

Accessible Permanent Data Storage

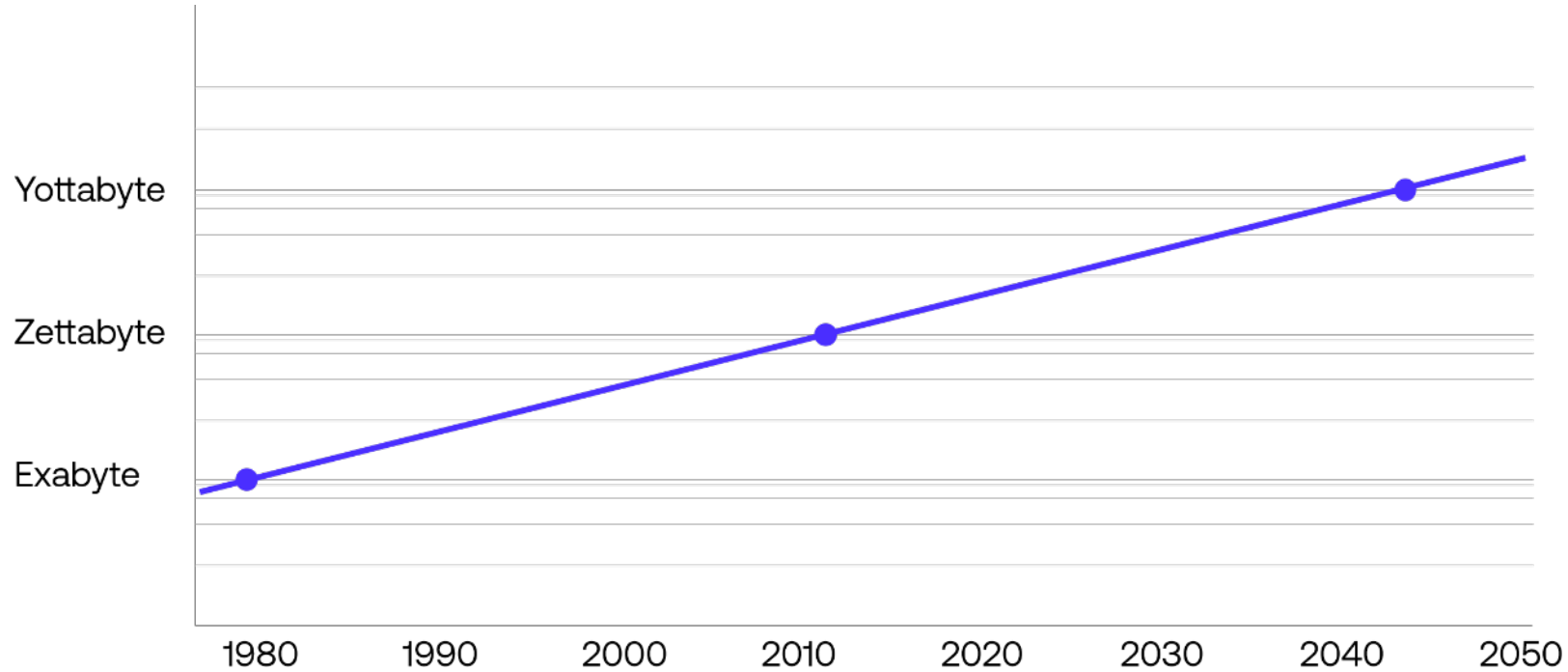
Presenter: Steffen Hellmold, President, Cerabyte, Inc.



the Future of Memory and Storage

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Global Installed Data Storage Base & Forecast



Every 30 years:

**1000x
growth**



Source: Horison Information Strategies

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To Keep the Digital Age Running, the Industry Needs



a new storage technology that is poised to deliver

>100x

improvement of

- **Data Storage Capacity**
- **Access Performance**
- **Total Energy Efficiency**
- **Total Cost over Time**
- **Media Life / Longevity**
- **Media Bit Error Rate**



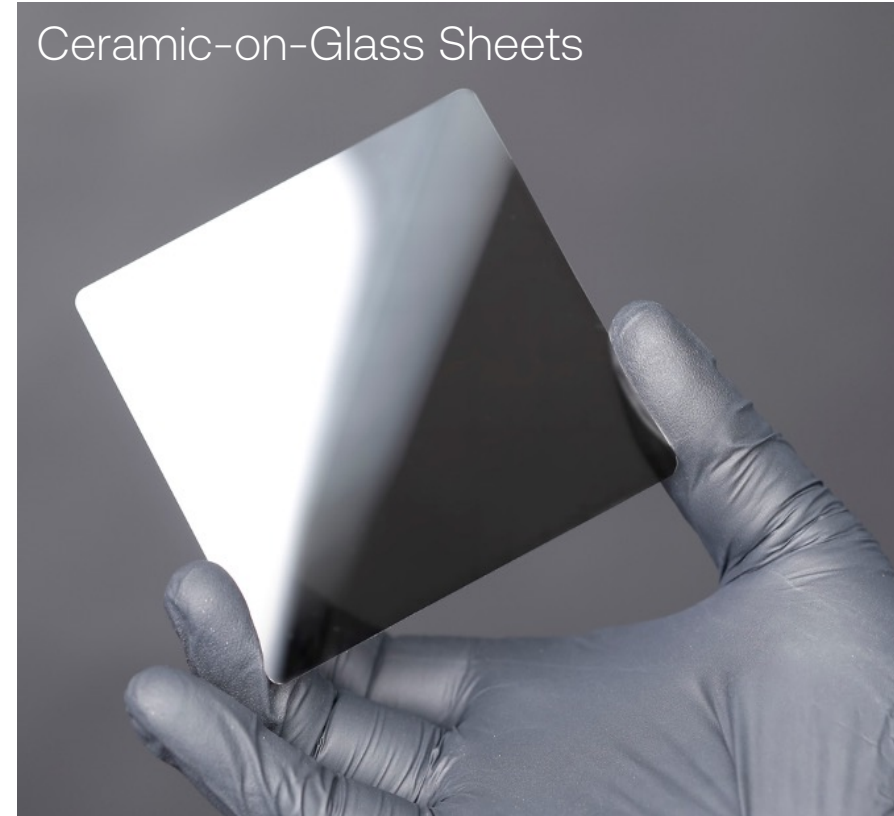
Ceramic Data Storage, 5000-Year Track Record



From clay tablets to ceramic punchcards at nanoscale



Low Density & Write/Read Speed



High Density & Write/Read Speed

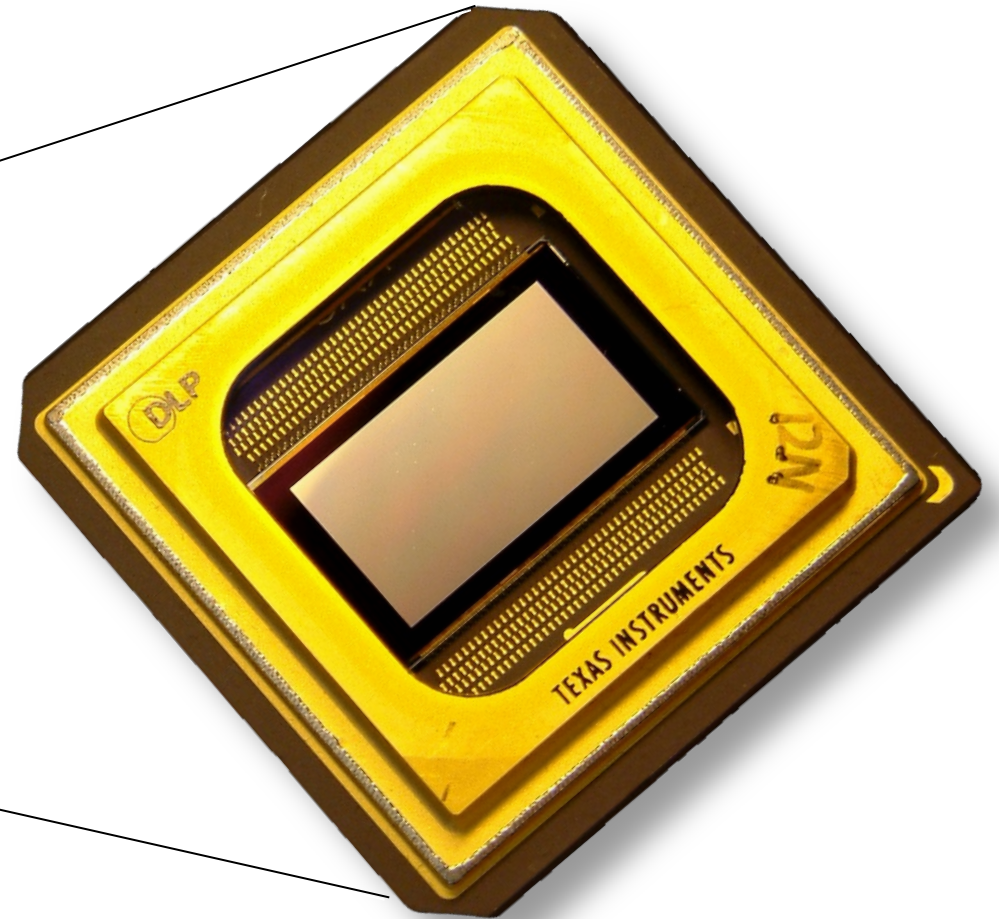
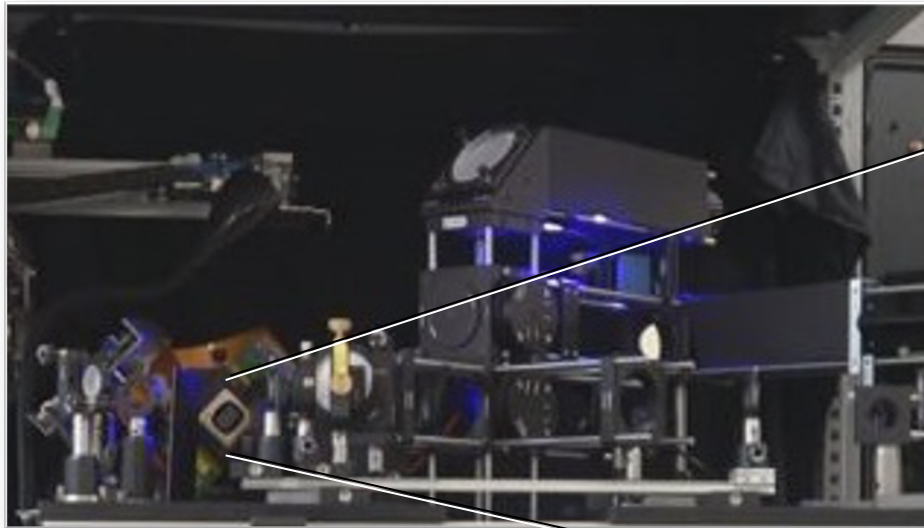


Matrix Writing Enables Massive Parallel Write



using a DMD - Digital Mirror Device

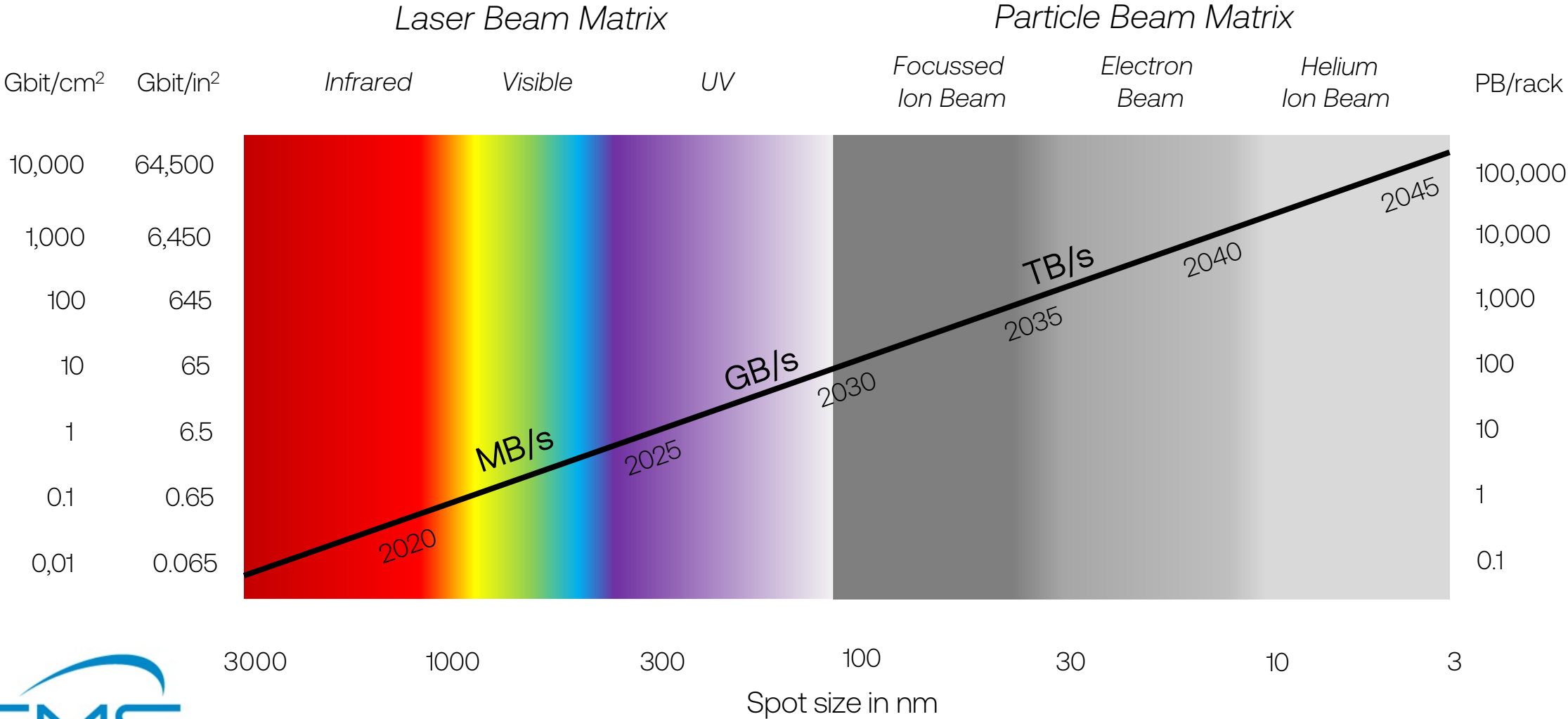
2M individually controlled micro mirrors



Leveraging Semiconductor Fab Tool Technology

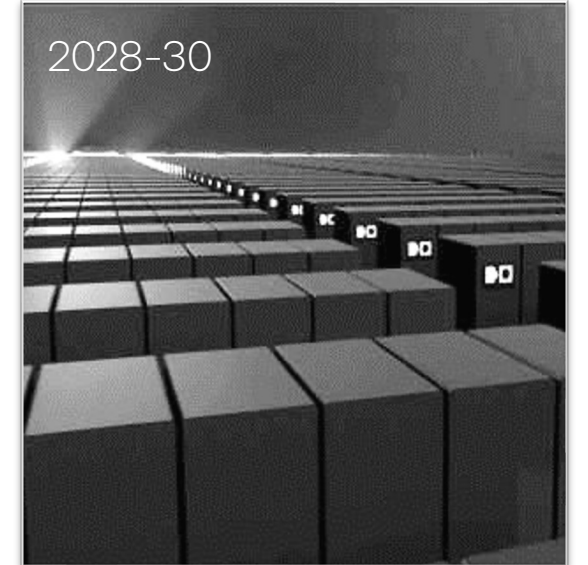
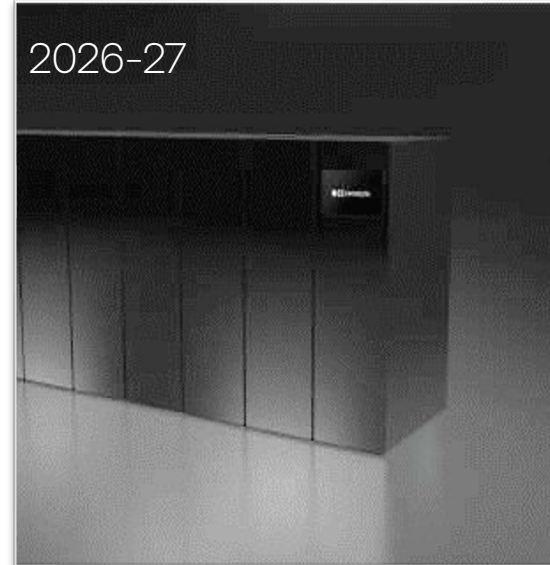
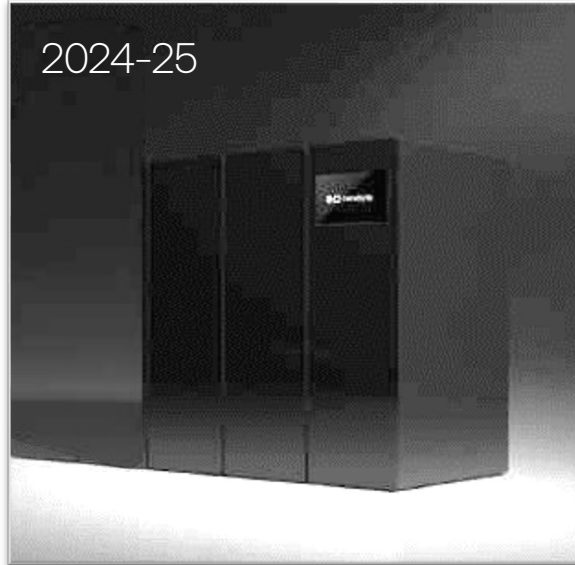


to scale density and access speed



Development Roadmap

from Early Access to Hyperscale



Demo Systems

On-Prem Systems

Cloud Systems

Hyperscale Systems

1PB/rack
100 MB/s
<90 sec to first byte

5 PB/rack
500 MB/s
<30 sec to first byte

10-30 PB/rack
1+ GB/s
<15 sec to first byte

60-100 PB/rack
2+ GB/s
<10 sec to first byte



Durable & Sustainable



-272 °C
-459 °F



+500 °C
+930 °F



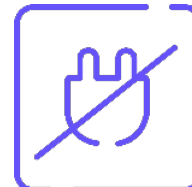
Moisture &
flood proof



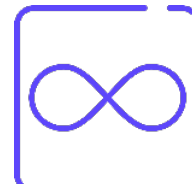
Corrosion
resistant



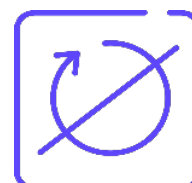
Radiation &
EMP proof



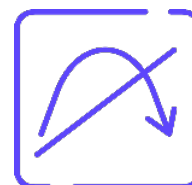
Energy free retention,
no AC for storage



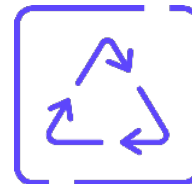
Immutable record,
cyber secure / WORM media



No media degradation
forcing periodic replacement



No data migration, **no bit rot**
nor periodic fixity check



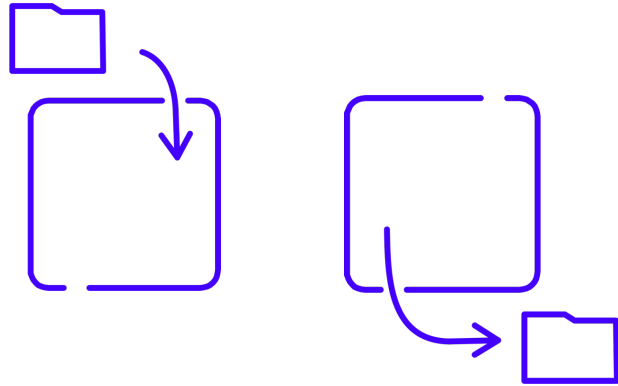
Deletable,
100% recyclable



Summary

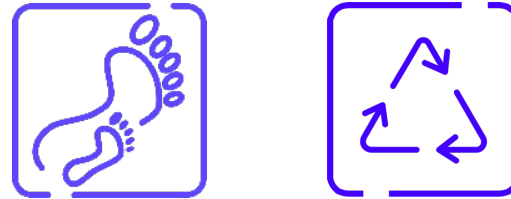


**Accessible immutable
high density data storage**



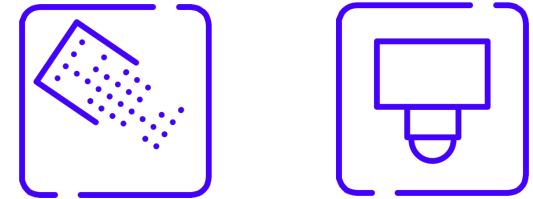
Leveraging semi scaling

**Sustainable, recyclable
permanent data storage**



Low energy & recyclable

**E2E W/R prototype demo,
early access test ready**



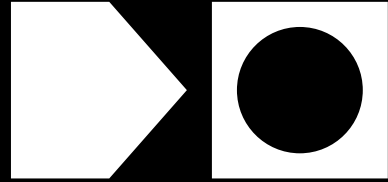
Tech Readiness Level 6





**Seeking customers
interested to test and
evaluate early access
products.**





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