

Digital Cities

Building Digital Foundation for the Cities of the Future

Open | Modular | Agile | Future-proof | Secure



Smart cities use data and technology to make better decisions resulting in a more efficient, responsive, and sustainable city that delivers better outcomes for its citizens, such as

8-15%

lower disease burden

30-300

lives saved each year in a city of 5 million

20-35%

faster emergency response times

30-40%

fewer crime incidents

15-30 mins

shaved off the daily commute

25-80 litres

of water saved per person per day

Source: "Smart Cities – Digital Solutions for a More Livable Future", McKinsey Global Institute, 2018

Dell Technologies offers a comprehensive portfolio of powerful solutions that accelerate innovation and embrace emerging technology trends. Whether it is open-source software, frictionless scalability, standardised hardware economies, predictive and preventative data services, or cutting-edge security, we offer the tools you need to start building your city of tomorrow – today.

To know how Dell Technologies' Digital foundation could help you achieve all this and more, join the virtual interactive session.



8th December, Tuesday



3.00 PM to 4.30 PM

Talk to a Digital City Expert from Dell Technologies today, to stay ahead of the curve!



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Helping to keep people, property, and the planet safer

Organizations across the globe are leveraging intelligent safety and security systems to help keep employees, customers, and the general public safe. Technological advancements in imaging sensors, video resolution, AI, and high-performance edge computing are leading to real-time actionable insights that enable organizations to respond faster and with greater precision than previously thought possible, improving safety for all.

These intelligent video analytics systems include the latest in camera sensors, compute, storage, networking, analytics, and cloud technologies. Beyond the technology framework, the true value of video analytics is realized only when sophisticated background processing combines imaging with additional data using advanced analytics as part of an organization's larger security and operational workflow. As organizations further build out their safety and security strategies, they need to consider an enterprise-integrated approach including:

- **Integration of a wide variety of sensors:** Safety and security solutions often bring together more than one type of video sensor (e.g., optical, thermal, LIDAR) with audio, biometrics, and IoT, and each component often comes with its own access management software.
- **Incorporation of security standards:** Organizations should unify their video management systems (VMS), access controls, and corporate-security workflows to gain a 360-degree point of view.
- **Storage for petabytes of data:** Data volumes from safety and security systems are increasing at a staggering 40.4 percent each year. All of this data requires the ability to process, store, scale, access/search, and secure it, aligned with industry regulations and governing laws (e.g., document retention policies for digital evidence).
- **Management of multi-cloud environments:** With data residing in multiple locations, organizations need a way to integrate, manage, and secure their data effectively across a multi-cloud ecosystem that extends from the edge to the data center to the cloud.
- **Analytics and insights tailored to your particular use case:** Data needs to be mined using advanced analytics engines with automation capabilities designed to generate insights that add operational value and deliver business outcomes specific to industry and user needs.
- **System validation:** To mitigate risks, the entire safety and security system should be validated prior to deployment to determine how distinct workloads and hardware components work together in a cohesive environment.

DELL TECHNOLOGIES SOLUTIONS FOR SAFETY AND SECURITY

Dell Technologies offerings address your unique requirements to provide a comprehensive strategy that brings together a full range of safety and security components from edge to core to cloud. Every part of the ecosystem is represented by a combination of our infrastructure, services, and industry-leading, validated partner solutions. Working with your organization, our approach will help you to mitigate risk while increasing time to value by ensuring that your safety and security solution is tailored to your business needs.

KEY BENEFITS AND VALUE

1 A robust end-to-end portfolio: Leverage our innovative portfolio from edge to core to cloud that integrates the right hardware and software to precisely suit your particular use case and can scale from point solutions to enterprise environments.

2 Lower investment risk: With Dell Technologies, your organization minimizes risk and maximizes value with our tested, optimally-configured, validated designs with best-in-class hardware and in conjunction with software partners.

3 A comprehensive, lab-validation test approach: To help deliver a solution to your organization that works from day one, Dell Technologies aligns validation standards with our partners to test hardware and software in extreme, real-world scenarios in order to reduce deployment risk.

Top Use Cases for Safety and Security Solutions

Driving results for workflows across industries

Educational Campuses	Healthcare	Sports Venues, Airports, Event Centers	Government	Energy and Manufacturing	Retail
<ul style="list-style-type: none"> • Safety and emergency response • Theft and vandalism deterrence while maintaining a positive learning experience • Investigation of incidents and identification of suspects • Campus safety including unauthorized intruder identification and entrance, exit, and corridor monitoring 	<ul style="list-style-type: none"> • Connected healthcare through onsite and remote monitoring • Bedside telemetry and hospital asset tracking • Security of authorized access/entry points • Staff and visitor safety • Virtual care sitters, pain monitoring, ER visual triage, and drug-compliance management 	<ul style="list-style-type: none"> • Venue safety and security • Enhanced attendee experience • Intelligent transportation systems to enable passenger safety and security • Air traffic monitoring • Freight monitoring 	<ul style="list-style-type: none"> • Public safety and emergency response • Body-worn systems • Transportation safety initiatives • Environmental monitoring • Public infrastructure asset management • Digital evidence and forensics • Smart city initiatives 	<ul style="list-style-type: none"> • Automation of energy distribution (electricity, gas, water), smart meters • Maintenance and field service • Manufacturing operations • Production asset management 	<ul style="list-style-type: none"> • Asset protection and loss prevention • Greater inventory accuracy and control • Omnichannel operations • NFC payment/shopping

Advancing Safety and Security Workflows

Dell Technologies Solutions for Safety and Security extend across a broad range of operational workflows in every industry, providing comprehensive safety and security for people, systems, and data.

In healthcare, for example, hospitals are leveraging integrated safety and security solutions for continuous or periodic remote monitoring of vitals regardless of patient care location—both in-facility (e.g., Tele-ICU, TeleSitting) and at home (TeleNursing). Law enforcement agencies are improving their ability to provide valid legal proof in court cases by using enhanced digital evidence and forensics. Manufacturers rely on safety and security systems to detect impending failures so that maintenance can be preemptive and managed into scheduled downtime. Still further, retail stores are able to improve asset protection and loss prevention by combining sensor data with other IoT data and advanced analytics to deliver deeper insights that can uncover criminal activities as they happen. These use cases represent just a few of the safety and security initiatives currently being deployed across every industry.

SIMPLIFIED SOLUTIONS

Making the decision to adopt a safety and security solution that scales with your organizational needs requires a trusted partner. That is precisely why Dell Technologies has taken the necessary steps to simplify and streamline your organizational deployment process with solutions that combine validated workloads for bare metal, converged, hyperconverged, and partner-supplied appliances in a scalable architecture.

Our expansive range of essential IT includes client devices and peripherals, servers, storage, converged and hyperconverged infrastructure (CI/HCI), and industry tools such as virtualization and analytics.

OUR ROBUST PARTNER ECOSYSTEM

Dell Technologies teams with best-of-breed safety and security technology partners, including ISVs, system integrators, and cloud providers, to streamline deployment and improve overall IT performance. Our extensive ecosystem of partners also helps deliver the tailored approach needed to address your business objectives, from simple video capture to advanced monitoring using multiple sensors—turning passive video into scalable, intelligent video analytics systems.

INTEGRATED, VALIDATED, AND SECURE

Dell Technologies works closely with your organization to identify key business challenges and then provides a foundation to securely connect, aggregate, analyze and transform safety and security data to impact key business outcomes. Aligning your business strategy with the right outcomes requires a scalable, comprehensive approach where processes and technology can be efficiently managed from a single location. Dell Technologies provides access to the required system building blocks from distributed locations to a centralized location. Combined with our ecosystem of SI/SO partners, we help you deploy, manage, and scale your solution as you grow—all without needing additional IT expertise.

Our solutions bring together:

- **Real-time edge compute and analytics:** Gartner predicts that by 2025, 75 percent of enterprise data will be processed at the

edge, compared to only 10 percent today.² The need to process compute-intensive workloads at the source quickly is amplified when outcomes are time-critical, as is the case in many safety and security use cases from emergency response to criminal investigations. Our Dell Technologies family of compute platforms, from gateways to high-performing servers, helps capture, analyze, and gain insights from cameras and other sensing devices for real-time data analytics and machine learning at the edge to the data center to the cloud.

- **The software-defined data center:** With Dell Technologies next-generation storage and data protection solutions, you can manage both current data and future workloads with efficiency, security, and scalability. Our Dell EMC VxRail hyperconverged infrastructure combines servers, storage, networking, and virtualization into one cloud-ready solution to achieve true application deployment flexibility.
- **Multi-cloud integration:** As you expand your safety and security capabilities using multiple cloud-native workloads, Dell Technologies Cloud combines VxRail and VMware Cloud Foundation (VCF) into one pre-engineered ready-to-run platform to eliminate silos of operation with service management, governance, security, automation, and orchestration tools. For cloud-based storage, we take a multi-cloud approach via Dell Technologies cloud service providers that leverage VCF. This capability enables customers to easily extend their storage from edge to core to cloud.
- **Secure, resilient IT:** Dell Technologies helps our customers to mitigate cybersecurity risks through our open network community. Our industry-leading hardware and partner offerings help address network complexities in an end-to-end safety and security deployment.

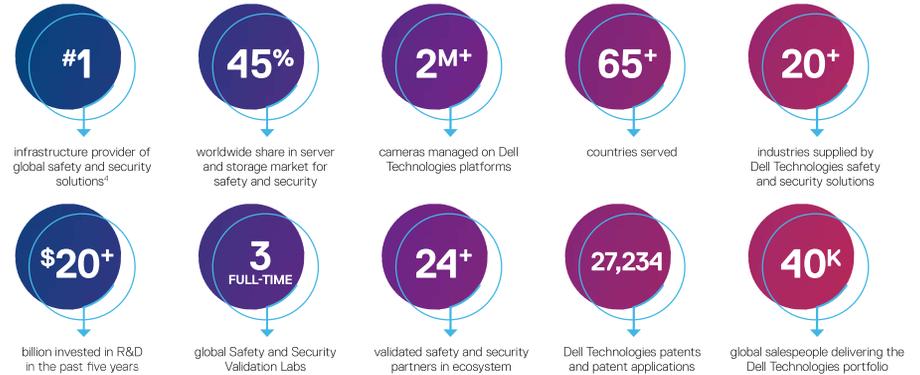
ACCESS TO ADVANCED SAFETY AND SECURITY VALIDATION LABS

At the heart of the Dell Technologies safety and security offerings is our global validation and testing labs, where reference architectures and design guides are built, implemented, and calibrated to design concepts, all in a scalable and controlled loading environment.

Validating safety and security solutions for hardware and software performance within the customer environment can be complex and time consuming. Dell Technologies Safety and Security Validation Labs are outfitted with leading technology from all major safety and security vendors, allowing the validation of best-of-breed physical security applications with the entire Dell Technologies' edge to core to cloud portfolio. These proven lab validations with key partners accompany extensive documentation to simplify deployment and reduce the risk of data loss for our customers. Our five-step validation process also helps to increase system reliability, thereby reducing overall support costs; gain a proven, repeatable architecture; obtain benchmarking results using a true production workload that produces a zero-data-loss system; test multiple ISV products simultaneously with our fault-tolerance and high-availability options; and validate virtual and non-virtual architectures.

A Trusted Partner

Dell Technologies has a long history of helping businesses create new opportunities for innovation



THERMAL VISION SOLUTIONS FROM DELL TECHNOLOGIES

Dell Technologies Thermal Vision solutions combine optical and thermographic sensors, compute, networking, and storage with artificial intelligence (AI), often as part of a larger safety and security workflow. Businesses today are leveraging thermal vision to help ensure the safety of employees, customers, and visitors to their workplace environments, such as using it to identify temperatures over and under a defined threshold at workplace entry points. If required by a public-health mandate, anonymous mask detection integration is an optional feature that can be used to detect whether employees are adhering to mask requirements as stipulated by company guidelines or to determine compliance with social-distancing mandates. A broad range of applications also extend across industries, including patient safety and queuing management in healthcare, leak and stress fracture detection in manufacturing, public safety, and more.

and law enforcement teams. With Dell Technologies, digital evidence management is simplified and centralized, enabling the storage and retrieval of needed footage across teams using an infrastructure platform that allows for the centralized single search of disparate databases in one desktop interface.

TRANSFORM SAFETY AND SECURITY WITH DELL TECHNOLOGIES

At Dell Technologies, we are committed to providing you with a fully integrated safety and security solution designed to help turn your data into data-driven decisions to drive business insight and advantage—enabling you to strengthen safety and security to help protect people, property, and your business.

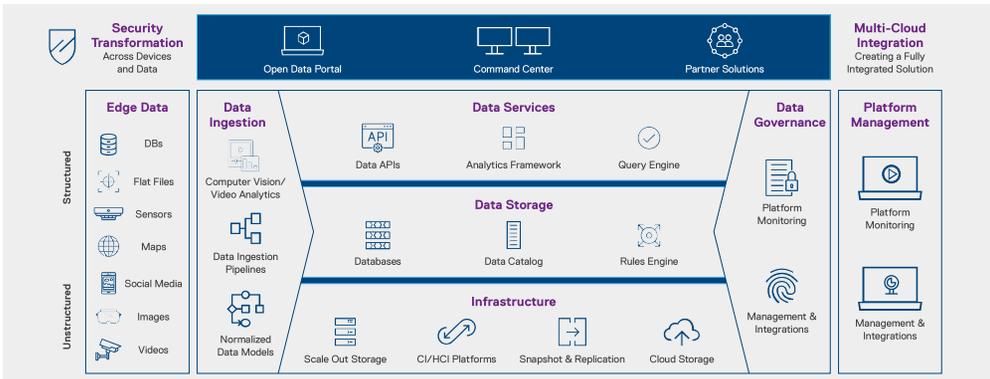
Our solutions portfolio and safety and security expertise help reduce the risk, cost, and complexity of implementation by leveraging a comprehensive solution to fit your specific industry requirements. Dell Technologies safety and security solutions offer the scalability, efficiency, simplicity, and agility to fulfill your business needs while providing real-time access to your data for analysis and deep learning. Our advisory, design, build, integration, and lab validation services help deliver the right edge-to-core-to-cloud safety and security system to meet your needs today and tomorrow.

DIGITAL EVIDENCE MANAGEMENT

The capture, storage, and retrieval of video footage for use in legal and forensics cases is becoming a challenge using traditional, manual approaches. Not only is the sheer volume and variety of data becoming overwhelming, but evidence attached to a case needs to be managed with a reliable chain of custody and kept entirely secure from tampering in order to be admissible in court proceedings. It also needs to be easily accessible to multiple users from both legal

The Dell Technologies Safety and Security Framework

Simplifying real-time insights at scale



Learn more
about our safety and security solutions



Contact
one of our safety and security experts.



Connect
with us.

1. "Enterprise & IP Storage used in Video Surveillance Report—2019," Omdia, 2019, technology.ondia.com/604184
 2. "What Edge Computing Means for Infrastructure and Operations Leaders," Gartner, 2018, bit.ly/322z3t2
 3. "Magic Quadrant for Enterprise Integration Platform as a Service," Gartner, 2019, boom.com/content/report/partner-magic-quadrant-basis/
 4. "Enterprise & IP Storage Used for Video Surveillance—2019," IHS, April 2019.

DELLTechnologies

Enhance the safety and security of your people, assets and operations

True vision to make your world smarter and safer



Dell Technologies solutions powered by Intel®



The world is changing fast. Safety and security demands are rising. Do you have a **true vision** of how to stay ahead of what is coming?

In today's dynamic world, safety and security are paramount concerns. And their demands are always rising. Are you ready? Are your systems ready? Have you yet formed a true vision of what lies ahead and how to get in front of it and stay there?

After all, IoT devices and data in safety and security systems are dramatically expanding in scope and capability. New systems must be designed and deployed for today's fast-growing data volumes. What's more, they must feed into analytics applications that organizations require for the future.

References: (1) IDC, Worldwide Global DataSphere IoT Device and Data Forecast, 2019–2023; (2) IHS Markit, Enterprise and IP Storage Used for Video Surveillance Report 2019

Future growth of data and technologies



79.4 ZB data from IoT cameras and other devices in 2025, up from 13.6 ZB in 2019¹



41.6 billion IoT devices by 2025 – 75% growth over 2019¹



Multitude of sensor data including audio and environment



Longer retention times



16.2% annual growth in safety and security cameras and drones¹



New use cases and devices



40.4% CAGR in enterprise safety and security data driven by:
Higher-resolution cameras²

- Full HD 1920x1080 – 12.7GB/hour
- 4K 3840x2160 – 110GB/hour
- 5K 5120x2160 – 256GB/hour
- Full 8K 7680x4320 – 4.4TB/hour

More data doesn't just require more storage; it also requires more performance and reliability

As you add cameras and upgrade to higher resolution video, you need to expand your storage, too. But that's not all. You also need to ensure that your systems can handle the additional workloads with the right network bandwidth, processing overhead and other capacity adjustments.

More and more, safety and security data must integrate with IoT data and be enhanced with artificial intelligence and machine vision at the edge to deliver a true vision in real-time of the situational landscape.

Legacy safety and security systems have fallen behind

The days of DVR-like systems are long gone. Security is now a data challenge and demands the same IT-grade systems other business systems and applications leverage.

In fact, legacy systems can obscure if not obstruct a true vision of safer, more secure surroundings. That's because they have too many disparate parts that are hard to deploy, configure and manage. They're hard to scale efficiently and without disruption. And system downtime caused by component failures can create vulnerabilities that can result in lost data and risk non-compliance.

It's time for a new, true vision for your organization's safety and security... **it's time to act now**

Is waiting to deploy a true vision of advanced, highly protective safety and security in your environment an option? Of course. But costs and risks can mount by the day.

Instead, by acting now on a true vision of your organization's safety and security future, you can contain rising infrastructure management costs; close vulnerability gaps; expand growth options; ensure and enhance compliance; and take advantage of innovative use-case opportunities.

On the following pages, you can learn more about the Dell Technologies IoT Solution for Safety and Security. It's simple, easy to deploy, manage and scale. And it can provide you with a true vision of how to better safeguard your organization's people, assets and operations.

Today's safety and security requirements



Emergence of New Devices



Higher Pixel Resolution



Increase in Device Count and Retention Times



Need to Integrate Safety, Security and IoT Data



Artificial Intelligence and Machine Vision

Our true vision is simple:

A tested, pre-validated and hyperconverged solution with flexible storage choices that make it easy to deploy, manage and scale

The Dell Technologies IoT Solution for Safety and Security enables a true vision of security, environmental and operational conditions, so organizations like yours can maintain the integrity of their assets and innovate.

As an example of how true vision relates to innovation, consider how you can take computer vision to the next level.

Most industry professionals consider the term as describing the ability of computers to identify objects and features in video and images, via specialized APIs from the leading cloud platform providers.

But if you apply artificial intelligence and machine learning, computer vision can evolve beyond pinpointing objects and attributes towards understanding and interpreting them. You can transcend human limitations to achieve better security and operate from a background of data insight, possibly even predicting events before they happen.

An engineered solution, based on hyperconverged and storage platforms, **purpose-built for video safety and security use cases**

In fact, with the Dell Technologies IoT Solution for Safety and Security, we've simplified how you can achieve your own true vision for safeguarding what matters. It combines server, storage, networking and virtualization resources in an all-in-one, highly automated, available and scalable appliance—backed by global service and support.



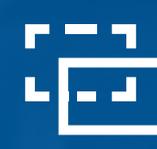
Server



Storage



Networking



Virtualization



Global Services

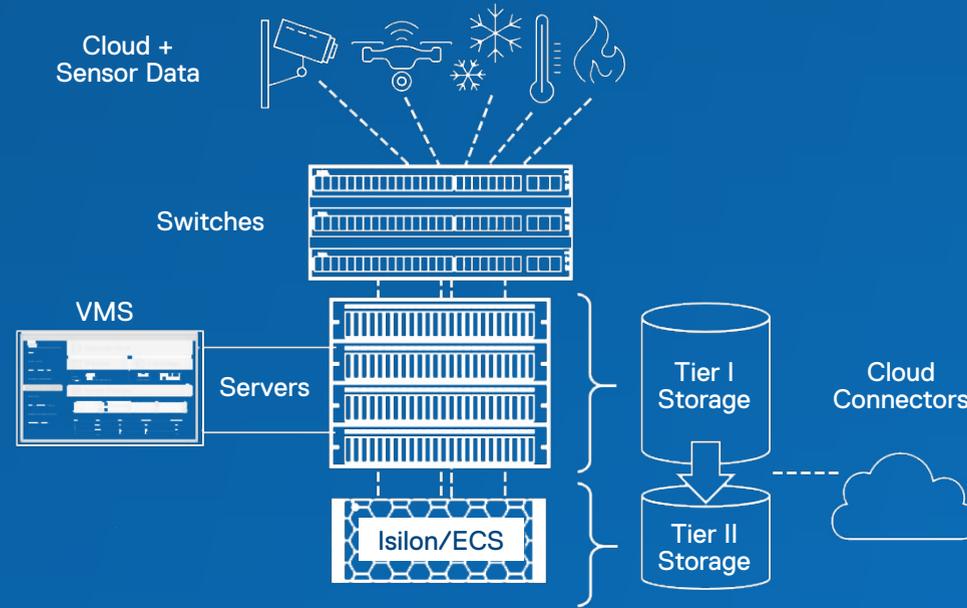
It offers automated installation and configuration of the video management system infrastructure of your choice and the corresponding software and hardware without any specialized IT support. This reduces the installation time from days to hours.

Application areas for the IoT Solution for Safety and Security:

- Airports
- Campuses
- Conference and Event Centers
- Healthcare
- Law Enforcement
- Malls and Shopping Centers
- Military
- Smart Cities
- Stadiums

A Fully Virtualized Solution

VMS and analytics tools operate as VMware virtual machines inside a scalable integration of pre-defined appliance server nodes, based on the Dell EMC VxRail appliance, the industry's leading HCI solution.



Benefits of the Dell Technologies IoT Solution for Safety and Security

- Fast, easy setup
- Easy single-console management
- Automated features and operations reduce labor/errors
- Greater operating visibility
- Streamlined data management
- Fast, easy scalability of computing power and storage capacity without disruption
- High availability for peace of mind
- Small footprint saves space
- Easier, less costly and risky compliance with data privacy standards
- Future-proofed with an automated upgrade process



Consider how our **true vision of safety and security** can enhance your organization's safeguards and continually monitor your situational landscape for potential threats in real time

Dell Technologies offers you a true vision to enhance the safeguarding of your organization's people, assets and operations in the sense that you can see, collate, analyze and report on your visual data from IoT-connected cameras. You can combine that data with evidence from your security systems to better protect your organization and plan for its future.

We also offer you a true and effective vision for how you can accomplish this. Specifically, we offer technologies and best practices that enable you to take advantage of virtualization and storage technology, streamline deployment with orchestration and automation, and rely on the solution's scalability to support current and future use cases.

And it all comes as a simple, turn-key true vision solution, the Dell Technologies IoT Solution for Safety and Security.

The solution combines the world's #1 server platform, #1 storage platforms and #1 virtualization software to create an all-in-one pre-validated and pre-defined appliance specification, optimized for safety and security, validated by experts in our global security labs, and wrapped in global services and support.



Integrated Solution:

Robust and proven solutions from the Dell Technologies portfolio—integrated into a single appliance.



Automation:

Reduce time-to-value with automated deployment options and repeatable, best practice-driven, fully supportable configurations.



Trust:

Unwavering attention on solution validation to meet your safety and security needs.



Transparency:

Simplify management with complete visibility of all resources and functions in the solution environment in a centralized console.



Scalability:

Take advantage of scalability to future-proof the solution for expanding requirements and new use cases.

The pre-validation step is especially critical: it means our experts have validated and certified under real-life workloads — in partnerships with leading video management system (VMS) vendors — to ensure their applications work and do so at scale with high availability and resiliency.

The Dell Technologies IoT Solution for Safety and Security can help you achieve a true vision of advanced protections for your organization. Then, as your organization evolves, your needs change or new use cases become actionable, you can consider us your security and analytics expert partners.

True vision automated— to simplify deployment and reduce errors and risk

Built-in automation differentiates the Dell Technologies IoT Solution for Safety and Security from other integrator's solutions or do-it-yourself approaches.

It helps you reduce deployment times, lower risks and ensure the right outcomes. You don't need to spend laborious weeks with manual installations and configurations.

What's more, you have reduced reliance on specialized IT skills to install or scale the solution. We provide the right orchestration and automation tools to install and configure core VMS elements in the solution.

For example, to set up the Dell Technologies IoT Solution for Safety and Security, just answer a few simple questions and the environment preparation, VMS installation and configuration are underway. The solution's many automated processes incorporate best IT practices for VMS deployments. The deployment process is repeatable. You can easily add workloads by deploying additional virtual machines—within minutes.

Compared to manual methods, research has shown that automated processes are easily improved and more adaptable to changing requirements, than manual ones.¹ In fact, according to Gartner, intelligent automation will replace more than half of current manual operational tasks in infrastructure managed services by the end of 2020.²

Automation's key benefits



Intelligent software automation typically results in a cost savings ranging from 40% to 75%.³



The time savings you get from automation will allow you to focus on better customer service or business growth.



Automated processes are more easily improved and more adaptable to changing requirements, than manual ones.



According to Gartner, by the end of 2020, more than 50% of current manual operational tasks in infrastructure managed services will be replaced by intelligent automation services.²



By 2021, intelligent automation will generate an additional 20% savings over what is achievable today.²

But important additional types of automation savings come from the removal of risk, the avoidance of human error by removing manual steps and the advantages of being able to conduct processes in parallel instead of sequentially. In turn, those processes are predictable with consistent results.

By offloading manual tasks to automation, IT staff are freed up for more strategic and value-adding projects. They can focus more of their time and energy on customer and business growth activities instead of tedious manual tasks.

References: (1) 6 Benefits Digital Process Automation Brings To Your Organization, Armedia Blog, June 2018. (2) Gartner's IT Automation Predictions for 2020, December 2019, IT Automation without Boundaries blog, Brian McHugh (3) How Much Is Intelligent Automation Saving You?, September 2017, David Kirk, Managing Director, Digital Labor/Robotic Process Automation, KPMG LLP

True vision validated—to meet your needs for reliable performance, resiliency and high availability

Our three safety and security labs, located around the world, are staffed with experts who continually evaluate and validate the design, engineering and manufacturing processes behind our Dell Technologies IoT Solution for Safety and Security portfolio. These facilities distinguish us in the industry.

Stringent validation and testing in our labs ensure the solution delivers on its performance specifications before deployment. After all, validating the solution's hardware and software performance within customers' environments can be difficult and time-consuming, not to mention costly.

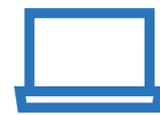
Validating performance and resiliency before deployment ensures performance and resiliency after deployment

Dell Technologies labs are outfitted with technology from major security vendors, allowing our experts to validate that their best-of-breed physical security products and VMS applications interoperate flawlessly with our IoT Solution for Safety and Security. Plus, our global lab network puts our resources within your reach, wherever you are.

We conduct our performance benchmarking by using a true production workload that establishes a baseline configuration for system business continuity. We simultaneously test multiple ISV products with our fault-tolerance and high-availability options.

In fact, we test to ensure the solution works under the most challenging situations. For example, we make sure our solution continues to run during NIC failures and carries on capturing data when drivers are replaced and RAID arrays are rebuilt. We aim for benchmarking results under realistic, challenging production camera workloads, proving the solution can function during component failure scenarios.

Extensive, validated partner solutions



Virtualization



Security



Video Surveillance Management Software



Applications



Analytics





True vision centralized—for insights and manageability

With the Dell Technologies IoT Solution for Safety and Security, you can monitor its operational health from one centralized web interface console.

A quick visual assessment of the health of individual components is provided with green, yellow or red indicators. If marginal performance is detected, alerts can be triggered, so a problem can be diagnosed and remediated before a disruption occurs. It also provides for the management of the solution's environment, including servers, storage, network and virtual machines. For example, you have direct access to the Dell EMC PowerEdge server's iDRAC Manager and VMware's ESXi Manager for further diagnosis or action. And, importantly, both tools provide remote access, too.

Centralized management also saves time and reduces the effort of managing and load-balancing cameras, LUNs, volumes or other components. The console is easy to understand and designed for use by an operations team.

Global support and services throughout the solution lifecycle

The IoT Solution for Safety and Security is not a stand-alone product. It comes with global support and services from Dell Technologies throughout the lifecycle of the appliance, as you develop and refine your security practice.

That begins with advisory input during your scoping and planning from Dell Technologies service teams, who help you implement the solution quickly and reliably, and put it into production. They ensure that the solution interoperates with the other technology elements in your data center and network.

Post-deployment, we can assist you in extending the solution to other use cases, help you scale and adjust its configuration as your needs change.

True vision deployed: Not just to protect, but to predict—with artificial intelligence, machine learning and advanced analytics

We can also help you put artificial intelligence, machine learning and advanced analytics to work for you, not just to protect against adverse events and intruders but to predict their occurrence. That is true vision at work—it's transformational.

By extending the solution's IoT capabilities with these capabilities, you can broaden the reach and deepen the insights of your situational landscape, all based on data. This can allow you to find unique, innovative ways to answer questions about vulnerabilities, their mitigation and appropriate responses.

The professionals on our security and analytics teams are seasoned industry experts, possessing years of experience before joining Dell Technologies

They understand your perspectives and challenges, having successfully addressed comparable issues in many different organizations in a wide variety of industries. They know that every customer's business is different, even if some of the challenges may resonate across an industry.

We keep support simple, with one main point of contact to take care of your needs and to help you navigate our vast global resources or get specialized team members to collaborate with you.

We put true vision in your hands, so you can put it to work for your organization and better safeguard your people, assets and operations.

True vision worldwide: Count on Dell Technologies to deliver a trusted, high-performance and scalable IoT safety and security solution wherever you are

Dell Technologies is a world leader in advanced IT infrastructure, virtualization and security with global service and support to match. That's why top brands across various industries rely on Dell Technologies IoT Solution for Safety and Security.



World's #1 safety and security infrastructure provider¹



#1 server², #1 virtualization³ software with #1 storage platforms⁴



Full range of VMware product/capabilities integration



Safety and security validation labs



Global support and services reaching 65 countries over 20 industries



Dedicated teams of engineers, technical consultants and workflow experts

Our global service and support is available 24x7x365 with coverage across 65 nations in more than 20 industries. Chances are good that we're not only where you are, but we know your industry, too.

Engineered for Choice | Architected for Change | Designed for the Future

Want to find out more? We invite you to contact your Dell Technologies representative complimentary consultation. Or, visit our website for more in-depth information on the Dell Technologies IoT Solution for Safety and Security

References: (1) Enterprise and IP Storage Used for Video Surveillance, October 2018, IHS Markit (2) IDC WW Quarterly x86 Server Tracker, 2018Q4, Mar. 6, 2019 – Units & Vendor Revenue (3) Network World, Feb. 20, 2019. <https://www.networkworld.com/article/3340259/vmware-s-transformation-takes-hold.html> (4) IDC's 4Q2018 Worldwide Quarterly Converged Systems Tracker, April 2019. IDC Hyperconverged Systems Market Share by Software Owner

DELL Technologies

IoT Solution for Safety and Security Enterprise-ready, hyperconverged infrastructure solution

For more information, visit DellTechnologies.com/IoT-safetysecurity-solution

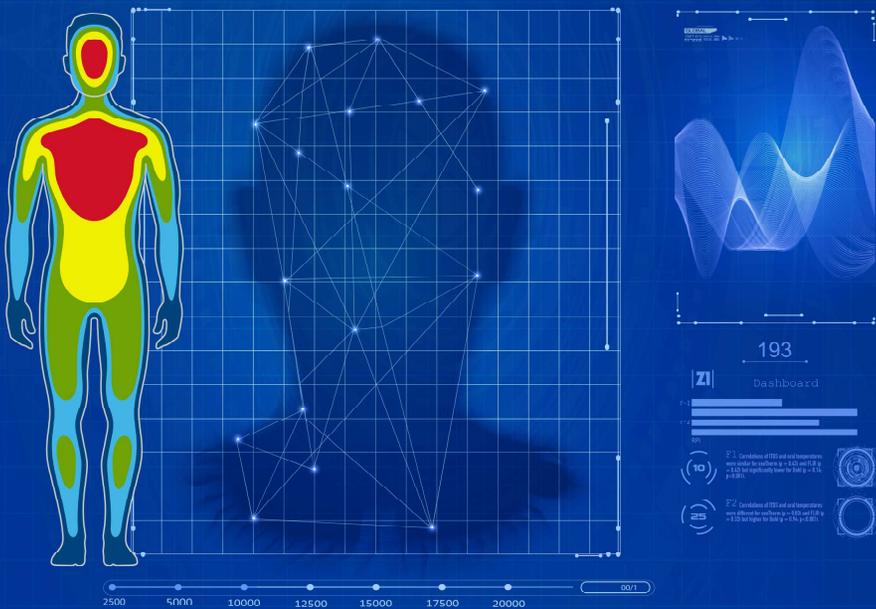


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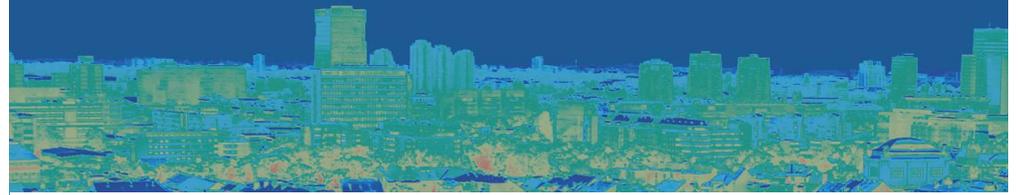


Combining the power of thermal vision and artificial intelligence to enhance safety and security

INTELLISITE THERMAL VISION SOLUTIONS, BUILT ON DELL TECHNOLOGIES



Helping to keep people, property, and the planet safer



Thermal vision: enabling security and safety / computer vision transformation across industries

Thermal imaging technologies have been utilized by organizations across a variety of industries for multiple years. The deployment of these capabilities has been beneficial where there is a need to provide visibility in low light, such as for perimeter security in poorly lit areas. Recent advancements like the miniaturization of infrared sensors coupled with edge computing and advanced analytics, however, have brought these capabilities to the forefront.

In just a short time, we have witnessed the rapid evolution of **thermal vision**—the combining of optical and thermographic sensors with artificial intelligence (AI) to monitor and create alerts on variances in temperatures to a baseline above or below acceptable thresholds, as defined by the end-user organization.

Expanding your safety and security platform with thermal vision capabilities is much more than just acquiring an off-the-shelf thermal camera with a data-collection system. The true value of thermal vision is realized when sophisticated background processing combines thermal data with other structured and unstructured data using advanced analytics as part of an organization's larger security or operational workflow. There are a variety of applications across industry use cases creating new opportunities for your organization to deliver insights mapped to your business objectives. Automated alerts can be built into systems according to business and customer needs ranging from measuring social-distancing adherence to identifying weaknesses in oil pipelines to monitoring combustion from a jet engine to assisting organizations and consumers returning on site.

What's driving the accelerated adoption of thermal vision?



Meeting potential public health requirements



The needs of businesses looking for new tools to return to onsite activities



Increasing demand to streamline screening at airports



Rising government investments in smart building technologies



Expanding use of thermal scanners in the manufacturing industry

Dell Technologies Smart Infrastructure



ROBUST SOLUTION PORTFOLIO

Leverage our robust product portfolio that provides the right hardware and software to precisely suit your particular use case and can scale from mobile solutions to enterprise environments. Dell Technologies provides essential infrastructure to power the complex requirements of the IntelliSite Thermal Vision solutions—from edge to core to cloud.



LOWER INVESTMENT RISK

With Dell Technologies smart infrastructure, your organization minimizes risk and maximizes value with our tested, optimally configured, integrated designs built with best-in-class hardware and in conjunction with software partners.



COMPREHENSIVE, LAB-VALIDATION TEST APPROACH

To help deliver a solution for your organization that works from day one, Dell Technologies aligns validation standards with our partners to test hardware and software in extreme, real-world scenarios in order to reduce deployment risk.

THERMAL VISION IN THE WORKPLACE

Taking a proactive approach to workplace safety and security

Ensuring the safety of employees, customers, and visitors to your workplace environment is paramount to resuming and then continuing normal business operations. By leveraging IntelliSite Thermal Vision solutions built on Dell Technologies, employers can institute organizationally defined measures that help improve safety and security for all, such as using it to identify temperatures over and under a defined threshold at workplace entry points. If required by a public health mandate, anonymous mask detection integration is an optional feature that can be used to detect whether employees are adhering to mask requirements as stipulated by company guidelines or determine compliance with social-distancing mandates.

THERMAL VISION USE CASES ACROSS INDUSTRIES

Healthcare: Patient safety, staff security, queuing management

Retail: Staff safety, supply-chain security

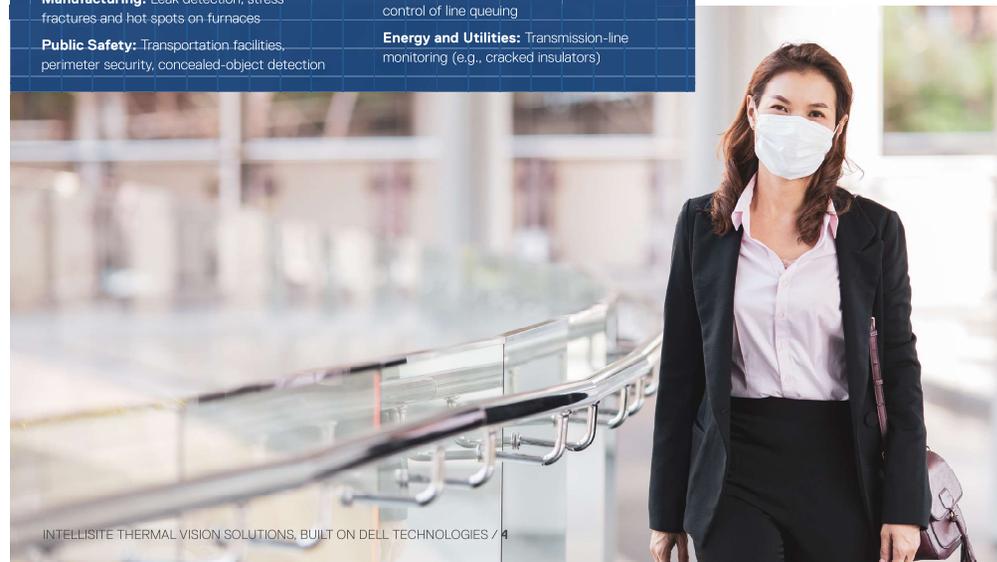
Manufacturing: Leak detection, stress fractures and hot spots on furnaces

Public Safety: Transportation facilities, perimeter security, concealed-object detection

Smart Buildings/Entities: Chiller analysis, insulation, effectiveness/leakage

Hospitality and Entertainment: Customer safety at theme parks, concerts, theaters; control of line queuing

Energy and Utilities: Transmission-line monitoring (e.g., cracked insulators)



INTELLISITE THERMAL VISION SOLUTIONS, BUILT ON DELL TECHNOLOGIES

Rethinking safety and security / computer vision in a changing world

Making the decision to adopt a thermal vision solution goes beyond just adding a camera and simple data storage. IntelliSite Thermal Vision Solutions, built on Dell Technologies, simplifies and streamlines your organizational deployment process.

The offering simplifies how thermal imaging technology is delivered to help organizations evolve

to meet changing business objectives by improving security and realizing value from their investments more quickly.

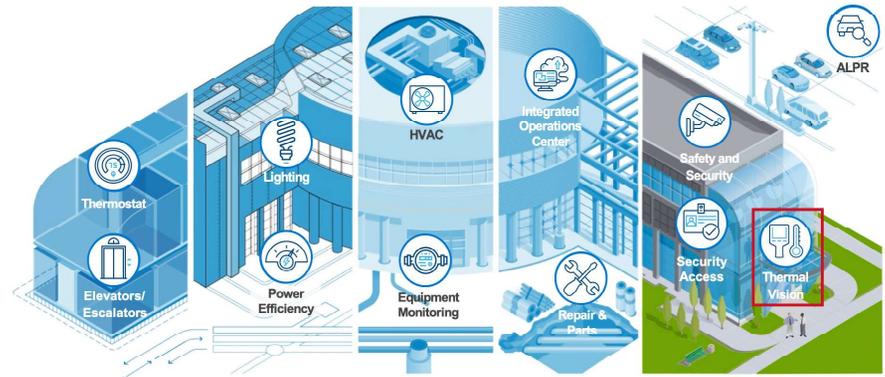
Dell Technologies offers an expansive range of essential infrastructure from computers, monitors, servers, and storage solutions to safety and security appliances and analytics infrastructure. Dell Technologies also partners with camera providers, video-management software (VMS) ISVs, and AI solutions providers to streamline deployment and improve overall IT performance.

INTELLISITE THERMAL VISION SOLUTIONS, BUILT ON DELL TECHNOLOGIES

 Thermal Cameras	MOBOTIX M16 Dual Lens, FLIR A400, and Omnisense Systems* (other Thermal Vision partner-validated options available)
 Analytics and Management Tools	IntelliSite, Deep Vision AI (other Thermal Vision partner-validated options available)
 Client Devices	Dell workstations, laptops, and monitors
 Peripherals	Carts, uninterruptible power supplies (UPS), camera mounts, networking, and associated services
 Converged Infrastructure (CI) / Hyperconverged Infrastructure (HCI)	Dell EMC CI with Virtualized Server Density Solution Dashboard, Dell EMC HCI with Integrated VMware vSAN All Flash / Hybrid Shared Storage Solution Dashboard
 Storage Options	Structured Storage: Dell EMC PowerStore, Dell EMC PowerVault Object Storage: Dell EMC ECS Object Storage Unstructured Storage: Dell EMC PowerScale Portfolio
 Safety and Security Appliances	VMware and Dell EMC bare-metal and virtualized options
 Analytics Infrastructure	Dell PowerEdge XR2, Dell PowerEdge C4140, Dell PowerEdge R740, Dell EMC High Performance Compute (HPC) Bundles, NVIDIA, Intel®

*FLIR A 400 (510[k] cleared), MOBOTIX M16 Dual Lens (510[k] pending)

THERMAL VISION IS PART OF A SMART ENTERPRISE INFRASTRUCTURE



DELL TECHNOLOGIES SAFETY AND SECURITY LEADERSHIP

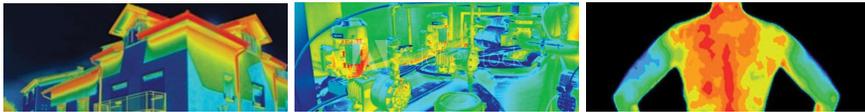
#1 infrastructure provider of global safety and security solutions ¹	20+ industries supplied by Dell Technologies safety and security solutions
45% worldwide share in server and storage for safety and security ¹	50 Solution Centers worldwide

INTELLISITE THERMAL VISION SOLUTIONS, BUILT ON DELL TECHNOLOGIES / 5



Dell Technologies: Your essential partner for accelerating digital transformation

IntelliSite Thermal Vision solutions, built on Dell Technologies, incorporate your customer requirements while creating new opportunities for innovation and changing business objectives.



✓ Dell Technologies is committed to responsible business practices and to high standards of ethical behavior, including the ethical use of data and compliance with applicable laws and regulations. This includes holding our partners to high standards of excellence as defined in governing laws, recognized international standards and conventions, and global best practices. Our partners also embrace Dell Technologies' commitment to integrity, accountability on high ethical and compliance standards, maintaining a culture that embraces diversity and inclusion as well as respecting cultural differences. [Read more.](#)

✓ In today's always-on, always-connected economy, businesses are under pressure to enhance their cybersecurity strategies and prove to their customers that data protection is critical to their customer-engagement strategies. As the world economy continues to digitize operations, supply chains, business transactions, and employee and customer services, cyberattacks are expected to continue. Dell Technologies provides end-to-end cybersecurity solutions to protect businesses from threats—enabling them to safely leverage ecosystems, maintain operational resilience, and build stakeholder confidence.

DELL TECHNOLOGIES CAPABILITIES

As the #1 global infrastructure provider for safety and security,¹ we combine industry-leading partner components with best-in-class computer vision technology into a seamlessly integrated ecosystem.

Our validation capabilities and lab-testing processes reduce business risk and help you accelerate your digital transformation.

Your solution is tailored and scalable to your exact needs, size, and scope—with enterprise and centralized configurations complemented with optional mobile and advanced mobile kits.



Driving safety and security transformation through innovation

To help ensure the safety and security of employees, customers and visitors to your organization's environment, we provide smart infrastructure and computer vision solutions from the edge to the core to the Cloud, aligned with our robust partner ecosystem.

Our solutions portfolio and computer vision expertise help reduce the risk, cost, and complexity of implementation with a comprehensive solution to fit your specific industry requirements. IntelliSite Thermal Vision Solutions built on Dell Technologies offer the scalability, efficiency, simplicity, and agility to fulfill your business needs while providing real-time access to your data for analysis and deep learning. Our advisory, design, build, integration, and lab validation services help deliver the right edge-to-core-to-cloud thermal vision system to meet your needs today and tomorrow.



Learn more about our safety and security solutions



Contact one of our safety and security experts.



Connect with us.

1. IHS "Enterprise & IP Storage Used for Video Surveillance - 2019", April 2019

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