Enterprise SSD

The next killer app

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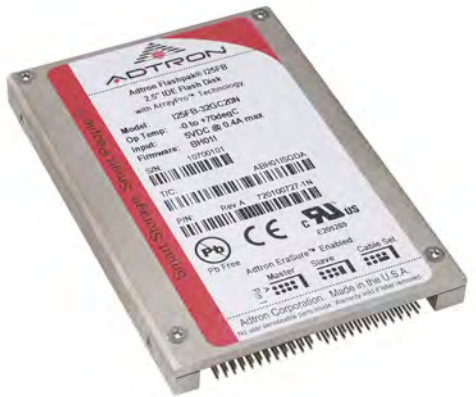

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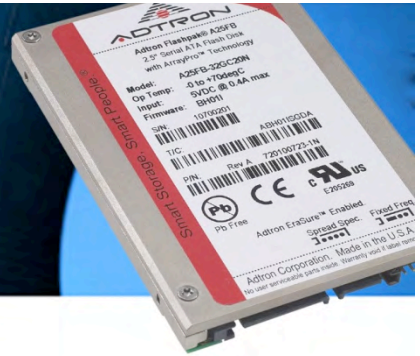
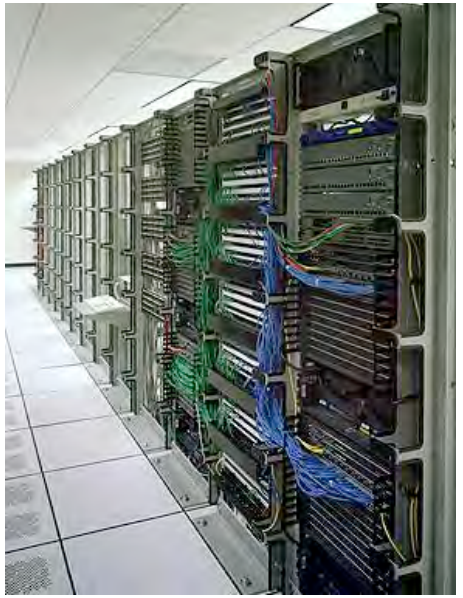
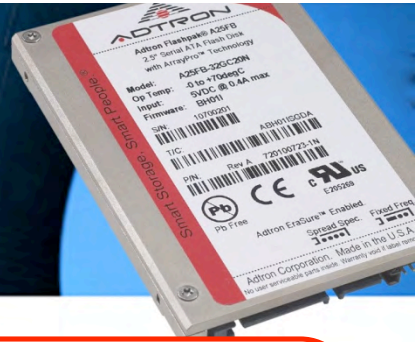
Enterprise Storage Requirements



- Storage that complies with low-output HVAC (Heating, Ventilation and Air Conditioning)
  - Low power consumption
- Deliver 24/7 reliability
- Zero downtime (99,999% reliability)
- High IOPS performance
- Maintenance-free solution
- Low cost

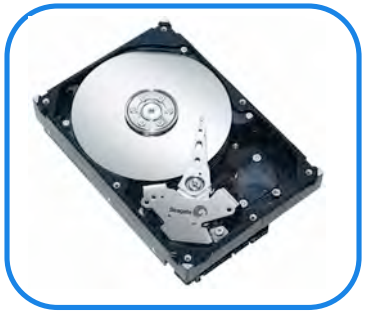


HDD is the bottleneck



Poor Reliability
Carnegie Mellon & Google study show up to 8.6% annual failure rate for HDD in controlled environment

Heat
Rotating platters & moving heads need power → produces heat



Low Performance
Low IOPS performance → High redundancy to compensate for low performance per drive

High TCO
Initial purchase cost low, but maintenance, space, cooling & replacement will increase TCO substantially

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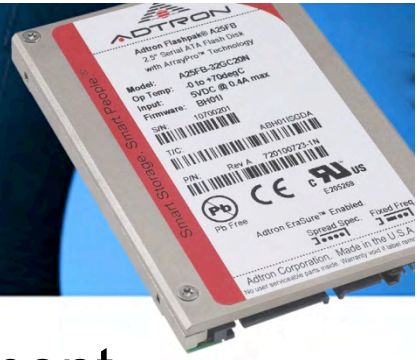
TCO comparison



Datacenter with 100K IOPS requirement

HDD (500 IOPS) @ $250 vs. SSD (4000 IOPS) @ $2,000

	SSD	Enterprise class HDD	Cost Savings
Drives needed	25	200	$0
Chassis	1x 1U Chassis	12x 3U Chassis	$23,000
Rack	0	1x 44U Rack	$1000
Power (24/7)	500W x 1U Chassis	500W x 12 x 3U Chassis	$3,854 (based on 8¢ kWH)
Cooling	625K BTU	12X 625BTU	$1,100
Replacement/ Maintenance	0.5% AFR	4% AFR	$3,644 (incl. $350 service cost per failure)
Total			**$32,598**

Note: Based on chassis and cabinet dimensions by Rackable Systems

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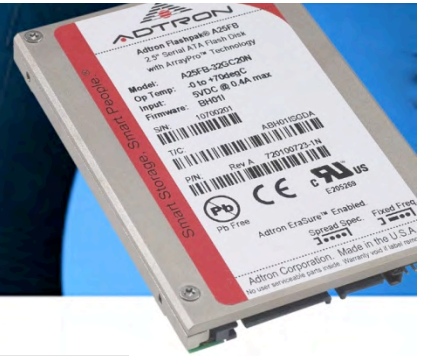
SSD Price Trends



Price

SSD Price

$250

$50

Telecom
(OS & critical
data)

Blade
Server

Enterprise
storage
(High IOPS)

Enterprise
storage
(HDD
replacement)

HDD Price

2007 2008 2009 2010

SSD Emerging Markets

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A final word by Dilbert