



The Bank of New York Mellon makes a sound investment in SOA.

*Taking a services-based approach enables swifter
and easier integration*

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Introduction

The Bank of New York Mellon (BNY Mellon), the world's largest securities servicing provider, was formed through the July 2007 merger between The Bank of New York Company, Inc. and Mellon Financial Corporation of Pittsburgh. The new bank provides financial services such as asset and wealth management, asset servicing, and broker-dealer and advisor services for institutions, corporations and high-net-worth individuals. It is also the largest provider of financial auction services in the U.S and provides custody and fund services, securities lending, performance and analytics, and trade execution services. The bank's securities processing management services entail maintaining records of the securities positions of large institutional investors.

As of late October 2008, the combined company had US\$22.4 trillion in assets under custody and administration, which entails monitoring and controlling assets as a corporate trustee for endowments, mutual funds and pension plans. At that time, BNY Mellon was chosen by the U.S. Department of the Treasury to provide services to support the government's Troubled Asset Relief Program (TARP) authorized under the Emergency Economic Stabilization Act.

In this DeepView case study, Sateesh Prabakaran, Chief Architect of the merged BNY Mellon, describes the role that Service Oriented Architecture (SOA) has played in consolidating two large technology infrastructures and providing a platform for change.

Solution components

Software

- IBM WebSphere® MQ
- IBM WebSphere DataStage®

BNY Mellon was formed from the merger of Bank of New York and Mellon Financial Corporation—two large providers of securities services and asset management.

The new company needed to integrate multiple portfolios of legacy applications while establishing a flexible platform for the future.

Establishing guiding principles for IT and business alignment

Both the Bank of New York (BNY) and Mellon were important to the early financial development of the United States. BNY, founded in 1784, financed the early transportation networks in New York, including canals, steamboat companies, railroads, utilities and the New York City subway system. T. Mellon and Sons' Bank, founded in 1869, helped to finance the industrial revolution by investing capital in the steel industry and in companies like Alcoa and Westinghouse.

Over the years leading up to the merger, both the Bank of New York (BNY) and Mellon had completed a transformation from their heritage of traditional commercial banking to become providers of securities services and asset management. During this transformation, BNY sold its retail franchise and acquired more than 80 companies. Mellon had also pursued a similar strategy of selling off its retail banking business and was focused on increasing its asset management and asset servicing businesses.

The new entity, BNY Mellon, needed to integrate the operations of the two organizations—including their cultures, business processes and technology infrastructures. Equally important, the company needed an IT solution that would take into account the complex and rapidly changing nature of financial services and deliver the flexibility needed to support the bank's business strategies as they evolved.

“When you put together a bank out of multiple banks, you have a lot of integration to do between the systems,” says Managing Director Sateesh Prabakaran, who leads the development of the new BNY/Mellon Enterprises

Highlights

A set of guiding principles helped the transformation effort maintain a business focus and demonstrate the value of IT in meeting business objectives.

architecture. In this environment, he added, it was critical to start with a set of principles that would help the IT organization establish and maintain a business focus:

- *Optimize IT investments based on a consistent set of principles and practices*
- *Avoid redundant development efforts by increasing code reuse and solving all problems from scratch*
- *Establish shared rules and methodologies for the effective use of technologies*
- *Establish a clear IT governance policy to guide decisions about new tools and technologies*
- *Increase collaboration between business and IT by improving business awareness of IT capabilities and limitations while improving IT knowledge of the company's business strategy and objectives*
- *Create a common language between business and IT.*

“We also needed to demonstrate the value of IT to the business, and communicate how IT would meet business needs,” Prabakaran notes. “Principle number one is a strong belief in business excellence supported by a well-engineered IT guidance.” To Prabakaran, this means developing business architecture at whatever levels of granularity or specifics the business and the IT team are faced with. IT also must establish that this business architecture is the custodian of the current capabilities of the business and, as such, the enabler of change.

Highlights

The bank employed the shared, reusable services that are the foundation of SOA to integrate its disparate systems, processes and data.

To ensure consistency, BNY Mellon defined the standards and technology that would be used for all new IT projects and provide the foundation for SOA efforts.

Supporting the business merger with services-based integration

Merging two complex IT infrastructures in a dynamic business environment proved to be an ideal setting for a Service Oriented Architecture (SOA) approach to BNY/Mellon's IT transformation. The company started its SOA journey by employing shared, reusable IT services as a primary strategy for achieving its stated objectives. Through the use of shared services, the bank can integrate disparate systems, processes, and data and streamline the resulting operations for maximum efficiency.

"The bank liked the shared services approach because it was designed for change," says Prabakaran. "To me, SOA is not an abstract notion. It is an organic evolution coming out of the principles we adopted in the organization and some home-grown development we have done. From there, we work SOA toward a business solution dictated by the business architecture."

Employing a standards-based business architecture

As part of the transformation initiative, the bank began defining and developing standards for inclusion in the business architecture. This meant not grabbing the nearest technology fix for a given problem but ensuring that a given solution was consistent with the standards in place throughout the organization.

The bank's IT business architecture stack, the set of agreed upon technologies and standards, is based on these core principles and is used to help align IT with the business goals. All new IT projects and initiatives are based on this stack, which also guides the team in cultivating the appropriate ecosystem to support it efforts.

Highlights

Achieving this consistency required training developers in SOA principles and practices.

BNY Mellon also established a process for reviewing all new IT projects to make sure they are consistent with the bank's IT business architecture.

This architecture stack is also the foundation for the bank's SOA efforts. Key elements of the business architecture stack include IBM WebSphere® MQ for the messaging infrastructure and IBM WebSphere DataStage® for data integration and data transformation. These will be key infrastructure elements for any services initiatives going forward.

“There is a difference between problem solving and standards creation,” says Prabakaran. “Our goal was to reach a point where we were making the right choice as the default.” This approach created an institutional discipline across business lines, resulting in an effective framework for translating IT efforts into solutions that deliver business value. Getting there, however, was not always straightforward. BNY/Mellon has had to invest in educating its developer teams on SOA principles and practices. Early on, Prabakaran notes, developers often confused SOA with the underlying technologies such as Web services.

Maintaining consistency with a business architecture roadmap

The principles of SOA—code reuse and delivering IT functionality as services—continue to play a key role at BNY Mellon. However, the bank's existing IT business architecture is the governing factor in any new SOA or IT deployment.

The process is straightforward. Before any new IT initiative begins, it must first be analyzed to ensure that it will be congruent with the business architecture roadmap. Whether the initiative is a simple enhancement or a multi-million dollar effort to re-platform certain systems, the IT team applies the same discipline and governance, and projects can move forward only upon completion of a sequence of architecture-based validations.

Highlights

The overriding objective of all technology projects remains the betterment of the business—and the challenge remains communicating that value to business leaders.

A new value-based metrics framework measures IT effectiveness in terms of business results.

By conducting those validations, the team will have established that the project will not only address a specific tactical problem but will also help move the bank to a more nimble or agile business capability. At that point, the team translates implementation into underlying technology components, taking care to ensure that the technology solution will be designed, developed and implemented in compliance with the IT business architecture.

“What we look to do is to make use of SOA enable the betterment of the business, which is what SOA should be about,” Prabakaran says. One of the biggest challenges BNY/Mellon faced was translating very technology-oriented, infrastructure-related investments into something the business can clearly touch, feel, and, perhaps, use to evolve a better operating model because of it.

“It has not been easy for the business side to change from thinking about IT in terms of the applications they are used to using to thinking about IT as a set of services. The [business] line may not have the necessary holistic view of the business, how it is doing or where it is supposed to go, nor of all the dimensions that influence this kind of transition.” Over time, however, the bank has created a business that is able to view itself as a set of capabilities or services that IT then can translate into a service-oriented model.

Defining new way to measure IT effectiveness

To meet the objective of demonstrating the value of IT to the business, Prabakaran’s team worked on a value-based metrics framework for assessing IT services, identifying specifically what was to be measured. The team designed metrics for assessing whether and to what degree business goals had been met.

Highlights

“Our objective was to keep things simple,” says Prabakaran. Rounding out the value-based metrics framework is a quarterly enterprise architecture (EA) scorecard similar to a balanced scorecard. An EA scorecard looks at such things as customer results, service coverage, timeliness, service quality, service accessibility, and business process productivity and efficiency.

Still to be implemented is a governance model. The IT business architecture calls for a governance structure that will allow the bank to look at teams and the rate at which the business wants to change. Governance will give development groups flexibility while preventing them from compromising on the bank’s core principles when it comes to IT investments.

SOA in action: parsing asset servicing into individual functions

A key component of BNY Mellon’s portfolio of offerings is asset servicing, which involves collecting funds owed on securities, such as mortgage-backed assets, and securely disbursing payments to the securities investors. The bank’s asset-servicing application has been the first to showcase how the IT business architecture works in an SOA implementation. It demonstrates how the asset-servicing business is broken down into individual functions and how those functions are served on a high level. As a practical matter, it also demonstrates how identifying functions can enable the elimination of duplicate functions, and it shows how those functions will be sustained going forward.

The SOA approach enabled BNY Mellon to break down the complex asset-servicing business process into discrete functions that are delivered as services rather than hard-coded into a single application.

The functioning of the asset-servicing SOA component will be put to the test, and is likely to be under intense scrutiny in the process, as BNY Mellon supports the U.S. Department of the Treasury’s execution of the Troubled Asset Relief Program (TARP). Some of the services the bank will provide include

Highlights

Maintaining a business-driven approach to SOA depends on establishing and adhering to business-based standards, metrics and governance.

managing the cash and assets in the TARP portfolio, providing pricing and asset valuation services associated with the portfolio, and acting as auction manager and conducting reverse auctions for assets through its securities servicing businesses.

Lessons learned

Even at this early stage, several lessons can be learned from BNY Mellon's SOA undertaking:

- *Use SOA to integrate disparate systems*
- *Put in place an IT business architecture that lays out a consistent set of standards and technologies*
- *Cultivate a strong shared service model wherever appropriate*
- *Use the business architecture to evaluate and validate every IT initiative for both technical effectiveness and business value*
- *Develop a well-instrumented, metric-based feedback loop to achieve widespread acceptance and buy-in*
- *Establish governance to ensure compliance with core principles and the IT business architecture*

Says Prabakaran, "What distinguishes our SOA implementation from others is that ours is extremely business driven, to the extent that we are in the position to begin collecting metrics around how this is going to improve our net operating income."

Highlights

Taking a services-based approach has enabled BNY Mellon to successfully address post-merger integration challenges, eliminating redundancy and building a business-focused IT architecture.

Conclusion

For BNY Mellon, the value of SOA lies in its ability to support an IT foundation that is directly tied to the company's business objectives. By taking a services-based approach to its integration needs, the bank has been able to home in on application details, which has allowed the elimination of extraneous or redundant components. Taking time at the outset to clearly define its principles and standards has helped the bank ensure that future development efforts will support the company's present and future business strategies and objectives.

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Highlights

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Somers, NY 10589
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