Industry Recap
The Paradigm Shift in Customer Expectations

Expectations NOW
Digital Transformation

Data Anywhere
Digital Communities
Rapid Collaboration & Data Transfer
Digital Operations

Expectations Then

Traditional Media
Call Center
Traditional Sales
VAS
Word-of-Mouth
Offline Data

eWallets
Single-click Automation Services

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The resulting transformation.

Expectations NOW

Digital Transformation

Digital Communities

Data Anywhere

eWallets

Digital Collaboration

Hyperconverged Platforms

5G & Edge

Cloud Adoption

IoT & M2M

AI-enabled Automation

Rapid Collaboration & Data Transfer

Digital Operations

Video & Music on Demand

Digital Communities

Content expectation and need.
The State of industry

INCREMENTAL GROWTH

USD 126.3 Bn

2019 2024

The data center storage market size has the potential to grow by USD 126.3 Bn during 2020-2024

The year-over-year growth rate for 2020 is estimated at

26.44%

30%

of the growth will originate from North America

CONCENTRATED

The market is CONCENTRATED with several players occupying the market share

KEY DRIVERS

One of the KEY DRIVERS for this market will be the growing deployment of edge computing

BIG PICTURE

A growing share of server/storage spend is now driven by workloads related to the deployment of emerging technologies (Data Analytics, Artificial Intelligence, Machine Learning, Blockchain, Robotics, and IoT) on the back end.

- IDC

(Source: IDC, Technavio)
Storage Industry VC Trends 2017 – 2020

Series Wise Funding in $Mn

Quarterly Funding in $Mn

(Source: Crunchbase)
QoQ Funding last 6 Qtr (2019 – Aug 2020)

Source: Crunchbase
**VC Funding Analysis**

- **Q2-20** recorded the highest amount of funding, as compared to last 13 quarters, in the areas of File & Object Storage, Data management, Backup and Recovery, All Flash Array/SSD.

- The amount of funding in **Series E** recorded to be the highest in the last two Quarters; i.e. Q2 & Q3-20. (Companies got funded - backup & Recovery and File Storage)

### Top Use of Funds

- Acceleration of market trajectory
- Expand international businessSCALE across the globe
- Expand worldwide sales and marketing efforts
- Acceleration of commercialization activities
- Mass production, system integration, and migration of SSD controller products
- Large-scale global expansion
- Product development and customer support

### Top Investors

- Intel Capital
- WRVI Capital
- Nexus Venture Partners
- Western Digital Capital
- Vertex Ventures
- Sequoia Capital
# Storage Industry M&A Trends

## All M&As in 2019 with Known Price

<table>
<thead>
<tr>
<th>BUYER</th>
<th>BOUGHT</th>
<th>PRICE IN USD MN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nvidia</td>
<td>Mellanox</td>
<td>6,190</td>
</tr>
<tr>
<td>Opentext</td>
<td>Carbonite</td>
<td>1,420</td>
</tr>
<tr>
<td>HPE</td>
<td>Cray</td>
<td>1,400</td>
</tr>
<tr>
<td>Carbonite</td>
<td>Webroot</td>
<td>618.5</td>
</tr>
<tr>
<td>Commvault</td>
<td>Hedvig</td>
<td>225</td>
</tr>
<tr>
<td>Amazon</td>
<td>CloudEndure</td>
<td>200</td>
</tr>
<tr>
<td>Toshiba Memory</td>
<td>Lite-On SSD business</td>
<td>165</td>
</tr>
<tr>
<td>SMART Global Holdings</td>
<td>Artesyn</td>
<td>80</td>
</tr>
<tr>
<td>NetApp</td>
<td>Cognigo</td>
<td>70</td>
</tr>
<tr>
<td>Amazon</td>
<td>E8 Storage</td>
<td>50-60</td>
</tr>
</tbody>
</table>

(Source: StorageNewsletter)

## Companies Acquired in 2020

<table>
<thead>
<tr>
<th>BUYER</th>
<th>BOUGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetApp</td>
<td>Spot by NetApp</td>
</tr>
<tr>
<td>Tectrade</td>
<td>APSU</td>
</tr>
<tr>
<td>NetApp</td>
<td>CloudJumper</td>
</tr>
<tr>
<td>YEESTOR</td>
<td>EpoStar Electronics Corporation</td>
</tr>
<tr>
<td>NetApp</td>
<td>Talon Storage</td>
</tr>
<tr>
<td>StorMagic</td>
<td>Keynexus</td>
</tr>
<tr>
<td>Lightspeed POS</td>
<td>GASTROFIX</td>
</tr>
<tr>
<td>Storone</td>
<td>Storage Switzerland</td>
</tr>
<tr>
<td>OVHcloud</td>
<td>OpenIO</td>
</tr>
<tr>
<td>NVIDIA</td>
<td>SwiftStack</td>
</tr>
<tr>
<td>Quantum</td>
<td>StorNext (Atavium)</td>
</tr>
<tr>
<td>StorMagic</td>
<td>Keynexus</td>
</tr>
<tr>
<td>Storone</td>
<td>Storage Switzerland</td>
</tr>
</tbody>
</table>

(Source: StorageNewsletter and Crunchbase)
Storage Industry M&A Trends

What happened in 2019?

Big Deals (more than $1 Bn)

3 deals surpasses $1 billion in 2019

a. Mellanox by Nvidia for $6.190 billion
b. OpenText by Nvidia $1.4 billion
c. Cray by HPE $1.4 billion

Top acquisition areas in 2020

- Object Storage on-prem
- Cloud-hosted
- Software-driven data storage
- Management platform
- vDC
- VDI
- Virtual SAN
- Disaster Recovery as a Service

(Source: Crunchbase)
02

Industry Fast Forward
Cloud – The giver of Disruption.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>Kubernetes</td>
<td>Kubernetes has broken the cloud barriers.</td>
</tr>
<tr>
<td>02</td>
<td>Private Cloud</td>
<td>Private Cloud Repatriation is now real.</td>
</tr>
<tr>
<td>03</td>
<td>SaaSOps</td>
<td>SaaSOps will soon become mainstream.</td>
</tr>
<tr>
<td>04</td>
<td>Applications</td>
<td>It’s all about Application Delivery now.</td>
</tr>
</tbody>
</table>

Cloud is not disruptive by itself, but it proliferates disruptive IT delivery models.
Business Opportunities Aligned to Storage Segments

Hybrid Digital Infrastructure
- Cloud Storage, HCI

Edge Computing
- HCI, NVMe, Cloud Storage

5G
- All Flash, Computational Storage

IoT
- Cloud Storage, NVMe

Machine Learning
- Cloud Storage, NVMe, Persistent Memory

Data Analytics
- Cloud Storage, Computational Storage

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Transformation - 1

All Flash

Pull Factors

- Low latency
- Near real-time digital experiences
- Need for extracting more value from the data growing exponentially due to AI & Analytics

Opportunity Areas

- AI, Real-Time Analytics, Digital Collaboration, 5G

Use cases

- Big Data Analytics applications
- Autonomous vehicles - Service providers that invest heavily in a solid-state infrastructure
Cloud Storage

Opportunity Areas
Enterprise applications, IoT, Video Conferencing Solutions, Smart Cities

Use cases
- Regular enterprise applications
- IIoT, Healthcare IoT,
- Location tracking, video surveillance
- Smart Cities
- AR/VR
- Machine-to-Machine (M2M) Connected Devices

Pull Factors
- Digital business
- Infrastructure readiness goals
- IoT
- 5G networks
Opportunity Areas

Edge Computing, Data Center Modernization

Use cases

• Video surveillance
• Manufacturing companies monitoring and controlling equipment in factories.

Pull Factors

• Increasing number of Edge & Micro Data Centers
• Increasing workload at the edges
• HA/DR requirements at Edge
Opportunity Areas

Smart Networks, Edge Computing, AIoT

Use cases

- Enabling cloud architectures that power Big Data Analytics
- Real-time data processing in the data center, cloud and edge environments.
- NVMe-oF for AIoT to be used to enable vRANs, CPUs, GPUs, FGPAs & SmartNICs in Edge infrastructure

Pull Factors

- Storage across the AIoT data pipeline
- Composable Disaggregated Infrastructure
**Persistent Memory**

**Pull Factors**
- Need for embedded NVM in designing IoT devices
- Web-scale personalization
- Need for targeted online experiences by returning relevant content
- Memory-centric requirements for self-driving cars & AI

**Opportunity Areas**
- IoT, AI-enabled Retail and Real-time analytics of financial data

**Use cases**
- Well suited for high throughput demands
- Can be used for accelerating applications.
Transformation - 6

Computational Storage

Pull Factors

• Computational edge
• Machine Learning processing
• Real-time data analytics & HPC enabling Edge Intelligence for next-gen IoT

Opportunity Areas

Edge Intelligence, AI & ML, Data Science, 5G, Video Streaming

Use cases

• Real-time analytics: POS data in real time for fraud detection
• Intelligent Edge
• Hyperscale Data Centers
• Better 5G connectivity (enablers)
• Enhanced CDN experiences
03
COVID-19 Impact
# Impact of COVID 19 on the Storage Industry – the Positives

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth</td>
<td>Cloud data center spending will grow and cloud service providers will drive server business growth.</td>
</tr>
<tr>
<td>Cloud Adoption</td>
<td>Spending on servers will account for 47% of data center capex this year.</td>
</tr>
<tr>
<td>Digital</td>
<td>Enterprises will seek to conserve capital, and resort to the cloud to satisfy near-term demand for digital services. CSPs will expand their infrastructure at a measured pace to capture this incremental demand.</td>
</tr>
<tr>
<td>5G</td>
<td>The need for ever-faster access to data and automation will enhance the focus on network equipment and communications, speeding up 5G network deployments and adoption of 5G equipment.</td>
</tr>
<tr>
<td>Security</td>
<td>IT spending on security software will increase.</td>
</tr>
</tbody>
</table>
Impact of COVID 19 on the Storage Industry – the Positives (Contd.)

The rise of hyper-converged technology will have a positive impact on the market and contribute to its growth significantly over the forecast period.

To tackle the enterprise challenges.

A Gartner survey predicts that by 2024 as much as 50% of global storage capacity will be deployed as SDS.

Bolstering connectivity and the data infrastructure.
What’s Next?
What’s Next: Painting the Big Picture

01

A hybrid model brings a lot of fluidity of data movement needed for lot of modern applications but requires effective management.

Seamless Management
Who is using what, from where, and why.

- Cloud gateways integrated into enterprise storage arrays
- Applications directly accessing both on-prem and cloud storage

02

Where should data reside and how much in any of these?

- NVM, Edge, Cloud.
- Cross-vendor storage tracking with ML-based analysis

03

More exposure comes with more security challenges thereby increasing lines of defense

Security

- Access management – Internal users, customers
- Consistent policies across the continuum
- Data loss
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• Software Defined Storage
• HCI
• Data Protection
• Data Deduplication

• Storage Accelerators Windows CBT
• iSCSI Test Suite
• Office 365 Backup Solution
• Generic Cloud Solution
• Emulators

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Questions?