Flash Memory Summit

Building Sustainable Data Centers with Innovative Technology

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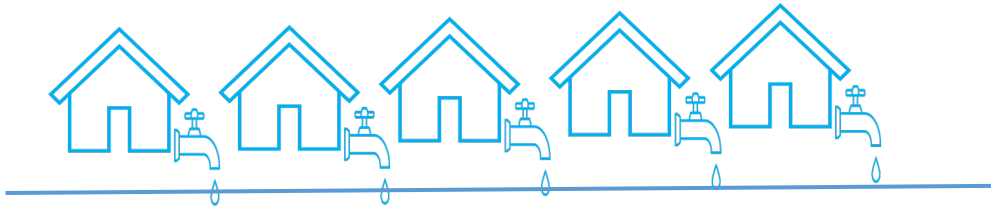
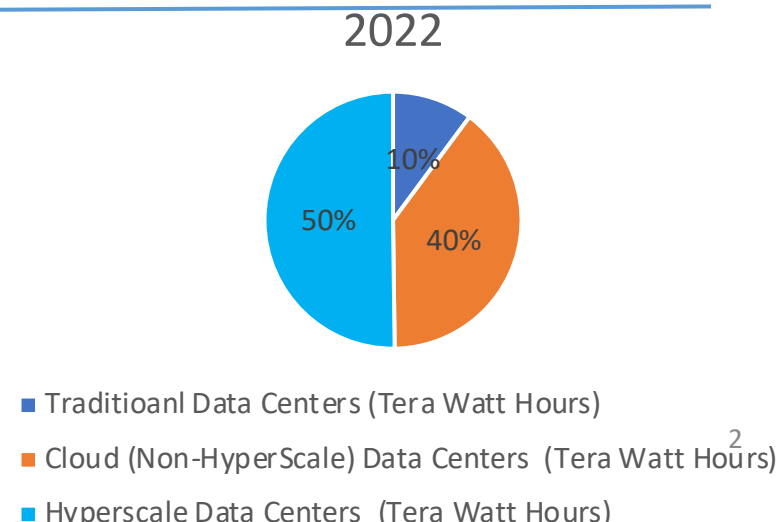
Energy Demand of Cloud Computing

The Cloud now has a greater carbon footprint than the airline industry. A single data center can consume the equivalent electricity of 50,000 homes.



"The typical data center uses about 3-5 million gallons of water per day -- the same amount of water as a city of 30,000-50,000 people," said Venkatesh Uddameri, professor and director of the Water Resources Center at Texas Tech University.

Source:Mckinsey Report, Wired



Application Metrics That Matter

Application Types	Metric	Usage Characteristics
Office Productivity (Emails, Meetings, Chats)	kg CO2 per User	High Data Storage & High user access
Web & Database Applications	kg CO2 per Transaction	Medium Data Storage & High User Access
File Storage & Sharing (CBS,SDS, Box, Dropbox, SharePoint)	kg CO2 per Gigabyte Storage	High Data Storage & Low user access

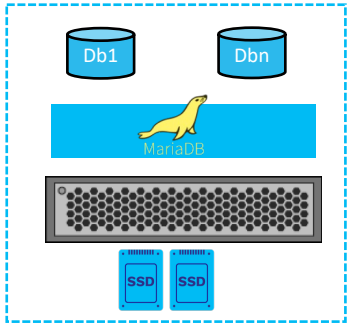
Top SaaS Provider :Customer Scenario

Current Scenario

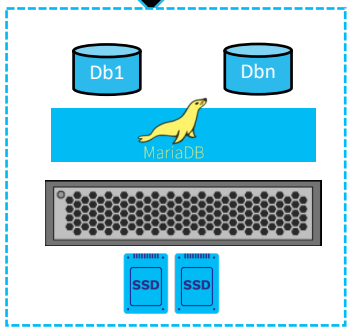
Primary

Blast Radius

Secondary



15.84TB x 2 SSDs



15.84TB x 2 SSDs

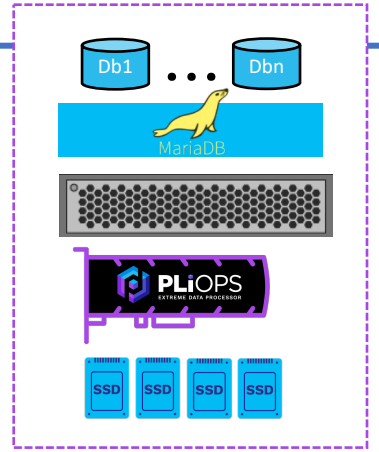
21TB Available Capacity with no Data Protection

Enabling SSD Density & Data Protection

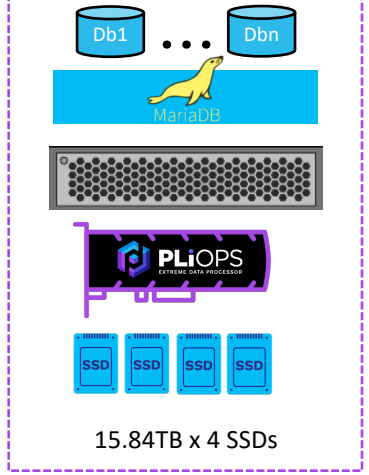
High Density Storage with Pliops

66TB Available Capacity with RAID5 Plus Data Protection

New Deployment



15.84TB x 4 SSDs



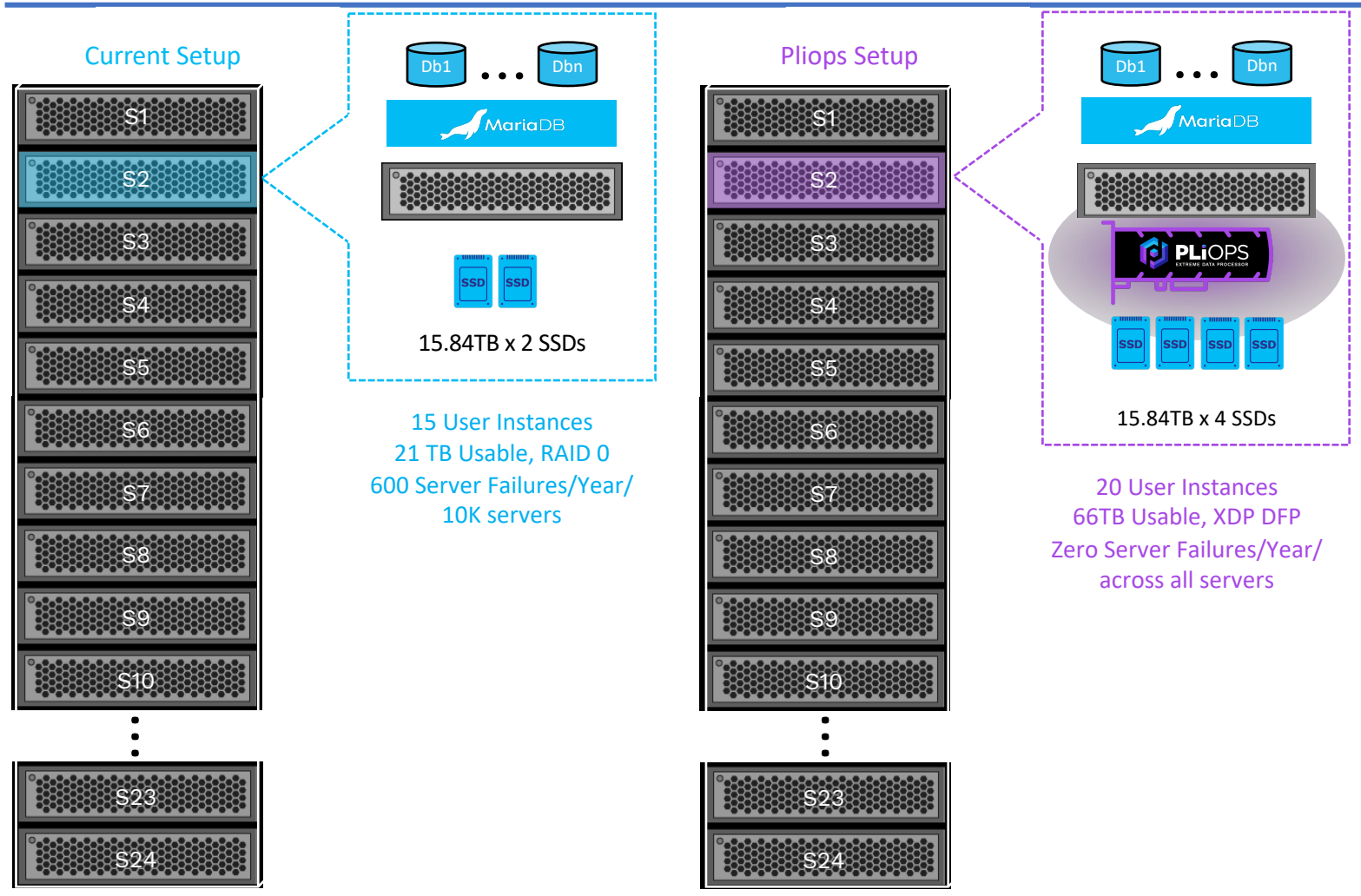
15.84TB x 4 SSDs

SSD failure local rebuild

Blast Radius

Pliops-XDP Technology Benefits for SaaS Provider

Flash Memory Summit



Full Rack Software RAID vs Pliops XDP Customer Benefits

3.2x ↑
Higher Capacity

33% ↑
Increase Multitenancy Database Instances

Zero
Eliminated >600 SSD Related Failover Events

58% ↓
Reduction in TCO/TB User Data

★★★★★

60% - 3.6 Metric Ton Co2 emission reduction for equivalent storage density for 1000 servers

based on 5 years

Social Media Hyperscale (CN)

Application

Proprietary Redis-compatible persistent KV storage service.
RocksDB storage engine

Transformation through XDP

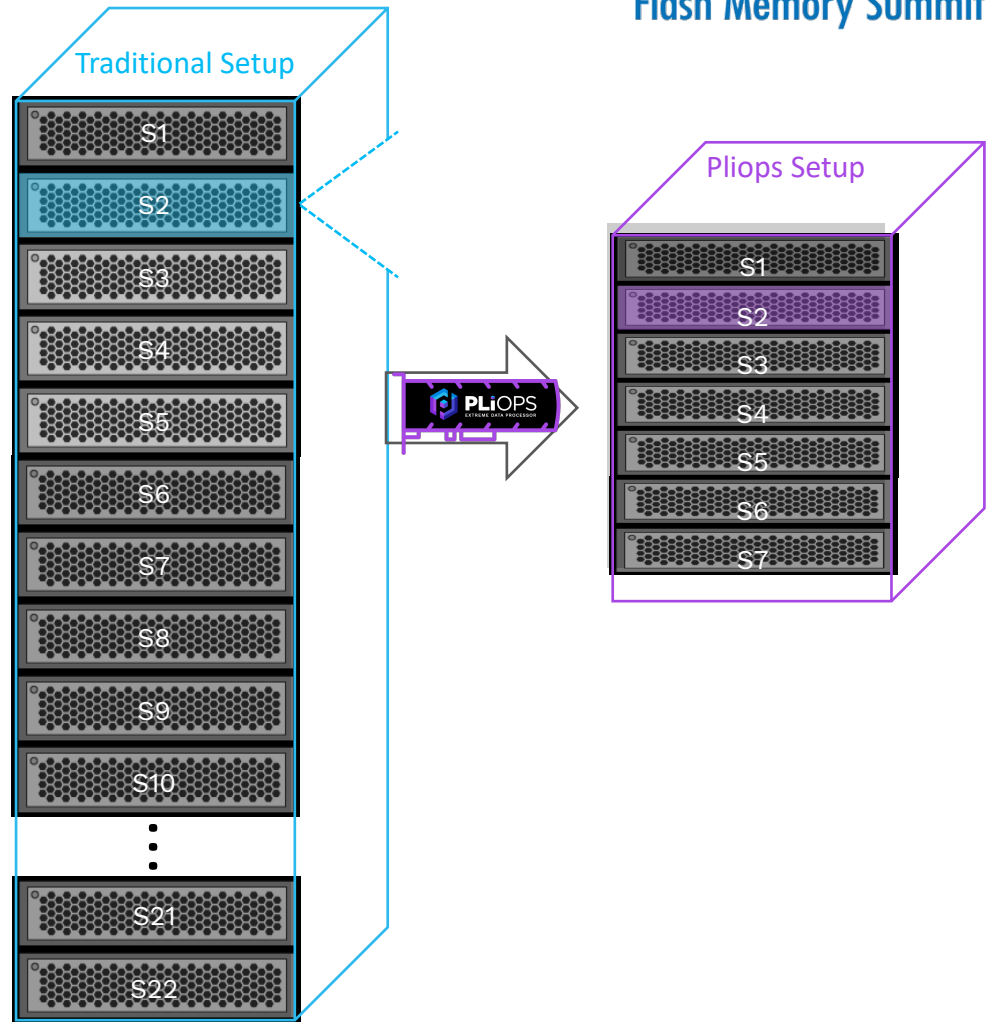
Replace RocksDB with XDP-Rocks
Advanced API – checkpoint, compaction filter, …

Customer TCO Objective

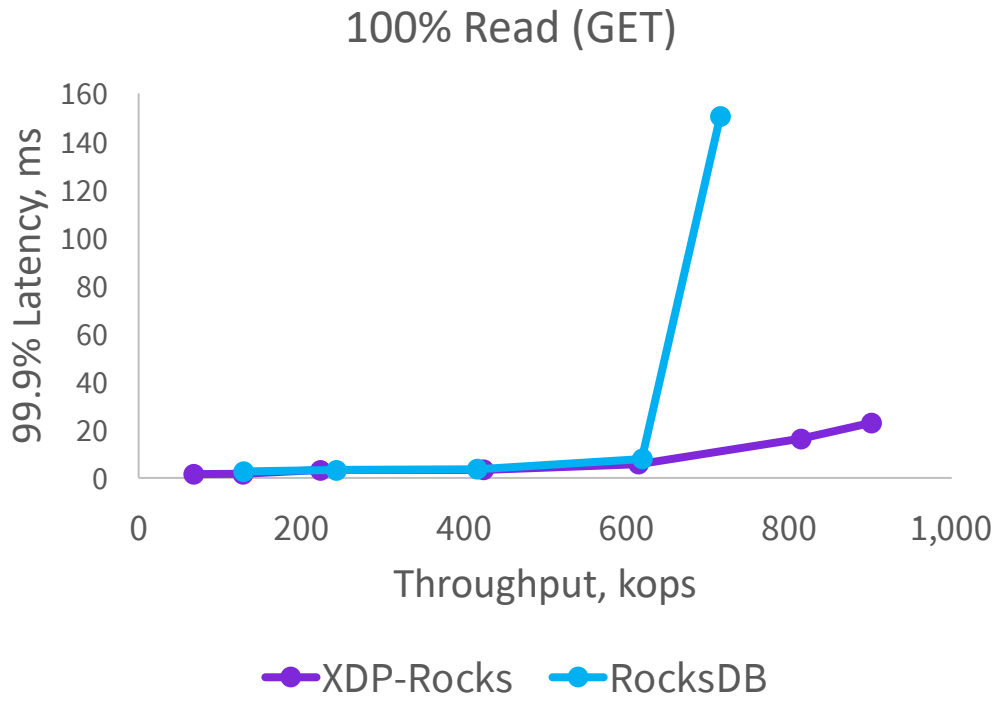
3x server base consolidation

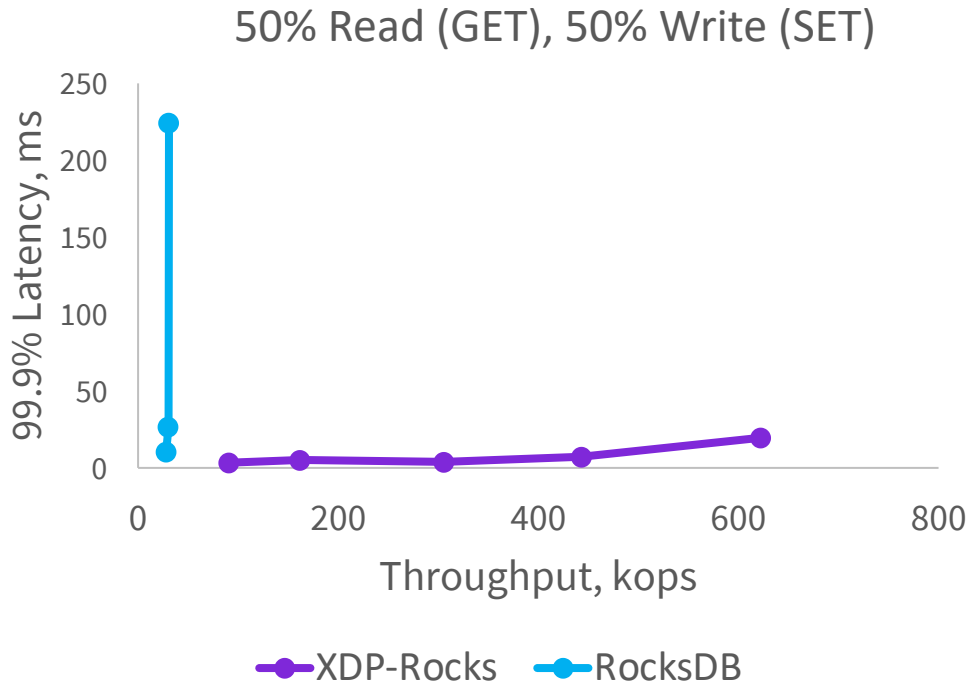
Outcome

Begin with 100’s of servers of Deployment

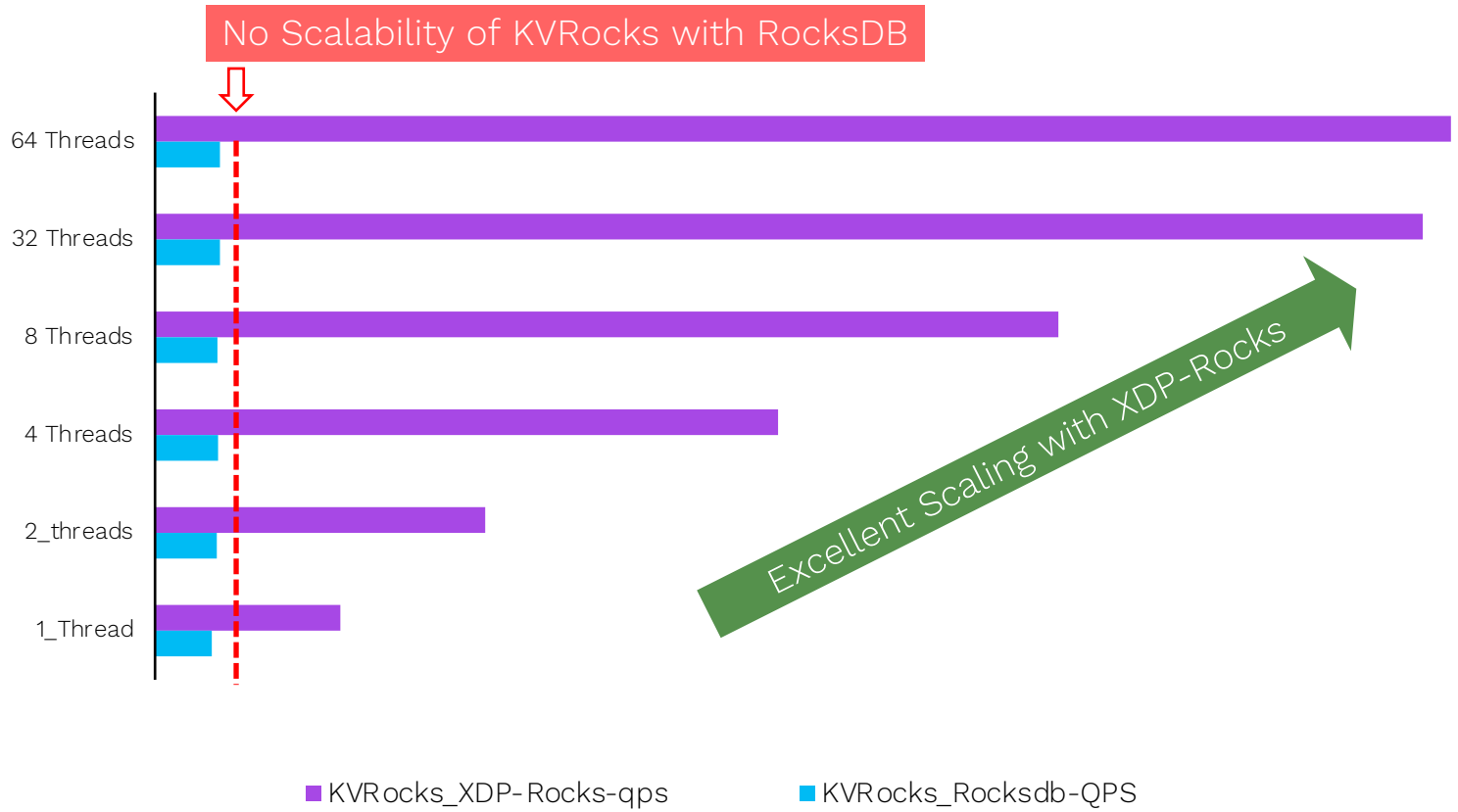


KVRocks – Read and Mixed Benchmarks

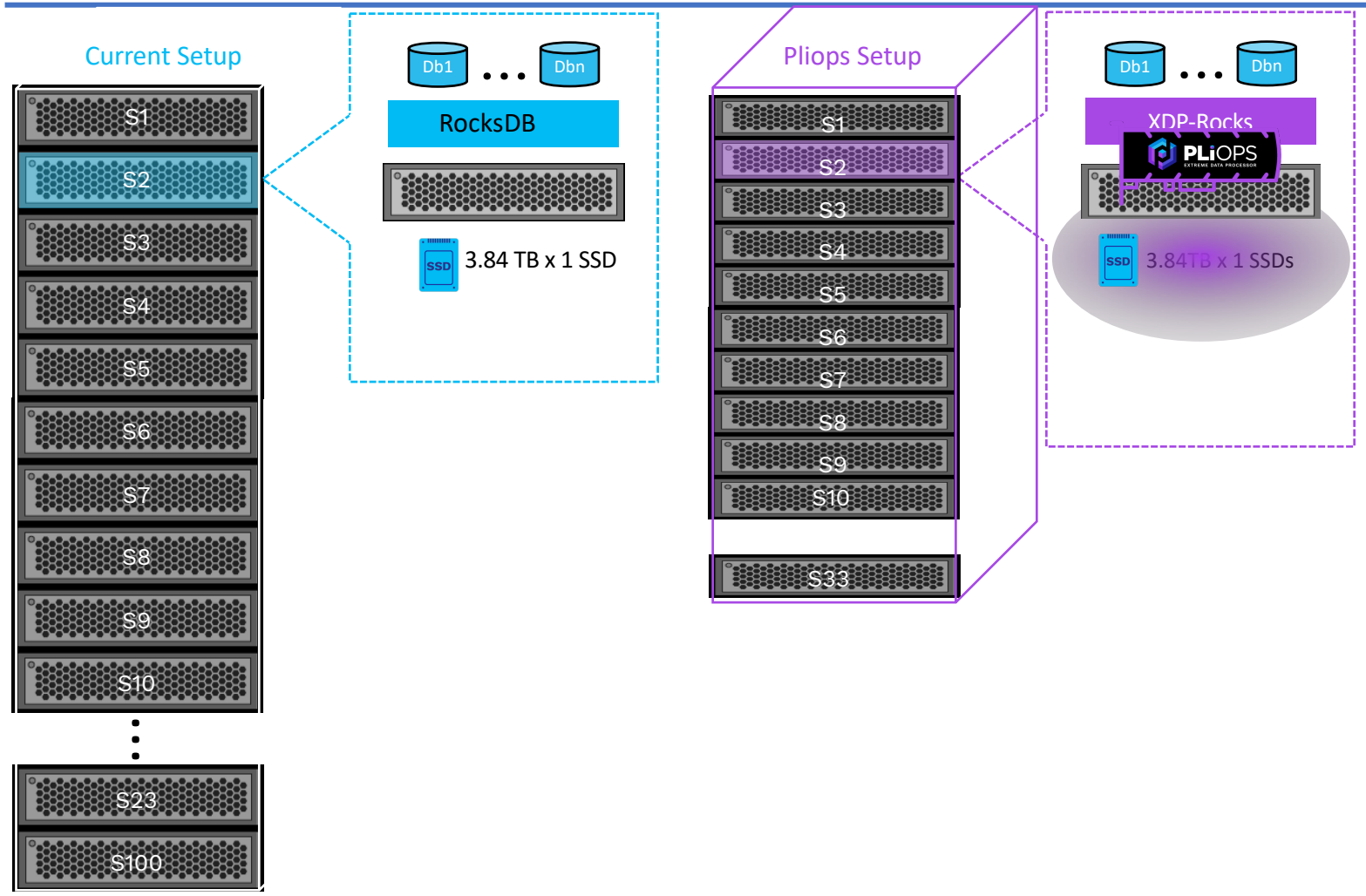




Overcoming KV-Rocks Scalability with XDP-Rocks



Social Media Customer: Server Consolidation



Full Rack RocksDB vs Pliops XDP-Rocks Customer Benefits

3 to 5x ↑
Higher Performance Throughput

71% ↓
Reduction in TCO

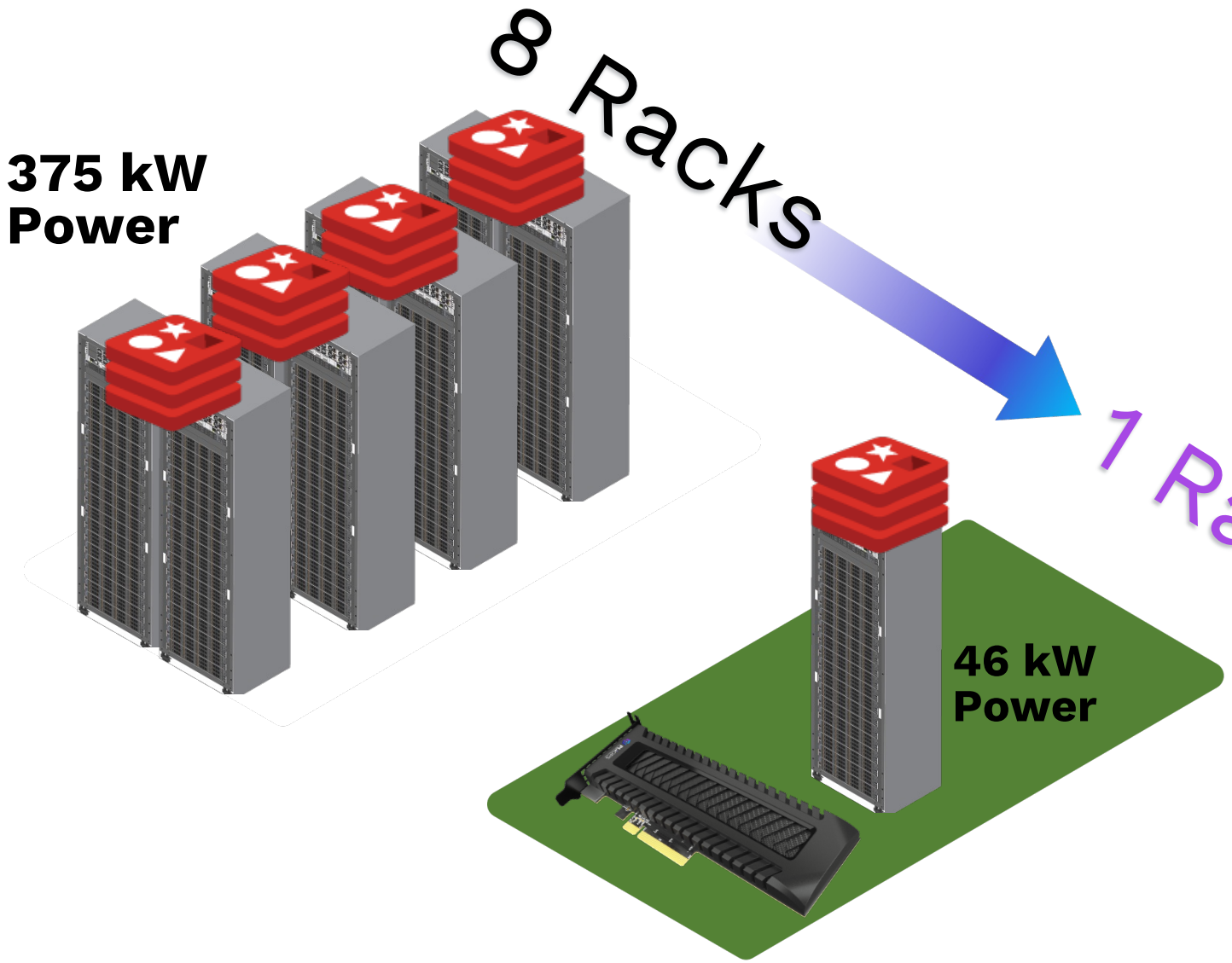
$1.7M ↓
Savings CapEx & Op-Ex

524KWh ↓
Power Savings

371 kilogram Co2 emission reduction for equivalent performance for 100 servers

based on 3 years

MultiRack Consolidation : Redis



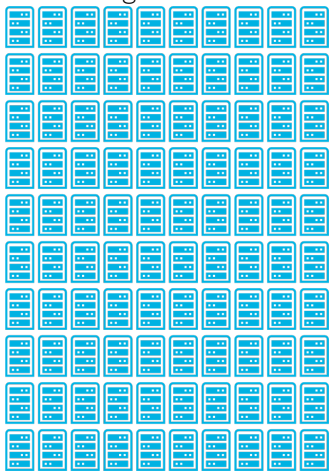
Pliops solution:

- Saves 7 racks
- Saves 329 kW Power
- $2.1M CapEx Reductio

Server Sprawl Reduction : MongoDB

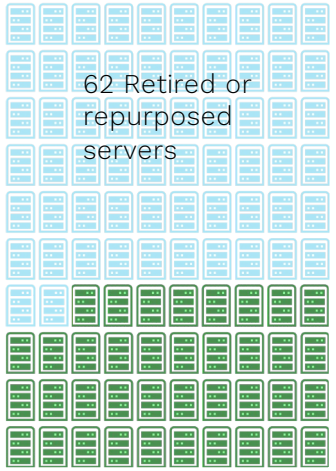
Traditional Setup:

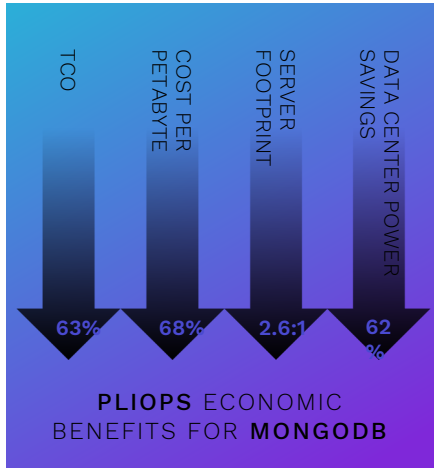
100 MongoDB Instances



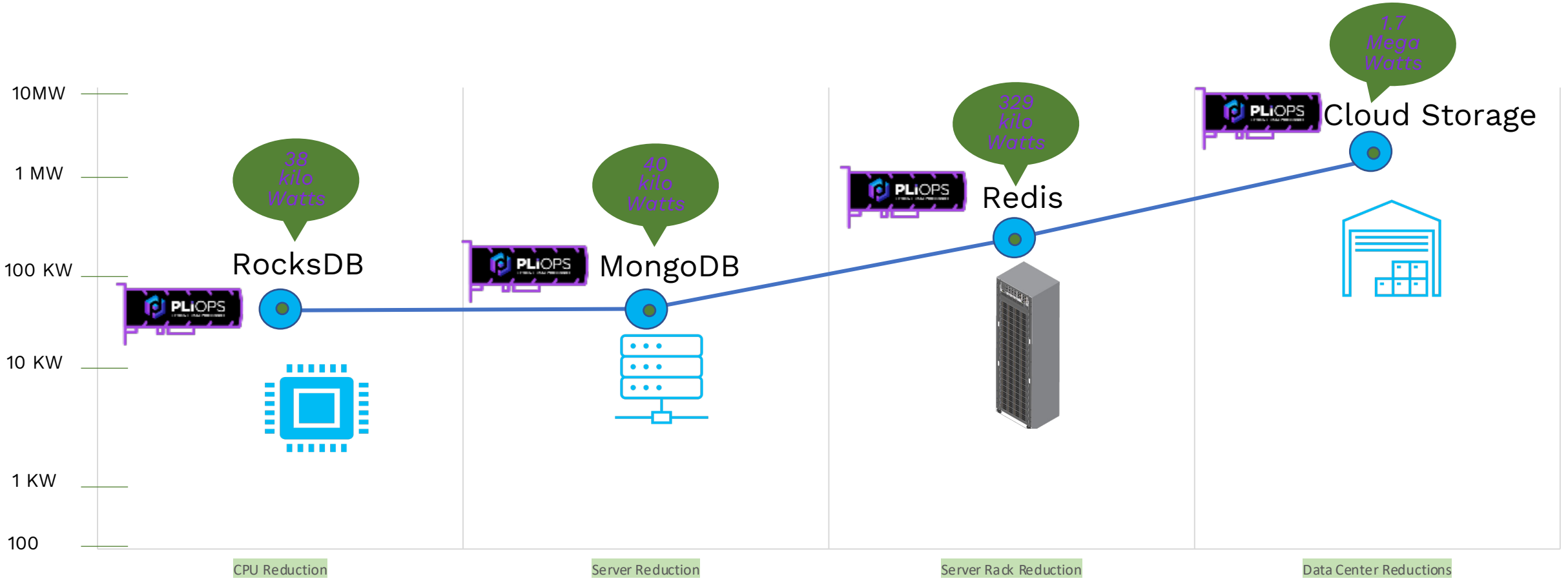
PLIOPS
XDP

Pliops Optimized Setup:
38 MongoDB Instances

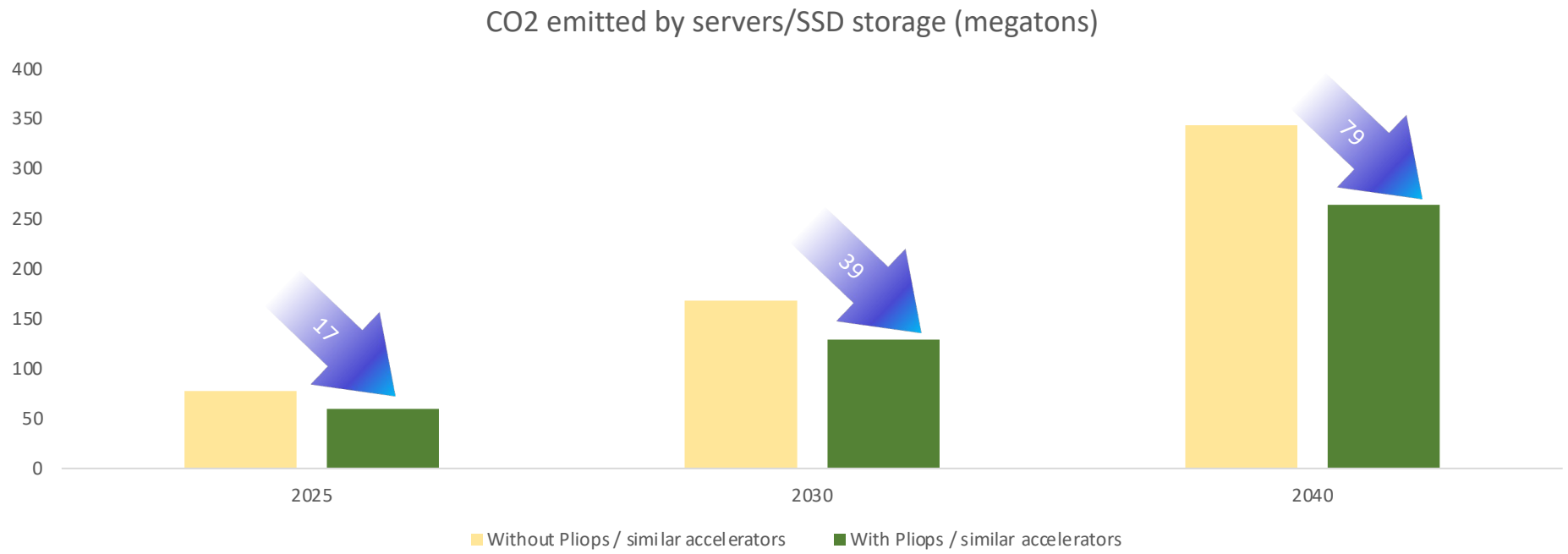




Green Data Storage & Processing



Carbon Emission Savings: Total Server Footprint



Pliops enables CO2 savings in 2040 equivalent to:

- Taking 54 coal fired power plants offline
- Removing 46M cars from the road

Building Sustainable Data Centers with Pliops

Traditional
Data Centers

Pliops XDP

Green Data Centers

- HyperScalers
- Cloud Data Centers
- Colo Data Centers
- Enterprise Data Centers

- Server/Rack/Data Center Consolidation
- Drives adoption of low-cost, high-density SSDs to minimize energy consumption
- Extend hardware refresh cycle & Efficiently manage data growth in Data centers
- Accelerate & offload CPU loads to massively reduce energy consumption

Thank You