



# Sustainable data storage

## Opportunity

Current data storage media were not designed to retain data for more than a few years, decades at best.

Storage media must be frequently replaced and data migrated which drives costs for data storage.

Over 70% of data is almost never retrieved but kept for decades without the intent to be ever deleted.

## Innovation

Cerabyte writes with a multi-million pixel matrixed laser into ceramics-on-glass with high data throughput.

A DMD shapes the matrix, punching physical holes in nanoscale into the ceramic layer of the square data.

Carries stored in cartridges inside robotic library. A high-speed microscope camera is used to read data.

## Prototype

A fully operational end-to-end prototype, using only standard parts, is ready to be showcased at our labs.

The demo system was built with commercial off-the-shelf parts to validate the feasibility of the concept.

With this setup we already achieve MB/s scale write & read speeds, and GB/media-scale storage capacities.

## Scale-up

Cerabyte is leveraging materials & components already produced in large quantities for its solutions.

Fast scale-up is possible, but some elements will need to be redesigned to achieve target speeds and densities.

Creating smaller structures on thinner substrates will enable PB-class per rack storage densities by 2026.

## Product

The standard configuration will comprise of the write rack with the writing units and several library racks.

Every library rack has at least one reading unit. The DC rack form factor easily integrates into DC facilities.

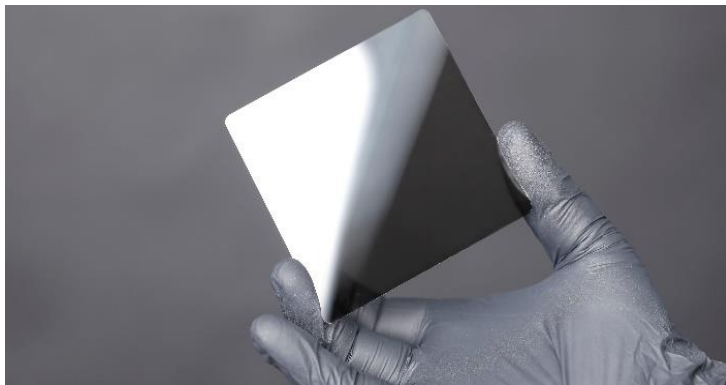
Existing library automation infrastructure is able to handle the initial cartridges, using the LTO form factor.

## Roadmap

Beginning with a 1PB rack-scale pilot, capacities are expected to eventually scale towards 100PB by 2030.

Performance for writing & reading will advance from MB/s-scale to 100MB/s & ultimately beyond 1GB/s.

Access time will accelerate from initially 90s down to 10s for the lowest latency system level configurations.





# Paving the way towards the Yottabyte Era

- Best for over 70% of data
- Heat and fire safe
- Saving up to 99% energy
- Corrosion resistant
- 75% lower total cost
- Moisture & H<sub>2</sub>O proof
- Green, fully recyclable
- Eliminate E-waste
- UV light resistant
- Reduce CO<sub>2</sub> footprint
- Radiation resistant
- Immutable cyber safe
- Safe from EMP burst

- Ceramic On Glass
- No energy for storage
- Unlimited media life
- No periodic migrations
- Use semi tool tech

	Write/read per second	Capacity per Rack	Access in seconds
2026	100 MB	1 PB	90
2027	500 MB	5 PB	30
2029	GB	30 PB	15
2030	2+ GB	120 PB	10
2050	TB	EB	5

Interested in a pilot? Please contact: [demo@cerabyte.com](mailto:demo@cerabyte.com)