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An Introduction to OSA/Parlay

a white paper from Rococo Software

The Changing Telecommunications Industry

The telecommunications industry has experienced a turbulent time in recent years. Emerging from the "bubble" of late 2002, many industry players were saddled with debt and faced an uncertain period of consolidation, reduced enterprise value, intense competition and a fickle and unpredictable customer base.

Since 2002, the traditional core business for operators has been changing. Mobile (or wireless) voice is gradually eating into the fixed voice business. Data access and data services are set to be the new growth area once mobile voice penetration levels hit their peak in each geography. The key strategy for growth is no longer about adding subscribers. Telecom operators must offer new, value-added services to drive revenues and retain loyalty with subscribers. Deregulation is introducing new players and new types of players, like the MVNO, and is removing the barriers to subscribers switching between networks.

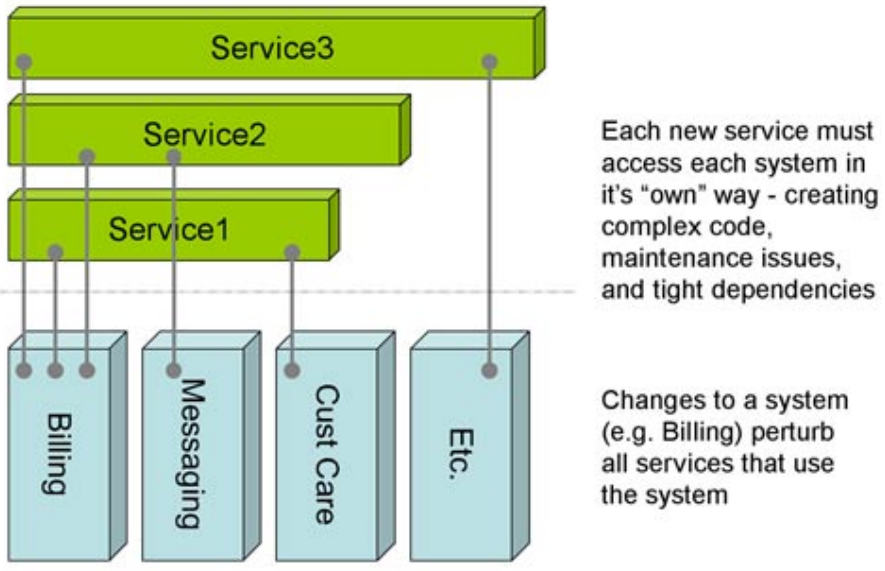
In this new telecommunications landscape, operators are under pressure to find ways to imagine, create, build and deploy new services on their networks in the shortest possible time.

Current Problems Deploying Telecom Services

For most operators, the rapid creation and deployment of services is a significant problem. A number of issues exist:

- Most of the infrastructure an operator uses has been created at different times as the business evolved, with different ways and means to access the systems. This creates standalone "stovepipe" applications in the organization. For example, developers may access the billing system in a different way for different applications. In fact, the billing system may be completely different for various applications.
- The internal systems typically have a mixed pedigree: skilled internal teams developed some systems in-house, some were bought "off the shelf" and customized, and some were created as bespoke projects using an outsourced supplier. As a result, there is no standard toolset, architecture or hardware platform for the different systems. This places a heavy burden on both maintenance of existing services and the development of new services.
- Generally, there is a very tight coupling between the services on the network and the network infrastructure itself. This makes it difficult to change one without the other.

The easiest way to visualize the problem is to think about what most operators have to do to create a new service today.



All this adds up to significant cost and impedes strategic objectives when it comes to new service development and deployment:

- Telecom operators must work with a wide variety of systems, each with its own unique access methods and behaviours. This makes it difficult to build a new service in a standardized and repeatable way, and can often make the potential introduction of a new service prohibitive from a cost and risk perspective.
- Where mergers and acquisitions have occurred (of which there have been plenty in the telecoms world), the result is often a multi-vendor network, with no standard method available to create new services. The problems above are multiplied by having several systems' problems combined into one new organizational entity.
- Difficulties exist in creating services that are neutral to the underlying network, for example, deploying the same service on a fixed or mobile network.

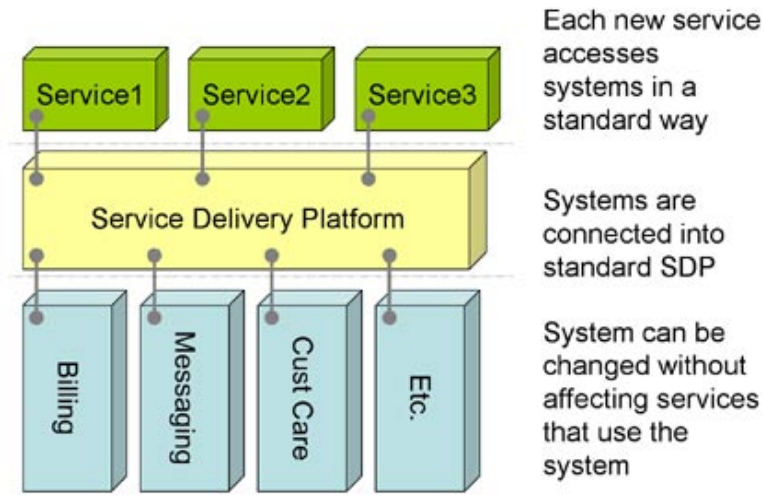
Operators are looking for ways they can preserve their existing investment in platforms and networks, while at the same time addressing bottlenecks around service creation.

SDP to the Rescue

The introduction of a Service Delivery Platform (SDP) is critical for operators looking to address the issues highlighted above as they prepare for the rise in data services as voice revenues decline. Mobile operators are seen to be leading the way as they experience rapid evolution of their early data services and struggle to keep up with the fast product development cycle, which is becoming the norm for data services. The acquisition and deployment of a suitable SDP is seen as key enabling technology. An SDP can allow operators to rapidly introduce new services without incurring huge up-front cost each time.

- An SDP is designed to enable rapid service creation and deployment. Service Delivery Platforms introduce one standardized way of creating and deploying new services so that standard toolsets, processes and access methods may be used when developing any new service. If this can be achieved, significant efficiencies are gained by the organization as a whole.
- New services can be created in a greatly reduced timeframe because a standard agreed mechanism for accessing the underlying network can be used. This means common skill sets, toolsets and processes can be brought to bear on new developments. As projects are completed and deployed, new projects become lower risk and more predictable.

Development teams (both inside and outside the organization) can work to a common, agreed upon set of interfaces to the core systems that underpin a new service.



Typically, an SDP does not require swapping out the current systems for new ones. Instead, the current systems are adapted so that they support a common set of agreed upon interfaces that embody the SDP.

Today, many mobile operators have begun to implement an SDP. The core concept in all cases is the same: standardize the infrastructure so that new service deployments can re-use a common approach, architecture and development style.

'Open Systems' for the Telecommunications World

The concept of implementing a common platform for service creation is a familiar to anyone who experienced the evolution of IT systems between the late 1980's and mid 1990's. After a period of time when solutions from the IT industry had been characterized by the deployment of large, homogeneous systems from relatively few vendors, the industry as a whole began to adopt a new approach based on "open system" principles. Originally, the phrase "open systems" referred to the fact that hardware from different vendors could be linked together in a network. Over time, the principles evolved to mean that both software and hardware components should be "open" and interoperable. It should be possible to create systems using software and hardware components built by different vendors, solution providers and even end customers. These components should work together in some standard fashion.

It may be hard to remember, but this evolution was considered revolutionary at the time. It introduced a new era of innovation in the IT industry and facilitated a fundamental shift that allowed new players to focus on different parts of the IT value chain.

The current trend in the telecommunication industry is very much the same. Traditionally closed, in-house systems are being opened up to facilitate rapid creation of new services and interoperability between systems and suppliers. The potential impact of this change will be similarly profound in terms of its affect on the telecommunications value chain. With a standardized platform in place, telecommunications networks can now be open to innovation from any developer that can understand and use the platform.

OSA/Parlay – The Key Standard Underpinning Service Delivery Platforms

OSA/Parlay is the common term used to refer to an industry-standard that underpins many SDPs now in development. The OSA/Parlay standard defines an application programming interface (API) that aids the rapid creation of telecommunications services by enabling IT application developers to create telecom services. The OSA[1]/Parlay APIs are defined by the Parlay Group (http://www.parlay.org), a not-for-profit consortium with representation from both the telecommunications and IT industries. There are now over 70 companies in the Parlay Group.

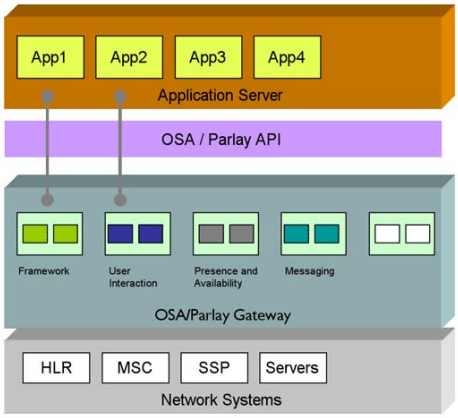
The OSA/Parlay APIs are technology independent: they were designed to work with mobile, fixed and next-generation networks. Borrowing a key trend from the IT world, the APIs are neutral to programming language, and work equally well with C, C++ or Java. OSA/Parlay builds on key open standards such as CORBA, UML, and Web Services (SOAP, XML, WSDL). The OSA/Parlay standard has been through a number of revisions since inception. The latest at the time of writing is version 4.0. By re-using open standards from the IT world, OSA/Parlay aims to expand the potential developer base for new telecommunications services to millions of "traditional" IT developers worldwide. The potential impact of this approach can be judged when you consider that there are only approximately 10,000 telecommunication development specialists worldwide[2].

Footnotes

[1] OSA or Open Services Architecture refers to the architecture for mobile services developed by the 3rd Generation Partnership Program or 3GPP (http://www.3gpp.org). Parlay is the API portion of OSA.
[2] Source: Parlay/OSA - a New Way to Create Wireless Services, Zygmunt Lozinski, Senior Technical Staff Member, IBM and President, The Parlay Group

OSA/Parlay Architecture

OSA/Parlay defines a comprehensive set of APIs for applications to access the services of the telecommunications network. The high-level architectural view for using these APIs is described in the diagram below.



The Parlay APIs – What Do They Offer?

The OSA/Parlay APIs are grouped into a set of related functional areas. The current specification details 14 main areas:

Call Control	These APIs enable applications to set-up calls in the network, and include basic call control and multi-party call control functionality, among others.
User Interaction	These APIs define how applications obtain information from the end-user, play announcements, send short messages, etc.
Mobility	Mobility APIs enable applications to find the location of a terminal (handset) and enable applications to request notifications when terminals change location.
Availability management and presence	These enable applications to obtain and set information about a user's presence and availability. For example, users may set specific presence information "I am at home", "I am at my desk" – similar to settings used in instant messaging applications.
Policy management	This API allows one to set-up policies and register for policy related events.
Terminal	This API enables an application to determine the capabilities of an end-user terminal (handset).
Messaging	The API in this part allows access to mailboxes and to send and retrieve messages and controls how applications interact with messaging systems, such as voice, FAX or email.
Content based Charging	Controls how applications request payment for services ("content-based charging").
General	Contains the introduction, methodology and design paradigms used.
Common Data Definitions	The generic datatypes used throughout the Parlay specifications.
Framework	Describes how applications authenticate themselves to the network, how applications discover what facilities are available from the network, and fault and load management.
Data Session Control	How applications manage data sessions initiated from terminals. Typically used for GPRS (and other 2.5G) applications.
Account Management	Enables applications to retrieve account information and transaction histories.
Connectivity Management	This API allows applications to control or influence the Quality of Service between end points in the network.

These APIs expose much of the core functionality of the underlying telecommunications network to an application developer, enabling the creation of new applications that use a standardized set of APIs. From a developer perspective, this leaves one free to innovate in terms of application functionality, and means the developer can create a potentially portable and re-usable application that can work across a number of different networks and customers.

OSA/PARLAY Market Status

The OSA/Parlay standard has experienced a number of revisions over the last few years. As the standard matured, products began to appear that supported OSA/Parlay APIs. One way to judge the progress of the market is to track product availability. At a recent Parlay meeting in Rome (November 2003), the following trend[1] was reported in terms of new product introduction over the prior meetings:

Products	Parlay Meeting	Percent Increase
38+	8th July 2002, Montreal	
55+	29th October 2002, Dublin	45%
113+	30th January 2003, Bangkok	105%
153	23rd May 2003, San Diego II	33%
183	06th Nov 2003, Rome	20%

Of the 183 products, also of interest was the current split in the types of products available:

Applications	61	These include the enterprise applications now available for operators to purchase. Samples include Scheduled Conference Call, Internet Call Waiting, Hunt Groups, etc.
Platforms	55	These include OSA/Parlay Gateways, Application Server Platforms and hosted Application Sever Platforms.
Value-Add	67	Developer Platforms and Tools, Courses, Simulation Environments.
Total	183	

What about actual deployments? The following trend was presented in terms of deployments of the technology:

Public Parlay Deployments	16
Public Parlay Trials	15
Non public trials (estimate)	20+
TOTAL	50+

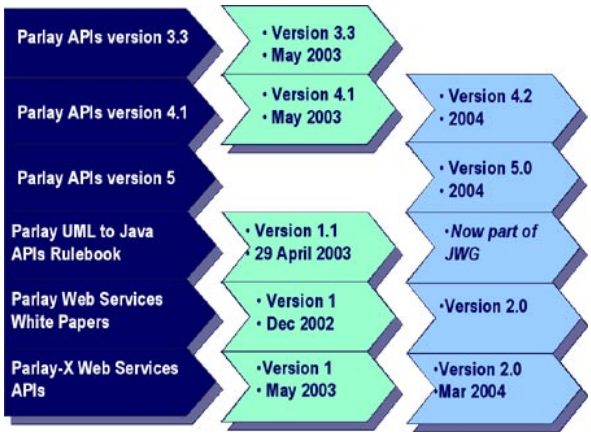
Footnote

[1] Source: Zygmunt Lozinski Parlay President & IBM STSM, Presentation "Parlay Next Steps"

The above data indicates that OSA/Parlay is gaining momentum, both in terms of new product innovations and in actual adoption and deployment by operators as part of an SDP initiative.

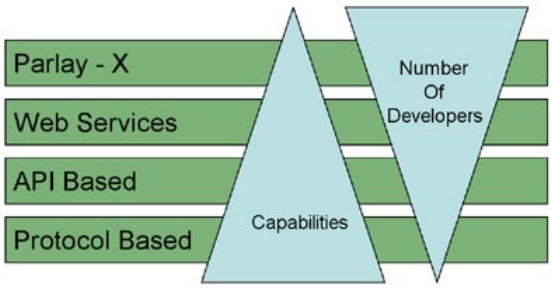
What the Future Holds

During 2004, much of the activity on the OSA/Parlay standard will focus on two areas: the next iteration of the Parlay APIs, and on Parlay-X – the web services APIs for Parlay (see diagram below).



Parlay-X is a particularly "hot" area in terms of realizing the potential vision of OSA/Parlay to truly democratize the creation of new telecommunications services. Parlay-X offers the simplest (and therefore most restricted) means of accessing the network functionality exposed by OSA/Parlay. Parlay-X capitalizes on the momentum in the IT World for "service oriented architectures" (SOAs), in which services may be discovered and accessed in a standardized fashion, regardless of where and how they're implemented. These services may be accessed in a secure fashion over the Internet.

Web services offer a potentially new level of interoperability and flexibility when creating new applications. Particularly where the ultimate vision is that new applications will be "orchestrated" from largely pre-existing and standardized components based locally, in the enterprise and across the Internet. In terms of extending the reach of the potential developer community, Parlay-X helps open OSA/Parlay to the greatest number of developers.



Another key area of OSA/Parlay development is applications. For the envisaged value chain to truly arrive, the market for applications and associated niche players will grow significantly. Many of the applications to date have been Enterprise Mobility Applications – that is, applications that telecom operators can sell to their enterprise customers, offering them advanced mobile services. One example of such an application is Rococo Software's Outlook-based Scheduled Conference Call application. This enables corporate users to set-up and schedule multi-party conference calls directly from within

Outlook. It leverages the pervasive nature of Outlook and Exchange and the simplicity of the Microsoft GUI to deliver a compelling service to corporate clients. The application uses OSA/Parlay to set-up the multi-party conference calls (using the Call Control API) and to send confirmation and alert messages to members of the conference call (via the User Interaction API).

From a review of the applications released to date, the following are among the top areas of interest in this first wave of OSA/Parlay development.

Category	Description	Value for Operator
Scheduled Conference Call	User can schedule conference call directly from within Outlook, drag and drop address book entries for participants.	Corporate customer uses more conference calls due to ease of use.
Hunt Groups/ Personal Call Management	User can dynamically configure calling hunt groups for himself, or for employees from within Outlook.	Enhances call completion.
Internet Call Waiting	User on dial-up line gets alerted when caller on line; offered options to answer via computer, play message or hang-up/answer.	Enhances call completion.
Location services	User can access "find a " services from handset.	Data revenue; customer stickiness.
Corporate Address Book	Context-based MMS response pushed to caller's phone based on caller identity, called party, etc.	Enhances call completion.
Customised hold music / ring tones	User can control what sort of hold music or ring tone is heard by members of address book calling.	Increased data revenue; stickiness.
Reverse Charge Calling	User receives a message requesting a reverse charge call; responds to message to set up the call.	Call revenue enhancement.

Note that a number of the applications use some kind of integration with corporate applications, such as Outlook or Exchange. It is exactly this kind of integration between corporate IT systems and the telecommunications network that has the potential to create new value-add services for enterprise customers. As illustrated in Figure N, OSA/Parlay makes it possible for corporate systems, such as CRM and ERP systems, to connect directly into the telecommunications network and use the functionality of the network in new ways.

In the next generation of applications, it will not be uncommon for SAP (for example) to send text messages alerting a customer that a renewal is due, or for Siebel to provide up-to-the-minute account information to a customer querying their bank details. OSA/Parlay has the potential to fuel significant innovation around existing enterprise applications, and further enhance the value from the investment already in these systems. This will be a key focus area for many in the OSA/Parlay application area.

Conclusion

The telecommunications industry is experiencing profound change. Operators are now investing in Service Delivery Platforms as part of their strategy to manage this change and enable rapid delivery of innovative services. Many of these SDPs will be based on OSA/Parlay standards. Expect to see a change in the telecommunications ecosystem over the next five years as new suppliers emerge offering OSA/Parlay applications and as existing application providers re-tool to OSA/Parlay enable their

offerings. The anticipated convergence of IT and Telecoms systems is very likely to be powered by OSA/ Parlay APIs.

More Information

- www.parlay.org
- Parlay Paper from Northstream, http:www.northstream.se/download/OSAEXECTOC.pdf

WHY ROCOCO?

Rococo Software (www.rococosoft.com) provides wireless infrastructure software and services designed to enable mobile collaboration. Rococo's products and services allow customers to connect sales people, field workers and delivery personnel to real-time company information, improving business efficiency and productivity.

Rococo has become a leading mobility solutions provider in the European marketplace and has deployed successful solutions across a variety of verticals. Rococo has been featured as one of Europe's 10 hottest technology companies in Infoconomist Magazine and has been named 'Entrepreneurial Company of the Year' by Frost & Sullivan. For more information about Rococo Software visit www.rococosoft.com or email info@rococosoft.com.

CONTACT INFORMATION

Sean O'Sullivan, CEO
T: +353 1 660 1315
sos@rococosoft.com
www.rococosoft.com