Zettar

Revolutionize Data Transport. Unleash AI & HPC

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Data Movement Innovations Mandatory

DATA TSUNAMI

- 180 Zettabytes by 2025

IT PARADIGM SHIFT

- Generative AI, LLMs, Sovereign AI clouds
- Edge to Core/Cloud Paradigm
- Disaggregated Infrastructure

NEED FOR REAL TIME DECISION

- Examples: Cryo-EM microscopes, photon-counting CTs

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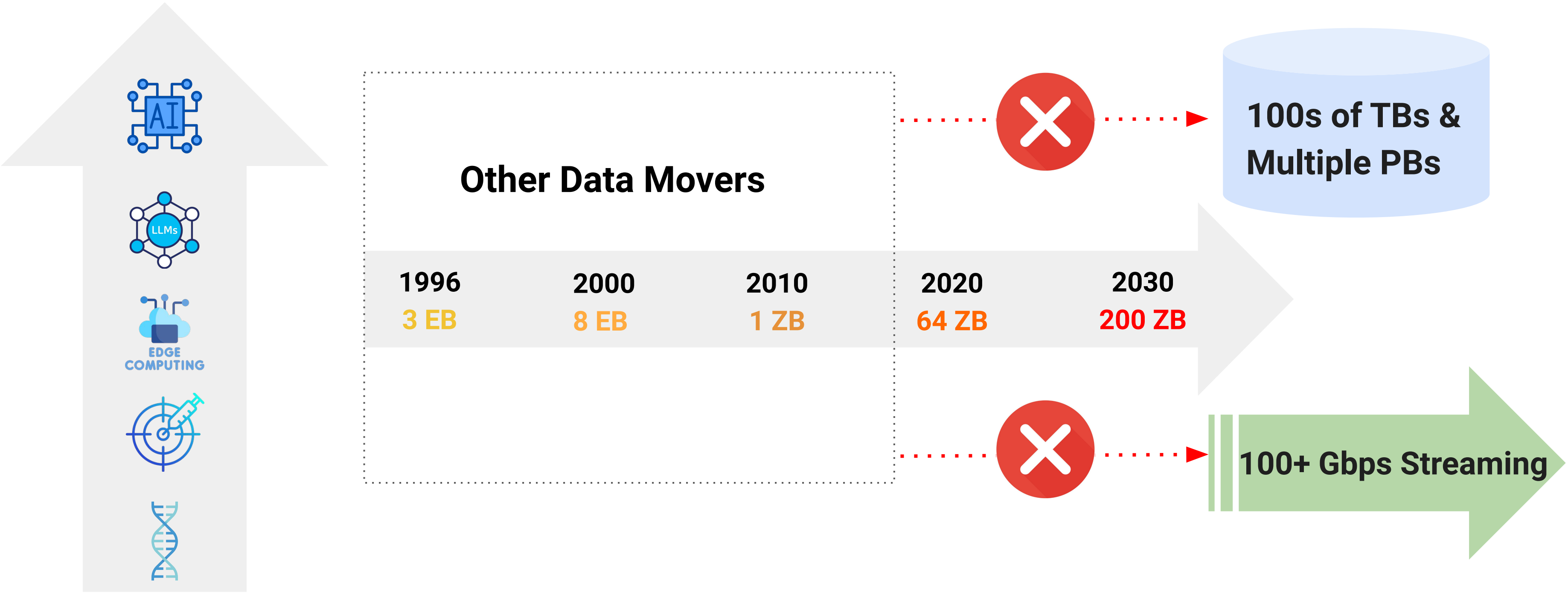
Problem

Explosive Data Growth



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Sequencing Centers - up to 10TB/Instrument/Day

Asia

Europe

The U.S.

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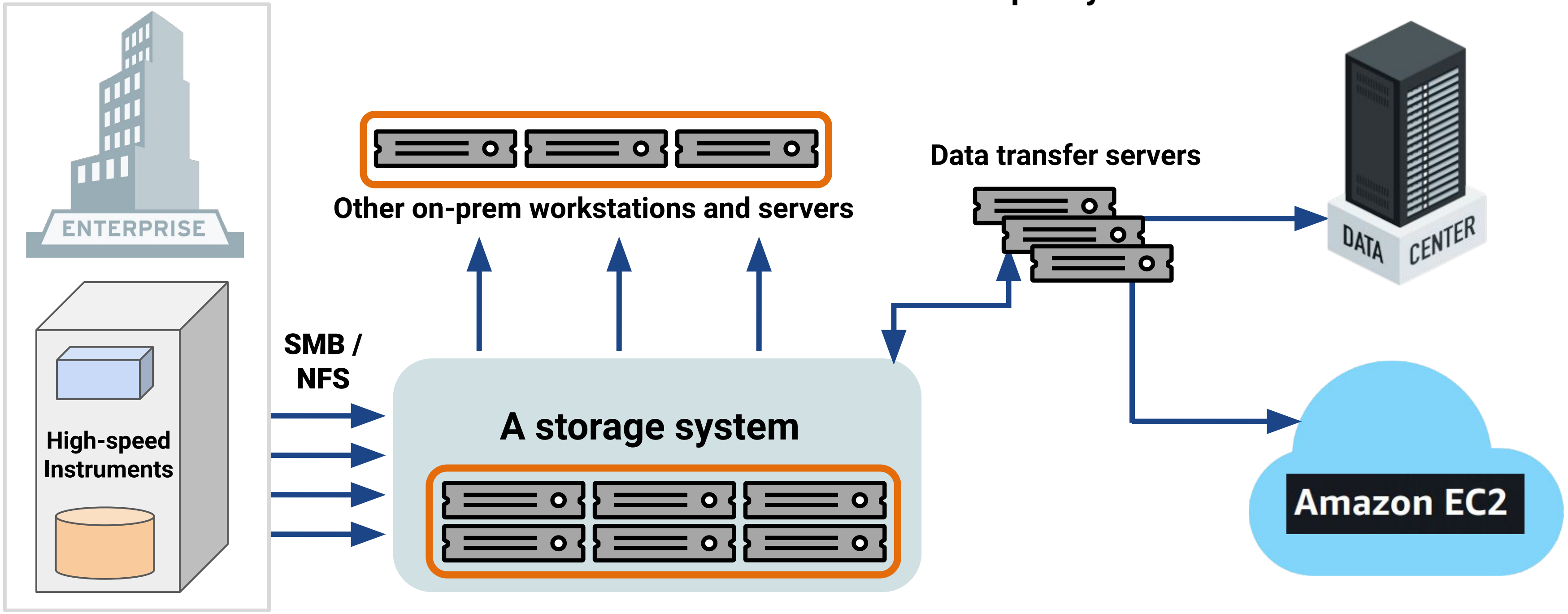
Data Movement Challenges

1. Complex setup
2. Dated tools. Slow
3. Constrained data transfer capacity



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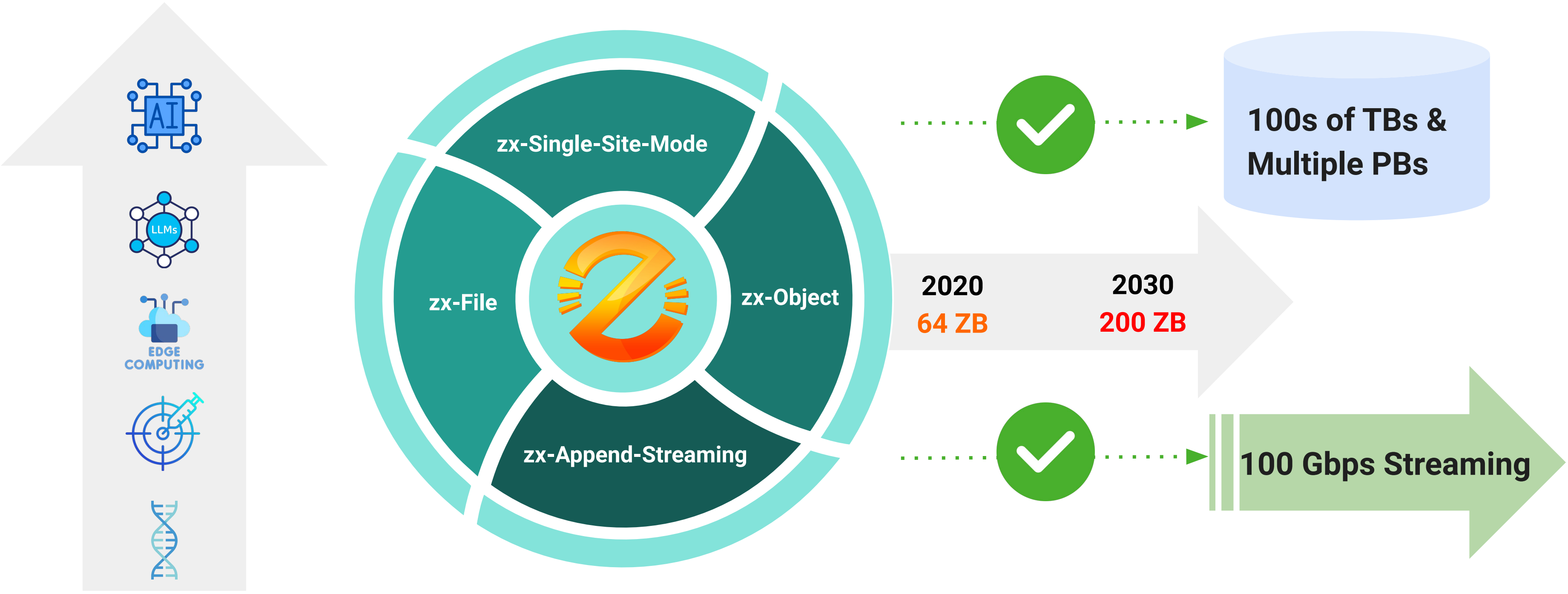
Core Products

Explosive Data Growth

4-in-1 Unified Data Movement Software



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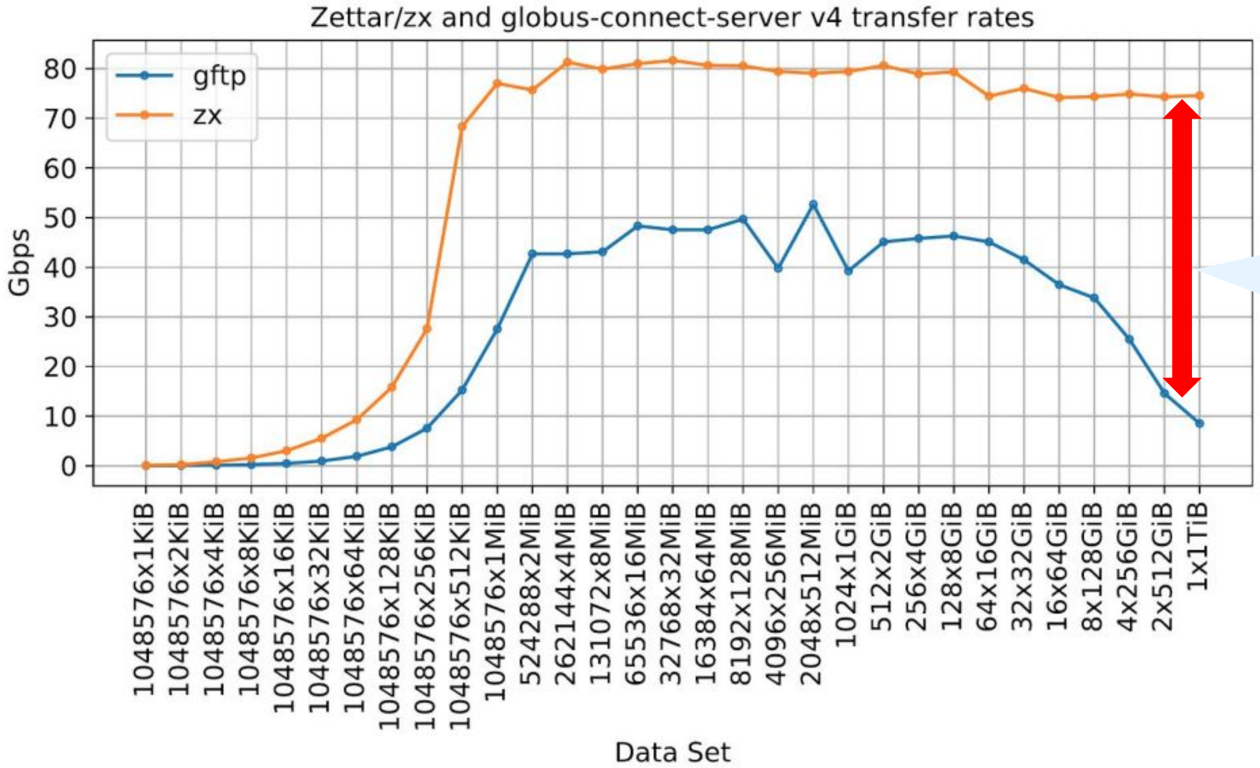
Entire Infrastructure & Software Work in Concert



The contrast of Zettar's balanced approach vs Globus' *network* focused approach

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Use Cases & Unique Technologies

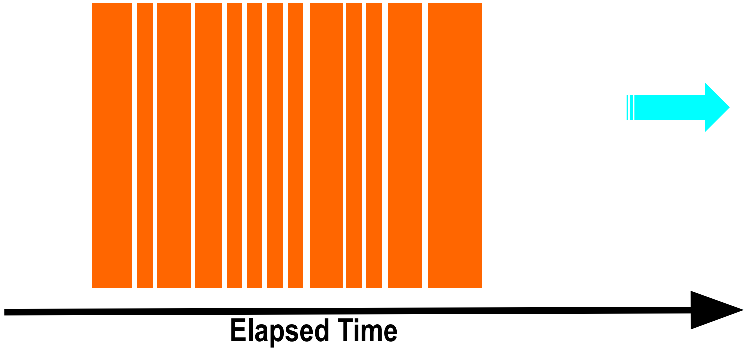
Smarter, Faster, Easier, More Efficient

Integrated Software Bulk Transfer Capabilities

- **Data migration** e.g. between two file storage
- **Replication & Sync** e.g. between NetApp and WekaFS
- **Hybrid cloud data movement** e.g. between Dell Isilon and AWS S3
- **Data collection** e.g. NGS genome sequencing data
- **Data ingestion** e.g. ADAS in-vehicle data to a DC
- **In cloud migration** e.g. from AWS East Region to West region
- **Storage tiering** e.g. between Isilon NAS and HPC file system
- **Data staging** e.g. from South Africa to S. SF, U.S.

Zettar's Unique Technology

Real Time Append Streaming



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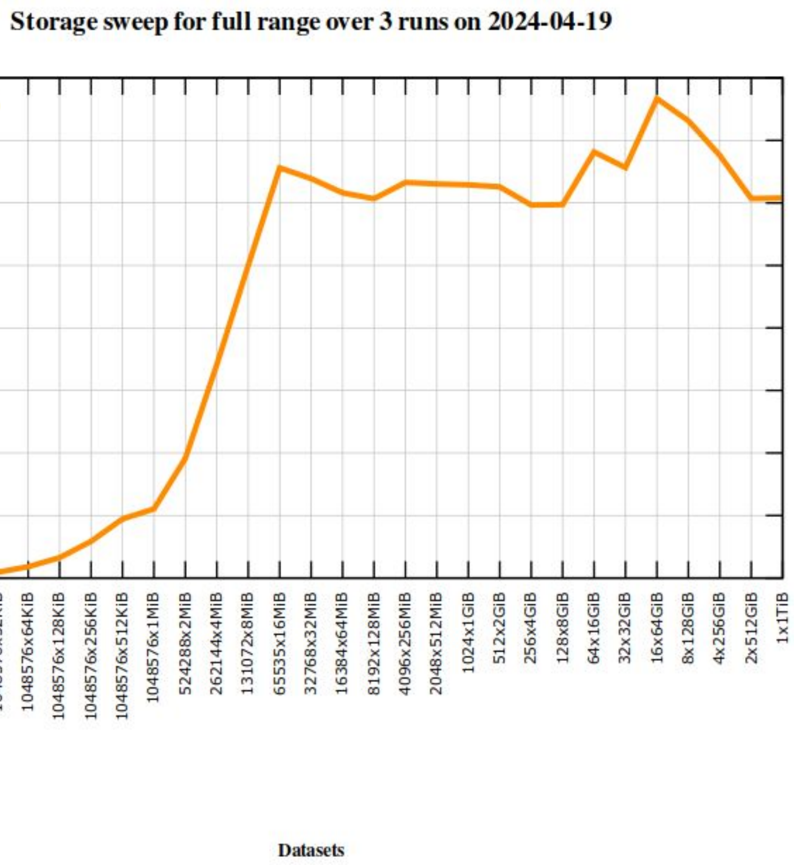
Storage Must Be Fast & Low Latency

Storage Sweep



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Processors, Accelerators, and IPUs

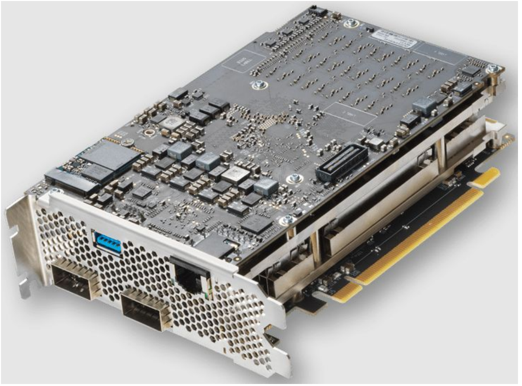
Selected Intel Sapphire Rapids CPUs

SKU	CORES	BASE (GHz)	ALL CORE TURBO (GHZ)	Max TURBO (GHZ)	CACHE (MB)	TDP (W)	Max Sockets	DDR5 Memory Speed	UPI Links Enabled	Default DSA Devices	Default QAT Devices	Default DLB Devices	Default IAA Devices	Intel SGX Enclave Capacity
8490H	60	1.9	2.9	3.5	112.5	350	8S	4800	4	4	4	4	4	512GB
8468H	48	2.1	3	3.8	105	330	8S	4800	4	4	4	4	4	512GB
8454H	32	2.1	2.7	3.4	82.5	270	8S	4800	4	4	4	4	4	512GB
6448H	32	2.4	3.2	4.1	60	250	4S	4800	3	1	2	2	1	512GB
8468V	48	2.4	2.9	3.8	97.5	330	2S	4800	3	1	1	1	1	128GB
8458P	44	2.7	3.2	3.8	82.5	350	2S	4800	3	1	1	1	1	512GB
8461V	48	2.2	2.8	3.7	97.5	300	1S	4800	0	1	1	1	1	128GB
8460Y+	40	2	2.8	3.7	105	300	2S	4800	4	1	1	1	1	128GB
6454S	32	2.2	2.8	3.4	60	270	2S	4800	4	4	4	4	0	128GB
5416S	16	2	2.8	4	30	150	2S	4400	3	1	2	2	0	128GB
8470N	52	1.7	2.7	3.6	97.5	300	2S	4800	4	4	4	4	0	128GB
8471N	52	1.8	2.8	3.6	97.5	300	1S	4800	4	4	4	4	0	128GB
6438N	32	2	2.7	3.6	60	205	2S	4800	3	1	2	2	0	128GB
6428N	32	1.8	2.5	3.8	60	185	2S	4000	3	1	2	2	0	128GB
6421N	32	1.8	2.6	3.6	60	185	1S	4400	3	1	2	2	0	128GB
5418N	24	1.8	2.6	3.8	45	165	2S	4000	3	1	2	2	0	128GB
5411N	24	1.9	2.8	3.9	45	165	1S	4400	3	1	2	2	0	128GB
8480+	56	2	3	3.8	105	350	2S	4800	4	1	1	1	1	512GB
8470	40	2	2.8	3.7	105	300	2S	4800	4	1	1	1	1	128GB
8462Y+	32	2.8	3.6	4.1	60	300	2S	4800	3	1	1	1	1	128GB
6448Y	8	2.9	3.6	4.1	22.5	150	2S	4400	3	1	1	1	1	128GB
6438Y+	32	2	2.8	4	60	205	2S	4800	3	1	1	1	1	128GB
6430	32	2.1	2.6	3.4	60	270	2S	4400	3	1	0	0	0	128GB
5420+	28	2	2.7	4.1	52.5	205	2S	4400	3	1	1	1	1	128GB

Intel E2100 IPU

Mount Evans ASIC

Napatech 2070 IPU



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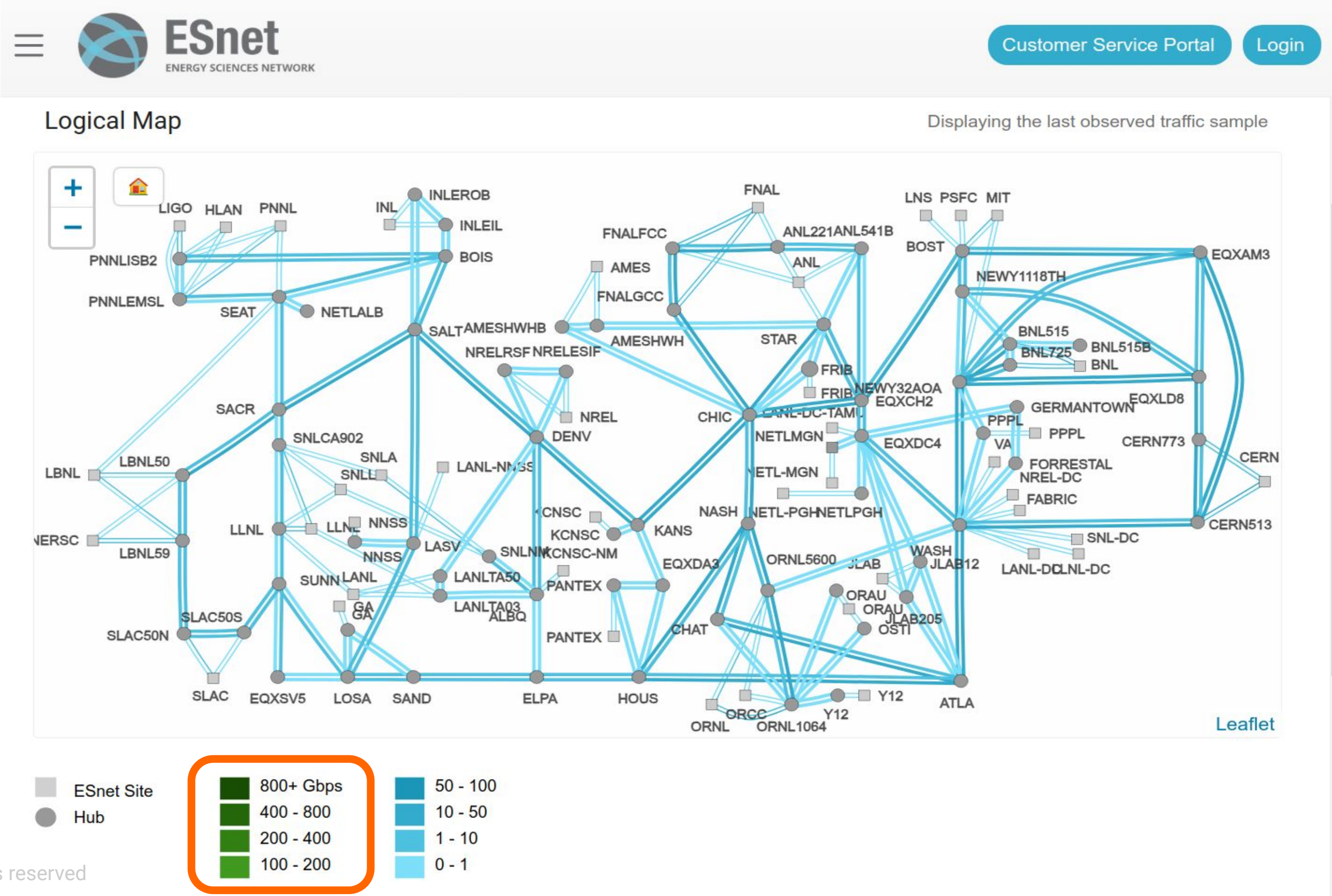
Network, 100 Gbps Is Becoming Common



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Why The Appliance Approach

1. Solution integration of complex hardware and sophisticated software isn't job focus
2. The entire infrastructure and software must work in concert
3. Challenging to gain such extensive expertise

Illumina Novaseq X

Nikon BioStation CT

Siemens NAEOTOM Alpha

TMO Krios G4 Cryo-TEM

~$1M	~$66K	~$1.8M or more	~$6M

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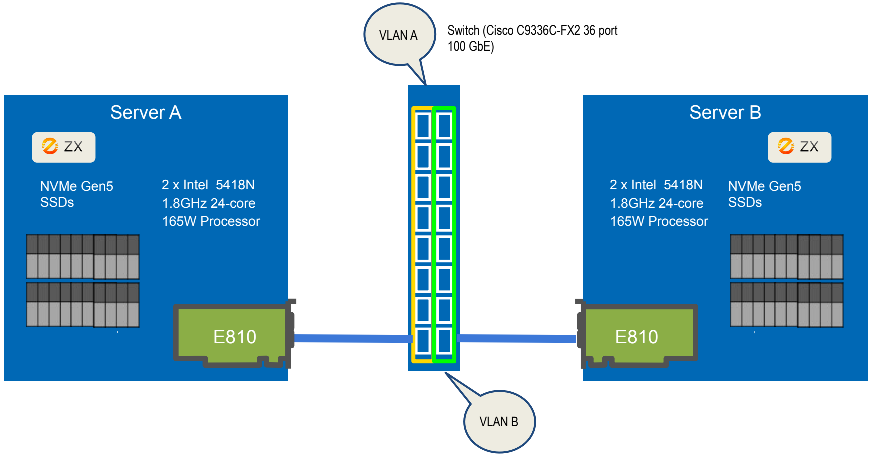
Data Movement Appliance Test Results

DEMO

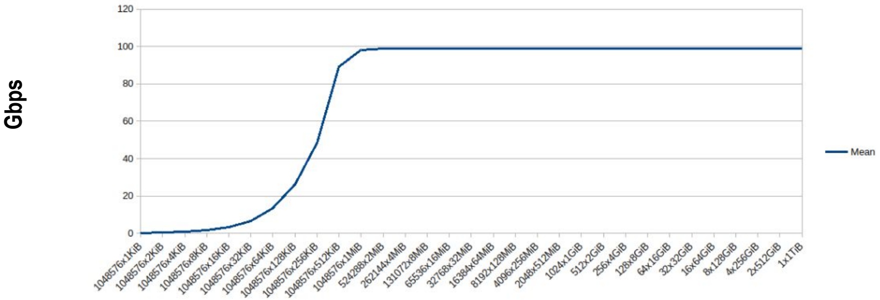
Hewlett Packard Enterprise

ASUS

intel



Transfer sweep results from 1 KiB to 1 TiB in file size. 1 M of files or 1 TiB in overall size



Simple Append Streaming data rates for different test datasets

8096x128MiB: 98.833 Gbps
8x128GiB: 98.784 Gbps

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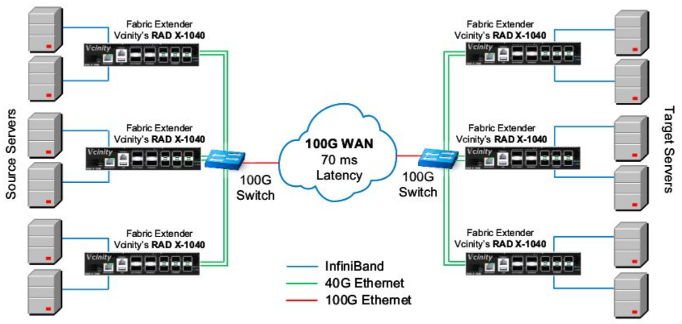
Data Traffic Aggregation != Point-to-Point Data Transport

Zettar demonstrated point-to-point 3PB/day in 2021

<table>
<tr><td>Data traffic aggregation

</td><td>Mature routing technique
Many data sources and data destinations involved
Complex, customization required, poor ESG</td></tr>
<tr><td>Point-to-point data transport</td><td>Single data source. Single data destination
Simple, easy to deploy, excellent ESG</td></tr>
</table>

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Industry Recognition

"Zettar software can consolidate (in DPUs) data migration tasks to a data center footprint of 4U rack space, which today requires 13U with x86-based solutions".

Geetika Gupta
Principal Product Manager, NVIDIA
GTC 2022

"Zettar's unique unified data mover enables real-time decision-making at any data rate".

Intel Solution Brief, 2023

"The zx-File product has demonstrated the ability to saturate a 100G WAN link for disk-to-disk file transfers."

U.S. DOE ESnet
fasterdata KB, 2021

"Zettar Inc. is the overall winner. They achieve an amazing 68 Gbps transfer rate between Chicago and NSCC (Singapore)."

NSCC, 2019
SCA19 Data Movement Challenge

OEM Partners: Hewlett Packard Enterprise, ASUS

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More Information & Questions

- Ask me now
- Email and Zettar Website Resources page:
  https://www.zettar.com/resources/
- Contact ASUS U.S. and HPE, Europe

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Zettar

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Thank you!

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