IBM

Service creation: Meeting the product lifecycle challenge

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Contents

New opportunities, new challenges

The telecommunications industry is in a state of continuing flux and increasing competition. The advent of Voice over IP (VOIP) and other technologies such as Internet Protocol Television (IPTV) is disrupting the traditional discrete structure of the industry and allowing new competitors to enter the market. This traditional structure, in which there are separate, parallel networks for different types of services provided by different companies (e.g., voice communications provided by telecoms, video provided by cable companies and so on), is losing its relevancy as IP-based technology advances. To meet the competitive challenge, service providers – both existing companies and new competitors – are seeking new and better ways to differentiate themselves to gain share in the rapidly expanding market for advanced products and services.

Growth of the subscriber base has slowed in recent years, due to a high degree of market saturation. At the same time, there has been a dramatic increase in the use of data services, the convergence of data, voice and video services, and the use of new, highly capable mobile communications devices. Consequently, providers are focusing on raising average revenue per user by introducing new composite services as well as reducing costs. In addition, brand development is becoming increasingly important to maintaining customer loyalty and reducing churn. Telecom and cable executives consider the creation of new, high-value services as their primary source of revenue growth over the next three years. According to a survey conducted by the IBM/Economist Intelligence Unit, when asked which areas offer the greatest opportunities for revenue growth over the medium term, 92 percent of global telecom executives rated new products and services as either "extremely significant" or "significant" – a figure far exceeding other sources of growth.[1]

Highlights

The marketplace no longer permits the luxury of 12- to 18-month product lifecycles; today, the cycle time is measured in weeks.

Telecom service providers (TSPs) have found it necessary to invest heavily in IP technologies to implement next-generation networks (NGNs), aiming to position themselves to provide new services and respond to stronger demands for innovation. Service providers need to offer new, differentiated services to remain competitive. The need for a robust Service Delivery Platform (SDP) is a critical enabler that allows service providers the ability to deliver thousands of disparate services over their IP networks. This allows for the rapid introduction of acquired or created services in an efficient manner. Having an integrated SDP in place will provide a powerful path towards the emerging IP Multi Media Services (IMS) architecture. The market for products that support the IMS infrastructure (the deployment environment for fully converged voice, data and multimedia services within the core IP network) – currently less than US$600 million – is expected to exceed US$2.6 billion by 2008. This reflects an annual growth rate of 67 percent over the next three years.[2] The heavy investments in implementing NGNs are targeted at improving medium-term revenue growth and gaining market share for the future, rather than boosting net profits in the near term: the cost of the new technology will not be fully absorbed by the industry for some time. Established operators are engaged in a new struggle for survival; under extreme pressure to prevent loss of market share to recent entrants, they are being forced to find innovative new ways to generate revenue and to differentiate their offerings. This is a key driver of the investment in NGN technology.

Technology is only part of the equation. The speed of the market has accelerated dramatically, and is an important constraint. The marketplace no longer permits the luxury of 12- to 18-month product lifecycles; today, the cycle time is measured in weeks. In this emerging market, providing a wide range of enriched user services and being able to quickly retire products from the marketplace are key drivers for success. Users expect not only the same kind of flexibility and variety they experience on the Web, they also expect a focus on personalization. TSPs must therefore develop, deploy and integrate an ever-changing array of services that enrich the user experience.

Blurring the lines between IT and telecommunications

As yet, there is no one "killer app" to leverage the capabilities of NGNs. Instead telecom providers are focusing on aggregating generic service capabilities to create high-value combinational services that enrich the user experience. A typical combinational service might be a B2B sales-force automation solution that combines voice conferencing, messaging, secure interactive data access and a location-based service. Such a combinational service is made up of generic service building blocks that may be sourced by the TSP itself and/or combined from the offerings of several partners and can be bundled to form targeted full-service offerings.

As a result, more and more TSPs are transforming their service creation approaches and developing their own services while becoming more reliant on third parties. The challenge, then, is to develop architectures that support rapid, low-cost, user-centered service development and deployment with reduced transport and control costs.

NGNs represent the convergence of voice, video and data networks into a single broadband "pipe" that is much less expensive to implement than traditional parallel, single-purpose networks. An IP-based network's ability to carry any kind of content has blurred the distinction between telecom providers and companies providing other kinds of content – fundamentally changing the nature of, and the competition present in, the telecom industry. Increasingly, cable companies are offering telecom services, telecoms are getting into the TV business, "wired" telecoms are getting into wireless, and everyone is providing Internet access. Even non-traditional TSPs – such as eBay and Google – are coming on board. Information Technology (IT) is becoming Information and Communications Technology (ICT) as different kinds of networks converge.

Services provided by telecom companies are no longer dependent on proprietary network technology as they once were. Previously, TSPs relied on network equipment suppliers to develop specialized hardware and proprietary services, and were generally tied to a single network partner. Telecom services today, by contrast, are software-centric and application-driven. They are working with multiple suppliers and in many cases are seeking to reduce costs by using commercial off-the-shelf (COTS) hardware and software tools. The NGN model favors open standards (e.g., Java,™ Linux®) and borrows recognized practices from the IT world in terms of development and deployment. This shift away from proprietary technology has not only made the creation and delivery of new services far less costly and far more flexible, it has also enabled the short cycle times demanded by the current competitive marketplace.

Service development challenges
The shift toward development has created a number of challenges for these companies. The issues are partly technical. In an application-centric technology infrastructure, product quality can become a risk. At the same time, development of a high-quality, robust application is far from being the only challenge. From a business standpoint, getting competitive products to market quickly and at a lower cost is a critical issue. Also important are managing changes to the software and resolving issues surrounding deployment and support of the application. Thus, engaging in full product lifecycle management is essential to the successful introduction of new services.

This requires an overall lifecycle approach that aligns development, line-of-business and network teams so that all can work together more efficiently and more effectively. The entire product cycle, end-to-end, must be addressed – not just the development phase. For each new offering, this involves defining requirements that then drive its creation, whether it's a simple service component or a fully fledged combinational service; the development, testing and integration of the software itself; management of changes during development and deployment; management of ongoing changes; and, finally, optimization based on experience in the marketplace. All of this is done with geographically distributed teams that are part of the TSP and/or with third-party partners.

IBM enables a business-driven service creation lifecycle
(i.e., comprehensive PLM for application-driven NGN products/services)
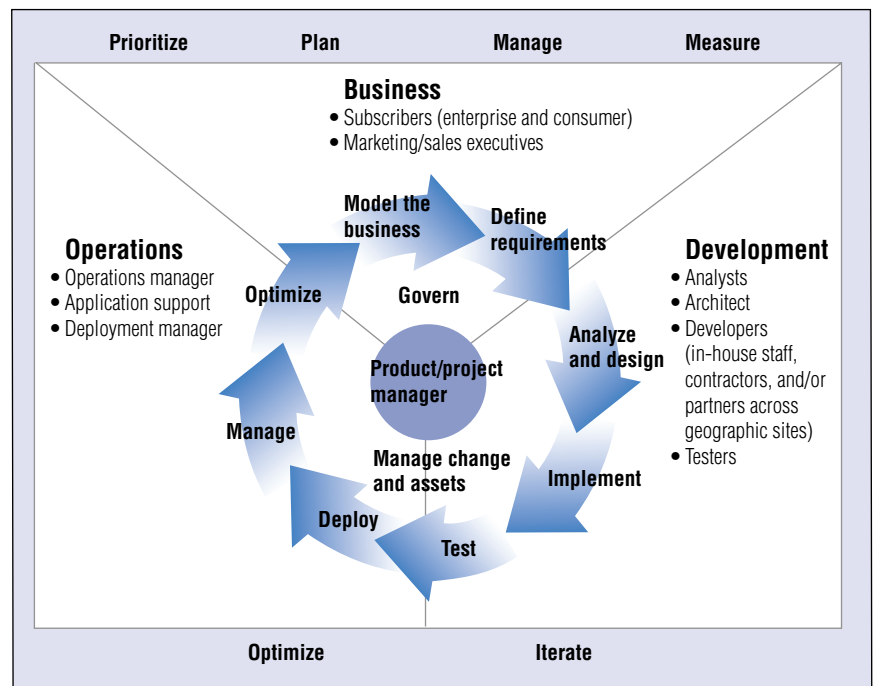
A critical business requirement is to bring all stakeholders together as a team, and equip them with tools that support proper management of the product lifecycle.

Lifecycle management may be entered from any of several points, and the details of the process may vary considerably depending on the nature of the offering and the various stakeholders who are involved. For example, a newly developed basic service would have a management process different from that of a combinational service that makes extensive use of existing service components drawn from several parties.

The short cycle time of today's services puts a premium on responsiveness and speed to market. Using proprietary software and hardware that must be developed and validated can slow down the process and drive up costs. To maximize competitiveness, the entire process must be streamlined and simplified, which means the systematic reuse of models, processes and code across the lifecycle, and the need to base development and hosting on open industry standards and platforms. Business agility can also be maximized by turning to internal development and management resources and a network of suppliers geared to develop and deliver these services, rather than a single proprietary solution.

The move from proprietary, device-specific services to application-driven services has created a need for a robust development environment to create, deliver and manage these new offerings. The IBM Rational Unified Service Creation Environment (USCE) addresses this requirement by providing a business-driven service creation solution.

The USCE is specially configured to assist in service creation – making it a strong foundation for TSP development, deployment and management activities.

The IBM Rational Unified Service Creation Environment

The IBM Rational Unified Service Creation Environment (USCE) is based on the IBM Rational® Software Development Platform, a collection of development, testing and process-enablement tools that are based on the open-source Eclipse development platform. The USCE is specially configured to assist in service creation – making it a strong foundation for TSP development, deployment and management activities.

USCE enables:

Rapid deployment of new services – The IBM Rational Unified Process® helps reduce cycle times by increasing collaboration between stakeholders through automation and process management tools.

Differentiation of service offerings – The rapid deployment of new services enables telecoms to aggressively pursue new opportunities by creating unique, high-value, highly differentiated combinational services. The USCE facilitates this by streamlining the service creation and lifecycle management process, helping the organization to develop differentiated services more quickly – thereby providing a competitive edge.

Development of highly reusable building blocks – The USCE leverages the Reusable Asset Specification and Model Driven Architecture, which allow developers to leverage existing service code, processes and models when creating new combinational services.
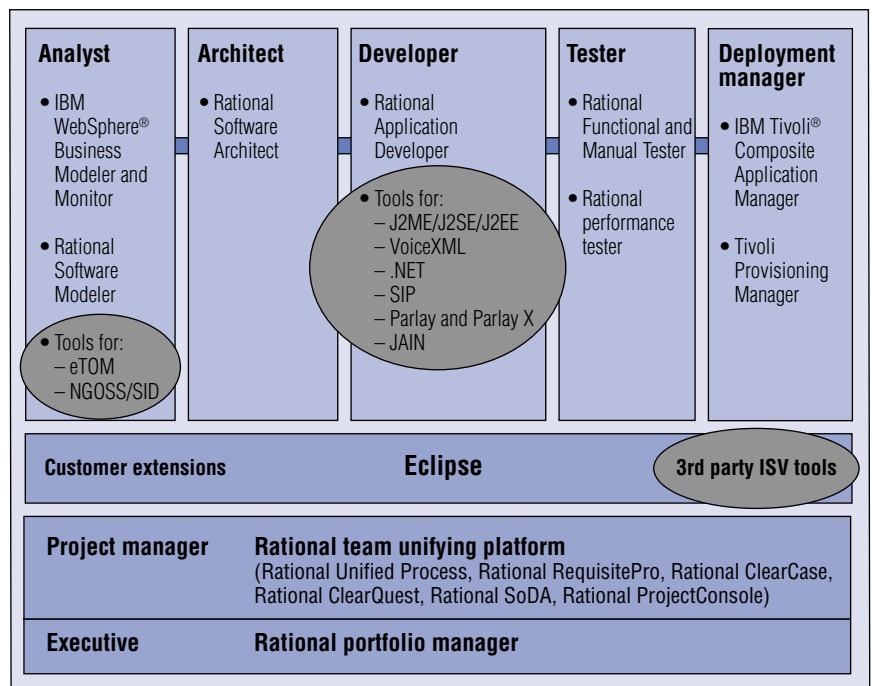
Future proofing based on open standards and platforms – By eliminating dependence on proprietary network standards and technology, USCE enables telecoms to reduce the cost of development and deployment, and enables telecoms to benefit from a wide variety of development and deployment environments.

Simplifies the process of developing new services—With its IBM Rational Software Development Platform foundation, the USCE provides a well-defined, proven lifecycle management environment.

A focus on building and enriching the user experience—Full lifecycle management tools make it easier to produce high-quality service products that meet rapidly changing user demands.

The USCE is designed to support the IBM Rational Unified Process (RUP), a full lifecycle-management process that has been proven in thousands of customer engagements. IBM uses an instance of RUP internally for its own development initiatives. The purpose of the RUP is to enable a team approach to product lifecycle management, with the goal of accelerating time-to-market, lowering costs and improving quality.

The IBM Rational Unified Service Creation Environment

Analyst	Architect	Developer	Tester	Deployment manager
• IBM WebSphere® Business Modeler and Monitor	• Rational Software Architect	• Rational Application Developer	• Rational Functional and Manual Tester	• IBM Tivoli® Composite Application Manager
• Rational Software Modeler		• Tools for: – J2ME/J2SE/J2EE – VoiceXML – .NET – SIP – Parlay and Parlay X – JAIN	• Rational performance tester	• Tivoli Provisioning Manager
• Tools for: – eTOM – NGOSS/SID				

Customer extensions	Eclipse	3rd party ISV tools

Project manager	Rational team unifying platform (Rational Unified Process, Rational RequisitePro, Rational ClearCase, Rational ClearQuest, Rational SoDA, Rational ProjectConsole)
Executive	Rational portfolio manager

The USCE's lifecycle management tools can help companies avoid common service development and management pitfalls, such as missed time-to-market targets, feature and/or functional shortcomings, excessive initial development costs, unwarranted post-development costs and poor reliability. A valuable benefit of the environment's lifecycle management tools is the ability to unify the entire team across roles, geographies and companies.

The IBM USCE is truly open, and not dependent upon any specific deployment architecture, programming platform or API. For example, while the USCE fully supports IMS (the leading deployment environment for wireless services), it is not tied to that environment. A number of alternate development and execution environments (e.g., JAIN SLEE, J2EE, Parlay) are currently available. Using commercial, mainstream programming languages, software and tools allows TSPs to provide services faster and in a cost-controlled fashion. With the Eclipse-based USCE, IBM provides a rich set of tools that enable end-to-end service lifecycle development for combinational services, no matter which execution environment they run in. These tools include service modeling, reuse and development wizards, and packaging that integrate with IBM Business Partner technologies.

The USCE enables asset-based service creation that leverages resources such as reusable software components, application models and shared information, including existing data, code, patterns, frameworks, templates, testing protocols, development techniques and best practices. This improves quality by building new applications using proven, successful assets and expertise, and reduces development time compared to more traditional iterative or conventional project profiles.

In the context of service creation, systematic reuse of assets across the product lifecycle has the effect of dramatically reducing the time needed for the development and deployment of new services. Proven, effective generic service building blocks can be reused in a variety of new ways to create value-added combinational services that meet changing market demands.

The combination of improved lifecycle management and asset-based service creation capabilities can result in faster development cycles, the reduction of software bugs and lower development costs. More important, it improves governance. Projects are kept on track, on time and on budget, with improved progress visibility, requirements traceability, schedule predictability and management metrics.

Summary

The market environment faced by TSPs has changed radically in the past few years, shifting away from penetration as a driver of growth and toward differentiation based on new, high-value combinational service offerings. This shift has increased the importance of optimizing the service creation business for TSPs. In addition, the speed of the market has reduced product lifecyles dramatically, from 12 to 18 months down to only five to six weeks.

These factors have placed great pressure on telecoms to deliver high quality services very rapidly. The IBM Rational Unified Service Creation Environment enables this by leveraging the proven IBM Rational development platform and embracing open standards. The USCE helps shorten development and deployment time, reduce costs and improve the quality of services, thereby improving the competitiveness of telecoms in the new marketplace.

Find out more

For more information about how IBM can help you leverage the Unified Service Creation Environment to assist with service creation, contact your IBM representative, or go to:

ibm.com/software/rational

ibm.com/industries/telecom

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[1] IBM/Economist Intelligence Unit, Global Tele-
coms Executive Online Survey, October 2004.

[2] Venture Development Corp., August 16, 2005.