

# SOA IN THE TELCO SECTOR

In order to optimize costs and improve IT management, companies look with greater interest at business process management and optimization issues. The present reference model for the implementation and management of Business Processes is the SOA (Service Oriented Architecture) model, which is particularly useful to companies having a complex application portfolio, since it facilitates the interaction between different business realities allowing, at the same time, business activities to develop efficient processes and increase flexibility and adaptability.

The SOA model is able to meet the challenges that the IT faces daily in order to satisfy business requirements, by providing concrete and fast answers in order to obtain improved efficiency, flexibility and quality with less resources, a better alignment with the business, improved data consistency and quality and a rapid “time to deploy” of new applications. Within such a context, Sytel Reply is able to provide a complete offer, which is the result of its in-depth knowledge of products, technologies, standards and experiences acquired in the Telco sector.

## SOA REFERENCE MODEL

Service Oriented Architecture (SOA) is a software infrastructure allowing heterogeneous applications and IT systems to implement business processes, exchange data and perform transactions through the use of software (services) components having well defined features, oriented towards reuse and integration. Such services are exposed through standard modalities and may therefore be used by any user (service consumer) who interfaces with the service provider, according to the required modalities.

Within a SOA architecture it is possible to modify, in a simple way, the interaction modalities between services and the combination according to which they are used; additionally, it will be easy to add new services or modify processes to satisfy specific business requirements. Within such a scenario the business process will no longer be bound to a specific platform or application, but will be considered as a component of a wider process and could therefore be reused and modified.

The SOA model stems from the idea to create and expose the services offered by an organization in order to make them accessible in an automatic, uniform way, through standard and open protocols.

### METHODOLOGICAL APPROACH

When *defining and developing* SOA projects Sytel Reply offers customized solutions which adapt each time to the Client specific requirements, through the use of three different **strategic approaches**:

- **Top-Down**: this approach focuses on the analysis of business processes and then identifies services through successive refining stages. This approach is the most correct one when starting from scratch.
- **Meet-In-The-Middle**: this approach focuses on the analysis of the current situation (as-is applications) and then reaches the abstraction level required for process integration. This approach tries to integrate SOA with the applications that had been previously developed: this is the most frequent case, whereby the development work is performed on existing applications.
- **Bottom-Up**: this approach focuses on the analysis of component definitions in order to design services. Such an approach shows a lack of the abstraction level required to define services which are truly reusable and therefore is not advisable.

On top of these SOA standards, Sytel Reply offers the Project Management methodology for all aspects concerning the management of integration projects, focusing on the achievement of the business objectives.

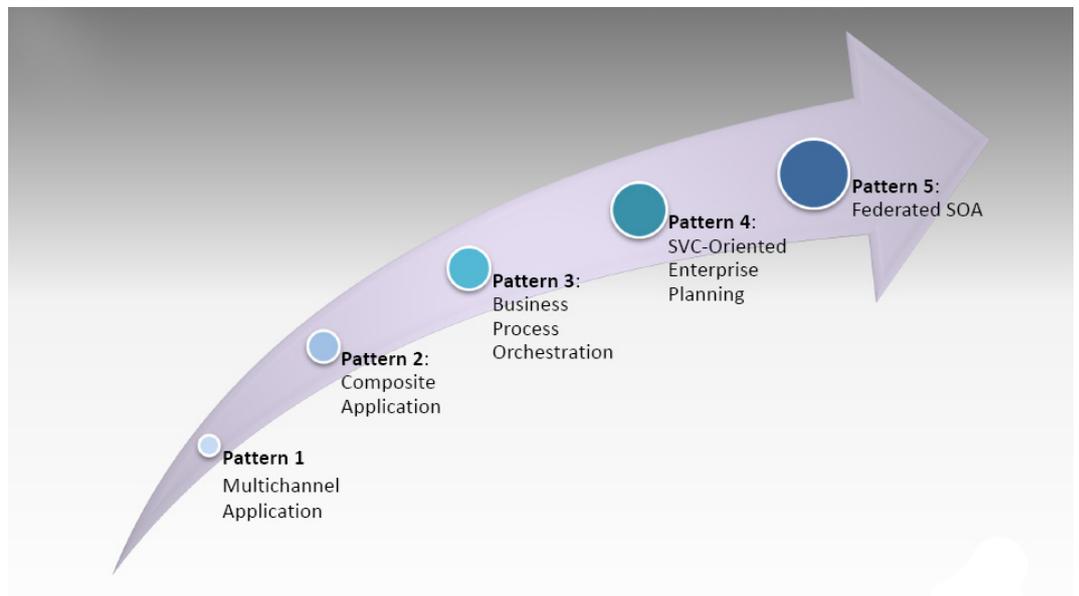
Through the SOA approach it is possible to:

- **Ensure alignment between IT and Business functions** thanks to the definition of infrastructural solutions able to dynamically adjust IT to the different Business requirements, by complying with the agreed SLAs.
- **Enable the on-demand IT service delivery** both towards the internal as well as towards the external market.
- **Reduce Time-to-Market for the development of new Business services** through the concept of resources reuse introduced by Utility Computing and by SOA.
- **Reduce the infrastructure Total Cost of Ownership (TCO)** thanks to the introduction of new tools enabling the standardization of communication processes
- **Reduce the number of systems** thanks to the possibility to consolidate more applications on one sole system, on the basis of the sharing concept introduced by integration
- **Offer high availability and scalability levels** by means of innovative technologies enabling the quick allocation of infrastructural resources, wherever necessary.

## SOA FRAMEWORK

Within the SOA project framework Sytel Reply uses a series of tools which allow to enable, simplify and manage, in an incremental and rational way, the development of multichannel telco applications towards the SOA model.

The roadmap aimed at the construction of such a model is made up of the following patterns:



These patterns are the starting point to develop a strategy when facing a concrete situation.

The framework to support such a strategy is made up by the following operation phases:

**SOA Assessment:** through the study of business processes the Client requirements are identified in detail; moreover, the SOA Maturity Model allows to assess the technological maturity level of the organization, in order to ensure the adequate adherence to the SOA.

**SOA Solution Planning:** identification of the SOA application scenario towards which the solution has to evolve and planning of implementation time and activities.

**Service Management:** the activities of service analysis, service design, build, testing, service deployment, workflow and applications are carried out, on the basis of what identified during the previous phases.

**Integration Management:** with the release of operating systems, middleware and applications it is possible to develop infrastructures which are efficient, reactive and correlated to the real needs of the Client.

**SOA Governance:** monitoring activity of SOA services including:

- Governance Process Definition
- Governance Process Execution

- Governance Process Monitoring

These elements ensure: structure solidity of the decisional process, management of the relationship between services and components and the compliance with regulations in force as well as with standards and procedures established by the companies. SOA Governance represents the key to the success of SOA initiatives, since it allows to constantly verify the reliability of services and the consistency with the activities and processes that the services must support, thus reducing both risks and costs.

## THE SYTEL REPLY OFFER

In order to satisfy market requirements, Sytel Reply offers solutions in which the SOA architecture is based on the following elements:

- **Open Standards:** in order to operate in multiplatform environments it is necessary to use open standards like XML, WSDL and WS-Security (WSS);
- **Modularity:** it is necessary to identify the correct balance between the services which may be used through common functions and the services which are dedicated to specific processes;
- **Service Contracts:** WSDL (Web Services Description Language) is the standard specification for the creation of Web Services contracts;
- **ESB (Enterprise Service Bus):** the application platform used to publish services and enable the applications to access them. Moreover, it provides adaptors for legacy systems, service orchestration to define business rules, authorization and authentication components (security), data transformation and capability to monitor service-level agreements (**SLAs**);
- **Registry/Repository:** to ensure interoperability and facilitate SOA Governance;
- **BPM:** the tool to interconnect application islands, enabling the implementation, management and orchestration of enterprise-level business processes;
- **Data Management:** Common Data Model management platform, on the basis of SOA and the services of data transformation and validation as ESB buried service; the main aim is the central management of the company's metadata based on standards (TMForum SID).

### SOA GOVERNANCE

At a time when competition and regulatory ties are intensifying on the telco service market, SOA initiatives and projects are reaching a level where governance is crucial for the management of services and their reuse during the whole lifecycle. After the initial phase of adjustment of the SOA model, companies are no longer focused on the development of services but rather on how to “manage” them in the most effective

and performing way: the “governance” process is essential for the SOA success and in order to generate real, measurable value for the Business (ROI).

From this viewpoint, Sytel Reply's SOA models are strongly oriented towards Governance, and are based on reusability, on reduction of the application portfolio complexity by eliminating redundant functions, on the securization of integrated applications used by a growing number of users, on ensuring compliance with Service Level Agreements (SLAs).

The solutions proposed, in compliance with the business objectives, provide:

- SOA Guidelines;
- Procedures and deliverables;
- Control, monitoring and business process management tools.

## THE TELCO EXPERIENCE

SOAnet is the business bus for the integration of applications of one of the leading Italian operators in the field of mobile, fixed and multimedia telephony.

The architecture follows the modern service oriented integration standards.

Besides providing the mechanisms for the integration of applications and business service exposure on the bus, SOAnet aims at providing added values such as visibility of interactions and processes, service replication mechanisms and failover policy implementation, geographical distribution of the infrastructure for a better integration of the different client offices, centralized administration domain.

The technologies used are based on Progress software: SonicMQ for JMS messaging, Sonic ESB for the implementation of the business bus, Actional for the visibility and tracking of interactions and processes, DataXtend for data transformation, Intermediary for protocol intermediation.

The platform delivers services on behalf of the client's application islands to support the process end-to-end chains relating to:

- Marketing
- Payment and Recharge Vouchers
- Fruition, delivery on the delivery channel
- Rating and Billing
- MVNO
- Banking

The platform was developed and uses the following technologies/products: *Progress*: SonicMQ 7.6, SonicESB 7.6, Actional 7.0, DataXtend 8.2, JMS with SSL, Soap Web Services, XML, HTTP/HTTPS, RMI

Through SOAnet, Sytel Reply has progressively introduced, within the client's information system, an integration framework for BSS applications, through the development of one sole ESB, a BPM platform, Data Transformation services and, to conclude, a support for E2E traceability. The following guidelines have been adopted:

- A plan for the gradual migration of the pre-existing connections towards the new platform, leveraging the main system/projects discontinuity (new CRM, new Billing, new Service Delivery, others)
- Reference Standards: JMS and Web Services
- High reliability and physical/logical redundancy of the Bus (support for Business Continuity)
- Process integration logics, built on BPM platforms
- SOA Governance mechanisms and policies, for E2E monitoring of business processes

In order to access services through shared data-structures, fully independent from the proprietary structures of the various applications, a data integration model based on SID standard (TMForum) was introduced.

A working group, working on the SOAnet project is in charge of:

- Monitoring the data centralized model, ensuring overall consistency
- Develop data integration services
- Centralize Data Transformation and Data Validation functions
- Perform data semantic reconciliation, in order to ensure the correct correspondence between the information that must be integrated and its meaning, regardless of its representation.



Sytel Reply is the company of the Reply group specialized in the Telecommunication market. The Sytel Reply mission is to support clients during their technology and application innovation processes by planning, developing and managing systems for the BSS and OSS areas of Telecommunication operators.

Sytel Reply, thanks to its in-depth competence and experience, boasts a team of professionals, at clients' disposal, able to work on each phase of a system development: design, requirement analysis, development and release of the systems that are being created.

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