Nimble Storage, Inc.

Team

- Varun Mehta – CEO, VP Eng.
  - VP Eng PeakStream, Data Domain, Panasas, FastForward. NetApp, Sun.

- Umesh Maheshwari - CTO
  - Technical Director, Data Domain. Zambeel, Intertrust. PhD MIT. IIT Gold Medal for top graduating student.

Mission

We will provide the easiest-to-integrate flash enabled storage to the data center.

Current Problems

- Server performance is overwhelmed long before storage capacity

- Servers have limited DRAM (0.1% of disk)

- The problem affects all levels of users
  - PeakStream, Yahoo, Facebook, Oracle, Cadence

Flash Challenges

- Flash isn't a replacement for disk or DRAM

	Cost/GB	4KB Page Access Time
DRAM	$100	0.32us
Flash	$15	75us read, 15,000us write
FC Disk	$2	5,000us

- Limited erase cycles
- Terabyte scaling issues

Nimble Technology

- New flash optimized file system
  - Log structure: speeds up writes
  - Efficient compaction
  - Efficient index
  - Compression: 2x or more
- No custom hardware
- Frictionless insertion
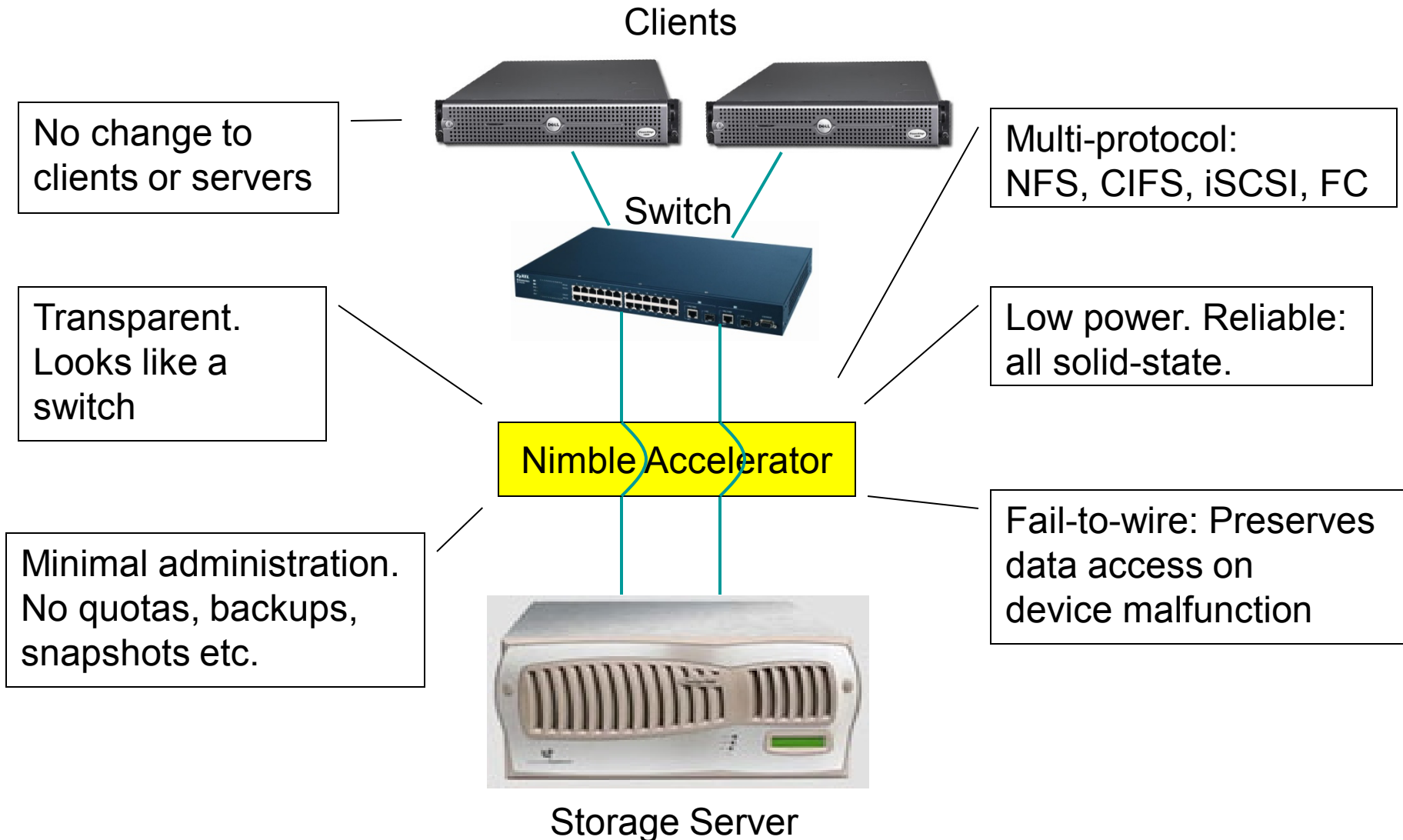
Two Product Families

1. Accelerator

   – Works with existing servers: NetApp, EMC

   – Transparent: easy to add or remove

2. Storage server

   – Handles very large working sets

   – Optimized for slow, large disks

- Leverage common technology
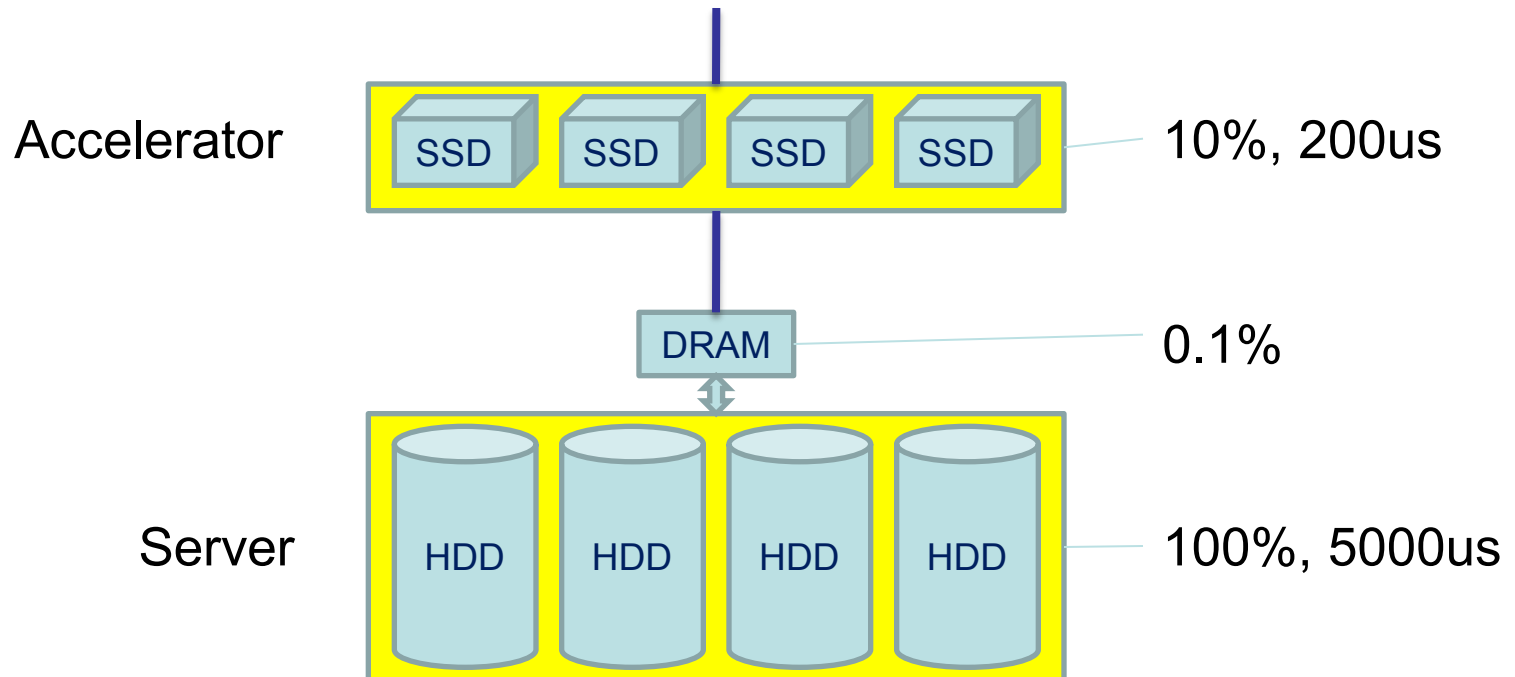
The Accelerator Appliance

Clients

No change to clients or servers

Multi-protocol: NFS, CIFS, iSCSI, FC

Switch

Transparent. Looks like a switch

Low power. Reliable: all solid-state.

Nimble Accelerator

Fail-to-wire: Preserves data access on device malfunction

Minimal administration. No quotas, backups, snapshots etc.

Storage Server

Compelling Performance

- Increases cache by 100x
- Reduces latency by 25x

Accelerator — SSD SSD SSD SSD — 10%, 200us

DRAM — 0.1%

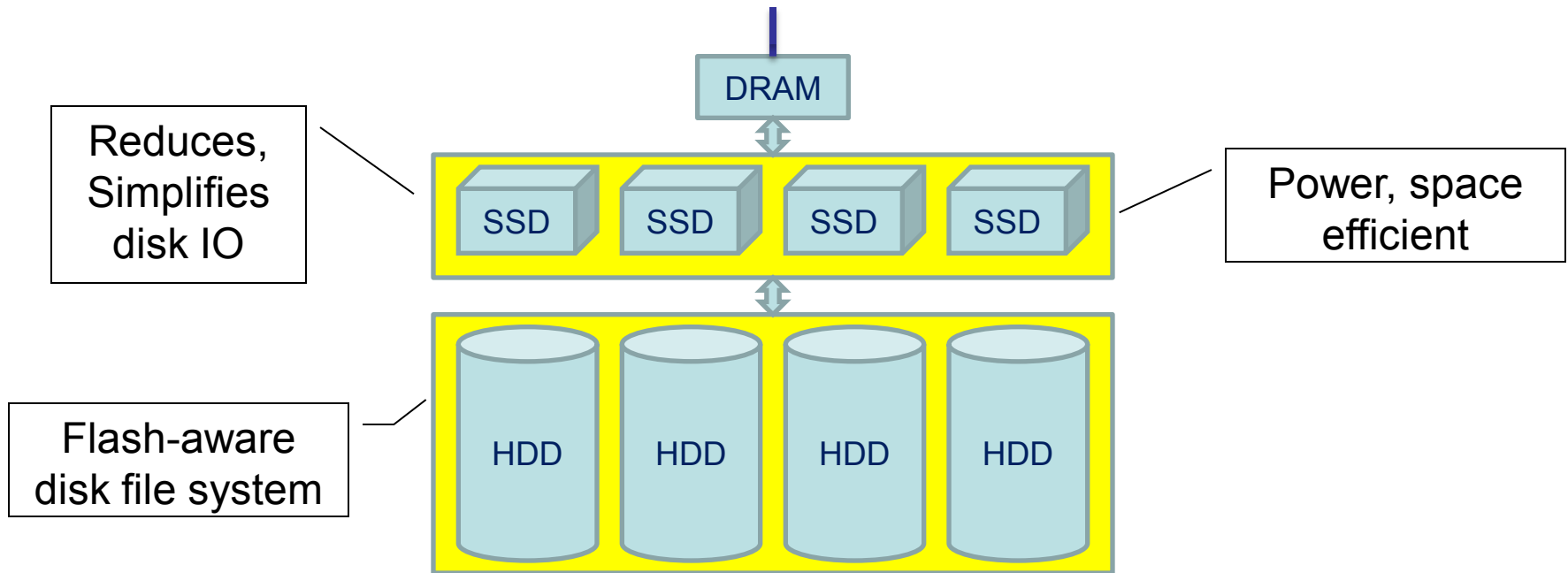Server — HDD HDD HDD HDD — 100%, 5000us

Accelerator Pricing

- Gross margin 80%

- Product line
  - 256 GB cache: $30K
  - 2 TB cache: $150K

Accelerator Alternatives

	IOPS	Access Time	2007 List Price	Rack Space	Power	Watts per 1K IOPS	$ per IOP
Nimble .5TB	200,000	200us	$69,000	3u	250W	1.3	$0.35
Gear6 .5TB	500,000	500us	$700,000	42u	4800W	9.6	$1.40
NetApp DS14mk4 Disk shelf	2,800	5ms	$41,000	3u	370W	132.1	$14.64

Product 2: Storage Server

- Get high performance from SLIDS: slow, large, inexpensive disks

Reduces, Simplifies disk IO

Power, space efficient

Flash-aware disk file system

DRAM

SSD　SSD　SSD　SSD

HDD　HDD　HDD　HDD

Specialized Server Applications

- Stay out of general purpose market
- Focus on feature set by vertical
  - ERP/OLTP database servers, log servers
  - Virtual servers
  - CAD, software development, finance
  - Video serving, rendering
  - Energy, National Labs, and Security

Server Competition

- Clustered NAS servers
  - Isilon, Panasas, NetApp GX, Veritas, Microsoft
- Specialized servers
- Nimble advantages
  - Far less expensive
  - Optimizes latency sensitive applications: OLTP
  - Simpler administration than clusters

Market

- Our technology is a basic building block for flash to penetrate the enterprise

- It is applicable in varying degrees to the entire $15b networked storage market

	2008	2009	2010
NAS ($M)	3,557	3,944	4,266
iSCSI ($M)	1,586	2,378	3,092
FC SAN ($M)	10,192	10,373	10,416
Total Networked Storage	15,335	16,695	17,774

Source: IDC

Development Milestones

Milestones	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
	Design	First Prototype	Complete Core System	Perf, Test, Fit & Finish	Beta Start	Ship	Cust Ramp, Series B	Release 2 Prototype
Cash Burn ($1000s)	$618	$989	$1,139	$1,391	$1,397	$1,610	$1,574	$1,660
Cumulative Burn	$618	$1,607	$2,747	$4,137	$5,534	$7,144	$8,718	$10,377
Headcount	7	14	16	21	24	25	26	29

Headcount Summary

Eng Total	6	11	13	14	14	14	14	15
IT Total	0	1	1	1	1	2	2	2
Sales Total	0	0	0	2	4	4	4	5
Marketing Total	1	1	1	2	3	3	3	3
Support Total	0	0	0	1	1	1	1	2
G&A Total	0	1	1	1	1	1	2	2
Total	7	14	16	21	24	25	26	29

Why Nimble?

- Technology
  - File system optimized for flash
  - Compression will double effective cache size
  - Strong file system expertise
  - Strong product delivery experience
- Compelling price/performance
- Big market
- Low friction market entry
- Hiring: know key developers and advisors