Stratecast | A Division of FROST & SULLIVAN

Services Creation Best Practices

A Stratecast Whitepaper
Sponsored by IBM

Author: Becky Watson,
Program Manager Convergence
Strategies and Network Architectures

TABLE OF CONTENTS

LIST OF FIGURES

SERVICES CREATION BEST PRACTICES

EXECUTIVE SUMMARY

The telecommunications industry is focused on key strategic priorities related to services innovation. These services related priorities are to (1) bring new services to market quickly and respond to market needs at the right time to generate new and additional revenue, (2) attract new customers with these services and, (3) create brand loyalty to increase spending with existing customers and decrease customer churn. Communications Services Providers (CSPs) are striving to provide these innovative services to both a broad market as well as smaller segments within the broad market.

In April 2006, Stratecast's OSSCS program published a study titled, "Service Oriented Architecture Overview and Best Practices for Telecommunications." In this study Stratecast specifies some of the innovative services and strategic priorities of CSPs as well as providing insight into some of the IT related strategies surrounding these services. Specific CSP priorities mentioned in the study were:

- Enabling agility to bring services to market quickly to drive competitive differentiation,
- Providing new content and composite services such as wireline/wireless video handoffs,
- Customer focus for retention and new customer attraction and,
- Focus on data integrity and reduction of redundancies in systems and processes.

These strategies have led the industry towards a more standards based approach to services creation and innovation and towards, what is termed, "services oriented architecture" for services lifecycle management and OSS/BSS integration and enhancements.

In the Stratecast study mentioned above Stratecast points out that SOA (Service Oriented Architecture) is an "inevitable development for every vendor and service provider looking to compete effectively in today's rapidly changing telecom environment."

However, it should be noted that although SOA is an important piece of the services creation and innovation environment, there are other factors that enable a successful services creation environment. Other factors that are critical for success include deploying software and systems that are based on open-standards, have the ability to integrate multiple systems and processes, facilitate collaboration internally and externally and are able to change and future-proof the CSP against the ongoing technology evolution.

A successful services creation environment involves tools, people, processes, and the ability to bring these elements together in an environment that facilitates innovation. The people involved in the services creation ecosystem are diverse in job function as well as physical location in a majority of CSP organizations as well as outside the organization.

This whitepaper will focus on best practices for services creation as they relate to CSP strategic priorities, services innovation, back office integration and enhancements, and customer and services focused initiatives. These best practices are echoed by IT industry standards bodies such as the TeleManagement Forum (TMF) as well as being incorporated into ITIL and eTOM (IT Infrastructure Library and Enhanced Telecom Operations Map) standards and have been embraced and proven within the telecom, enterprise and large IT vendor communities.

SERVICES CREATION ENVIRONMENT

Stratecast has written many studies on IMS and IMS applications in its CSNA program and has specifically stated that although the IMS architectural model is the foundation for CSPs to move towards a converged environment it is only a piece of the puzzle that will enable CSPs to differentiate their services and remain competitive in today's telecommunications industry. More importantly is the ability to bring new services to market quickly, leverage existing assets, and to do so in a cost-effective manner. In order for CSPs to efficiently bring new services to market, a "services oriented" and "services" creation environment needs to be enabled by CSPs and their vendors. This environment is multi-faceted and should include:

1. Software tools that provide support for multiple technologies and standards (SIP, Java, C/C++, Web Services, J2EE, XML, SS7, IP, etc.).
2. Software tools that enable integration of existing CSP assets (OSS/BSS platforms, services and applications platform, etc.).
3. Software tools that foster collaboration (standards-based tools that can be used by multiple organizations and personnel within a CSP, including software engineers, product marketing managers, process and project management, etc.).
4. Software tools that provide the necessary framework to address CSP strategic initiatives, and provides for full software product lifecycle management including modeling, creation, testing, and deployment.

In Stratecast's most recent OSSCS report, "Product Lifecycle Management" (PLM), Stratecast addresses PLM as it relates to telecom. A key insight from the report is "Stratecast believes that the key to integrated product creation and delivery lies in the ability of CSPs to standardize on both a data format and integration approach that is implemented across all OSS/BSS solutions and data stores. The ability of CSPs to reuse service and feature component definitions, workflow, and systems across products will increase efficiency and reduce the risk of errors associated with using multiple definition and delivery mechanisms for each product." With this being said, getting to this point involves addressing key challenges within the CSP.

CSP challenges exist at multiple levels, from software, systems, and process perspectives as well as from a personnel perspective. These challenges need to be addressed in order to enable a successful services oriented environment. Some of these challenges include:

- Compatibility between and integration of new and existing software and systems.
- Cultural and language challenges between legacy and next-generation stakeholders.
- Increased complexity of business models, services and processes, as sources of innovation are expanded both internally and with external stakeholders.
- Specific IT related issues such as software release processes, software and process documentation, and service oriented software architectural model implementation processes.
- Consideration of costs involved in services creation and ongoing services management.
- Support of multiple and evolving technologies from both a network and back-office perspective.

Challenges and risks mitigation is an important aspect in a services creation environment, but tangible benefits can be derived from implementing a services creation environment as described above. It is important to note some of these benefits are consistent with Stratecast's PLM study:

- **Modeling** – For many years modeling has been used successfully in engineering to improve speed and quality. The application of modeling in the service creation environment, especially for complex networks and back office systems, leads to similar improvements. Today's fast, lightweight and easy to use modeling tools can help CSPs communicate better about service designs and architecture, and make it easier to manage the complexity of the network and back office environment.
- **Time-to-Market** – By improving collaboration and establishing consistent product life cycle and commonly understood architectural elements, interfaces and structures, CSPs can reduce the time required to define and deliver new products by reusing service and feature components.
- **Consistency** - By enabling a standards based environment CSPs can enable best practice IT governance processes that will also speed time to market, provide the framework to comply with current and future regulations and ease the migration process.
- **Collaboration** - CSP organizations are increasingly distributed and provide for outsourced and global operations. Because of this geographic and organizational distribution, workers need tools for service creation that allow them to easily

transition their work products from one role to the next. While a single tool may enable individual productivity, a platform of tools that allow this kind of distributed collaboration can be an important enabler for group productivity.

IT GOVERNANCE

The strategic focus being placed on achieving a balance between services innovation, time to market (which translates into speed of implementation) and the need to keep costs down and increase revenue adds additional complexity and requirements for IT governance. This is added to existing requirements for regulatory and financial compliance and the need to support a widely distributed workforce. Additionally, as new regulations come to bear and existing ones evolve the need for flexible IT governance solutions becomes more imperative.

IT governance at its basic level is a set of policies, processes, and procedures that support the work and projects for which IT groups are responsible. This includes software implementations, maintenance, and upgrades. Integrated within governance principles are software and services' specific tasks such as change management, problem management, availability management, and services-level management.

Two of the most widely accepted business process and interaction models for IT governance are ITIL and eTOM. These two models provide the basis for both enterprise and in the case of eTOM, telecom specific IT best practices.

The idea that adopting standards-based IT governance business models can reduce costs has been proven time and again. Proctor and Gamble reported that it has saved over $500M over a period of four years by adopting ITIL best practices.

A standards based environment enables the participants to conform to IT governance concepts in a manner that doesn't detract from the projects they are responsible for. This can be accomplished by utilizing common platforms and software across the organizational domains along with implementing processes and procedures that address the complexities and workforce distribution.

IT governance requirements become more important, complex and far reaching beyond OSS/BSS as CSPs begin to create and deploy next-generation services. The role of IT governance in the services creation and lifecycle management becomes more detailed and more complex not only from a process, people, and OSS/BSS perspective, but from the standpoint that governance requirements apply to the network elements and network architecture.

This becomes even more pertinent as networks become more software- versus hardware-centric. Efficient applications delivery is reliant upon reusing existing architectural elements such as voicemail platforms, SMS platforms, VoIP platforms, etc., as well as many other network elements. In this environment, the documentation of the network

elements, the related programming functionalities, tools and exposure requirements becomes increasingly detailed and harder to manage without standards-based software tools.

By enabling software tools that provide IT governance management across OSS/BSS, network elements and network architecture, a CSP can be assured that these new requirements and complexities are managed efficiently. This will ultimately contribute towards an efficient and effective services creation ecosystem.

COLLABORATION AND COMMUNICATIONS

In Stratecast's OSSCS study, "SOA Best Practices," one key insight is the fact that there is often a language and sometimes a cultural gap between stakeholders. This can be even more prevalent in a distributed workforce environment. One of the methods of bridging this gap is to provide commonalities of languages and basic terminology.

Implementing common, standards based platforms based in SOA and industry based IT frameworks such as that of ITIL and eTOM are key IT factors that can also bridge the communications gap.

In today's services creation environment not only are standards and best practices key elements for internal communications and collaboration but also for external communications. With the advent of standards-based network architecture (e.g., IMS) whereby services are separated from the underlying network, CSPs have more choices for vendors, partners, and software developers and can have more collaborative interaction with their customers. Increasingly CSPs have expressed the need for best of breed, multi-vendor solutions. In Stratecast's CSNA study, "Service Provider IMS Strategies," published in January 2007, the majority of the CSPs interviewed were poised to implement multi-vendor solutions as long as they were able to hold their key partner vendors responsible for the end-to-end solution.

The implication of a multi-vendor solution in the software environment is that the IT infrastructure must ease the communications gap between this diverse ecosystem of players.

Technologies and protocols (XML, HTTP, SIP, IP, etc.) go a long way in bridging the software language gap but the underlying platform, best practices, and IT governance concepts are the other half of the equation that can facilitate quality communication and collaboration.

Communications can be greatly enhanced by utilizing common or integrated software tools between diverse internal groups responsible for new services creation and lifecycle management such as product marketing and management, software development, IT management, and internal and external users. These tools can help, for example, with the definition, communication, and traceability of new service or application requirements and concepts, and can support functions such as change and configuration management, a critical governance factor in an environment that promotes re-use.

In today's telecommunications services creation environment customer interaction in regards to new products and services trials is starting to be utilized to obtain feedback on the services. This is accomplished by the proliferation of web-based services. Web portals are being utilized for customer interactions and feedback as well as communications between CSP internal organizations and external services creation partners. This expands the requirement for tools that can enable quality communications between diverse groups.

TECHNOLOGY AND ARCHITECTURAL INNOVATIONS AND SERVICES CREATION

The technology evolution in software languages, models, and architectures is as significant as it is in communications network architectures such as IMS, as well as in the related services and applications. Stratecast summarizes the software technology evolution as follows:

Figure 1: The Inevitability of SOA: Abstract/Proliferate/Standardize

1.	**1960s – 1980s:** Movement from assembler / machine language to languages like **machine neutral** Cobol / Fortran / Basic/ Cobol / PL1 / etc.: a. Meant that **programmers didn't have to start from scratch** learning to code every time they changed jobs. This translated into savings for software companies and their customers. b. Allowed coders to write **one piece of software that could be used on multiple machines,** reducing rework and improving productivity c. Created a **market** for off-the-shelf software components written in a **common language** that could be sold and resold.
2.	**1980s – 1990s:** Movement from many languages down to just two dominant ones (C++, Java, and descendants) provided the same benefits as above, only more so.
3.	**1990s:** Movement from many different approaches to object oriented modeling to **language neutral** UML: a. Meant that **programmers didn't have to start** from scratch learning to design every time they changed jobs. This translated into savings for software companies and their customers. b. Allowed designers to design **one piece of software** that could be used in multiple companies, reducing rework and improving productivity. c. Created a **market** for off-the-shelf software components written with common interface specifications that could be sold and resold.

4. **1990s – 2000s:** Movement from many different approaches to defining business level services to a single approach (SOA)

a. Meant that architects **didn't have to start from scratch** learning how to build systems that fit a services infrastructure every time they changed jobs. This translated into savings for software companies and their customers.

b. Allowed a company to deploy one **piece of software,** solving a specific business level service, in multiple settings, reducing rework, and improving productivity.

c. Created a **market** for off-the-shelf services that fit into a common infrastructure in a plug-and-play manner.

Note the common pattern in each of these developments. In each stage developers began with proprietary approaches (personal ways of designing assembler code…ways to diagram structured programs…ways to think of programs in terms of objects…interoperability standards) and then moved to industry standards that provided the benefits listed.

Source: Stratecast – "SOA Best Practices"

This is just one portion of the evolution. Alongside SOA is the CSP requirement to support existing technologies, infrastructures, and services (SS7, IN services such as Caller ID and ATM networks, etc.) as well as being able to future proof technology choices against future innovation (Web 2.0, services mashups, etc.). This is coupled with the need to provide high quality, reliable services. CSPs stated unanimously in the Stratecast study, "Service Provider IMS Strategies" the requirement for reliable and scalable services.

In today's services creation environment, CSPs can maximize the value of legacy services while moving towards a more flexible, standards-based environment by abstracting the functionality of those legacy services from the underlying network infrastructure.

Providing a standards based environment to allow outside ecosystems partners to develop next-generation services converged services. Abstraction from an SOA perspective is defined as the ability to expose assets to a wide audience in a secure manner, for example, with Telecom Web Services or other defined APIs. This enables reuse of those assets in services creation and protects the CSPs' network assets at the same time. By following a SOA based services creation model outside developers, who may not be familiar with telecom, can develop services and applications that use telecom capabilities. The ability to abstract, combine, and choreograph interaction between technologies, protocols services in a secure environment is a key factor in enabling services creation and innovation.

KEY ELEMENTS OF SUCCESSFUL SERVICES CREATION

In summary there are key elements that enable a successful services creation environment that evolve around software tools, standards, and best practices and processes. These elements are described below:

- Common, standards-based software tools that can be used by multiple internal CSP organizations and external partners, developers, and users.
- Standards-based IT governance practices based on ITIL and eTOM.
- The ability to support multiple technologies, standards, and protocols in the legacy and next-generation environment.
- Adherence to SOA principles and architectures.
- Establishment of an architectural governance solution, helping visualize the relationship of software and system components to each other, document components for reuse, and control the reuse and modification of architectural components.
- Providing tools that enable collaboration between diverse groups in a distributed workforce environment.
- Interoperability and support of a multi-vendor solution.
- Working with tools and vendors that are capable of supporting a changing technological environment.

CONCLUSIONS

The services creation environment is a multi-pronged environment that should address key CSP initiatives of generating revenue and keeping costs under control while adhering to proven, standards based software tools and processes and controls and addressing market, financial and regulatory pressures.

Scrutiny and adherence to regulatory requirements in a multi-faceted IT environment is challenging on its own, but adding the strategic requirement of providing multiple and frequent services at reduced time-to-market and reduced costs only adds to the complexity of the strategic initiatives.

Deploying standards-based IT architectural models based on multiple technologies and protocols can help a CSP meet these challenges and mitigate risks associated with new technology and services. One example of this concept is by providing a standards-based model and common platforms, the CSP can enable a wide ecosystem of players for services creation. This ecosystem can include business managers, software developers, IT managers, end users, vendors, and partners. Communication between these diverse players can be more robust, of higher quality, and quicker for feedback by enabling common solutions and software. This environment enables input from all parties so that the services can comply with internal and external needs and requirements.

Software-driven companies across a wide range of industries have used similar services lifecycle management tools internally for many years and have proven that utilization of these types of tools is very beneficial. These software tools have enabled such companies to successfully deploy new innovations and solutions into an ever-changing marketplace. Not unlike other software-driven companies, CSPs are striving to bring profitable, innovative, diverse services to a diverse market and provide services to a diverse population. This is a relatively new environment for CSPs as they have previously relied on proprietary, vendor-enabled applications versus enabling an internal application development ecosystem. Additionally, the services themselves have been deployed in a ubiquitous manner versus serving specific market segments. CSPs can benefit from the experience of other software-driven companies by taking into account software delivery best practices that have been learned over the years. Adopting well-proven services creations practices and utilizing similar software tools that other software-driven companies have used internally are key ingredients for success in this new arena.

Becky Watson
Program Manager – Convergence Strategies and Network Architecture
Stratecast (a Division of Frost & Sullivan)
bwatson@stratecast.com

CONTACT US

Palo Alto
2400 Geng Road, Suite 201
Palo Alto, CA 94303
Tel 650.475.4500
Fax 650.475.1570

San Antonio
7550 West Interstate 10, Suite 400,
San Antonio, Texas 78229-5616
Tel 210.348.1000
Fax 210.348.1003

London
4, Grosvenor Gardens,
London SWIW ODH,UK
Tel 44(0)20 7730 3438
Fax 44(0)20 7730 3343

877.GoFrost
myfrost@frost.com
http://www.frost.com

Bangalore
Bangkok
Beijing
Buenos Aires
Cape Town
Chennai
Delhi
Dubai
Frankfurt
Kuala Lumpur
London
Mexico City
Mumbai
New York
Oxford
Palo Alto
Paris
San Antonio
Sao Paulo
Seoul
Shanghai
Singapore
Sydney
Tokyo
Toronto

ABOUT STRATECAST

Stratecast directly assists clients in achieving their objectives by providing critical, objective and accurate strategic insight, in a variety of forms, via an access-and-industry-expertise-based strategic intelligence solution. Stratecast provides communications industry insight superior to a management consultancy, yet priced like a market research firm. Stratecast's product line includes: Monthly Analysis Services [Convergence Strategies & Network Architectures (CSNA), OSS Competitive Strategies (OSSCS), Network Professional Services Strategies (NPSS), Consumer Market Strategies (CMS), and Business Market Strategies (BMS)]. Weekly Analysis Service [Stratecast Perspectives and Insight for Executives (SPIE)], Standalone Research, and Business Strategy Consulting.

ABOUT FROST & SULLIVAN

Frost & Sullivan, a global growth consulting company founded in 1961, partners with clients to create value through innovative growth strategies. The foundation of this partnership approach is our Growth Partnership Services platform, whereby we provide industry research, marketing strategies, consulting and training to our clients to help grow their business. A key benefit that Frost & Sullivan brings to its clients is a global perspective on a broad range of industries, markets, technologies, econometrics, and demographics. With a client list that includes Global 1000 companies, emerging companies, as well as the investment community, Frost & Sullivan has evolved into one of the premier growth consulting companies in the world.