Next Generation Networks - A Migration Path
Digifonica Voice Over IP Technologies.

Technology Overview

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1.1   Introduction:

VOIP Internet-based communications technology offers two major reasons for its popularity in recent years. The first is a significant reduction in service delivery cost to the consumer, the second is to offer a new suite of converged telecommunication products and services not possible with the existing (legacy) technologies in place today.

In the category of cost reduction, VoIP has been touted as being able to significantly reduce the cost of service delivery up to 90% in comparison with legacy technologies. By selecting and employing the appropriate technologies and migration methods, local telephone companies (ILECs and CLECS), enterprise businesses, and long distance carriers are promised to reduce their operations costs to a fraction of what most currently endure in providing telephone services to their subscribers.

In the category of new service delivery, VoIP technologies promise the potential of offering enhanced telephone services, such as voice mail, unified messaging, SMS messaging, video telephones, location based awareness, subscriber call control services, and real time rating and billing that are not offered by traditional telephone technologies today.   These services are of course, not new, but the delivery of them over a single managed architecture utilizing a single common technology platform has never before been possible.

In response to this need for delivery of these new services, Digifonica has created and begun execution of a strategy to deliver a technology platform designed for the provision of all of the technology required to deliver a full suite of converged telephone services over a TCP/IP based managed network. It has further expanded the technology platform development to include a globally managed network and telecom services support mechanism to create a seamless migration path for telecom companies of any size and any location on the globe to offer these new services in a rapid, scale able, secure and low risk manner.

Building on Digifonica's strategy of creating a single managed global voice network and building the core services elements, engineering was also focused on client side software and hardware elements to ensure that services can be delivered in an ubiquitous manner across all communications devices. These software and hardware elements at the edge of the network were recently expanded to include the delivery mobile cellular telephony products and enterprise IP PBX services to its existing municipal IP Centrex services and residential/SOHO telephony products and service elements.

The engineering team in Digifonica has been dedicated to the process of designing a global network and creating the appropriate technologies for almost a decade and is committed to continue to deliver the technology in the most cost effective and timely manner moving forward.   This document was assembled to discuss the various technologies and techniques used in Digifonica's work on the resolution of as many of the current and anticipated requirements of delivering a comprehensive package of local telephone services over a single TCP/IP data network.

Comments, questions and suggestions are welcome at the following address: techteam@digifonica.com.

Section 1   Next Generation Networks - A Migration Path

1.2   Digifonica Global Telephony Platform Description and Vision

Digifonica's development team has been designing and implementing new telecom solutions based on the latest versions of Voice Over IP protocols and specifically, a relatively new subset of these protocols, Session Initiation Protocol (SIP). The purpose of these efforts is to create a uniquely inexpensive yet massively scale-able on demand service provisioning system capable of providing a full suite of IP telephony services to existing telecom network operators globally.

The vision for the delivery of a fully converged communications network is to provide all of the various components or elements necessary to offer basic telephone service to any location on the globe, and then expand this platform in a modular way to include delivery of new service not possible in the legacy systems deployed today.   In the delivery of these new services it was recognized that for any existing telecom operator with legacy systems currently in place, they would need a seamless low cost, efficient migration path to minimize any risk in moving to the new technologies.

The existing legacy systems have been under attack by many competitive forces and are now stretched very thin in their ability to morph further into delivering converged telephony solutions. Obvious stresses are beginning to appear in the old models when looking at the lack of solutions available for delivering combined fixed and mobile telephone and new converged telephone products such as Video within the existing model.   Roaming from one mobile service operators network to another has been a continuous challenge to the industry and now it is further complicated by the emergence of WiFi Hot spot and WiMAX wireless products. Even the concept of roaming has now morphed to include traditional land line wired devices such as office telephones and is no longer limited to cellular telephone service.

Competitive pressures and rapid technology advancements in wireless service delivery via Cellular and WiFi/WiMAX are leading to a massive swell in demand for new mobile services, but also provide significant opportunity for a carrier to to reinforce customer retention strategies and find considerable new sources of revenues from existing customer bases. Mobile Cellular Carriers for example have been actively diversifying their offerings to include value-added services such as "ring tones," mobile gaming, and other services to increase their revenue base per subscriber(ARPU).

In general, it has been very difficult to deploy a single ubiquitous wireless infrastructure that can sustain advanced services either from a technical or business-model point of view.   The Digifonica global network and telecom service provision model was designed to accommodate all of the services that existing telecom operators may wish to offer to their subscribers while being fully compliant with their existing distribution platforms.   This delivery platform promises an easily deployable, low risk, extensible method for deploying these new services by layering the new services over top of existing products.

In Summary:

Digifonica's review of the telecommunications market place has found that in almost all of the existing telecom operators studied, irrespective of their geographical location or technology currently being used, the in place systems and business methodologies are facing significant challenges. The existing telecom operator is experiencing declining voice revenues, increased competition, increasing traffic patterns, paired with rapidly increasing demand for enhanced media-rich voice & data services. An off the shelf solution is not currently available from traditional suppliers of telecom hardware therefore it must be built.

Digifonica has recognized this opportunity and has responded by creating the Digifonica Global Telephone Services Platform. Using this platform, we hope to resolve many of the specific service delivery and service consistency challenges associated with launching convergence telecom services while simultaneously supporting legacy services. The additional opportunity arising from the development of this global telephony platform is that it opens up a whole new generation of telecom operators that could never before exist due to cost and complexity. The Digifonica solution will be rapidly deployed in a manner that would provide seamless, low cost, low risk and almost immediate revenue for any group wanting to enter the telecom industry.

A corporate sales strategy is currently being refined within the Digifonica marketing group in order to address any business issues to the creation of business relationships with reseller partners globally and is covered in a separate document.

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