

The Evolution of Service Delivery and Syndication

“Every service that comes online is potentially a killer app for the next layer of the Internet”

Paul Prescod, author, The XML Handbook

Introduction

The purpose of this document is to help business decision makers understand the history behind Service Syndication and have the facts for making the best choice when delivering Software as a Service. The landscape for providing online services has changed dramatically in the past 10 years. What was once the exclusive domain of regional telecommunications companies is now populated by a global marketplace. Telecoms compete side by side with software vendors, hardware vendors, and solution providers. Services have been developed by third party system integrators and homegrown by enthusiastic entrepreneurs.

Each group has had advantages and disadvantages to tackle. This paper intends to highlight the successes and failures of the past and identify a set of criteria to chart a course to a successful Software Service implementation.

Meet the Players

Telecoms vs. Software Service Delivery

There is an abundance of participants in this space, but this paper will focus on two main players: those that were once exclusively telecommunications companies and those that come to this space with software development skills (system integrators, software vendors). This is not to exclude cable networks, entertainment/media providers, electronic device manufacturers, mobile and wireless companies, network equipment suppliers and the multitude of other participants in this space, but to focus on the issues driving the business today.

History of Telecom Service Delivery

How the journey begins

When Alexander Graham Bell filed his patent for the telephone in 1876, he probably had no idea that his invention would eventually lead to online commerce and communication. Then, just as now, numerous investors and inventors were trying to solve the problem of increasing the speed and efficiency of communication.

Originally, there were no standards or models for the development of a seamless integration of services. Placing a call meant having the infrastructure in place before a transaction could occur. The first

commercial telephone exchange did not exist until 1878 and could only handle two simultaneous conversations¹

Early signaling was primitive. The user alerted the exchange operator by whistling into the transmitter then later by ringing a bell. Early exchanges consisted of plug boards staffed by operators. Depending upon whom the caller wanted to reach, the operator might plug the other cord into the called party's local jack and start the ringing cycle, or plug into a trunk circuit to start what might be a long distance call handled by subsequent operators staffing other banks of boards. In 1918, the average time to complete a long-distance connection was 15 minutes.

The Public Switched Telephone Network (PSTN) has gradually evolved towards digital telephony, which has improved the capacity and quality of the network significantly. Modification of end-to-end analog telephone networks (Switched Networks) began in the early 1960's with the upgrade of transmission networks to T1 carrier systems (Packet Networks). Although analog carrier systems continued to exist, digital transmission allowed the increase of the number of channels available on a single transmission line.

Third Party Competition and Innovation

The Telecoms have a long history of competition from third parties, whether in the form of competing networks or substitute hardware. Until Bell's second patent expired in 1894, only Bell Telephone and its licensees could legally operate telephone systems in the United States. After Bell's patent expired, the number of telephones grew to over 3 million installed devices. Many previously unwired areas obtained their first telephone service. The diversity of telephone companies produced a serious problem. There were no interconnections between networks. Subscribers of one Telephone Company could not call a subscriber of another company. This situation only began to be resolved after 1913.

Western Electric, a wholly owned subsidiary of American Telephone and Telegraph (AT&T), manufactured phones. AT&T also owned or controlled the local Bell System companies responsible for local phone service. Member telephone companies paid a fixed fraction of their revenues as a license fee to Bell Labs. If a customer desired a type of phone not leased by the local Bell Company, one had to purchase the phone at cost, give it to the phone company, and then pay a re-wiring charge and a monthly lease fee in order to use it. On December 19, 1913, AT&T agreed to connect non-competing independent telephone companies to its network. By 1970, the FCC allowed independent companies to install and maintain communications systems for businesses. These companies were called common carriers. The largest at that time was MCI.

Disruptive Technologies Emerge

Originally, electronic, telecommunications and broadcast media were discrete business operations. Broadcasting, voice telephony, and on-line computer services operated on different platforms such as TV and radio sets, telephones, and computers. Each media type depended upon different Business Support Systems and Organizational Support Systems (B/OSS). Management of each media type was subject to different regulatory categories.

¹ http://www.nps.gov/history/nhl/DOE_dedesignations/Telephone.htm

Internet Protocol (IP) telephony is a service based on Voice over IP (VoIP), a disruptive technology that rapidly gained ground against traditional telephone network technologies. IP telephony uses a broadband Internet connection and IP enabled telephones to transmit conversations as data packets. In addition to replacing POTS (plain old telephone service), IP telephony is also competing with mobile phone networks by offering free or lower cost connections via Wi-Fi hotspots. Private wireless networks using VoIP may not even have a connection to the outside telephone network. IP telephony technology transforms many non-telephone devices into unified communications devices that simulate telephone usage.

Timeline of Disruptive Technologies

- 1973 - Network Voice Protocol introduced
- 1980 - Internet Protocol came into existence
- 1989 - ISDN/Integrated Services Digital Network established
- 1991 - First GSM network launched
- 1995 - First VoIP connection

The convergence of fixed and mobile technologies is another disruptive technology. It has the potential to change the structure of the existing mobile telecommunications industry. It is plausible that these technologies could completely bypass traditional Telecom networks. Data shows that as of 2006, Skype hosted 7% of all international US voice traffic²

Telecom's Competencies

Despite the fierce competition, the major Telecoms still drive the models around successful business activity. The key business drivers the Telecoms bring to the Online Service industry are:

- Customer centric perspective
- Centralized business model
- Brand value

Customer centricity is the idea that services are to revolve around consumers, rather than requiring the consumers going to different providers for each component. Look back to the early history of the Telecoms. Requiring customers to provide their own telephone, their own physical connection, and lack of connectivity to other networks was an obstacle to adoption.

The Telecoms understand that creating a wrapper around bundles of services and providing individual integrity of the customer experience has become a foundational requirement of the consumer. These service wrappers can encompass aspects as diverse as billing convergence, provisioning convergence, service assurance, usability, and Quality of Service requirements. The ultimate goal of convergence is for the operator to become the single point of contact for all their customers' needs. The operator also becomes the single point of payment for an increasingly expanding portfolio of services. This process of a service provider creating the business agreements with the component businesses and services

² <http://de.sevenload.com/dld/show/N9fRJ5B>

necessary to create a comprehensive customer experience is called Syndication. Standardizing around Syndication is advantageous to the individual consumer.

Synergies come from a centralized business model, reduced overhead, joint marketing, up selling and cross selling driven by a customer centric view, as well as consolidation of technologies makes convergence a very attractive strategy for operators. As telecommunications reach a new stage of maturity, margins erode and traditional services become commoditized. Convergence generates value by reducing costs through efficiencies and consolidation.

Brand value is an important catalyst for adoption of new products and services. The customer base of a company, its brand identity, and stickiness of existing service contracts is transferrable to new products, leveraging the momentum from the original, established brand.

What is Syndication?

Syndication is a term used to describe the business agreements in place between the various providers and vendors who come together to provide a service. These agreements provide a definition of service, utilization of the service, commercial agreements, and any applicable Service Level Agreements. The result is a seamless end user experience. The subscriber purchases a service and the complete package is delivered without any further effort on the part of the consumer.

Early telephone subscribers had to lease telephones in pairs and had to arrange telegraph contractors to construct a line between the devices, such as between a home and office. Users wanting the ability to speak to several different locations would need to obtain and set up multiple pairs of telephones. By 1904, there were over six thousand independent telephone companies in existence. Unfortunately, subscribers to different telephone networks could not call one another.

In a 1913 agreement known as the Kingsbury Commitment, AT &T agreed to connect non-competing independent telephone companies to its network. In turn, the independents paid a fee for each long distance call placed on AT&T's network. Thus began early telecommunications Syndication.

Telecoms have been in the business of providing Syndicated Services for decades, evolving Syndication as the technology requirements advanced. Today, when placing a telephone call from one city in the US to a second city in a foreign country, Syndication allows for the physical connection, the ability of potentially dissimilar devices to transmit seamlessly, and apply the appropriate billing from all utilized services via the caller's local provider.

Drivers to change

Until the first few years of 2000, proprietary hardware and software dominated the markets for commercial and business telecommunication. Vendors such as Lucent Technologies, Nortel, and AT&T competed for top position in the consumer and enterprise markets. These companies generally built giant, business-centered PBX systems that would communicate only to their own telephones via proprietary protocols. The goal was to sell huge central office switching equipment that offered robustness. Customization capability was not a significant requirement. These complex network and

service infrastructures were difficult to manage and the complexity of adding new services was daunting.

With a complicated client-server infrastructure in place, adding a new service is a complicated and expensive process. The hardware, software, and B/OSS for a new service are typically dissimilar from the existing infrastructure. Data needs to be passed from one system to another and specialized code has to be written to transform the data, allow for translation between the two systems, and allow manipulation of the data.

In the late 1980's, Telecoms typically hired System Integrators to develop solutions for joining new services to existing networks. However, this integration does not typically include the actual implementation of the service to the customer. That burden was still on the Telecoms to implement. Often, the integration was not always successful resulting in a low return on investment. Based on Microsoft Customer Research, Integrators historically take on average 18 months to deliver the integrated system. The early integrations did not follow any formal methodology and resulted in additional levels of complexity to the infrastructure. Frequently the integration would work most of the time, with intermittent exceptions causing a failure. Problems with miscommunication between networks and minor variations in the implementation of industry standards would make systems unintelligible to each other. System designs often provided no thought to future connectivity or upgrades. Simplification of the creation and delivery of new services within these networks became a key business driver.

Business cannot afford to support such a cost and time intensive process. To alleviate these problems, project planners began to utilize a System Oriented Architecture (SOA) approach. SOA technology defines a framework allowing programs to interact with no requirements as to implementation. There is no prerequisite that early SOA based solutions include Web Services.

Standardizing processes around SOA began reducing costs yet still there were still a need for improved effectiveness in the process. Because SOA was a generalized approach and not an actual architecture, implementation was haphazard. The next step in the evolution of improved efficiencies was Service Delivery Platform (SDP). SDP is an architectural style intended to enable development and deployment with the new converged multimedia services. SDP's typically describe a service control environment, a service creation environment, a service orchestration and execution environment, and abstractions for media control, presence/location, integration, and other low-level communications capabilities. Still, an SDP does not necessarily follow any particular industry standard resulting in many of the same problems found in the early SOA processes.

For most Telecoms, maintaining existing network and services are higher priorities than adopting the emerging Online Services. Often, the implementation of Online Services is slow. Telecoms tend towards caution in their adoption strategy when considering dynamic Online Services. Therefore, they tend to continue to struggle with the same inherent problems of identity, user profiles, policies, and provisioning each time they create a new service or collaboration. Such a Telecom has no ability to take advantage of the proliferation of Online Services in their legacy architecture. These companies are losing

position in the value chain because they control only portions of the transport layer. In response to the market conditions, there is a general move toward standardized services to maintain or improve revenue streams.

Telecom Problem Space

Today, Telecom's continue to struggle with a number of obstacles while competing in the market. The industry is highly cost driven.

- Large investment in existing infrastructure
- Introduction of new services is expensive
- Slow to adopt new technologies
- Losing revenue to disruptive technologies
- Want to understand and control all cost drivers

Due in part because of the long history Telecoms have in the world market, existing infrastructure exists that represents significant investments. It is not a simple matter to abandon the currently functioning networks and systems to join the latest technology. The expense of conversion itself is prohibitive. Existing infrastructure must stay in place as a means of managing costs.

As pointed out earlier, the traditional process of introducing new services is costly and slow. While the process has improved dramatically, there are still issues with long lead times and inconsistencies within implementations. Previous experiences with the integration of new technologies have lead Telecoms to be extremely conservative. The hesitancy to adopt new technologies is at odds with the advance of disruptive technologies.

Wanting to understand and control all cost drivers, Telecoms typically want to maintain ownership of all pieces of the customer experience. Owning all the piece of the supply chain allows Telecoms the opportunity to gain any benefits in cost cutting measures. While this does manifest as an advantage to the consumer offering an integrated experience, it also leads to increased costs when modifying existing infrastructure.

History of Software Service Delivery

Just as Telecoms adopt successful business strategies from other technologies, so too do software companies adopt winning strategies from the Telecoms. At the end of the 1990's, Software Vendors looked outside their own sphere for ways to expand business and improve product offerings. As IP-based VoIP systems replaced PBX systems and prompted a shift from proprietary systems to standardized technologies, open standards unlocked the door to traditional software vendors like IBM, Oracle, Redhat, and Microsoft to refine client/server relationships and combine previously unrelated services.

Welcome the Internet

The move away from circuit switching to packet switching and the introduction of the Internet opened the doors to new standards. Digital Telephony, Voice over IP and the introduction of the SIP standard were stepping-stones to o providing services on the Internet. The introduction of ADSL meant that users

could move away from dial-up connections. With the emergence of the Internet, the networks became virtually transparent. It no longer mattered if the connections were standard phone lines, ISDN connections, or dedicated networks.

Faster implementation

Software vendors, much more familiar with the process of version iteration and working collaboratively with multiple technologies are in a position to offer Online Services in a significantly shorter period.

Technology drivers

Convergence commonly refers to the synergistic combination of voice, data & productivity applications, and video onto a single network. These previously separate technologies now share resources and interact with each other creating completely new product offerings and efficiencies.

New software companies targeting telecommunications have emerged. By offering web-enabled products, these companies offer an alternative to using a particular device or joining a specific network. FriendFeed, Twitter, Vonage, Skype, and others all provide a means for communicating without using the traditional Telecom infrastructure.

Subscription based services are currently available, eliminating the need to purchase and maintain individual software licenses on business computers and bypassing long-established sales channels. These services range in scope from cellular phones and security monitoring to online products such as Yahoo! Mail and NetFlicks. The model for distributing and maintaining these services has changed spectacularly. Upgrades and system patches are now transparent to the user, occurring seamlessly online rather than requiring a system administrator or an individual user to take the time to apply the necessary files.

Convergence on Service Delivery Standards

Another example of convergence is the development of standard protocols and processes opening up disparate systems to seamless data exchange. This new standards-supported atmosphere allows for the creation of better delivery of consumer and business services.

The next generation of Online Services requires participation from not only Service Providers, but content owners, aggregators and anyone who possess valuable online services and content to customers. To become a meaningful player in this marketplace, each stakeholder must have the capability to rapidly assemble and re-assemble new services. To help achieve that goal, the TM Forum's Service Delivery Framework (SDF) has evolved to support service lifecycle management.

Successful delivery of a fully functioning end service to customer requires business agreements and common understanding of how to expose services and the types of data that must flow from one Service Provider to another.

With this adoption of SDF and related technology standards, come a number of options for businesses to turn their applications into services. Software vendors begin to offer services online, or create product offerings to enable others to create services. System integrators can add value by following industry standards and begin creating reusable services for their clients. While driving the business of

online services forward, these offerings do not always provide a complete end-to-end solution. Key product elements such as billing and content/partner relationship management are often missing from these newly emerging options.

The Impact of TeleManagement Forum

TeleManagement Forum, or TMF, is a standards based body with the charter to assist members in achieving business and operational performance excellence. The organization has evolved to focus on creating standards for business processes, operations, and systems for managing and monetizing online information, communications, and entertainment services. Originally named OSI/Network Management Forum, the organization has gone through several name changes in response to the evolving and convergent nature of connected services.

All parts of the NGOSS (New Generation Operations Systems and Software, NGOSS is TM Forum's standard for development and deployment of OSS/BSS components) and in particular eTOM and SID (enhanced Telecoms Operations Map and Shared Information & Data model, respectively) are increasingly accepted as standards for analyzing business processes and for building easy to use systems to automate those processes.

The Service Delivery Framework (SDF) is a significant TM Forum initiative to include end-to-end management of Next Generation Service Delivery and includes service components from many industry providers. SDF is associated with rapid multi-supplier Service Delivery. TMF is involved with defining the essential capabilities required to support SDF and the associated end-to-end service mechanisms.

Software as a Service Vendors moves to SDP model

Businesses developing Software as a Service (SaaS) products are expanding their product base by stripping their service offering down to the bare platform and advertise an SDP-like offering. Force.com offers a product developed from their CRM offering Salesforce.com. The intention is to re-factor the development work done for their existing services and create additional revenue streams. While these vendors are leveraging their experience in developing online products, the resultant product is not the result of an overarching architectural plan based on industry standards, but an afterthought of a specific functional implementation. These solutions often fall short in trying to meet the complete service delivery solution.

Service Delivery Challenges

There are five principle challenges to overcome when implementing fully functioning services.

- Converge on a common logic across networks and media types based on industry standards.
- Span functions from service fulfillment to service level performance as part of a full end-to-end SDP implementation.
- Provide common provisioning, monitoring, and tracking methods, as well as furnish common infrastructure policies.
- Ensure security, integrity, and authentication of data.
- Guarantee scalability.

Common Logic

Success in the Service Delivery space requires that services are interoperable and able to share data with any other service, regardless of SDP implementation. Services should utilize standard service oriented business and automation logic following the existing B/OSS concepts.

The communications market is rapidly evolving, and there is a need to adapt to meet the new converged customer relationships. Customers must be able manage all aspects of their relationship with the service provider. Addressing difficulties around standardization and interoperability is a requirement for a successful next generation SDP. Many different networks and/or media types exist on the network. Any robust SDP must support legacy circuit-switched protocols, IMS protocols, messaging protocols as well as IT and web services standards.

TM Forum has defined a set of standards that focuses on end-to-end management of next generation services. One of these standards based concepts is a Service Delivery Framework (SDF) and is a customary method of approaching the development of services. A major aspect of SDF is rapid multi-supplier service delivery. It is based on architecturally composable open standards and an open data exchange resulting in vendor neutral services. SDF is the core of any successful service oriented computing platform. Services are designed to effectively participate as members of other service compositions.

Following web service standards can solve debilitating problems for integration architectures. Legacy service logic can be encapsulated through service adapters keeping the existing service independent from the web implementation. Vendors can continue building solutions with existing development tools and in-house skill sets. Interaction of services is through messages that must be independent units of communication. Messages, like services, should be autonomous. This autonomy of individual parts allows for the unplanned evolution of IT environments, encouraging new solution growth, integration, and replacement. Dependencies are limited to the service agreement, defined as part of the publication of a composable service.

Addressing standardization and interoperability is a requirement for a successful next generation SDP.

Many different networks and/or media types exist on the network. Any robust SDP must support legacy circuit-switched protocols, IMS protocols, messaging protocols as well as IT and web services standards.

End-to-end Implementation of Services

A fully functioning Service Delivery solution must span functions from service fulfillment to service level performance as part of a complete end-to-end SDP implementation.

Many SDP's are designed as abstract frameworks to be deployed only within a single organization. When deploying an SDP into such a system, those abstractions do not correspond to real world configurations. It is difficult to realize from these abstractions the real world operational data model. Service providers do not necessarily consider how many databases or directories may be required, or how such databases integrate to form converged services. Services should be autonomous and self-contained, in order that these organizational differences become transparent.

Most of the technologies and tool kits provided today still leave many service issues to the service partner. What are the services offered and managed by the SDP and which are left to implement by the service partner? This ownership includes both the management of presence-based services and how real-time user entitlements are processed.

What is the converged services information model used that represents the online business of the existing Telecoms that have subscribers, devices, phone calls, preferences, entitlements, address books, et cetera? A Telecom with 10 million customers may require an SDP with 500 million information items. These items may need accessing many thousands of times a second by many different functions. Often, the SDP design omits these fundamental issues and leaves the service partner with many business, service management, and operational problems to address.

A well-designed SDP addresses these problems as part of the architecture. Service Partners know what available services are capable of providing through the published Service Level Agreements.

Provisioning

Common provisioning, monitoring, and tracking methods are essential to a complete Service Delivery solution. The inability to provision a service based on the specific needs of the service customer is an unusable service. Common infrastructure policies must be part of the implementation and publication of a compliant service. Any service provider should be able to utilize a conforming service based on the commonly accepted service oriented principles for B/OSS.

Security

The assembled identity of a person's user information, which is commonly stored across multiple distinct identity management systems, must be available through service delivery. Increasingly common separation of user from the systems requiring access is a by-product of the decentralization brought about by SDF. Evolving identity challenges has given rise to an approach of authenticating a user's identity across multiple IT systems or even organizations known as Federated Identity Management or Federation. Federation describes the technologies, standards, and use-cases that serve to enable the

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portability of information across otherwise autonomous security domains. Federation is not bound to any one specific protocol, technology, implementation, or company.

For example, a traveler could be a flight passenger as well as a hotel guest. The airline and the hotel use a federated identity management system and have a contracted mutual trust in each other's authentication of the user. The traveler could be identified once when booking the flight and this identity can be carried over to the reservation of a hotel room.

Federation can involve high-trust, high-security scenarios as well as low-trust, low security scenarios. It reduces costs by eliminating the need to scale one-off or proprietary solutions. User-centric use-cases, as well as enterprise-centric use-cases are addressed with equal efficiency.

Scalability

A complete solution is scalable because it can address the needs of large corporations as well as small and medium sized businesses. The enablement of a service allows anyone interested in consuming the service to know the service level agreements in advance. Services described through standard metadata allow businesses to rapidly add services. Service Catalogs provide third party developers a means to publish SLA and service offering for new services. Published services can advertise their services and know they will not be oversubscribed. Automatic monitoring of the service level agreements guarantees both provider and consumer a successful experience. Syndication of services of any size and complexity allows for full disclosure of the service provisioning and end user experience. Aggregation of services and the tools to manage a wide range of service offerings provide this scale.

Software Services with Microsoft Connected Services Platform

“What our customers want are products and services that work for them, wherever they are in the world” -- Al-Noor Ramji, BT

The ideal next-generation SDP enables service providers to focus on providing first-rate services in their area of expertise and to rely on third parties to provide the services necessary to manage, secure, and provision in a scalable system. This next-generation solution recognizes the challenges to success for a well-implemented SDP.

The ability of an organization to deliver complete converged packages is dependent upon the following:

- Implement a uniform solution to Syndication
- Provide compatible solutions to both Partners and 3rd Party developers
- Allow utilization of existing and future services
- The ability to rapidly create and deliver new value-added services
- Reuse of common service delivery components such as authentication, identity management, metering, analytics, and billing

Microsoft Connected Services Platform Enables the Syndication End State

Microsoft Connected Services Platform offers support for true syndication. Syndication supports partnerships between the third party service developers and the Service Integrators. The partnership agreements are published in a meaningful way providing clear information of the SLA and service availability. Service offerings can be limited to specific partners or offered broadly depending on the business goals of the service implementer. Syndication and the tools necessary to provide a complete solution make Microsoft Connected Services Platform appealing to large and small businesses alike.

Standards

By following the usage of open standards, services naturally promote reusability and interoperability. Microsoft has actively taken a role working with the TM Forum in the definition of detailed specifications and reference models. SDF is the standard that telecoms and software companies have agreed to follow. CSP implements these industry standards to ease the implementation of services and allow sharing of data with any other service. It follows standard service oriented business and automation logic using B/OSS models.

Building services so they can participate as effective members of service compositions is realizable using CSP. Regardless of whether an existing application has integration requirements, implementing the application as a service using CSP allows for integration with other services in future implementations.

Well Enabled Services

A Well-Enabled Service (WES) is a web service that provides a resource-centered view of a product. It provides four views of resources, enabling the isolation, and implementation of the functionality that is required to expose a product as a series of services. WES enables discovery, provisioning, tracking of usage and monitoring of the health of resources. By using the WES toolkit, enables a service to participate alongside other services.

Federation

In distributed systems, authentication and authorization are the cornerstones of a safe and secure network. CSP meets these needs by allowing execution of tasks in a secure manner, protecting the contents of a message, as well as access to individual services.

Microsoft Connected Services Platform (CSP) Provides Choice to Hosters and Syndicators

CSP Enables Telecoms, Service Providers and Hosters equally

The challenge to the ISV community is breaking down and the Telecoms can break free from closed legacy partnerships. With service syndication, the ISV is now a free agent, able to sell their service with little or no impact to the Telecom infrastructure. Telecoms can venture into rapid service delivery with a higher return on investment because they no longer have to perform the expensive and time-consuming task of integrating every new service into their network.

Service providers leverage the power of convergence to differentiate themselves by making their offerings richer, more attractive, and more accessible to subscribers. Companies that can rapidly create and deliver new value-added services can maximize potential revenues, combat commoditization and decrease customer churn. The key differentiators for service providers from now on will be flexibility, security and speed in service delivery.

Utilization of existing and future services

Many organizations face the problem of delivering service bundles created from existing services distributed across non-integrated product catalogues and provisioning systems. Separate product catalogues describing historic products require integration for use in converged bundles. Up sell and cross selling matrices localized to individual product catalogues prevent easy integration into new bundles which can accommodate business specific customization as well as added value implementations.

Scalable

CSP provides several services out of the box like Identity management, profile management, service discovery, health monitoring, usage, and provisioning. CSP takes into account all network services such as presence and location for the purposes of service aggregation. Part of creating scalable services and service bundles is to separating business logic from the application technology. CSP has separated these two necessary components from each other, allowing the service implementer to focus on delivering an independent and self-contained product offering. Service providers can either utilize standard TM Forum business logic processes or create customized solutions for their particular needs. Automatic

monitoring of service level agreements prevents over utilization of services, maintains service level agreements, and provides end-users with a seamless experience.

Microsoft Connected Services Platform solves Service Delivery Challenges

Microsoft Connected Services Platform enables the creation, aggregation, and management of network services. CSP is the first to implement industry standards, putting customers in the driver's seat when integrating disparate systems. CSP employs a flexible software-based approach that maximizes the reuse of common service logic elements. This, in turn, reduces the time-to market and quicker return on investment when implementing second and third services.

CSP provides a set of tools for inserting new services into the running system with minimal incremental investment. It coordinates and enables orchestration of web services. CSP permits rapid development of combinational services. CSP solves many of the challenges in delivering services today.

End-to-end solution

Next-generation service delivery solutions, legacy systems, modern enterprise applications and custom systems are brought together in a flexible and easy to use system. CSP facilitates an application-to-session relationship, making it easier and less costly to aggregate the applications that Telecom customers want through Web services. When combined with other Microsoft solutions and business applications from certified ISVs, CSP is capable of delivering business value now, not 2–3 years from now.

Provisioning

CSP provides for common provisioning, monitoring, discovery, and tracking. Communicating service specific information is by common infrastructure policies. Commonly accepted service oriented principles for B/OSS governs implementation and publication of services. CSP manages compliant services by allowing appropriate provisioning based on the requirements of the service provider.

Microsoft Connected Services Platform Provides a Complete Service Delivery Solution

Microsoft Connected Services Platform not only applies widely accepted industry standards to service delivery, it also provides a complete service delivery solution. Creating and delivering services takes a fraction of the time. Built in to CSP are common service delivery components such as authentication, identity management, metering, analytics, and billing. CSP implements a uniform solution to Syndication, which allows for the publication and consumption of services through a common service catalog. Compatible solutions to both Partners and third-party developers are available. Existing and future services can co-exist because of standardizations of service publication.

Rapid Creation of new services

Microsoft offers an enabling technology to service aggregators and service implementers. Rolling out a platform to aggregate services is typically 70% product deployment and 30% service engagement. CSP enables the purest web services architecture, allowing for dynamic relationships in service aggregation. CSP supports many standard web services, including J2EE Web services.

Reuse common components

CSP supports the separation of business logic from the application technology. It allows for incremental development of services supporting the replacement of legacy systems. Representing existing systems as a single service is possible through encapsulation through service adapters.

What lies ahead for Service Delivery?

Delivering software as services and enabling syndication of online services is a reality today. With Connected Service Platform, Microsoft is expanding the opportunities for businesses to deliver to their customers by standardizing the technology into a unified experience that will deliver the power to syndicate to and deliver services.

Large Telecoms syndicating Microsoft Online Services

Telecoms currently hosting Microsoft services can move to a model where they syndicate Microsoft hosted services. This provides lower operational costs of the service delivery and providing a service based current technology with ongoing updates. Telstra is an example of a Telecom that has taken on the syndication path and will offer the Business Productivity Online Suite as an add-on service to Telstra's broadband offering. Telstra maintains the customer ownership by issuing the bill, provide customer support, preserving the Telstra brand and performing activities such as customer provisioning and SLA management in their environment.

Service Providers hosting IT services for Small & Medium Businesses

A Hosting service that acts as a one-stop-shop for services such as CRM, Point of Sale, or Payroll to Small and Medium Businesses can now bundle hosted messaging and collaboration services from Microsoft. Hosting applications internally provides the ability to integrate with other line of business applications and deliver a complete solution to the end customer. Mamut is an example a one-stop-shop and its key requirements will be around customization capability and their ability to integrate with non-Microsoft apps and services.

Niche Services Portfolio

A service provider focused on an industry such as healthcare must adhere to HIPAA regulations including privacy and data retention/access. These rules require the maintenance of email data offsite from the employee's location. Detailed tracking of all release of information requests and responses is necessary to be compliant. A hoster such as Record Jacket can host the service and provide the necessary infrastructure to allow compliance with specific government regulations.

Deliver Services through a Chain of Resellers

A service provider like GroupSpark hosts and provides private label services to resellers around the world. They have a highly automated mechanism for on boarding partners. They are able to resell these

partners' services through Ingram MICRO and hundreds of smaller resellers. A service broker will want to rapidly expose new offers and integrate non-Microsoft applications in a flexible and quick time to market offering high levels of customer service and support.

For more information on Microsoft Connected Services Platform

Traditional application integration tools fit well in a highly predictable and managed enterprise IT environment. Those tools are unable to scale beyond enterprise IT to embrace emerging services from the Internet and communication networks. CSP is the only commercial product that provides run-time integration that enables dynamic collaboration of web services. It provides a scalable delivery platform that truly addresses highly unpredictable services and networks.

Web services are the common language that enables applications and platforms from the Internet, Telecommunications, and Enterprise IT to integrate and collaborate efficiently and effectively. TM Forum has rallied to web services as the common integration and collaboration vehicle to provide the means for bringing together mixed applications and platforms. No other service delivery platform enables a service provider to use Web services and integrate them with existing B/OSS applications the way CSP can. This service-oriented architecture (SOA)-based solution can build, deploy, and evaluate very efficiently the innovative offerings that enhance customer satisfaction and increase revenue.

For more information about Microsoft Connected Services Platform, visit <http://www.microsoft.com/csf>