PROPELLING THE FINANCIAL SERVICES INDUSTRY: A NEW APPROACH TO DATA MANAGEMENT

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The world of finance operates at a blistering pace on a global scale. Companies in that world sort and move tremendous volumes of data 24x7 in order to perform and reconcile transactions. A delay in their ability to access, act upon, and secure that data can have dire fiscal and regulatory consequences.

Under a traditional distributed, and siloed approach to infrastructure and architecture, much of this data is locked away in isolated data warehouses. It’s an inefficient method which is difficult to manage and performs poorly.

This strategy guide explores an alternate approach that combines extreme performance for rapid transactions; storage optimization for cost effectiveness; and an intelligently integrated platform that handles more data in a consolidated footprint.

MORE DATA, MORE DEMANDS

The sheer volume of data isn’t the only reason the financial services industry has an unprecedented need for visibility, says Samir Kamat, vice president of the business information management group for financial services at global consulting firm Capgemini. The implosion of the global economy and the ensuing growth in banking regulations also play a part.
“Banks are gathering and reporting on huge amounts of data, in larger data sets. Speed is critical, especially to prove compliance with regulatory requirements that are in constant flux,” Samir says. “For example, banks must now fill out 120 tables of information each quarter just to perform required stress tests.”

Governance, compliance, and risk management is far from the reason behind the increasing need for fast, accurate access to large amounts of high-quality data. Other reasons include:

- Mining vast amounts of consumer information, including social networking data, for more strategic customer acquisition and retention
- Tracking customer information across multiple service delivery channels for improved customer service
- Leveraging transaction data to expedite collections and fraud detection
- Using predictive analytics to increase forecasting accuracy and trading efficiency
- Integrating smartphones, tablets, and mobile applications into corporate networks as both sources and destinations for data

Pulling information from siloed applications and databases to create reports can take anywhere from hours to weeks. In a global economy operating in an increasingly stringent regulatory environment, this is unacceptably slow.

Improving database access performance using a legacy piece-meal approach can be costly in terms of both time and money. It requires additional server and storage hardware; hours of data modeling; and constant tuning to maintain performance in the face of shifting database loads. Moreover, application, database, and infrastructure siloes increase the risk that reports will be based on incomplete, inconsistent, or even duplicate data.

**STREAMLINING DATA ACCESS**

To deliver faster, more accurate reports, financial services firms must rethink the entire process of mining, analyzing, and presenting data. “Moving data from applications to warehouses to data marts to reports is inefficient,” Samir explains. “The process needs to be collapsed. The fewer transformations you do without compromising performance, the better.”

To that end, today’s financial data management solutions must deliver all of the following:

- **Increased performance, bandwidth, and throughput.** Eliminating bottlenecks ensures a fast response to strategic opportunities and audit requests. This effectively allows end users such as business analysts and compliance officers to mine and report on more data more rapidly, thus improving the time to internal decision making, time to market for new services, and the revelation of new market opportunities.

- **Optimized storage.** Combining data compression with the ability to screen data before it reaches a database server allows faster, more accurate data retrieval while controlling hardware, power, and maintenance costs by significantly reducing the storage footprint.

- **Consolidated workload.** Siloed storage pools within an array prevent applications from using available storage at its maximum efficiency. A solution that acts as a single storage grid with mixed workloads can instead allocate input/output resources to business-critical applications as required.

- **Enterprise-wide data replication.** Daily operations and regulatory compliance alike demand that all end users access the same consistent, reliable, high-quality data across locations and systems. A solution that seamlessly clones and manages data guarantees every application and user is working with the same data sets. It also boosts productivity by increasing the number of queries that can be run against the data at any moment.

**NEW ARCHITECTURE IN ACTION**

Data management solutions with these attributes can be game changers for financial services firms. Consider Paris-based giant BNP Paribas. The company needed to improve response time for its trading floor applications, including near-real-time performance statistics monitoring; compliance reporting for risk and market abuse; network and internal application optimization; and five-year archival compliance querying and reporting.

By replacing a four-node real application clusters (RAC) deployment with the Oracle Exadata Database Machine, BNP Paribas sped up reporting throughput by a factor of 17 and shortened query response time from an average of 30 seconds to less than one second, while shrinking its data warehouse by 80 percent.
The last week’s worth of trading data—all data accessed directly through an internal-facing monitoring and querying website, and staging tables from internal application performance monitoring—now resides in a flash memory cache. As a result, existing queries run up to 17x faster and the monitoring website delivers answers as much as five times faster.

And the BNP Paribas data warehouse shrunk from 40 terabytes down to just eight. This significantly reduced hardware, power, and management costs while slashing maintenance time from hours to minutes, freeing the IT staff to focus its time—and budget—on development.

“IT invested in the old process of moving data from applications to warehouses because there was no other choice,” says Samir. “Until very recently, there was no such thing as a terabyte of RAM or a five-terabyte flash drive. Now that you can replace one mainframe and ten high-end racks with a single database machine and achieve better performance, it’s possible to remove the constraints on delivering information to end users.”

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At the same time, Oracle’s unique clustering and workload management capabilities allow financial services firms to impose different service level agreements (SLAs) on applications that use different databases on the same storage array. With all databases on the Oracle Exadata Database Machine, organizations can allocate I/O resources to optimize data processing and storage—for example, prioritizing a trading application during the day and then shifting to other applications after trading hours.

Finally, Oracle Exadata secures sensitive financial data by implementing encryption processing in hardware. With this feature, there is no performance penalty for encrypting data, making it possible to query fully encrypted databases at hundreds of gigabytes per second.

Oracle is leading the data management revolution. The Oracle Exadata Database Machine is a complete preoptimized and preconfigured package of software, servers, and storage that delivers the extreme performance and high availability necessary to propel today’s banking industry. It combines the Oracle Database software, Oracle Exadata Storage Server software, and the latest industry standard hardware components, and is designed to deliver extreme performance for all Oracle Database workloads. It handles analytic and other third-party and custom applications seamlessly, with no need to alter or tune databases or platforms. Its ability to store and handle large amounts of data securely with less hardware and deliver high-speed results to complex queries yields as much as a 6-to-1 price/performance advantage over competitors.

Oracle Exadata offers faster response time and an overall throughput improvement of 10x or more by transparently offloading portions of query processing to the storage tier and automatically caching frequently accessed data in the high-speed flash storage. Its unique hybrid columnar compression (HCC) shrinks data volumes by 10x, dramatically reducing unnecessary hardware and real estate from multiple racks and servers to a single fully integrated solution. Additionally, Oracle Exadata can run multiple concurrent or parallel queries for an additional performance boost without bottlenecks.

The financial industry’s demands for near-real-time throughput will only increase. This means demands to minimize latency while moving large amounts of data from multiple sources to end users—be it for reporting on a loan portfolio for regulatory purposes or for making trading decisions that may shift in a fraction of a second—will increase as well.

By retooling their IT architecture to handle more data with less hardware, financial services firms can feed their need for extreme, accurate performance. They can shed the old, cumbersome paradigm of shuttling data among siloed applications, warehouses, and data marts in favor of a faster, more efficient approach to data management.
Banks must gather and analyze a high volume of data at high speeds to cope with increased regulatory pressures, risk analytics, and customer demands. Capgemini's Samir Kamat explains why managing data efficiently is about far more than simply reducing the time it takes to create and run a database query.

What are the pain points driving data management in the financial services industry?
We've evolved from application-specific forms of data to audio files, video files, complete text files, and many other types of data, which requires banks to handle multiple mixed workloads in order to achieve peak performance from all their applications. Banks are also trying to figure out how to use all of this data to enhance traditional approaches to data mining and reporting within the restrictions controlling how much external data they can use.

What does IT need to do to make workflow more efficient?
Efficiency is about time to value: streamlining the entire process of moving data from the point where it's generated to the point where it's presented and/or used. That requires retooling and consolidating the IT environment for improved application performance, which means minimizing the number of data transformations and maximizing simultaneous workloads to deliver faster response time to queries.

Why is giving end users faster access to necessary data such a challenge?
You have to pull everything together so the analytical team can quickly access what they need at any given moment. The problem is that they don't necessarily know what kind of data they need. For example, they don't know what regulators are going to ask for next; they generally know it's going to be about loan regulation, but that could involve thousands of data fields.

Does addressing these challenges require a fundamental rethinking of IT architecture?
It's a shift along the lines of how five years ago we didn't have smartphones and now we can't imagine living without them. Traditional architecture is about moving data from application to warehouse to data mart to report; the staging area only contains a snapshot of the data to be reported on. The evolving approach is to maintain a history—the actual raw data—in the staging area so that when you want to run a report, you just need to pull the incremental data instead of going back to the source. That, in a nutshell, is what Oracle Exadata does. If you have a thousand fields of data, you store them in the staging area, then put only the fields you need in the data warehouse. When you need more data six months later, you can access all the fields in the staging area—without having to disrupt people on the application side. This cuts down on your development cycle tremendously.