Implementing video solutions to transform education settings

Creating safe learning environments with video solutions for schools, colleges, and campuses

Contents

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The King's School, Canterbury

1. Introduction

Serious security incidents including attacks against students and staff in education settings are thankfully rare, but by law the risks must be taken seriously.

Across Europe and the Middle East education institutions have to comply with safety and security regulations that are specific to the sector as well as those that apply to workplaces in general. In the UK for example, two primary pieces of legislation set out the responsibilities that all institutions have: the Health & Safety at Work Act (HSAWA) and the Management of Health at Safety at Work Regulations (MHSWE). These laws require every school and college to have in place both a policy and plan complementing separate safeguarding policies which are specifically designed to address the threat of serious violence. And at each institution a competent person must be assigned responsibility for assessing risks and overseeing preventative measures. Where that person lacks specialist knowledge or experience, government guidelines say that professional advice should be sought.

In the EU national governments legislate to set standards for environmental health & safety and working conditions, in line with EU treaties and secondary legislation (predominantly Directives and Regulations), although the way these rules are enforced and applied to schools varies from country to country, they set standards for student and staff safety.

Various government regulatory authorities for the private education sector, oversee safety and security measures in the Middle East. In Dubai, from early years up to HE colleges, the Knowledge and Human Development Authority (KHDA) now conducts a survey of 10,000 students each year to assess their sense of wellbeing: the authority says that wellbeing, which includes health & safety, is no longer optional, and will be a key criterion judged in its annual inspections of schools.

The protection of property and premises is also a priority concern in many of these markets. For systems integrators, consultants and all those advising schools, it's important to remember that theft and vandalism (including arson) are surprisingly widespread, and if not mitigated against will drain education budgets. In addition, the list of emerging threats – from cyber security to extreme weather events - continues to grow.

To improve preparedness against all these risks, there's no question that video systems have an important part to play, if they are designed, deployed, and operated effectively.

In this eBook we highlight key factors that will contribute to the successful use of video security in schools, colleges, and universities. Our aim is to support systems integrators serving the sector, and senior teams within education whose job is to plan for and manage security in a post-pandemic world.

2. Crime and its impact on confidence

From city centre university campuses to local primary schools, safety is the top priority in all education settings and a key motivating factor for parents deciding where their children should study. Each year university rankings compare destinations for a range of crime metrics, such as burglary, violence and sexual offences, and most university leaders understand that in a competitive market their institution's reputation and financial success depends on maintaining confidence.

In secondary schools meanwhile, in addition to threats from external criminals and gangs, the problem of anti-social behaviour and violence between pupils also has to be managed. Increasingly schools are finding it helpful to use video to pre-empt problems, to act as a deterrent and to promote positive standards of behaviour.

Adding to the challenges, in 2022 and beyond, schools need to address these issues against a backdrop of COVID-19. The pandemic has increased the number of young people suffering from mental health issues, and some schools also have been targeted by politically motivated anti-vax groups.

Video systems not only make it easier to tackle a wide range of common problems – giving senior teaching teams and administrators better visibility over premises during the day, and providing deterrence to criminal activity or anti-social behaviour out of hours – but well-functioning camera systems improve confidence too.

3. The value of early intervention

A strong case can be made for video being one of the best value security and safety tools available because it acts as a resource-multiplier and makes other measures more effective.

For example, it can give reception staff or senior administrators a clear picture of activity on site, provide an early warning of potential threats, and allow faster responses. On large campuses protected by dedicated security teams video allows more effective coordination and means that fewer officers are needed to cover wider areas.

Video can also help teaching staff to identify problem behaviours and support them in intervening earlier in negative behaviour cycles, allowing them to resolve conflicts sooner and giving them confidence that they are making fair judgements. The ability to easily retrieve HD video footage of events in schools has been proven to be a highly effective deterrent against both anti-social behaviour and false claims of bullying.

In the UK, more than 650 officers from 23 police forces have been assigned as SSOs (Safer Schools Officers), with activity ranging from acting as a point of contact for teachers to more intensive interventions such as stop and search and monitoring of children suspected of being gang members – however a careful balance needs

to be struck, and concerns have been raised about the creation of a culture of low expectations and a climate of hostility, and there have been legal challenges about the disproportionate impact of police actions on minority ethnic pupils.

Video can help strike the right balance, by providing an accurate record of events, acting as a deterrent and making police interventions less likely to be needed.

Video can help to keep schools and campuses open while protecting perimeters and making internal areas feel safe and welcoming. A balanced mix of well positioned cameras – bullets, domes or fisheyes - makes it easier to implement layered protection for perimeters, parking areas, building structures, and interior areas.

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4. Video for perimeters, car parks, and playgrounds

For optimum protection it's essential to get camera positioning right at the perimeter. Cameras located some distance from the line of demarcation, especially at campuses with more extensive grounds, provide a strengthened first layer of security.

This can help detect, identify and take action against known perpetrators before they reach school boundaries, especially if they work in collaboration with local police and public agencies. For example, video can enable earlier action against thieves known to habitually target students for high-value laptops, smartphones, and other valuables.

To protect building perimeters, car parks, playgrounds, and playing fields, correctly positioned high resolution cameras with powerful zoom capabilities can provide exceptional wide-area coverage. Powerful options include 4K PTZs, mounted on existing light poles and on buildings; and smaller bullets and domes targeting higher risk exit and entry points.

Users who want to reduce bandwidth and storage will benefit from advanced cameras that have lower resolution but still high-quality image capture thanks to light enhancing technology.

ANPR can help secure car parks and automate vehicle access. For example, authorised vehicle lists will allow staff and parents to gain smooth entry to dedicated parking spaces. Integrating visitor management systems will also streamline the arrival of guests, contractors, and regular deliveries such as catering, while keeping unauthorised people out. And the latest AI-enhanced solutions are an increasingly practical option for schools, delivering the benefits of simple configuration and industry-leading accuracy.

To cover exterior areas economically, users can also take advantage of the recent advances in HD-TVI analogue. These deliver high-definition image capture while leveraging existing infrastructures and avoiding expensive engineering works. Importantly, the user can still manage everything from same VMS interface.

Video intercoms also allow staff to vet visitors before granting them access into reception areas. This can give security staff critical time to assess potential threats from assailants and intruders, and respond appropriately.

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5. Safe learning environments

Video allows full 24/7 monitoring of premises with enhanced management oversight, helping maintain schools as safe learning environments. It is one of the best tools for tackling a range of common problems: petty crime, smoking and vaping, drug misuse, vandalism and serious threats to school property, buildings, and infrastructure out of hours. Video tech can also strengthen infection prevention measures at times of increased viral risk, with functions such as building occupancy monitoring, social distancing monitoring and face-mask compliance monitoring.

While many schools and colleges avoid surveillance in classrooms wherever possible, surveillance cameras have an important role to play in areas such a sports halls, corridors, cafeterias, lobbies, and communal facilities. In some cases, cameras have been used, and proved effective, in more sensitive areas, including toilets or changing rooms where particular concerns about bullying have been raised. Cameras deployed in such locations have to be aligned with great

care and on-board functions, primarily masking, to avoid privacy infringements. Discreet and low-profile cameras such as fisheyes will provide the most reliable, comprehensive area coverage in many locations. Replacing three or four traditional fixed lens cameras, fisheyes are not only more cost-effective but versatile too. They can be mounted on ceilings, on poles, or walls, and they provide protection against threats to students, and staff, and ensure visitor safety. Dewarped footage from these cameras is now of exceptional quality, even out to the image periphery, and will for example allow first responders to intervene sooner in the event of a serious incident, or enable teaching staff to deal more quickly with routine problems.

The list of practical video applications and capabilities is constantly expanding, thanks to innovations being tested and proven in other settings. This means that good video infrastructure - which is properly implemented with long term performance and flexibility designed-in - will not only deliver immediate benefits but should be become ever more useful with time.

6. Cybersecurity and hacking risks with video infrastructure

The cybersecurity risks facing the education sector have substantially increased in recent years, with universities experiencing ransomware and other cyberattacks that have caused major disruption. There has been a significant rise in ransomware attacks on research institutions, including universities, prompting government-level concern. For universities, paying hackers to unlock data is particularly problematic: with students already concerned about high fees and lecturers calling for improvements in their pay and conditions, any perceived waste of funds could provoke widespread condemnation and lead to further reputational damage.

Where surveillance systems don't operate on separate VLANs, physical security will also be impaired if the main network is compromised. Cyber criminals are also increasingly targeting IoT devices, so putting cameras and associated surveillance devices on the network will increase the attack surface.

This highlights the importance of securing IT systems and video infrastructure.

When designing video solutions, to protect against hacking – and the risks of malicious actors gaining access to camera feeds, or to IT networks – integrators should look for video systems with multi-layered protections covering access, transmission, and the security of recorded footage. Look for encryptions that don't impact performance, multi factor authentication, and firewalls that prevent unauthorised access.
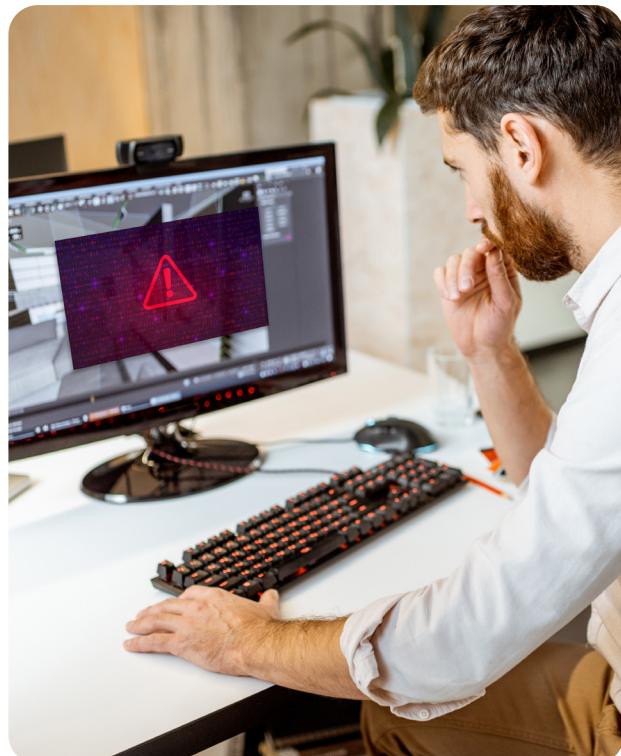
Evaluate true plug-and-play, end-to-end solutions as they will also offers an additional layer of defence because when devices authenticate each other automatically it eliminates the need for manual passwords, which add to complexity during installation and maintenance often inadvertently creating cyber loopholes.

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7. Getting your VMS choice right

It's essential to thoroughly evaluate your choice of VMS platform to ensure that the video solution is affordable, scalable and flexible. For smaller schools a fully-featured VMS that comes with low fees, or even no fees, may well meet user requirements in the immediate term and keep both upfront costs and operating costs low. Yet it's worth checking if it will also be possible to upgrade seamlessly if the school needs to expand to cater for a bigger student intake.

For larger schools and universities, the VMS will need to integrate easily with other core safety, security and building management solutions, particularly where institutions work closely with external agencies such as the police or alarm receiving centres and may want to introduce a degree of systems interoperability. It needs to do this without the burden of excessive operating costs.

Schools may want to introduce video wall services that allow system operators to be more proactive, and enable faster incident responses and more efficient investigations. Dynamic video wall services used to be affordable options only for colleges and universities, but new offerings from vendors now allow smaller organisations including schools to benefit.

For larger institutions, today's generation of more powerful but affordable VMS delivers on a range of
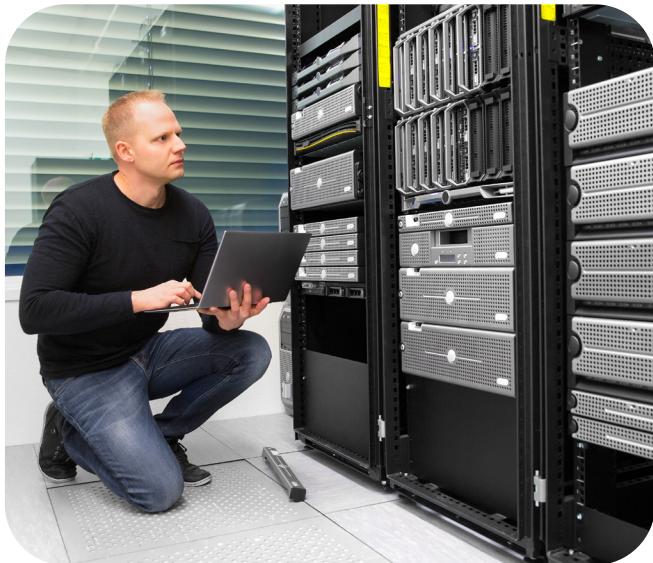
priorities, for example allowing a distributed video surveillance architecture, with centralised command and control to be run in tandem with localised monitoring, playback, and export of footage. An enterprise-class VMS should also support compliance, and adherence to standard operating procedures and protocols, and they can integrate with common databases for efficient role management and multi-user access rights.

It should also be easy to design around user processes and requirements, allowing automation of important surveillance tasks and increasing operational efficiency in control rooms.

Importantly, system designers should choose the range service modules that best suits different needs, planning for both immediate requirements and longer term expectations so that managers can adapt to changing circumstances. For example, enterprise-class VMS should give users easy options to adopt the latest deep learning analytics, and it should provide critical failover to protect against the loss of footage in the event of a range of fault conditions. If any part of the surveillance infrastructure fails, failover protection will recognise the problem and then switch to a redundant system so that an unbroken video evidence chain is maintained. It's worth noting that failover may soon become more of a priority for all institutions as they look to increase resilience against severe weather events and the power outages they can cause.

8. Value for stakeholders

To deliver this value for tax-payers – who fund the majority of education in Europe and the UK, which is state run - video solutions need to be flexible, scalable and futureproof, with the ability to easily integrate third party safety and security systems including access control, intruder and fire systems, as well as building management systems.

As well as up-front (CAPEX) costs, be sure to consider (OPEX) costs in price comparisons. Unfair VMS and analytics pricing models are common in the surveillance industry, with users being charged annual license and device connection fees, hidden charges for functions they never use, or high additional charges to connect extra cameras.
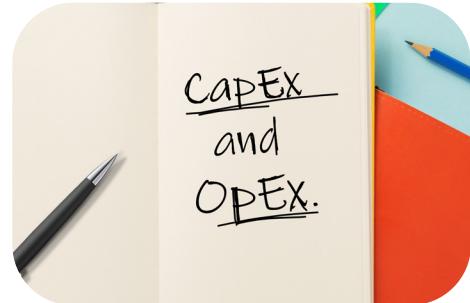
Ease of use is also important, for example: allowing non-security staff to conduct rapid investigations and retrieve evidence using automated search functions; using video as a tool for positive behaviour management, with high quality image capture a useful deterrent to anti-social behaviour; reducing individual and corporate liability, with evidence of activity on site helping to resolve disputes early and avoid litigation; and reducing pressure on staff, including senior managers and receptionists.

Another important consideration is the durability and expected lifespan of any video solution. Check for backward and forward compatibility, long term product support and extended warranties, all of which give schools peace of mind that their investment will last. Future-facing solutions make it easy for users to adopt new tools as they become available. For example,

improved deep-learning analytics are enabling smart tools that alert users with AI-powered notifications. These will eliminate the need for operators to respond to false alarms triggered by harmless environment factors, freeing them from the task of monitoring multiple streams. These tools make it less likely that events of concern will be missed, and importantly allow faster and more appropriate responses to incidents. Metadata, which is collected and stored by systems using deep learning, is also now speeding up investigations from hours to minutes.

Whatever the scale of the challenge facing a school, today's more powerful video solutions provide a compelling answer. The best of these new systems acts as a force multiplier, reducing costs and taking pressure off security staff, administrators, and teachers, so that they have time to engage more positively with staff, pupils and other stakeholders, to the benefit of all.

We can show many examples of how this works in action in education settings – schools, colleges, and higher education campuses – so get in touch to find out more.

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