ADVANCED EDR TEST 2023

Red Team Testing and Certification by AV-TEST

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Kaspersky Endpoint Detection and Response Expert

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Executive Summary

AV-TEST conducted a rigorous assessment of Kaspersky Endpoint Detection and Response Expert (KEDRE) capabilities between November 2022 and January 2023. The evaluation was designed to measure the effectiveness of Kaspersky EDR Expert in identifying and thwarting malicious activities typically associated with advanced persistent threats (APTs). The study involved a series of red-team attacks simulated in two distinct detection scenarios, each encompassing various tactics and techniques that an attacker may employ.

Scenario 1 - Hafnium-Style Unauthorized Data Exfiltration: Assess your network's readiness against a simulated cyber threat inspired by Hafnium, a notorious state-sponsored actor. This scenario replicates Hafnium's tactics, involving spear-phishing, lateral movement, data exfiltration, and evasion techniques. It aims to evaluate product’s ability (KEDRE) ability to detect, respond to, and mitigate sophisticated attacks, providing valuable insights into your cybersecurity resilience.

Scenario 2 - Lazarus-Style Unauthorized Data Access and Lateral Movement: Evaluate your system's defenses against a simulated cyber threat reminiscent of the Lazarus group, a nation-state-sponsored threat actor known for advanced attacks. This scenario involves phishing, data collection, payload execution, privilege escalation, data exfiltration, mirroring Lazarus's tactics. It assesses your system's security posture and incident response capabilities against sophisticated threats, helping you identify vulnerabilities and enhance your defenses.

Kaspersky demonstrated exceptional coverage in Scenario 1, detecting all 29 techniques proficiently across 14 steps, reaffirming its robust monitoring and detection capabilities. The quality of detection exhibited variation, with telemetry detections for 11 techniques, general detections for another 11, and noteworthy tactic and technique detections for 7. These comprehensive findings provide valuable insights into Kaspersky's detection strengths and areas for improvement in this scenario.

In Scenario 2, inspired by the Lazarus group, Kaspersky exhibited commendable coverage, successfully detecting 29 out of 30 techniques across 5 steps. The single missed detection pertained to "Exfiltration over the C2 Channel (T1041)." Kaspersky's strong coverage underscores its ability to monitor and detect a significant majority of techniques employed, reaffirming its robust defense against a wide array of cyber threats.

Kaspersky's quality of detection in Scenario 2 presented a mix of detection types. It achieved 6 tactic or technique detections, 5 general detections, and 18 telemetry detections, with a notable emphasis on tactic and technique detections. These enhanced insights into attacker tactics and techniques can significantly benefit organizations in developing effective threat mitigation strategies and responses.

Overall, Kaspersky's EDR solution demonstrated impressive coverage and offered valuable insights, enabling organizations to make informed decisions in enhancing their cybersecurity posture.

With the remarkable results obtained, the product is now eligible for the prestigious AV-TEST Approved Endpoint Detection and Response Certification, a testament to its exceptional capabilities and commitment to advanced cybersecurity.

Introduction to EDR products

Endpoint Detection and Response

Endpoint Detection and Response (EDR) solutions are a category of security software specifically engineered to monitor endpoint devices like laptops, workstations, and mobile devices for indications of malicious activities and security threats. These solutions are essential for detecting and countering cyber threats such as malware, ransomware, and phishing attacks that are aimed at exploiting vulnerabilities in endpoint devices. EDR solutions offer organizations the capability to continuously scrutinize the behavior and state of endpoint devices, thereby sending alerts to IT personnel for suspicious activities that warrant investigation. These tools not only facilitate immediate threat detection but also provide a comprehensive analysis of the nature and extent of the threat, aiding in the formulation of robust response and recovery strategies. Additionally, EDR solutions equip organizations with critical intelligence on the modus operandi of attackers, thus enabling them to fortify their overall security infrastructure.

Overview of Kaspersky Endpoint Detection and Response Expert

Kaspersky Endpoint Detection and Response Expert (KEDRE) solution designed to enhance the security posture of enterprise networks by providing granular visibility and control over endpoints. Unlike traditional cybersecurity solutions that focus solely on perimeter defense, Kaspersky EDR Expert aims to secure the internal landscape of an organization, making it particularly effective against advanced persistent threats (APTs) that often bypass initial security layers.

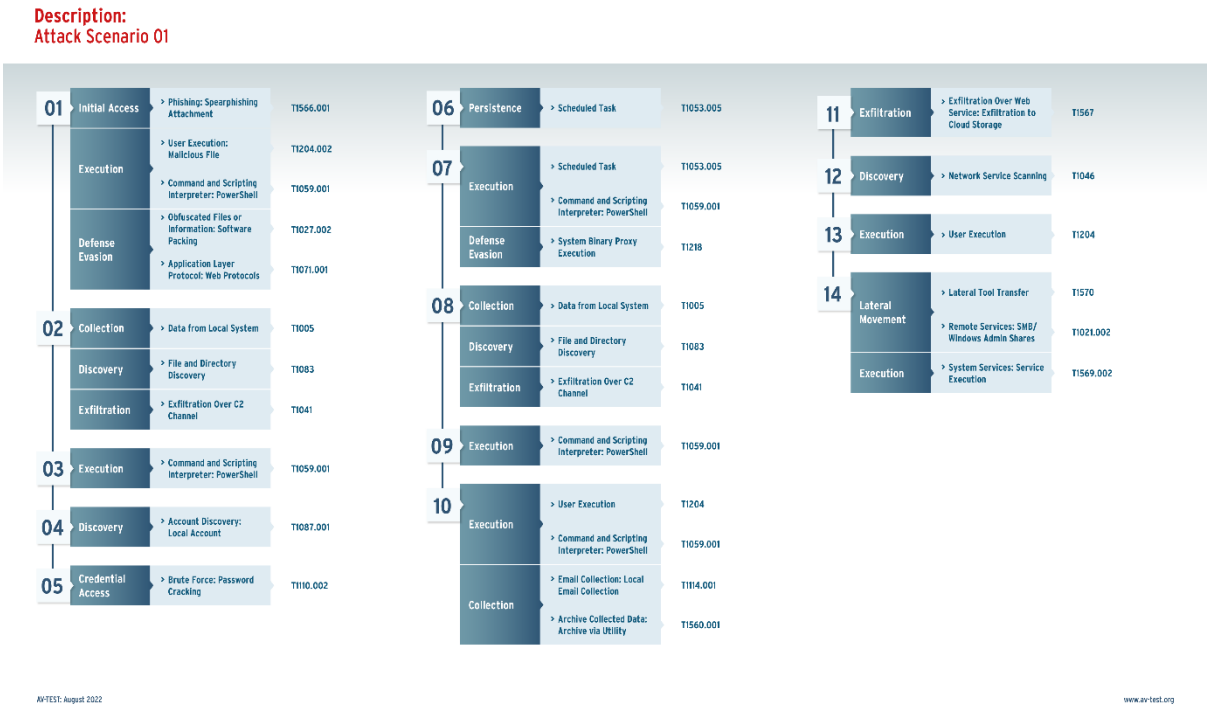
At the core of Kaspersky EDR Expert capabilities is its multi-layered analytics engine, which combines Artificial Intelligence/Machine Learning (AI/ML) algorithms with real-time threat intelligence feeds. This fusion of technologies enables the solution to accurately identify a wide range of threat tactics and techniques, from initial access attempts to complex lateral movements within the network.

The system is especially beneficial for threat hunters and IT security teams who require a dynamic and responsive toolset to sift through suspicious activities and isolate advanced threats. Kaspersky EDR Expert provides automated playbooks and customizable response actions, allowing for immediate disruption and denial of unauthorized activities. These features make it a comprehensive and powerful tool for organizations looking to bolster their internal security measures and protect against sophisticated cyber threats.

Test Scenarios

Scenario 1: Hafnium-Style Unauthorized Data Exfiltration - Assess the network's resilience against a simulated cyber threat inspired by Hafnium's tactics

Hafnium, a state-sponsored cyber threat group, gained infamy for exploiting Microsoft Exchange vulnerabilities in 2021 to infiltrate organizations worldwide. This scenario mirrors their tactics to evaluate your network's preparedness.



Scenario Description

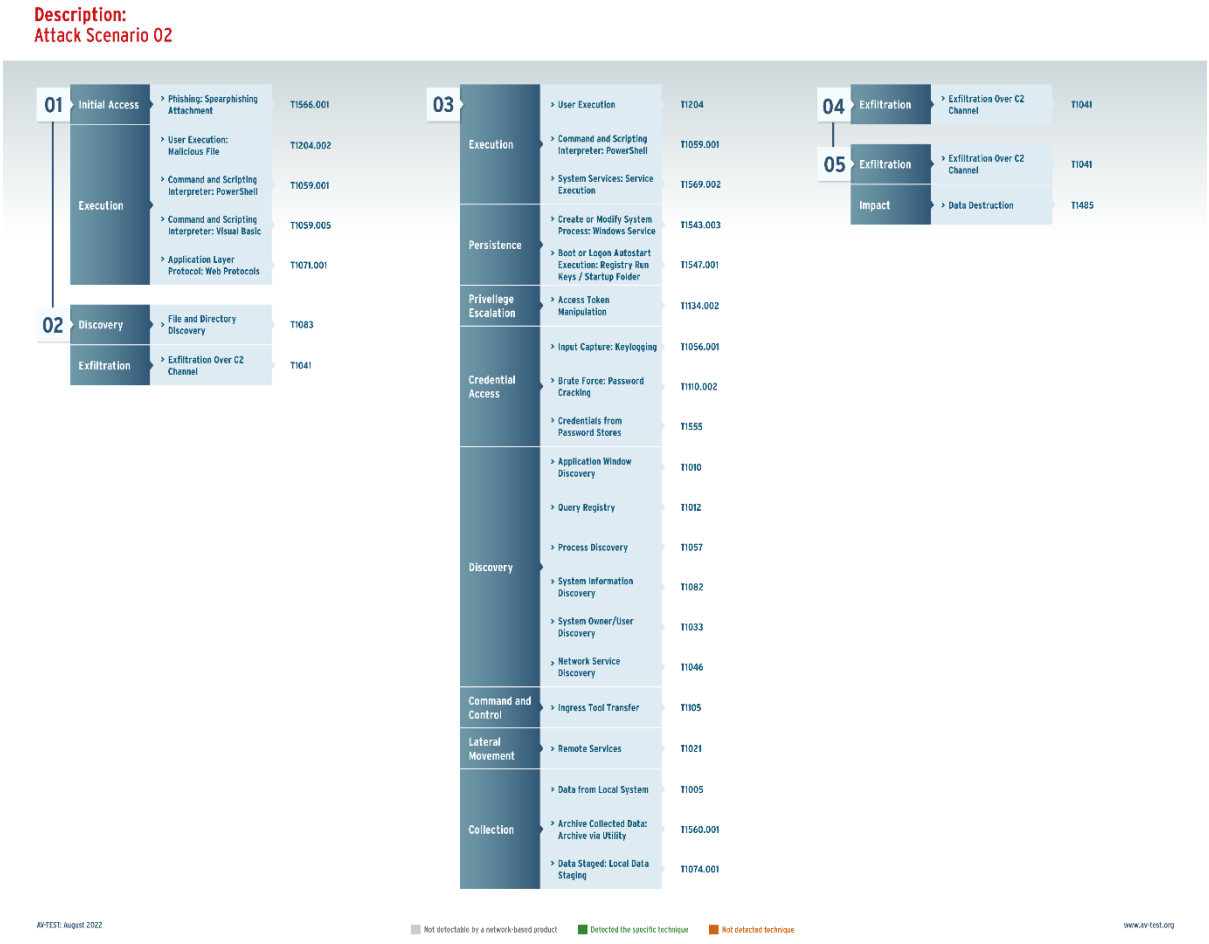
- Initial Setup: Launch a spear-phishing campaign, sending a malicious Word document to a user on VM1, initiating the attack. Covenant Listener and Grunt are employed for further operations.
- Data Collection: Covenant's Grunt is used to gather system information via commands like WhoAmI and Seatbelt.
- Reverse Shell Setup: A second Covenant session on the host sets up a reverse shell for attacker access.
- Admin Privilege Escalation: The attacker leverages Brute Force techniques to crack admin passwords.
- Data Exfiltration: Sensitive data is exfiltrated to Dropbox.
- Lateral Movement: PsExec is employed to move laterally to VM2.

This scenario incorporates tactics such as spear phishing, user execution, PowerShell, system binary proxy execution, brute force, and data exfiltration over a web service, mirroring Hafnium's methods.

It aims to assess your network's defense capabilities and incident response readiness against similar advanced threats.

Scenario 2: Lazarus-Style Unauthorized Data Access and Lateral Movement - Evaluate the system's resilience against a simulated cyber threat inspired by the Lazarus group

Lazarus is a prominent threat group associated with nation-state-sponsored cyberattacks, known for sophisticated and persistent campaigns. This scenario replicates their techniques to assess your system's security posture.



Scenario Description

- Phishing Setup: Initiate the attack by sending a phishing email containing a malicious Word document to a user on VM1.
- Initial Data Collection: Use Covenant's Grunt to perform initial data collection with commands like WhoAmI, ListDirectory, and Screenshot.
- Payload Execution: Execute a PowerShell command to download and run a script, enabling various tasks, including keylogging, on the compromised system.
- Admin Credentials: Set up a new Grunt session to uncover the admin username and password.
- User Interaction: Interact with VM1 to generate data for the keylog file.
- Data Exfiltration: Download a data archive from both VMs (Virtual Machine), simulating unauthorized data access.
- Data Destruction: Execute a script to destroy specific data types on VM1, mimicking the impact of an advanced threat.

This scenario encompasses a range of tactics and techniques, including spear phishing attachments, user execution, PowerShell and Visual Basic scripting, discovery of files and processes, keylogging, password cracking, privilege escalation, persistence through Windows services and registry run keys, lateral movement, exfiltration over a command and control channel, and data destruction. It assesses your system's ability to defend against and respond to complex threats, mirroring the Lazarus group's tactics and objectives.

Test Results

Introduction

The objective of this test is to comprehensively evaluate the effectiveness of the EDR (Endpoint Detection and Response) product in safeguarding against simulated cyber threats. In this evaluation, we conducted two scenarios inspired by real-world threat actors, Hafnium and Lazarus, to assess the EDR's capabilities in detecting and responding to sophisticated attacks. Our assessment not only focuses on coverage, i.e., the extent to which the EDR detected any suspicious activities at each step but also delves into the quality of these detections.

Coverage Assessment

For each step executed in the test scenarios, we diligently assessed whether the EDR product registered any form of detection, ranging from basic telemetry notifications to more advanced tactic or technique detections. This meticulous evaluation provides valuable insights into the EDR's ability to monitor and respond to various stages of an attack. The coverage metric highlights how effectively the EDR tracks an attacker's actions throughout the attack lifecycle.

Quality of Detection Assessment

In addition to measuring coverage, we also assessed the quality of the EDR detections. It is imperative to differentiate between different types of detections, as not all are equally valuable in terms of threat mitigation. For instance, while telemetry-based detections provide valuable information about suspicious activities, detecting the specific technique used by the attacker is far more actionable. Therefore, our evaluation delves into the granularity and context provided by each detection. We assess whether the EDR identifies and reports on the tactics and techniques employed by the attacker, enabling security teams to make informed decisions regarding threat containment and response.

By combining these two dimensions, coverage and quality of detection, our analysis provides a comprehensive view of the EDR product's overall effectiveness in defending against advanced threats. This information empowers organizations to make informed decisions about their cybersecurity posture and make improvements where necessary to enhance their security resilience.

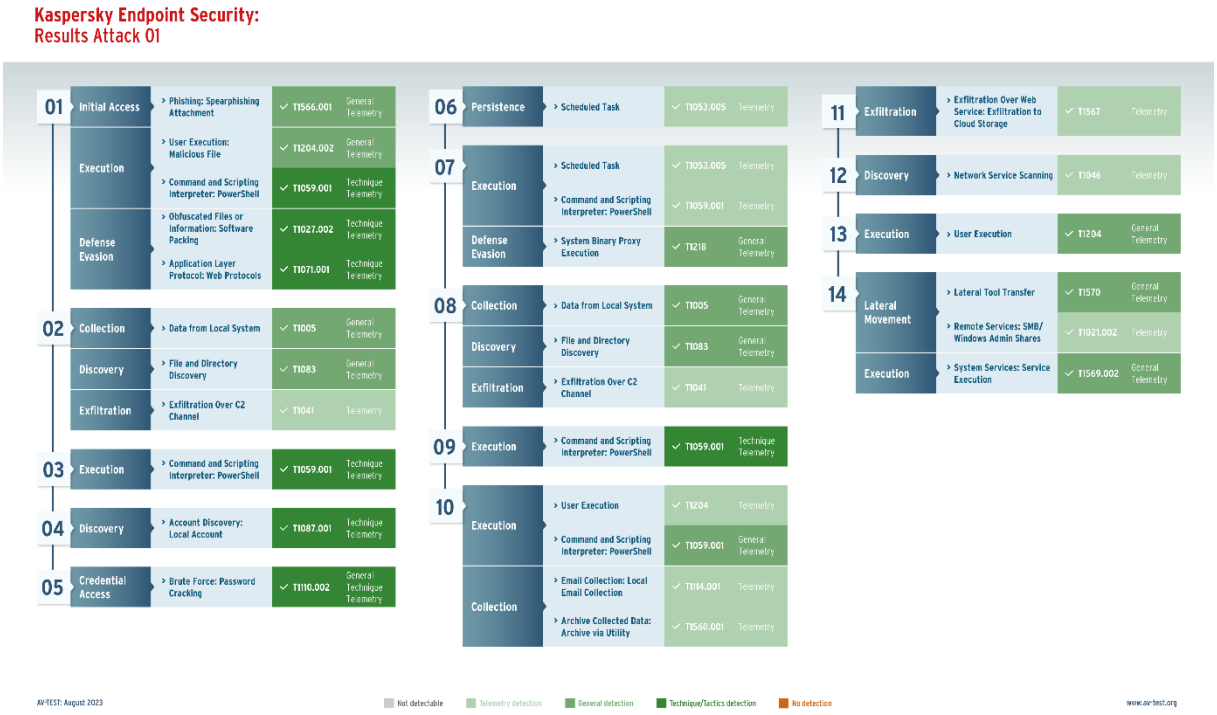
Test Results Analysis

In our rigorous evaluation of Kaspersky EDR Expert solution, we explored its effectiveness in safeguarding organizations against sophisticated cyber threats. The test encompassed two distinct scenarios inspired by real-world threat actors, Hafnium and Lazarus. Our assessment focused on two critical dimensions: coverage and the quality of detection.

In this section, we present a comprehensive analysis of the test results for both Scenario 1 and Scenario 2. These findings shed light on Kaspersky’s performance, strengths, and areas for improvement in defending against advanced cyber threats, providing valuable insights for organizations seeking robust cybersecurity solutions.

Scenario 1: Hafnium-Style Unauthorized Data Exfiltration - Assess the network's resilience against a simulated cyber threat inspired by Hafnium's tactics

The following graphic illustrates Kaspersky's results for each step and technique, including the type of detection employed by Kaspersky in each case.



Coverage Assessment

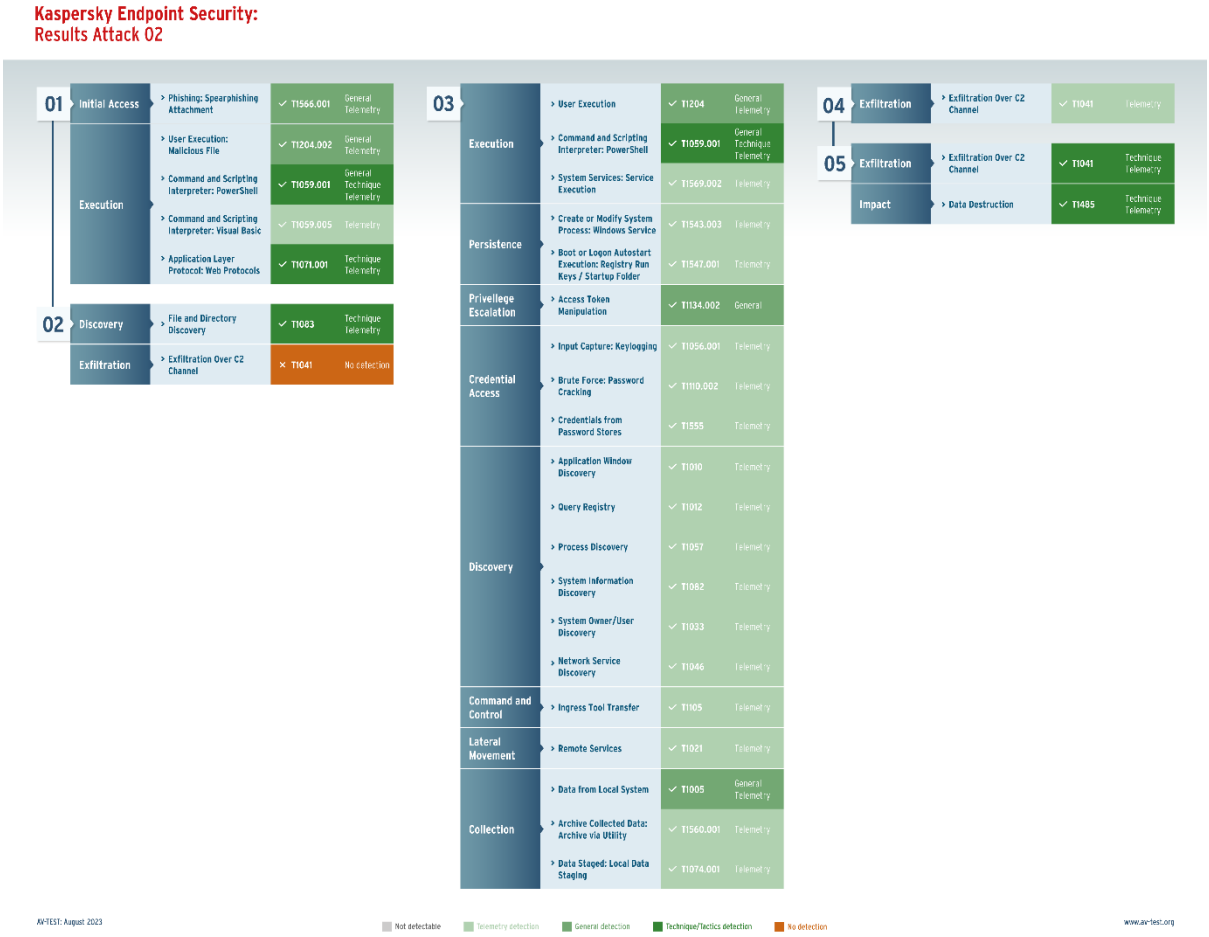
In Scenario 1, replicating the tactics inspired by Hafnium, Kaspersky demonstrated exceptional coverage by successfully detecting all 29 techniques deployed across 14 steps. This flawless coverage underscores Kaspersky's robust monitoring and detection capabilities, showcasing its effectiveness against a wide array of complex cyber threats.

Quality of Detection Assessment

In Scenario 1, Kaspersky demonstrated robust coverage by detecting all 29 techniques effectively. The quality of detection varied for some techniques. Notably, 11 techniques received only telemetry detections, lacking corresponding general or tactic/technique detections, while another 11 had at best general detections but were without tactic or technique detections. Conversely, 7 techniques benefited from tactic and technique detections, providing more granular insights and actionable information for specific threat mitigation. These results offer valuable insights into Kaspersky's detection capabilities in this scenario.

Scenario 2: Lazarus-Style Unauthorized Data Access and Lateral Movement - Evaluate the system's resilience against a simulated cyber threat inspired by the Lazarus group

The following graphic illustrates Kaspersky's results for each step and technique, including the type of detection employed by Kaspersky in each case.



Coverage Assessment

In Scenario 2 Kaspersky exhibited impressive coverage by successfully detecting 29 out of 30 techniques across 5 steps. The single missed detection pertained to "Exfiltration over the C2 Channel (T1041)." Kaspersky's strong coverage highlights its ability to effectively monitor and detect a significant majority of techniques employed during the scenario, reaffirming its robust defense against a wide array of cyber threats.

Quality of Detection Assessment

In Scenario 2, Kaspersky exhibited a mix of detection types across the 30 techniques evaluated. Specifically, it achieved 6 tactic or technique detections, 5 general detections, and 18 telemetry detections. The presence of tactic and technique detections is particularly valuable, as they offer a higher level of granularity and depth in understanding the specific tactics and techniques employed by the attacker. This enhanced level of insight can significantly benefit organizations in developing effective threat mitigation strategies and responses.

Test Results Summary

Kaspersky Endpoint Detection and Response Expert (KEDRE) solution delivered impressive results in our rigorous evaluation. Across two challenging scenarios inspired by real-world threat actors, Kaspersky showcased exceptional coverage, effectively detecting a wide range of techniques. While the quality of detection exhibited some variations, with an emphasis on tactic and technique detections in the second scenario, Kaspersky demonstrated its efficacy in safeguarding organizations against advanced cyber threats. These findings underscore Kaspersky's value as a robust security solution and provide essential insights for organizations seeking comprehensive cybersecurity protection.