DELL Technologies

How to combat modern cyber threats

with integrated endpoint security & manageability

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Executive summary

Emerging attack vectors are creating new risk. Stay ahead of modern endpoint threats with multiple layers of defense that work together. Learn how hardware telemetry can integrate with software to improve fleet-wide security and manageability. Disrupt attacks faster, support zero trust principles and innovate securely with simple-to-manage devices and solutions.

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The threat landscape

Case study

In 2023, Eclypsium discovered a flaw in the firmware of motherboards sold by a Taiwanese manufacturer. Intended simply to keep the firmware updated, researchers found that the code was implemented insecurely, potentially allowing the mechanism to be hijacked and used to install malware.

A few reasons why this discovery was particularly terrifying

- Customers were exposed via a firmware vulnerability.
- The vulnerability existed in an area of the device where, traditionally, it has been hard to detect threats.
- It could be used to launch a remote attack that bypassed credential checks.

Ripped from the headlines…

The threat landscape

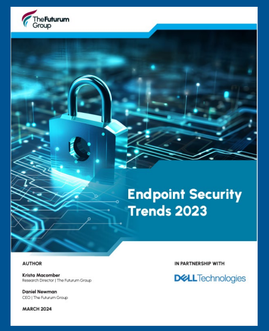
Implications

That's what's keeping IT and Security up at night:
Device-based attacks.

These sophisticated, malicious attacks can allow adversaries to gain privileged access. What's more, many of these can turn off software-only protections, e.g., antivirus, completely undetected.

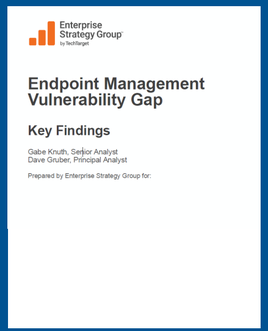
According to a recent global survey of IT and security professionals[1], as organizations source new hardware, among their top evaluation criteria:

Automating detection of BIOS firmware events



Sixty-nine percent of organizations reported at least ONE device-level attack in the last twelve months. That's up 1.5 times from the 2020 study![2]

High-risk configurations



More than 75% of organizations report that they have experienced at least one cyberattack caused by an unknown, unmanaged, or poorly managed endpoint device.[3]

Challenges

So, what makes a device an easy target?

Visibility

These attacks are hard to see – executed at a part of the device that's traditionally lacked visibility and observability.

Actionability

Often organizations have dozens of tools in place that operate in siloes – so if an attack is detected, swift response and remediation is a major challenge and a lot of manual work.

Solution

Visibility | **Actionability**

As one of the world's largest technology providers, Dell thinks about security a lot. That's why **we build our commercial PCs to prioritize visibility and actionability right out of the gate**. This puts power in the hands of IT and security operations.

Our commercial PCs come with **unique built-in security features** like BIOS Verification[4,5] and Indicators of Attack[4,5] to help detect threats before they do damage. We make these detections visible with **Dell-only device telemetry**[4]. When a Dell commercial PC on Intel vPro® detects a potential threat at the device level, it can-send that to the operating system for faster, more effective investigation and response

Industry Leadership

Dell offers the World's Most Secure Commercial PCs[4,5]

Learn what it takes to maintain device trust against modern threats.

Read the Principled Technologies Study on Device Security →


Principled Technologies®

A Principled Technologies report: In-depth research. Real-world value.

A comparison of security features in Dell, HP, and Lenovo PC systems

Approach

Dell™ commissioned Principled Technologies to investigate 10 security features in the PC security and system management space:

- Support for monitoring solutions
- BIOS security and protection features
  - Platform integrity validation
  - Device integrity validation via off-site measurements
  - Component integrity validation for Intel® Management Engine (ME) via off-site measurements
  - BIOS image capture for analysis
  - Built-in hardware cache for monitoring BIOS changes with security information and event management (SIEM) integration
- Microsoft Intune management
  - BIOS setting management integrations for Intune
  - BIOS access management security enhancements for Intune
- Remote management
  - Intel vPro® remote management
  - PC management using cellular data

These features rely on manufacturer-enabled communication between the hardware and the operating system (OS). We reviewed publicly available marketing claims and feature documentation for three Windows original equipment manufacturers (OEMs): Dell, HP, and Lenovo®. Many of the Dell features relate to the Dell Trusted Device application.

In this report, we indicate that an OEM supports a given feature if its published materials mention that feature is present. We have done our best to determine which features each OEM supports, using a variety of search terms and brand-specific phrasing to locate features. Some of the features we mark as being absent might be present but not covered in the OEM marketing or documentation. It is also possible that, despite our best efforts, we missed or overlooked some features that the OEM marketing or documentation does address.

We completed no hands-on validation of any of the features we discuss below. Therefore, we cannot verify the functionality, scope, or reliability of these features. We do not cover system requirements or any licensing, services, or additional hardware or software that might be necessary to use the features.

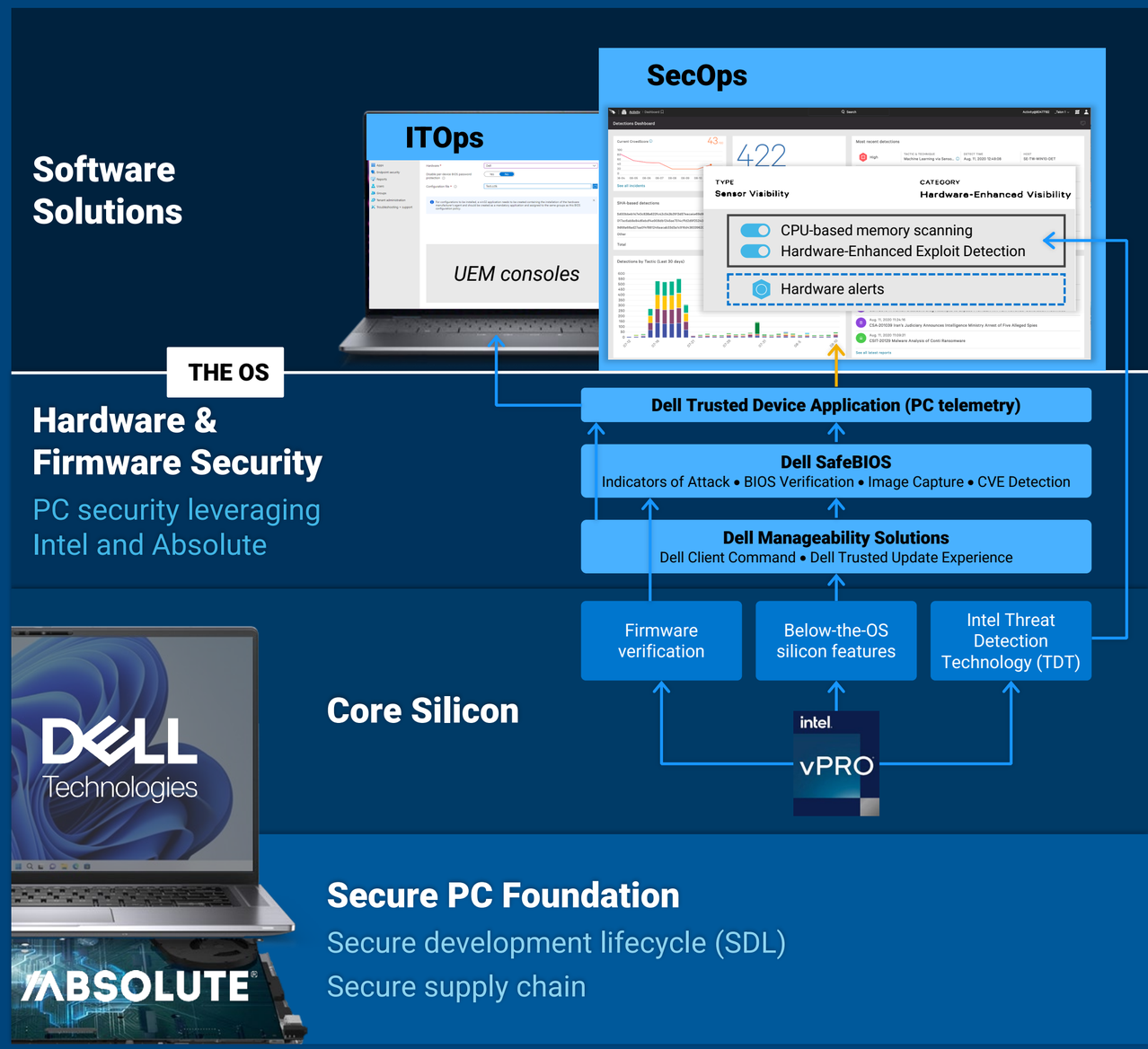
Solution

Combat threats with security & manageability working together

Dell and our connected partner ecosystem are working to bring visibility and actionability to the workspace. This includes:

- Supply chain security and built-in hardware and firmware defenses from Dell
- Core silicon and 'below-the-OS' protections from Intel
- Manageability via Dell and unified endpoint management consoles
- Advanced threat protection from, e.g., Absolute, covering endpoints, networks and the cloud

The ecosystem uses PC telemetry as the connector, helping close the gap between IT and security solutions where threats can slip through. Not only can this approach help prevent attacks, but it can also detect, respond to, recover from, and remediate them.



Use cases & countermeasures

To demonstrate how integrated security and manageability works to improve cyber resilience, we will look at two use cases including attack scenarios and countermeasures.

First, an attack on the BIOS firmware. Here, we see how the cyber kill chain[6] of a BIOS downgrade attack can play out.

BIOS downgrade attack

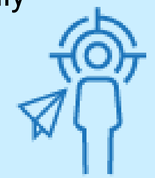
Initial Access: Replication Through Removable Media + Phishing

Step 1a

Malicious insider exploits an existing BIOS vulnerability to steal OS credentials remotely. Hacks device and downgrades BIOS.

Step 1b

Attacker initiates a spear-phishing attack. Steals a session token when an admin mistakenly authenticates on a malicious site.



Step 2

Credential Access

Attacker achieves persistence by creating additional admin accounts and proceeds to move about the network.

Step 3

Lateral Movement

Attacker maps the network and locates system management servers.

Step 4

Exfiltration

Attacker exfiltrates data over a web service.

Use cases & countermeasures

BIOS downgrade countermeasures

Adversaries are breaking into the network faster than ever before. In fact, in 2023, the average eCrime breakout time (the time it takes to break into a system and move laterally) decreased from 84 minutes in 2022 to 62 minutes. The fastest observed breakout time was only 2 minutes and 7 seconds![7]

Here's how Dell and our partner Intel® help to catch and repel a BIOS downgrade attack along the kill chain.

Prevent | **Detect & respond** | **Recover & remediate**

Secure supply chain: Rigorous controls safeguard PCs from design and development, through sourcing and assembly, on through delivery. Dell and Intel work tirelessly to ensure products are developed to mitigate the risk of product vulnerabilities and product tampering throughout their lifecycle.




Security	Integrity	Quality	Resilience
• Secure development lifecycle • Software partners securely onboarded • Information exchange with partners securely • Quality Process Audit • Separation of Duties • Least Privilege Access	• Supplier accountability • Supplier due diligence • Piece-Part Identification • SAFECode • US Exec Order 14028 SBOM -SPDX	• Counterfeit prevention & detection • Enhanced manufacturing security program • Enterprise code signing • Secured Component Verification • Freight Tracking	• Silicon Root of Trust • Platform Firmware Resiliency Guidelines • BIOS Protection Guidelines • Built-in Supplier Redundancy

Use cases & countermeasures

BIOS downgrade countermeasures

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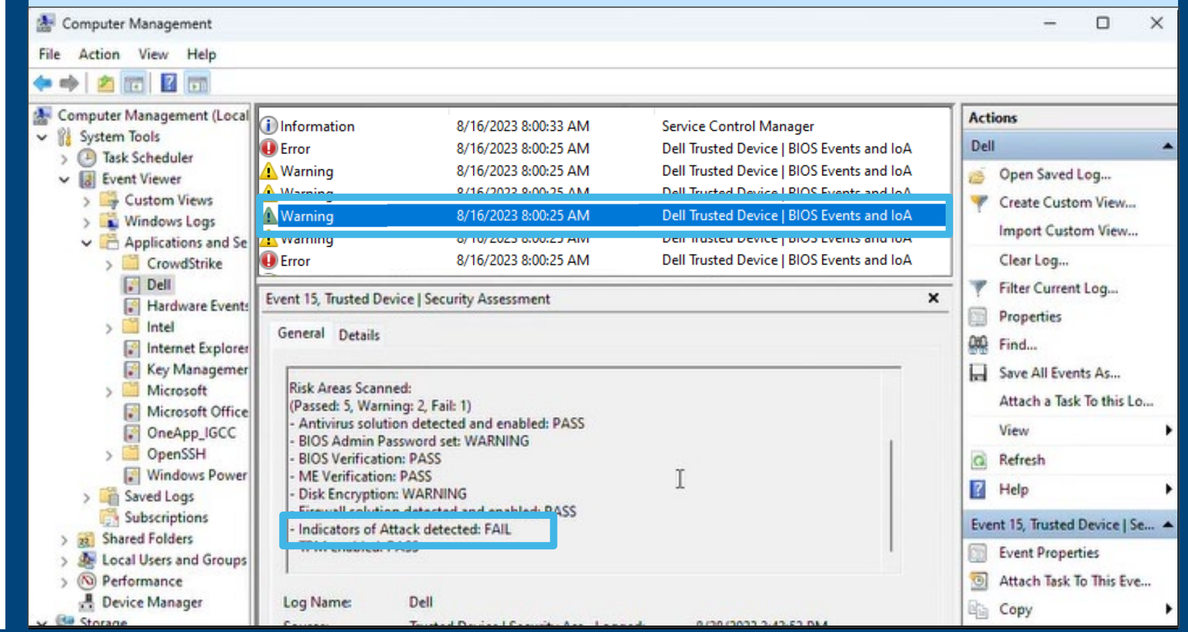
Prevent | **Detect & respond** | **Recover & remediate**

Detect a BIOS downgrade on the PC: With Dell device telemetry enabled, an admin can view notifications from built-in security features like BIOS Verification or Indicators of Attack (pictured), helping speed detection of suspicious activity before any lasting damage occurs.



Use cases & countermeasures

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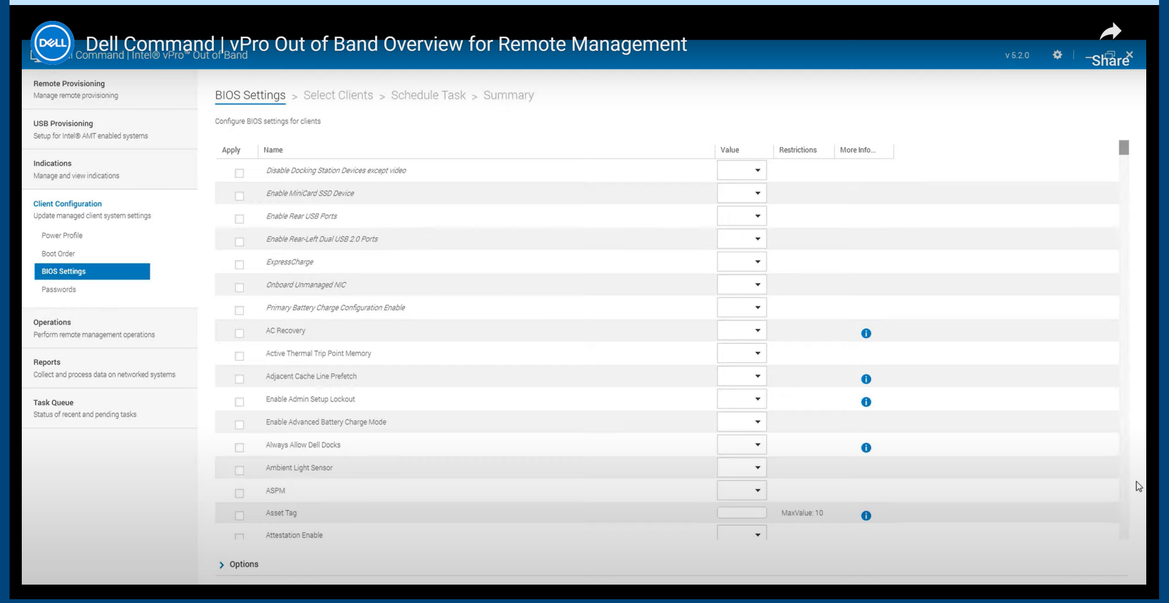
Remediate BIOS downgrade: Help prevent future threats for out-of-band systems. Dell Client Command Suite with Intel vPro enables remote remediation.



Use cases & countermeasures

In this second use case, here's how the step in the kill chain of a software supply chain attack could play out.

Software supply chain attack

Step 1

Initial Access: Supply Chain Compromise

Attacker injects malicious code into a software utility (BIOS/firmware).

Step 2

Persistence

Customers download the malicious code when they go to update their devices.

Attacker installs malware.

Step 3

Lateral Movement

Attacker spoofs a user they just attacked and sends a malicious link to another user. That user clicks the link and attacker steals their credentials.

Step 4

Exfiltration

Attacker exfiltrates data.

Use cases & countermeasures

The supply chain has become a key target for attackers. While these attacks are less common, the results of a successful one can be devastating because organizations are still learning how to shore up their defenses against them.

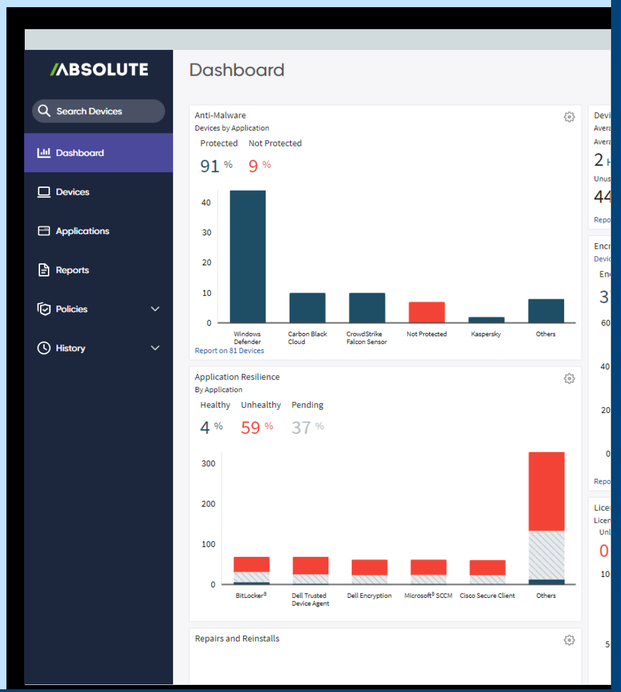
A core responsibility of all technology providers is to ensure what they sell doesn't unintentionally present risk to users through vulnerabilities.

To help prevent attacks and provide resiliency to the security stack, Dell and Intel® abide by the strict process and protocols of our Secure Development Cycle[8]. Additional supply chain assurance, e.g., Dell Secured Component Verification[9], plus firmware-level security from Absolute (depicted on the right) gives customers confidence throughout the lifetime of the PC.

Prevent | **Detect & respond** | **Recover & remediate**

Endpoint visibility from the factory: See all devices on and off the network with Absolute embedded in Dell-managed factories. Absolute Custom Factory Install (CFI) removes a step in deployment and protects devices that may be shipping to warehouses and multiple end-user locations. Mitigate risk with a full view of the fleet from a cloud-based dashboard.

- Easily find and maintain complete inventory of your IT assets and applications
- Locate and map your entire fleet
- Optimize Asset Usage and monitor security posture
- Cross-platform support (Windows, Mac & Chrome)
- Embedded in the BIOS of 27 Leading PC OEMs



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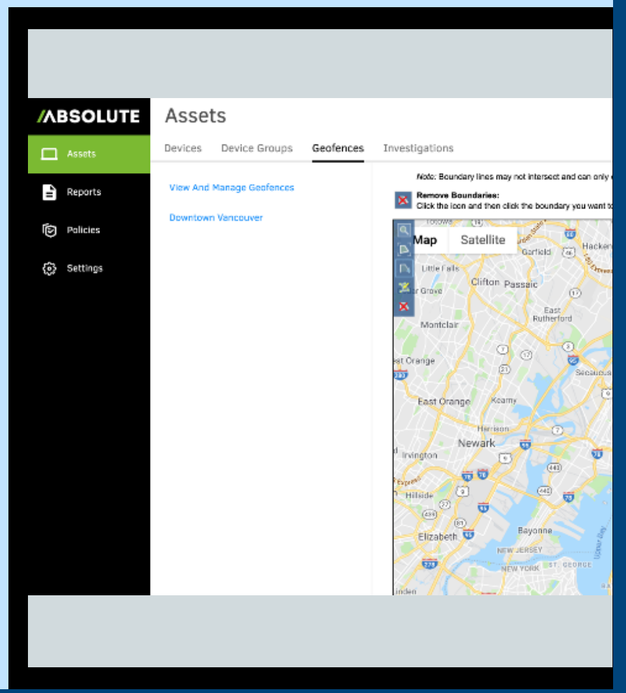
Prevent | **Detect & respond** | **Recover & remediate**

Control endpoints: With Absolute, detect when endpoints are compromised (e.g., a critical app is corrupted by malware or a PC goes missing in transit). Take remote action to remediate threats immediately by rendering devices useless and/or deleting the data they contain.

- Protect devices when they move beyond defined fences
- Remotely protect and sanitize critical data
- Perform end-of-life data wipe with compliance certificates
- Lock devices to protect critical assets on demand
- Enable remote firmware protection



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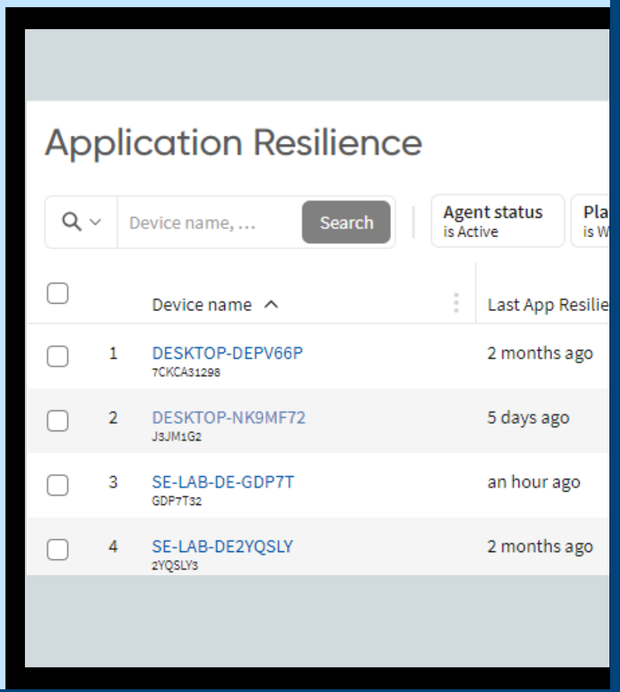
Prevent | **Detect & respond** | **Recover & remediate**

Self-healing: With Absolute Persistence embedded in the Dell BIOS firmware, get back to original state when tampering is detected. Absolute can self-heal, or persist, any compromised endpoint or supported application in the Application Resilience catalog (80+ Applications), including a library of other countermeasures in place, e.g., Dell Trusted Device Application, Zscaler.

- Find and easily delete sensitive data on endpoints
- Take remedial action across devices via a library of customized scripts
- Monitor and Self-Heal Applications
- Large and growing Application Resilience catalog of 3rd party endpoint controls
- Investigate and locate lost or stolen devices with Absolute Investigations Team



Key takeaways

A fleet is only as secure as its individual PCs.

To combat modern threats, devices must be built securely and have security built in.

Catch, repel and recover from attacks by ensuring endpoint security and manageability work together.

Security is a team sport. Leverage both hardware and software for the best defense.

To learn more:

Contact us: Global.Security.Sales@Dell.com

Visit us: Dell.com/Endpoint-Security

Follow us: LinkedIn @DellTechnologies | X @DellTech

Take the next step

Security is a daunting topic for organizations of all sizes. **Engage an experienced security and technology partner to modernize endpoint security**.

Dell Trusted Workspace helps secure endpoints for a modern, zero trust-ready IT environment. Reduce the attack surface with a comprehensive portfolio of hardware and software protections exclusive to Dell. Our highly coordinated, defense-based approach offsets threats by combining built-in protections with ongoing vigilance. End users stay productive, and IT stays confident with security solutions built for today's cloud-based world.

1. Source: Enterprise Strategy Group, a division of TechTarget, Custom Research Survey Commissioned by Dell Technologies, *Assessing Organizations' Security Journeys*, November 2023.
2. Source: Futurum Group, Endpoint Security Trends, 2023.
3. Source: Enterprise Strategy Group, a division of TechTarget, Research Report, *Managing the Endpoint Vulnerability Gap: The Convergence of IT and Security to Reduce Exposure*, May 2023.
4. Based on Dell internal analysis, September 2023. Applicable to PCs on Intel processors. Not all features available with all PCs. Additional purchase required for some features.
5. Validated by Principled Technologies. A comparison of security features, April 2024.
6. Source: What is the Cyber Kill Chain? Introduction Guide – CrowdStrike.
7. Source: CrowdStrike 2024 Global Threat Report.
8. Source: Three Considerations for Establishing Device Trust | Dell USA.
9. Source: How to Keep Device Trust Close to the Vest | Dell USA.