Data Protection Solutions
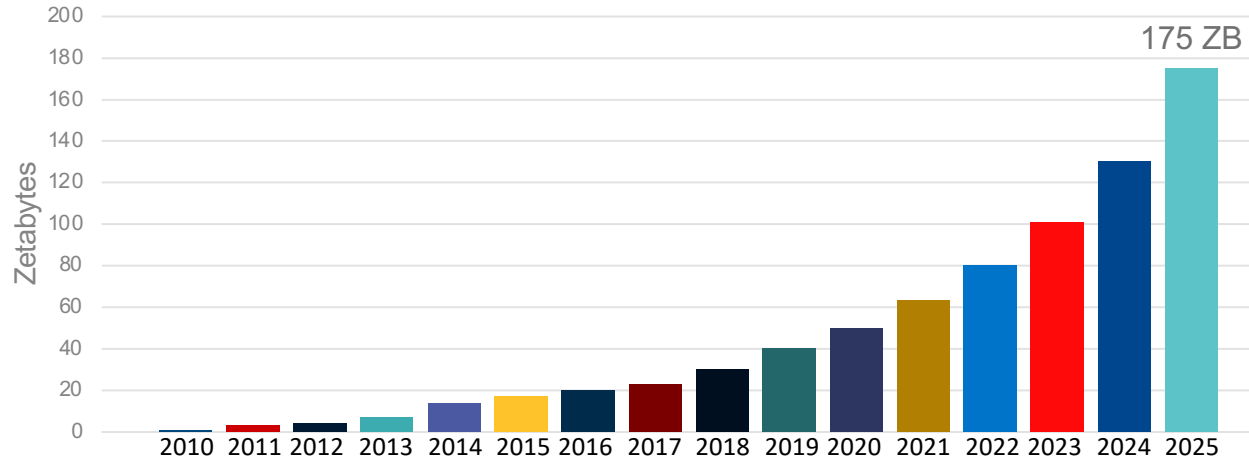
Improve RPO/RTO, Gain Cyber Resiliency, and Improve ROI

Andrej Gursky
Solution Consultant CEE
October 2023

Data Protection
Challenges

As Data Grows So Do Your Protection Worries

HITACHI
Inspire the Next

175 ZB

Zetabytes

| 200 |
| 180 |
| 160 |
| 140 |
| 120 |
| 100 |
| 80 |
| 60 |
| 40 |
| 20 |
| 0 |

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
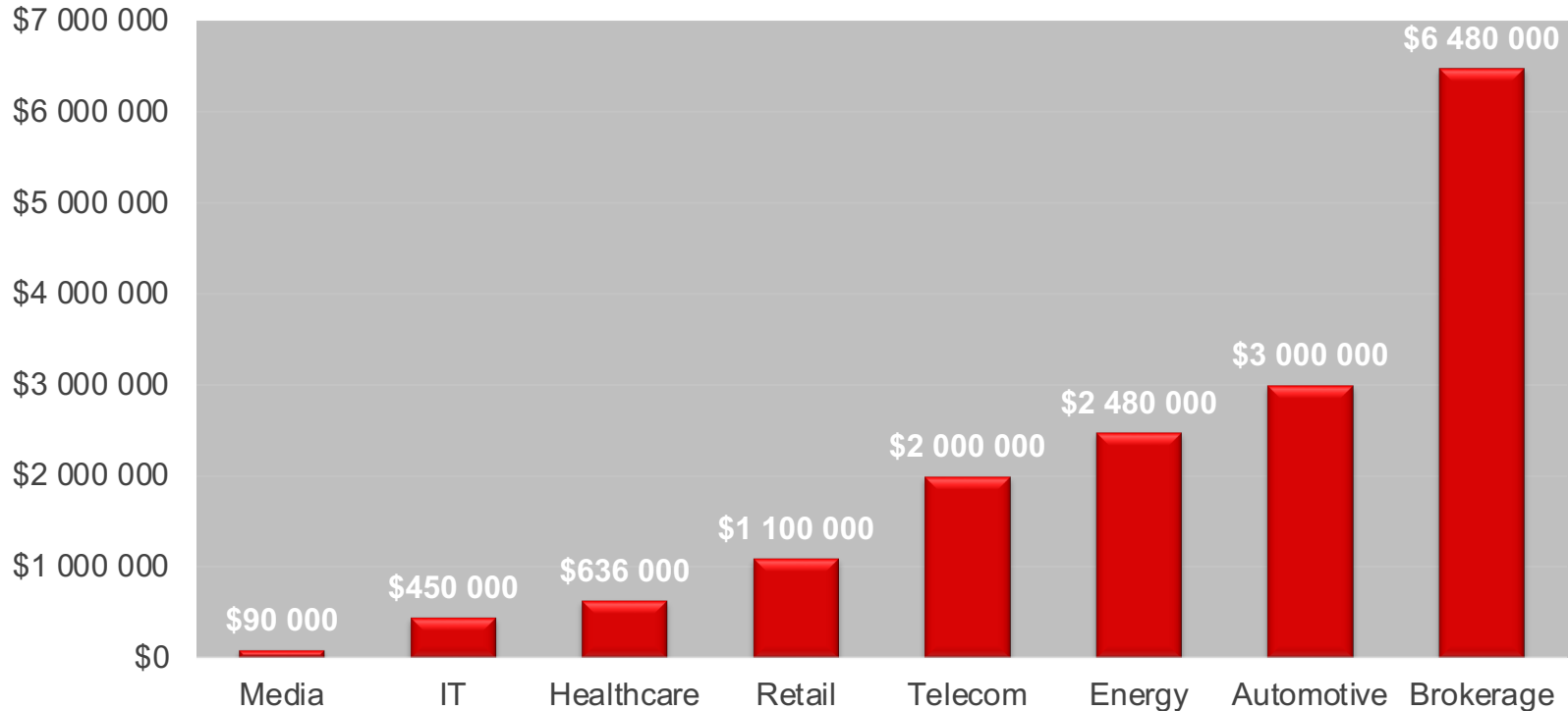
IDC Predicts that the Global Datasphere will grow to 175 Zettabytes by 2025

For larger businesses, downtime can cost over $16,000 per minute (~$1 million per hour)

Downtime is Detrimental

Cost of Downtime in Dollars/Hour

Industry	Cost
Media	$90 000
IT	$450 000
Healthcare	$636 000
Retail	$1 100 000
Telecom	$2 000 000
Energy	$2 480 000
Automotive	$3 000 000
Brokerage	$6 480 000

https://www.pingdom.com/outages/average-cost-of-downtime-per-industry/

Data Protection Software Evolves to Keep Pace

COMMVAULT HDPS **VERITAS** **SecureAgent Software** **Quantum** MODEL 9 **rubrik**

HITACHI OPS CENTER PROTECTOR **veeAM** **FalconStor** **LUMINEX** **TRIBUTARY SYSTEMS** **IBM Spectrum Protect**

But Storage for Backup Data Lags Behind

Tapes

- Subject to media failure/loss
- 50% of tapes restores fail
- Time consuming to manage
- Slow backups and restores

Public Clouds

- High costs for access
- Security and privacy concerns
- Limited bandwidth
- Slow system recoveries

Which Leads to Bigger Challenges Overall

Manual efforts introduce risk and are inefficient

Lack of support for hybrid infrastructure limits flexibility

Management complexity, inconsistent policies, and lack of data visibility

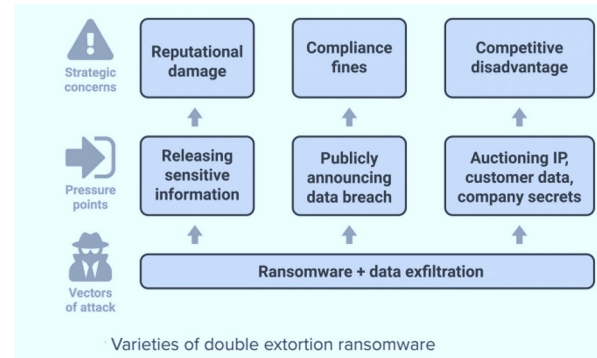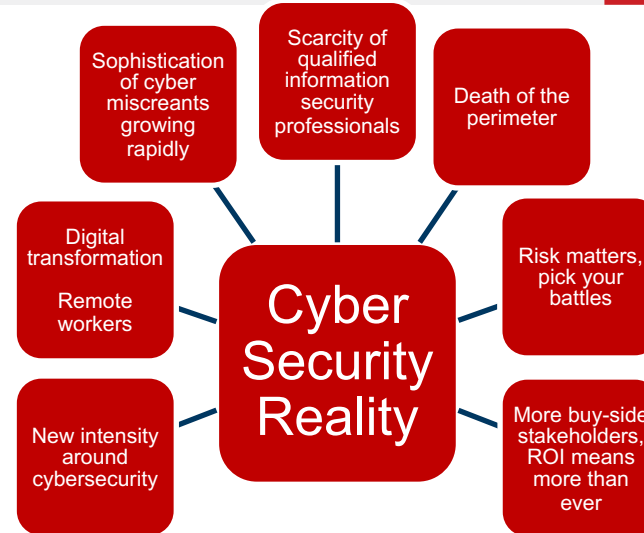**Lack of automation** slows response times

Weak cyber resiliency exposes risk of ransomware and malware

Inability to meet governance regulations **such as GDPR**

6

The Reality Of Cyber Threats

- Ransomware is not a rare phenomenon; the dark web infrastructure has become vicious and targets any businesses from start-ups to large enterprise

- Remote data access & management surged up by 3X causing multilayer vulnerability

- Expansion to public cloud infrastructure extends beyond your reach to manage.

- A malicious payload from an Internet-based command-and-control server is enough to cause damage

- Trend analysis clearly shows the intruders are getting better equipped

- The bottom-line: **How exposed are we?**

Varieties of double extortion ransomware

HITACHI
Inspire the Next

- Ransomware is not a rare phenomenon; the dark web infrastructure has become vicious and targets any businesses from start-ups to large enterprise

- Remote data access & management surged up by 3X causing multilayer vulnerability

- Expansion to public cloud infrastructure extends beyond your reach to manage.

- A malicious payload from an Internet-based command-and-control server is enough to cause damage

- Trend analysis clearly shows the intruders are getting better equipped

- The bottom-line: **How exposed are we?**

Global Ransomware Damage Costs*

- **2015:** $325 Million
- **2017:** $5 Billion
- **2021:** $20 Billion
- **2024:** $42 Billion
- **2026:** $71.5 Billion
- **2028:** $157 Billion
- **2031:** $265 Billion

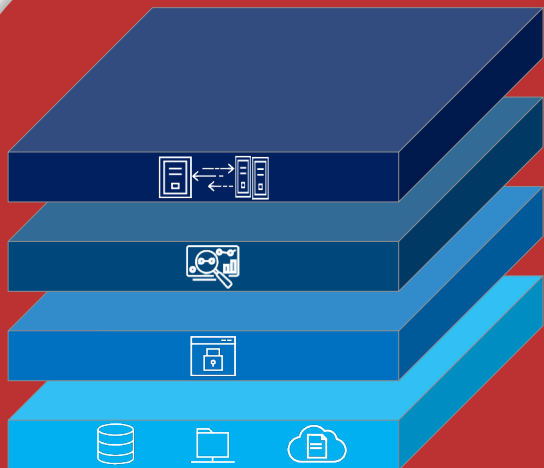*Ransomware is expected to attack a business, consumer, or device every 2 seconds by 2031, up from every 11 seconds in 2021.*

CYBERSECURITY VENTURES

* SOURCE: CYBERSECURITY VENTURES

The Hitachi Vantara Strategy

Faster recovery, more reliable backups, and enhanced cyber protection while reducing costs

Robust Infrastructure, Software and Services

Robust Operational Resilience as a Service
EverFlex, Hitachi Systems Security

Nearly instant, disposable, copies of production environment
Thin Digital Twins with CyberVR from VM 20/20

Simplified administration of data protection processes
Ops Center Protector

Efficient, Dependable Backup and Recovery
HDPS, Commvault, Veeam, Veritas, IBM, Model9, etc.

Reliable, Secure, Immutable Infrastructure
VSP, HNAS, HCP, HCP Anywhere Enterprise

With Guaranteed 100% Availability

100% Data Availability Guarantee
20th Anniversary

- The average cost of a data center outage is $740,357 which is why we guarantee that not to happen

- Backed by 20 years of experience and more than 4,000 industry-leading storage patents, Hitachi storage systems are engineered to have no single points of failure and multiple levels of redundancy

"I have been a Hitachi storage solutions customer for 15 years – their platform has been a game changer for me and my organization"

Scott Crowder
Senior Vice President and CIO BMC Software

"These two G1500s are the two most reliable pieces of our infrastructure"

Theodoros Zarros
CTO at Athens Exchange Group

For End-to-End Data Protection and Cyber Resiliency

COMMVAULT HDPS   VERITAS   Quantum
HITACHI OPS CENTER PROTECTOR   veeAM   SecureAgent Software   rubrik   IBM Spectrum Protect
    MODEL   LUMINEX   TRIBUTARY SYSTEMS
    FalconStor

VSP + HCP

Data Durability	Industry Leading	Integrates With Your Backups	Long-term & Short-term Data Retention	Exabyte Scale	Object lock immutability and compliance	Data In-Place Upgrades	Faster RTO and RPO	Hybrid Tier to Public Cloud

Scalable
Stay ahead of data growth

Affordable
Reduce overall costs

Fast
Fulfill SLAs for RPO/RTO

Easy
New capabilities for existing tools

Reliable
Recoverability and cyber-resiliency

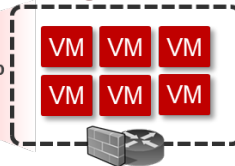**Concurrent on-demand digital twins drive agility and resiliency across the organization**

VM VM VM
VM VM VM   **Test upgrades, patches, new apps**

VM VM VM
VM VM VM   **PenTesting, forensics, control validation**

Near-instant and capacity efficient Digital Twins

CyberVR + **Ops Center Protector**

Snap-on-Snap

VM VM VM
VM VM VM

Virtual-air-gap

VM VM VM
VM VM VM   **DevSecOps, ransomware recovery**

12

From Edge-to-Core
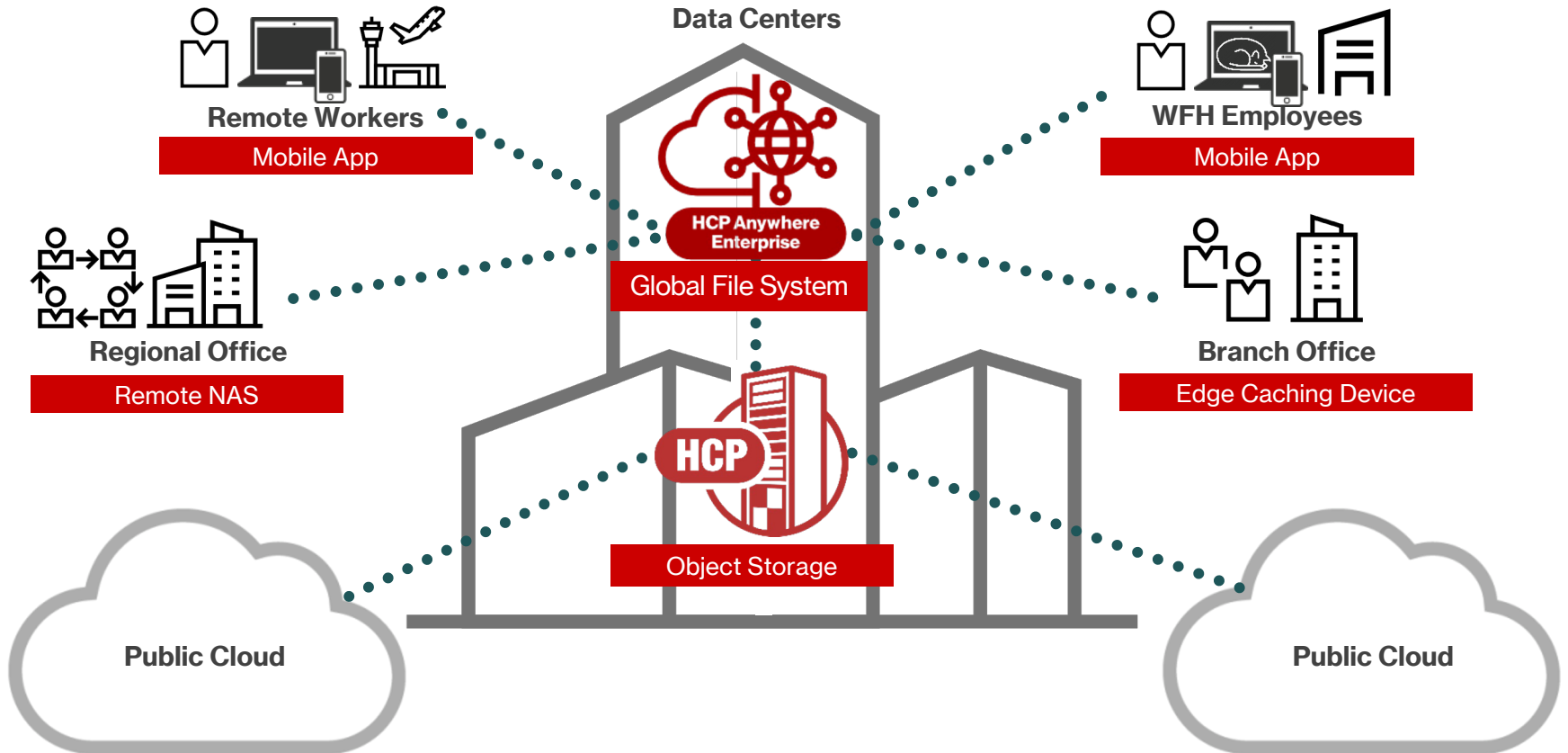
Hitachi Ops Center Protector

DATA SOURCES

Hitachi Ops Center Protector

OUTCOMES

File Systems

Hypervisors
VM

Databases
Applications
Oracle

Storage

Enterprise Copy Data Management

RECOVERY COPY SERVICES

AGILE COPY SERVICES

GOVERNANCE COPY SERVICES

Hitachi Agile IT Infrastructure

Object, Converged, Hyperconverged, Virtualized, Flash Accelerated, File

Snapshot, Clone, Backup, Active-Active, Synchronous, Asynchronous

Always-On Availability

Business Agility

Compliance

Cost Reduction

14

How it Works

Hitachi Vantara + Commvault

Two powerful solutions, one platform

→ HDPS protects data, applications and workloads so that customers can restore their business operations when needed, within desired recovery time objectives. (RTO). It minimizes the risk of losing backup data and the ability to recover due to various cyber threats with several security and ransomware features.

→ HDPS Powered by Commvault plus Hitachi Content Platform for cloud scale
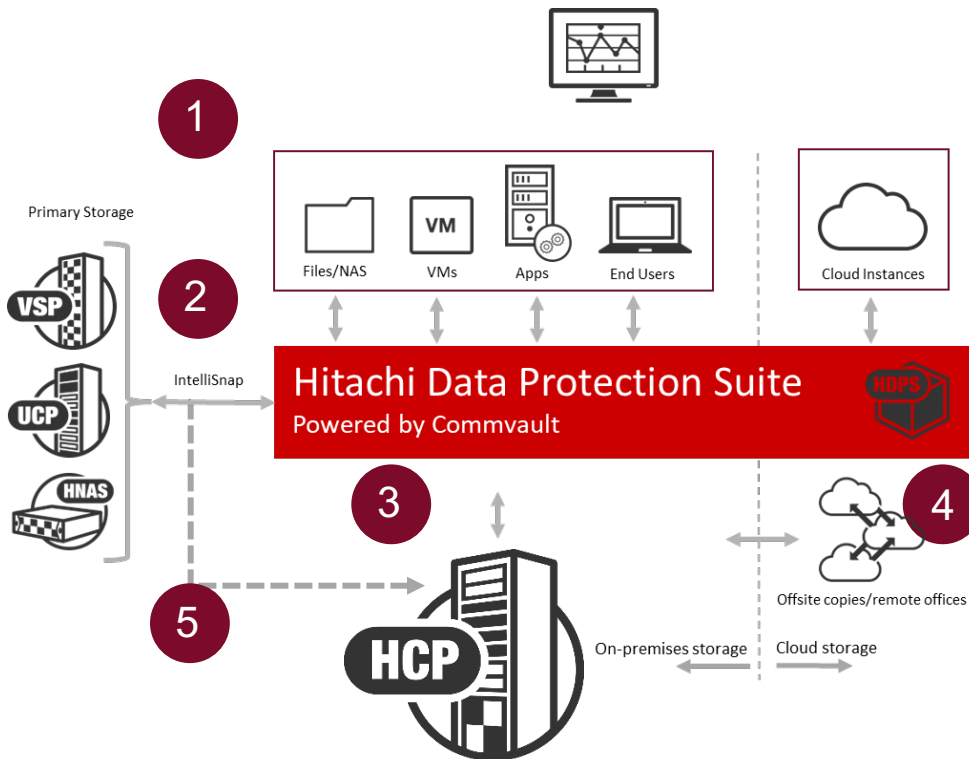
- AAA security framework
- Data isolation/air gap
- WORM and immutable storage
- Anomaly detection
- Recovery readiness

Hitachi Data Protection Suite
Powered by Commvault

HDPS

HCP
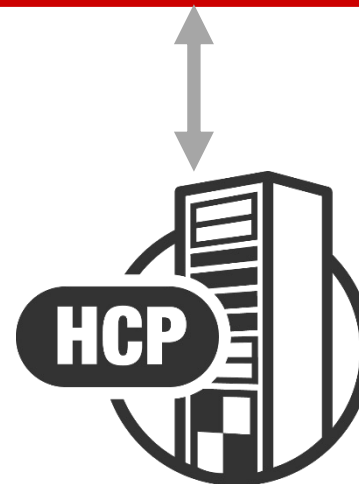
How it Works

HDPS has your backup and recovery needs covered no matter where your data lives (on-premises or in the cloud)

1. HPDS protects files, VMs, applications, and end-users with a single solution.

2. HDPS IntelliSnap® technology orchestrates and automates snapshots for primary storage to improve RTO/RPO

3. Commvault Software writes directly to HCP for long-term retention/archive, no tiering required

4. HDPS and Commvault Software write directly to the cloud for improved DR and availability

5. HDPS provides optional NAS offloading directly from HDPS to HCP

Commvault HyperScale and HCP

Commvault HyperScale X

- Hyperconverged Backup Appliance

- Start with 3 nodes
  - Scale growth w/ individual nodes

- Immutable backup appliance

- Daily Operational backup/recovery resides on HyperScale X

1 HDPS CommServe

HyperScale X™

Load Balancers

4 Cloud Scale Nodes

Storage 1 PiB
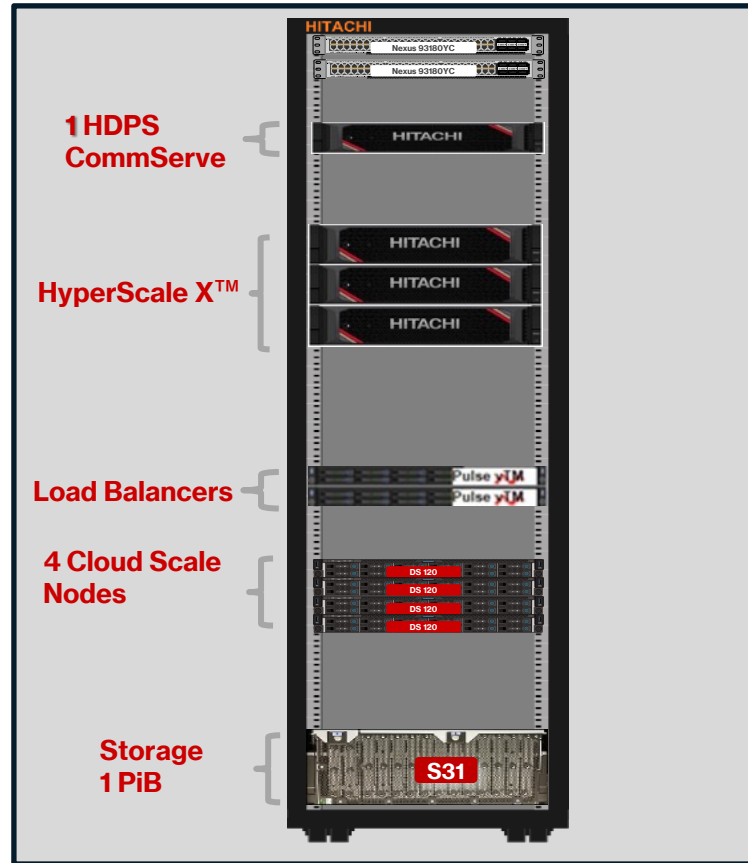
HCP Cloud Scale

- Long-term retention

- Immutable copy of long-term data

- Independently scale compute and storage as needed

- Erasure coding for durability and resilience

- S3 target connectivity for high bandwidth apps and S3 API reqs

- Ransomware: S3 Object Lock, Air Gap available if desired

18

HDPS Provides Industry Leading Coverage

Storage Integration	OS, Apps, DBs, & Endpoint	Virtual Infrastructure	Large Files and Big Data	SaaS and Cloud-Native

Plus 15 other storage vendors and 300+ heterogeneous storage arrays

Scalability without constraint	Hitachi Data Protection Suite (HDPS) Powered by Commvault	Protection without compromise

Access without limits

Hitachi Content Platform + Veritas
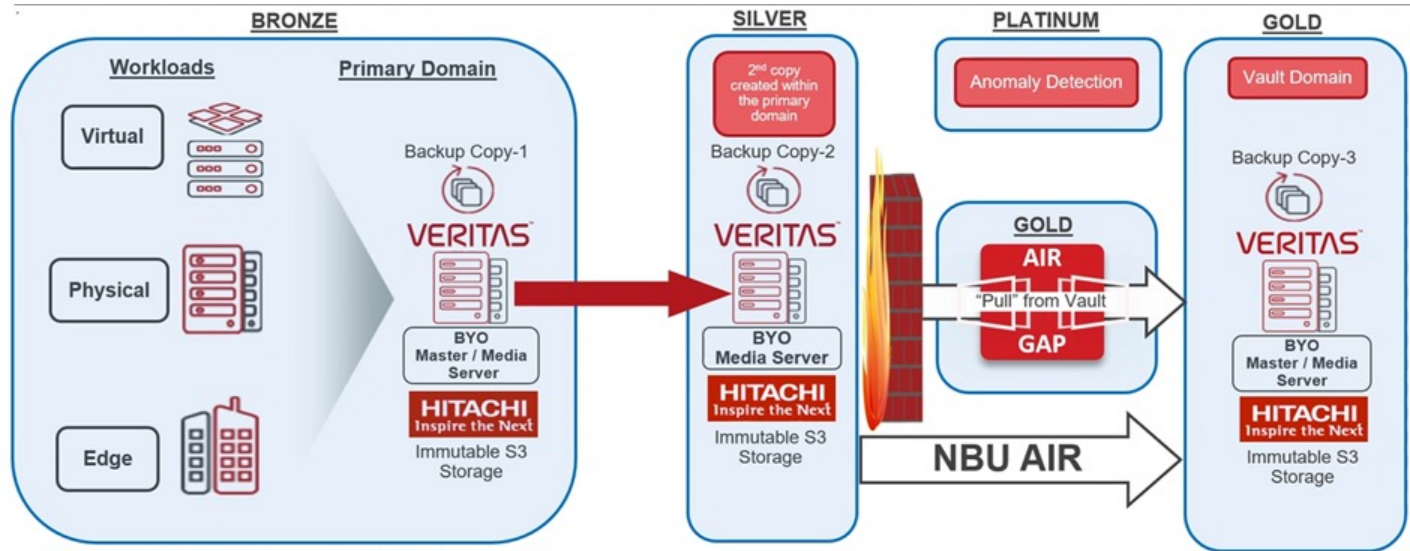
- ANOMALY DETECTION is done on the initial backup
- ALL copies of backup data are stored on IMMUTABLE / INDELIBLE STORAGE, providing greater protection, and enabling the solution to meet stricter RPO's
- Using "AIR-GAP" feature for BYO NBU servers (new in NBU 10.1)

How it Works

Scale Out Data Protection Solution with Hitachi Flex Protect, Powered by Veritas

- Pay as you grow with Scale Out Data Protection Architecture

- Shift to Software Defined Scale Out architecture in the market (19% growth CY2022)

- Scale from 4 nodes to 16 nodes seamlessly with Hitachi HA820 Gen2 compute nodes
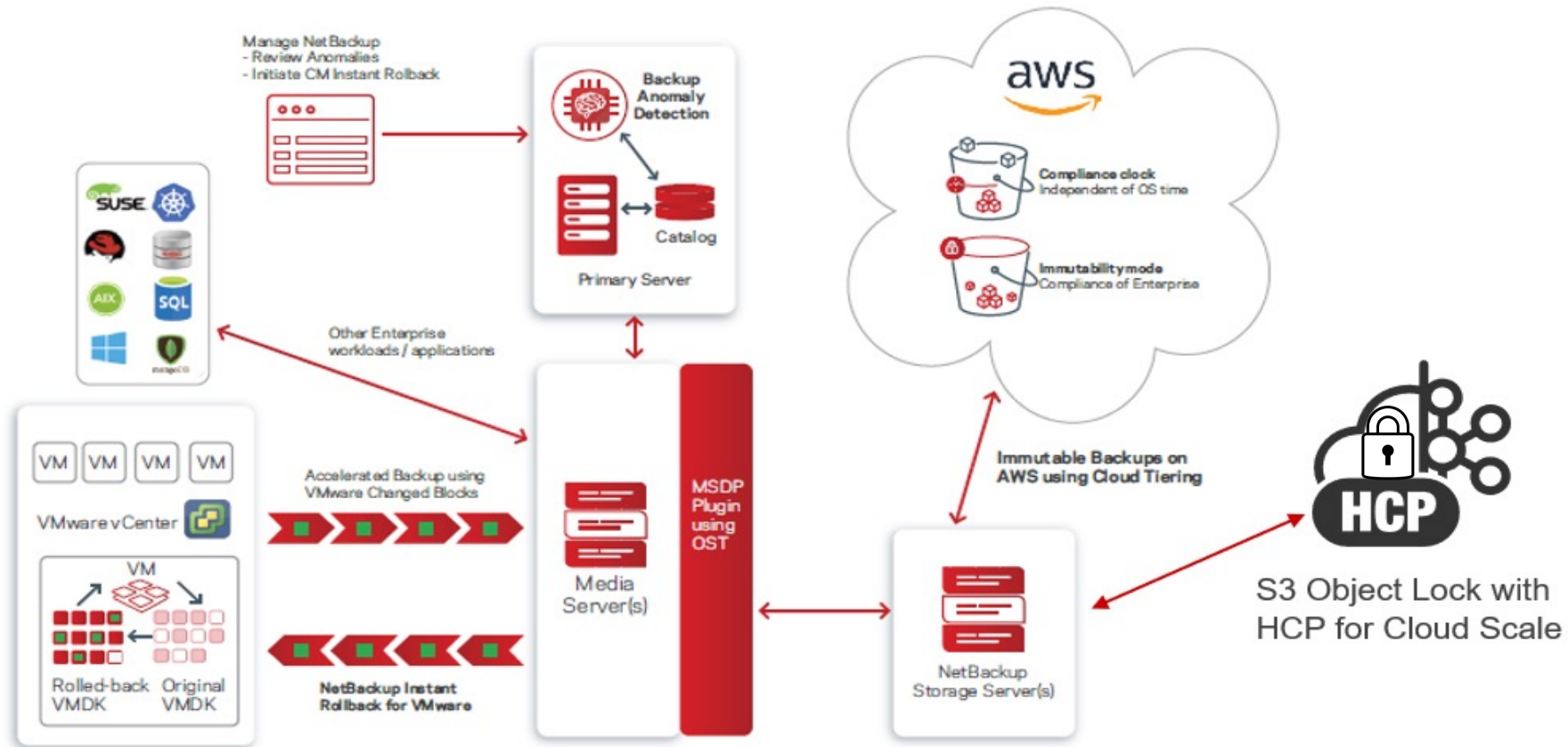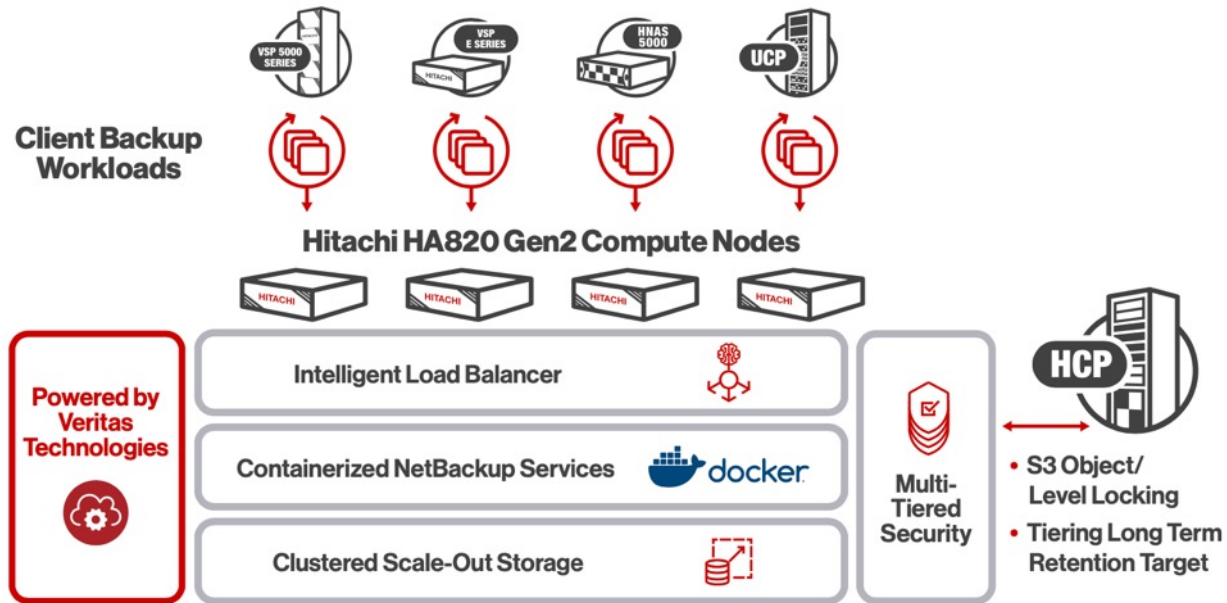
- Ransomware Resilient

- Reduce acquisition costs with Veritas Validated Servers from Hitachi

- Simplified Management and deployment

- 800+ workloads, 60+ Cloud

- Support Applications running on Hitachi VSP Storage platforms, HNAS and UCP

- Integrated Snapshot management with VSP, and advanced DNAS support for HNAS

- Integration with HCP Cloud Scale with S3 Level Locking for Immutability, Governance, & Compliance Retention for tiering out data

- Automation to easily Respond in Unpredictable Environments

Client Backup Workloads

VSP 5000 SERIES   VSP E SERIES   HNAS 5000   UCP

Hitachi HA820 Gen2 Compute Nodes

Powered by Veritas Technologies

Intelligent Load Balancer

Containerized NetBackup Services   docker

Clustered Scale-Out Storage

Multi-Tiered Security

HCP

- S3 Object/ Level Locking
- Tiering Long Term Retention Target

Veeam 12 Direct Integration
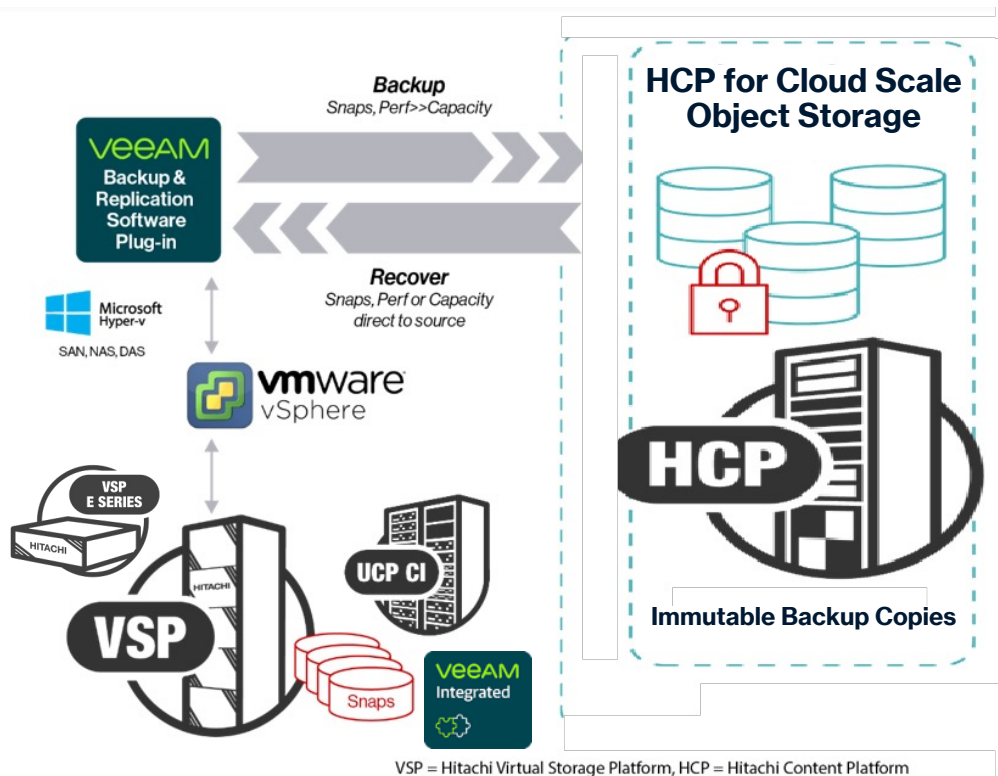
Improved V12 Direct to HCP for cloud scale object storage includes:

- Immutability for long-term retention backups

- Improved the way object storage is represented by Veeam

- Recovery directly to source

- Scale out everywhere as object storage

- Improved Rebalance option

- Multiple workloads with one destination

Veeam 12 Direct Integration
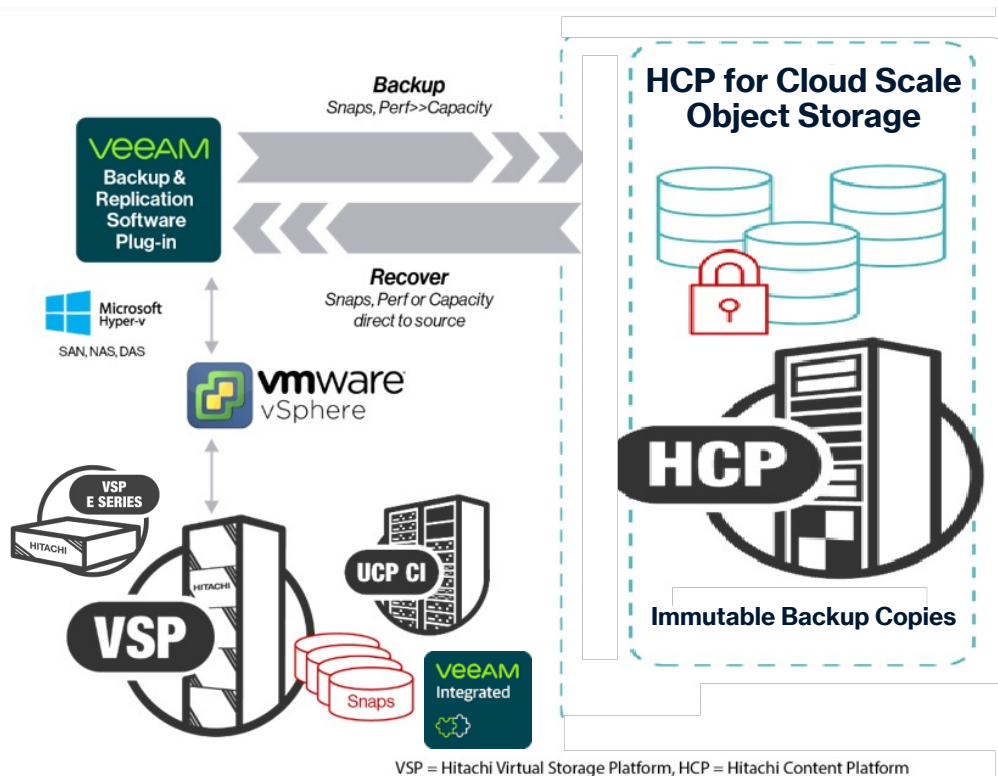
Faster backups and restores:
Streamline disaster recovery and lower recovery point and time objectives.

Optimized, immutable storage:
Massively scale capacity, simplify management, and enable faster tiering to immutable data for ransomware protection.

Reduce complexity:
Use Hitachi Content Platform for cloud scale as a single target without the requirement to move data between tiers.

Cost savings:
Deduplication reduces network traffic and storage costs. There are no access costs that are typical with public cloud.

How it Works
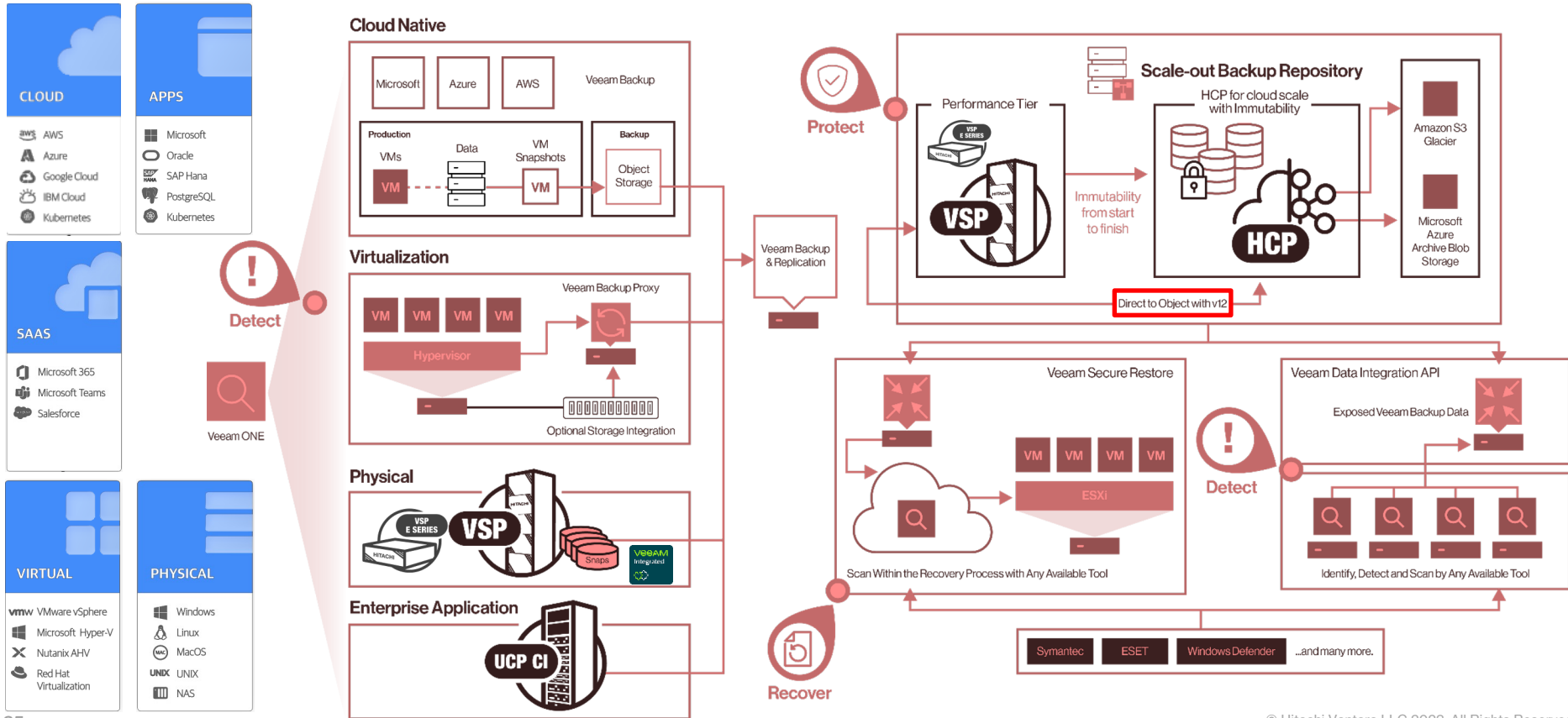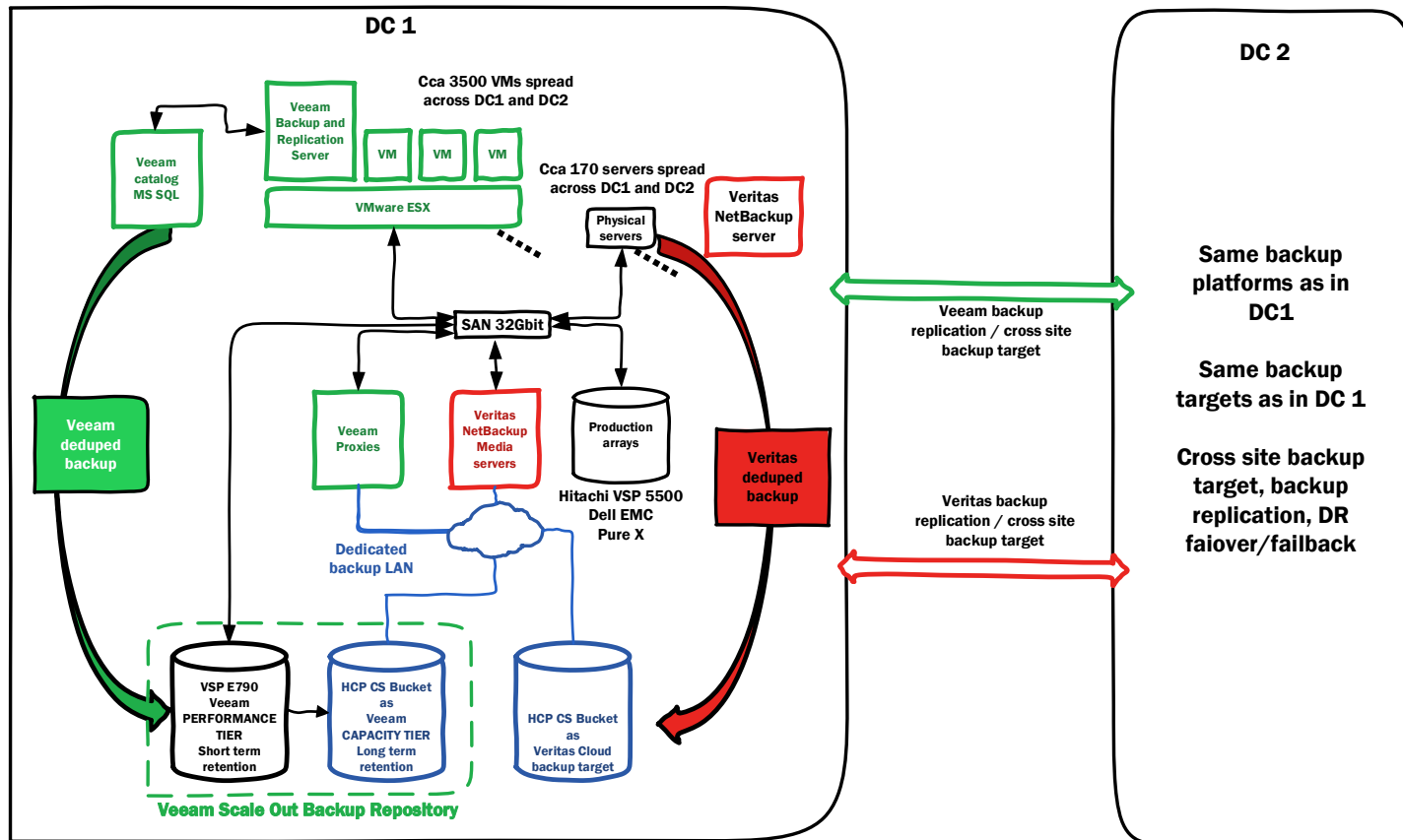
Why Backup To Hitachi Content Platform?

Recovery can take up to days / weeks

- Lower cost overall
- High performance backups
- Quick recoveries
- Unlimited scale
- No single point of failure
- Proven reliability

Recover in minutes / hours

HCP

You're in control. Data on-demand when you need it most.

Safeguard Your Data Against Ransomware

Hitachi Content Platform

Maintain Business Continuity	
Keep multiple versions of the same file without placing additional burden on IT	
Bring compliance, data governance and legal tools to bear for sensitive data	
Encrypt data before sending it off into the cloud	
Centralized data protection and reporting	

HCP Anywhere Enterprise

Protect employees' most frequently used data	
Gain productivity with continuous access to data from anywhere, any device	
Roll back to the previous version of any file	
Backup and recover files from any user device or remote/branch office	

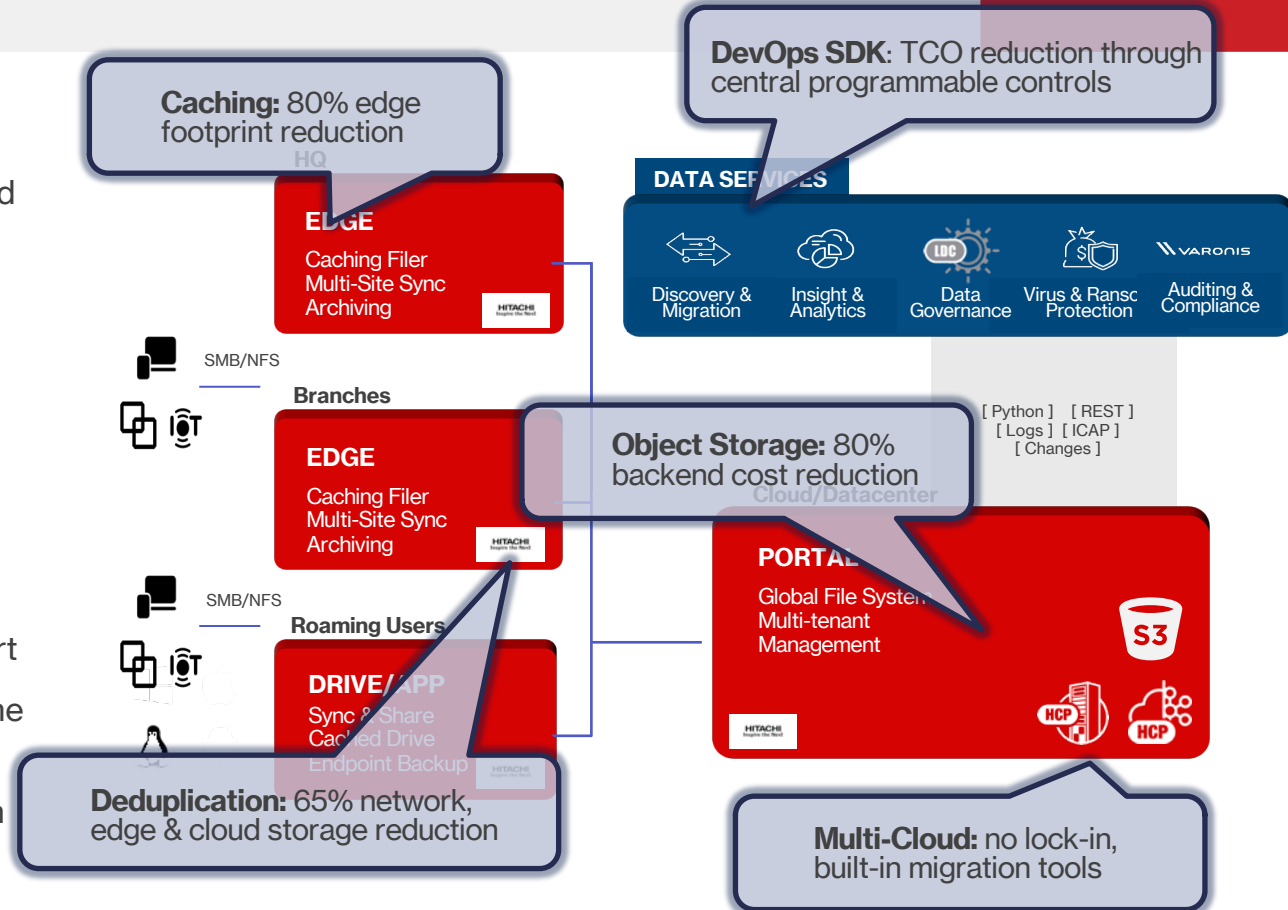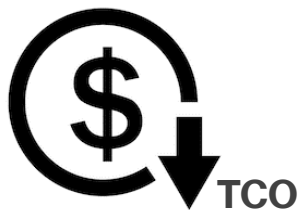# To Connect Offices and Remote Workers

- Global File System, single namespace across cloud, core and edge for distributed user content and machine-generated data

- Accelerated remote cache-based with built-in data protection and rapid DR

- Object-native backend using customer's choice of private or public infrastructure

- Seamless migration from existing NAS systems with full ACL support

- Programmable API for data pipeline automation and analytics

- Cyber-defense (DISA) with built-in virus and ransomware protection

Caching: 80% edge footprint reduction

DevOps SDK: TCO reduction through central programmable controls

HQ

EDGE

Caching Filer
Multi-Site Sync
Archiving

HITACHI

DATA SERVICES

Discovery & Migration

Insight & Analytics

Data Governance

Virus & Ransc Protection

VARONIS
Auditing & Compliance

SMB/NFS

Branches

EDGE

Caching Filer
Multi-Site Sync
Archiving

HITACHI

Object Storage: 80% backend cost reduction

[Python]   [REST]
[Logs] [ICAP]
[Changes]

Cloud/Datacenter

SMB/NFS

Roaming Users

DRIVE/APP

Sync & Share
Cached Drive
Endpoint Backup

HITACHI

PORTAL

Global File System
Multi-tenant
Management

HITACHI

S3

HCP

HCP

Deduplication: 65% network, edge & cloud storage reduction

Multi-Cloud: no lock-in, built-in migration tools

The Benefits Are Real

TCO

ROI

SECURITY

>68%

Lower total cost of ownership (TCO) than public cloud alone

>78%

Reduction in time to complete a legal discovery by a large European bank
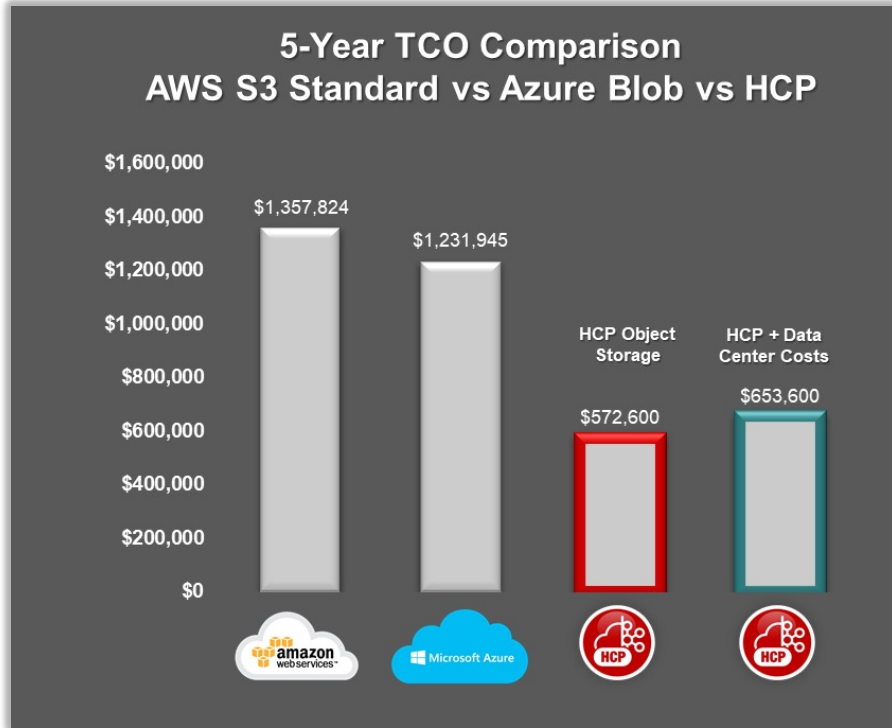
100% Compliance

Data retained is complete, comprehensive and auditable, with automated erasure

Hybrid Cloud Costs Less Than Pure Public Cloud

	AWS	HCP Cloud Storage
➢ Servers and Storage	$0	💲
➢ Software License	$0	💲
➢ Networking (WAN)	$0	💲
➢ Storage	$0	💲
➢ Backups	$0	💲
➢ Electricity & Cooling	$0	💲
➢ Full Time Employees	$0	💲

INFRASTRUCTURE

Infrastructure costs are above the water line and easy to monitor

	AWS	HCP Cloud Storage
➢ Data Transfer	💲	$0
➢ Data Transfer Acceleration	💲	$0
➢ Dedicated Network Connection	💲	$0
➢ Object Tagging	💲	$0
➢ Inventory Storage Management	💲	$0
➢ Intelligent Tiering	💲	$0
➢ Analytics	💲	$0
➢ S3 Select	💲	$0
➢ Cross Region Replication	💲	$0

OPERATIONAL COSTS

Watch for additional variable costs on your balance sheet

	AWS	HCP Cloud Storage
➢ **Service Level Customization**	⚠️	✅
➢ **Robust Compliance**	⚠️	✅
➢ **High Performance**	⚠️	✅
➢ **Use Case Flexibility**	⚠️	✅
➢ **Ease of Adoption**	✅	⚠️

BUSINESS BENEFITS

Losses in efficiency, productivity and agility can *SINK* your business

Cloud Economics On Your Terms

Substantial TCO advantages over public cloud storage services

5-Year TCO Comparison
AWS S3 Standard vs Azure Blob vs HCP

		HCP Object Storage	HCP + Data Center Costs
$1,357,824	$1,231,945	$572,600	$653,600

amazon web services | Microsoft Azure | HCP | HCP

58%

TCO advantage over Amazon AWS

HCP Object Storage vs Amazon AWS

52%

TCO advantage over Amazon AWS

HCP Object Storage + Data Center Costs vs Amazon AWS

Source: Hitachi Business Economics Team

Analysis was a best attempt at an apples-to-apples comparison of a 500 TB configuration featuring two geographically separate data centers

Summary

Hitachi Data Protection Framework Today

RANSOMWARE MULTI-LAYER APPROACH

Ops Center Protector or Automator with Immutable Snapshots, Backup to HCP with Object Locking
Partner add-ons – CyberVR for world's fastest recovery, Hitachi ID and Hitachi System Security for monitoring

BACKUP

Ops Center Protector
HDPS
Veritas
Veeam

Targets:
HCP(CS), VSP, HNAS,
HyperScaleX, FlexProtect, Scalar

STORAGE RECOVERY

VSP Snashots and Clones
HDPS IntelliSnap
Veritas Snapshots
FalconStor CDP or SS
Veeam Plug-in for SS

HIGH AVAILABILITY

Global-active Device
and integration with:

Oracle RAC
Vmware vMetro Storage Cluster
HyperV

ZERO RPO

DISASTER RECOVERY

TrueCopy, GAD, Universal
Replicator
2DC, 3DC and 4DC
Configurations

FalconStor for disparate
arrays or DR to cloud

Professional Services and Managed Services, Cloud Service Providers

Thank You

HITACHI
Inspire the Next

Follow us

@HitachiVantara

Hitachi Vantara

@HitachiVantara

@HitachiVantara

Hitachi Vantara

HITACHI
Inspire the Next