

Driving BIG workloads

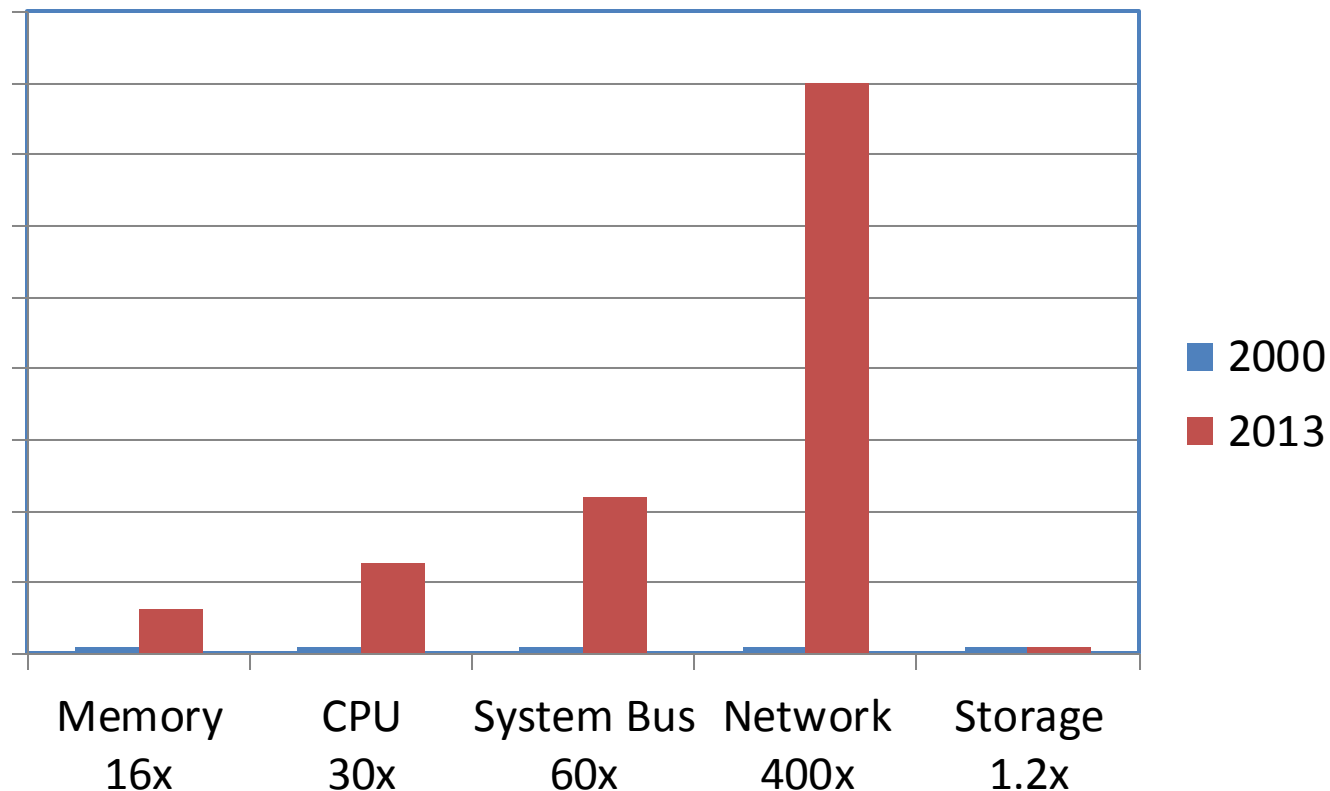
STAC<sup>®</sup>  
SECURITIES TECHNOLOGY ANALYSIS CENTER



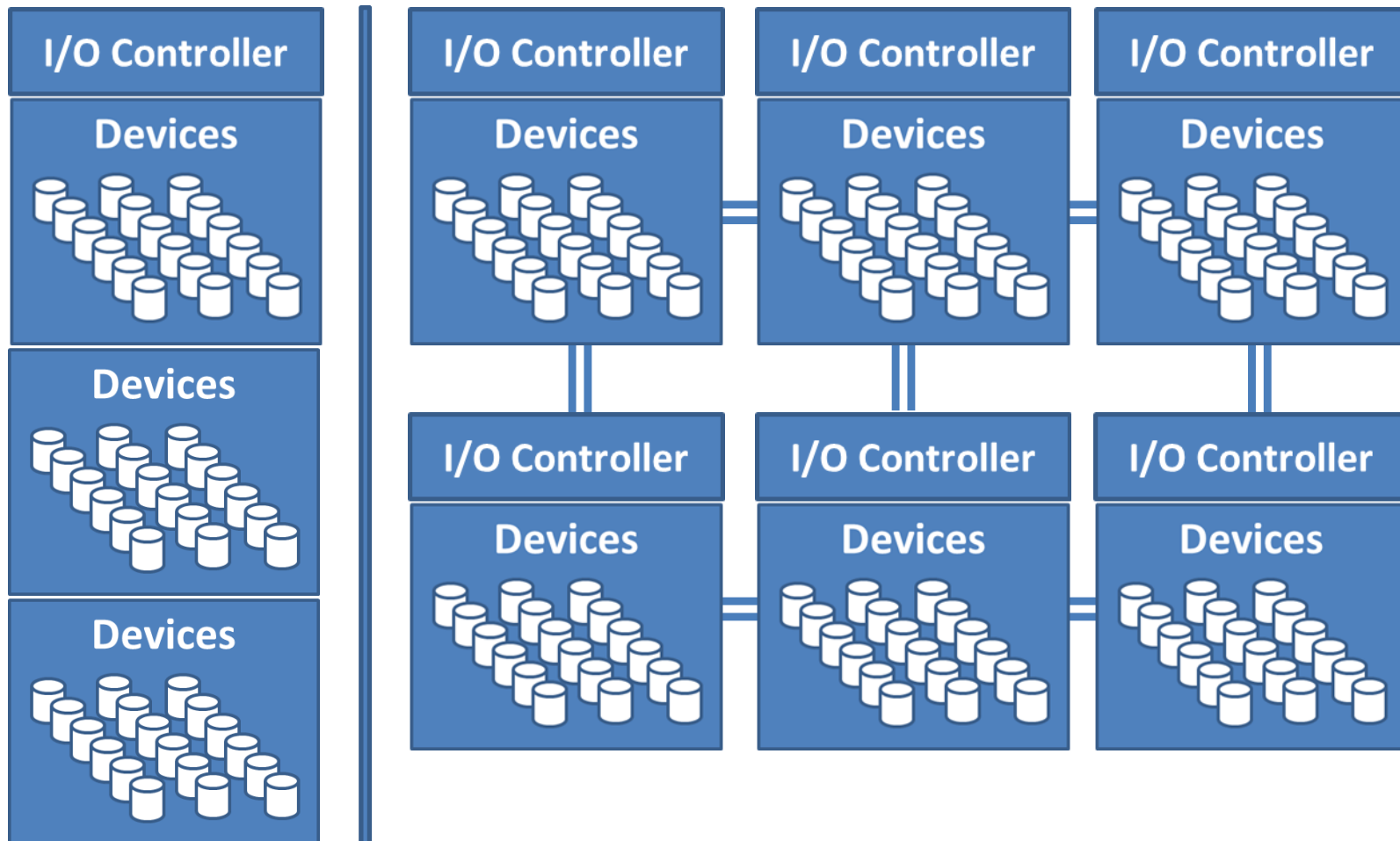
**The world's fastest all flash, scale-out SAN:  
The Kaminario K2**

# Hard drives - The bottleneck of the data center

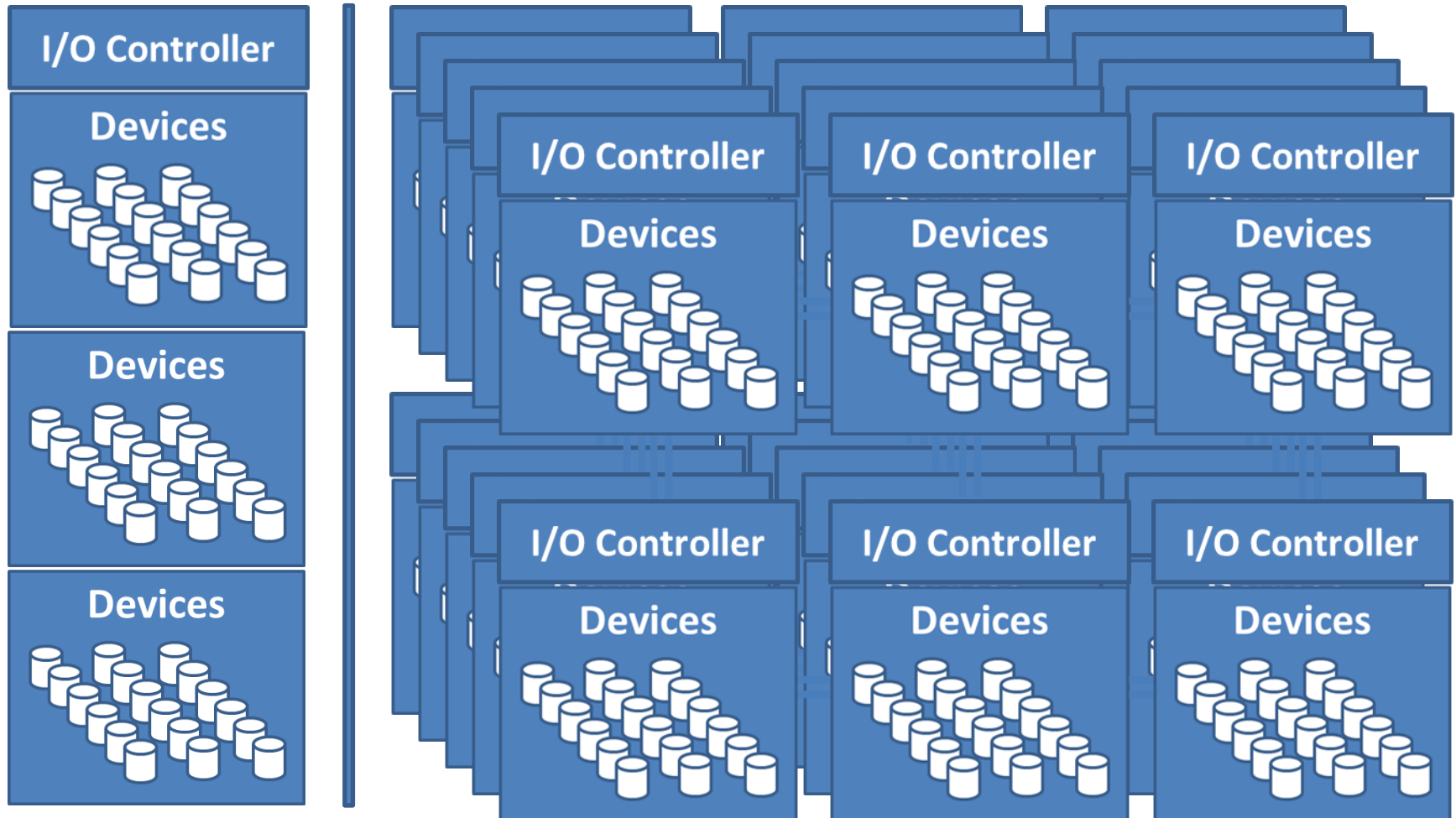
- Over the last 10 years, speed and performance have followed Moore's law, except for rotating media!



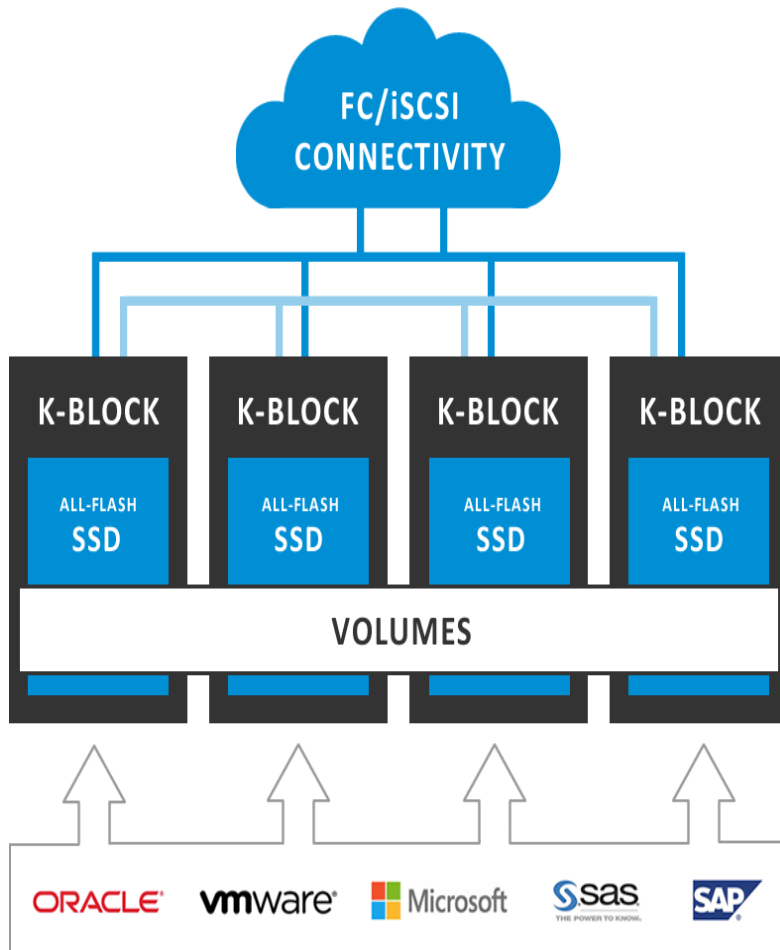
# Scale-up versus scale-out



# Scale-up versus scale-out



# Kaminario K2 performance advantages

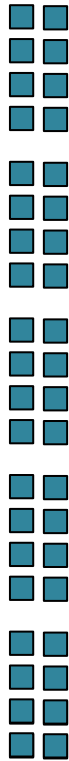


- IOPS Advantage
  - Scale-Out
  - Optimized internal network
- Throughput Advantage
  - Wide striped data and meta-data
  - Variable block size
- Latency Advantage
  - Early host acknowledgement
  - Optimized internal network

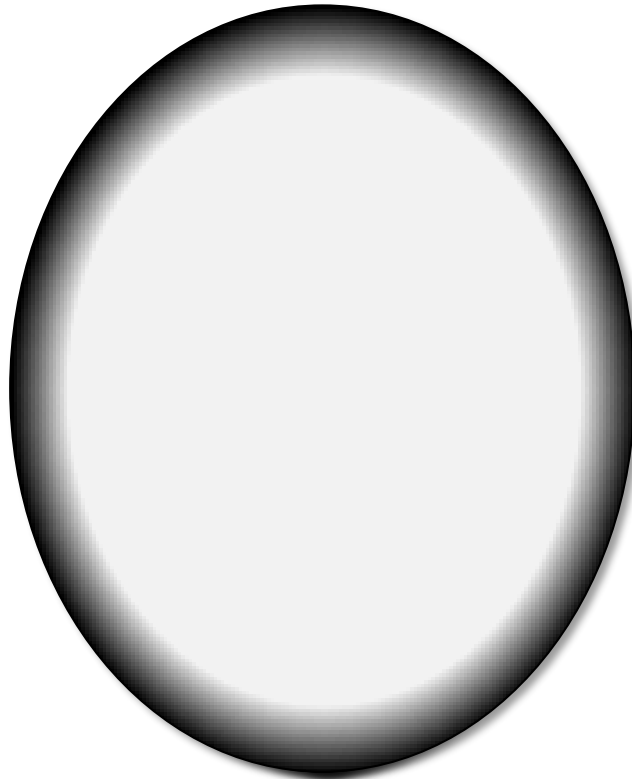
# Linear scale of I/O and bandwidth + low latency



5 K-Blocks



40 Host Ports



30 GB/s



2.1 M IOPS



60 TB Useable

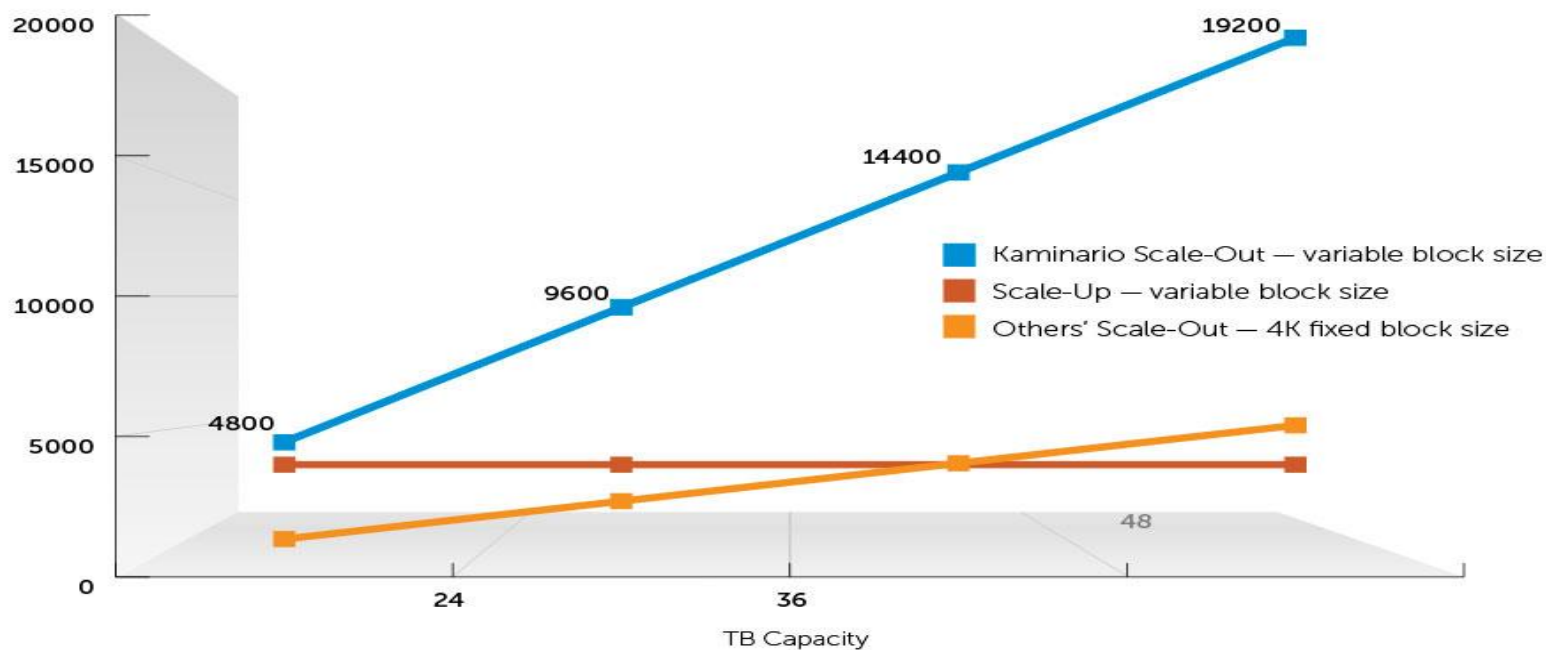
< 300  $\mu$ s (120  $\mu$ s Write/280  $\mu$ s Read)

1 K-Block (4 K-Nodes)	8 Host Ports	6 GB/s	400 K IOPS	12 TB
1 K-Node	2 Host Ports	1.5 GB/s	100 K IOPS	3 TB

# Bandwidth - Variable block size in context

## MIXED DATABASE WORKLOAD – 32KB IO, 90% READ / 10% WRITE

Bandwidth MB/sec  
for IO size 32k



# Case Study – Conatus Capital

- Application Environment
  - Data warehouse and reporting on SQL Server + VMware ESX
  - Historical data and charting reports
  - Real time searches and queries
- Challenge
  - Improve the response time of the historical reporting and real time queries
  - Improve system and application startup in the ESX environment



# Conatus Capital business objectives

- Significantly reduce the burden of large data analysis
- Give the traders the ability to make decisions in a more timely manner
- Do not sacrifice high availability or data protection

# Conatus Capital technical results

- Charting response time reduced from over 1 minute to just seconds
- System and application startup time improved by 600%
- Daily data loading reduced from ~6 hours to less than 90 minutes

**Kaminario K2**  
**Capacity: 6TB**



# Conatus Capital business results and ROI



**200% improvement  
dollars / performance**



**Reduced power consumption and  
cooling load**

# Conatus Capital customer quotes

*"The K2 let us put the VMware system on much faster storage...without trading-off high availability and data protection. Kaminario has a proven track record of high availability and data protection with no single point of failure, yet still maintains consistent high performance."*

*"With the K2, we will be able to conduct deeper market analysis in a shorter time while also improving the workflow for our end users."*

*...Hans Bleuel, Chief Technology Officer*



CONATUS CAPITAL