

XPUUs and the Future of AI Connectivity

December 2-3, 2025

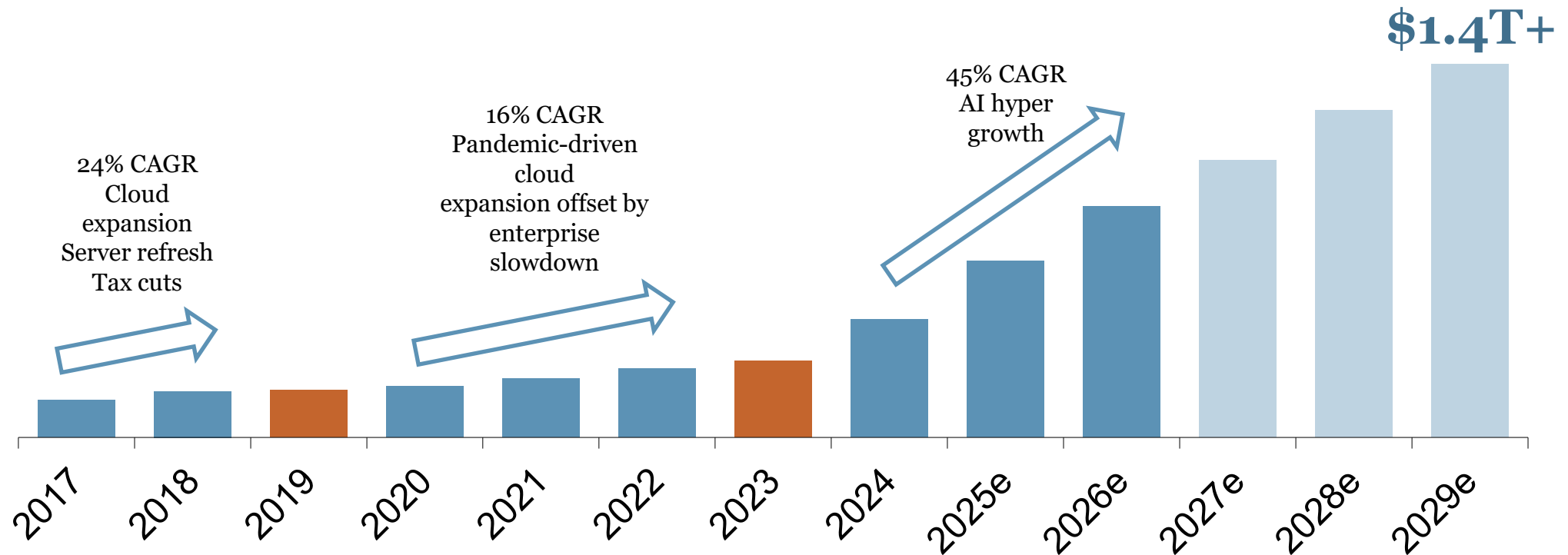


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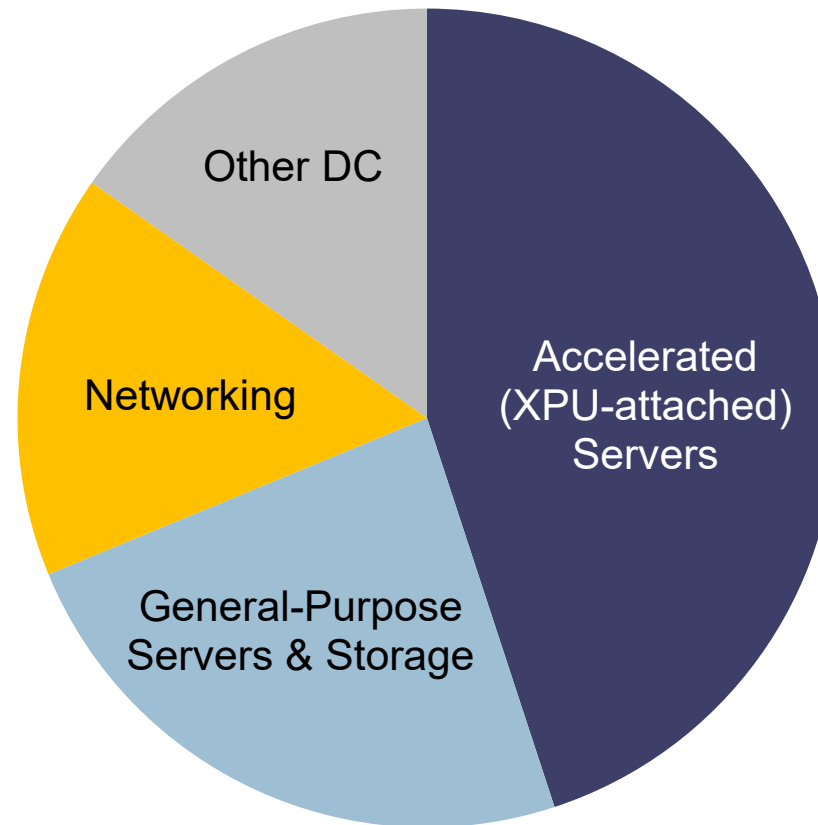
XPU's and the Future of AI Connectivity

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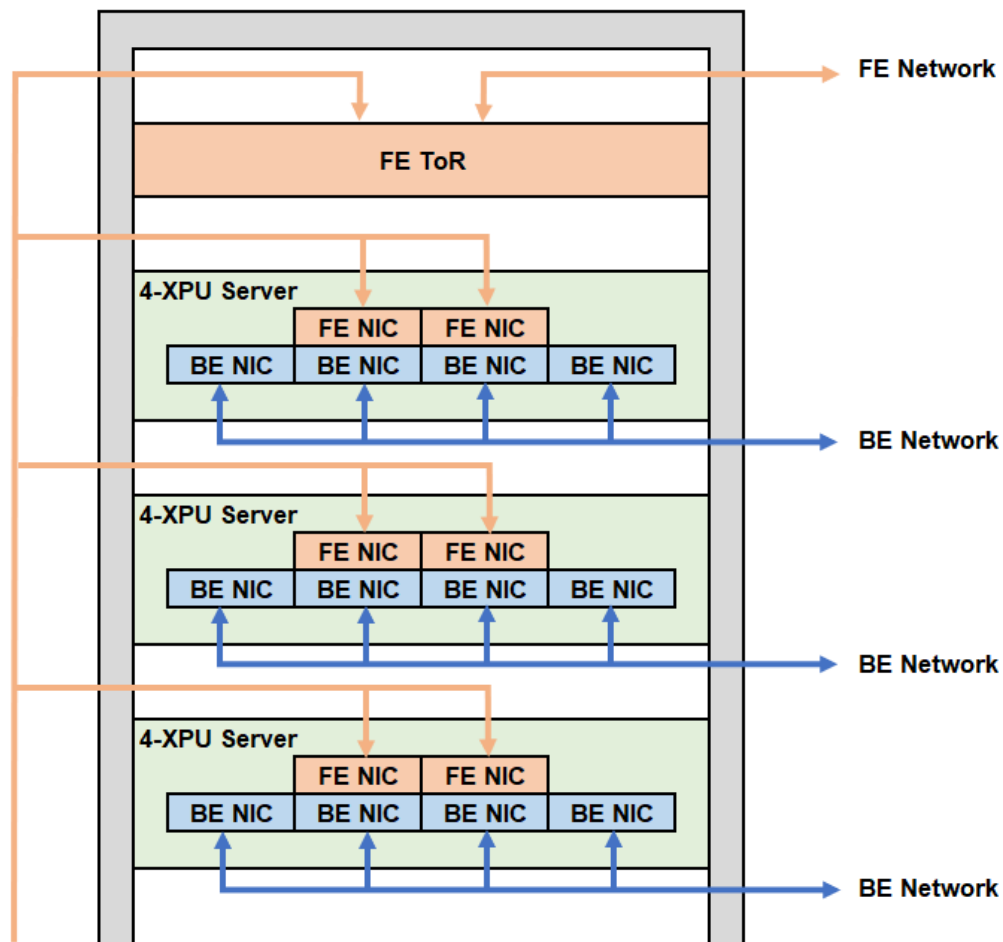
Data Center Capex Outlook



Worldwide DC Capex Surpasses \$1.4T by 2029



XPU Server Metrics



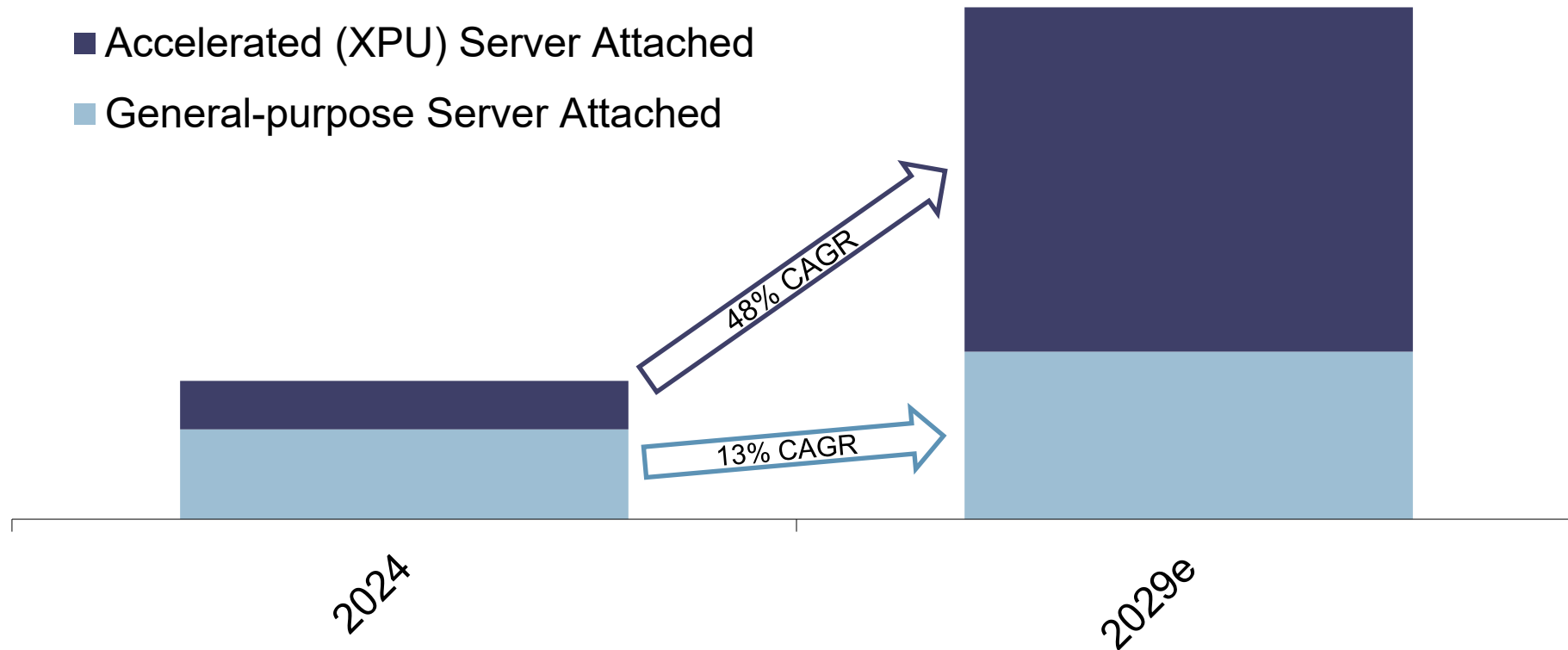
Metric	Accelerated Server	General-purpose Server
CPU	2 / server	1-2 / server
Accelerators (XPU)	4-8 / server	0 / server
FE NIC	2 / server	1 / server
BE NIC	4-8 / server	0 / server
FE + BE NIC	6-10 / server	1 / server
Unit CARG %	>20%	<5%
NIC ASP	>2X	1X
2029 Unit %	>20%	<80%

Network Interface Card (NIC)

Front-end (FE): network for storage I/O, control-plane and user-plane traffic

Back-end (BE): network for XPU-to-XPU connectivity

Total Ethernet NIC Five-year Forecast



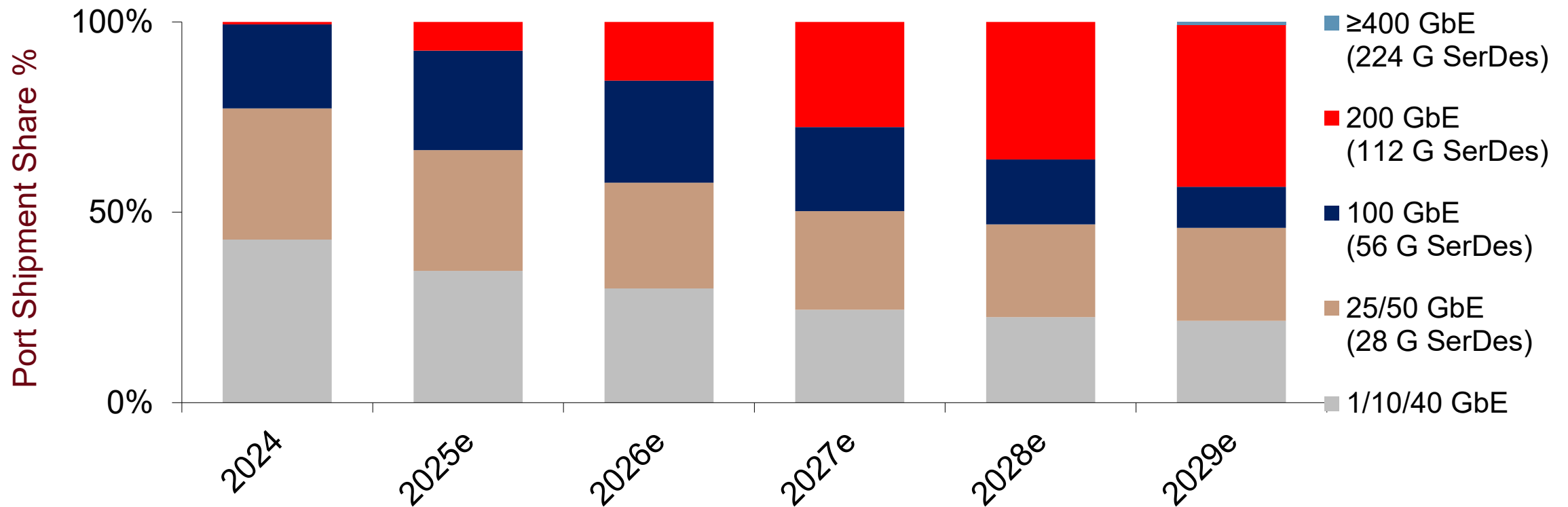
Ethernet NIC Speed Transition (Front-end)

	Customer Segment	Server Type	2017	2019	2023	≥ 2026
SerDes Speed	-	-	28 G NRZ	56 G PAM-4	112 G PAM-4	224 G PAM-n
Network Fabric Speed	-	-	25/50/100 Gbps	200/400 Gbps	800/1600 Gbps	1600 Gbps
Server (NIC) Port Speed	Tier 1 Cloud SPs	General-purpose	25 Gbps (1x) 50 Gbps (2x)	100 Gbps (2x)	200 Gbps (2x)	400 Gbps (2x)
		High-end	100 Gbps (4x)	200 Gbps (4x)	400 Gbps (4x)	800 Gbps (4x)
	Other Cloud SPs Telco SPs Large Enterprises	General-purpose	25 Gbps (1x)		100 Gbps (2x)	
		High-end	100 Gbps (4x)		200 Gbps (4x)	
	Small Medium Enterprises	General-purpose	10 G Base-T (1x)			

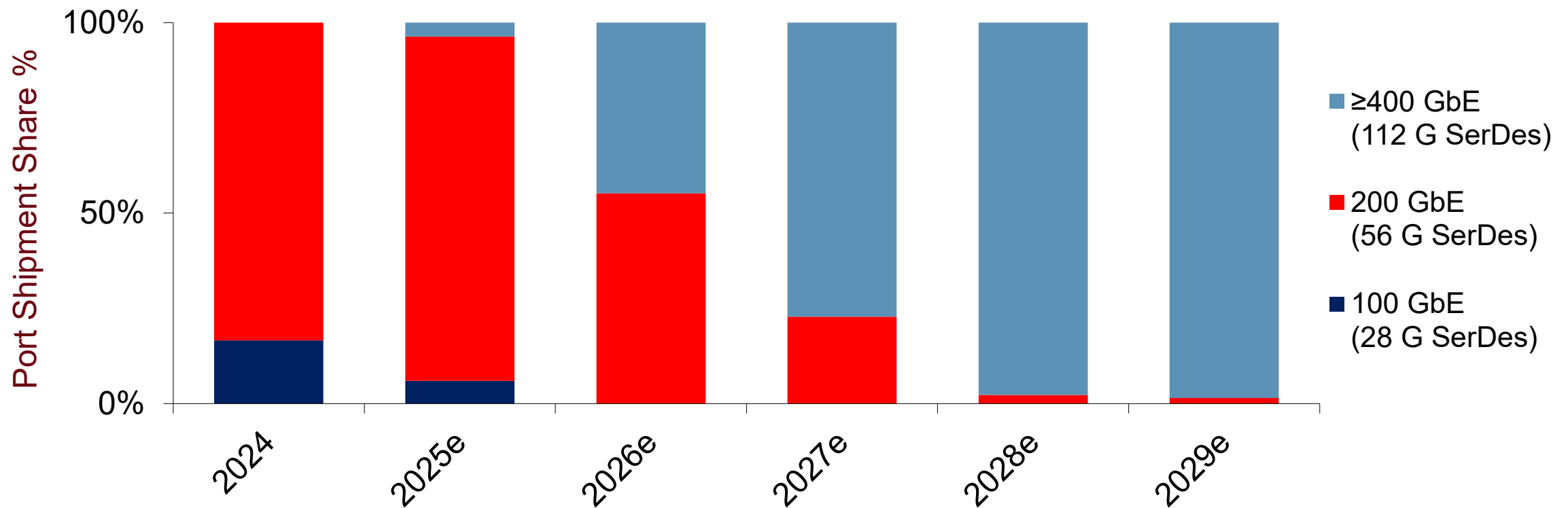
Notes:

- High-end: Accelerated computing for AI applications, AFA arrays, blade servers
- 1x = 1 SerDes lane, 2x = 2 SerDes lanes, 4x = 4 SerDes lanes

Ethernet NIC Speed Transition (Front-end, Non-AI)



Ethernet NIC Speed Transition (Front-end, AI)



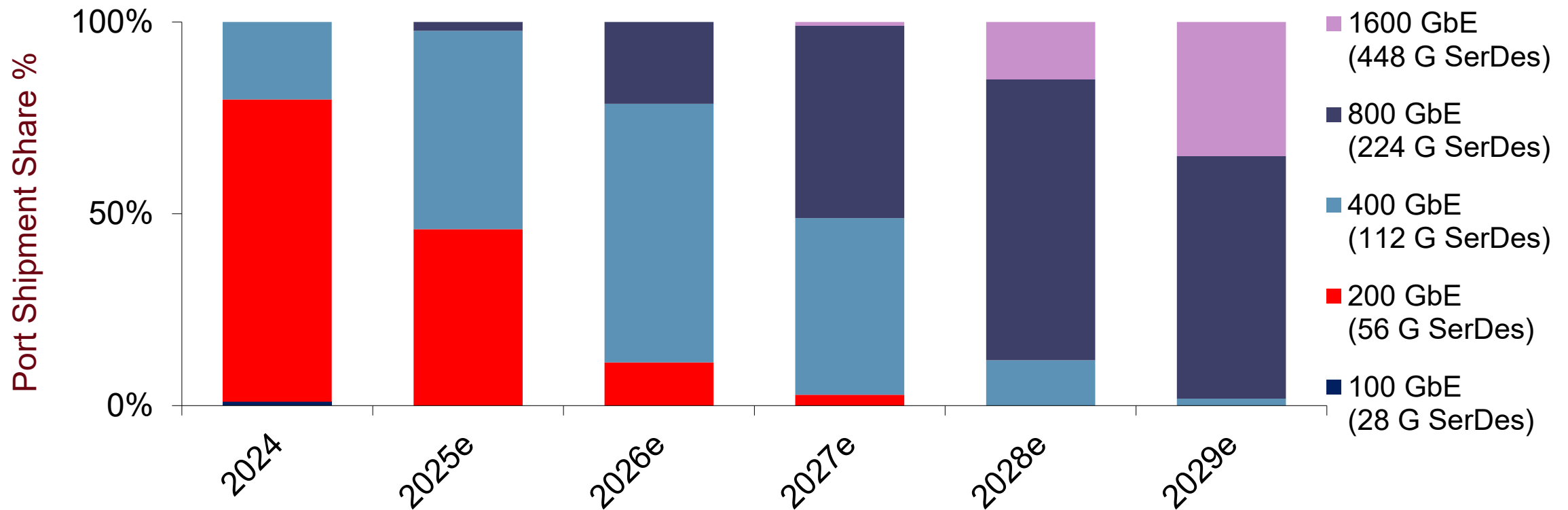
Ethernet NIC Speed Transition (Back-end)

	Customer Segment	Server Type	2023	2026	≥ 2027
SerDes Speed	-	-	112 G PAM-4	224 G PAM-n	448 G PAM-n
Network Fabric Speed	-	-	800 Gbps	1600 Gbps	3200 Gbps
Server (NIC) Port Speed	Tier 1 Cloud SPs	Accelerated Server Clusters	400 Gbps (4x)	800 Gbps (4x)	1600 GbE (4x)
	Other Cloud SPs Telco SPs Large Enterprises	Accelerated Server Clusters	200 Gbps (4x)	400 Gbps (4x) 800 Gbps (4x)	800 Gbps (4x)

Notes:

- 1x = 1 SerDes lane, 2x = 2 SerDes lanes, 4x = 4 SerDes lanes
- 800 Gbps NICs in 2025 may be mostly in Grace Blackwell platforms
- 800 Gbps adoption outside of Tier 1 Cloud limited in 2025

Ethernet NIC Speed Transition (Back-end*)



*Refer to *Data Center Switch – AI Back-end Networks* report for background

Key Takeaways

- Data center capex is surging, fueled by the shift toward accelerated computing and AI infrastructure.
- XPUs are adopted at scale, led by large hyperscalers building massive AI clusters.
- AI workloads are driving the demand for high-performance, low-latency back-end networks.
- Back-end AI cluster networks are driving transitions in Ethernet NIC speeds, with 800G and beyond.

QUESTIONS?