

BANKING ON SOA

Rolf Kubli, EDS Fellow and E.G. Nadhan, Distinguished Engineer discuss the finance industry and how enterprises can benefit from a service-oriented paradigm



Seamless service orientation can change the way your company makes use of technology to compete. A service-oriented architecture (SOA) enables components, applications, functions and systems to be published, consumed and combined dynamically over an intelligent network, enabling virtualisation.

Financial enterprises today are faced with basic questions regarding a service-oriented architecture:

- How does the paradigm of a service-oriented architecture apply to banking and its IT environment?
- Why are many financial institutions investing in Web services?
- How are they leveraging legacy applications within an SOA framework?

The service-oriented approach provides the modular framework to systematically integrate, evolve and manage solutions with varying characteristics.

A NEW APPROACH

Financial institutions market a combination of standardised and custom-built products. On one hand,

product development is characterised by a high innovation and imitation rate. On the other hand, it is driven by the need to cost-efficiently process high transaction volumes and benefits from economies of scale.

If core functionality of products is exposed as a logical service, custom products can be built out of these services to address market needs. In this case, the custom product-building involves a process of configuration and composition rather than development from scratch.

Although the financial industry is about non-tangible products such as financial instruments, the principles of decomposing the value chain into specialised processes known from manufacturing will also apply to a large extent.

Business challenges faced by IT departments within financial enterprises are centred on a variety of factors:

- Pressure to reduce operational costs
- Creating a flexible infrastructure that is responsive to change and results in minimal integration costs
- Operational risk management and changing regulatory requirements
- The evolution toward 'the real-

time enterprise' (customer interaction, accounting, reporting, risk management)

- Product life cycle management and time to market for new products
- The capability to combine and process products across lines of business and to distribute them over many evolving channels

With its agile enterprise platform, EDS delivers financial industry frameworks and the SOA-based agile application architecture and agile infrastructure, which provide the building blocks to create specific client road maps and business solutions.

CREATING INTEROPERABILITY

Service-oriented architectures are based on interoperability protocols between different software applications for core business functionality. This refers to a general computing model in which loosely coupled pieces of functionality, components, applications or even 'wrapped' legacy systems are provided in a way they can be published, consumed and combined dynamically over an intelligent network, enabling virtualisation. The Web services framework lends itself well to implementing an SOA.

Helpful to understanding and managing



SOAs is identifying different building-block types:

1. Standard interfaces (data standards, semantics and syntax)
2. Shareable services (decomposition into common components)
3. Integration layers (directories, service bus, brokerage, functionality to reintegrate the components)
4. Composite solutions and specific applications (application composition, unique functionality)

“ in the long run, the whole business application landscape will swim on top of a global utility computing infrastructure - the merger of computing power, storage and bandwidth into a ubiquitous grid of either company, industry, national or global reach ”

The finance industry shows clear signs of an emerging sustainable transformation, described as the industrialisation of the financial value chain.

EDS is a leading global technology services company delivering business solutions to its clients.

The company founded the information technology outsourcing industry 45 years ago and today delivers a broad portfolio of information technology and business process outsourcing services to clients in the manufacturing, financial services, healthcare, communications, energy, transportation, and consumer and retail industries and to governments around the world.

As the CIO's trusted adviser, EDS provides the best solutions for executives to maximise return on their IT investments. Its deep industry knowledge enables clients to address issues specific to their businesses and unmatched global infrastructure provides the capacity and capability to help ensure we serve our clients extraordinarily well.

The EDS portfolio is built around innovative offerings in application maintenance and development, business process outsourcing, and infrastructure, including desktop services, hosting, storage and networking. The company's services are delivered on the EDS Agile Enterprise Platform, using its next-

generation global delivery system and EDS Best Shore strategy to ensure high-quality, cost-competitive services are provided from the optimal mix of onshore, near-shore and offshore locations. This enables EDS clients to respond quickly to changing market dynamics and increase their competitiveness.

EDS manages more than 65,000 servers and supports more than three million desktops around the world, processing more than 200 million multi-channel customer contacts annually in 47 languages.

The company also provides HR services to more than 400 organisations in the United States, Canada, Europe, and Central and South America, and has 33 million employees and participants worldwide.

It has help-desk agents who respond to 25 million support calls annually and serve clients in 32 languages, processing more than one billion health claims annually.

EDS has contributed more than 72,500 volunteer hours in 2006 to support a variety of global community projects and is the title sponsor of the EDS Byron Nelson Championship, annually attracting golf's biggest and brightest stars and providing more US dollars to charity than any other PGA event.

In contrast to manufacturing, where value creation is distributed across many suppliers and partners, financial enterprises are much more vertically integrated. The value chain for the non-tangible, information-intensive products and services of a financial institution will also be decomposed into more specialised steps, because the production cost of financial services is dependent on the economics of the information processing capabilities.

gradually evolved with the addition of each channel, most institutions have at least as many interfaces to their core customer information systems as there are channels. Proliferation of interfaces resulted in inconsistent representation of the same information across channels, which compromises the quality of service to the customer, for example, if the account balance displayed on the ATM is not the same as what the customer saw online via the internet.

infrastructure will change, but will remain important

- Need for effective communication of the required cultural change for IT staff, project owners and business leaders, who must incur strategic costs to enable services the time to be built properly and pay dividends later.

In the long run, the whole business application landscape will swim on top of a global utility computing infrastructure

“ service orientation can serve as a seamless interaction mechanism between business and IT, leading to a continuous alignment of the business needs and technological solutions for the enterprise ”

Financial industry organisations that move toward web services and service-oriented environments will change the way they manage, design and implement IT solutions. They have to grow reusable components and manage a standards-based enterprise architecture discipline. The major benefit of this change will be in lowering the cost of business process change. Improved quality will come from standardisation directly implied within an SOA solution. The components will contain a major part of the bank's know-how and must continue evolving independent of the underlying IT platform.

Typical areas benefiting from a service-oriented architecture are:

- New front-end applications that integrate with existing back-end processes, such as a new corporate cash management service delivered via the internet
- Integration with new partners for information sharing and dynamic collaboration, facilitating entry into new markets by making it easier for the bank to extend its systems and services with those of a joint venture partner
- Risk management reporting to regulatory agencies by early adopters preparing to meet the requirements of the Basel II Capital Accord

The various financial industry sectors will evolve toward specific landscapes of services while incorporating the same fundamental principles of an SOA. The following two EDS client examples illustrate this concept.

Today's financial institutions support multiple customer touch-points through various channels, including human, voice, internet, mobile and PDAs. Because this environment has

Service-oriented implementation enforces consistency in the structure and content of the information retrieved from the back-end systems. Thus, a service-oriented approach lays the groundwork for a better overall customer experience and also provides for a single customer view across the enterprise.

BUILT FOR FLEXIBILITY

Typically one starts with defining business areas, assembling logical clusters of business functionality and transactions. Then programmes and data elements are assigned to the business areas. Finally, the links and relationships between the programs are analysed, and re-engineering needs are identified. At this point, the need to define new layers to access services will arise. Carefully balancing the given constraints (for example, performance, cost and complexity) against implementing the ideas of loose coupling and flexibility become the main challenge.

Web services and service-oriented architecture approaches have risks and embedded uncertainties. EDS has observed several challenges in the course of implementing service-oriented solutions for clients:

- New IT governance structures involving centralised and distributed authority
- Reliability, performance and scalability not yet fully tested for large-scale, mission-critical financial services transaction systems in a pure-play service architecture environment
- Service design issues, such as service identification, domain definition and granularity decisions (how much and what level of functionality belongs to a service?)
- Balancing accepted standards versus proprietary innovation
- Enterprise Application Integration

- the merger of computing power, storage and bandwidth into a ubiquitous grid of either company, industry, national or global reach.

Starting from resource-utilisation improvement goals, the IT industry will see an evolution from today's computational and data grids to an information grid to a knowledge grid and finally to a sophisticated business service grid. To the world, computing power will appear as a consumable resource, a utility. How does all this relate to SOA?

Still, the need for virtualisation of business functionality will be pushing applications toward service orientation, leading to an unprecedented alignment of all architecture levels based on common service design and management principles.

SOA is a natural fit. It matches IT to the business architecture in a new way. A business service is viewed as a collection of sub-services, tied together to deliver a particular end-to-end service. The underlying supporting IT then is easily aligned if the technology and software architecture follows a similar service architecture paradigm. Consequently, dialogue between the business executives and the CIO improve, as will the return on IT investments.

The benefits of service-oriented architectures are getting increased visibility within enterprises across multiple industries. Service orientation can serve as a seamless interaction mechanism between business and IT, leading to a continuous alignment of the business needs and technological solutions for the enterprise.

Mergers, acquisitions and all sorts of partnerships are common to the financial industry. Implementing a service-oriented paradigm makes it easier to integrate processes across financial institutions and creates more options. ■ www.eds.com