VeriSign®

SMS Interoperability

A Case for SMS Interoperability Now

Where it all comes together.™

Contents

+ The Case for Interoperability Now

North American wireless carriers are in the process of introducing wireless text messaging to their subscribers. During these rollouts, they are faced with the decision of when to enable messaging interoperability with other networks. This document presents the case for interoperability—arguing not only that interoperability is the right business decision, but also that it is in the carriers' best interest to implement an interoperability solution as soon as possible.

Dramatic Increases in Messaging Traffic and Revenue

Enabling interoperability in wireless text messaging markets produces three real and measurable revenue benefits for carriers. The first is a straightforward increase in message traffic by existing users of text messaging services. The second is an increase in the number of existing mobile subscribers who sign up for the service, due to the greater functionality provided by combining voice and text communication. The third is an increase in the subscriber base driven by customers who value text messaging. These three benefits all result in increased revenue and have a compounding effect as well: More subscribers are signing up for messaging more often and sending more messages when they do.

The most compelling reason for enabling interoperability is the dramatic effect it has on messaging traffic. While it is simple to understand how increasing the number of subscribers on a network results in greater messaging traffic, the increase in traffic is significantly higher than the increase in the population. The traffic increase is proportional to the square of the users added. The table and discussion in *Figure 1* illustrate how all participants in a market benefit from the interoperability effect.

The Interoperability Effect

Communication occurs between individuals and can only occur when those individuals have a means of communicating, that is, an interconnection between them. Communication traffic is proportional to and driven by the number of interconnections possible between subscribers. The number of interconnections in any given network represents the value of that network, and, with a large number of subscribers, the value is proportional to the square of that number of subscribers. This is commonly referred to as "Metcalfe's Law".[1]

To illustrate how Metcalfe's Law applies to wireless text messaging, a sample wireless market is presented in *Figure 2*. This example assumes that four carriers serve a metropolitan area with 1 million total subscribers. The carriers have different market shares ranging from 10 to 40 percent—a competitive situation which is representative of many major markets in the United States and Canada.

Without interoperability, subscribers can only exchange messages with others within their networks. Carrier C, for example, has 200,000 subscribers within its network, which results in 40 million possible interconnections. If this network established interoperability with all the other networks in this market, a single network would be operating with 1 million subscribers. With this population, there would be 1 billion possible interconnections, and for subscribers on Carrier C, a 25 times increase in the potential for messaging.

While interoperability does benefit smaller carriers proportionally more, enabling interoperability yields a many times increase in the number of interconnections and the potential for messaging. In our example, Carrier A has a strong lead with a market share of 40%; however, establishing interoperability provides over 6 times more interconnections, and would produce a corresponding multiplier effect on message traffic.

Increases in messaging traffic result in dramatic increases in carrier revenue. In Europe, where carriers charge for text messaging on a pure per-message basis, carrier revenue has risen in direct proportion to the increase in traffic. In North America, where carriers generally charge for messaging on a bundled basis, revenue increases will be realized as customers exceed and upgrade their monthly allocations.

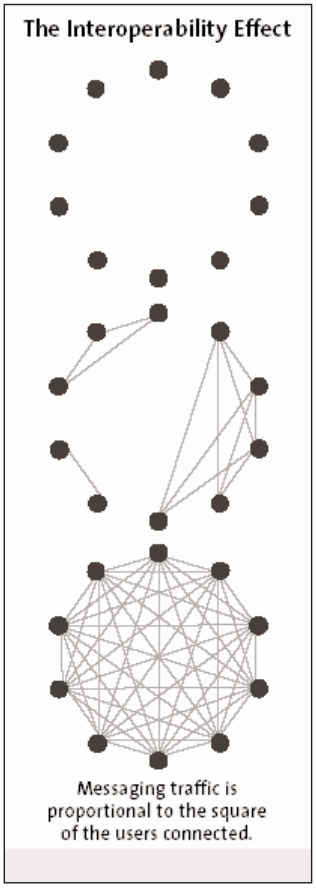

Figure 1.

The Interoperability Effect. See George Gilder's 9/13/93 article in Forbes ASAP explaining Metcalfe's Law. This article is available at: http://www.gildertech.com/public/telecosm_series/metcalf.html

	Market Share	Subscribers (000s)	Interconnections Within Network (millions)	Interconnections With Interoperability (millions)	Ratio
Carrier A	40%	400	160	1,000	6.3
Carrier B	30%	300	90	1,000	11
Carrier C	20%	200	40	1,000	25
Carrier D	10%	100	10	1,000	100
Total Market	100%	1,000	300	1,000	3.3

Figure 2

The Interoperability Effect in Action

The interoperability effect on messaging traffic has been clearly demonstrated in other wireless markets. In the UK, text-messaging interoperability was established in April, 1999. Prior to this point, messaging traffic had reached a plateau, at approximately 50 million messages per month. After message interoperability was introduced, there was a 350% increase within 7 months. See the chart below (*Figure 3*).

This experience was repeated in every wireless market where interoperability has been introduced. In Australia and Portugal the increase following interoperability occurred even faster than in the UK. Information on these markets is also shown in the table below (*Figure 3*).

While these markets do have characteristics that differ from the North American wireless market, the lesson is clear: Full levels of messaging traffic are only achieved when interoperability is established between networks.

Market	Interoperability Established	Monthly Message Traffic Before Interoperability	Monthly Message Traffic With Interoperability	Percent I ncrease	Months from Interoperability
Australia	Apr 2000	50	500	900%	8
United Kingdom	Apr 1999	52	180	350%	6
Portugal	Feb 2000	47	162	245%	8

Figure 3

The Risk of Slowing Messaging Adoption

As carriers launch text messaging in North America, they have a unique opportunity to cultivate and capture a new and growing revenue stream. There is a risk, however, that if the service disappoints early adopters by not performing to their expectations, then text messaging in general will not gain the momentum necessary to make it a mass-market service.

When text messaging is launched, there is no need to educate users about interoperability. A message is sent the same way in-network or out-of-network. Users already assume that they can do this. Subscribers will expect to send text messages to any other subscriber just as they can call any subscriber on any wireless network today. It is unlikely that subscribers are absorbing the small print disclaimers informing them that messaging is limited to others on their home network. Carrier customer service centers are already receiving complaints from subscribers who receive error messages after trying to send a text message off-network.

Interoperability Enhances the Rollout of Text-Based Services

Many carriers are anticipating delivering value-added services to subscribers through text messaging. Ztango and VeriSign share this expectation; however, we don't believe that interoperability should take a back seat to the introduction of value-added services. There are two reasons for enabling interoperability prior to the introduction of text-based services.

First, exchanging messages with friends, family and business associates provides a strong incentive for users to learn how to send and receive messages. This incentive to learn facilitates the adoption of value-added SMS services. If subscribers are unfamiliar with the ease and quickness of text messaging, they will be reluctant to pay additional amounts to trial such services.

Second, it should be noted that interoperability promotes mobile-originated (MO) traffic, that is, messages sent from person-to-person. Value-added services will initially generate more mobile-terminated (MT) traffic. Carriers are generally charging more for MO messages than MT messages, thus carrier margins are higher for a MO message than for a MT message. Interoperability is an easy way to promote this higher margin MO message traffic. Going forward, we anticipate that there will be significant competitive pressure to lower the price for MT messages, which will raise the importance of maximizing MO message traffic.

Learn More:

For more information, please contact your VeriSign Account Manager, call our information center at 888.655.4636 or 1.912.527.4010, send an email to vcs-marketing@verisign.com, or visit www.verisign.com/telecom.

About VeriSign:

VeriSign, Inc. (Nasdaq: VRSN), delivers critical infrastructure services that make the Internet and telecommunications networks more intelligent, reliable, and secure. Every day VeriSign helps thousands of businesses and millions of consumers connect, communicate, and transact with confidence.

ABOUT ZTANGO:

Ztango is the leading provider of enhanced wireless services. Ztango develops and manages a set of innovative wireless multimedia and messaging services that can be quickly and efficiently deployed. Leveraging its integrated software solutions, network operations and customer care center, Ztango services are utilized by carriers representing over 70% of the U.S. wireless marketplace. Ztango's customers immediately profit from services that leverage the explosive growth of wireless multimedia and messaging. For more information, visit www.ztango.com.

+ Conclusion

Wireless text messaging traffic will reach maximum levels and carriers will fully realize the revenue opportunity for text messaging only by enabling interoperability between carriers.

As carriers introduce text messaging as a new service in North America, the network effects of interoperability can significantly enhance a successful market launch. Interoperability drives higher usage of messaging, avoids customer frustration, and facilitates the introduction of revenue-producing text based wireless services.