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Overcoming the Complexity Barrier of Implementing Cutting-Edge Video Security: Platform Versus Integrating It Yourself

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Introduction

The ability of an organization to protect its people, assets, and intellectual property (IP) is an essential aspect of effective business management. Physical security is a $100 billion industry that is expected to grow given the premium organizations have placed on security concerns. Video observation, as an example, has traditionally been a significant component of physical security efforts. IDC market tracking saw an increase in video security revenue of over 12% from 2019 to 2020. Many businesses found that they not only were depending on video to detect threats to their facilities and personnel but also were using video telemetry to assess the condition of those facilities. Yet, events have shown that many companies that could benefit from video telemetry were not prepared to implement the needed infrastructure.

While the market provides an extensive array of video capabilities, the problem for those seeking to improve their physical security infrastructure is a fundamental one: Should they seek point solutions that optimize the functionality of video for specific applications and then attempt to integrate these point solutions using their own resources, or should they look for a fully integrated platform from a single vendor?

AT A GLANCE

WHAT'S IMPORTANT

Platforms offer a way to simplify the deployment of video observation systems.

Although point solutions can offer best-in-class capabilities, they often complicate support and maintenance.

KEY TAKEAWAYS

Enterprises should evaluate their video observation needs in terms of the total cost of ownership, which should include overheads associated with support.

Cloud-based video management platforms may be a good solution for enterprises that want to improve their video capabilities without the complexities of building a custom capability based on point solutions.

The challenge is that the market is noisy, with many competitive solutions. Determining an optimal approach is complicated. Ideally, a complete solution that includes every capability that might be required is optimal, yet the lure of point solutions is hard to resist. Point solutions often provide a better response to a specific problem.

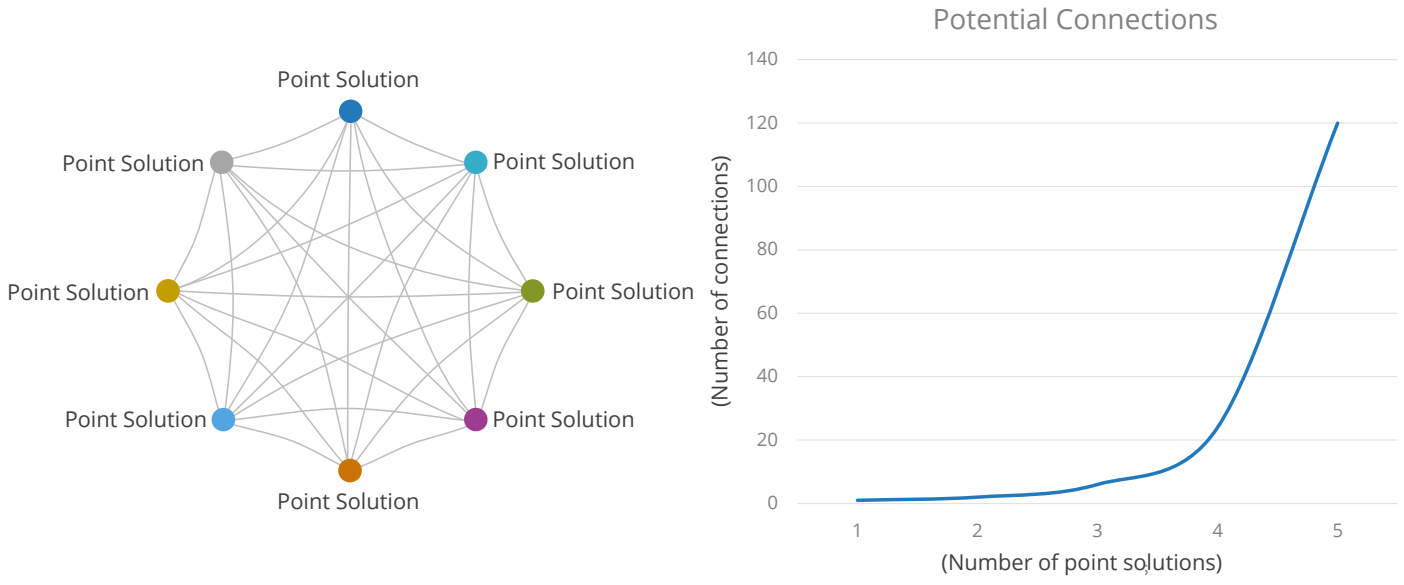
Additionally, a point solution, because it addresses one requirement or only a few requirements, is often less expensive than more comprehensive platform solutions, and with "try before you buy" marketing, the perception that these solutions are more cost effective is hard to dispute.

Nevertheless, point solutions, for all their virtues, come with problems that can be especially troublesome for companies whose experience with video is nominal or nonexistent. For one, systems integration is not a trivial undertaking. When a company attempts to stitch together a complete security capability — one that may need to accommodate video as well as other telemetric sources from individual point solutions — it quickly finds that this increases IT application management overhead and complicates the user experience. It also finds that, paradoxically, even though point solutions are often less expensive individually, a collection of point solutions can be much more expensive in the long run.

Point solutions also involve interacting with either multiple vendors or a systems integrator to maintain essential capabilities. An update that might apply to only one tool can quickly cascade through the balance of the tools. In fact, IDC's 2021 *Video Surveillance Survey* (n = 260) disclosed that the most important integrations that companies seek to meld with video include inventory management, access management, and cybersecurity. Each of these applications is complex and likely to involve routine upgrades and new releases. Each new release requires testing and the involvement of IT. For anyone who has attempted to upgrade a desktop operating system, this sort of problem is very familiar.

Multiple point solutions also complicate the user experience. A collection of tools can present the user with several different interfaces, usually with different command conventions. While there are platforms that can hide these issues from users, generally the more sophisticated the user, the more such insulation from the actual tool interface can be an irritant. So, while point solutions, in isolation, can provide superior results for specific use cases, the combination of such solutions doesn't necessarily provide a better outcome. This is because complexity is a result of many components that need to be individually maintained: Complexity is not additive; it is a geometrical relationship where a collection of solutions multiplies the complexity of each (see Figure 1). It does bear noting that there is no such thing as a pure point solution or platform approach. It is just that the more integrations one must make, the more complexity there is.

FIGURE 1: ***Point Solutions Generate Many More Integrations than an Integrated Platform***



Source: IDC, 2022

This is not to say that point solutions do not have a place in a security architecture. In fact, there are situations where only a point solution will address a company's needs. In such cases, having a platform that can also interface with point solutions is a necessity. It is just that for many companies, the virtues of point solutions are often outweighed by the overheads associated with maintaining them. For these companies, there is a better way: adopting a pre-integrated platform that delivers the needed functionality out of the box.

Benefits of an Integrated Solution

A pre-integrated, cloud-based solution — one that includes cameras and other sensors as well as cloud-based management and analytics capability — has many virtues for companies that are seeking to build out their video infrastructure while reducing the overheads associated with doing so. These benefits generally boil down to the following:

- Ease of installation
- Ease of use
- Ease of integration
- Ease of securing the solution
- Ease of maintenance and upgrades

The common theme in each of these benefits is the emphasis on simplification. IDC surveys have found that enterprises dislike complex solutions, where complexity is defined by how much effort needs to be expended to acquire and maintain a particular technology. While point solutions can often deliver a best-in-class result, that outcome frequently is associated with extensive customization and increased overheads associated with IT support. A cloud-based platform can be much less complex to implement and support. The following discussion examines why this is so.

Ease of Installation

In the case of installation, a cloud-based solution can enable a plug-and-play environment where video infrastructure expansion is easy to achieve. Once a camera is installed, it can be automatically detected and configured without the need to install additional hardware such as network video recorders (NVRs) or additional storage. Such an approach makes for a very scalable environment, where scaling is accomplished in software rather than in additional hardware.

IDC research indicates that installation activities can often account for 8% of the total cost of a video project. When that overhead is eliminated, a platform can often pay for itself within a fiscal year compared with the installation overhead of multiple point solutions. This includes both the labor and the hardware necessary to make the point solutions work.

Not incidentally, such an approach also optimizes the use of expensive network bandwidth. Rather than flooding the network with video data, a cloud-based video architecture can direct video to whichever application requires it. This also adds to reliability because the amount of supporting infrastructure is reduced, thus introducing fewer points of failure.

Ease of Use

Ease of use is another benefit of a pre-integrated, cloud-based approach to video security architectures. One of the dirty secrets of automation is that while a fully automated task can minimize the cost of labor, many times the up-front cost of training personnel to use the automation can be considerable. Having a single interface to master accelerates the time to value by reducing the amount of training required to utilize the platform functionality.

Because the UI incorporates all the VMS and analytics tools in one pane of glass, the user is required to learn only one set of commands; and because the solution is cloud based, the user experience can be the same across any access modality, web or mobile. Additionally, cloud-based delivery makes sharing telemetry between users simple. The user can adjust configurations, settings, and workflows without the need to engage the vendor, reseller, or systems integrator.

Ease of Integration

Ease of integration is implicit when using a platform rather than a point solution. Because the individual functions are designed to work together, users can navigate through the toolset seamlessly. Although such an approach is by necessity less flexible, providing a pre-integrated set of solutions, it simplifies support tremendously. Of course, it does bear noting that a rich set of platform APIs can improve platform flexibility.

When thinking about integrating multiple point solutions, a company should also consider who will be doing the integration. If the company does not have the internal expertise or if IT resources are tight, then the integration activities must be provided by a reseller or a systems integrator. This introduces delay and expense into video infrastructure support.

Ease of Securing the Solution

Security — that is, the security of the video infrastructure — is often overlooked when adopting a point solution approach to video observation. Each application introduces a new potential vulnerability and increases the security perimeter.

In fact, security is an especially acute problem in the video infrastructure space. Video data holds a great deal of information, including not only a scene being observed but also the activities of people in the scene as well as their identities and even documents they may be holding. All this information is potentially compromising both to people's privacy and to a company's intellectual property. Protecting the integrity of video data is critical when implementing video infrastructure.

A pre-integrated platform, especially one supported in the cloud, obviates many of these security concerns by reducing the number of vulnerabilities from many to one because security configurations in the cloud are handled by default. There is no need for VPN rotation, port forwarding, and inbound connections. Configurations are encrypted in transit and at rest.

Ease of Maintenance and Upgrades

Software maintenance is a major concern expressed by IDC survey participants. When multiple point solutions are used, it is harder to ensure that all the necessary updates are taking place. Further, when multiple products are involved, the potential for update incompatibility increases. As noted previously, this is a geometric problem where the number of potential connections, many of which could be broken by a bad upgrade or an incomplete upgrade, increases as a factorial of the number of point solutions. Ultimately, every interaction cannot be checked, often relegating users to beta testing a new video solution in a production environment.

A platform supported in the cloud obviates many of these concerns because updates can be handled automatically, can be done in synch across different platform functionality, and need not involve a significant amount of IT's time. Moreover, because a cloud-based platform does not depend on an extensive infrastructure of NVRs, DVRs, and servers, distribution of firmware updates is unnecessary.

Businesses are becoming acutely aware of IT overheads and are increasingly careful about adopting a new solution that imposes additional loading on IT resources. Video solutions now compete with other IT-managed applications for support, and because video data is finding an increasing utility in business planning, the number of potential users with support issues is increasing as well. Although a platform approach does not completely do away with IT support, it addresses many of the problems with which IT needs to deal.

Not incidentally, reducing the overhead associated with video and improving the user experience have significant impacts on the finances of employing video data. A platform that reduces the need to manage application upgrades and minimizes the overhead of normal support tasks can be less costly overall than a collection of point solutions. Frequently, when a point solution is upgraded, it needs to be tested before deployment to ensure that it will continue to function normally.

By employing video for business intelligence at a lower cost, video observation and other telemetric sources are now able to show a positive return on investment. As noted, platforms can reduce the cost of maintenance, which can be substantial, depending on the video applications involved. The key, of course, is to apply video appropriately.

A cloud-based platform can significantly reduce complexity and increase the efficacy of video infrastructure deployment and support. These benefits are increasingly not just nice to have but are becoming essential to conducting business. The following section discusses the reasons why.

Key Trends

The debate between point solutions and cloud-based platforms, as previously noted, is being driven by the evolving nature of telemetric data in the enterprise. Rather than simply being an aspect of physical security, video, for example, is now becoming an essential source of telemetry for business planning. However, this isn't the only dynamic that is driving the need for video and increasing the demand for an easier way to implement video technology within the enterprise.

Video and other telemetric devices provide valuable information on such aspects of a business as the condition and utilization of facilities and their security status. Additionally, sensors can monitor such things as product and parts inventory levels as well as the condition of HVAC and manufacturing equipment. Consequently, both telemetric loads on enterprise networks and the demand for VMS and video analytics applications are increasing as businesses seek solutions to make sense of all the new data. These factors lead to the second trend driving demand for better ways to manage the telemetric load: the need for a flexible response.

Hypercompetition is reducing the time between the identification of a market need and the opportunity to address that need before the competition does. This puts a premium on information that can allow a business to evaluate its options to respond. It is a situation where there truly can be no limit to the amount of information needed to support a business decision. Video technology that can be more easily deployed and upgraded is essential to acquiring the necessary telemetry.

Additionally, enterprises might have an existing video capability, but that infrastructure might be unsuited to specific use scenarios; for example, having an infrastructure that does not accommodate nonvideo sensors. In such a case, rather than upgrading an existing capability — one that might be stitched together from several point solutions — enterprises might find it more expedient to adopt a platform to address that one need and then expand that implementation if the situation calls for it. IDC research reveals that it is not unusual for a large enterprise to have several discrete video infrastructures to address differing needs. Homogeneity is not necessarily required.

Further, a trend that is upsetting much of the market is the increasing pushback on overhead investments. While 49% of survey respondents indicated that they wanted to improve their video surveillance capabilities, only 15% indicated that they would have the budget to do so. As discussed previously, these dynamics demand that businesses justify video and other telemetric sensors based on a return on investment. By enabling business process improvements, telemetric technology delivers business value, with safety and security capabilities as an essentially free by-product.

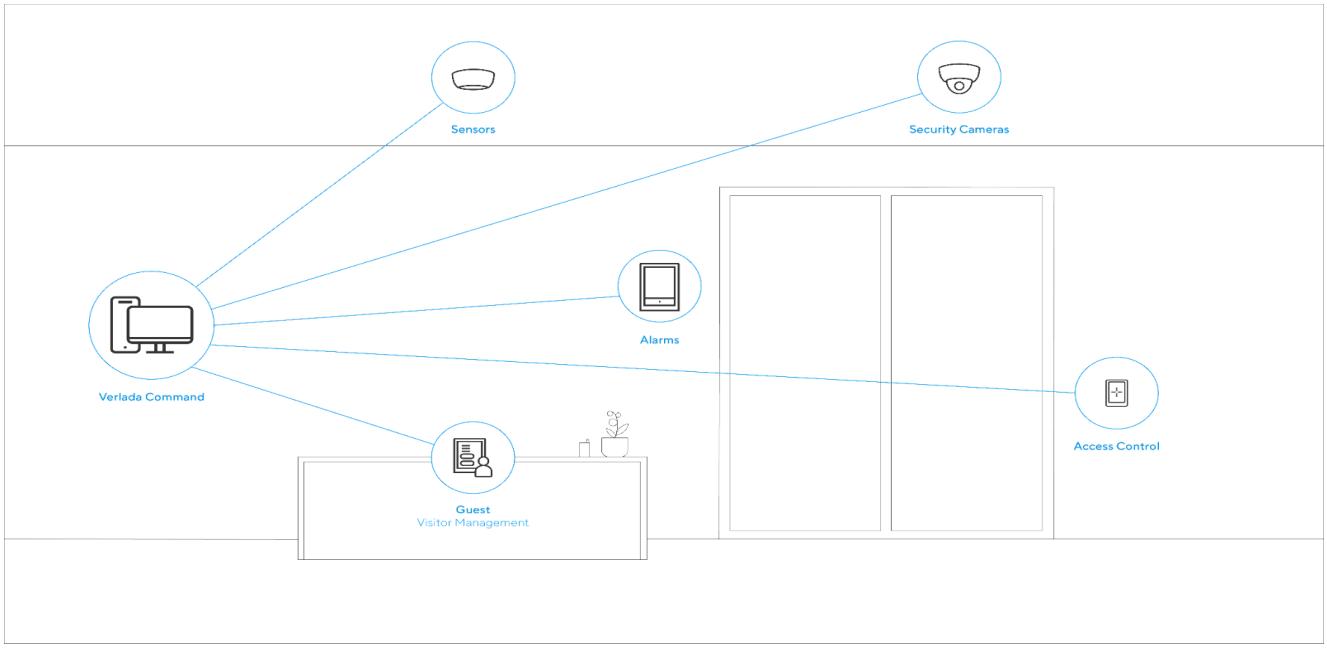
Considering Verkada

One company that has embraced the virtues of a pre-integrated cloud-based security platform is Verkada. Established in 2016 as a building security systems provider, Verkada is based in San Mateo, California. According to the company, its mission is "... to be the essential physical security software layer for every building, and the foundation of a larger enterprise IoT infrastructure. By natively integrating security cameras, door access control, environmental sensors, alarms and many more devices in one system, Verkada keeps banks, schools, hospitals, municipalities and enterprises safe while offering new insights on how their spaces are used."

Verkada has shaken up the video surveillance industry by combining video cameras, and other sensors and access control devices, with a cloud-based management platform. It has also adopted an aggressive marketing and sales approach that has forced the industry to rethink its rather conservative delivery models.

The company's approach depends on selling end devices such as cameras and access control bundled with management capabilities as a subscription-based service. This means that a Verkada installation comes complete with management and analytics capabilities delivered from the cloud (see Figure 2). While this might seem to be a somewhat insecure way of managing security, Verkada's use of encryption and the fact that much of the video data generated remains in the company's cameras for up to a year ensure that Verkada installations can be very secure.

FIGURE 2: ***Verkada Provides a Scalable Solution Based on Cloud-Based, Centralized Management***



Source: Verkada, 2022

Verkada's principal virtues involve the ease with which its solutions can be implemented, being essentially plug and play. Verkada has also been very innovative in promoting its products and cultivates an expanding network of resellers and an in-house sales organization. Multiple sales channels make Verkada very accessible to the market, and with help from a "try before you buy" approach to generating customer interest, the company has shown impressive growth since its inception. Moreover, although Verkada is a pre-integrated platform, it still can integrate third-party point solutions to address specific customer needs.

Challenges

Of course, Verkada's success has come with some associated challenges. Verkada solutions require a subscription for each device that provides the management capabilities required to operate the device.

This means that without the subscription, the device does not work. The downside is that Verkada installations are discrete and do not operate with other vendors' equipment.

As with any company experiencing such rapid growth, Verkada has made some missteps, both in its approach to sales and in its approach to data security. In several instances, these missteps have led to widely publicized compromises of the privacy of its employees and the data of its customers. In both instances, the company moved quickly to address the issues and, in fact, is now taking a market-leading role in video platform security; however, there are those in the market that still consider these missteps concerning.

Probably a more important consideration is that Verkada solutions are not inexpensive. Depending on the implementation, initial costs can be significantly higher than those of competing solutions, especially when considering the subscriptions that are required to keep its solutions operating. However, as this paper has pointed out, safety and security, not business process improvement, account for the higher cost. When those costs are considered, with lower operating and support costs as well as the potential for a positive return on investment, the Verkada solution set can be very cost effective. Verkada's challenge is to make this case to the market.

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Conclusion

Business decision makers are increasingly being asked to consider new investments to enhance physical security. They are being presented with two options: either adopt point solutions to address specific needs on an incremental basis or acquire a platform that includes a pre-integrated set of capabilities that can address many requirements but that might not be as flexible when it comes to addressing unique needs.

The virtues of point solutions are that they are likely to be tailored to a specific requirement and be less expensive on an individual basis than a platform solution. They also have the potential to evolve more quickly in response to changing market needs.

On the downside, point solutions will require integration activities to ensure that they work with existing tools, and they complicate maintenance and support activities. In the long run, point solutions can cost more when overhead functions are taken into account.

Security platforms, especially those accessed from the cloud, greatly simplify support by obviating many of the integration activities. Because the functions offered by the platform are pre-integrated, the enterprise is saved from the complexity of synchronizing software upgrades and then testing to ensure that everything works properly.

Platforms also ease the impact on users; instead of learning the UIs for multiple tools, users need learn only one UI. Although point solutions can be accessed through a common interface, this often insulates the power user from higher-level functions. A cloud-based platform provides the full capabilities of all functions without the sacrifice of performance. Further, if the platform solution offers a rich set of APIs or can do custom integrations, then integration with existing infrastructure or point solutions can still be readily achieved.

For businesses that desire to simplify the implementation and use of video and other security telemetry, a cloud-based platform approach may be the way to go. Rather than requiring businesses to devote resources to managing telemetric technology, platforms provide a way to maximize the use of those resources, providing greater value over time and enabling the application of security telemetry toward increasing revenues and lowering production costs.

About the Analyst

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Mike Jude is the Research Director for the Video Surveillance practice within IDC's Cybersecurity Products Group. Dr. Jude's core research coverage includes video market dynamics and metrics, the application of video surveillance systems within a broader security framework, and video data analysis. Drawing on his background in telecommunications regulation, data network infrastructure design, video device technology, and space imaging systems, Dr. Jude's research also focuses on the regulatory and public policy implications of widespread video surveillance.

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