
CHUNK
WORKS
Software-driven data
management

TECHNICAL

DISCLOSURE

DISRUPTIVE CONTENT


Challenges in data infrastructure
The challenges facing modern organizations

Data infrastructure challenges

Data sovereignty & security

Organizations are increasingly struggling with **complex** regulatory **compliance requirements** like GDPR, NIS2, and DORA, while simultaneously facing growing **concerns** about **storing sensitive data** with foreign cloud providers. The challenge is compounded by **unpredictable vendor lock-in risks** and **cost increases**, all while traditional **security** approaches continue to leave critical **gaps** that modern threats easily exploit.

Business continuity & recovery

Modern businesses face the harsh reality that **downtime** can **cost €10k-€100k per hour**, yet many still **rely** on **traditional backup systems** that require hours or even days to recover from failures. The **complexity** of disaster recovery **often demands** specialized **expertise** that's expensive and hard to find, while geographic disaster risks continue to threaten operations with little warning or protection.

Infrastructure growth & optimization

As organizations grow, they're discovering that **infrastructure costs** are **spiraling upward** by **30-50% annually**, while the **complexity** of managing **multiple cloud environments** requires increasingly **specialized teams**. What should take minutes to provision often takes weeks, creating **scaling bottlenecks** that directly **limit business growth** and competitive advantage.

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What if you could have

Complete control

Choose exactly where your data lives, automatically meet all compliance requirements, and eliminate vendor lock-in forever – all while staying ahead of future threats with post-quantum security.

Instant recovery

Turn system failures into sub-minute recoveries with self-healing infrastructure that rebuilds itself across geographic locations without any manual intervention.

Effortless scaling

Cut infrastructure costs by 30-50% while deploying new environments in minutes, not weeks, with unlimited scaling that grows with your business.

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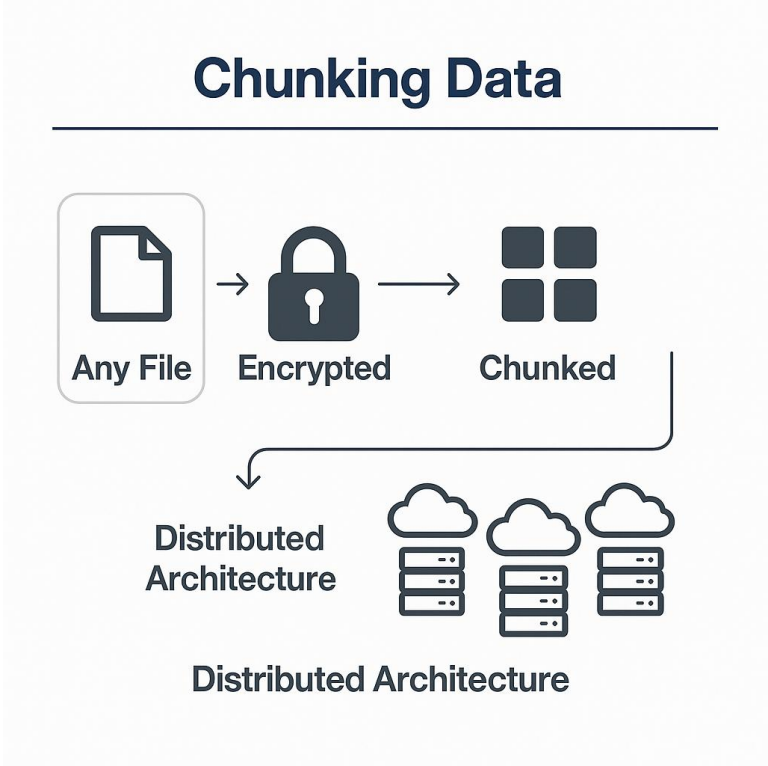
Introducing CHUNK WORKS

- **Distributed by design**, runs across edge, core, and cloud
- **Lightweight** footprint: works on minimal hardware or VMs
- **Sovereign**: deployed on-prem, regional DCs, or national clouds

Sovereign by Design

Own your data. All of it. Across borders, clouds, and time.

What Is Chunking Data?



GDPR

NIS2 Directive

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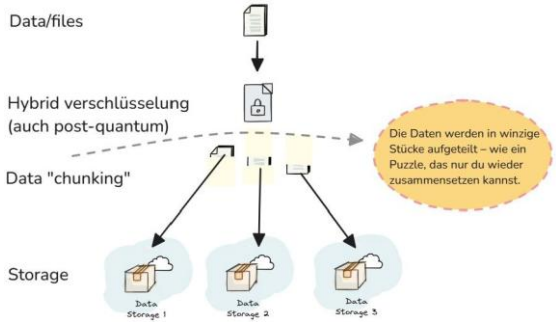
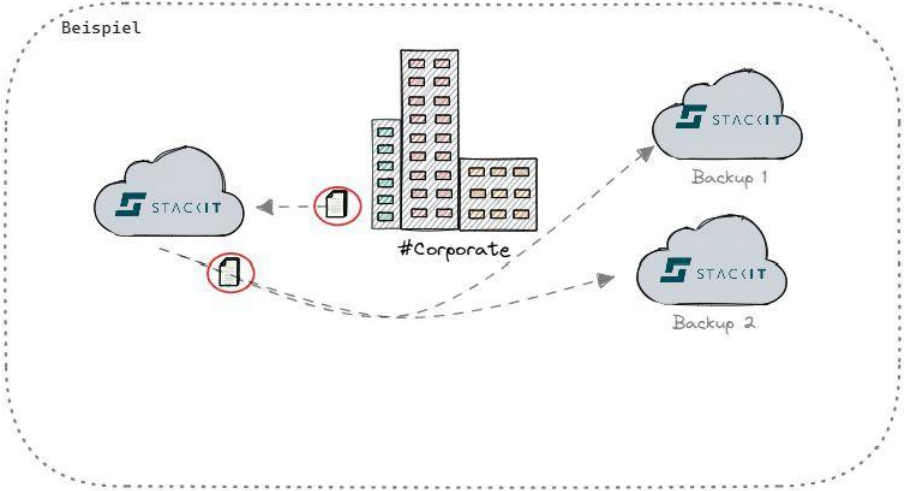
quantum secured

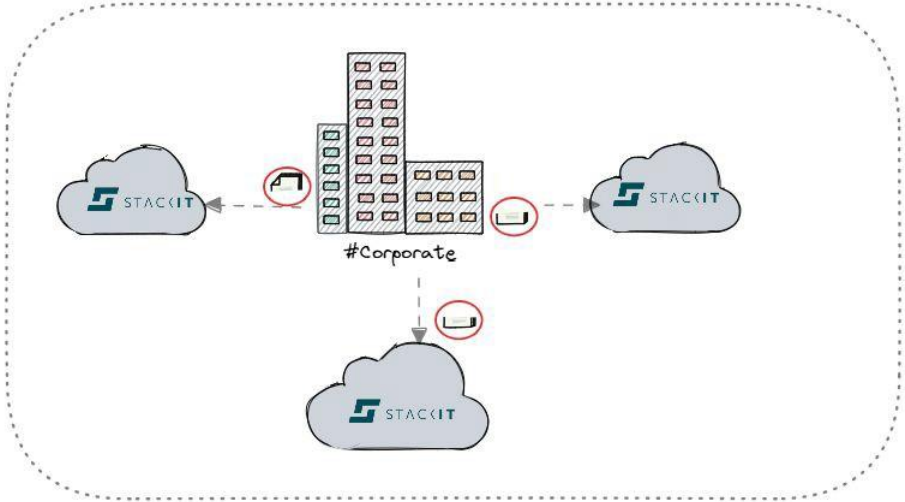
How it works?



Current state: complex, siloed data environments prone to downtime, inefficiencies and security risks

Transformed state: Unified, resilient data infrastructure that adapts, recovers, and scales instantly





Key benefits

Higher security	Data is split into chunks and stored separately - each fragment alone is useless, even if accessed
Full data control	Retain full control or delegate flexibility to infrastructure providers. You stay compliant and in demand
Improved uptime	Automatic failover ensures one location seamlessly takes over during disruptions - no downtime, no interruptions
Smart load-balancing	Data is dynamically reassembled. If one storage location lags, the system adjusts instantly for optimal performance
Sustainable & future proof	Lower CO2 emissions, reduced hardware needs - green IT infrastructure without compromising power.

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Chunk Works Platform

One platform, infinite resilience

This is where your infrastructure lives.

Gain real-team insights, manage environments, and orchestrate data resilience from one intuitive interface

- Instant visibility - monitor all environments at a glance
- Unified control - manage policies, nodes, and failover logic centrally
- Built for ops - designed for engineering, IT, and compliance teams alike

Trusted by leading organizations

Customer; distribution & implementation partner
Region: Caribbean

"Chunk Works gave us full control over our hybrid infrastructure. We've dramatically reduced failover risks while staying compliant."

Giovanni King, CEO of Blue NAP Americas

Customer, Distribution partner
Region: Netherlands

"If I can skip daily VM backups thanks to Chunkworks, that's a big win."

Arjan Mensinga, CEO & owner of Mensinga IT

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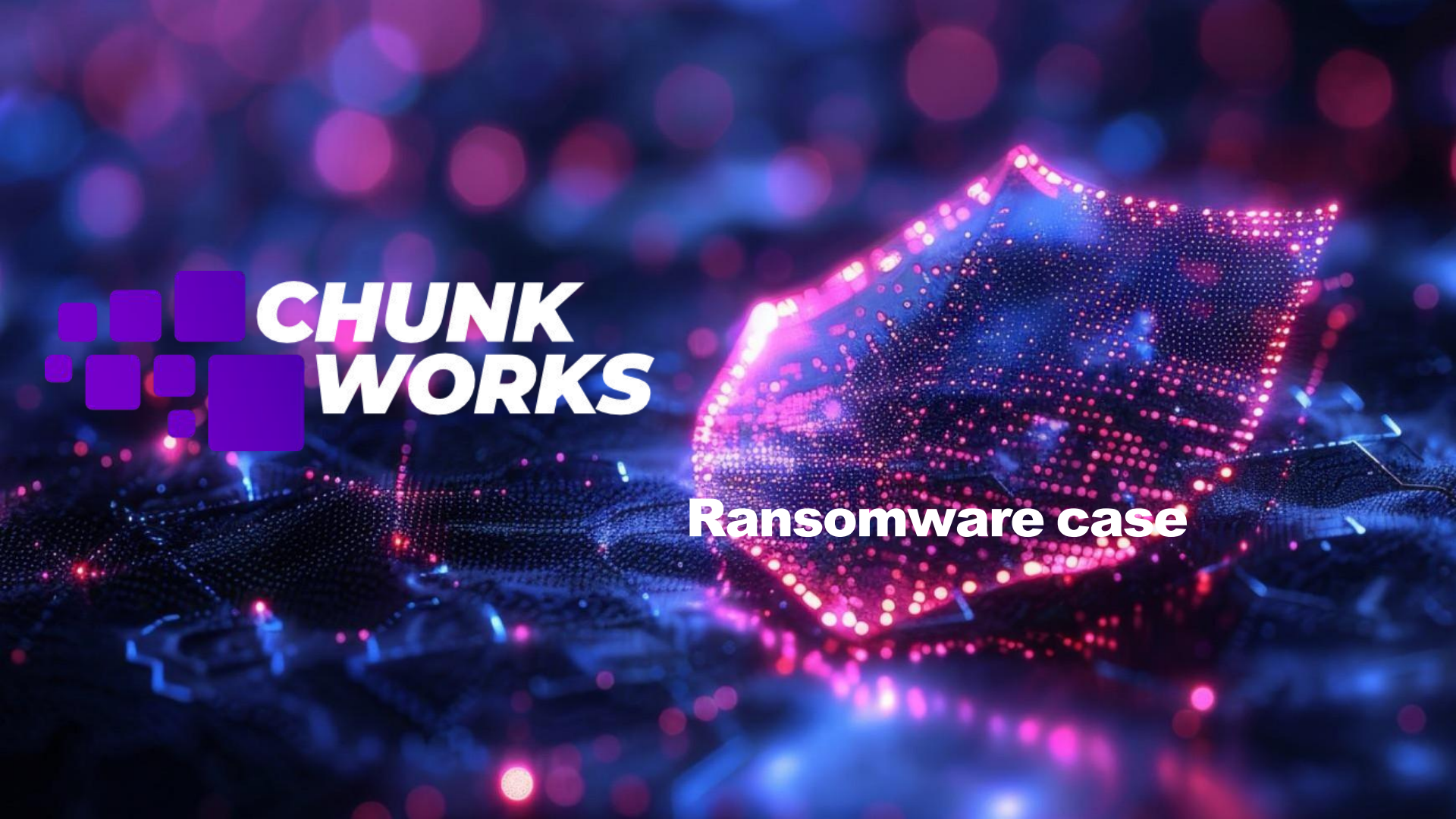
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Ransomware case

Real-Life Ransomware Scenario with Chunk Works Defense

Original Threat:

In March 2021, REvil launched a RaaS-powered ransomware attack on Acer, encrypting backend systems and locking critical data stored on centralized servers. Financial documents and sensitive files were also exfiltrated for double extortion.

Why Ransomware Has No Oxygen Inside Chunk Works

No Central Filesystem to Encrypt

Attack Detection is Built-In

Immutable & Self-Healing Data

Per-Chunk Encryption with Post-Quantum Keys

No Backup to Corrupt, It's Built-In

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The key results: ransomware can’t breathe in a system with:

No Central Filesystem to Encrypt	There are no drive letters, mount points, or shared folders to target. Data is **chunked, encrypted, and distributed** attackers can’t locate full files.
Attack Detection is Built-In	Tampered chunks instantly diverge from their hash. Immutable logs pinpoint when, where, and how corruption occurred.
Immutable & Self-Healing Data	Every write creates a new version ransomware can't overwrite. Damaged or tampered chunks are auto-repaired from parity.
Per-Chunk Encryption with Post-Quantum Keys	Each 5MB chunk is independently encrypted. Even stolen data is mathematically useless without reconstructing the full key map.
No Backup to Corrupt, It's Built-In	Parity = real-time redundancy. No backup vaults to find or lock. **Recovery is live and automatic**, not dependent on snapshots.

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Now, with Chunk Works Deployed:

Infrastructure Setup:

- 3 geographically separated datacenters (e.g., Singapore, Amsterdam, São Paulo)
- 8 nodes per DC, running Chunk Works

- Smart chunking (max 5MB per chunk)
- Hybrid encryption (post-quantum included)
- Configurable parity (e.g. 2 parity chunks per 6 data chunks)

- Distributed self-healing logic
- Immutable, versioned data structure
- No traditional file server or mount point

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During the Ransomware Attack:

What Fails to Work for REvil:

- Immutable Chunk Design

  *Attackers **can't locate** a drive letter or a shared folder to encrypt*

  *The storage appears **sharded, versioned, and content-addressed**.*

  *Every file is split into 5MB chunks, spread across 24 nodes (3 DCs × 8), with **no single point of access**.*

- No Central Filesystem to Encrypt

  Even if a node is breached and a chunk is tampered with:

  ***Deterministic hash changes**.*

  *Other nodes **quarantine the corrupted chunk**.*

  *System triggers a **rebuild from parity**.*

  *No **overwrite occurs***

- Self-Healing Across DCs

  *Even if **one entire DC is hit** : 66% of the original data (2 DCs) remains intact.*

  ***Parity chunks allow full rebuild**.*

  Automated node-to-node healing kicks in.

  ***No offline restore** or manual intervention needed.*

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Resulting Impact with Chunk Works:

Data Loss	⇨	**0%**, data auto-healed from parity
Downtime	⇨	Minutes at most, **recovery** was continuous
Ransom Paid	⇨	**$0** encryption failed
Backup Needed	⇨	None, live parity served as **recovery** path
Breach Detection	⇨	**Alerted** via hash mismatch & version tracking
Operational Continuity	⇨	Uninterrupted **access** rerouted DCs
Compliance Risk	⇨	**Avoided**, no data exfiltrated, version logs intact

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Strategic Value

- Ransomware was rendered powerless.
- No restore test needed, no snapshot rollbacks, no offline recovery window.
- Chunk Works' data resilience and cryptographic agility made it uncrackable and self-defending.


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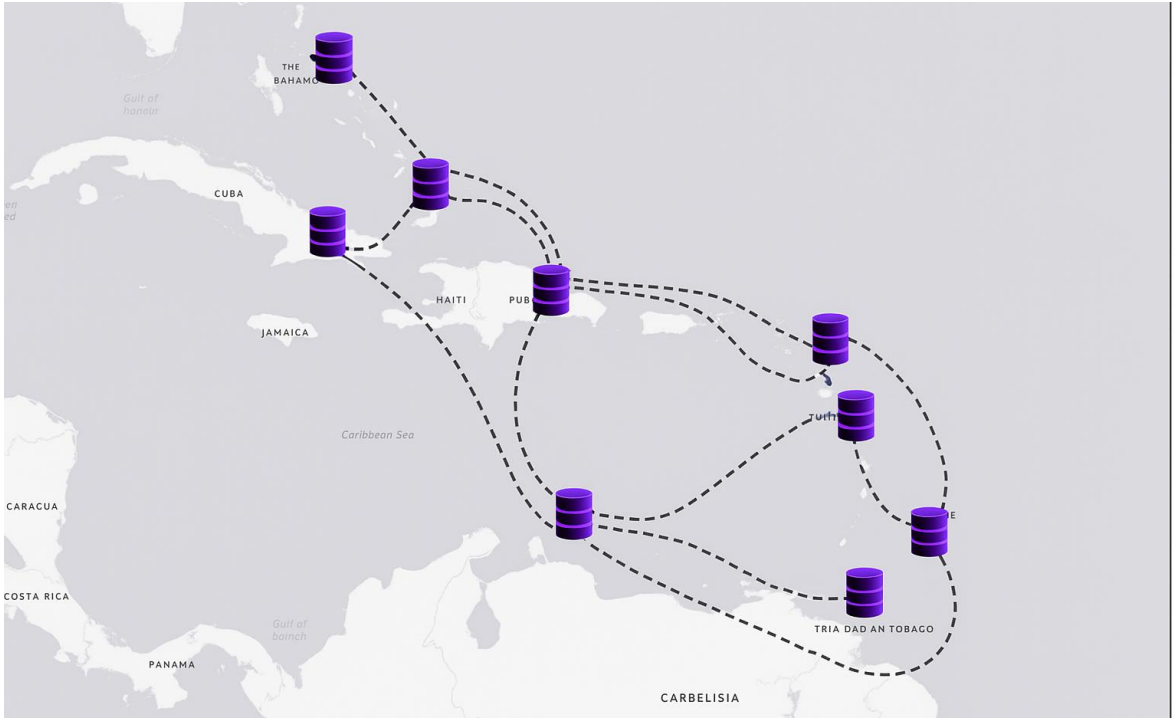
Introducing a sovereign, resilient cloud ecosystem for the Caribbean
How Chunk Works Enables a Federated Cloud Infrastructure

The Caribbean Challenge

- Geographic fragmentation: multiple islands, different jurisdictions
- Exposure to hurricanes and connectivity loss
- Growing ransomware threats
- Sovereignty concerns with foreign cloud vendors

What is a Federated Cloud?

- **Independent** cloud providers & interconnected
- Unified services, local **autonomy**
- Shared policies for security, identity, and **interoperability**
- Enables national and regional **sovereignty**



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The Advantages of Chunk Works

Ransomware Resilience

Autonomous Operation

Immutable & Self-Healing Data

Failover & Disaster Recovery

Security & Sovereignty

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Why Federation Matters

- **No central point of failure,** decentralized by design
- Each node contributes to a **regional safety net**
- More nodes = more **resilience**, **performance**, and **autonomy**
- Perfect for **geographically** dispersed, disaster, prone environments

Federated Cloud Resilience: Storm Impact

Scenario: Data center in the Bahamas goes offline due to hurricane

- **Automatic failover** ensures continuity for users and apps under any scenario
- Other federated nodes act as **anchor nodes**(e.g., Curaçao, Trinidad, Martinique) continue operating
- Chunked data is **distributed**, no full data loss at any site, **business continuity** on highest level

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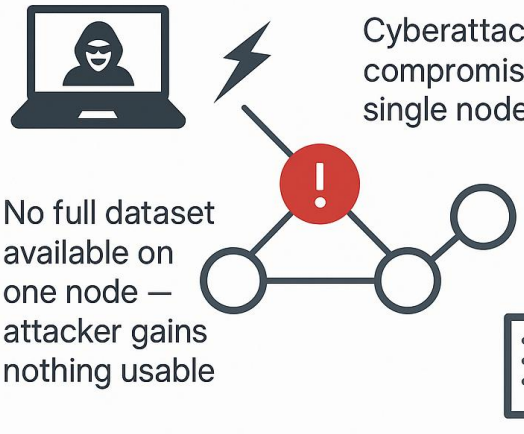
Continuity Operations in any Scenario

Hacker Attack



Cyberattack compromises a single node

No full dataset available on one node — attacker gains nothing usable

Other nodes detect anomaly and isolate affected node

Versioned chunk history allows secure rollback

Ransomware Attack

Ransomware encrypts files on one island's infrastructure

Chunk Works' versioning prevents overwrite of clean data

Recovery is instant — system restores from immutable chunks

Federation ensures access continues from alternate nodes

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Federated Cloud Resilience Pillars

Control

Autonomous

Sovereign

Secure

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When data matters!