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Kaminario

Powering Cloud-Scale Applications
with All-Flash

Sundip Arora

Director, Product Marketing



275+
Employees



Boston HQ
Locations in
Israel, London,
Paris & Seoul



200+
Channel
Partners



\$218M
Total funding
\$75M in Jan 17'



From a "Visionary" to an Industry "Leader"
Kaminario 36 month MQ evolution



2017 MQ

Kaminario a "Leader" in 2017 MQ for Solid State Arrays

- Superior investment protection and NVMe leadership
- Strongest positioned leader with under \$2B market cap

2014 MQ

Inaugural Gartner Magic Quadrant for Solid State Arrays

- Significantly differentiated with only scale-up and out SSA

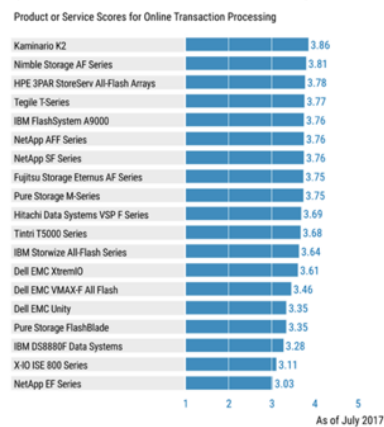
ITS A SWEEP!

Kaminario Ranks #1 in Critical Capabilities for SSAs

RATED HIGHEST ACROSS TOP THREE USE CASES

Online Transaction Processing

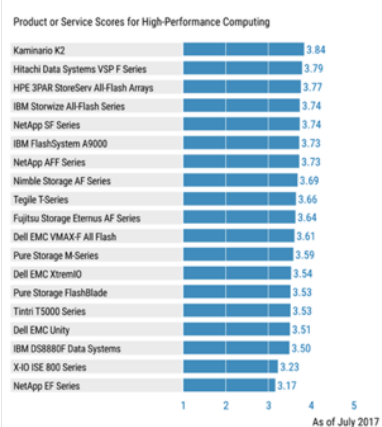
Figure 1. Vendors' Product Scores for the Online Transaction Processing Use Case



Source: Gartner (July 2017)

High Performance Computing

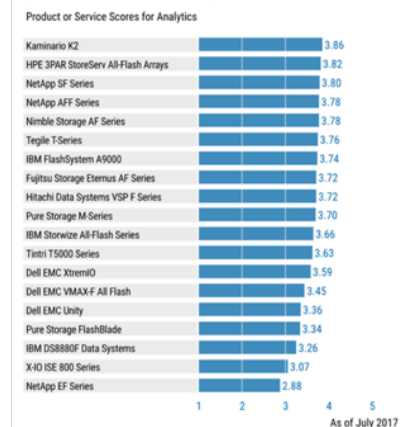
Figure 4. Vendors' Product Scores for the High-Performance Computing Use Case



Source: Gartner (July 2017)

Analytics

Figure 5. Vendors' Product Scores for the Analytics Use Case



Source: Gartner (July 2017)

RATED SECOND HIGHEST FOR VDI AND SERVER VIRTUALIZATION



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For Anything!



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follow, learn
from and even
automatically
copy trades of
other network
members in
real-time



berrau
Bernhard Rauch
20.22%
GAIN (LAST 12M)

3
RISK



amstone
Sebastien Emmanuel Alex...
5.14%
GAIN (LAST 12M)

2
RISK



srossili
Soufian Rassili
43.33%
GAIN (LAST 12M)

3
RISK

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discuss trading strategies, and
use our patented **CopyTrader™**
technology to automatically copy
their trading portfolio
performance.

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80%

PROFITABLE OUT OF
124M COPIED TRADES
(AS OF 10/11/2015)

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The Requirements

Everything has
to happen
~~quick~~ QUICKER
and at Cloud-
Scale



Sub-second trading performance



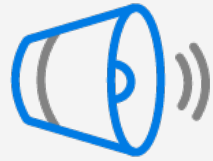
Copy trades of network members in real time



Instant trade acknowledgement



No performance impact from market events



No
performance
impact from
market
events



The Challenge:

Spikes in market
activity caused
spikes in platform
latency.

Remember
This
Event?



The Brexit Effect

For Cloud-Scale Business, It's all about latency



- “Brexit” event happened after K2 migration had completed
- Biggest market event with severe turmoil and significant activity surges
- The change to K2 had reduced average latency to ~1.0ms. Down from 5-10ms.
- The Brexit event had no impact. Latency remained at ~1.0ms regardless of load.

**Overall
Business
Benefit**



Faster Trading

A unique social investment network achieves high-speed performance

Other
Immediate
Benefits?



- Storage operations simplified
- Compression and deduplication improved capacity utilization **33%**
- Lower costs for datacenter storage rack space - reduced from 40U to 8U













Why is Kaminario K2 uniquely positioned to address eToro's and other Cloud-Scale business challenges?



**Accelerating
Database Performance
with the most cost-efficient
storage solution**

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Which Kaminario Features are Unique for Databases?

Predictable Cost	Predictable Performance	Predictable Resiliency	Predictable Scalability
 Selective Global Dedupe & Compression	 Truly Active-Active Controllers	 Easy and Efficient Replication	 True Scale-up and Scale-out
 100% Inline Data Reduction	 Adaptive Block Size	 Industry's Best RAID Implementation	 Software Defined Architecture
 All-in-one Software Pricing	 Mixed Workload Processing	 Proactive 24/7 Cloud Monitoring	 Modular Design for Mix and Match

What is mixed workload processing and why it matters?

Mixed Workload in a Single Instance Database

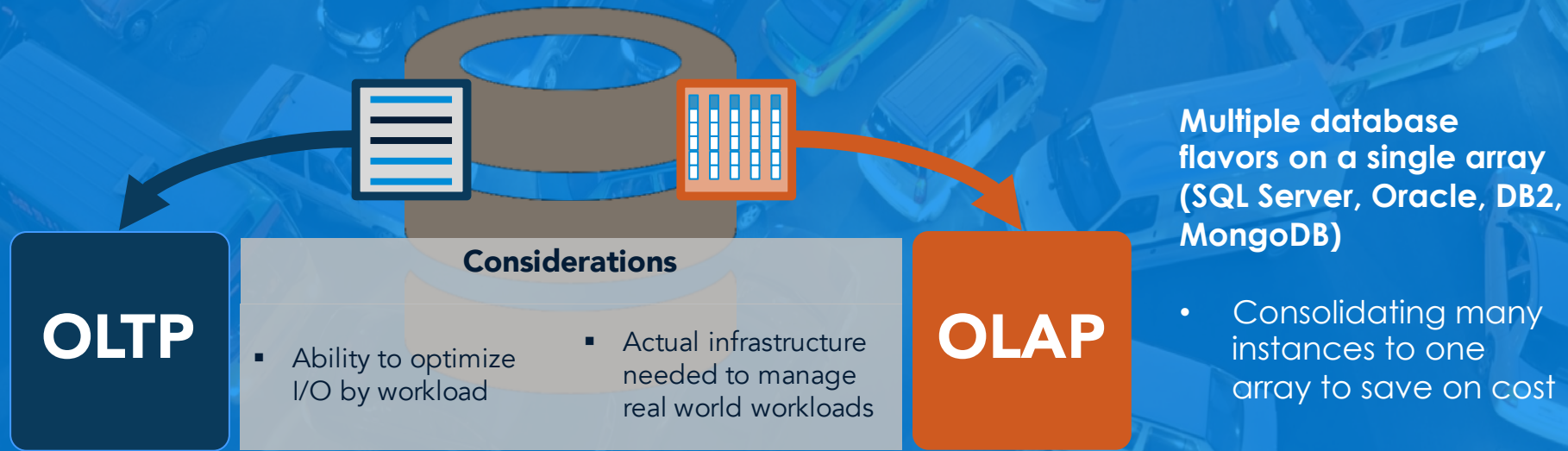
Combining OLTP and OLAP workloads in same instance

- Databases will have different block sizes for Storage inputs/outputs
 - Table Scans use large block sizes (up to 1MB)
 - Index seeks use small block sizes (usually 8k)
 - Log transactions use variable block sizes (from 512 bytes to 128k or more)
 - Storage that can support all in an efficient way matters
- DB workloads – combination of reads + writes
 - Select queries are usually 100% read
 - DML (update/delete/etc.) are 100% writes or a combination
 - Storage array deals with writes/reads can drastically affect read and write performance (storage that can do reads without affecting writes and vice-versa)

What is mixed workload processing and why it matters?

Mixed Workload in Multiple Database Instances

Mixed workload by consolidating many instances on the same array



OLTP

- Considerations**
- Ability to optimize I/O by workload
 - Actual infrastructure needed to manage real world workloads

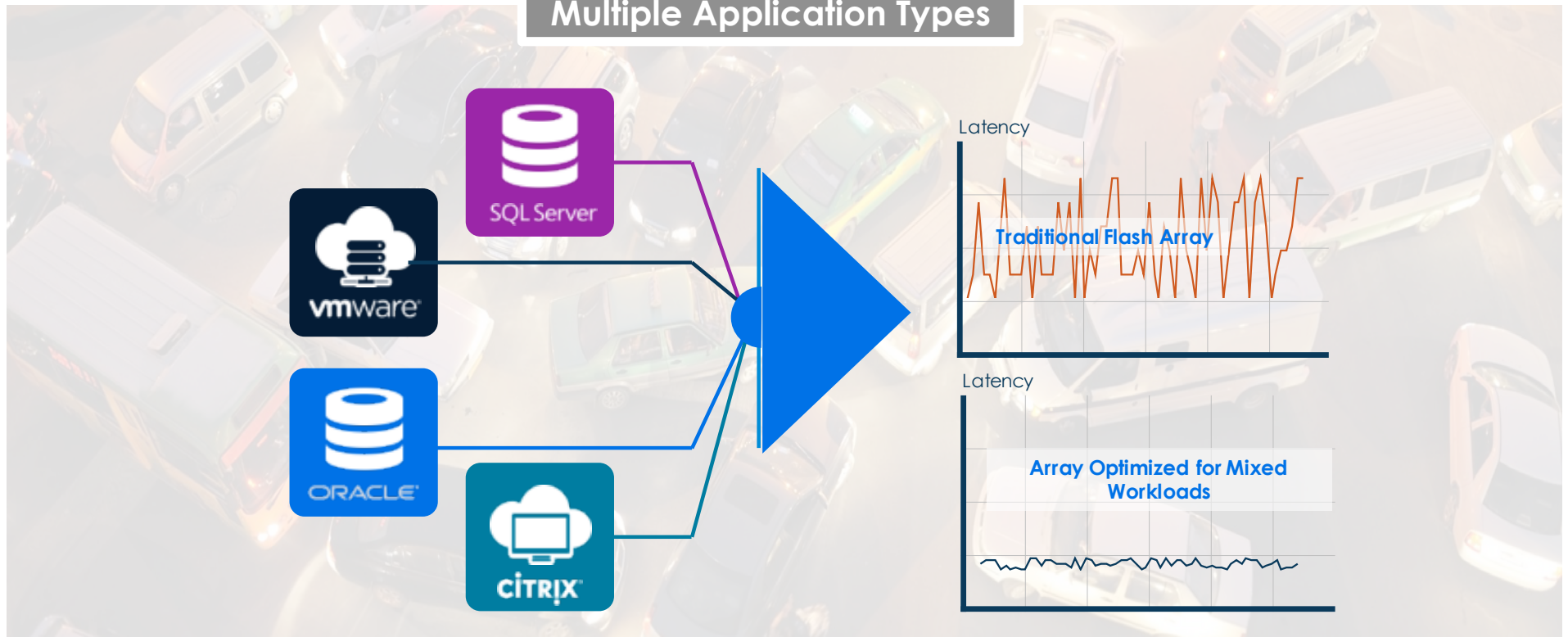
OLAP

Multiple database flavors on a single array (SQL Server, Oracle, DB2, MongoDB)

- Consolidating many instances to one array to save on cost

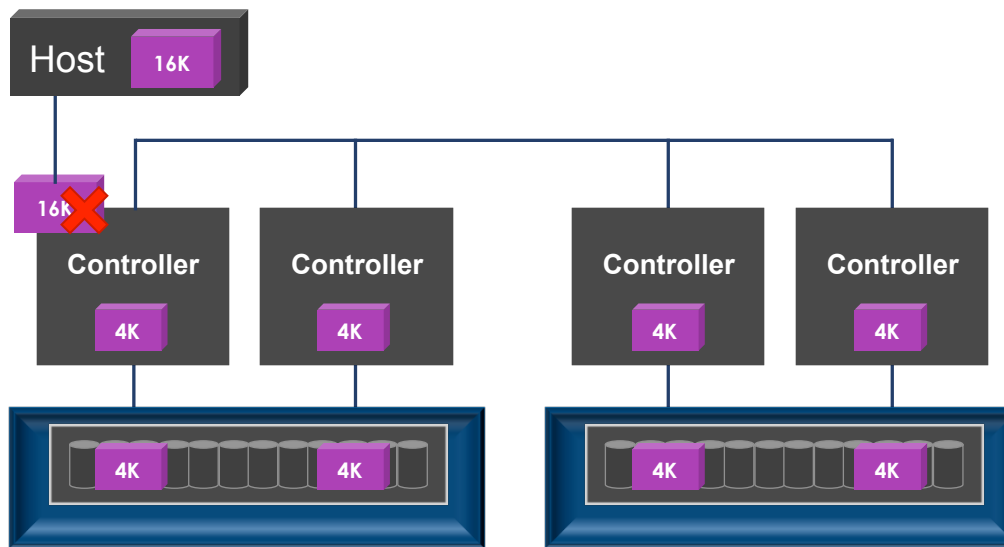
What is mixed workload processing and why it matters?

Mixed Workload for Multiple Application Types



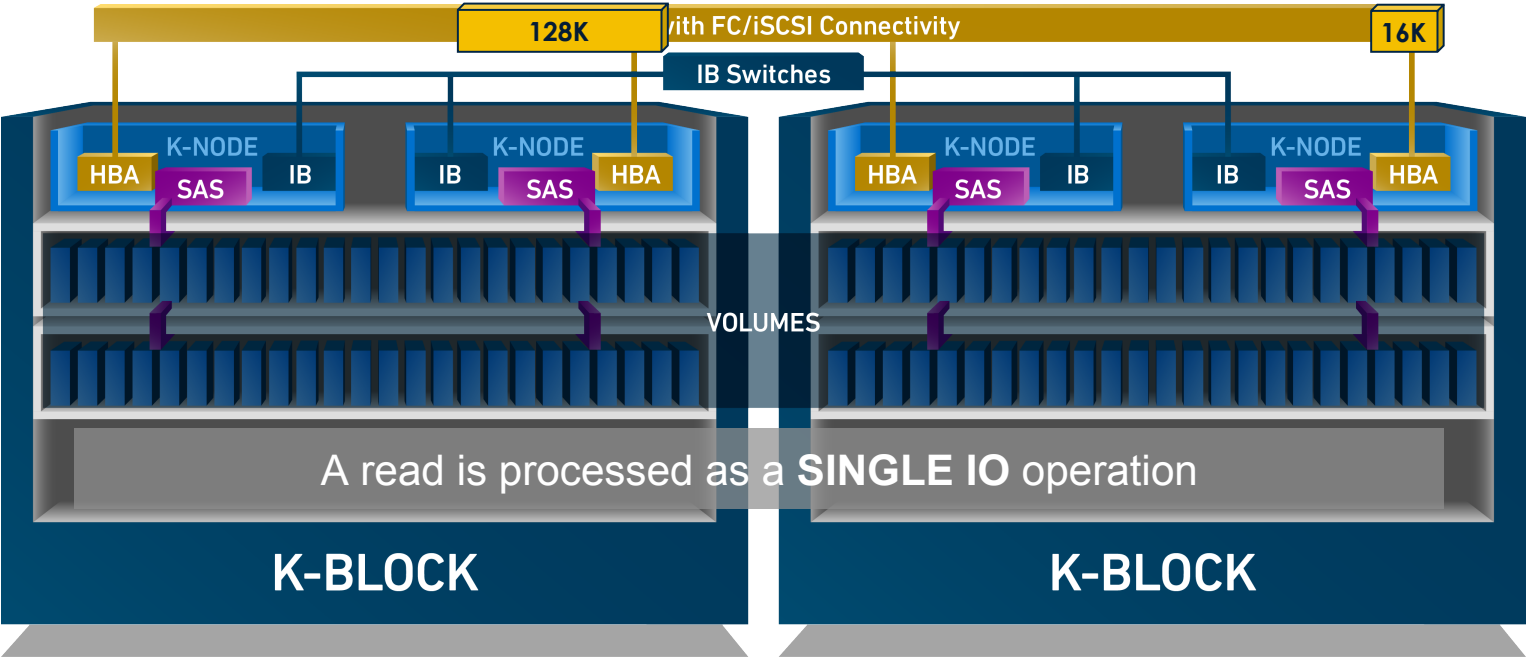
Why Fixed Block Size does not address mixed workloads

Other Storage Vendors
Fixed block address mapping



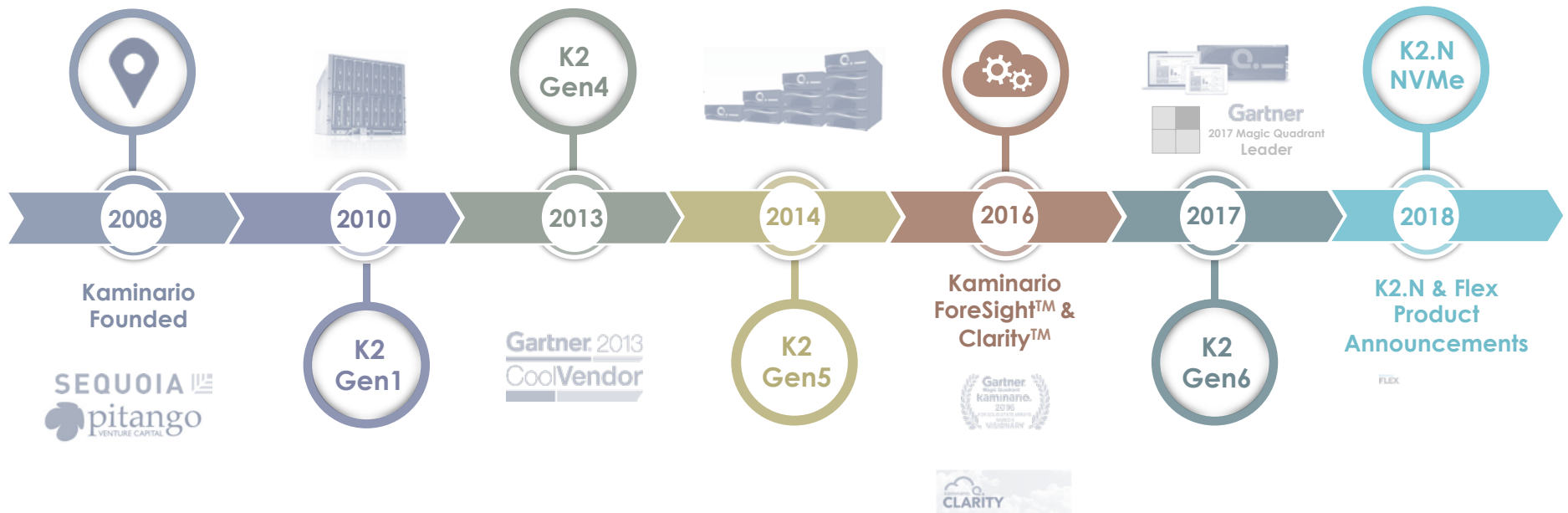
A read is processed as a **MULTIPLE** 4K operations

Adaptive block size provides optimal performance across all three mixed workload scenarios



Run OLTP and OLAP workloads concurrently on the same array without impacting performance or throughput and without any manual tuning

A History of Continuous Innovation



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THANK YOU!