



Flash Supercharges Analytics Performance

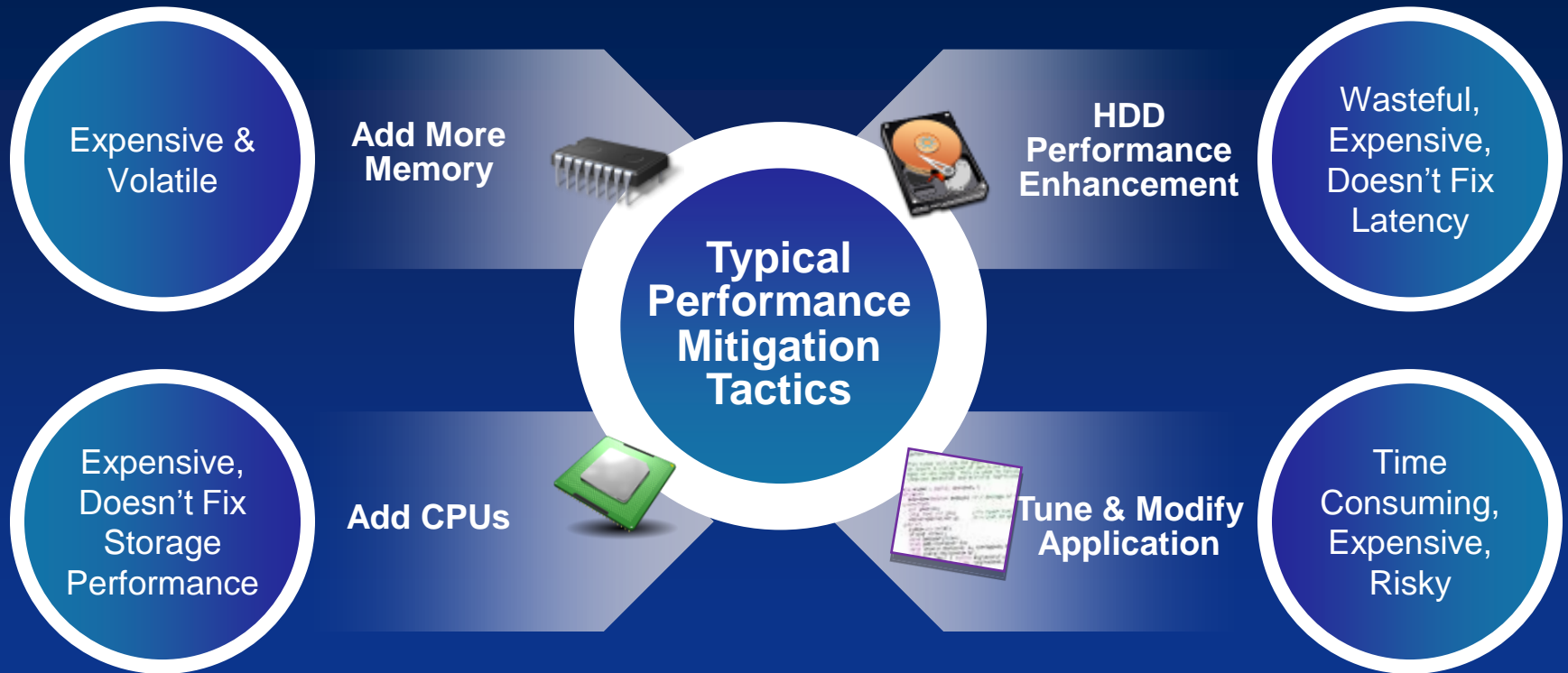
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How did we handle performance problems before flash?



These approaches persist in data centers that have not widely implemented flash!

These adjustments are responsible for most of IT's woes

Countless SW Licenses

Complicated SW

Expensive and Bloated Infrastructure

Dissatisfied Users and Customers

Slow or Unstable Applications

Loss of Business Opportunity

These problems persist in data centers that have not widely implemented flash!



Databases

- Logs
- Temporary Files
- Hot Tablespaces
- Entire Databases
- OLAP/OLTP/Key:Value
- Bare Metal/Virtual
- Real-time/Batch



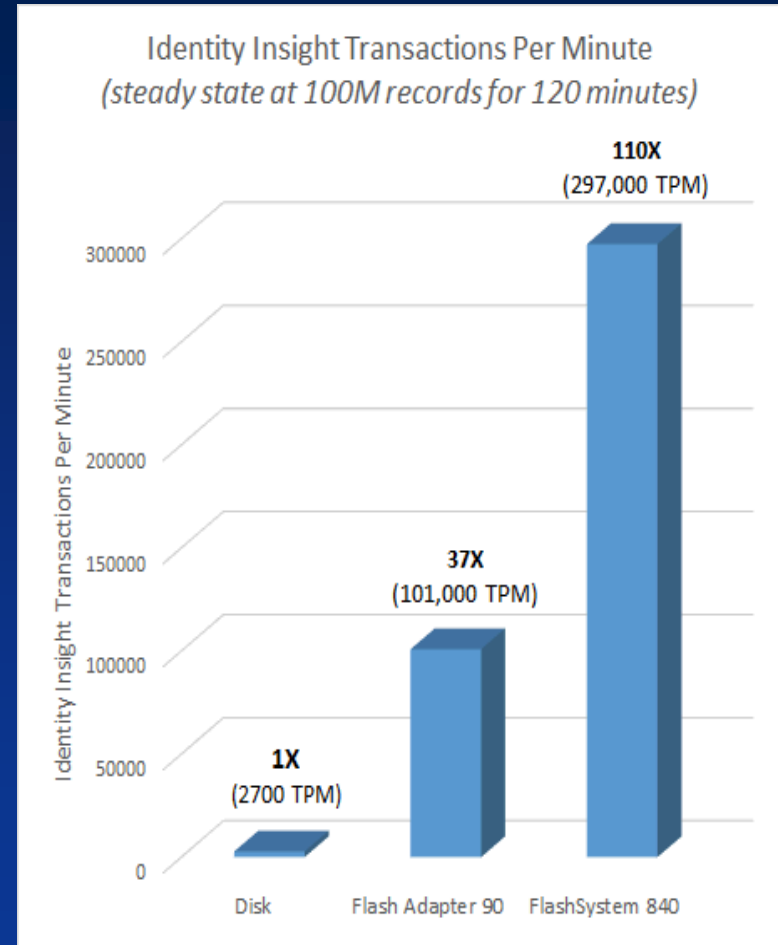
If you have storage bottlenecks, flash is an equal opportunity database accelerator.

You name it, flash makes it faster.



IBM InfoSphere Identity Insight analytics performance with flash

- IBM InfoSphere Identity Insight is an advanced entity analytics solution with sophisticated recognition algorithms optimized to help predict & pre-empt criminal activity faster
- In a recent test, FlashSystem achieved 297,000 TPM in an Identity Insight environment
- That performance would typically require over 1,000 disks, filling two racks and costing over five times as much as FlashSystem
- FlashSystem 840 only used half of its available IOPS and achieved response latency of only 0.3 ms



Oracle performance with flash



After switching to FlashSystem (05:27 PM), Disk IO wait disappears and waiting is now on host CPU. This graph shows the effect of the low latency of FlashSystem and how it increases host CPU utilization.



Splunk and SAS with flash

12x faster

business analytics performance

85 percent

reduction in batch process time

80 percent

decrease in power consumption

Solution Components

- SAS
- IBM FlashSystem 840, 820
- IBM SAN Volume Controller
- IBM Storwize V7000
- VMware VDI
- Splunk



Business challenge: This home improvement company needed to quickly download information from multiple production databases and perform analytics. The existing storage took 6 to 8 hours to complete, impacting end user access.

The solution: The company moved mission critical applications off EMC VMAX on to IBM FlashSystem and reduced key batch processes from hours to minutes.

"IBM FlashSystem performance and management is incredible. We will be implementing a lot more IBM Flash this year."

— Senior Director, Enterprise Storage



Review

- Flash speeds up all applications where gains > costs
 - Storage-bound transactional and analytical databases tend to benefit greatly
 - Advanced analytics in particular amplify the demand for data volume and velocity
- SLOB testing and general brokerage workload benchmarks demonstrate performance improvements greater than an order of magnitude (though your mileage may vary)
- We have many IBM FlashSystem client stories about flash in transactional and analytical environments
 - Always a faster solution, often by large magnitudes, when storage is a bottleneck
 - Most efficient/economical way to scale storage performance
 - Usually the simplest solution