

Cache IQTM

Automatic Storage Tiering in the Age of Big Data

Joel Trammell, CEO

What is Automatic Storage Tiering ?



Technical Definition

A storage software management feature that dynamically moves information between different disk types and RAID levels to meet space, performance and cost requirements.



Practical Definition

Putting my most important data on the newest (and fastest) storage.



Cache IQ Definition

Creating an extremely fast performance tier (tier 0) and automatically guaranteeing that your most important data is always accelerated.

Storage Trends and Automatic Tiering



Big Data

Data storage growing at 62% per year with no signs of slowing



Cloud Storage

More and more data centers are taking advantage of on-demand resources



Virtualization

Managing storage in a virtualized world is a new challenge



Green Tech

Data center costs, particularly power and cooling, are skyrocketing



SSD Storage

It is not obvious how to deploy SSDs in a cost-effective and efficient manner

Automatic Storage Tiering?

The Requirements for Automatic Storage Tiering



It needs it to be **SMART**



It needs it to be **FAST**



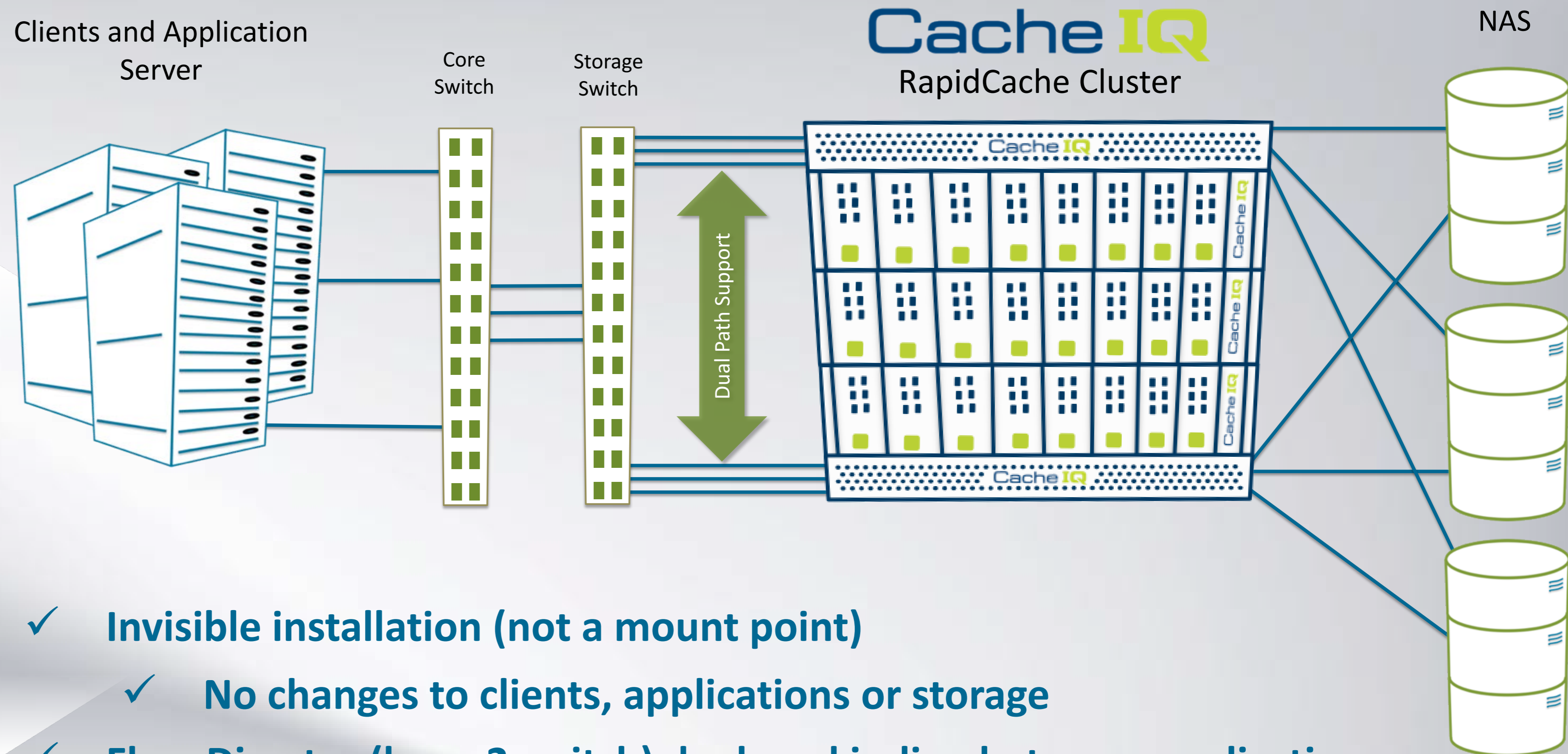
It needs it to be **FLEXIBLE**



It needs to be **DYNAMIC**

*We need **NEW OPTIONS** in enterprise storage...*

The Cache IQ Solution



- ✓ Invisible installation (not a mount point)
 - ✓ No changes to clients, applications or storage
- ✓ Flow Director (layer 2 switch) deployed in-line between applications and storage
- ✓ Data Servers are policy-driven, clustered smart cache with SSD and memory
- ✓ Can accelerate multiple file storage heads from any vendor

Benefits of RapidCache



Smart Caching Tier

Analytics allow you to understand data access and Policy lets you cache only what you care about



Fastest Cache by IOPS

Over 1.1 million IOPS and 33 Gb per second throughput



Flexibility

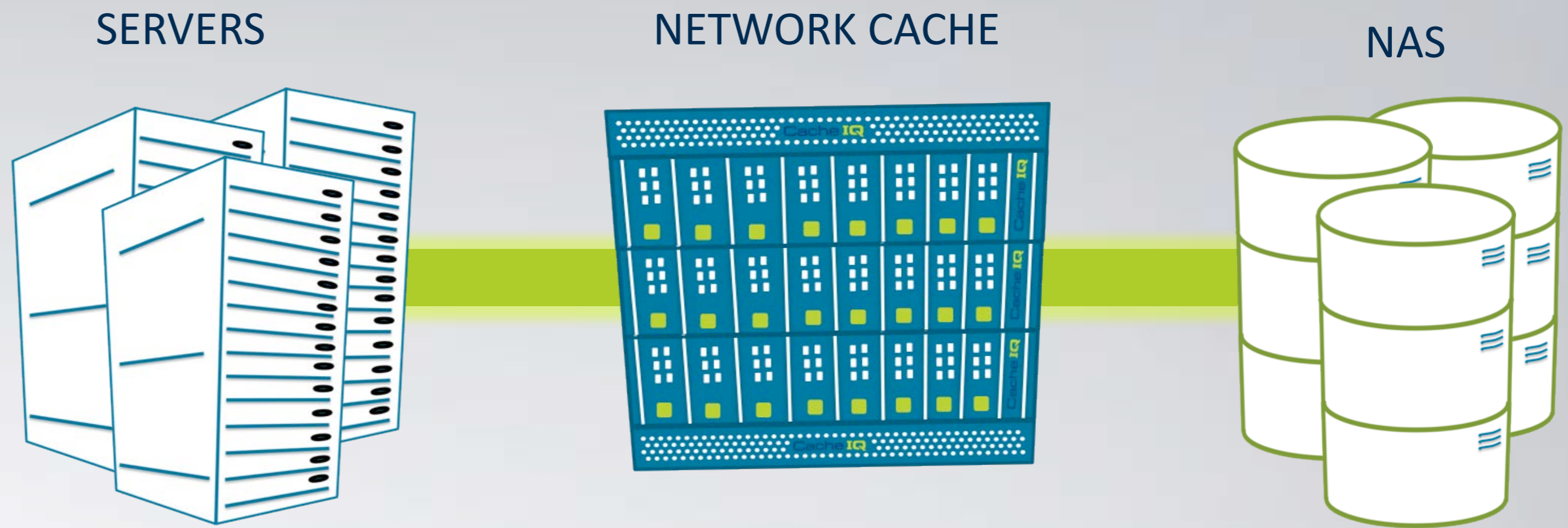
The best option for deploying SSDs; Use with any storage from any vendor and never over-provision



Adjusts to Changing Workloads

Set simple policies and guarantee that the data you care about is always accelerated, even as your active data sets change

Cache IQ by the Numbers



DATA SERVERS

1.1m IOPS per node

33Gb per second
throughput per node

144GB
DRAM per node

3.2TB SSD per node

FLOW DIRECTORS

Low-latency

10-gigabit switch

Resilient

Dual data paths

Access

Fail-to-wire feature

SCALABILITY

Up to 16

SSDs per node

Up to 8

nodes in a cluster

Add/Remove

nodes without service
interruption



OUR CLIENT:

Silicon Laboratories

THEIR CHALLENGES:



Overloaded NetApp 3240 cluster supporting over 400 users including software devs, IC engineers, EDA designers etc.



24/7/365 operation – depend on NAS for projects in software, firmware, chip design and run a multitude of applications



At a crossroads: Should they upgrade their NetApp to 6000 series, purchase an all-SDD array or...

OUR SOLUTION:



Integrate seamlessly into their environment into their existing environment



Provide enhanced NAS performance through DRAM and SSD based caching appliance



Provide a policy engine for complete cache control as well as analytic insight through RapidView™

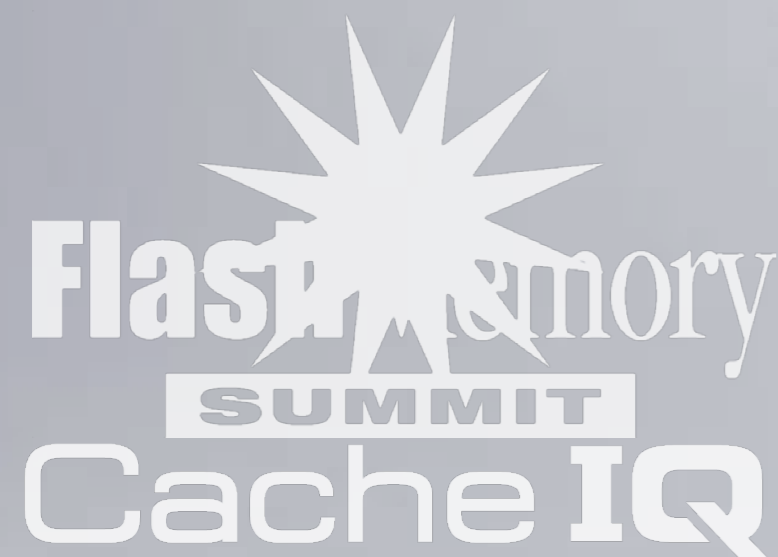


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THE RESULTS:

- ✓ **30% drop in the average CPU utilization during backups, 40-45% during other times**
- ✓ **Nearly 100% Metadata and 70% of reads served from cache**
- ✓ **Filers now peak at under 50% utilization for a manageable level of overage**
 - ✓ **Previous levels spiked as high as 80%**
- ✓ **Troubleshooting, reporting, and planning gained as a result of RapidView insight**



“Cache IQ’s RapidCache proved to offer our engineering community dramatically improved performance beyond what our current NFS system could provide.”

-Everett Plante, CIO





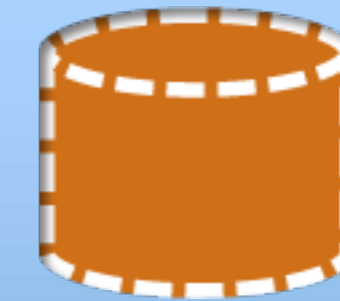
Cloud Storage

Enabling a low cost but lower performing tier requires guaranteed performance



Big Data

Automatically accelerate active data and use low cost storage for data at rest



Virtualization

A solution tailored to meet visibility and performance challenges

Cache IQ



Green Tech

Attacks both OpEx and CapEx



SSD Storage

Simply the best option for deploying an SSD tier

Thank you. What questions are there?

www.cacheiq.com