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A New Foundation: SOA Implementation and Bank Transformation

A successful services-oriented architecture, or SOA, implementation starts with making the right decisions early on in the process.

By Nancy Feig, March 30, 2007

It wasn't just small changes that Wachovia's Corporate and Investment Banking (CIB) division was eyeing when it first looked to deploy a service-oriented architecture (SOA). Rather, it was a total transformation resulting from a mandate from the division's head to create a business-aligned IT group, according to Tony Bishop, SVP and director of product management for the CIB technology group.

Charged with differentiating the bank and growing its business in the face of larger-scale competitors, Wachovia's CIB division had to map out where its technology needed to be to match where it wanted the business to go, relates Bishop. Under the leadership of Susan Certoma, who stepped into the role of CIO for the CIB division in 2004, Bishop was about to embark on a three-year total transformation of the business enabled by SOA.

Like Wachovia, with similar goals of improving operational efficiency and growing the business, banks worldwide are turning to SOA. According to recent research from Needham, Mass.-based TowerGroup, half of the top 20 banks in the United States already are implementing SOA strategies.

As Wachovia and other banks are discovering, leveraging SOA's loosely coupled services to overcome siloed technology has the potential to completely change a financial institution. Yet the road to a full SOA implementation is marred with potholes and roadblocks. According to experts, as SOA gains momentum in banking, it's important for banks to be aware of the key decisions they face about services, technology and governance.

Approaching SOA with clear goals and realistic expectations may be the most important first step a bank can take, Wachovia's Bishop says. Although Certoma set the ultimate goal for her SOA transformation as business differentiation, she also outlined more-specific subsets of the project, including decreased time to market and cost of delivery for new products, Bishop points out. >>

"When you think of the CIB business focusing on institutional clients, you are focused on either creating liquidity, transferring risk or providing advice," Bishop relates. He says Wachovia was looking for "the technology that allows you to build and make the right decisions, and do it in the most automated and cost-efficient way possible."

Though the plan was to transform the entire CIB organization using SOA, the project was divided into easy-to-swallow pieces. "Funding and support was built on trust and incremental deliverables," Bishop recalls. "It was, 'Here is the plan -- each year we are going to deliver increments. If we do, then you will fund the next piece.'"

While Wachovia had support from the top, often that is not the case. "One of the first success factors is that the C-suite [executives] understand what they're getting into," says Spencer Greene, CTO of Palo Alto, Calif.-based Tibco's financial services industry group, which provides business- integration and process-management software. Whoever is championing the project should develop a business case and financial case with plenty of details to ensure that the people at the top understand the project and where it can add value, Greene stresses. The more customer-centric an SOA project is, the more likely executives will jump on it, he adds.

Again, an incremental or evolutionary plan, such as Blue Bell, Pa.-based Unisys' 3D Visible Enterprise, can help bring upper-level management on board. The four-layer blueprint is designed to assist banks with SOA and other technology implementations, according to Brian Ott, a VP in Unisys' technology group. The guidelines, he contends, break down complex business transformations based on proven experiences. 3D Visible Enterprise addresses the setting of a bank's SOA goals -- through a business case, value proposition and capabilities road map -- in its first strategy layer, Ott notes.

Selecting Services

Once a bank defines its business drivers for SOA, the next step is to determine which services to integrate in the new architecture, according to a TowerGroup report.

Prior to an SOA implementation, services are tightly coupled within a particular process -- banks are unable to decouple the process, and the services held within each process need to be rebuilt to get the same services in another channel. SOA, however, allows banks to decouple services and make them modular so they can be reused across channels. The number of connections among various systems should be seen as an indication of the success of its reusable components, experts say.

Banks should look for the low-hanging fruit first, says Greg Haslip, managing director for banking in the U.S. for Redmond, Wash.-based Microsoft. Look for the systems in place that will enable the SOA strategy and the most process reuse, he suggests, noting that services such as money transfer, account opening and account history are commonly utilized in SOA projects at banks.

Wachovia's CIB unit first integrated its front-end services to create a common interface for sales, trading and banking, according to the bank's Bishop. Then project leaders examined the services the bank needed for trade execution, positions, offerings and connectivity to markets, he adds. "Traditionally, everything was built in silos," Bishop says. "Instead of silos, I'm creating horizontal functions and horizontal services -- it's almost a transformation of a bunch of verticals into horizontal planes."

According to U.K. IT research provider The Butler Group (East Yorkshire), services should be described in a manner that is standardized across the organization. This will ensure that terms maintain the same exact meaning and that when services are reused they will achieve their expected purposes.

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The Technology Component

Of course, no SOA project would be successful without the right technology. According to Microsoft's Haslip, the technology a bank chooses -- Web services, middleware, frameworks and platforms -- has to meet a few basic requirements of all SOA-enabling technology. It has to have open standards, enable rapid deployment, be agile, be easy to use for developers and end users, and be capable of being deployed in an end-to-end manner with an integrated suite of capabilities, he says.

Choosing the wrong technology, Haslip adds, can doom an SOA initiative. Some mistakes that banks make are choosing technology without a business need, setting the wrong expectations for technology, focusing too much on the reuse and build capabilities of the SOA software and not enough on the user experience, and focusing too much on Web services. "Technology itself is not a silver bullet," he says. "You still have legacy and you're going to have to work with that."

And what about the ever-present, existential question: To build or to buy? "You build it if you have to, not because it's fun," says Bill Conroy, enterprise architecture senior business executive for Bank of America. According to Conroy, Charlotte, N.C.-based Bank of America ($1.2 trillion in assets) has a well-defined set of rules for its SOA-enabling technology. "Partnership, purchase, then build if you have to," he says. As a rule of thumb, anything that's commoditized, the bank will buy. But if the technology is differentiating, is intellectual property or is of strategic value, then the bank will be more prone to build, Conroy notes.

For its SOA project, Wachovia required that all its technology be componentized and capable of being extracted -- nothing could be hardwired, the bank's Bishop says. Wachovia didn't want any technology built to a specific language or a specific format. "This is where a lot of SOA strategies fall short," Bishop asserts. "A lot of people in the past would build business logic and need to inherit that it was running on a Java container. We didn't want that. We wanted to reuse so that it could be moved about in different ways."

Bishop distinguishes service-oriented architecture -- SOA -- from service-oriented infrastructure, or SOI. "Think of it like you're building a house," he says. "SOA, the set of services, would be the rooms. But the actual foundation -- the plumbing, the wiring, the heating and cooling -- would be the SOI, what you need to run and operate [your SOA]."

According to Bishop, he bought a lot of best-of-breed technologies that are open standards-based and pluggable. "On the client side, we just leveraged the .NET framework from Microsoft, so that was really more of a leverage of the development tools," he says. On the server side, Wachovia's CIB division leveraged open source from JBoss (Raleigh, N.C.) and grid server and fabric server from DataSynapse (New York). It also used Tibco messaging, IBM (Armonk, N.Y.) data power and data caching technologies from Tangosol (Somerville, Mass.) on the data side. "We married those into hardened versions -- almost like solutions stacks -- so that the application developers don't have to think about how they combine them all," Bishop says.

Governance From the Top

But without the right governance, even the best SOA technology plans can go awry. "Left unmanaged, services can rapidly degenerate into a tangled mess," warns The Butler Group in a recent report, "Planning and Implementing SOA."

To manage business components and services along with infrastructure services and components, Wachovia's Bishop relates, the bank's CIB division created a portfolio management function, in terms of personnel and tools, to govern the project and track the usage of those elements. The first step was to create an open source community, which set specific rules in terms of what the CIB's business units could contribute or use, according to Bishop. The second step was to establish peer groups across the various applications to understand who built what, how it was being used, who reused what and how it was reused, he adds. The third part of the governance plan included mandates that each development team contribute and/or reuse various components of the SOA as part of their annual objectives. And finally, Bishop notes, the CIB division created a steering committee that prioritized projects.

Not only does technology need to cross silos, governance does, too, points out Unisys' Ott. He advises banks to create a cross-function steering committee around the governance of SOA. While enterprise architects manage SOA procedures, the steering committee should enforce the policies, Ott says.

One best practice is to maintain a center of excellence (COE) group, according to Tibco's Greene. The COE should comprise a cross section of the bank, including IT, business, operations and other areas that may be touched by the SOA project, he says.

Santa Clara, Calif.-based Sun Microsystems offers a solution specifically tailored for COE governance of SOA initiatives, according to Larry Scott, VP of financial services for the vendor. The COE becomes the reference point within the organization for the delivery of specific SOA components, and it also owns the governance going forward, he explains. Sun provides workshops and mentors to ensure a bank's COE is headed in the right direction, Scott notes. Other vendors that offer products and services to support SOA governance include Oracle (Redwood Shores, Calif.), Microsoft, Tibco, webMethods (Fairfax, Va.), IBM and SAP (Walldorf, Germany).

Banking on CIO Leadership

Bank of America delegated governance for SOA to the four CIOs within the organization, the bank's Conroy says. An architecture council, which Conroy chairs, made up of the CIOs controls new technology and new products. "We're very controlled on the products we let in -- we let in on a very specific business case," he relates, adding that new technology has to pass a litmus test: It has to drive a significant amount of revenue, reduce a significant amount of risk or clean up the environment. No new technology can be purchased throughout the bank if the council has not approved it, Conroy stresses.

While Conroy says he has a pretty tight grip on technology and product governance, he's still trying to "work out the kinks" when it comes to governance over services. Service-level agreements across CIO units are the next hurdle, Conroy says, especially figuring out how to price services and allocate costs. "The two things that make SOA hard to do in a big group are governance -- who can generate the requirements and decide what your billing is -- and who pays for it," he contends.

"The ugly little thing about SOA is that there's not very good metering," Conroy adds. In a big organization, figuring out who's really using what services at what service level is a challenge. "That's the fundamental driver of costs," he says, adding that this is something vendors don't discuss because it's "not their problem after the sell."

The charge-back model adds complexity, Unisys' Ott notes. "Pay-as-you-go makes it harder," he comments. When it comes to cost allocation, Ott recommends more of a federated approach, in which everyone puts in money and investment up front, even though some lines of business may not experience the benefits of their investments for years.

And inevitably, with new governance policies comes the need for new organizational models. An SOA implementation will bring about many changes in the financial institution, including new partnerships between business and IT, according to TowerGroup, which asserts that such partnerships are integral to overcoming the challenge of breaking down the walls between businesses in the bank.

Measuring the success of SOA after deployment can be less of a challenge -- especially if a bank has established clear goals ahead of time. Wachovia's CIB unit measures its SOA results with two indicators: time to market and the number of reusable parts, relates the bank's Bishop. So far, he says, it has experienced about a 40 percent cost avoidance over three years using SOA rather than a traditional technology architecture.

Bishop offers advice for banks just starting on their SOA journey. "You've got to focus," he says. "You've got to be committed. You need to do it in incremental building blocks. SOA needs to be business-aligned and needs to have a top-down map and a bottom-up approach." And bank executives need to know what they're getting into: "It's a full-time part-time job for even the highest-ranking executives," Bishop says. **