BUYER'S GUIDE

Commvault®

ALIGNING RANSOMWARE PROTECTION AND RECOVERY PLANS WITH CRITICAL CAPABILITIES

THE EVOLVING ENTERPRISE AND THE RANSOMWARE THREAT

Ransomware is no longer an abstract cyber threat or a "maybe it'll happen to me" type of consideration – it's a high-probability, high-impact event that can stop your business in its tracks. Global ransomware costs are projected to surge from $57 billion in 2025 to $276 billion by 2031.[1]

The threat is immediate and pervasive. Cybersecurity Ventures predicts that ransomware attacks will strike a business or consumer every 2 seconds by 2031 (43,200 attacks per day), up from every 11 seconds in 2021.[2] Semperis' 2025 Ransomware Risk report found that 78% of respondents had been targeted by ransomware within the last 12 months.[3]

Traditional backup and recovery solutions alone cannot address our current cyber threats. Organizations require comprehensive cyber resilience strategies that go beyond simple data protection to encompass rapid threat detection, containment, and – most critically – the ability to restore minimum viable operations quickly. The concept of minimum viable company (MVC) focuses on restoring the absolute essential functions of a business as quickly as possible to maintain critical operations.

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$276 BILLION annually by 2031.[1]

THE PURPOSE OF THIS GUIDE

Use this guide to assess your current ransomware protection and recovery capabilities across hybrid, cloud, and SaaS environments. Learn how to implement a minimum viable recovery strategy that prioritizes your most critical business functions, enabling rapid restoration of essential operations while comprehensive recovery efforts continue in parallel. This approach helps maintain continuous business and customer confidence, and it minimizes the existential risks that ransomware attacks pose to modern organizations.

1, 2 Cybersecurity Ventures
3 2025 Ransomware Risk Report, Semperis

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) CYBERSECURITY FRAMEWORK 2.0

01 **IDENTIFY:** Develop an organizational understanding to manage cybersecurity risk to systems, people, assets, data, and capabilities.

02 **PROTECT:** Maintain the delivery of critical services by developing and implementing the appropriate safeguards.

03 **DETECT:** Establish ongoing monitoring and detection of threats or anomalies that could indicate the occurrence of a breach or cybersecurity event.

04 **RESPOND:** Implement appropriate activities to defend against a known cybersecurity incident.

05 **RECOVER:** Develop and implement appropriate activities to maintain plans for resilience and to restore any capabilities or services that were impaired due to a cybersecurity incident.

To help strengthen the resilience of your data infrastructure, the NIST Framework recommends five primary pillars for a successful and holistic cybersecurity program.

In each section of this guide, we cover why each security layer is essential and review key capabilities to incorporate into your ransomware protection and recovery solution.

01 IDENTIFY

Effective data security tools should provide visibility across your entire data environment to better identify areas of risk and eliminate blind spots. They secure both data and backups with zero-trust architecture that includes built-in security protocols to secure data, prevent unwanted access, and drive compliance in the face of evolving cyberthreats.

In the event of a successful attack, end-to-end observability helps organizations make better data decisions before, during, and after a cyberattack. Understanding what apps, systems, and data are needed to deliver minimum viability also will help organizations be prepared to recover faster.

IDENTIFY KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Data protection insights	Automatic analysis and identification of issues with recommended actions to address security considerations.	AI-supported, real-time alerting, summaries, and recommendations within Commvault® Cloud.
Automated security assessment	Employ interactive toolsets for quickly assessing security posture and applying recommendations to improve security.	Automatic root cause problem and solution identification based on historical analysis.
Automated backup health assessment	Verify that backups are healthy.	Commvault Cloud provides Cleanpoint™ identification and validation to highlight clean recovery points. Cloud and on-prem metrics provide regular health reports.
Data management reports and dashboards	Quickly view the status of backup and recovery readiness. Customized reports and dashboards for specific items of interest.	Unified dashboards & extensible reporting provide recovery readiness with detailed KPIs.
Auditing	Track of data changes, including who accessed it and when it was changed.	Audit logins tied to specific users & IP addresses. Monitor all configuration changes and backup & restore events in detailed audit trails.
Deception technology	Intercept attacks before they reach their targets.	Threatwise® provides differentiated tools to detect zero-day and unknown threats in production environments, helping customers spot advanced cyberthreats before data compromise.
Risk Analysis	Identify and investigate sensitive and at-risk data to minimize data exposure and exfiltration.	• Identify, categorize, and classify sensitive information, such as personal and financial data, to prioritize security measures and reduce data exfiltration in the event of a breach. • Take proactive measures to be able to maintain compliance with regulations and save storage costs by archiving outdated data. • Safe Search & Share leverages AI to rapidly identify sensitive data and relationships within large datasets, verifying that only the right information is shared with the right people.
Threat Scan	Identify and investigate file anomalies to help enable you to recover good data and avoid malware reinfection.	• Identify malware threats to avoid reinfection during recovery. • Analyze backup data to find encrypted or corrupted files, helping users recover trusted versions of their data quickly. • Add real-time AI prediction technology to uncover AI-supported ransomware threats.

02 PROTECT

Armed with an understanding of your data environment, you can help reduce your attack surface to limit potential threats and prevent a systemic spread. Safeguard against unwanted access by protecting against changes to data from inside and outside with zero-trust architecture. You can isolate and segment networks, adopt air-gapping to isolate and protect backup copies, and incorporate cyber deception technology to intercept threats before data leakage, encryption, and exfiltration.

Ransomware attacks can occur when credentials are compromised or a user's credentials allow privileged access to systems they shouldn't have had in the first place. Confirm that industry-standard security protocols are in place to encrypt and protect data to help reduce the impact of a ransomware attack.

PROTECT KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Immutability	Keep backup data safe from unauthorized changes.	• Air Gap Protect for immutable, indelible, and disconnected storage. • Anti-ransomware protection for Windows and Linux-based systems. • Apply storage locks for on-prem and cloud – customized to meet business needs. • Enable WORM (write once, read many) to help prevent unauthorized changes and cloud air-gapping technology to further protect from ransomware threats.
Infrastructure hardening	Reduce exposure to threats on backup infrastructure.	Commvault® software has been tested and confirmed as capable of Center for Internet Security (CIS) Level 1 hardening. Compliance with CIS Level 1 security controls is available as a pre-hardened CIS VM (deployed via OVA) or as a hardware appliance delivered as HyperScale. All sub-components, including CommServe, media agents, and access nodes also can be hardened to CIS Level 1.
Authentication and authorization	Control who has access and what level of access they have while adding multiple layers of authorization to ensure extra security.	• Role-based access controls limit unauthorized usage along with SAML (Security Assertion Markup Language) and OATH IdPs to provide an extra layer of security. • Multi-Factor Authentication and Multi-Person Authentication controls for retention locks and command authorization to protect data from accidents and prevent destructive actions. • Integration with privileged access management and enhanced identity and access management tools such as CyberArk, Yubikey, and biometrics for added user authentication and assurance (AAL3). • Just-in-time integration with CyberArk to minimize the risk of stored credentials. • End-to-end data encryption while allowing external key management platforms to manage and control keys, and certificate authentication – protecting against malicious data access. • Software WORM (retention lock). • Multitenancy.

02 PROTECT

PROTECT KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Encryption	Implement encryption standards that meet industry guidelines.	Standards and tools to effectively manage encryption keys for backup and restore in Commvault:: • Federal Information Processing Standards encryption module • Built-in key management • Integration with third-party key management • Passphrase Key Management System
Backup catalog protection	Deploy immutable protection in multiple areas, whether on-prem local copies or in the cloud.	• Strong ransomware protection for local copies. • Backup to Air Gap Protect or a third-party cloud.
Isolation/ air gapping	Segment and isolate data away from external networks and enable quick recovery in the event of an attack.	• Air Gap Protect uses air-gapping to isolate and protect sensitive data. • HyperScale appliances feature integrated air-gap controls. • Network topologies: Use one-way or proxy topology.
Active Directory (AD) protection	Create the ability to protect and restore AD, back up object attributes, and perform full, differential, incremental, and synthetic backups.	Commvault Cloud Backup and Recovery for Active Directory protects your data across cloud, on-prem, and SaaS workloads.
Cyber resilient backup strategy	Create an effective backup strategy that enables data availability. Have at least three copies of data, two of which are local but at different locations, and one copy off-site.	• Configure unlimited copies of data on-prem or in multiple cloud endpoints. • Air Gap Protect provides the ability to enable air-gapped cloud storage.
Deception & early warning	Spot ransomware attacks early - before data leakage, encryption, exfiltration, or damage.	• Cover your surface area by deploying threat sensors (appealing decoys assets) in bulk. • Mimic critical assets with preconfigured sensors. • Emulate highly specialized assets unique to your environment. • Get early warning to potential threats with alerts triggered by canary files.
On-demand security controls	Be compliant and in control with password rotation policies that do not impact backup protection.	Security IQ for security posture management of your backup environment. Improve security posture with zero-trust control and eliminate compromised credentials. CyberArk integration allows just-in-time credential retrieval, including secure credential storage and management within CyberArk.

03 DETECT

Organizations impacted by a security threat may not even be aware they have been attacked until it is too late and the breach spreads beyond their control. Confirming appropriate tools are in place to quickly gain insight into a cybersecurity event is imperative to help contain a ransomware attack before it affects broader infrastructure.

Incorporate next-generation early warning and in-depth monitoring to surface and neutralize zero-day and insider threats to defend your data. Detect, divert, and flag malicious activity sooner to reduce recovery efforts.

DETECT KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Security monitoring with AI	Use AI to monitor anomaly frameworks supporting VM backups and SaaS apps, providing granular visibility of unusual file activity by using an audit trail to pinpoint potential security events.	Leverages the power of AI to help you: • Achieve clean and fast recovery while reducing false positives with AI/ML. • Monitor backups and analyze events and behavior for successful, pending, or failed status. • Predict future SLA compliance with trend analysis of backups. • Identify anomalies with file characteristics changes due to corruption, encryption, or malicious files on live and backup data. • Uncover new zero-day and AI-driven ransomware threats.
System monitoring	Monitoring critical workloads and infrastructure.	• Threat Scan for regular scanning of backup data and files for malware. • Gather information on key resources such as CPU, memory, disks, networks, streams, and read/writes. • Obtain details on logins, logouts, and file activity and send them to SIEM/SOAR systems for visibility and remediation.
Log monitoring	Search for specific log events to monitor log activity in your environment. Search for a particular event across all log events indexed on the dashboard. Search log events associated with a particular client, log file, template, or monitoring policy.	The Commvault platform lets you monitor log file conditions and Syslog and Windows events in granular detail.
Threat awareness	Proactively gain immediate insight into active and latent threats	• Expose sensors to bad actors only; invisible to legitimate users and systems. • Gain critical intelligence into activities and tactics. • Eliminate false positives and alert fatigue. • Lure bad actors into engaging fake resources.
Canary files and live file activity	Monitor assets at risk of ransomware and identify clean recovery points.	Monitor live suspicious files to detect threats and protect backups. Cleanpoint identification helps enable clean file recovery and avoid file reinfection.

04 RESPOND

Once ransomware is detected, your response must be immediate. Gaining insight through security tools and proactive alerts allows your organization to defend your data. Documented policies and an incident response plan help determine what comes next. There must be both a technical and a business response, and every stakeholder in each of their respective areas must understand their role and the action to take.

Coordination and communication between various teams are essential. The key is for security teams to do as much as possible to contain and stop the spread while putting the proper tools in place to avoid any potential reinfection.

RESPOND KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
SIEM (Security Information and Event Management) and SOAR (Security Orchestration, Automation, and Response)	Integrate seamlessly with your existing SIEM and SOAR platforms to monitor, manage, and orchestrate actions and events from a central location. Export audit trails and events and securely log them into your SIEM and SOAR platforms for preservation and event orchestration. With real-time monitoring, you can quickly respond to any detected threats and protect your backup assets with the appropriate action.	Commvault's integrations enable interoperability with various orchestration platforms such as Microsoft Sentinel, Palo Alto Networks XSOAR, Splunk, and ServiceNow. Our integrations enable you to have: • Real-time visibility into security events and incidents • Enhanced automation and orchestration capabilities • Reduced incident response times and manual intervention • Improved internal collaboration and overall security posture
Alerts	Provide automatic notification about operations, such as failed jobs. Alerts are displayed on the Triggered Alerts page and defined users receive an email notification.	Get actionable alerts in various forms: Email, SCOM (Systems Center Operations Manager), SNMP, and webhooks, etc.
Dashboards	Display a preview of the most critical information gathered from all the CommServe computers in your organization, such as SLA percentage, capacity usage, and backup strikes.	The Commvault Cloud Platform provides a unified way to see and govern your cyber resilience across on-premises and SaaS. It provides security, capacity, and usage dashboards globally, with Security Health Assessments and Unusual File Activity dashboards providing additional insights.
Orchestration tools	Create orchestrated workflows to respond quickly to ransomware events. Even integrate with third-party vendors.	• Easily create workflows for pre-/post- backup commands. • Workflows through command-line interface, REST APIs, PowerShell Modules, and Python SDK. • Integrate with Splunk, ServiceNow, Ansible, or Terraform.
Proactive threat response	Actively defend data recoverability by alerting security the moment the attacker begins.	• Threat sensors are deployed around valuable assets (such as file servers, databases, VMs, etc.) to create decoys within your environments. • Threatwise Advisor automates and simplifies deployment and placement of threat sensors. • Threat intelligence integrations for broader coverage of threats. • Intelligently recommends decoy placement by surveying workloads in the backup environments. • Get highly accurate alerts the moment an attack begins.

05 RECOVER

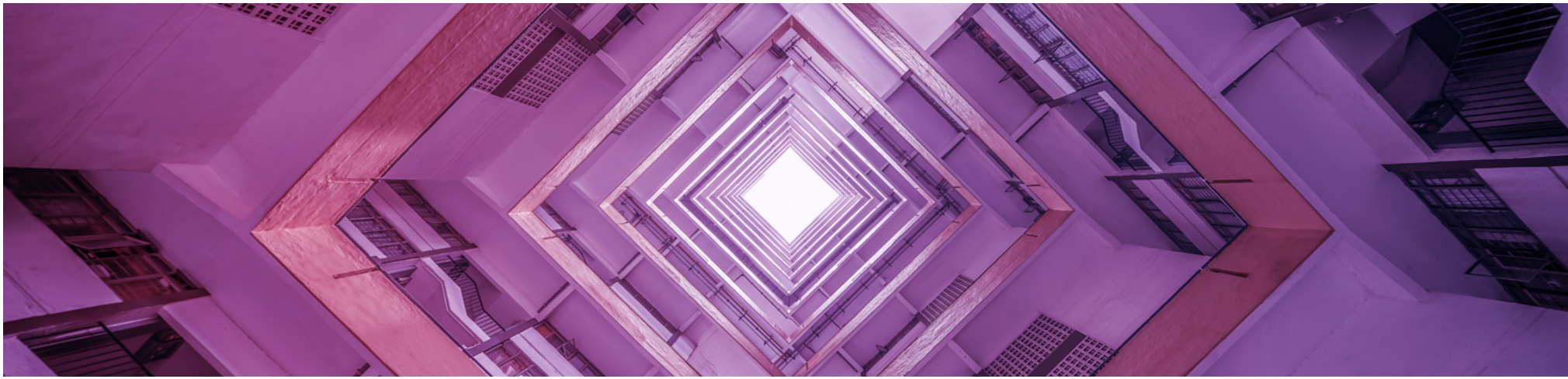
A recovery process begins once threats are identified and a proper incident response isolates and removes the malware. It is crucial to verify that all impacted data is restored to normal operating conditions from the point in time before the cybersecurity incident occurred. Proactive and reliable recovery tools and options across the broadest workload coverage are proven to reduce downtime, thwart data loss, and accelerate response times for unrivaled business continuity.

The recovery plan begins after the root cause is identified and files are restored with the intention that proper security tools will mitigate any future potential impacts. During the recovery phases, it is essential to only recover clean files from all affected technologies.

RECOVER KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Hybrid multi-cloud recovery	Recover data quickly from anywhere, whether on-prem or in the cloud.	• Automate and recover to different hypervisors, hyperscalers, or other platforms. • Cloud Rewind to rebuild applications across different clouds, from code to data.
High availability	With the CommServe LiveSync feature, keep the CommServe server ready for disaster recovery and provide the ability to quickly failover to a designated standby host in the event of a disaster.	The Commvault LiveSync feature enables the backup of catalogs and other critical workloads.
Incident response recovery	Allow incident response teams to securely recover data for data forensics.	• Orchestrate out-of-place recoveries to an isolated clean room environment with Cleanroom Recovery®. • Run pre-/post-scripts and workflows to validate and scan key data.
Malware scanning	Validate backup data is recoverable and that there are no threats within the content.	• Live mount VMs using application validation to run scripts and scan VMs for malware. • Scan for threats before they spread with AI/ML, anomaly detection, and malware signature scanning.
Curated recovery and sanitization	Reduce data loss through a consistent, sanitized recovery by removing suspicious files and knowing the exact point in time from which to bring about healthy file recovery.	• Remove, isolate, and quarantine suspected files through anomaly detection, and sanitize backup content by browsing and removing threats. • Threat Scan to validate that files being recovered are clean and free of malware, ransomware, and corruption.
Proactive recovery	Surface and remediate threats before they reach their target.	Threatwise helps you deceive bad actors, divert their attacks toward fake assets, get immediate visibility into attacks, and remediate threats early.
Recovery validation	Plan, implement, validate, and show demonstratable evidence of recovery readiness.	• Validate backups periodically to detect corrupted backups early in the cycle. • Prove and demonstrate recovery readiness without disrupting operations. • Reduce recovery testing complexities by eliminating manual steps.

05 RECOVER

RECOVER KEY COMPONENTS	RANSOMWARE REQUIREMENTS	COMMVAULT CAPABILITIES
Recovery forensics	Perform forensics securely in isolated networks without causing further infections.	• Use File Data Analysis to detect files that may be encrypted or corrupted by malware to help prevent backing up infected files. • Incorporate threat analysis to detect malicious content in the backed-up data at the time of restore. This helps reduce the risk of reinfecting of production systems while restoring from the last good point-in-time on backups.
Recovery orchestration	Disaster and cyber recovery orchestration with automated compliance reporting.	• Cleanpoint validation to provide a known clean point in time to restore to. • One-click recover clean copies across workloads to production after validating and sanitizing recovery points.
Rapid infrastructure recovery	Rapid cloud-scale recovery without limitations on recovery locations.	• Cloudburst Recovery for fast, cloud-scale recovery that's available when you need it. • Active Directory Recovery for identity continuity in the face of a cyberattack – including full forest-level and granular recovery. • Combines regular testing, infrastructure-as-code, and cloud scaling to automate fast, predictable, and reliable cyber recovery of hybrid workloads to the cloud.



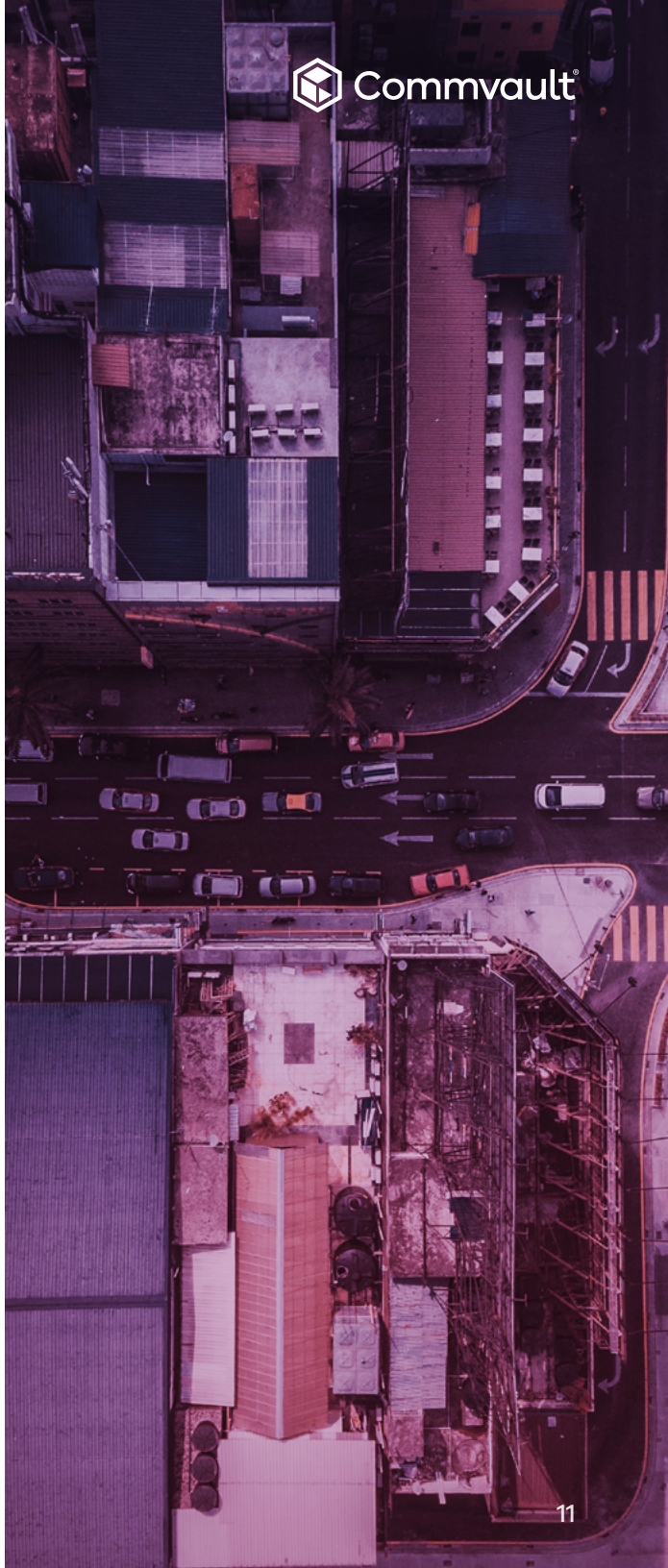
RECOVERING TO MINIMUM VIABILITY

In addition to protecting your organization from ransomware, it is imperative to make a plan to recover in the event you are attacked. This starts with identifying your critical assets. Those are the systems, data, and processes that are most essential to your business.

Next, you need to understand the impact of an outage. Every minute you are down can cost you lost business and reputational damage, so it's vital to understand how to prioritize their recovery.

Commvault solutions can help you with the critical steps in attaining minimum viability – remediating threats, restoring access, rebuilding infrastructure, establishing secure communications, and recovering your data. But it is essential to test frequently so everyone in your organization is prepared to face situations from minor outages to worst-case scenarios.

Read our Ultimate Guide to Minimum Viability for more on how to implement at your organization.



TRUE CYBER RESILIENCE IS PROACTIVE

Commvault Cloud provides layered defense – helping you minimize the impact of cyberattacks with early warning and cyber deception, while accelerating recovery with targeted threat scanning, remediation, intelligent quarantining, clean recovery validation, and unparalleled recovery speeds.

Combine those defenses with an actionable recovery plan to build a robust cyber resilience strategy that helps you predict, proactively fight, and accelerate recovery from cyberthreats.

COMMVAULT SECURITY INTEGRATIONS

Commvault offers smooth integrations with leading security partners to build on Commvault's existing capabilities and deliver diverse cyber resilience options for an integrated hybrid environment.

Assess your ransomware readiness by taking our free assessment. Experience true cyber resilience with a hands-on demo: https://www.commvault.com/request-demo.

Learn more about cyber resilience
commvault.com/platform

Commvault®

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