

Dell CyberBunker – the Last Resort for Recovery

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The Time for Resilience is Now!

The Gartner logo is displayed in white text on a blue background. The word "Gartner" is in a bold, sans-serif font, followed by a registered trademark symbol (®). The logo is positioned on the left side of the slide, partially overlapping a large blue abstract shape.

“Transforming cybersecurity into cyber-resilience involves prioritizing resilience over defense, and elevating the native disciplines and skills used by the business continuity management office above cybersecurity teams’ traditionally defensive strategies.”

Gartner, *You Will Be Hacked, So Embrace the Breach!*

"Implement at least an immutable backup copy by selecting write lock or WORM media before starting any other initiative, as having an immutable copy of the backup is the most important item to start protecting backup data."

Gartner, *Innovation Insight for Leveraging Isolated Recovery Environments and Immutable Data Vaults*

Ransomware and the Impact to Business



BUSINESS IMPACTS

37%

Reported their organization was forced to lay off employees following a ransomware attack¹

BUSINESS IMPACT

35%

Reported C-level resignations following a ransomware attack¹

DETECTION

63%

Reported that the attackers were in their networks for up to six months before being detected¹

PREVALANCE

73%

Targeted by at least one ransomware attack in the past 24 months

Data loss and downtime is increasingly prevalent



48%

of orgs have suffered a
cyber attack in the last
12 months



67%

concerned their
existing data protection
may not be sufficient to
cope with malware and
ransomware threats



91%

are either aware of or
planning to deploy a Zero
Trust architecture

All statistics from the Dell Technologies 2022 Global Data Protection Index Snapshot

DELLTechnologies

Cyber resilience: Best Practices and Regulatory Considerations



“An air-gapped data backup architecture...” – Federal Financial Institutions Examination Council



“The ability to ensure the ongoing confidentiality, integrity, availability and resilience of processing systems ...” – General Data Protection Regulation



***“It is critical to maintain offline, encrypted backups of data”
– Cybersecurity & Infrastructure Security Agency***



***“Ransomware payments may risk violating OFAC regulations”
– The Department of the Treasury***



“Ensure backups are not connected permanently to the networks they back up.” – Department of Justice

Broad spectrum of sophisticated cyber threats

Motivations, Techniques and Goals



Crime



Espionage



Terrorism



Insider



Hacktivism

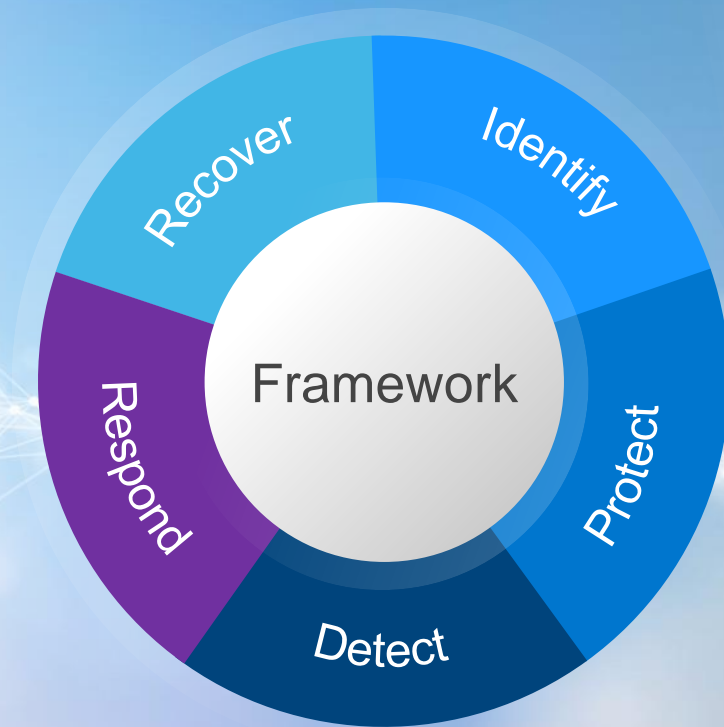


Warfare

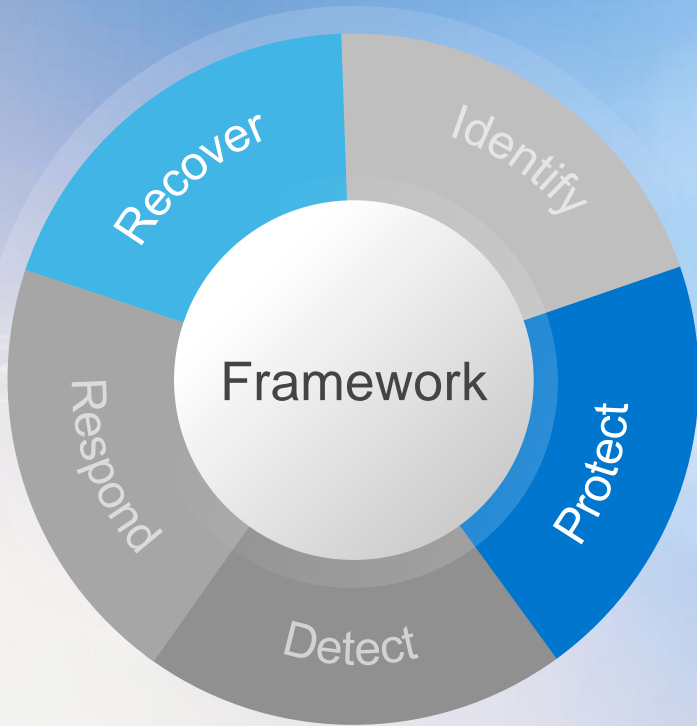
Cyber resilience is a strategy.

A high-level holistic strategy that includes cyber security standards, guidelines, people, business processes and technology solutions.

Example: [NIST Cybersecurity Framework](https://en.wikipedia.org/wiki/NIST_Cybersecurity_Framework)



Cyber Recovery is a solution.



A data protection solution that isolates business-critical data away from attack surfaces.

Critical data is stored immutably in a hardened vault enabling recovery with assured data availability, integrity and confidentiality.

Disaster Recovery is not Cyber Recovery

Disaster Recovery / Business Continuity is not enough to address modern cyber threats

CATEGORY	DISASTER RECOVERY	CYBER RECOVERY
Recovery Time	Close to instant	Reliable & fast
Recovery Point	Ideally continuous	1 day average
Nature of Disaster	Flood, power outage, weather	Cyber attack, targeted
Impact of Disaster	Regional; typically contained	Global; spreads quickly
Topology	Connected, multiple targets	Isolated, in addition to DR
Data Volume	Comprehensive, all data	Selective, includes foundational services
Recovery	Standard DR (e.g., failback)	Iterative, selective recovery; part of CR

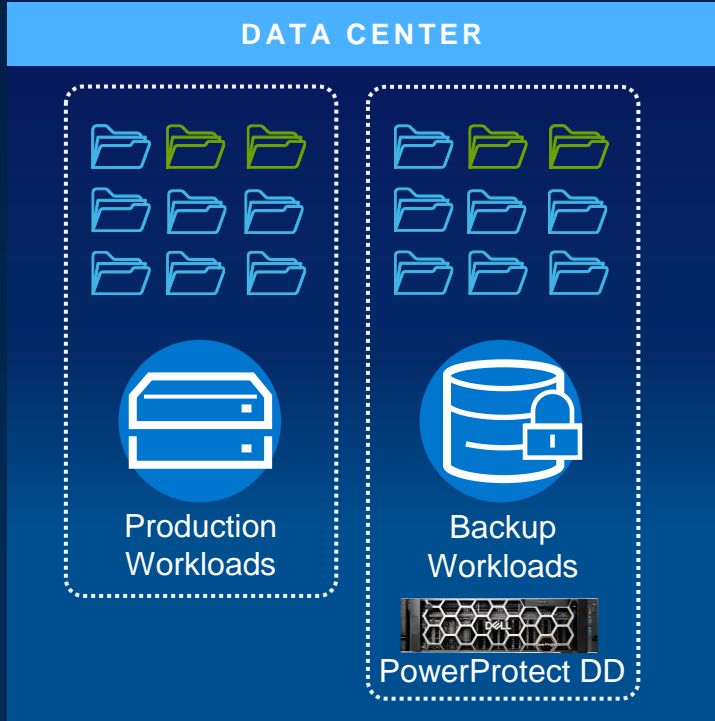


PowerProtect DD

Data Protection Foundation for Resilience

PowerProtect DD Series

The Foundation for Data Protection



Avamar – Networker – Data Manager
Data Protection Advisor – DD Series

Retention Lock Compliance (Immutability)

SEC 17a-4f Compliance

Role Based Access

End to End Encryption

Dual Role Authorization

Multi-Factor Authentication

Secure System Clock

NTP Clock Tamper Controls

Key Management

Custom System DDOS

DD File System Hardened

DDBoost

Integrated Lights Out Mgt Hardening (iDRAC)

Data Invulnerability Architect (DIA)

Secure AD/LDAP Authentication

Secure Remote support

Anomaly Reporting with DPA



Dell Technologies

Efficiency Now Matters More Than Ever

Deduplication enhances security

Production Data

Front-end TB
in production



Dell

Others

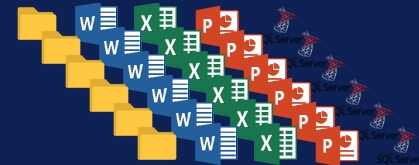
Dedupe 50 -1

Dedupe 5 -1

Production Backup



DR



Isolated Vault



- ✓ Fewer components =
 - Less network traffic
 - Less to secure
 - Less to monitor
- ✓ Save data center space
- ✓ Save data center cooling
- ✓ Fewer FTE



PowerProtect Cyber Recovery

The Ultimate Solution To Recover from Cyber Threats



Dell Technologies Cyber Recovery & Data Protection leadership

2015	First “Isolated” recovery solution with custom deployment
2018	Introduced PowerProtect Cyber Recovery solution
2019	First technology vendor in Sheltered Harbor Alliance Partner Program
2020	First Endorsed Sheltered Harbor Solution – PowerProtect Cyber Recovery
2021	Introduced Cyber Recovery with Multi-Cloud Data Services for Dell PowerProtect
2021	Introduced PowerProtect Cyber Recovery for AWS
2021	Formal support for PowerProtect Cyber Recovery for DLM
2022	Introduced PowerProtect Cyber Recovery for Azure and Google Cloud
2022	Managed as-a-Service APEX Cyber Recovery Services

#1
Data Protection
Appliances & Software²

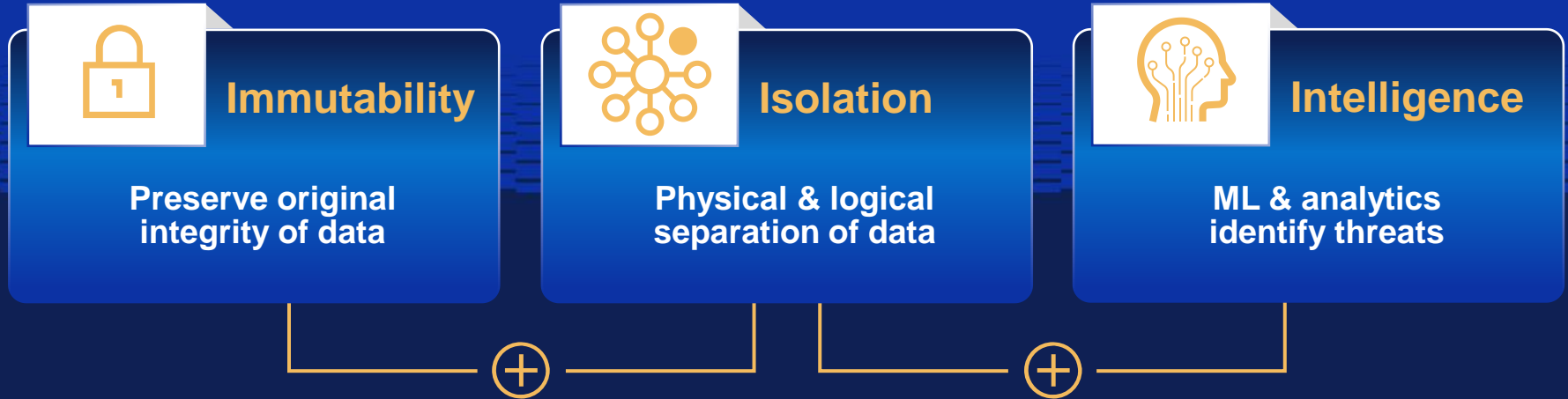
1800+ Cyber Recovery Customers¹

¹ Based on Dell Technologies internal analysis, July 2023

² Based on combined revenue from the IDC 1Q23 Purpose-Built Backup Appliance (PBBA) Tracker, with select Storage Software segments from the 1Q23 Storage Software and Cloud Services Tracker

Cyber Recovery Requirements

Modern threats require innovative solutions



PowerProtect Cyber Recovery Deployment

Modern protection and recovery for critical rebuild data from ransomware and cyber threats to **enable cyber resiliency and ensure business continuity.**

ON-PREMISES

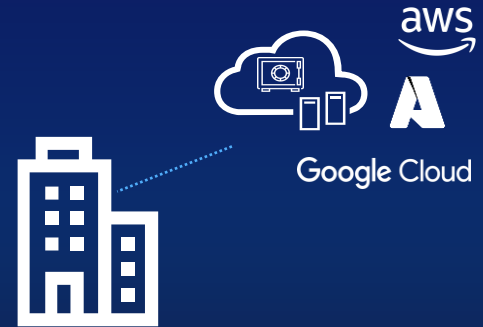


Optional Managed Services

COLOCATION

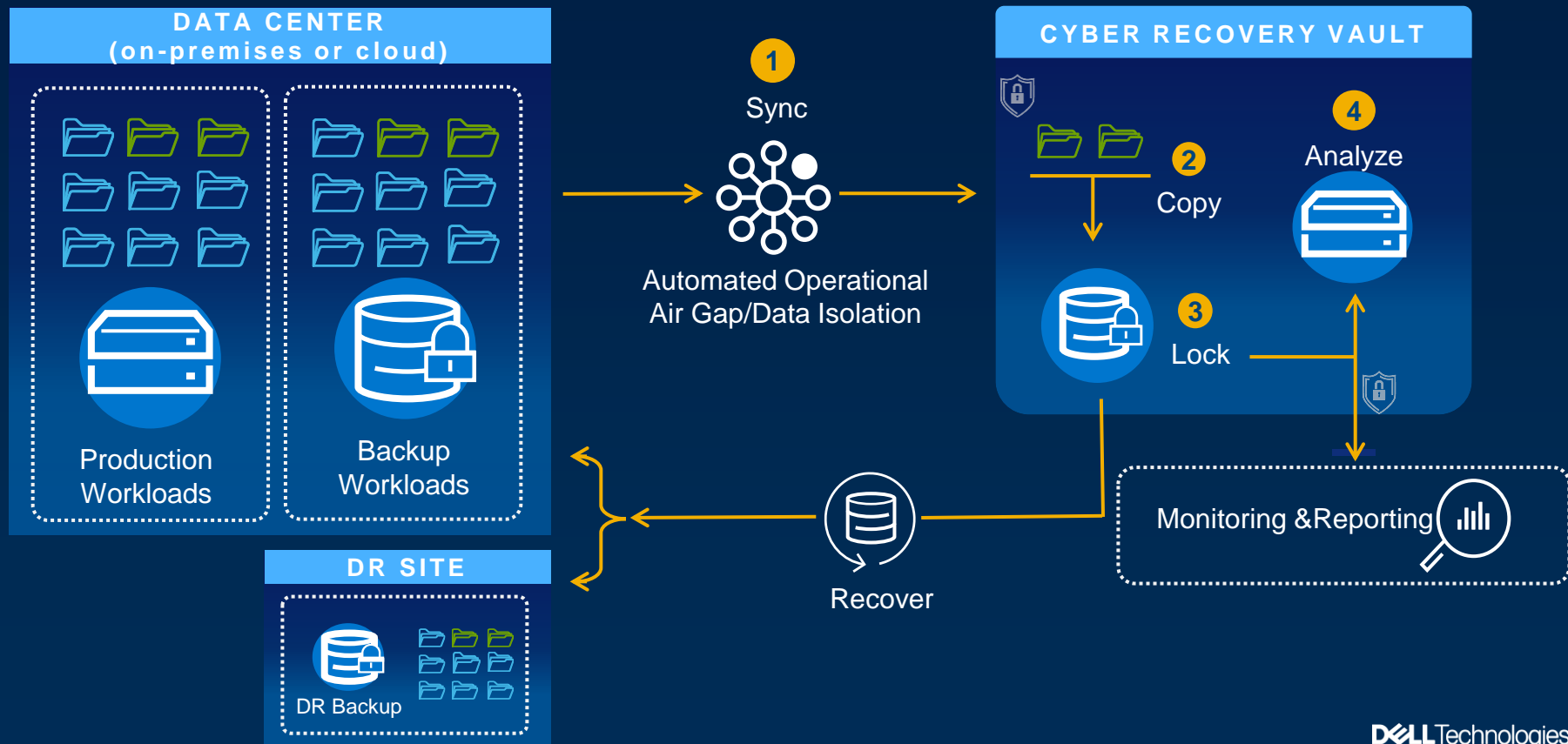


PUBLIC CLOUD



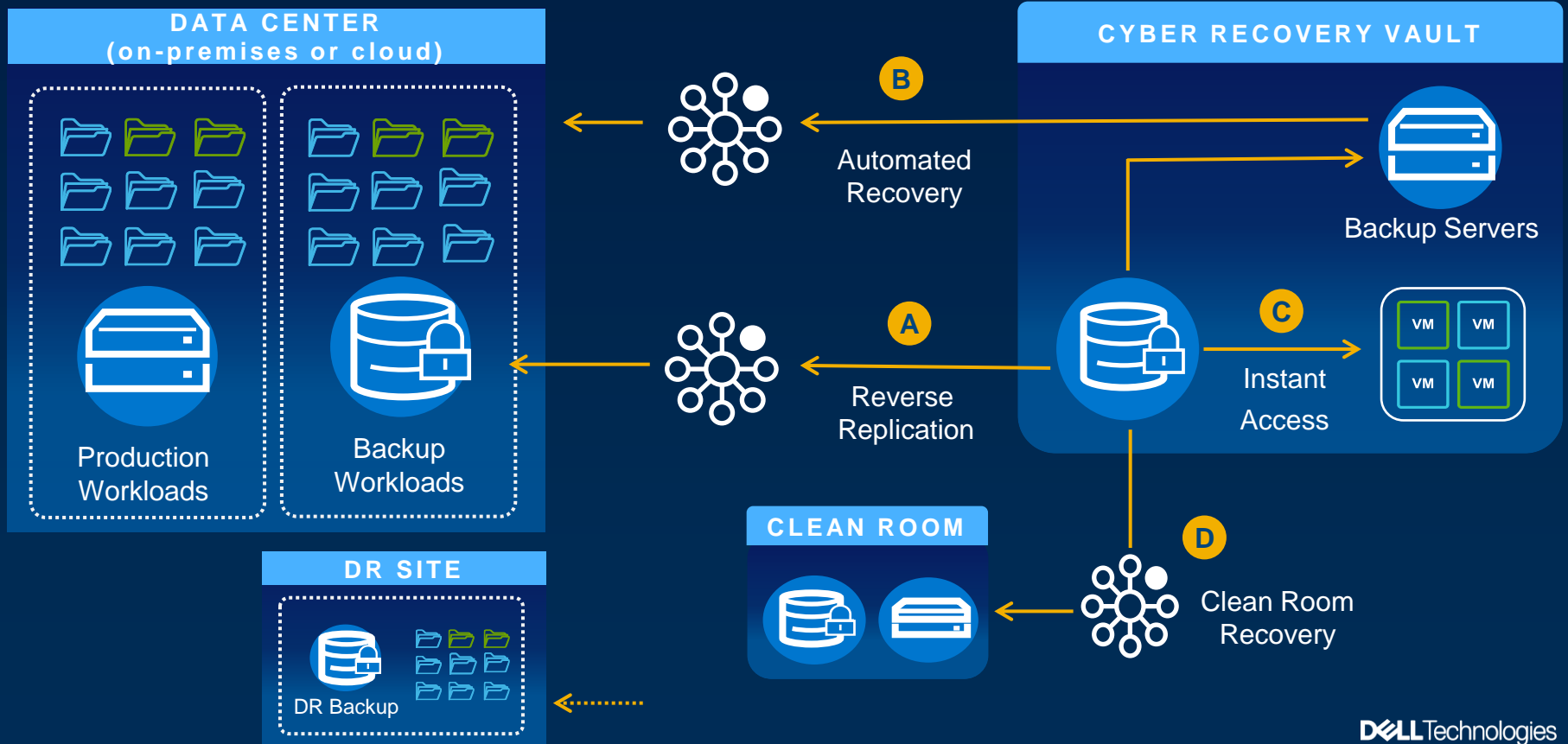
Dell PowerProtect Cyber Recovery

Ensuring the Recovery of Critical Rebuild Data in case of Cyber Threats



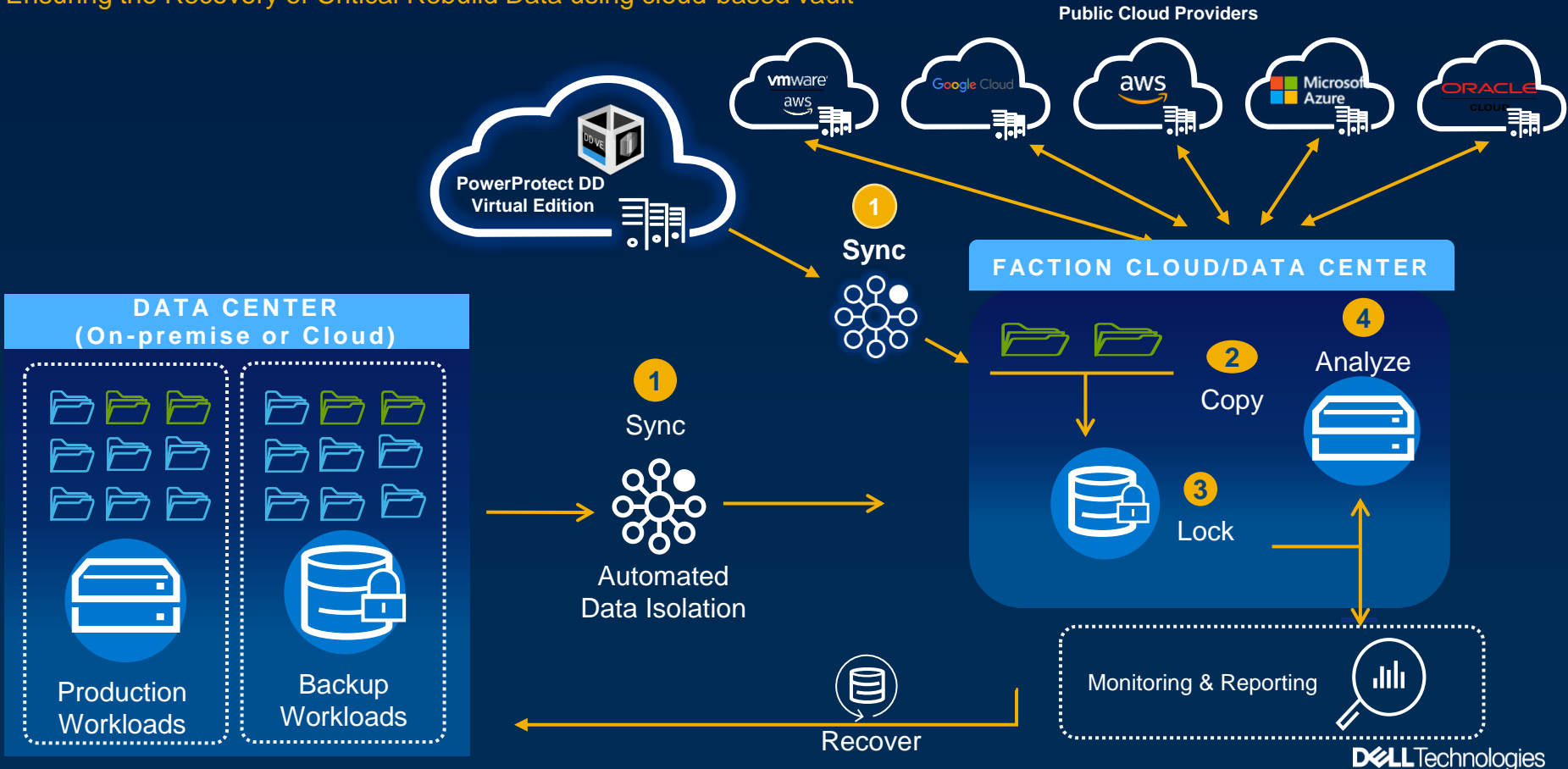
Recovery Options with PowerProtect Cyber Recovery

Flexible Recovery options



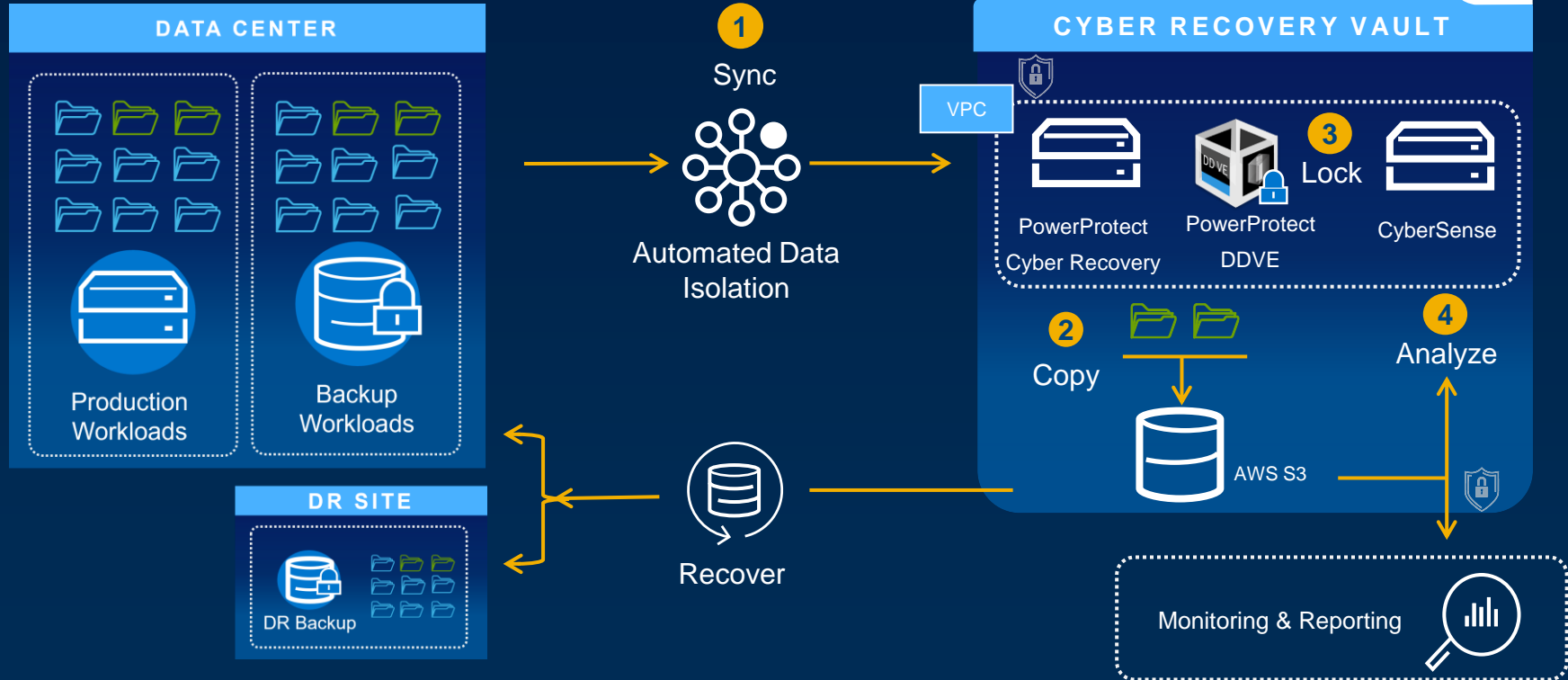
Multi-Cloud Data Services

Ensuring the Recovery of Critical Rebuild Data using cloud-based vault



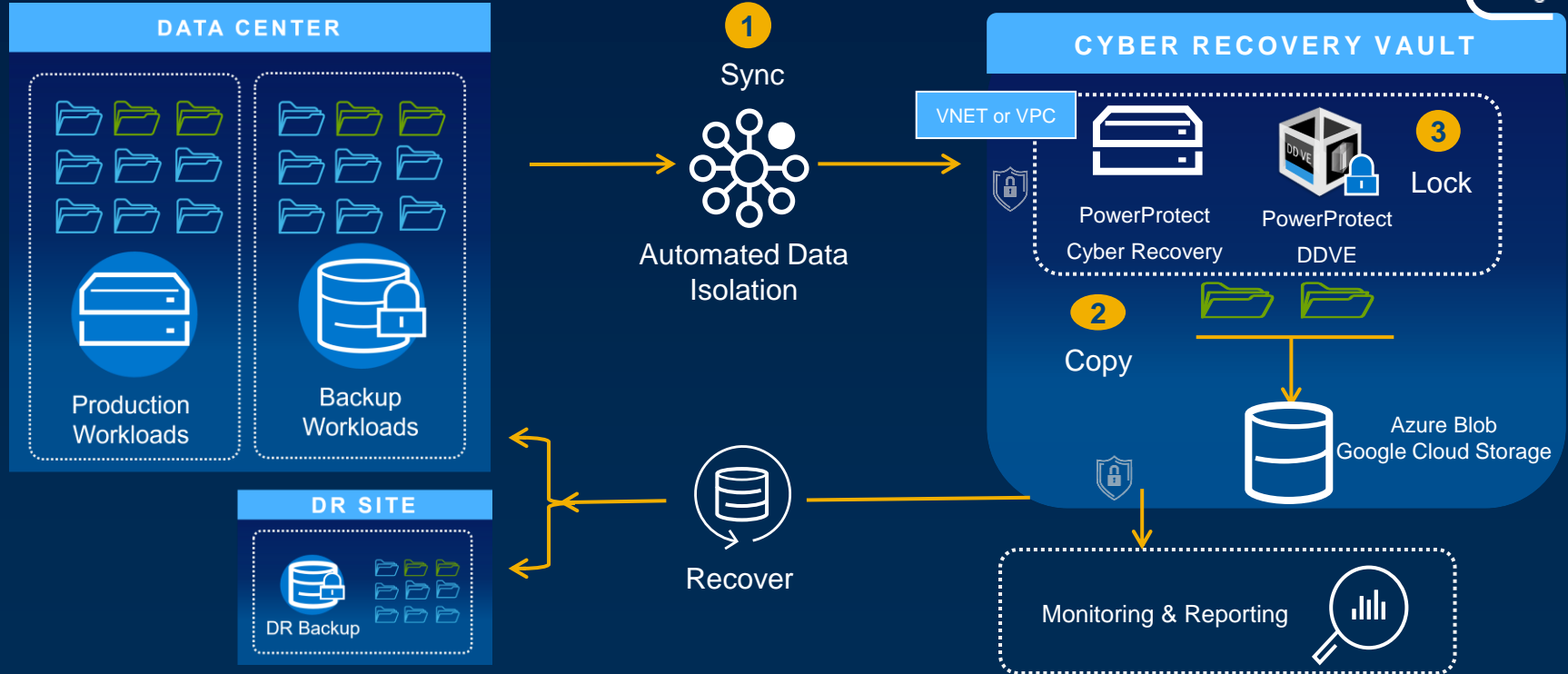
Dell PowerProtect Cyber Recovery for AWS

Recovery of Critical Rebuild Data with AWS



Dell PowerProtect Cyber Recovery for Azure and Google Cloud

Recovery of Critical Rebuild Data with Azure and Google Cloud





CyberSense

Analytics To Verify Data Integrity for Resilience

PowerProtect Cyber Recovery and CyberSense

The Intelligence of Cyber Recovery



Fully Integrated and Automated

Cyber Recovery orchestrates CyberSense data analysis. Alerts appear in the CR dashboard.



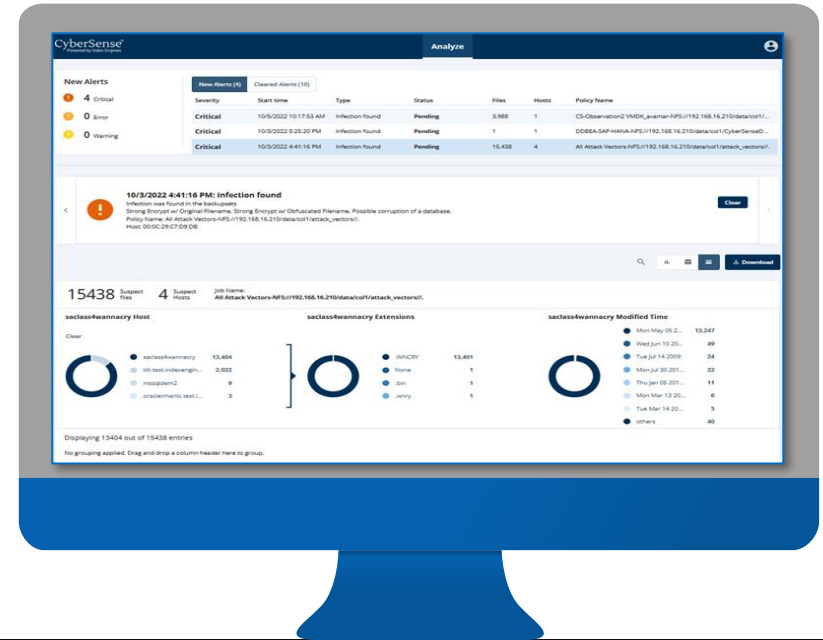
Backup Data Validated in Vault

Analytics are run with every replication to the vault, integrity of data is checked.



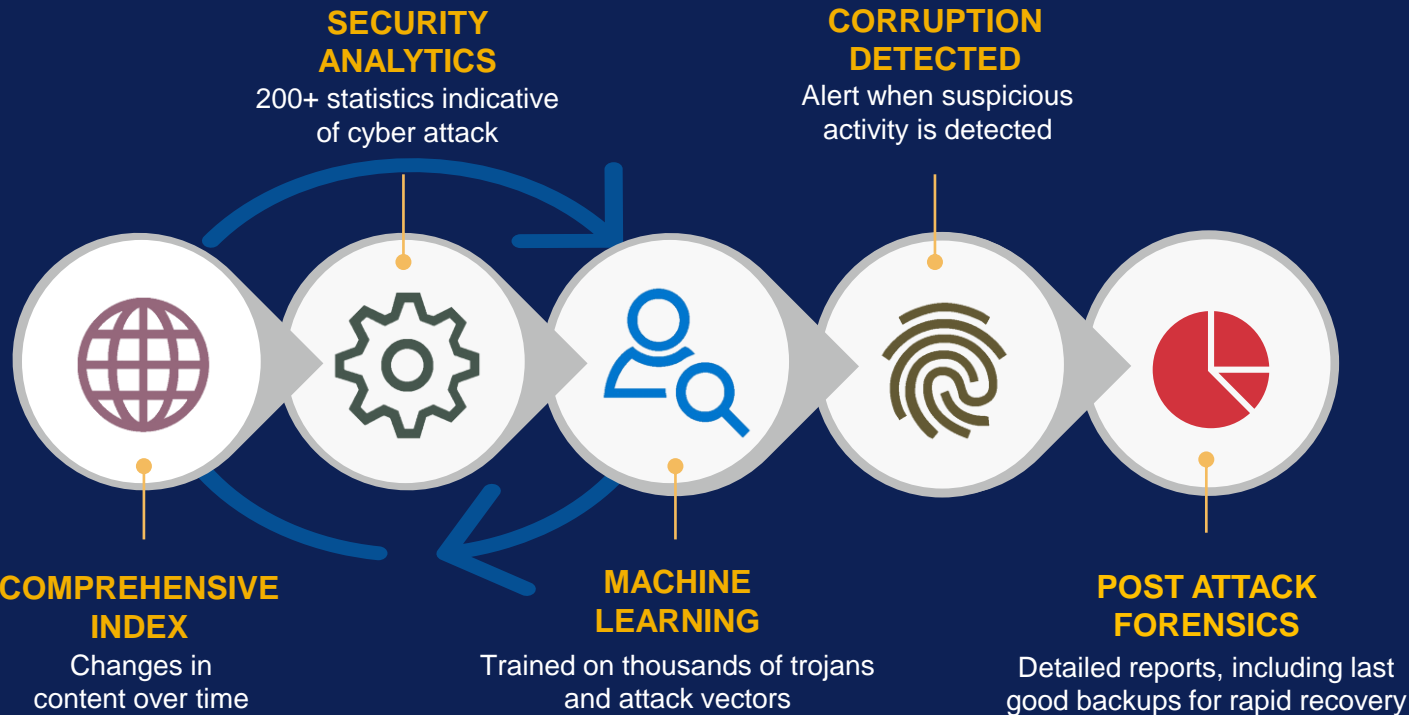
Post Attack Diagnosis & Recovery

Understand the depth and breadth of the attack, as well as the last good backup sets for recovery.



How CyberSense Works

Analytics, Machine Learning and Forensic Tools to Detect & Recover from Cyber Attacks



CyberSense Provides

- Attack type notification
- Ransomware detection
- Corrupted file details
- Data changes / deletions
- Breached user accounts
- Breached executables
- Last good backup copy




Compare: CyberSense vs. “Basic” Analytics

Machine learning enables early detection & rapid recovery within the Cyber Recovery vault

CyberSense:



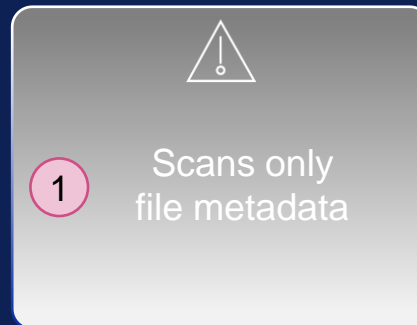
Full content indexing of:

- 1 File metadata 
- 2 Document metadata 
- 3 Document content 

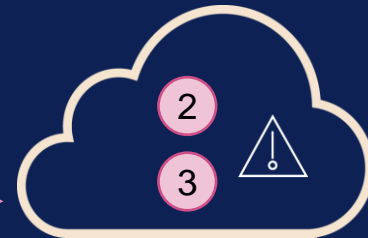
VS.

Basic Analytics:

On-Premises Analytics Engine



Cloud-based Analytics Engine



Suspicious files sent to cloud for 2nd pass or full content analysis

CyberSense Support for Intelligent Recovery

1

Detect

Detect corruption within a backup cycle

2

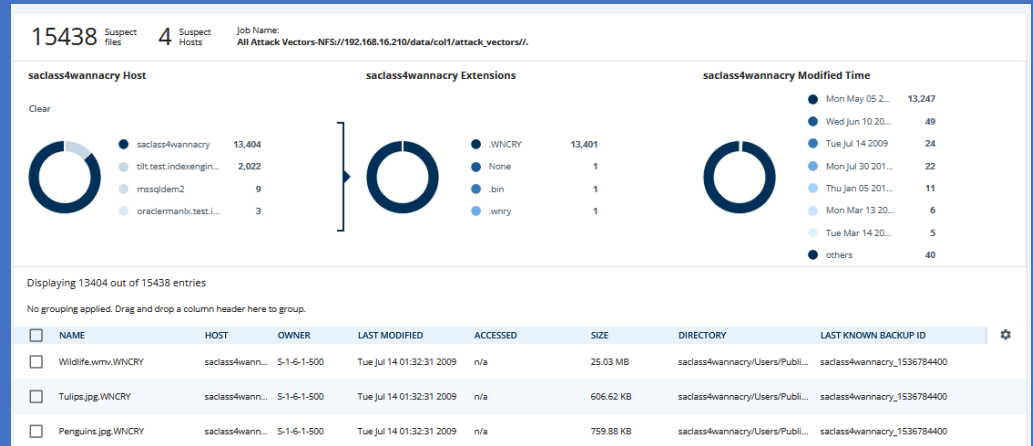
Investigate

The who, what, where & when of the attack

3

Recover

Report on last good backups quickly recover



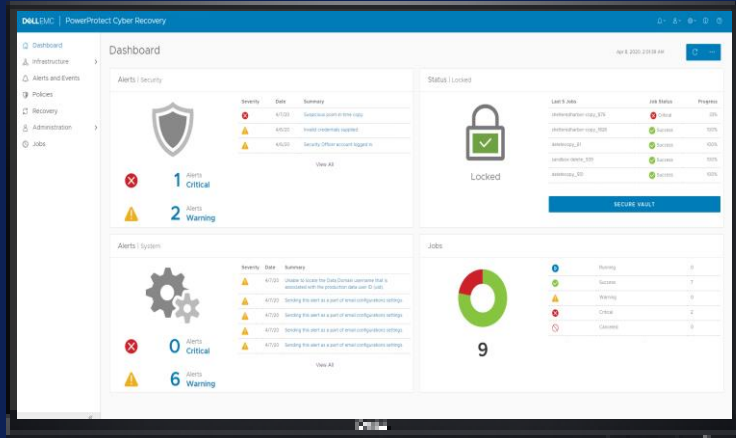
Point in time of the attack

Listing of corrupted files

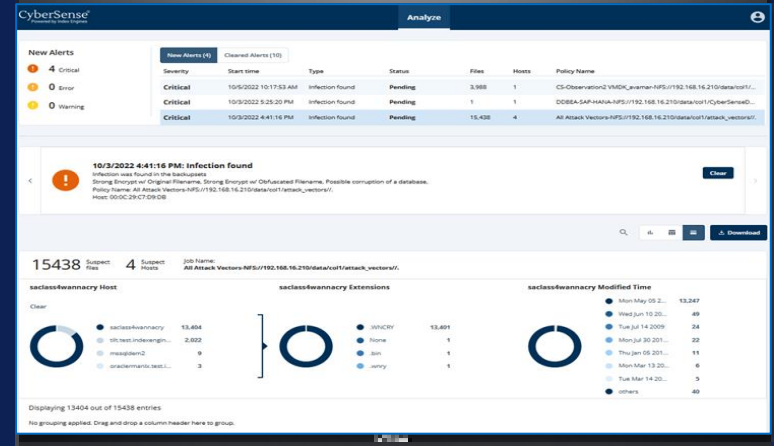
What backups need to be recovered

Search backups to detect ransomware

PowerProtect Cyber Recovery



CyberSense Alert





Sheltered Harbor Endorsement

Only Endorse Solution for Confident Recovery



9 out of the top 10


U.S. financials sector companies are Dell Technologies Data Protection customers¹



7 out of the top 10

Global financials sector companies are Dell Technologies Data Protection customers¹

¹Based on Dell Technologies internal analysis as compared to a global media organization publication, July 2022



Sheltered Harbor's Mission

The Sheltered Harbor initiative was launched by the industry in 2015 to ensure that in a worst-case scenario:

- ✓ Public confidence in the financial sector is maintained
- ✓ Critical data sets are protected across the industry
- ✓ Critical services can continue even when systems and backups are down
- ✓ An impacted financial institution has a lifeline to survival
- ✓ All of the above must be achievable independent of the event's origin

Sheltered Harbor Data Vaulting



Data Vault Requirements

- ✓ “Unchangeable”
- ✓ “Separated”
- ✓ “Survivable”
- ✓ “Accessible”
- ✓ “Decentralized”
- ✓ “Owned & managed by institution or service provider”



PowerProtect Cyber Recovery

is first turnkey data vaulting solution to be endorsed by Sheltered Harbor



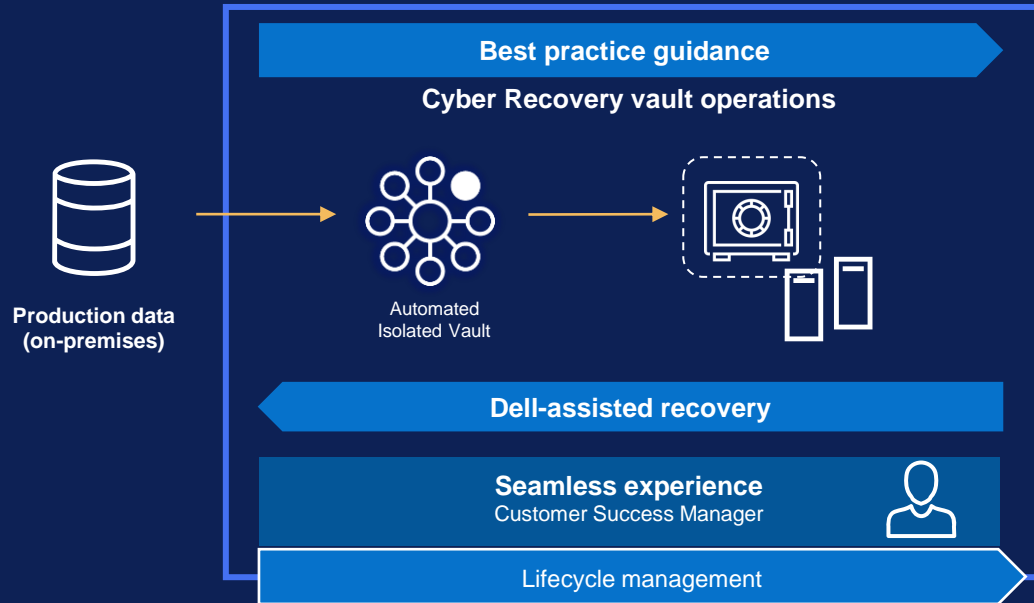


Professional Services

Leverage Dell Manager Services for Resilience

APEX Cyber Recovery Services

Leverage Dell Managed Services to simplify recovery



- ✓ Gain expertise from 1900+ vaults
- ✓ as-a-Service management simplifies recovery
- ✓ Protect your most important data
- ✓ Detect anomalies dynamically
- ✓ Predictable business recovery

Making it easy to operate a cyber recovery vault

Focus more on cybersecurity strategy, not infrastructure management

MANAGED AND MONITORED SOLUTION



Customer Success Manager

Seamless experience of day-to-day operations of the Dell cyber recovery vault

DEEP CYBER RECOVERY EXPERTISE



Gain experience from over 1,900 vaults

Provide end-to-end expertise through simplified, as-a-Service management

SIMPLIFY RECOVERY OPERATIONS

Cyber Recovery Solution Runbook

Table of Contents:

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Section 2: Perform Forensics	12
Section 3: Invoke Cyber Recovery Plan	14
Section 4: Prepare for Recovery/ Restore Operations	16
Section 5: Recovery Procedures	17
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Streamline recovery processes with Dell assisted recovery and using templated runbooks

Positioning guidance for Cyber Recovery Services portfolio

Help customers protect critical data from an attack and enable a path to recovery through an isolated cyber recovery vault



Professional Services for Cyber Recovery

For small to complex environments, or those that have unique business or data requirements



Product Success Accelerator for Cyber Recovery

For mid-market customers who want to own their infrastructure but need operational support



APEX Cyber Recovery Services

For mid-market to enterprise customers who want a fully managed solution – hardware, software and services

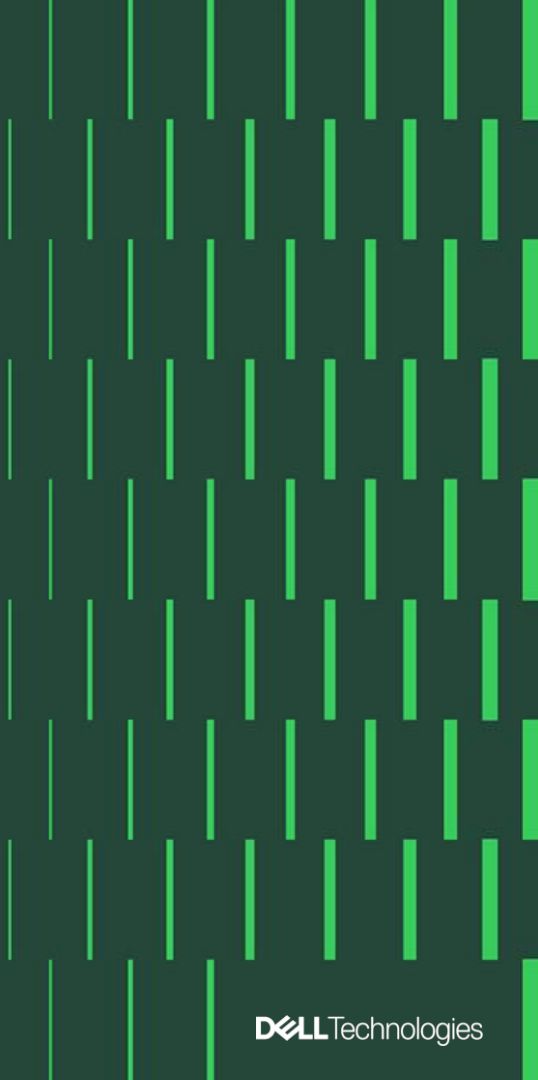
Highly tailored with 25+ offers	Single offer – 3 service level options	Single offer – 2 service level options
CapEx – custom and standard offers	CapEx – standard fixed scope	As-a-Service subscription – fixed scope
Price varies by offer	Fixed price for each level	Consumption-based pricing
Service hours vary by offer	8x5 service hours*	24x7x365 service hours

*Provided as part of Operate level option



PowerProtect Cyber Recovery Advantage

Transforming Data Protection to Data Resilience



PowerProtect Cyber Recovery Advantages:

Modern protection for critical data and an enabler of Security Transformation



Immutability

Preserve original integrity of data

Multiple layers of security and controls protect against destruction, deletion and alteration of vaulted data



Isolation

Physical & logical separation of data

PowerProtect Cyber Recovery vault is protected with operational air gap either on-premises or in cloud and multi-cloud offers



Intelligence

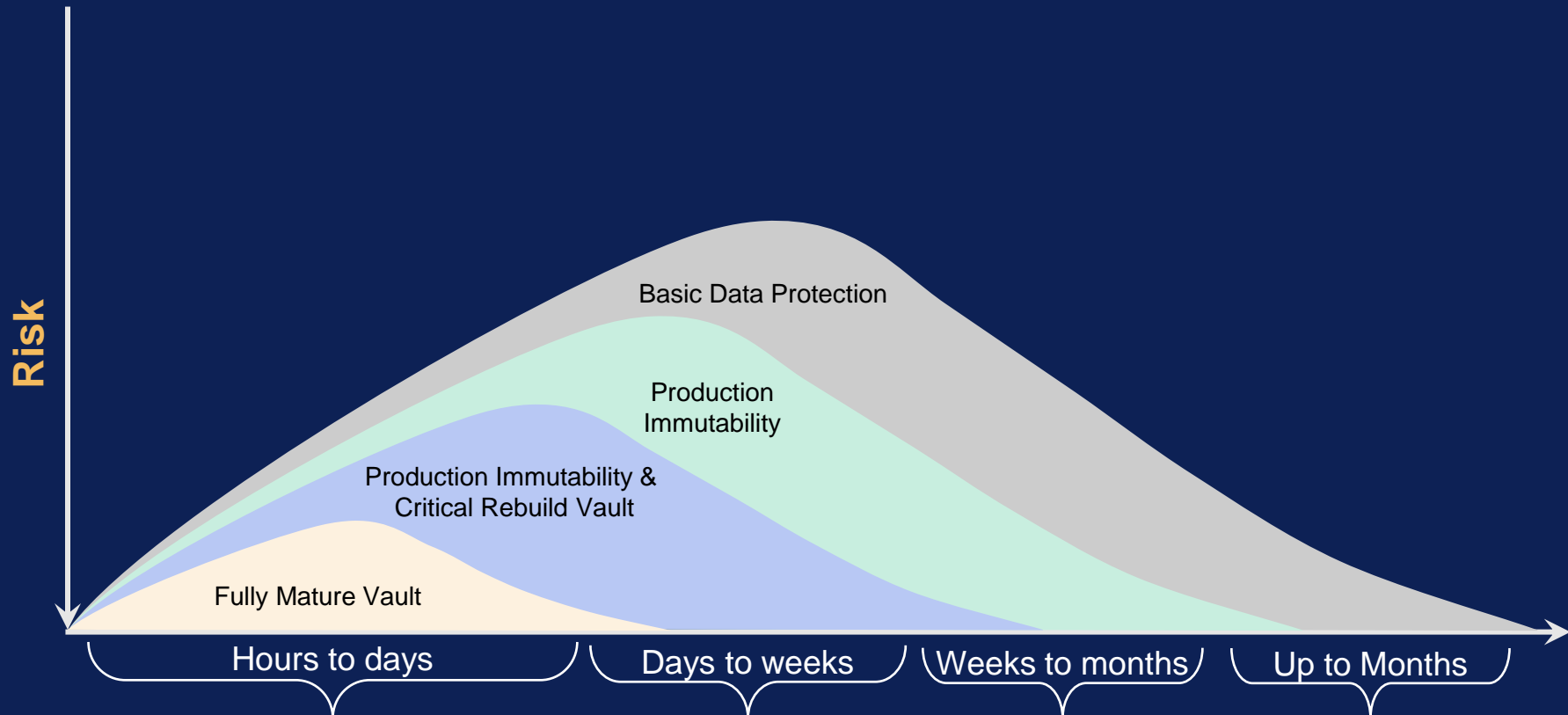
ML & analytics identify threats

CyberSense enables assured recovery of good data and offers insight into attack vectors from within the Cyber Recovery vault



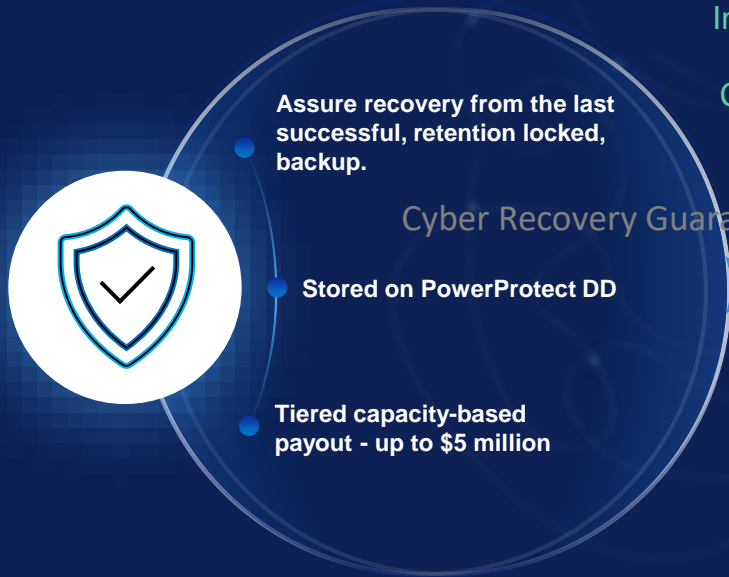
Stronger Resilience. Better Outcomes.

Reduce Risk, Speed Recovery, and Lower Costs

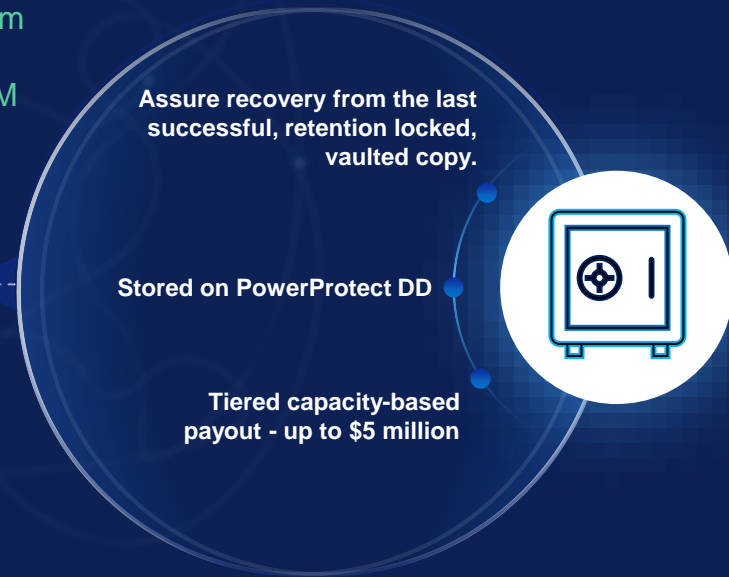


Cyber Recovery Guarantee overview

Production Immutable Copy Up to \$5M



Vault Isolated & Immutable Copy Up to \$5M



Independent up to \$5m
or
Combined up to \$10M

Cyber Recovery Guarantee overview

\$10M

[For More Information](#)

The Power of PowerProtect Cyber Recovery

Reduce Risk, Speed Recovery and Lower costs to recovery from Destructive Cyberattacks



PowerProtect DD and DDVE are the foundation of Data Protection – fast, storage efficient and highly secured for resilience



Immutability & multi-layered security design protects against a full spectrum of threats, including insiders



Physical and logical **Isolation** plus an operational air gap protect data vault from unauthorized access



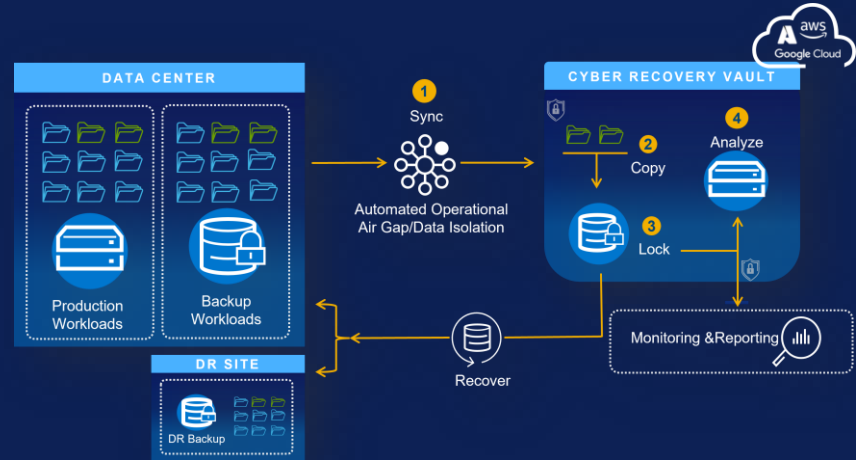
Intelligent analytics & ML help to enable confident recovery with data integrity



First and **Only** Sheltered Harbor endorsed turnkey data vaulting solution to confidently recover financial data



Cyber Recovery Guarantee will make sure data is protected and recoverable



On-premises – Colocation - Public Cloud

Whether on-premises, colocation or public cloud, Dell PowerProtect Cyber Recovery protects critical data from cyberattacks with flexible deployments and streamlined recovery options.



1,500+ customers¹

Dell Technologies



Fortune 100 companies

71% of the Global
companies in the Fortune
Global100 are

Dell Technologies Data
Protection customers



Fortune Global 500 sectors



9 out of top 10 Global Technology

9 out of top 10 Global Energy

8 out of top 10 Global Health Care

8 out of top 10 Global Motor Vehicles & Parts

8 out of top 10 Global Food & Drug Stores

8 out of top 10 Global Telecommunications

8 out of top 10 Global Transportation

7 out of top 10 Global Financials

7 out of top 10 Global Retailing

7 out of top 10 Global Food, Beverage & Tobacco



Start Your Cyber Resiliency ...Now

Cyber Recovery is a Key Enabler of Cyber Resilience

Focus on increasing confidence in the ability to recover from a cyber attack through key technologies and processes

Air Gapping,
Immutability
& automation



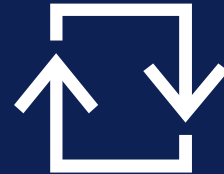
AI/ML based
security
analytics tools



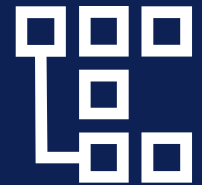
Runbooks
and recovery
process



Business
Recovery
At speed
and scale



Cross
functional
enablement

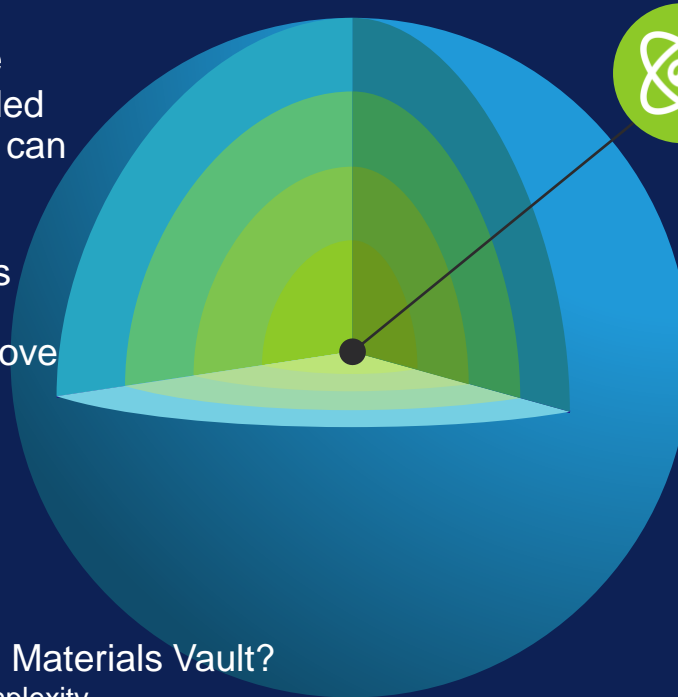


Critical Rebuilds Start at the Core

Deploy A Vault with Basic Recovery Building Blocks



- Critical Rebuild Materials are **"Tier 0"** infrastructure needed before business applications can run.
- Protecting Tier 0 components such as Active Directory can substantially speed and improve recovery with very little complexity or overhead requirements.



Tier 0

Protect the critical data needed to begin the rebuild of your environment first. Some examples are:

- Active Directory / LDAP
- DNS
- Switch / router / IP configurations
- Firewall rules
- Gold copy images / binaries
- Configurations and settings

Why Deploy a Critical Rebuild Materials Vault?

- Fast deployment and low complexity
- Enhanced resilience
- Provide a foundation for future vault contents such as databases and business applications

Continue Your Data Recovery Journey

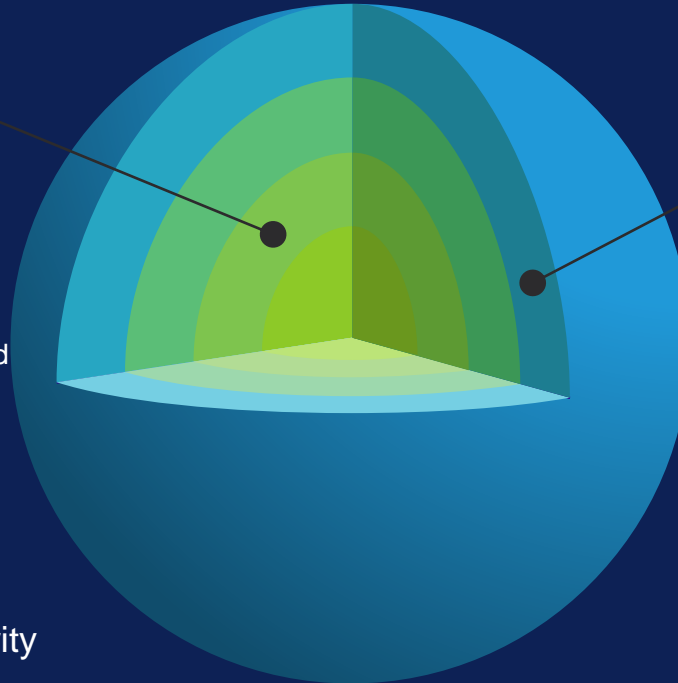


Understand the data in your environment and how it impacts the business



Tier 1 Applications

Start with the top 2 or 3 applications that are most important to keeping the business running. These are typically aligned to revenue, reputation, systematic risk and safety.



Tier 2 Applications

Protect additional applications and data that are important to the business. This will enable more of the business to be quickly recovered. Grow, as needed, over time.

Recovery Maturity

Consider advanced capabilities such as clean rooms and landing zones to speed and further enhance the recovery process.



Dell Security & Resiliency Services

Professional Services

- Cyber Assessments
- Deploy & Implement
- Runbook & Validation
- Advisory & Design
- Operate & Manage

Incident Recovery & Retainer Service

- Evaluate & Plan
- Strengthen Readiness
- Incident Response & Recovery
- Tabletop Exercises

APEX Cyber Recovery As-a-Service

- Manage day-to-day vault operations
- Drive consistent procedures & testing
- Monitored 24x7x365 by global operations team
- Support recovery operations



>35K

Service & Support Professionals

Certified Cyber
Security Experts

20+ years of
resiliency services innovation

Data Protection & Data Resilience Leadership

1800+

Cyber Recovery customers¹

17 EB+

Data protected in the cloud

#1

Data Protection appliances & software²

2015	First "Isolated" recovery solution with custom deployment
2016	zDP: 1st z/OS implementation of logical corruption protection
2018	Introduced PowerProtect Cyber Recovery solution
2019	First technology vendor in Sheltered Harbor Alliance Partner Program
2020	First Endorsed Sheltered Harbor Solution – PowerProtect Cyber Recovery
2021	Introduced PowerProtect Cyber Recovery for Multi-Cloud & AWS
2021	Formal support for PowerProtect Cyber Recovery for DLM
2022	Introduced PowerProtect Cyber Recovery for Azure and Google Cloud
2022	Managed as-a-Service APEX Cyber Recovery Services

¹ Based on Dell Technologies internal analysis, July 2023

² Based on combined revenue from the IDC 1Q23 Purpose-Built Backup Appliance (PBBA) Tracker, with select Storage Software segments from the 1Q23 Storage Software and Cloud Services Tracker

>35K

Service & Support Professionals

241M+

Assets supported

94%

Technical Support CSAT rating

10,000+

Transformation projects completed
DELLTechnologies

Learn More

Dell PowerProtect Cyber Recovery

delltechnologies.com/cyberrecovery

Intel® Innovation Built-in



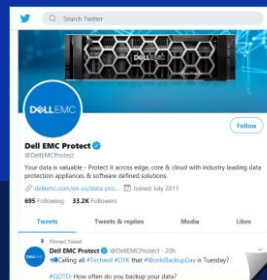
Data Protection > Guarantees

FUTURE-PROOF PROGRAM

Data Protection Guarantees



delltechnologies.com/dataprotection



@DellProtect



Multicloud Data Protection and Backup Solutions

Fortify the protection and resiliency of your critical workloads and data across your multicloud experience. Boost efficiency and scalability throughout your cloud infrastructure, while reducing total cost of ownership.

▶ Watch Video



delltechnologies.com/cloudprotection



Fortify Your Organization



Customer Video
San Felipe Del Rio



ESG Analyst Case Study:
Cyber Recovery for
Financial Sector



ESG Analyst Video
Cyber Recovery &
Sheltered Harbor



Data Integrity with CyberSense

DELLTechnologies



Customer Stories

Key Data to Protect by Industry



Healthcare

Electric medical records, scheduling, payment and billing systems



Financial Services

Payment, core banking, trading, treasury, sheltered harbor data



Life Sciences

Research and development, drug discovery & clinical trial data



Retail

Point of sale, inventory, shipping



Legal

Document management, conflicts checking, billing, email



Oil & Gas

Seismic & geographical exploration data



Government

Property records and taxes, justice systems, payment collection, licenses



Manufacturing

Plant manufacturing and scheduling, ordering systems, inventory



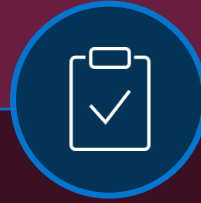
San Felipe Del Rio CISD

A more intelligent way for schools to guard against cyberattacks



Challenges

- Hit with two ransomware attacks that encrypted all of the district's databases, file sharing servers, videos and more.
- Needed to protect sensitive student and family information, as well as key employee data
- Needed to safeguard the district's 10,000 students and 1,500 employees across 17 campuses and administrative sites.



PowerProtect Cyber Recovery

- Isolated Cyber Recovery vault gives San Felipe Del Rio confidence knowing their data is secure
- Separate security credentials and multifactor authentication, limits access and providing additional layers of protection
- Thanks to PowerProtect Cyber Recovery, they haven't had a single backup infection where they couldn't go back and do a recovery.



Outcomes

- Recovered from a ransomware attacks in four hours, rather than in weeks.
- Makes short work of daily backups, typically in 2 hours or less.
- Allows the team to quickly go back in time to recover lost files.



Town of Gilbert

Improves cyber resiliency to better serve residents



Challenges

- Inconsistent backup strategy and multiple solutions/processes
- Cyberthreat landscape makes data, including backups, vulnerable to malicious code or attack
- Maintaining data integrity
- Disaster Recovery, Continuity of Operations, system resilience
- Business partner support too complex or non-existent



PowerProtect Cyber Recovery

- Isolated Cyber Recovery Vault provides an extra layer of security for critical data
- Analytics provide insight into the integrity of our data
- Enable a rapid recovery strategy consistent with our DR & COOP
- Peace of mind we're able to recover from system failures or cyber incidents



Outcomes

- Consolidate backups to a single hardened air-gapped solution
- Safeguard critical data against threats such as ransomware or cyberattacks
- Improved system resilience even in the face of catastrophic failure
- Trusted partner that is as vested in our success as we are in our own
- Future-proofing our solutions



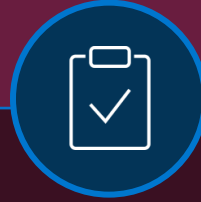
Founders Federal Credit Union

Data integrity drives business transformation



Challenges

- Expand business in competitive regional banking market
- Offering customers fast, reliable & innovative services on any device
- Making data protection and data integrity a cornerstone of Founder's customer promise



PowerProtect Cyber Recovery

- Protects critical data that is fueling technological and business transformation
- Provides confidence to IT leaders that critical data is protected from ransomware & cyber attacks
- Reassures Business leaders and customers that PII and other data is protected from cyber attack



Results

- "Impeccable data quality" has increased competitive advantage
- IT staff roles transformed from administrators to data technologists
- CIO measures value of IT by its contribution to transformation efforts



Moreno Valley Unified School District

School district gears up against cyber threats



Challenges

- Neighboring school districts were hit with cyber attacks
- Student, employee and financial data needed to be kept safe and secure
- Virtual classes introduced multiple connectivity and device challenges



PowerProtect Cyber Recovery

- Reassures Administration and staff that PII and other data is protected from cyber attack
- CyberSense for active cyber threat analysis / alerts
- Isolated vaulting capability, provides an extra layer of security and isolation



Results

- Air-gapped vault with CyberSense analytics means peace of mind that PII data is recoverable in event of a cyber attack
- Increased efficiency and lowered costs with 100x average daily compression rate
- Proactive, automated monitoring and reporting



Dodge County, Wisconsin

County Protects Critical Workloads from Cyber Attacks



Challenges

- Other county and city governments were hit with devastating cyber attacks, and Dodge County decided they needed protection
- Required an additional level of protection for their critical workloads
- Needed faster, more reliable backups and restores



PowerProtect Cyber Recovery

- Worry-free protection from cyber threats with automated daily data transfer to an air-gapped vault
- Confidence they can recover critical data and keep their business running in the event of a cyber attack
- Added layer of protection that most organizations don't have



Results

- Heightened user trust in IT due to the reliability of Dell data protection
- Backups complete in 1 to 1-1/4 hours, vs. 12-14 hours previously
- Automated data protection and ransomware detection mean no worries



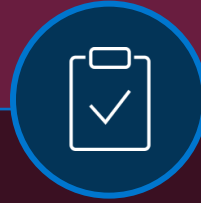
State of Oklahoma

Transforming state government IT



Challenges

- Safeguard critical data against threats such as ransomware or cyberattacks
- State services can't afford to be down, so they needed a reliable solution that ensured data availability
- Previous solution for restoring data was very manually intensive and didn't provide the confidence they needed



PowerProtect Cyber Recovery

- Peace of mind that they're able to recover from attacks
- Withstand global cyber attacks such as DDoS and defacement
- Isolated Cyber Recovery Vault provides an extra layer of security for critical governmental data



Results

- Withstood 3.8 trillion cyber attacks with Dell data protection.
- Ability to recognize a disaster and within hours be up and functional and running.
- Modernized disaster recovery by moving 2.6PB of data and 10,000+ databases to a remote data center



Financial Services

Protect securities trading platform & critical data



Challenges

- Outage risks \$10M/day
- Heterogeneous vendor environment
- Board concerned with compliance with FFIEC & Federal Reserve regulations



PowerProtect Cyber Recovery

- Automated, orchestrated process to minimize operational impacts
- Recovery runbooks for all storage & backup environments



Results

- Met Board mandate for efficient and reliable recovery from cyber destruction
- Provided foundational environment to protect additional applications over time



Healthcare Industry

Protect critical sensitive data and business operations



Challenges

- Targeting of healthcare institutions, impact of large attacks
- Budget constraints
- Regulatory pressures



PowerProtect Cyber Recovery

- Quick deployment of turnkey operational air gap and vault
- CyberSense for active cyber threat analysis / alerts



Results

- *“Nobody else has an air gap like Dell Technologies”*
- Prepared for response with minimal investment vs. risk of \$10M catastrophic incident

Thank You

