Storage is Holding Data Hostage
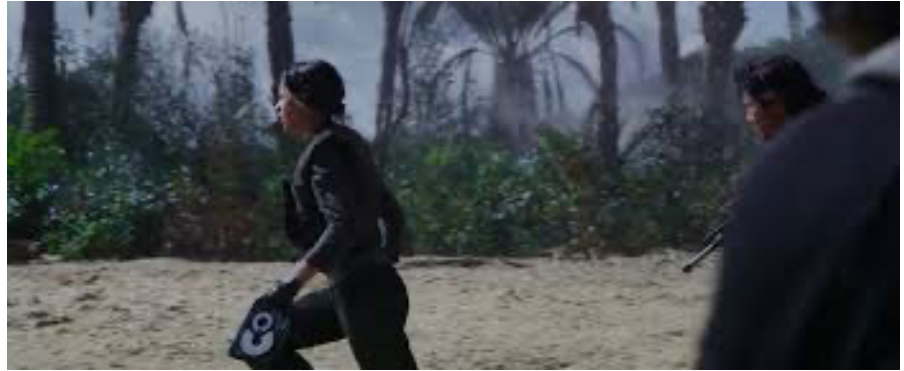

11th Annual Global IT Executive Summit

FUJIFILM Value from Innovation

Preparing for seismic shifts in the storage landscape

Shawn O. Brume Sc.D.
IBM Hyperstorage OM

A Long Time ago in a Galaxy Far, Far Away

Tape Saved the Alliance

6 Generations of Tape

Gen 1: The only "electronic" storage

Gen 2: Near-line transactional storage

Gen 3: Recall and retention data

Gen 4: Back up and Recovery (BaR)

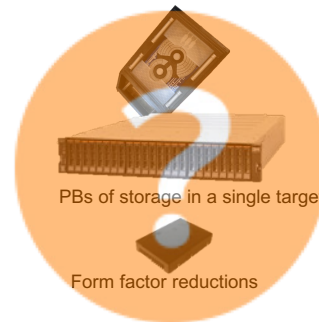**Gen 5:** Archival storage and secondary BaR

Gen 6: Secondary Storage

Gen 7: Out to the Edge?

56x Faster than punch cards

92% reduction in floor space
Double the performance

3480 with controller

PBs of storage in a single target

Form factor reductions

Industry Data

Annual Size of the Global Datasphere

70% of data produced is Electronic

175 ZB

Follies

Ten Year Expected Total Cost or Ownership

Follies

3 Rules for Survival

- Discussions are changing

- I&O Leaders more focused on business

- Products: abundant, cheap, agile

- Storage is a controllable expense

- Measurable contribution to business outcomes

Grow Revenue

Reduce Expense

Stay Compliant

Economy at Scale

50%
of peak Units

500%
more shipped capacity quarterly
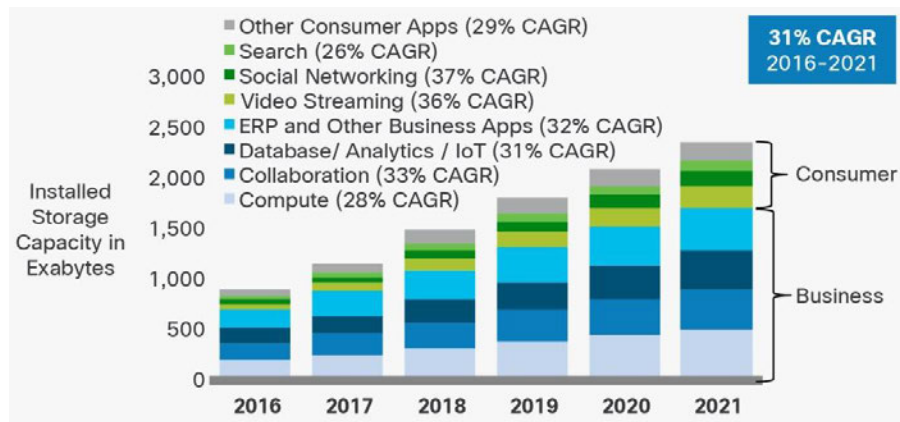
60%
Less hardware being managed

Media Enhancements

Hardware Advancements

Times are Changing

iCloud Storage is Full

Photos, videos, documents, and data are no longer updating.

Manage   Upgrade

Everything
Everywhere
Forever

Business
Consumerism
Converging

Other Consumer Apps (29% CAGR)
Search (26% CAGR)
Social Networking (37% CAGR)
Video Streaming (36% CAGR)
ERP and Other Business Apps (32% CAGR)
Database/ Analytics / IoT (31% CAGR)
Collaboration (33% CAGR)
Compute (28% CAGR)

31% CAGR
2016-2021

Installed Storage Capacity in Exabytes

3,000
2,500
2,000
1,500
1,000
500
0

2016 2017 2018 2019 2020 2021

Consumer

Business

Hyperscale DCs
Cisco Cloud report 2018

Global Pandemic

64ZB
Usable IoT data lost yearly

Lost Knowledge = Lost Revenue

Kenetic Value of data realized at time of analytics

Tape at the Data Center Edge

All Data Ends up on Tape
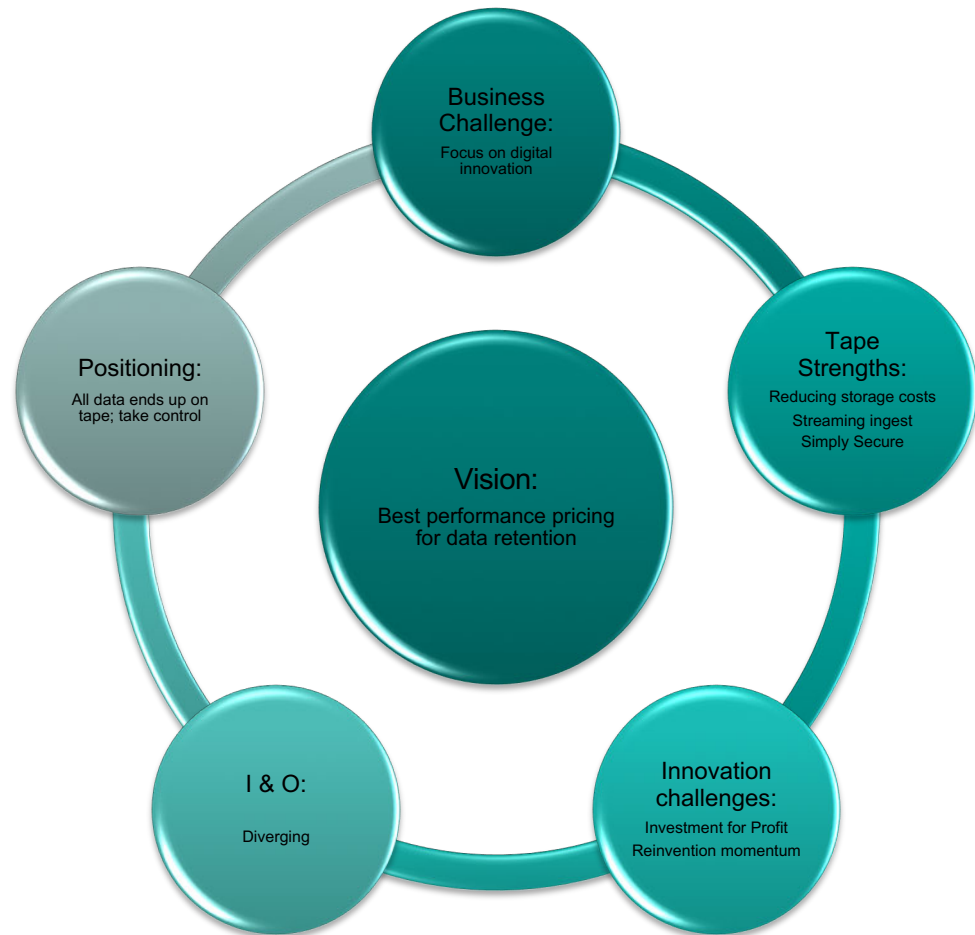# Take control of when!

- Stratospheric Data Capture

- Transforming lowest cost Deep Freeze

    - Monetized with higher efficiency storage

    - Grow Revenue, Reduce Expense

    - Expand Regulatory compliance

- Digital Initiative budget alignment

- Cyber Secure Strategic

"…removable storage media give you direct control over your data."
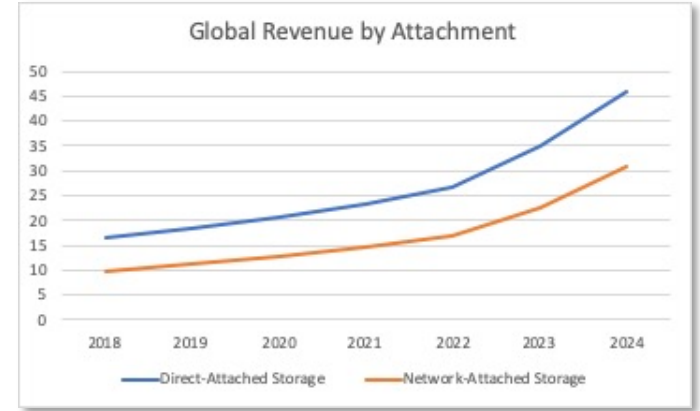–US CERT

Seismic Shifts

- HyperStorage Vision

- New designs

- New Interfaces

- Traditional Metrics

IBM TS1160
Ethernet Attached Tape drive

- NAS growing 2 points faster than FC

- RDMA over Converged Ethernet (RoCE v2)

  - 10GbE Optical

  - Runs over traditional Ethernet Network

    - No modifications

    - RoCE HBA required in server

- Reduce CPU overhead

- Management simplification

Global Revenue by Attachment

Direct-Attached Storage   Network-Attached Storage

World's First Quantum Computing Safe Tape Drive

- Based on TS1160 Technology
- Two Primitives
  - Kyber
  - Dilithium

These two algorithms make up the "Cryptographic Suite for Algebraic Lattices" we call "CRYSTALS".

Continuation of leadership

Market Availability after solidification of standardizations through NIST

Hypergrowth Storage – Balanced Architecture

- Standardized – OCP, DC, Cloud integration

- Durability – Pushing the "Nines" Up and away

- Automated – Orchestration and Recovery

- Flexible – Accelerated Scaling, multi-platform

- Established – Rewarding Investment Protection

Thank You