from 40 urban control rooms based throughout the metropolitan area, which collectively handle information from all the public and private transport operators encompassing over 100 bus routes, 300 lines, and 200,000 cameras – including traffic intersection and on-vehicle cameras.

Partnerships Key to Future Focus

Surveillance technology, available right now, can help those responsible for public space protection adopt a Smart City approach that matches specific population needs while also adhering to budgetary or logistical constraints. Even relatively small transitional steps can have a significant impact and there are several ways in which authorities can leverage their solutions to achieve maximum results.

But change is challenging, and while technology can achieve a great deal, relationships are also key. To tailor solutions in a way that maximizes the data sources available, close working partnerships between software suppliers, integrators, town/city authorities, and collaborating agencies are vital.

With all parts of the public space puzzle in place, our towns and cities can be smarter, safer, and well-equipped for the future.

For more information about Synectics technology solutions, visit our website: synecticsglobal.com.






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