

DATA IS POTENTIAL

How Seagate is Innovating for Cloud Applications



What challenges are facing
cloud scale-outs today?

Performance

IO/TB

Ease of
management

Acquisition

cost

Efficiency

\$/TB

W/TB



How do you build your systems?



Traditional



Hyperscale/Hyperconverged



At Scale, there is a 15x difference in the cost of storage on hard drives vs the cost of storage on NAND



Innovation: Scaling

Available In:

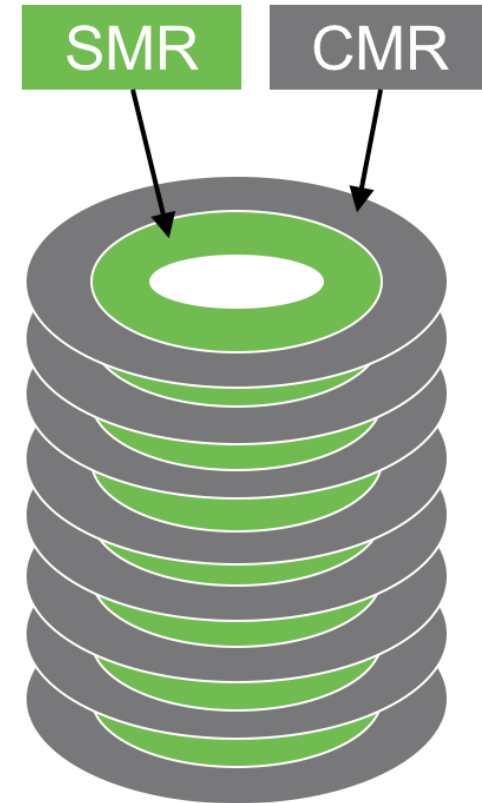


Step 1: Zone Block Devices

- Coupling benefits of ZBD and CMR on one device
 - *Launch 2019*
 - *16TB in 2019*

Step 2: HAMR

- Core technological achievement to keep pace with industry exabyte demand
 - *Launch 2018*
 - *20TB by 2020*

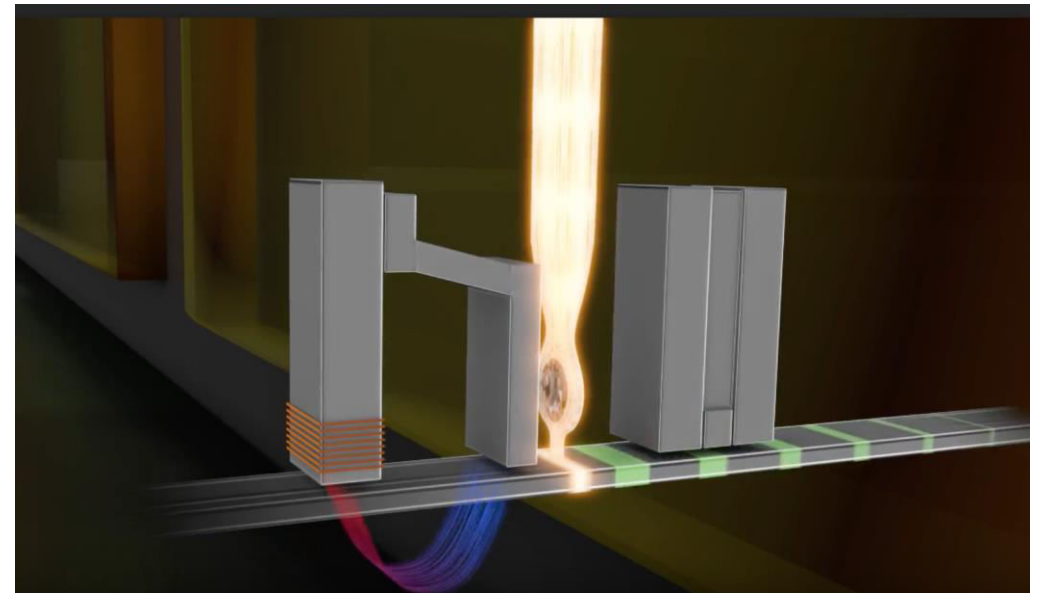
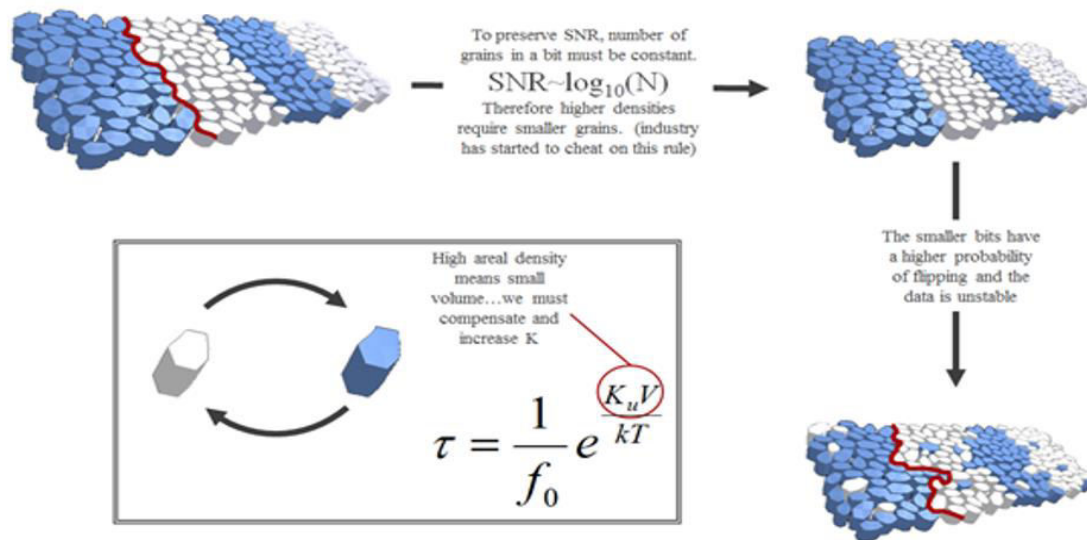


Innovation: Scaling

The Technology: HAMR

HAMR capabilities start with the media

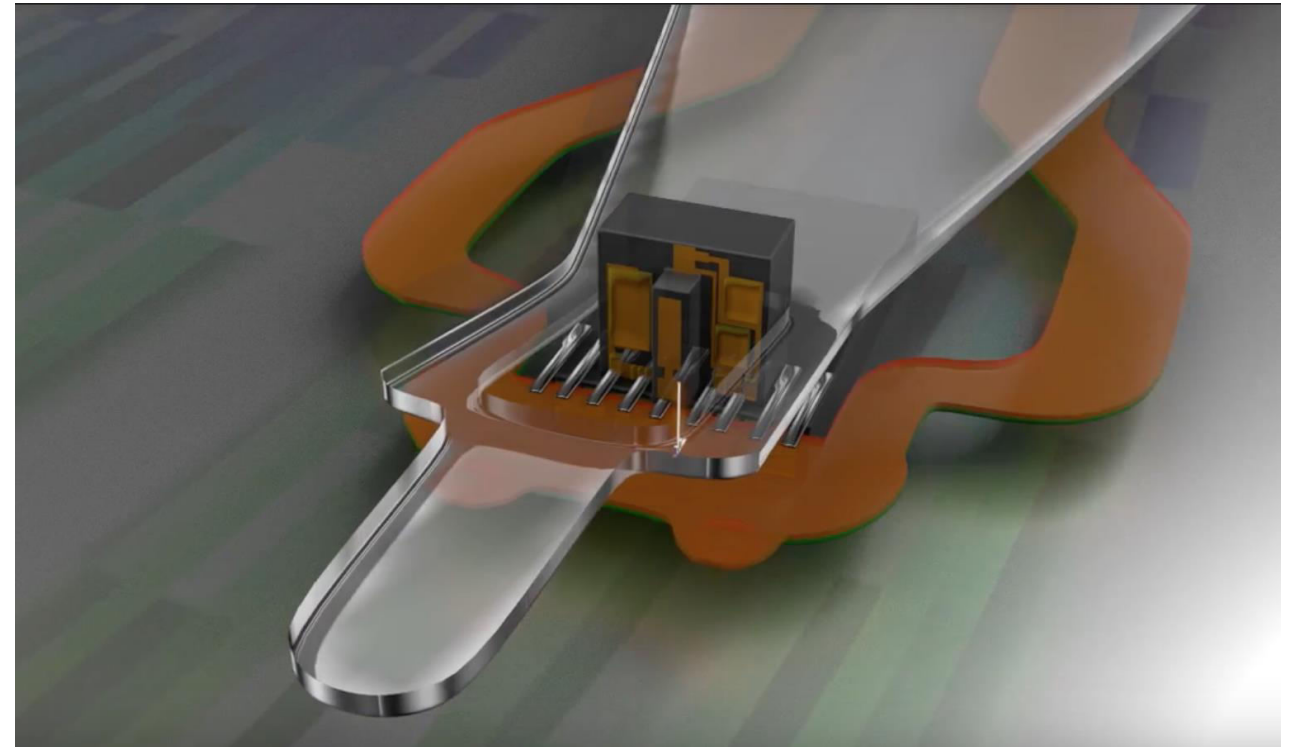
- Seagate has created production media up to 2Tbpsi
- Seagate has created media in research up to 10Tbpsi
- 9 years of 30% CAGR demonstrated with HAMR



Innovation: Scaling

Executing the Technology: HAMR

- Investment in precision manufacturing, optics, mechanical/electrical/chemical engineering.
- Energy assisted technology is needed to continue the amazing growth in the hyperscale world.



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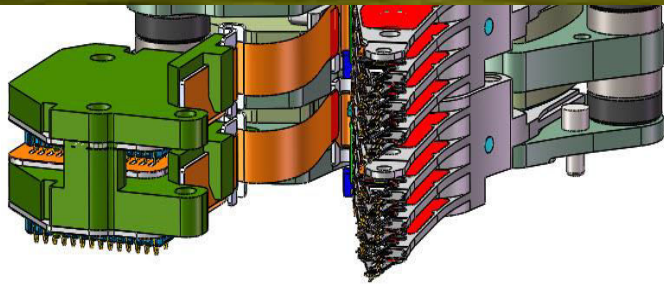
Innovation: Performance Enablement

The Technology: Parallelism

Available In:



SSDs



HDDs with Parallelism



HDDs



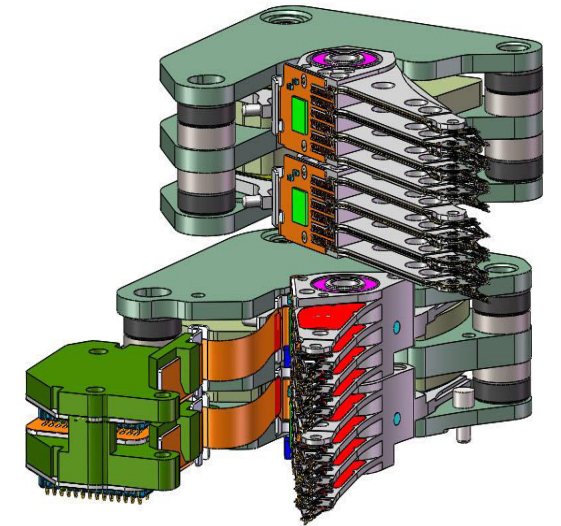
Innovation: Performance Enablement

The Technology: Parallelism

IOPs Growth:

Dual Actuator

- Enable 1 drive slot to perform like 2 drives but use less power than 2 drives
- 1 slot in the datacenter → Performance of 2X → Enable TCO



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Innovation: Power Management

The Technology: Parallelism + HAMR and Flex

Parallelism + HAMR & Flex = One Efficient Slot

- Parallelism can seamlessly integrate with all future capacity growth recording techniques, starting with HAMR (2020)
- One Drive
 - Higher performance than two drives
 - Lower power consumption than two drives
 - Enabling lower TCO



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+

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The Bottom Line

Capacity

Improve the Density of the Data Center to help scale revenue

Performance

Enable the users to access the data to continue achieving service level agreements

Power

Optimization for geographic capabilities critical



Please visit us at Rausch booth H01

Just outside this .com main.FORUM hall



THANK YOU

