



Network Layer Service Delivery Platform Solution

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1 Executive Overview

In today's competitive communications market, offering innovative new services, and reducing the time it takes to bring those services to market is critically important. The application deployment model used by most application developers and service providers has become a barrier to success due to the constantly changing nature of telecommunications networks. The pace of network evolution continues to quicken and can render new applications obsolete before they ever generate a positive ROI.

In order to stay competitive in this evolving market, it is imperative that fixed and mobile operators modify their current business models and service delivery architectures to speed their time to market with new services. The industry has responded with Service Delivery Platforms (SDPs), architectures that provide a service creation environment and a single point of connection to Back Office Support Systems (BSS) and Operation Support Systems (OSS). The SDP value proposition is two-fold. First, it enables an Internet-like ecosystem of application developers to create new services for the communications world. Second, it speeds the integration of those services into a network by providing re-use of key deployment components. However, the SDP value proposition is incomplete because it does not adequately solve the challenge of connecting applications to the wide variety of evolving protocols and ensuring subscriber feature transparency.

In response to this SDP connectivity need, AppTrigger has introduced a new solution called a Network Layer Service Delivery Platform (NL SDP) based on its Application Session Controller. NL SDPs manage network connectivity for SDPs and insulate them from the constant network evolution which is occurring below them. This paper elaborates on current market challenges, how SDPs try to meet those challenges, and the need for an NL SDP solution to complete the SDP value proposition by facilitating a more efficient means of application deployment across multiple networks.

2 Market Challenges

In recent years, communication service providers have seen a dramatic decline in Average Revenue Per User (ARPU), a rise in subscriber acquisition costs, and an increase in subscriber turnover. To combat these challenging trends, service providers are redoubling their efforts to quickly introduce new innovative services and create “sticky” service bundles across multiple access networks. “Time to Market,” if not “First to Market,” is a critical success factor for each new service a service provider rolls out. Feature transparency, or a consistent user experience across the multiple underlying fixed, mobile, or Internet Protocol (IP) networks, increases the stickiness of service bundles. Thus, traditional application deployment models are an obstacle to achieving both of these goals.

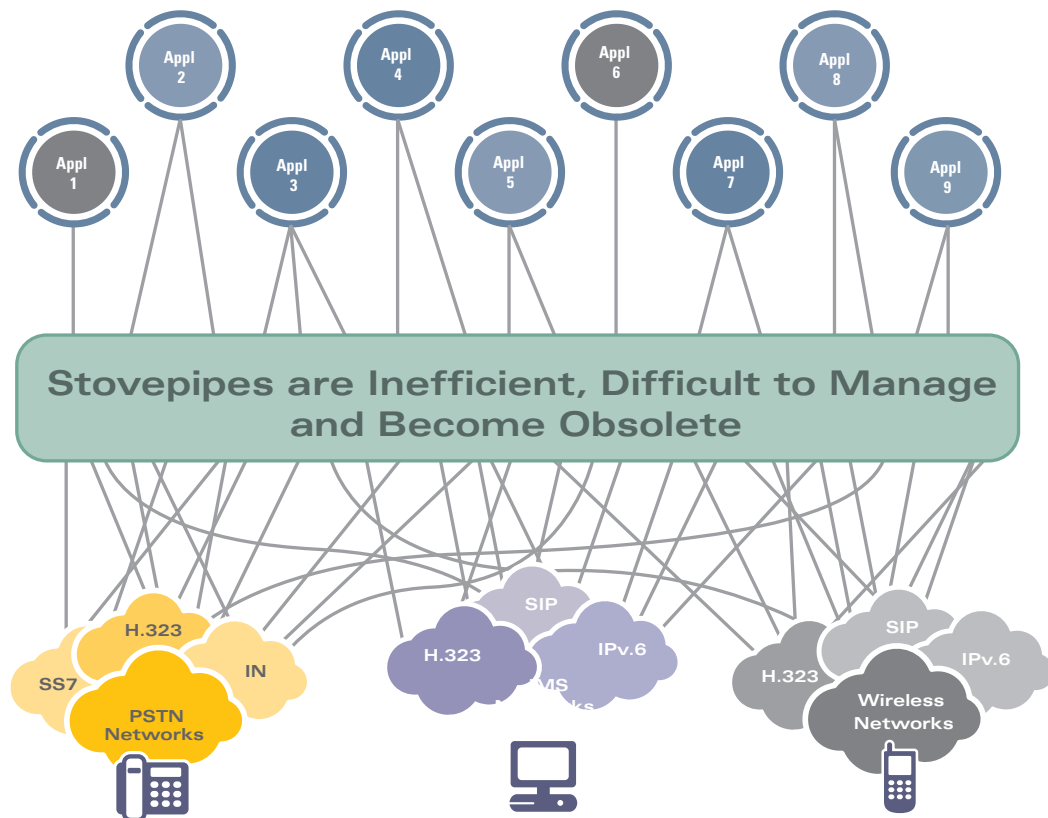
Historically, service providers either have been at the mercy of their incumbent switching vendors to roll out new services, or have had to rely on standalone application platforms to introduce new services. While new switch-based applications are proving very slow to market and are dedicated to a specific network with no hope for transparency across other networks. Each new application platform from an application developer typically requires an integration effort into back office and operation support systems and a dedicated network interface. These too are slow to market, obsolescence prone, and obstructive to feature transparency. Since no service development group, no matter how sophisticated, can address the challenge with absolute certainty, the dynamic SDP environment has emerged in the industry as an answer to these service deployment challenges.



3 Service Delivery Platforms

Service Delivery Platforms typically consist of a service creation environment, a service execution environment, a single point of connection to a BSS/OSS infrastructure, and a dedicated connection to the network infrastructure. SDPs address several glaring service provider needs. First, by creating an open service creation environment, they help address the service provider’s long-standing need for the next killer application. As it turns out, the next killer application is not an application

at all, but is the ability for a consumer to create a personalized application bundle from a large selection of applications created by an entire ecosystem of application developers. The SDP encourages just this sort of developer ecosystem. With an SDP in place, service providers can bring new applications from this ecosystem to market quickly because the SDP itself provides the connectivity to the OSS/BSS infrastructure. Neither the service providers nor the application developers have to concern themselves with repeatedly integrating applications into these systems.



Purpose-Built Application Solution: Eliminates Network Layer Stove Pipes & Reduces Time To Market

Once integrated with a network, the SDP very effectively addresses the time to market challenges for that evolving network, but today's integrated service provider maintains two, three, four, or more unique networks. SDPs rely on dedicated connections to a specific network, often through a Parlay Gateway, or specific-use media gateway. Although the Parlay Gateway limits the number of network protocols that the SDP itself must directly support, there is still a requirement for network-specific infrastructure and connectivity between the served networks and the Parlay Gateway. The use of media gateways, signaling gateways, programmable switches, transcoding

boxes, and protocol conversion boxes results in the creation of silos or stovepipes at the network layer. Furthermore, network technology and standards continue to evolve. Whether you consider wireline, wireless, or IP networks, the next “Next Generation” network is always just around the corner. With it comes new signaling protocols, new bearer formats, new voice coding algorithms, or some other type of new network interface. Whether the need is to migrate existing services to new networks, or deal with the potential obsolescence of the network connectivity element of their platform, SDPs possess limited capabilities to efficiently deal with evolving networks without creating additional hard to manage network silos. As a result, the dual challenge of creating feature transparency across evolving networks and quickly introducing existing services into new networks remains unaddressed by SDPs. Solving this dilemma, AppTrigger introduced their Network Layer Service Delivery Platform solution based on the industry’s first Application Session Controller; the missing ingredient for achieving fast time to market, or more specifically fast time to multiple networks simultaneously with feature transparency. The AppTrigger NL SDP solution provides to SDPs the universal single point of contact to any underlying network that they currently lack.



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The Purpose Built Solution: AppTrigger’s NL SDP

AppTrigger’s NL SDP solution delivers all of the network interaction and call control functions necessary for Service Delivery Platforms (SDPs) to deliver their services transparently across disparate evolving networks. It manages the connectivity to signaling and bearer networks, interprets the information gathered from that connectivity, and provides a normalized view of any network to the SDP over a choice of application control interfaces.

4.1

NL SDP Benefits

The purpose-built combination of capabilities in the NL SDP solution creates a five-fold set of benefits for SDPs and Service Providers:

- **Multi-application, Multi-network, Multi-vendor Environment:** *At a basic level, the NL SDP solution allows the SDP to deliver its services into multiple networks and it supports a number of Application Programming Interfaces (APIs). The SDP can leverage this set of APIs to expand their ecosystem of application developers to include multiple application vendors from a variety of developer communities whether they be Parlay, Parlay X, Java, or some other interface. By using the full featured NL SDP solution, the SDP vendor can create a far more competitive offering*

- **Immunity from the Evolving Network:** *Since the NL SDP solution normalizes the view of the network for the SDP, it in effect insulates the SDP and its supported services from the changes in networks or even the introduction of new networks. This creates greater longevity for the services, a better return on the investment in the platform, and less churn for customers.*
- **Integration of Legacy Applications:** *The well-designed AppTrigger NL SDP solution is also completely capable of providing the network connectivity functions for legacy standalone applications. The NL SDP gives service providers the ability to integrate those legacy applications into their new service delivery framework and simplify the management of their networks and services to reduce operating expenses.*
- **Single Management Point for Network Connectivity:** *As service providers consolidate their network interface for service delivery via the NL SDP, they simplify the management of their network. The NL SDP gives them a single point to manage and maintain as the network evolves. This helps network operators control operating expenses and ensure they can integrate services quickly into new emerging networks.*
- **Guaranteed Feature Transparency:** *Since the NLSDP presents a uniform network view to the SDP, applications are able to deliver similar feature sets, regardless of network differences. This guarantees that users will have a consistent user experience even if they use different networks at different times to access the service. This enhances the service provider's ability to create sticky services and build brand loyalty.*

4.2 NLSDP Architectures

The AppTrigger NL SDP solution combines several key functions from general-purpose network infrastructure elements to create a purpose built product that meets the network interaction needs of service providers and SDP vendors. It presents SDPs with an abstracted view of all underlying communication networks through a choice of open application control interfaces. The AppTrigger NL SDP is comprised of three sub-systems.

4.3 Media and Signaling Subsystem

The media functions of the NL SDP convert to and from various bearer traffic formats as necessary to ensure that any combination of circuit or packet based applications and networks can interact with each other. Additionally, the NL SDP media functions typically include media server capabilities such as DTMF detection and generation, announcement record and playback, and conferencing. These functions ensure that

the NL SDP can gather and provide all of the necessary network and user information to the application for appropriate service execution. The signaling interfaces on the NL SDP plays the critical role of connecting to all types of legacy and next generation call set up and call control signaling networks. This ensures that the NL SDP can facilitate transparent delivery of services across legacy and next generation networks using a variety of protocols.

4.4 Call Control Subsystem

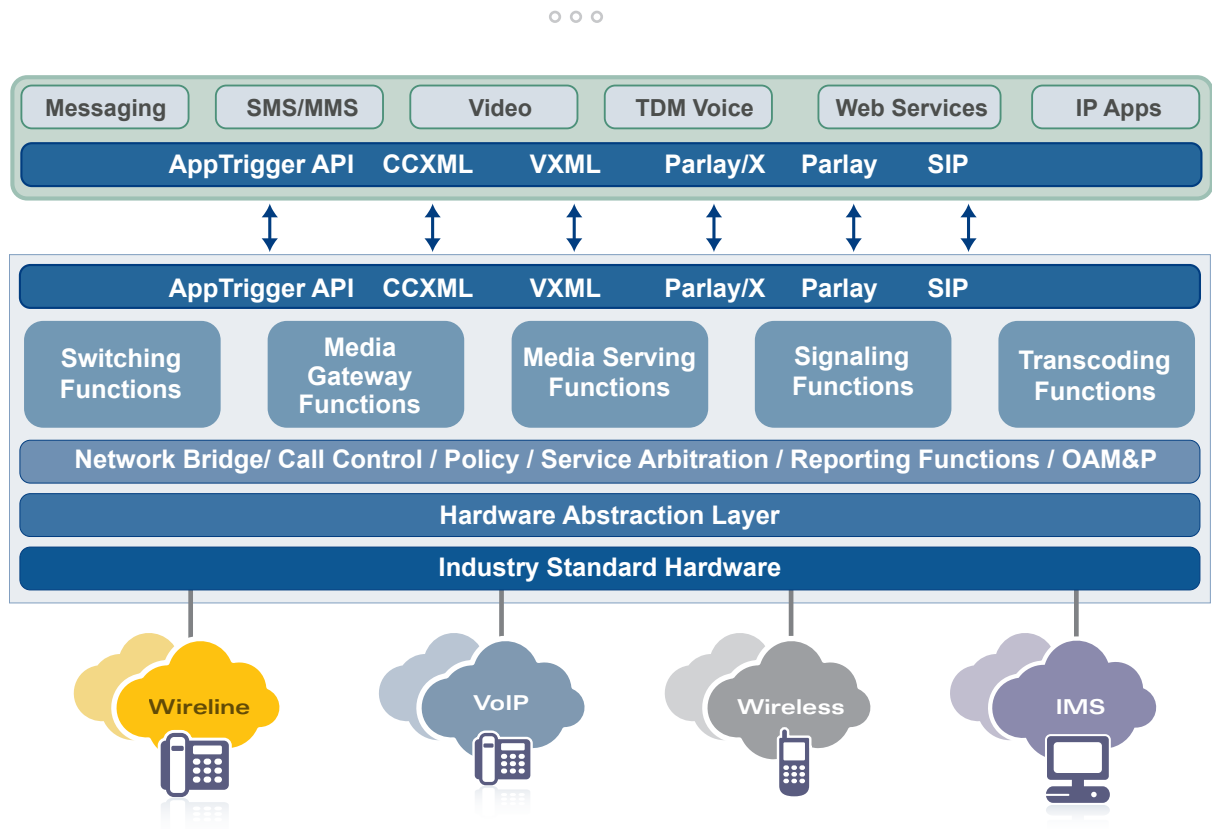
This software subsystem includes a built-in call model that enables the SDP to intervene at any point during a call as necessary to facilitate service delivery. The NL SDP utilizes an inclusive call model, CS-2, which provides the added benefit of normalizing different call models (such as SIP) to create additional transparency for the application developer. The call control subsystem executes call switching and routing, and number translations based on information provided by the media and signaling functions or instructions received from applications through an application control interface.

4.5 Application Control Interface

The application control interface provides the critical connectivity between the SDP and the NL SDP. The call control and media and signaling subsystems create an abstracted view of network, and the application control interface presents the view in a consistent manner to the SDP regardless of the underlying network. In turn, the SDP uses the control interface to give the NL SDP instructions and deliver services to the end user. The AppTrigger NL SDP solution supports a choice of interfaces including CCXML, SIP, or a more powerful custom API.

4.6 A Typical NL SDP “Solution” Architecture

The compartmentalization of these functions is what makes the NL SDP the powerful solution for meeting the network layer needs of SDPs. Since the subsystems interact with each other but still operate independently, one can change or evolve without necessarily affecting the others. This is what provides the future proof nature of the solution. As new network types emerge with new signaling protocols or new bearer formats, new NL SDP software releases can support the new standards without “breaking” the control interface with the SDP. Since the control interface provides the abstract view of the network to the SDP, an SDP using the AppTrigger solution can provide existing services to new networks with minimal or no change to the applications. In this way, the NL SDP promotes feature transparency across the evolving networks and enables fast introduction of existing services into new networks. The NL SDP truly does complete the SDP value proposition.



AppTrigger Application Session Controller: Purpose-Built NL SDP Solution for Legacy and New Application Connectivity

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Summary

AppTrigger provides SDP vendors a robust network layer solution for dealing with the complexities, time-to-market challenges, and inefficiencies of application deployment caused by the evolving network. Purpose built application delivery switching software in the AppTrigger NL SDP empowers SDPs to control network connectivity so they and their customers can compete more effectively and expand their overall market by:

- Increasing ARPU with new, unique services
- Expanding and delivering dynamic new services quickly
- Staying competitive and reducing churn in today's ever evolving market

For More Information

AppTrigger is dynamically changing the telecom application delivery marketplace by empowering its customers to insulate their revenue-producing applications from the challenges of the ever evolving fixed-line, mobile, and IP networks. AppTrigger's Application Session Controller provides a purpose built unique combination of media, signaling, call control, and a family of APIs for multi-network, converged application deployments. In an environment of ongoing network evolution, AppTrigger delivers time to market advantages, reduces application deployment costs, and provides feature transparency across disparate and ever evolving networks. For more information, please visit www.apptrigger.com or call 866-227-7487.



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