WHITE PAPER

Remaining Relevant with Rich Communication Suite

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Executive Summary

Today's consumers have more communication options than ever before. Given widespread adoption of smartphones and the convergence of mobile and IP-based messaging, mobile users have moved beyond basic texting to more sophisticated messaging options. In-demand features like video chat and conferencing; public and private group messaging; and the ability to transfer video, text, images, and other files during a communication session are available from "over-the-top" (OTT) providers such as Skype, WhatsApp Messenger, Yahoo Messenger, and Google Talk, among others. Smartphone users download OTT applications to their phones from application stores, such as iTunes, Blackberry App World, or Android Market, and use them for communication services like texting or chatting. Gaining rapid popularity, these services are provided by third parties and are carried over mobile operators' networks. However, they provide no revenue for operators and pose a very real threat to traditional messaging revenues.

In the fight to remain relevant as communication service providers, today's operators understand that they must evolve their messaging solutions to compete effectively with these more advanced—and often free—OTT services. Rich Communication Suite (RCS) offers a solution that can enhance the overall user experience while creating subscriber loyalty.

Though RCS specifications call for a fully deployed IP Multimedia Subsystem (IMS) architecture, many operators have yet to introduce this costly and complex technology. Interop Technologies' RCS Messaging Server provides a solution for operators regardless of whether they have an IMS network. As a result, operators can launch RCS services today, enabling them to combat OTT players even before deploying IMS.

The OTT Threat

The OTT threat is largely being driven by convergence—of technology, service offerings, and providers. Industry giants like Microsoft, Google, and Apple are infiltrating the communications ecosystem, infringing on areas that historically have been the exclusive domain of mobile operators and offering new, compelling features. Due to Microsoft's interests in both Skype and Facebook, the wildly popular social network has evolved from a PC-based site to a fully featured communication tool providing video, voice, and messaging services on any device, platform, and operating system. Among Facebook's newest features is a video calling function that provides video on laptops and PCs as well as mobile devices. In addition, Facebook Messenger is available as a chat application on mobile phones.

Likewise, Google services now include Google Talk, a text and voice chat application; Gmail, Google's email client; and Google+, the company's recently introduced social networking application. Google's plan to take over Motorola Mobility, which will give the company a solid foothold in the device arena, further solidifies its position as a powerhouse in the industry.

Apple has been a pioneer in creating a comprehensive communication ecosystem. The company's intense focus on the user experience and its continued innovation—including the 2011 introduction of iMessage as the company's new chat software—has created a loyal following of customers.

Other applications like WhatsApp Messenger and Blackberry Messenger have also gained a considerable following. With over 100 billion messages sent every month (based on six month data for the period ending May 2011), Blackberry Messenger has an active user base of over 50 million. WhatsApp reportedly has between 10 and 20 million global users.

The abundance of new communications options is a clear threat to operators' SMS and MMS revenues, and operators are beginning to feel the impact of this competition. While SMS use continues to increase globally, SMS volumes have begun to decline in mature markets, including the Netherlands, France, Ireland, Spain, and Portugal, according to Wireless Intelligence.

Analysts predict continued leveling off of person-to-person SMS volumes in mature markets as IP-based messaging and smartphone use increase. Currently, the United States has a smartphone penetration rate of nearly 47 percent, according to Fitch Ratings. It projects penetration of over 60 percent by the end of 2012.

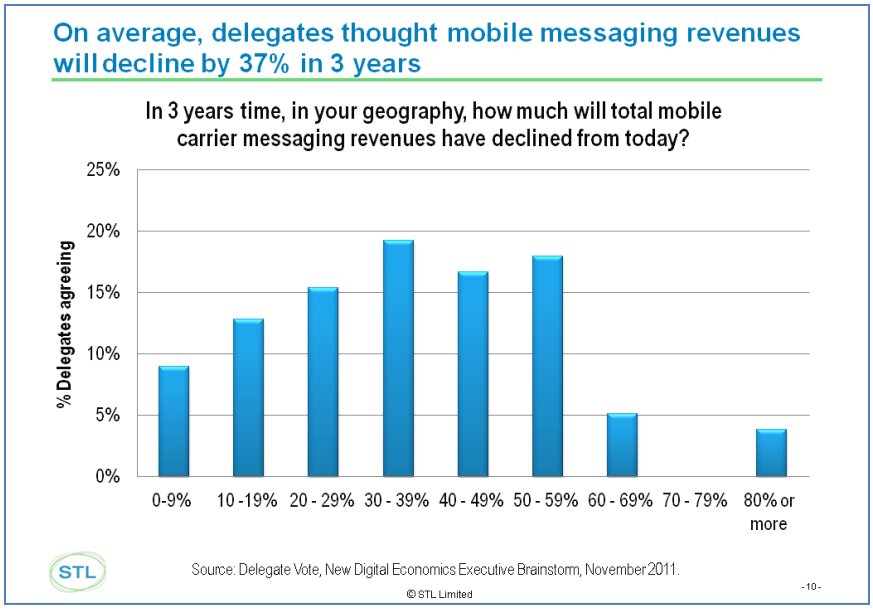
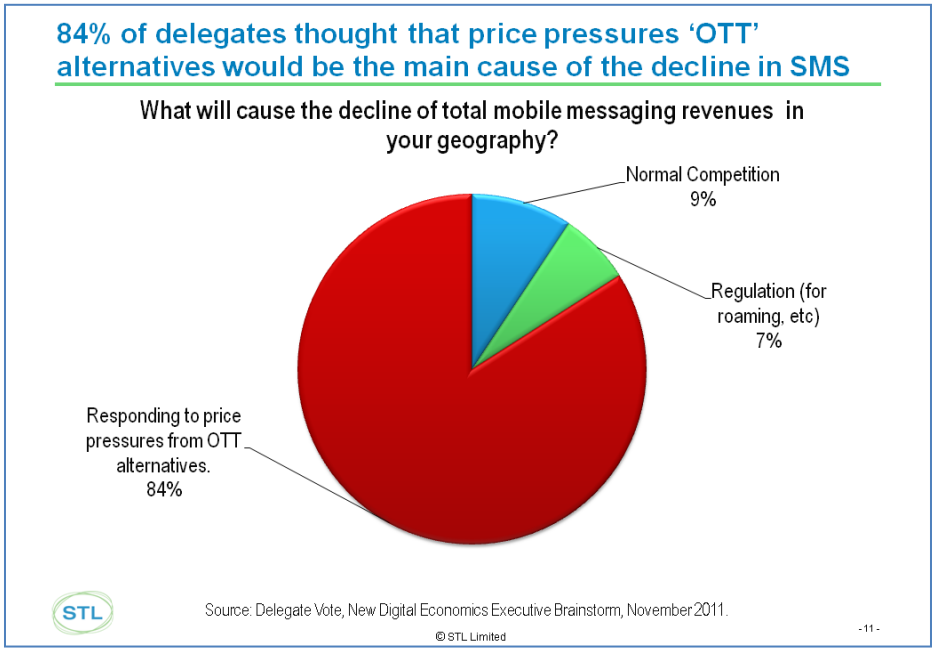


Figure 1: Declining Messaging Revenues *Source: STL Partners*

Operators clearly recognize the threat of OTT services. At a November 2011 Executive Brainstorm, STL Partners surveyed senior telecom decision makers about the impact of OTT players on SMS revenues.

Participants indicated that messaging revenues would decline by nearly 40 percent in 3 years. Competition from OTT messaging services was identified as the clear cause of this decline.



Source: STL Partners

Figure 2: Cause of SMS Decline

The Solution: Rich Communication Suite

To combat the OTT threat, operators must evolve their messaging solutions and develop their next-generation strategy now. RCS is the ideal IP-based solution to move operators to the next generation of messaging. Providing users with additional features not available using today's SMS and MMS technologies, RCS offers an innovative set of features designed to enhance existing services. For example, subscribers can conduct individual and group chat sessions and exchange images or videos during voice calls or chats.

Currently, five of the world's largest mobile operators have committed to deploying an enhanced version of RCS known as RCS-e—Deutsche Telekom, Orange, Telecom Italia, Telefonica, and Vodafone. These operators are initially launching RCS-e services in Spain, Germany, France, and Italy in early 2012. In addition, South Korea has also committed to deploying RCS-e. In North America, as well as in other European and Asian countries, numerous operators are trialing RCS services and evaluating technical issues surrounding RCS implementation.

Some handsets already include native RCS clients, and major device manufacturers have committed to installing them, including HTC, Nokia, Samsung, Huawei, Sony Ericsson, and ZTE. In addition, the GSM Association has issued an RFP for a downloadable RCS-e app client that can be used on iOS and Android platforms.

RCS without IMS

RCS leverages IP Multimedia Subsystem (IMS) core technology to create features that are not available using traditional messaging services. Both the RCS and RCS-e standards require operators to have an IMS core within their network. IMS technology holds the promise of enabling operators to develop and introduce new revenue-generating services at a lower cost per subscriber. RCS as well as Voice over LTE are currently driving the move to this architecture.

However, IMS deployment requires a costly investment in capital and engineering resources as well as a wholesale change to operators' networks. In fact, integration with existing back-end systems was identified as the leading barrier to IMS implementation in a 2011 Infonetics Research survey. In many cases, the engineering, deployment, turn-up, and testing of the IMS core is delaying the deployment of RCS, enabling OTT providers to gain mind and market share. In the face of increasing competition, this delay is augmenting the risk to operator revenue.

Recognizing this reality, Interop Technologies has developed an RCS-compliant Messaging Server that supports operators with or without a fully deployed IMS core. This solution incorporates the signaling, authorization, and session set-up necessary to support RCS directly into the Interop platform, enabling operators to launch RCS even before deploying IMS. Should an operator choose to deploy an IMS platform in the future, the Interop RCS Messaging Server can seamlessly integrate with its IMS core when the operator is ready.

RCS devices connect via the appropriate access network, be it Wi-Fi, LTE, 3G, or another packet data network. For operators with an IMS core, the device must register and authenticate prior to accessing the RCS Messaging Server. Authentication, registration and SIP routing are all handled by different components of the IMS core. Once a device is registered, the IMS core routes all RCS messages to the RCS Messaging Server and other IMS networks.

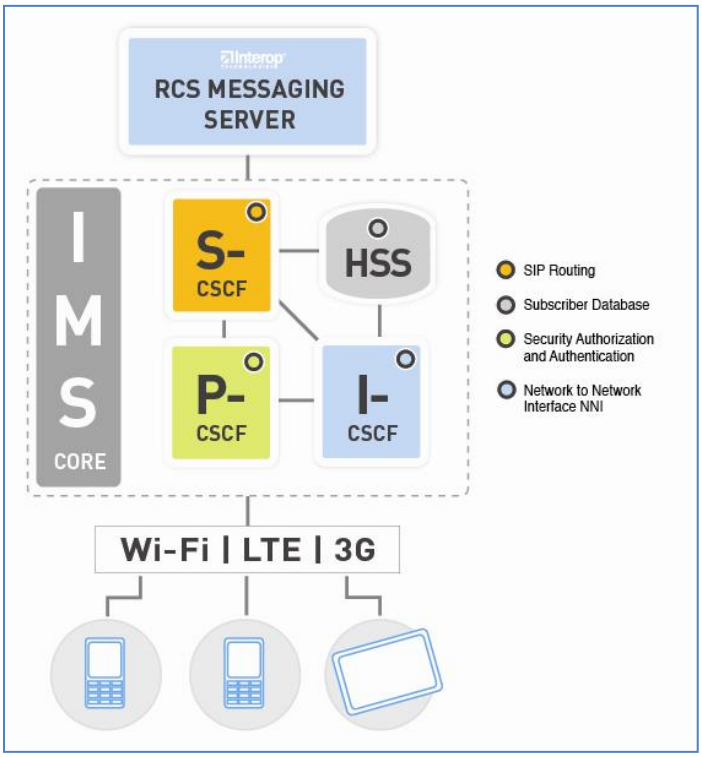


Figure 3: RCS with IMS Core

For operators without IMS, Interop's solution has the advantage of incorporating the IMS functions into the RCS Messaging Server itself, as shown below. The Server handles the authentication, registration, and routing requirements of the IMS core, while fully complying with IMS and RCS standards. This gives the operator the option of implementing RCS in the short-term, eliminating the IMS requirement. If and when the operator deploys IMS, the Interop RCS Messaging Server can easily integrate with it.

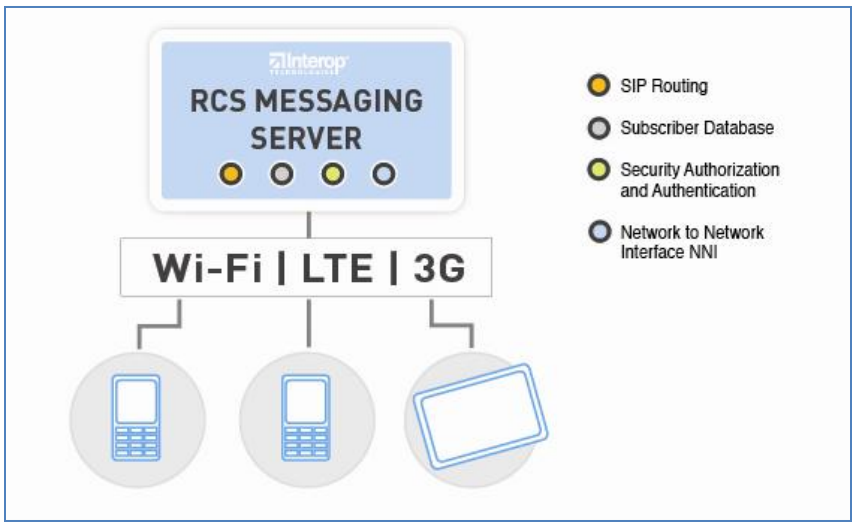


Figure 4: RCS without IMS Core

RCS client solutions vary, but all feature an enhanced address book as the foundation for communication. For each contact, RCS functionality provides users with information such as current capability information, home page link, and status.

Subscribers can initiate communication from within the address book—including one-to-one or group chat sessions—and can share images or videos during communication sessions. RCS clients also provide helpful indicators identifying when users are typing, as well as delivery confirmations.

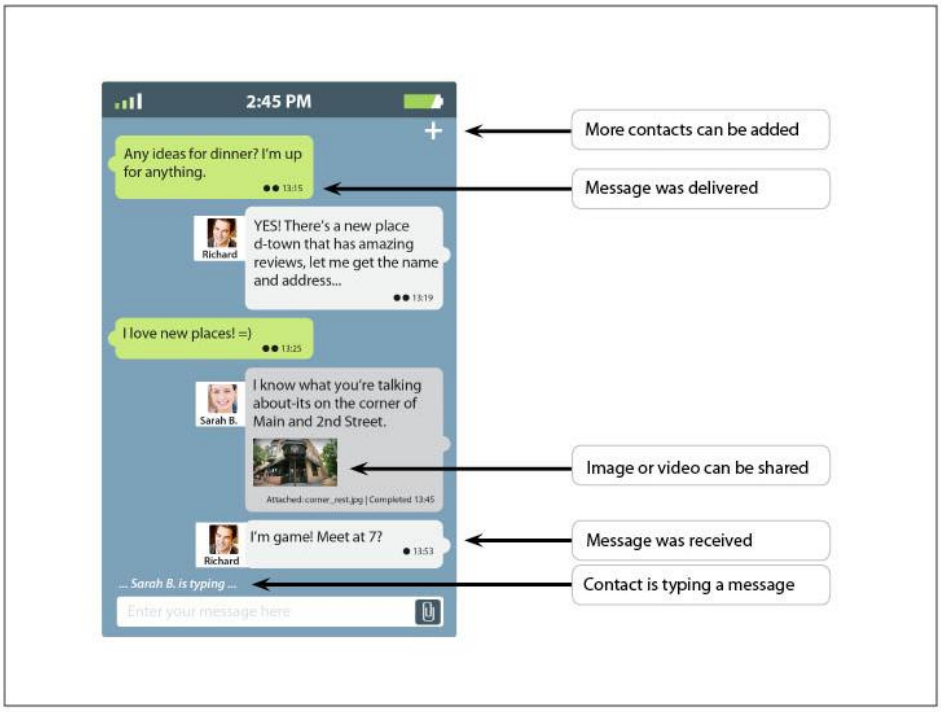


Figure 5: RCS Client Sample

The Interop RCS solution provides complete backwards compatibility with legacy SMS and MMS technologies. As a result of this capability, subscribers can launch all messaging sessions from the RCS client on their device, without regard to whether the recipients' devices have RCS compatibility.

In addition, Interop's RCS Messaging Server seamlessly integrates with any RCS client, giving operators the freedom to choose one or more clients for their devices.

RCS Advantages

RCS has several distinct advantages over existing OTT services. First, operators control the networks on which RCS messages are delivered. This enables them to ensure higher quality of service (QoS) than OTT players, who do not own the network infrastructure.

Likewise, operators have control of privacy, support services, and overall service reliability issues, which OTT providers lack. This gives operators further QoS advantages, which can be important points of differentiation that can help to ensure customer loyalty.

Another advantage of RCS is its interoperability between operators. This enables RCS users to communicate with virtually anyone with a mobile device, including iOS, Android, and Windows users. This directly combats a major limitation of many OTT services operating in "closed" communities, where only those users that have downloaded the relevant app to their handset can communicate.

In fact, OTT services typically require the user to complete a cumbersome multi-step set-up process:

1. Enter app store.
2. Search for app.
3. Pay for app.
4. Download and install app.
5. Provision app by entering account information.
6. Determine whether to use app or traditional technology (SMS, voice call, etc.).

In contrast, for handsets with an embedded RCS client, the process of finding, paying for, downloading, and installing the app is unnecessary. And because services are integrated within the address book on the handset, RCS communication is streamlined and intuitive.

Deployment Models

Operators evaluating RCS solutions must carefully consider available deployment options and the benefits of each. Interop's flexible deployment options include hosted, modified hosted, and turnkey strategies.

A hosted solution has the benefit of being both an efficient and economical solution for operators that wish to enter the market quickly. Given the current threat of OTT players, time to market is an essential element of operators' next-generation messaging strategies.

Both Interop's turnkey and hosted solutions benefit from the same state-of-the-art technology. With the hosted deployment model, the operator's RCS Messaging Server runs on an Interop platform and is maintained by Interop staff. Seasoned engineers manage the technology based on knowledge gained by running Interop solutions in a real-time, live traffic production environment. As a result, operators can gain affordable technical excellence and unmatched performance.

A hosted solution also benefits operators by eliminating the need for a large up-front investment. Operators can quickly introduce RCS to their subscribers and, as RCS adoption increases, can easily migrate to Interop's turnkey RCS Messaging Server solution if and when they choose to do so.

Summary

OTT services like Skype, Facebook Messenger, and iMessage represent a significant threat to operators' traditional messaging volumes. To combat the potential impact of these services, operators can look to RCS to provide high quality, advanced features while strengthening subscriber loyalty.

Time to market is crucial for operators introducing RCS services. Today's RCS ecosystem includes fully developed RCS features, clients, and devices, as well as clear subscriber demand. The only limitation for many operators is a fully deployed IMS network—which Interop takes out of the equation.

By incorporating the signaling, authorization, and session set-up necessary to support enhanced communications directly into the Interop solution, Interop's RCS Messaging Server provides full RCS compliance—not "RCS-like" features—for operators with or without an IMS core. This approach enables operators to compete with OTT players *today* even before implementing IMS.

A hosted solution provides the most economical and efficient way for operators to introduce RCS to their subscribers. With Interop's flexible deployment options, operators can move to a turnkey solution if their business needs dictate a different strategy.

About Interop Technologies

Interop Technologies (www.interoptechnologies.com) is the leading provider of innovative messaging, mobile device management, and connectivity gateways to the global telecom and broadband industries. With its unmatched deployment flexibility, Interop enables operators of all sizes to launch new services quickly. The company's highly scalable, future-proof solutions deliver "five-nines" (99.999%) reliability and high performance in mixed-generation technology environments. Interop designs, builds, and manages all solutions in-house, providing modular architecture that makes migration to next-generation technology simple. Interop Technologies maintains its corporate headquarters and a network operations center (NOC) in Fort Myers, FL, with a fully redundant NOC and offices in Dallas, TX.