Service Delivery Platforms (SDP) using Telecom Web Services (TWS) are helping European operators with several networks or platforms to unite the services they offer and let their users easily incorporate network functions in their own client services or systems. Internally, TWS provides operators with a cost saving, standardised interface between its network services, its content delivery and applications. Externally, TWS helps create new revenue streams from content, third party services and from revenue sharing agreements with third-party service and content providers.

Web service applications

Telecom web services, facilitating applications

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Opportunities in EU telecom

There is growing enterprise and consumer demand for next generation telecom services. This coincides with the acceleration of the 3G and broadband network enrolment in Europe and is providing opportunities for the European network operators, service providers, telecom equipment vendors, system integrators and smaller independent software vendors.

The EU is the home of some of the largest multi-national mobile operators such as Vodafone, Orange, T-Mobile, TIM and Telefonica Moviles. Global mobile operators, as well as the incumbent European convergent operators are strengthening their market position by leveraging their existing investments in the network infrastructure and by offering new services provisioned on multi-network basis.

To enhance their enterprise and consumer services a number of European operators are investing in Service Delivery Platforms (SDP). SDPs allow an operator to provide value added services and content to end-users in a managed and efficient manner. An SDP is a solution rather than single product; it usually consists of several subsystems and components provided by different vendors.

Creating a European open service marketplace

Rapid growth and radical differentiation of service offerings call for the implementation of new business models and the creation of an open market for telecom services. The regulatory environment plays a major role in developing open service marketplaces. The deregulation of most European telecom markets began to accelerate this process over a decade ago.

To build an open telecom services market in the EU, enterprises, third party service providers and content providers need open access to telecom network capabilities. This will stimulate the development of new niche and mass-market applications and make attractive content available to end-users. Building communities of third party application developers will also be critical to the creation of an open service marketplace.

A number of tier-one operators such as BT, Orange and Vodafone have recently announced initiatives for providing open access to their networks. BT has already launched the first commercial platform that gives internal and external service providers open access to call control and other network capabilities and Orange is building a global service platform for the same purpose. Vodafone announced it is working in cooperation with Microsoft to develop similar capabilities. Sprint in the US and Korea Telecom have announced similar initiatives.

Service exposure layer

Service Delivery Platforms (SDP) use a Service Exposure Layer to enable open access to network capabilities. The Service Exposure Layer also implements such management functions as services security, policy management, service level agreement
management (SLA), load balancing, provisioning and other capabilities needed in a critical, real-time, telecom environment. The figure below shows the general SDP architecture with Service Exposure Layer.

**Telecom web services—Parlay X**

To meet the growing demand for web services, the Parlay Group in cooperation with 3GPP defined Parlay X—the first Telecom Web Services (TWS) standard. Parlay X works with fixed, mobile and NGN networks. The interface lets third party service providers and enterprises make use of network functions when designing their own systems. A number of leading European telecom companies played a key role in the creation of this standard.

The Parlay X interface enables the average enterprise programmer to develop new telecom applications using standard software platforms and tools. The Open Mobile Alliance (OMA) defines a similar web services framework for a variety of mobile capabilities including user location, presence and messaging, among others. There is an ongoing effort within the OMA, the Parlay Group and 3GPP to harmonise these Web Services standards.

Web services extend the concept of the worldwide web by providing a generic mechanism for application integration over the Internet. The WWW Consortium specified the Web Services Architecture Framework in cooperation with other organisations. The web services standards are widely supported by leading IT and telecommunications sector vendors.

**Business cases for telecom web services**

Telecom Web Services open opportunities for improving operator, service provider and enterprise businesses. Operators can use web services internally—the traditional ‘walled garden’ model—or to create an Open Service Marketplace with third party service providers and IT-like application developer communities. Eventually, enterprises will be able to create their own telecom applications based on public telecom network capabilities.

Internally, Telecom Web Services (TWS) will provide a standardised interface between core network services and an operator’s IT infrastructure for content delivery, a variety of applications and operational services. This should bring cost savings since standardised application interfaces simplify service creation, system integration and service provisioning.

Externally, web services will significantly influence the operator’s business by creating new revenue streams. Several different business cases for service exposure through Telecom Web Services are explored in the subsequent sections.

Currently, mobile operators provide their enterprise customers with SMS (Short Message) and LBS (Location Based) services using a variety of proprietary interfaces and protocols.

Telecom web services, though, provide uniform, standardised interfaces to core services based on a single, widely accepted, integration technology. The web services also add management capabilities for security, authentication, authorisation, service level agreement management, load control and policy management among others.

1. **Core network service exposure**

The basic operator business case for TWS calls for the aggregation and exposure of core network services such as SMS, MMS, LBS (Location Based Services—user location), user status and basic call control. This service set generates revenues from service providers and enterprise customers through service subscription fees, additional data and the voice traffic charges generated by the actual service usage. Initial deployments of TWS by Sprint and BT are based on this basic business case. Operators that offer third party services and content can gain from revenue sharing agreements with the third party service and content providers.

In addition, the capital expense and new service rollout risks can be shared between the operators and third party service providers.

2. **Value-added service exposure**

With TWS, operators can—in addition to core network services—create value-added services for their enterprise and service provider customers. MMS broadcast, ‘content push’ and Click-2-Multimedia-Conference are good examples of value-added services that are not covered by the Parlay X, OMA standards.

When operators offer value-added services, they move to a higher level in the value chain and can retain revenues that otherwise would be lost to third party service providers. In the future, operator-specific value-added TWS will probably become one of the prime means for differentiating commercial offerings for the enterprise market segment.

3. **Next generation enterprise services**

The creation of next generation telecom enterprise applications will depend heavily upon TWS. Multimedia VPN or Virtual Mobile PBX will provide enhanced function-

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**Figure 1: Service Delivery Platform Architecture with web services layer**

“To build an open telecom services market in the EU, enterprises, third party service providers and content providers need open access to telecom network capabilities.”
Web service applications

The application logic hosted on the operator’s Service Delivery Platform will communicate with PC-based or mobile clients (e.g., pocket PC, or mobile terminals) through standard and value-added TWS. 3G IMS infrastructure will facilitate such solutions. By using both core and value-added TWS, enterprises will be able to create their own telecom applications including niche, market-segment-specific applications that have too small a market for the operator to address.

TWS will also help enhance existing enterprise applications such as CRM or Call Centres, by making user location information or multimedia messaging available.

Benefits for European global mobile operators

Large European mobile or convergent operators, running fixed, mobile and/or next generation broadband networks will derive additional benefits from Telecom Web Services. By using a single delivery platform to consolidate services for all of their networks, they will be able to offer creative new services by using the special capabilities of individual networks to supply services to all others.

1. Central SDP and global service exposure

A central Service Delivery Platform (SDP) can aggregate core services from different networks and deliver them using TWS to external and internal applications. For instance, a global mobile operator can provide a single point of access for SMS web services to all its networks.

A web service application running on the central SDP will ‘talk’ to all the networks and aggregate the SMS traffic coming from and going to all applications.

A global mobile operator may select the two-layer Web Service architecture where different core services from each network (SMS, MMS, LBS, call control and charging) are initially aggregated on per-network basis by local TWS gateways and then internally exposed to the central SDP.

This allows the central SDP to communicate with different networks using the same standard Web Service interfaces. This reduces the interface complexity by hiding the discrepancies between different network nodes and provides the same core service (e.g., SMSC or mobile positioning systems) throughout the system despite the use of equipment and applications from otherwise incompatible vendors.

2. Pan-European mobile services and service roaming

By aggregating core network services on a central SDP, the same centrally deployed applications can be provided to subscribers of different mobile networks belonging to the same operator.

For example, an international VPN (Virtual Private Network)–with the same numbering plan and charging scheme for every network–is a good global services candidate.

Centralised deployment can significantly decrease development and provisioning costs and allow smaller affiliates within the group to offer advanced services on a cost-effective basis.

The two-layer TWS-based architecture can also be used to make locally deployed value-added services available on different networks belonging to the same global operator.

Conclusion

The SDP Service Exposure Layer based on Telecom Web Services opens new business opportunities by gradually creating an Open Service Marketplace that will radically change the hundred years old ‘walled garden’ telecom business model.

Service providers, even smaller ones, will be able to rapidly create new applications including a whole range of niche applications that would not be economically viable for network operators.

As a result, European operators will build new revenue streams by selling advanced network capabilities to third parties, increasing data and voice traffic in their networks and providing new categories of value-added services.

The process of creating an Open Service Marketplace will take several years, but the direction set by today’s leading operators seems to indicate the beginning of a new business model for the European telecom industry.