Saving the Past
Unlocking the Future

Steffen Hellmold, President Cerabyte, Inc.

Long-Term Data Storage at Scale Becoming Unsustainable?

Migration & maintenance is infrastructure and resource intensive

Media life and data retention

Migration

Fixity checks

Bandwidth

Access

> *“Migration is infrastructure, not a one-time task. Archival systems must inherently support long-term durability.”*
>
> **Carl Watts**

> *“Users resort to compression to reduce the number of objects and storage space, conflicting with preservation standards.”*
>
> **Dan Field**

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Data Lifecycle Requirements for the AI Era

Price Lowest $/TB, Lowest TCO

Performance
Access time
Read speed
Random access
Write speed

Capacity
Seamless scaling
Rack scale design
Sustainable roadmap
Volumetric density

Reliability
BER 10^{-19}
No bit rot
Resilient to: Temp, Humidity, EMP, Radiation

Security
Air gap
Immutable
WORF
Physical media

Sustainability Power & Water consumed, CO_2 & electronic waste generated

Source: Horison, LLC

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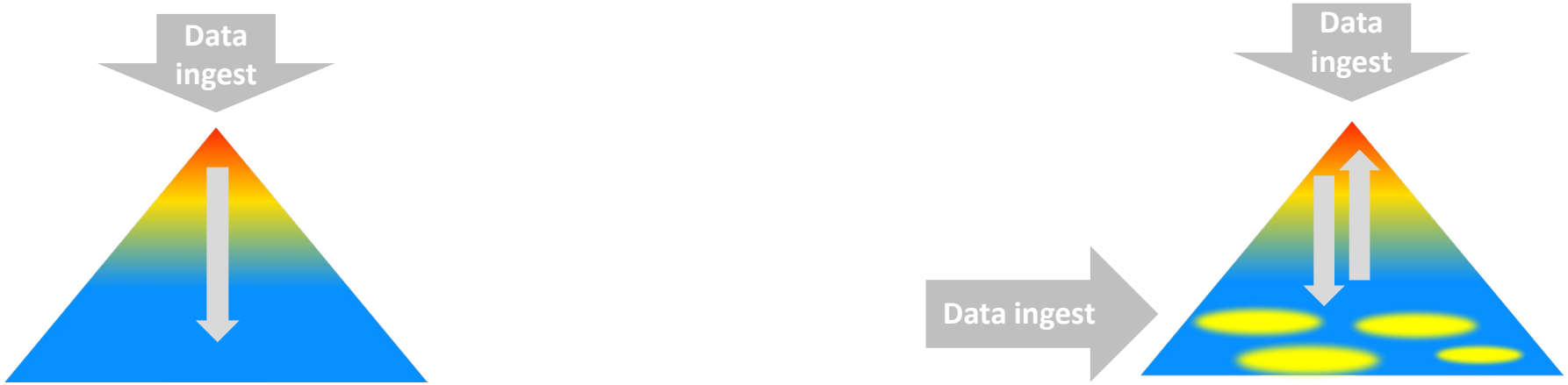
Data Service Level Agreement –
AI requires data to be accessible!

Paradigm-shift

Cold Archive ⟹ Active Archive



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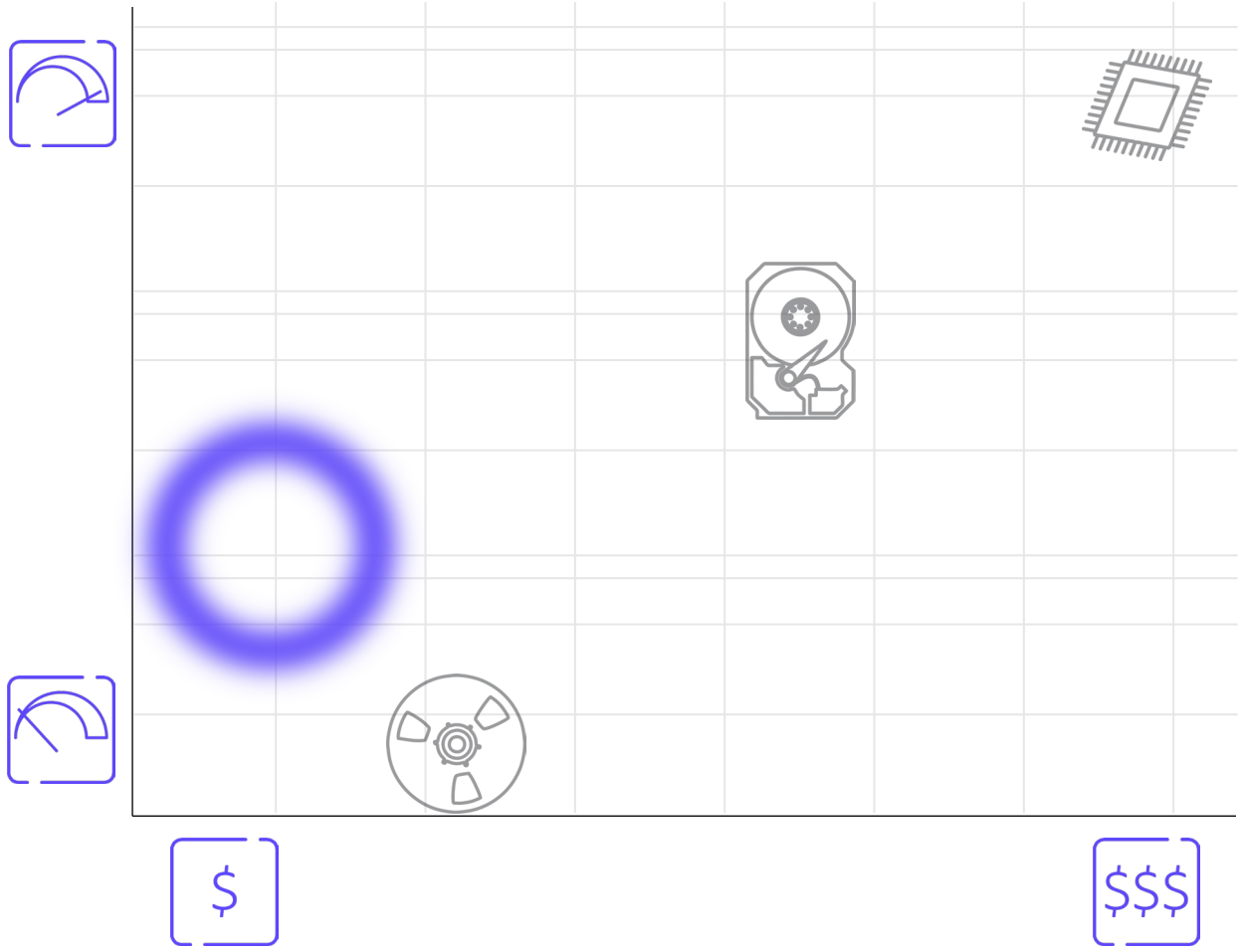
Wanted: A New Storage Tech for the AI Era

Optimizing capacity storage for affordability and accessibility



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A New Storage Media – Keeping It Simple!

Inorganic recyclable media at the cost of sand featuring longevity & scalability

Silica sand

Flexible ultra-thin display glass

Window glass coating

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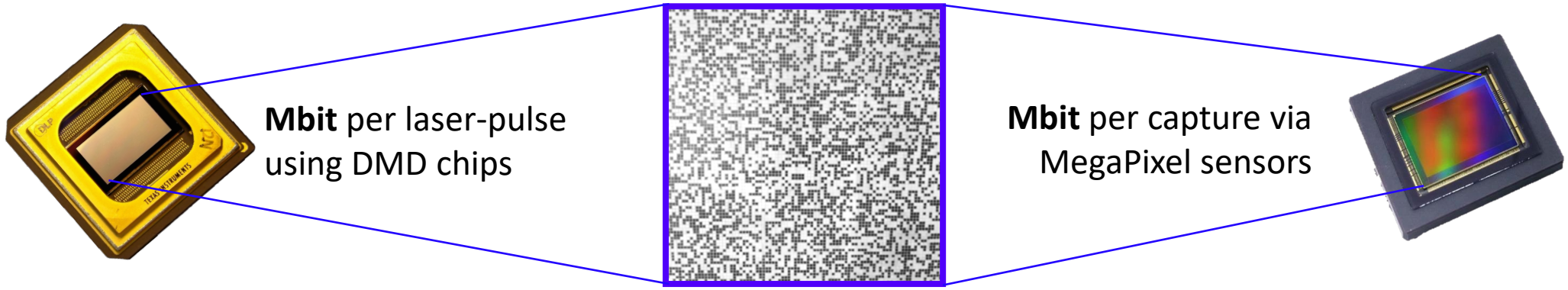
Massive Parallelization

Millions of “heads” enabling high performance W/R

Write **Read**



Surface layer yielding high SNR – enabling simple fast optical readout

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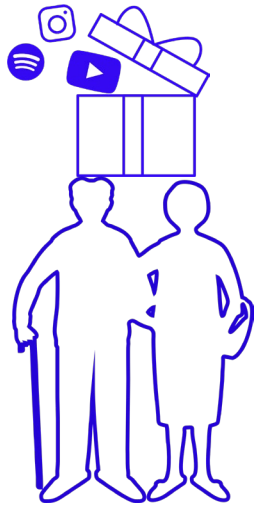
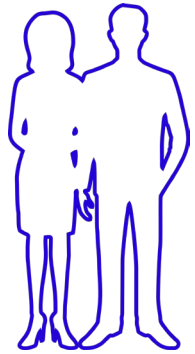
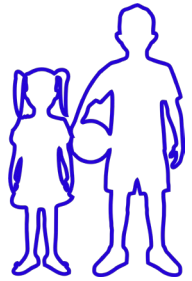
How to Pass on the Digital Heritage to Coming Generations?

Open Archive Media Framework (Identify/Read/Decode)

= Standard(s) for emerging long-term data storage







Forward propagation of individual & societal information

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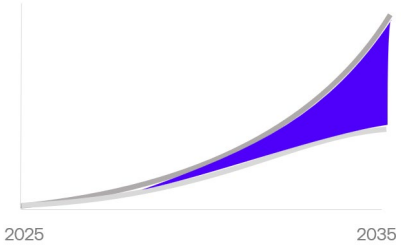
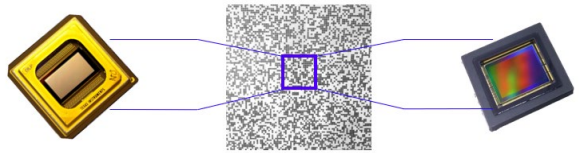
Cerabyte Data Storage Technology

Fit for future AI data lifecycle requirements

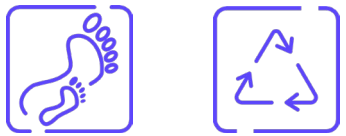
Scalable roadmap towards the Yottabyte Era



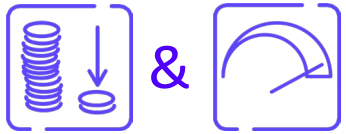
Fast W/R serving future AI/ML access needs



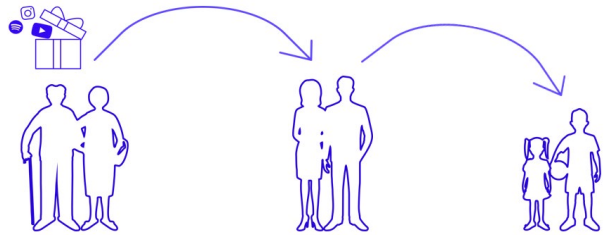
Sustainable, permanent & maintenance-free



Affordable accessible capacity data storage



International long-term data storage standard



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