Storage Technology and Market Trends:

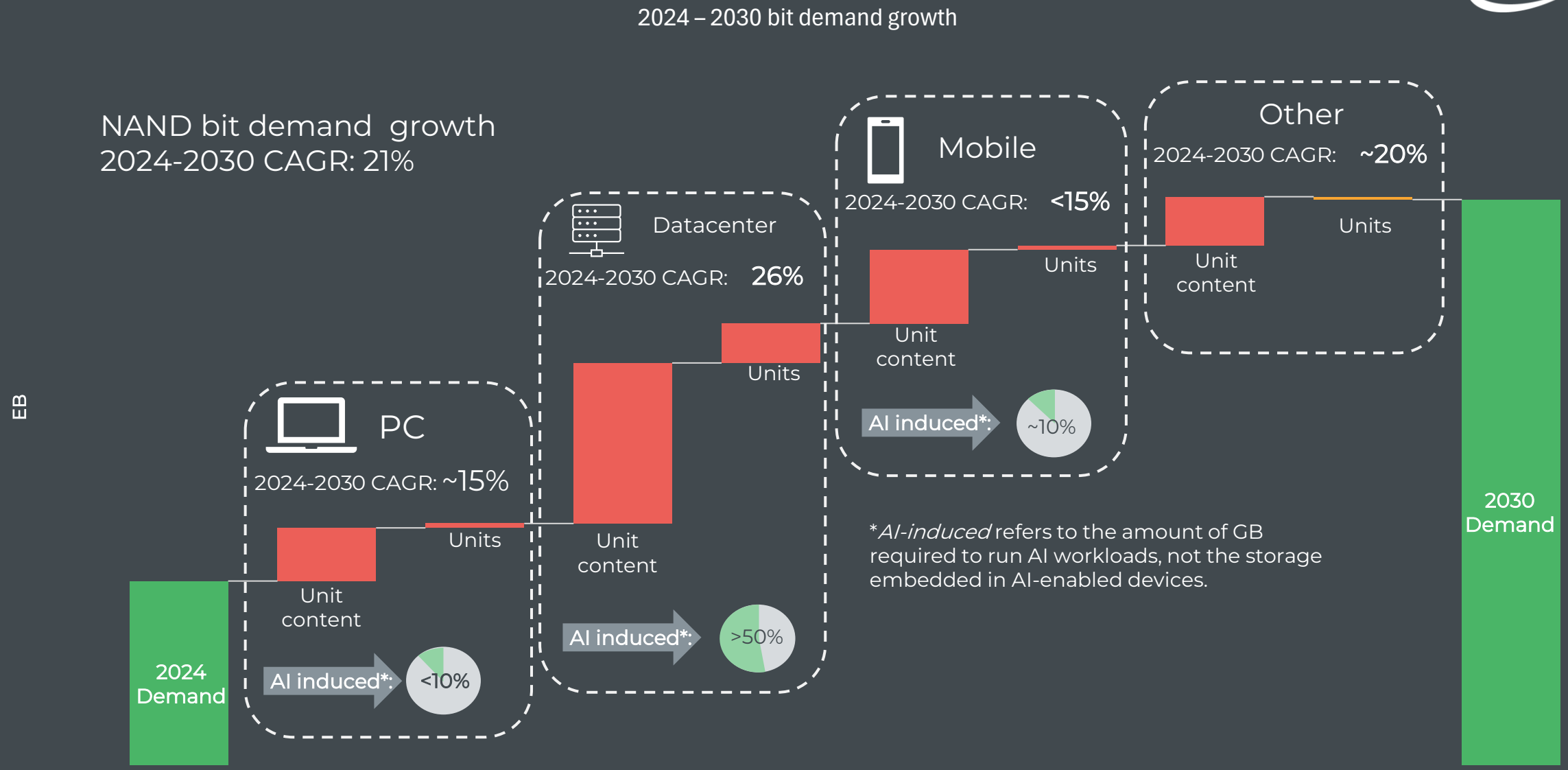
Navigating the Future of Enterprise SSDs

Thibault Grossi , 7th August 2025

YOLE Group

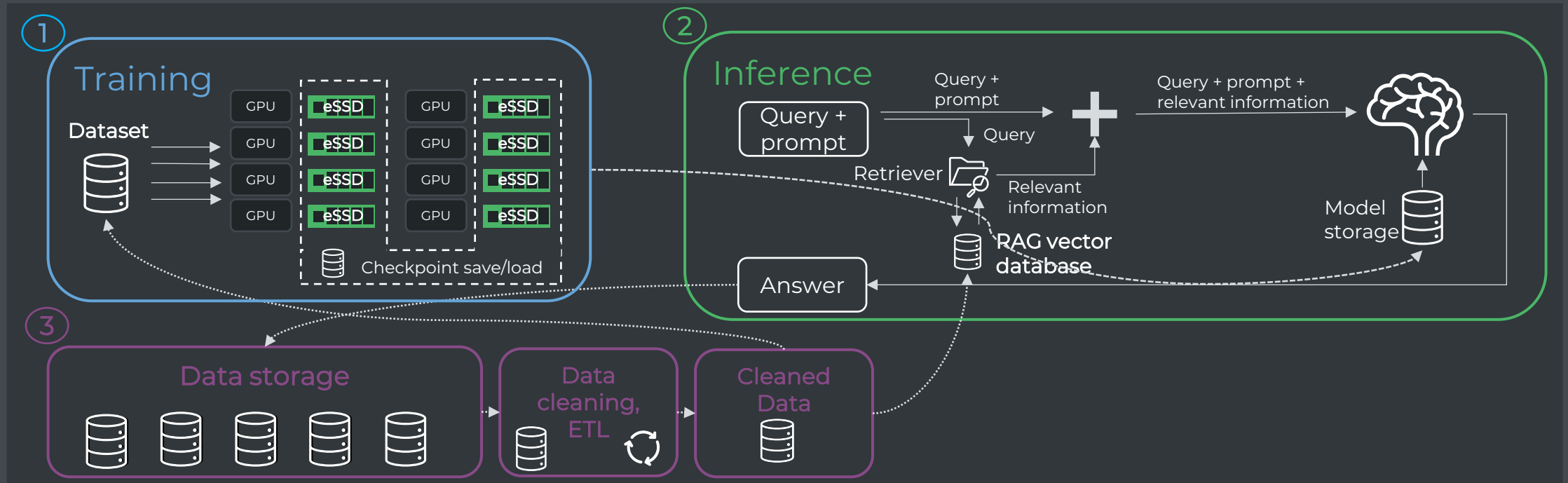
FMS

WHERE IS THE GROWTH COMING FROM FOR IN THE NEXT 5 YEARS



DATACENTER BIT DEMAND INDUCED BY AI

3 main growth drivers



Server attached SSDs

- Checkpoint save/load SSDs
- Boot, Software storage SSDs

- 1 to 16 TB
- TLC ➔ (p)SLC

Storage SSDs

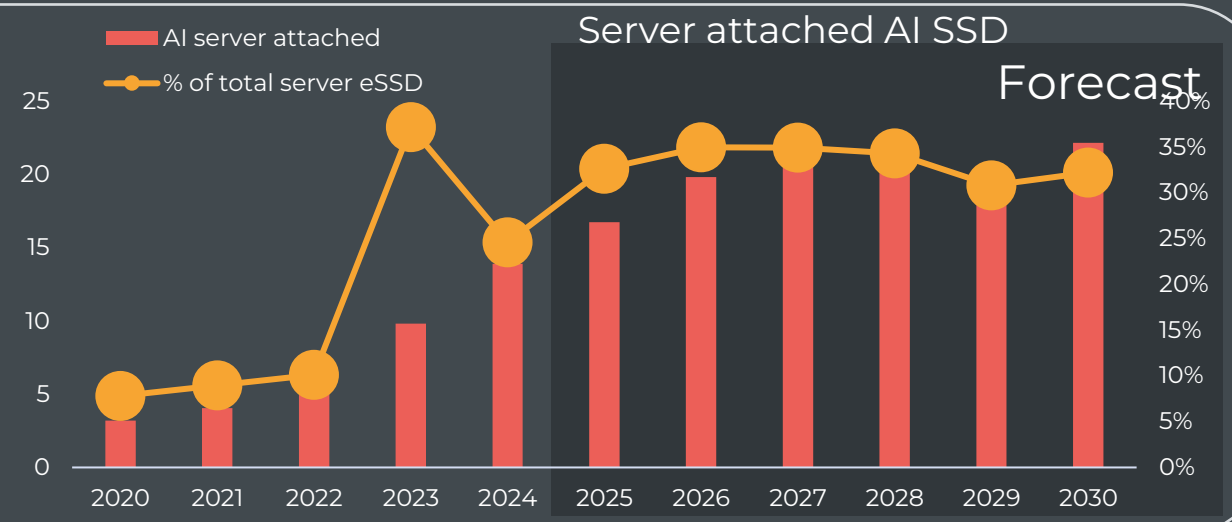
- Dataset Storage
- Data storage
- Data cleaning, ETL
- Cleaned data
- Model storage
- RAG vector database

- >= 32TB
- TLC ➔QLC

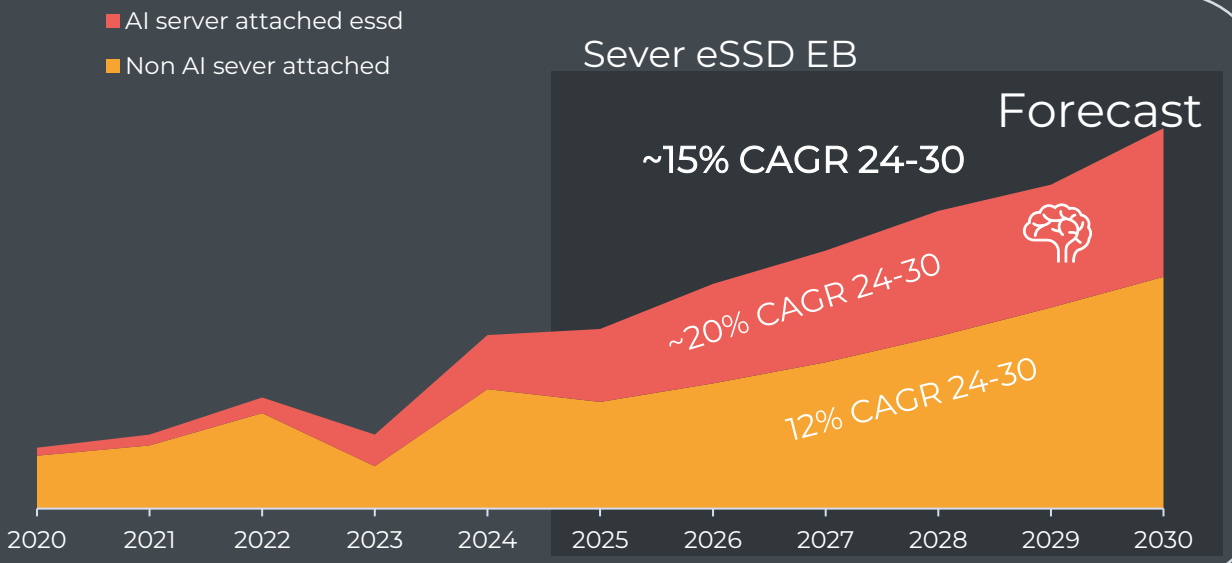
SERVER ATTACHED SSD

AI server are driving the growth

- eSSD units attached to AI servers is expected to rise through 2027, before stabilizing in 2028.
- eSSD shipments for AI servers are projected to account for a third of total eSSD unit shipments in the coming years.



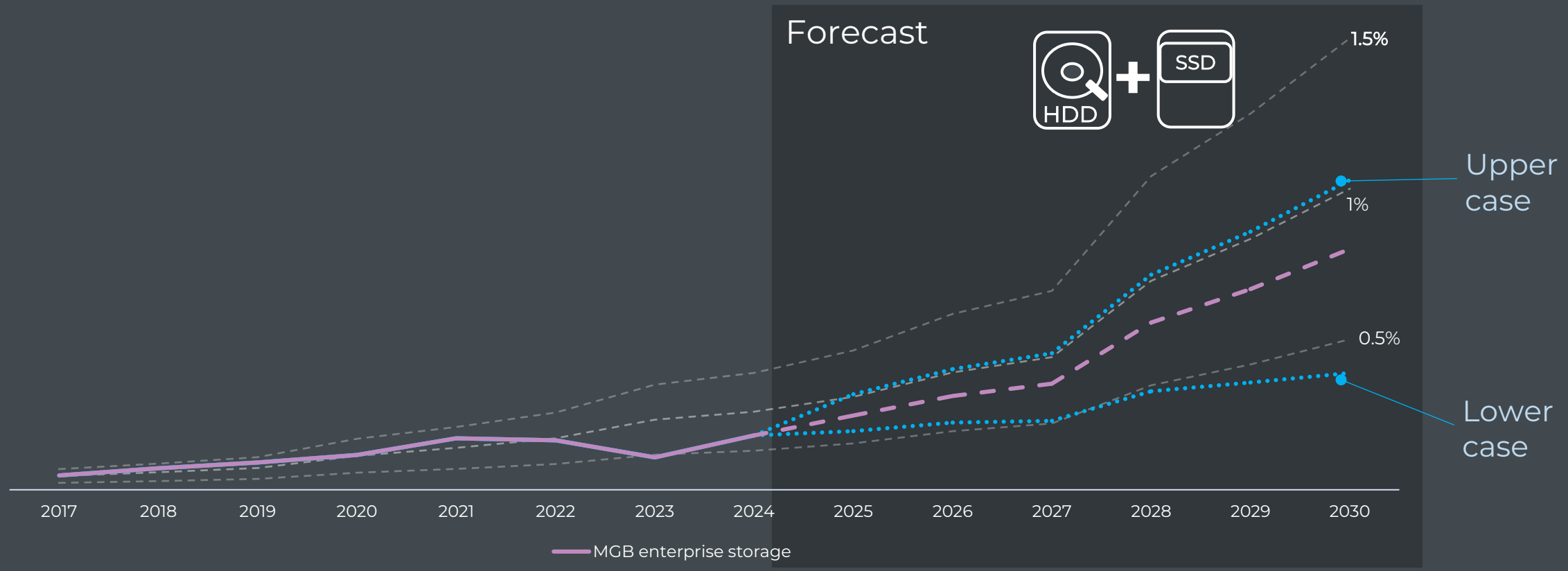
- Bit demand growth from conventional servers is expected to remain modest, with a CAGR24-30 of 12%.
- In contrast, bit demand from AI servers is projected to grow at a faster pace, with a CAGR24-30 in the range of 20%.
- Overall, server-attached eSSD bit demand is expected to grow at a CAGR of approximately 15% from 2024 to 2030.



ENTERPRISE STORAGE

What to expect in the coming years

enterprise as a percentage of the total generated data

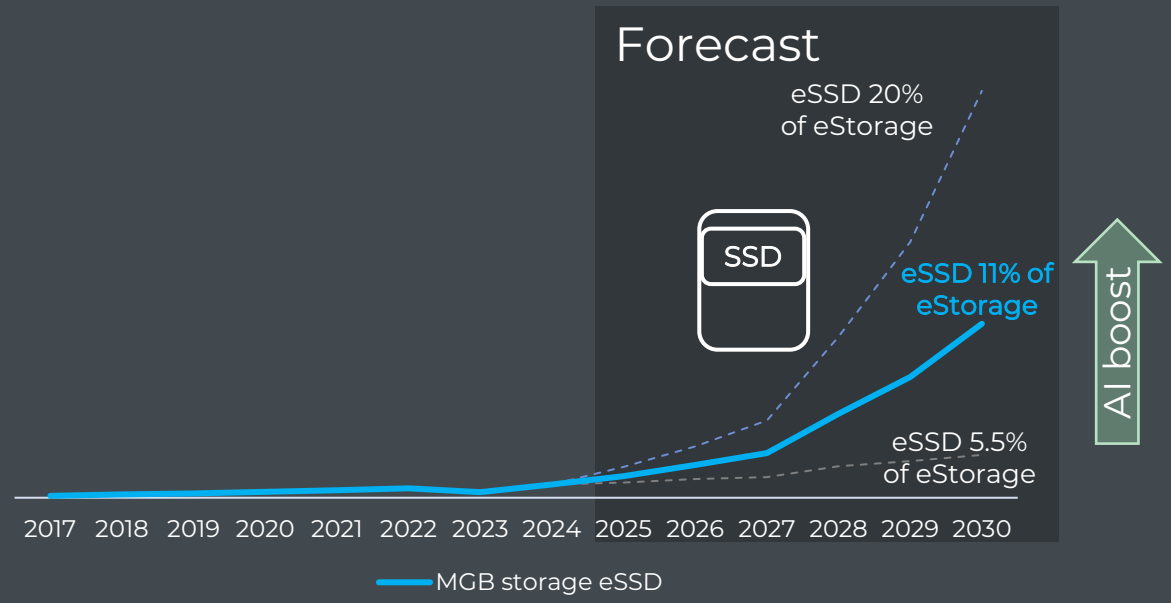


Enterprise storage (HDD + eSSD) bit shipments is estimated to represent about 1% of the total generated data. This share has declined over the past two years.

STORAGE SSDS

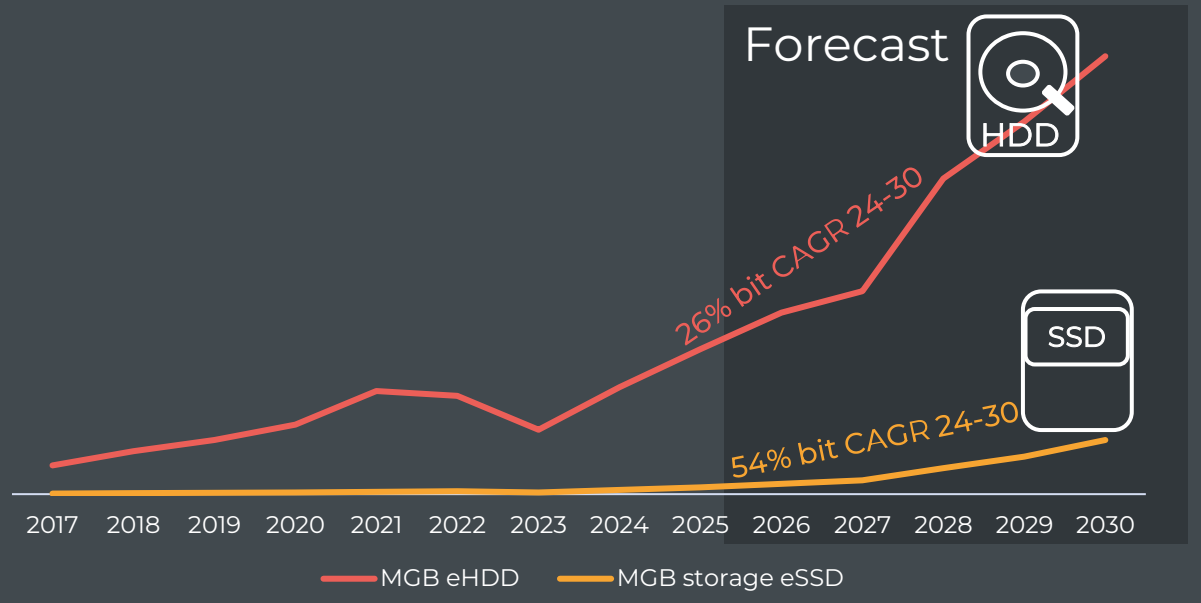
SSD share rising, HDD growth still strong

Storage eSSD bit demand



Historically, eSSDs have accounted for about 3% of storage.

Bit demand forecast HDD and eSSD



Based on the 11% scenario, the eSSD storage bit demand is expected to grow by 54% CAGR24-30.

This still leaves a lot of room for HDD bit demand growth (26% CAGR24-30)

COMPARING HDD AND SSD

SSD are becoming increasingly competitive

- The $/GB gap remains important
  ➔ QLC penetration **will help in reducing** it but **won't close it**

- SSDs are becoming increasingly competitive when evaluated through a TCO lens, which factors W/TB, bandwidth, and storage density.

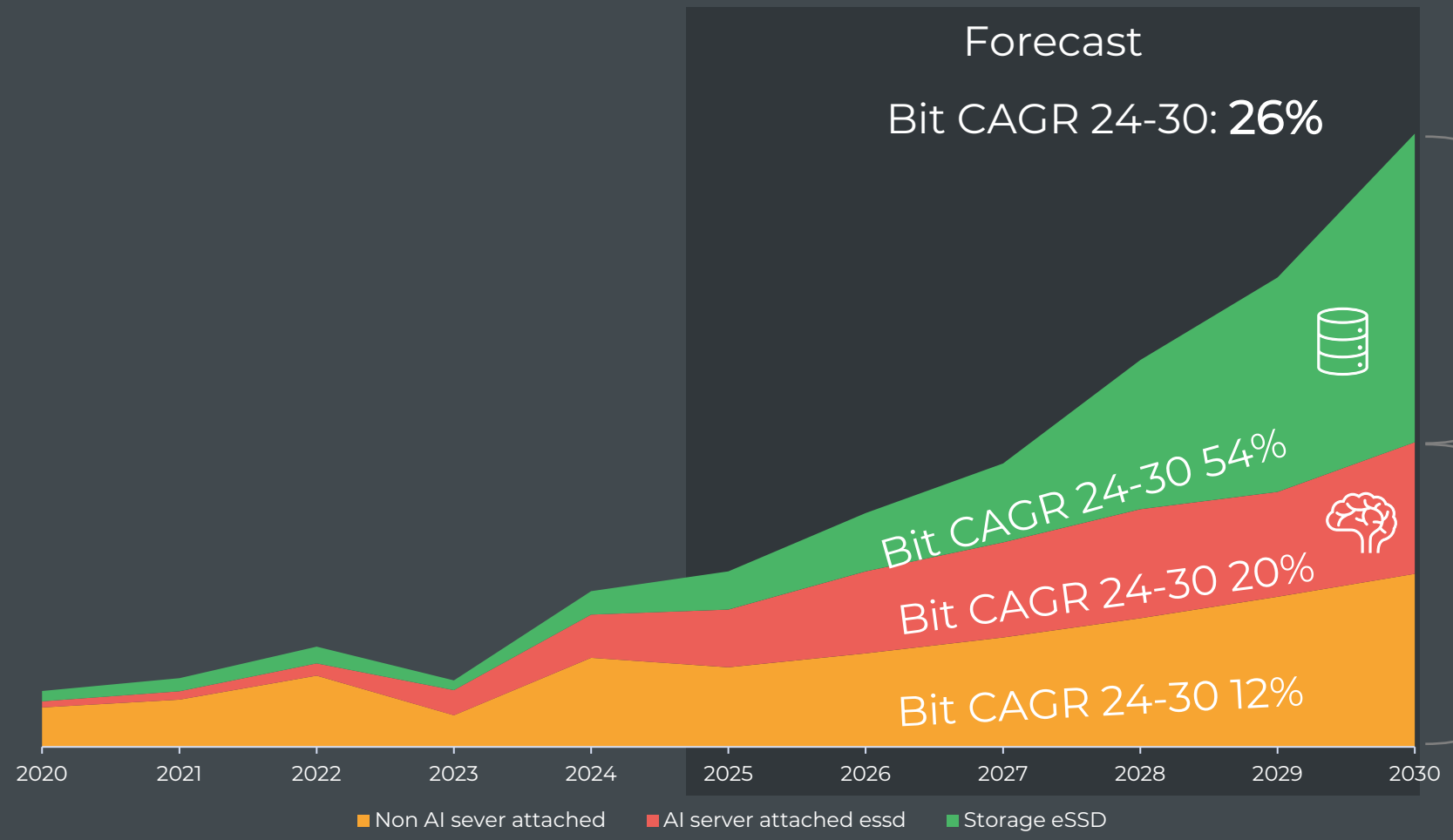
VS

	HDD	SSD	
Price	0.015$/GB	0.09$/GB	6x more expensive
Read Bandwidth	SAS / SATA Bandwidth: <300MB/s	SAS / SATA / PCIE 4 Bandwidth: up to 7000MB/sec	>20x higher
Storage density	Up to 32TB in HDD 100GB/ cm3	Up to 120TB in U.2 1TB / cm3	>10x denser
W/TB	~200mW/TB	40 to 125mW/TB	~2 to 5x more efficient

ESSD DEMAND FORECAST OVERVIEW

Boosted by AI use cases

eSSD bit shipment forecast



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Thank you