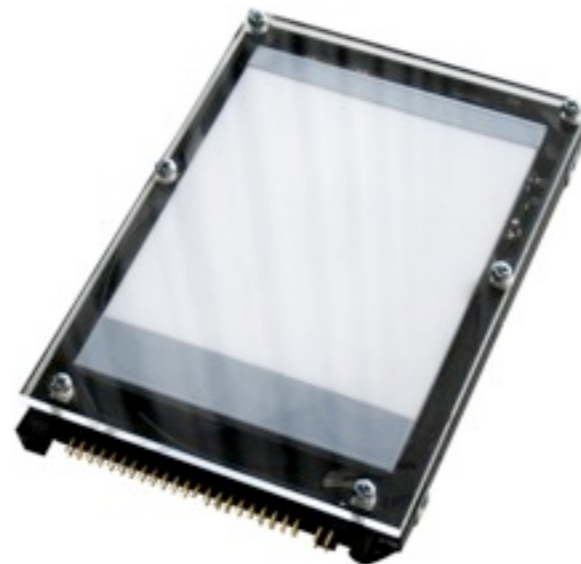




The No Spin Green Revolution in Storage



Corporate Overview

July 2009

DataSlide

Deliver the industries **lowest power**, highest performance, highest capacity and most reliable Storage Drives to the Enterprise

GREEN



reducing the carbon foot print

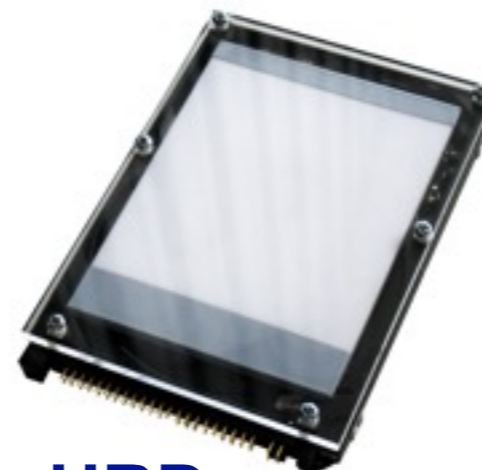
The NEW standard
in **IOPS/Watt**



HDD



SDD



HRD

***Enterprise Storage market over 25 Million Units
and over \$5.9 Billion in 2012***

Gartner Group 2008

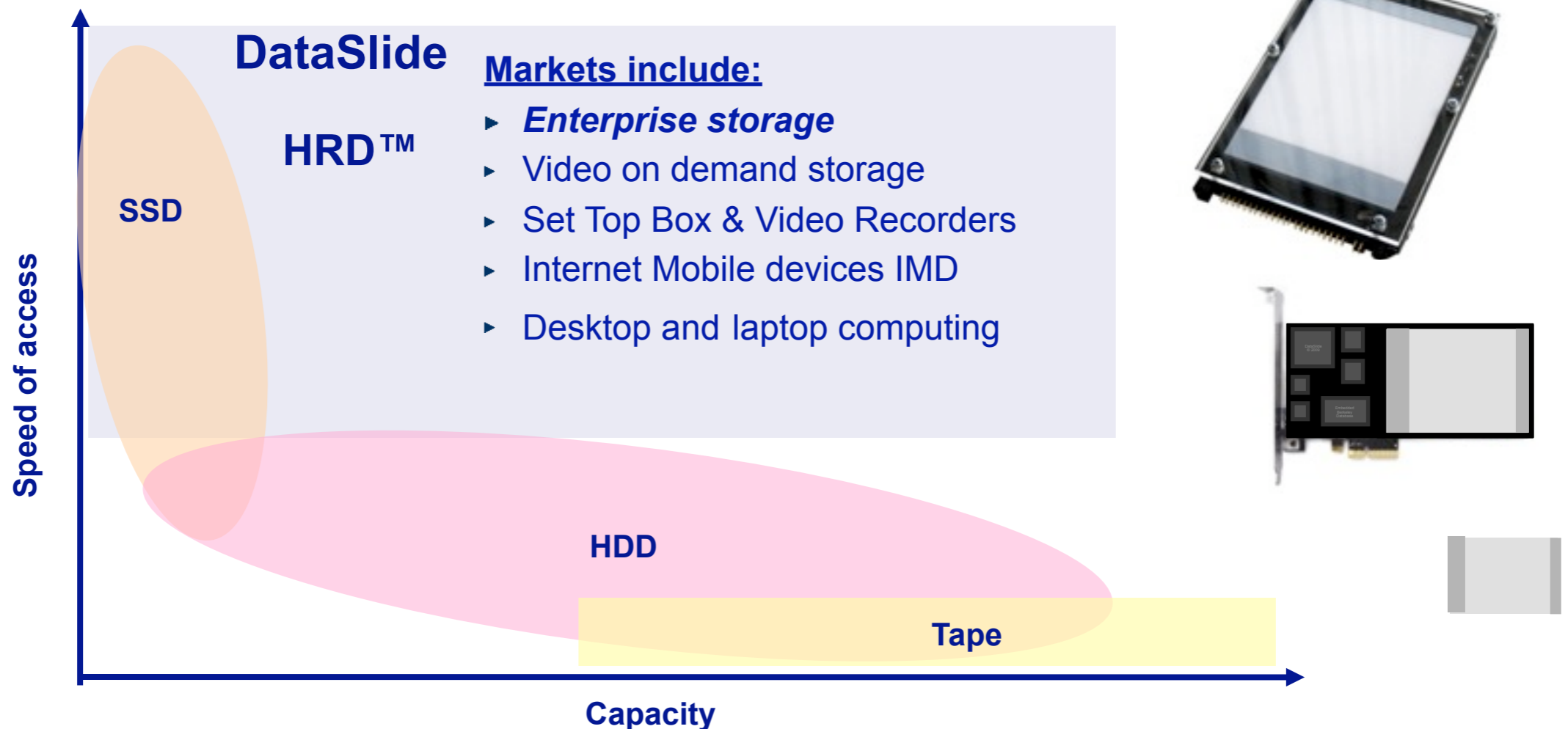
Corporate Overview

- Enterprise Class Green Storage → IOPS/Watt
 - Oracle Partners Network DB Accelerator
 - Roadmap to Consumer Markets
- Over 2 man years of development & innovation
 - Robust Patent Portfolio and growing with defensible position
 - High-performance, Ultra-low power Massively Parallel Architecture
- Innovative technology using mature cost-effective processes
 - Fabless model with vertical integration strategy
 - ~\$6B Enterprise market to over \$40B+ Global market
- Corporate Head Quarters United Kingdom
 - Subsidiaries France, USA (upon Series A funding)
 - Academia affiliations Carnegie Mellon University/DSSC, Universities of Cambridge, Exeter, Sussex, Sheffield and Brighton in the UK and Paris-Sud in France



Storage Market Landscape

- HDDs performance limited by fundamental architecture
- SSDs NAND Flash MLC or SLC inherent write failures
 - Moore's law increasing density causing increasing complexities

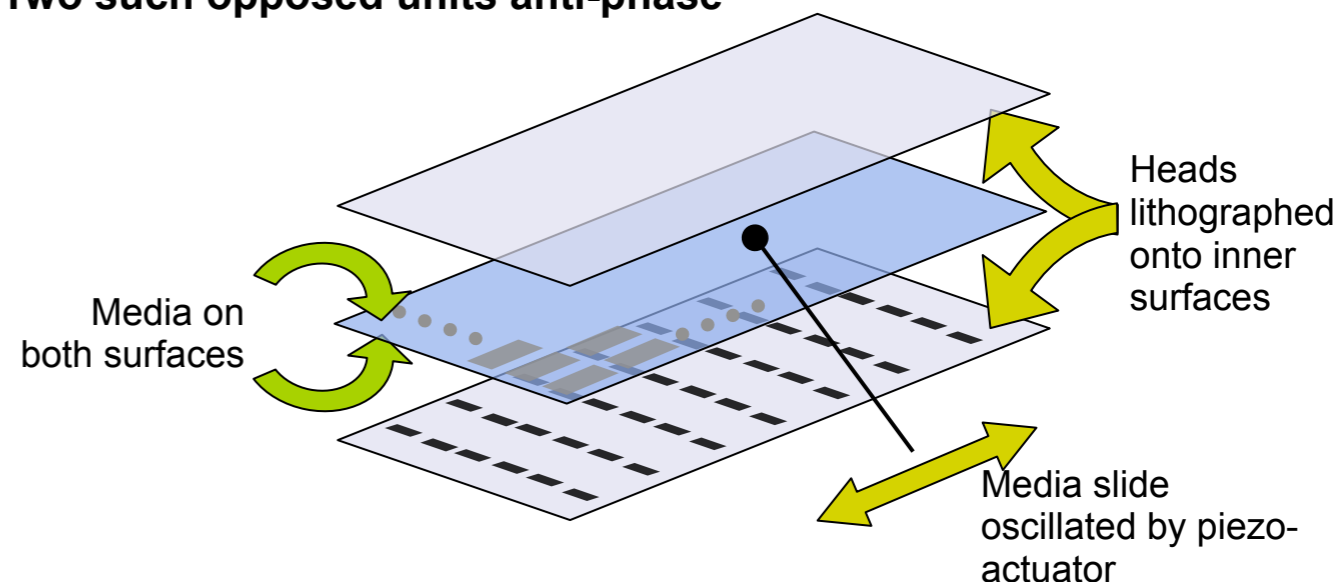


\$32 billion global hard drive industry, more than **500 million units in 2007**
14 percent compound annual growth rate between 2008 and 2012 (*WD annual report*)

Media Head Technology

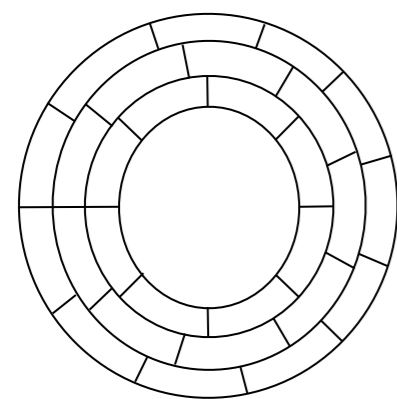
- Massively parallel 2D-array magnetic heads
 - Read and write heads on separate signal paths, no caching constraints
 - **Simultaneous** read and write → **symmetric**
- Uses proven, mature technology & infrastructure
 - LCD and IC processes
 - Low CTE glass substrate, Corning ULE™
 - Piezo-electric actuator oscillation, very low energy requirement (PI)
 - Head matrix slide uses sputtering/plating MEMs process
 - HDD perpendicular media using DSSC/Oerlikon-Balzars
 - Solid Lubricant (taC)
- Standard based solutions
 - 2 ½ inch HDD enclosure
 - SAS, SATA or PCIe interface
 - OS, DB & TCP/IP compatible

Two such opposed units anti-phase

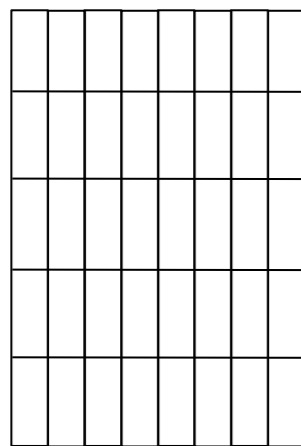


Sector and Data Organization

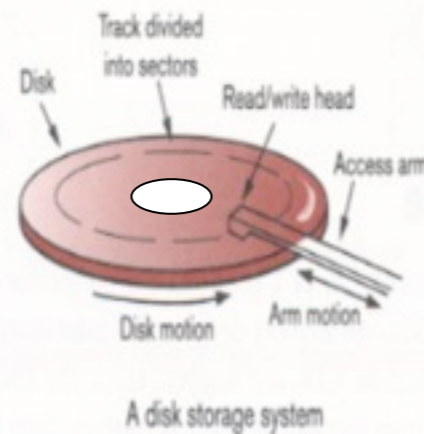
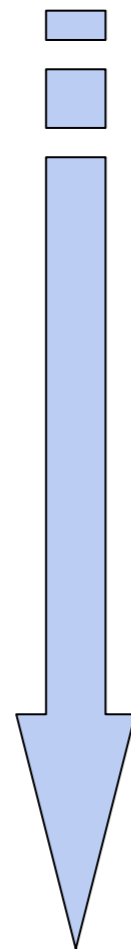
- ▶ DataSlide comprises linear arrangement of sectors:
- ▶ Massively parallel 2D-array of read:write heads



2X



Spins

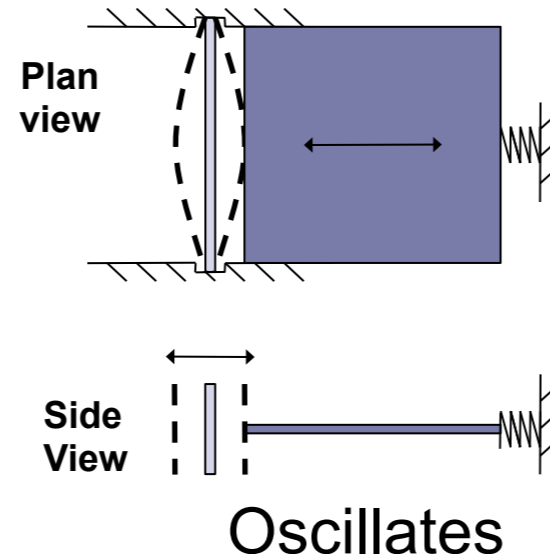


Disk drive

- ▶ One head for **ALL** sectors
- ▶ Unused Media area
- ▶ Slow Access/Throughput

DataSlide

- ▶ One head **per** sector (4KB)
- ▶ Symmetric read:write
- ▶ 64 heads > 500MB/s
- ▶ No seek ultra low latency
- ▶ Optimal use of media area
- ▶ Spatial, vs. areal density



GREEN STORAGE



Traditional hard disk drive



Solid state hard drive



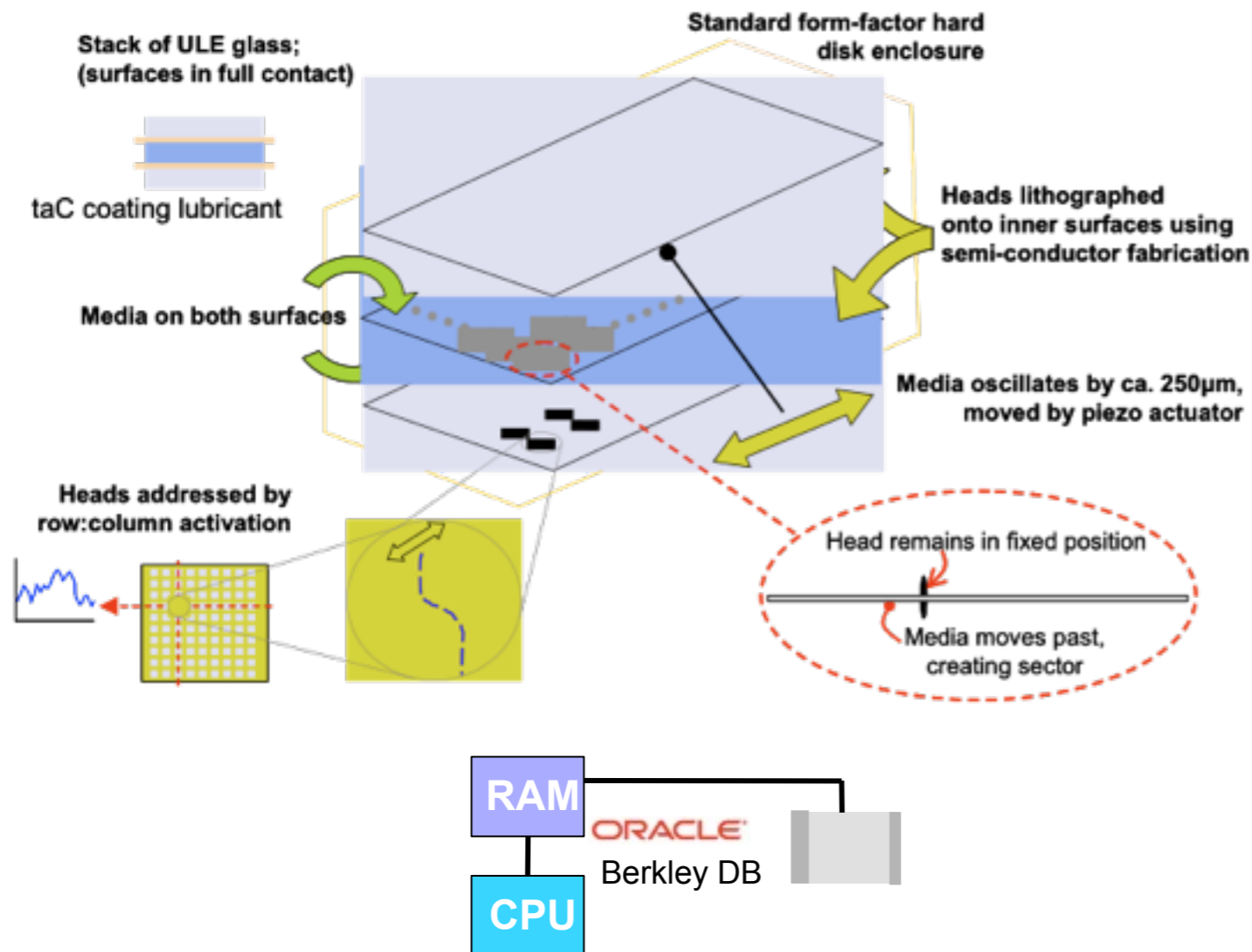
Dataslide 2.5" product

100,000 Write operation per second

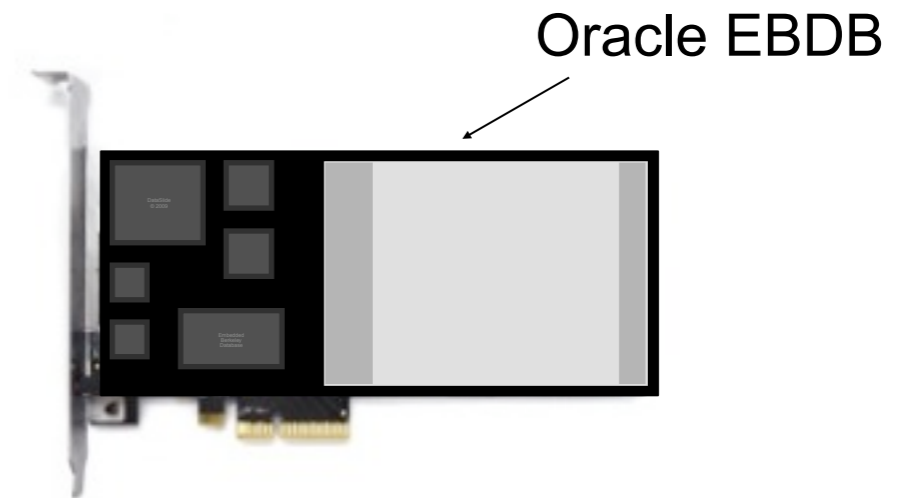
	Hard Disk Drive	Solid State Drive	Hard Rectangular Drive™ HRD™
# of Drives	280	30	1
Power per drive	12 Watts	2.4Watts	4Watts
TOTAL Power	3,360Watts	72Watts	< 4Watts

TCO Reduced OPEX

Oracle Embedded Berkley DB



“DB Accelerator”



- PCI express 2.0 Evaluation Platform
- Reference Platform “Production Ready”
- Oracle Berkley Data Base engine
- 160,000 Random RD:WR IOPS
- 500MB/s Transfer Rate
- No seek ultra low Latency

Telecom
Infrastructure

Networking

Security

Enterprise
Infrastructure

Storage &
Systems Mgmt

Enterprises

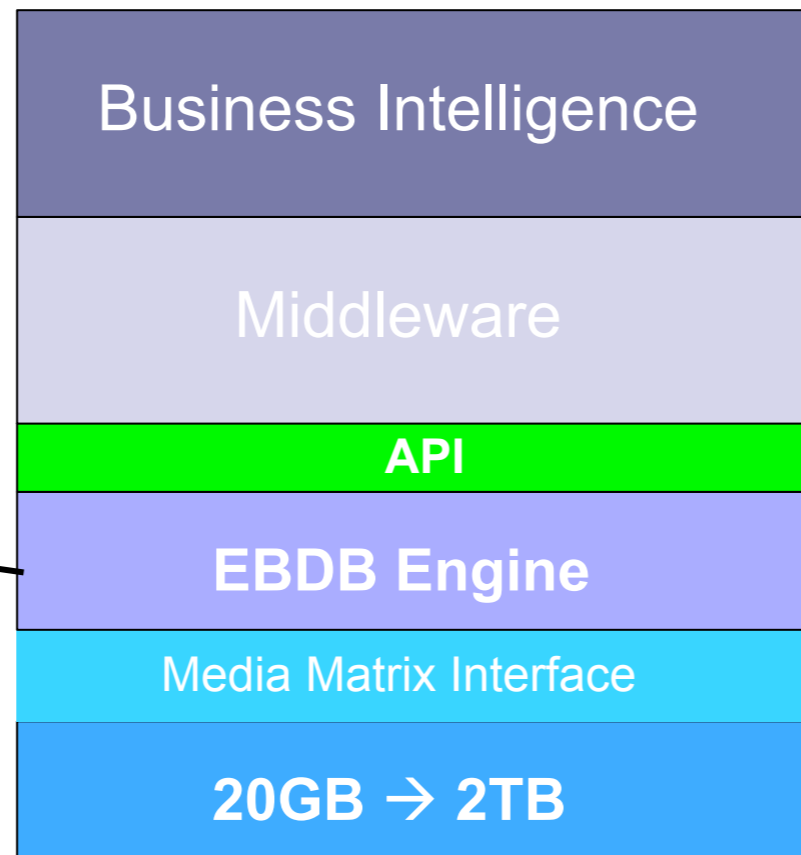
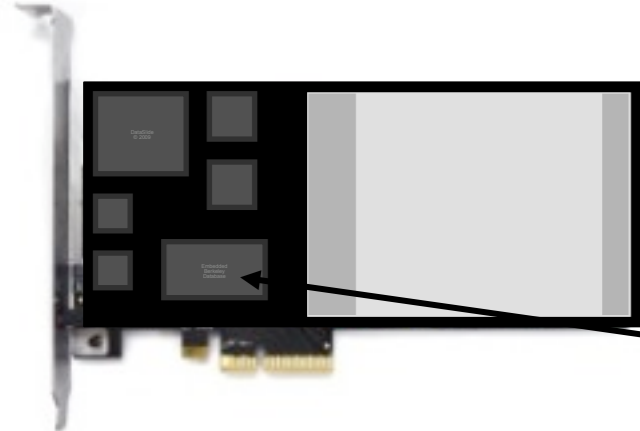
E-Business

Financial
Services

Oracle Embedded Berkley DB

Go To Market Strategy

“DB Accelerator”



Vertical Market Segments

Applications Partners

← 3rd Party
Developer Partners Program



Telecom
Infrastructure

Networking

Security

Enterprise
Infrastructure

Storage &
Systems Mgmt

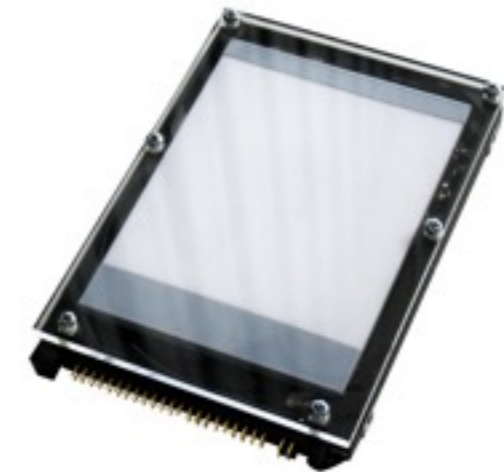
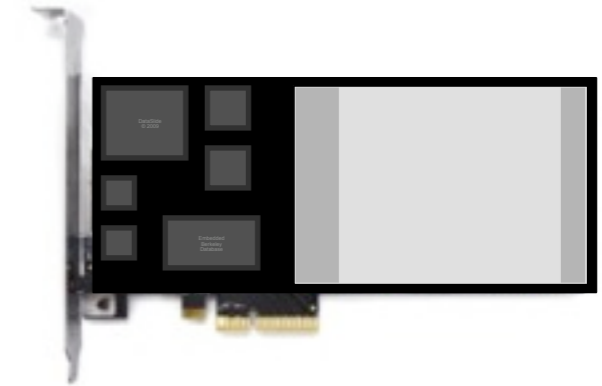
Enterprises

E-Business

Financial
Services

Summary

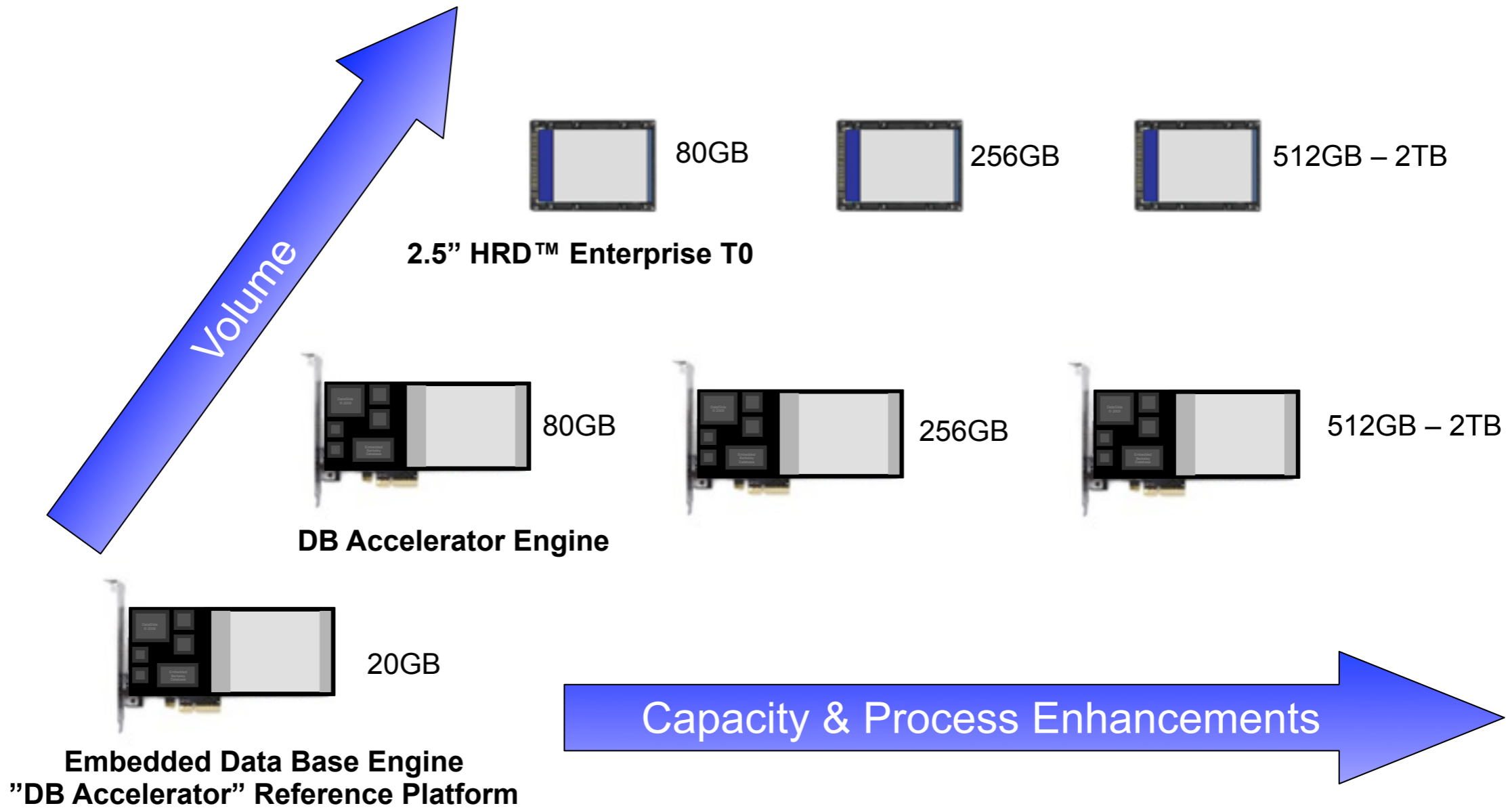
- Enterprise Class Green Storage → *IOPS/Watt*
- Oracle EBDB Accelerator Platform
- 160,000 symmetric RD:WR IOPS
- **40,000 IOPS/Watt** *Best TCO solution*
- Capacity from 40GB to 2TB
- Roadmap to Consumer Markets



Roadmap

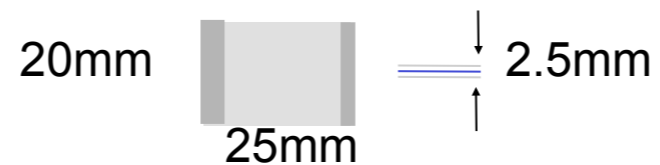
Consumer

Enterprise



Internet Mobile Devices

Hard Rectangular Drive™ **HRD™**



80GB to 256GB

The **HRD™** storage media has no power dissipation during idle
Longer battery life compared to Solid State Storage!

Thanks for your time 😊

The End

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 phone +44 (0) 781 294 0236