2012 SIP Trunking State-of-the-Market Report

July 2012

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In June 2012, about 300 large enterprise IT professionals[1] responded to our call for information about their deployment status, plans and attitudes about SIP Trunking and, by extension, Session Border Controllers (SBCs). This report uses the following definitions[2]:

- **Session Initiation Protocol (SIP)** is the primary VoIP protocol that enables a session or connection to be made between two end points on the network

- **SIP Trunking** is a service delivered via SIP that allows a private branch exchange (PBX) system, which is the multiline phone system used by businesses, to aggregate multiple calls, screen shares, or videoconferences over an IP connection.

- A **Session Border Controller (SBC)** controls a network by admitting (or not admitting) and then directing communications between two end devices on the network, like a Voice over Internet Protocol (VoIP) call between two phones. The SBC does this session controlling at the point where traffic is handed off from one network to another (called the border). Because of where the SBC fits in the network, it can be usefully implemented by both businesses themselves and also by the service providers who serve them.

The key findings of this study include:

- VoIP is a fully mature technology within corporate networks for intra-company communications. In fact, roughly two-thirds of the respondents reported either "Significant use" or "Extensive use" of VoIP.

- SIP Trunking, by contrast, is still in the early stages of deployment. Only about one-third of the respondents reported either "Significant use" or "Extensive use" of SIP Trunks.

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[1] The database consists of responses from companies with at least 500 employees. Depending on the additional filters applied, the responses are about 60% to 67% US-based, and in some cases, the sample group was further filtered as noted in this report. The primary response base is comprised of users from the Webtorials community, supplemented by responses from CCMI's Voice Report and Telecomm Talk communities.

[2] Source: *Session Border Controllers For Dummies by John Wiley & Sons, Inc.*
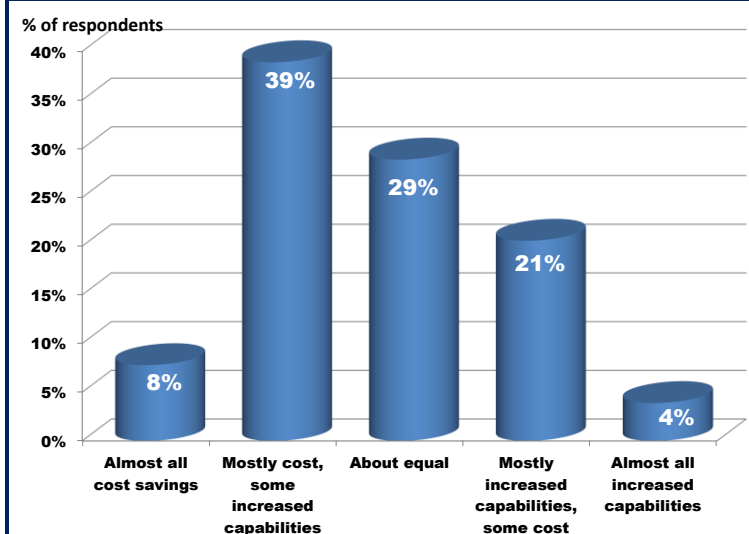
- Among those using SIP Trunks, significant cost savings have been realized, with an average savings on the order of 33%.[3]

- The primary drivers and inhibitors of both VoIP and SIP Trunking have been identified. The drivers will continue to grow in importance, and the inhibitors are readily being addressed.

- Session Border Controllers, as an integral part of SIP Trunking, are entering a second generation of security and other capabilities, particularly those that enable SIP-based applications.

- The industry is now at a "tipping point" where we will see rapid growth of both SIP Trunking and SBCs, with SBC capabilities expanding in both the enterprise and in service provider offerings.

SIP Trunking Drivers and Inhibitors

While VoIP has become the *de facto* mode of intra-corporate communications, a missing piece of company-to-company and, in particular, company-to-network communications has been the ability to keep all information packetized from end to end. Instead, the most common methodology has been to convert traffic from VoIP to traditional voice for accessing the PSTN via ISDN PRI trunks. Then, the reverse process occurs at the receiving end.

While this approach "works," it suffers from at least two major limitations. First, it is expensive and adds considerable complexity. Second, it only works for a limited set of voice formats and not for a wide range of existing multimedia communications options.

Figure 1: SIP Savings / Capabilities

% of respondents

- Almost all cost savings: 8%
- Mostly cost, some increased capabilities: 39%
- About equal: 29%
- Mostly increased capabilities, some cost: 21%
- Almost all increased capabilities: 4%

"There are two basic benefits from implementing SIP Trunking: Actual savings in terms of reduction in cost and Increased capabilities that would not be available otherwise. To what extent is each of these important to you?"
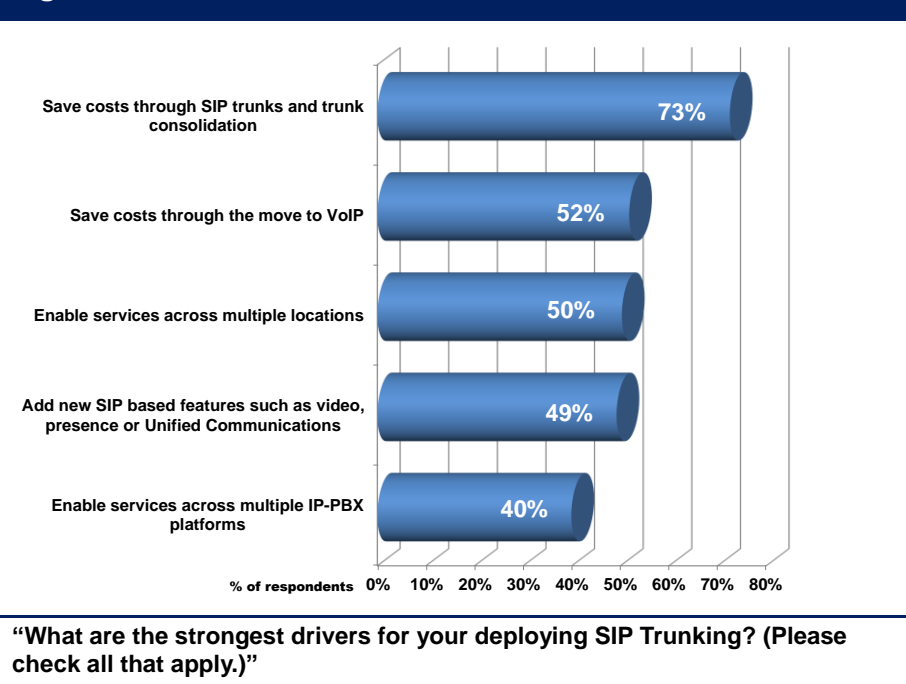
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[3] Some reports show much higher cost savings. However, it is our belief that those estimates include savings from both the adoption of VoIP and SIP Trunking rather than from SIP Trunking alone.

SIP addresses both problems, providing essentially a superset of the functions that SS7 provides for the PSTN. The implications are two-fold. Not only does the implementation of SIP Trunking save money, it also adds a plethora of new capabilities.

For **Figure 1**, survey respondents were asked to what extent each of the functions – saving money versus new capabilities – was important to them. Responses were included from those who have a "Significant" or "Extensive" use of VoIP *and* who expressed opinions about cost vs. capabilities. We found that saving money is most important, but that increased functions are also quite important, with 68% of respondents indicating that their decisions are driven "Mostly by cost savings" or "About equally" by cost and capabilities.

The importance of cost savings is further emphasized by looking at the major drivers for implementing SIP Trunks (**Figure 2**). The top two drivers relate to direct cost savings, with almost three-quarters of the respondents indicating that SIP Trunks and consolidation were a **strong** driver. Notably, however, the ability to "Add new SIP-based features" was a strong driver for half of the respondents.

Figure 2: SIP Drivers

Save costs through SIP trunks and trunk consolidation	73%
Save costs through the move to VoIP	52%
Enable services across multiple locations	50%
Add new SIP based features such as video, presence or Unified Communications	49%
Enable services across multiple IP-PBX platforms	40%

% of respondents 0% 10% 20% 30% 40% 50% 60% 70% 80%

"What are the strongest drivers for your deploying SIP Trunking? (Please check all that apply.)"
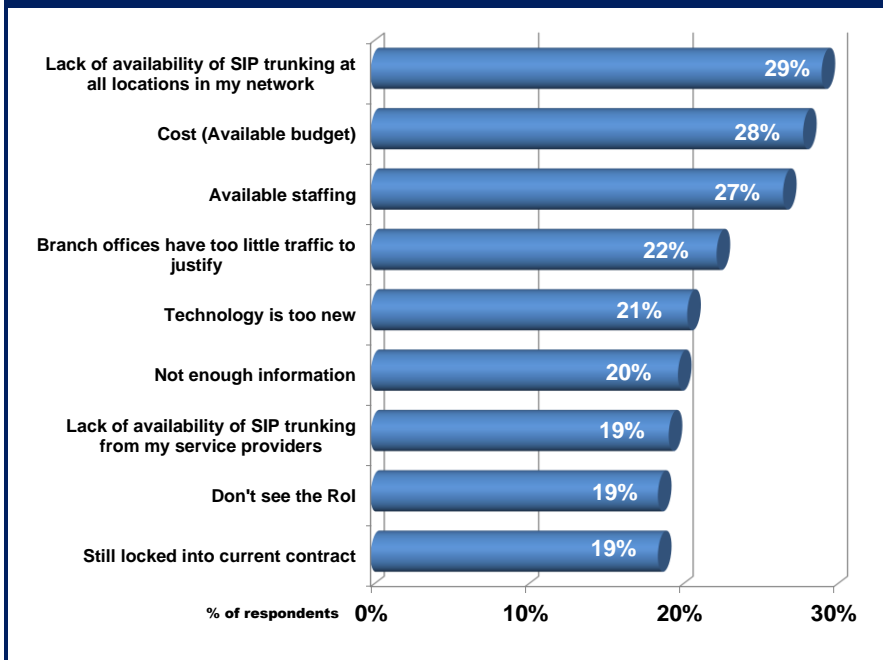
Other options garnering fewer indications that they were strong drivers include:

- Simplify network administration – 34%
- Enable services across mobile devices or platforms – 30%
- Integrate home-office workers into the corporate Unified Communications strategy – 26%
- Deliver private/public cloud solutions to users – 20%
- Enable services across disparate carriers – 20%
- Perform encryption and authentication – 15%
- Transcode between VoIP algorithms – 12%
- Protect networks from security attacks – 12%
- Transcode between video algorithms – 7%

These trends will be examined more fully in the section below, concerning the most desired SBC capabilities. Additionally, we see the options for transcoding between disparate voice and video algorithms becoming much more important as – especially through mergers and acquisitions – networks must increasingly support VoIP and Unified Communications implementations from multiple vendors.

Figure 3: Deterrents to Deploying SIP Trunking

Deterrent	%
Lack of availability of SIP trunking at all locations in my network	29%
Cost (Available budget)	28%
Available staffing	27%
Branch offices have too little traffic to justify	22%
Technology is too new	21%
Not enough information	20%
Lack of availability of SIP trunking from my service providers	19%
Don't see the RoI	19%
Still locked into current contract	19%

"What are the strongest deterrents to your deploying SIP Trunking? (Please check all that apply.)"

The obvious question becomes *"With all these advantages, why hasn't everyone implemented SIP Trunking?"* To answer that, we asked our respondents about inhibitors. In this case, it seemed most appropriate to focus on respondents who indicated that they were "Just starting / Evaluating" or in "Early Use," rather than the entire response base.
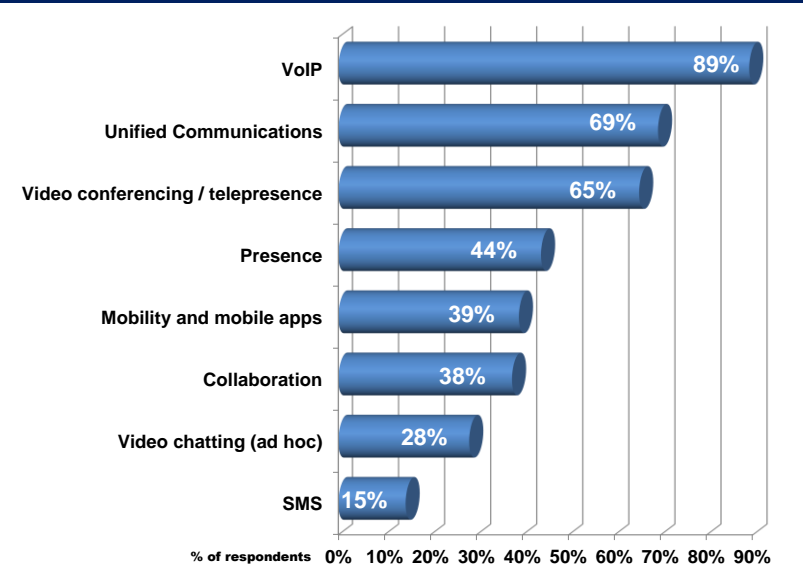
This subgroup tells us several interesting things (**Figure 3**). Perhaps the most obvious and striking observation is that since respondents were asked to identify "strong" reasons, fewer respondents gave multiple responses. And many responses from "non-implementers" are not surprising, with the most prominent (29%) being that services were not available at all of their network locations. After all, the general availability of SIP Trunking from a wide variety of services providers is just being rolled out, and there is still location-specific variability. This is supported by the indication (by 19% of respondents) that their service providers don't yet offer SIP trunks.

Cost is again a factor. Both available budget (28%) and available staffing (27%) were cited as strong inhibitors, as was being locked into current contracts. Three other factors should be overcome in the short term: views that the "Technology is too "new," that respondents don't have enough information, and that they don't see the RoI. These all demonstrate the need for active education about the cost benefits and variety of capabilities that SIP Trunking can bring to the Enterprise.

An especially important capability that SIP Trunking can bring to the enterprise is the technology's ability to control a wide variety of media, and to significantly enhance Unified Communications capabilities. To that end, our survey also asked "What types of media do you anticipate controlling via SIP?"

Figure 4: SIP Media-Control Implementation Plans

VoIP — 89%
Unified Communications — 69%
Video conferencing / telepresence — 65%
Presence — 44%
Mobility and mobile apps — 39%
Collaboration — 38%
Video chatting (ad hoc) — 28%
SMS — 15%

% of respondents 0% 10% 20% 30% 40% 50% 60% 70% 80% 90%

"What types of media do you anticipate controlling via SIP? (Please check all that apply.)"

In this case (**Figure 4**), we looked at the entire response base, and the leading answer – VoIP – is not surprising (89%). In fact, if there is any surprise here, it is that the response was less than 100%. Next up, and again not surprisingly, are Unified Communications (69%) and video conferencing / telepresence (65%). The importance of SIP in integrating mobility and mobile applications is shown strongly and appropriately, with 39% of the respondents planning for it. Finally, a strong focus on corporate apps is revealed in a relatively low score for SMS (text messaging). This is quickly becoming a primarily consumer-oriented service, though one could easily argue that Unified Communications will encompass any corporate SMS applications.

Savings from SIP Trunks

One of the most common and challenging questions about SIP Trunking concerns the savings they might deliver. Estimates vary widely, but are often skewed when savings from SIP Trunking are jumbled with savings from moving to VoIP and Unified Communications. To bring some clarity to the question, we limited our analysis to respondents who have either "Significant" or "Extensive" use of SIP Trunking.

Looking at just this experienced SIP group, one of the most astounding findings is that 28% of the respondents did not know how much they are saving. In their defense, it may well be that they are in a position where they are involved in the implementation

Figure 5: Savings from SIP Trunks

Less than 10% — 7%
10% - 25% — 34%
26% - 50% — 44%
51% - 75% — 13%
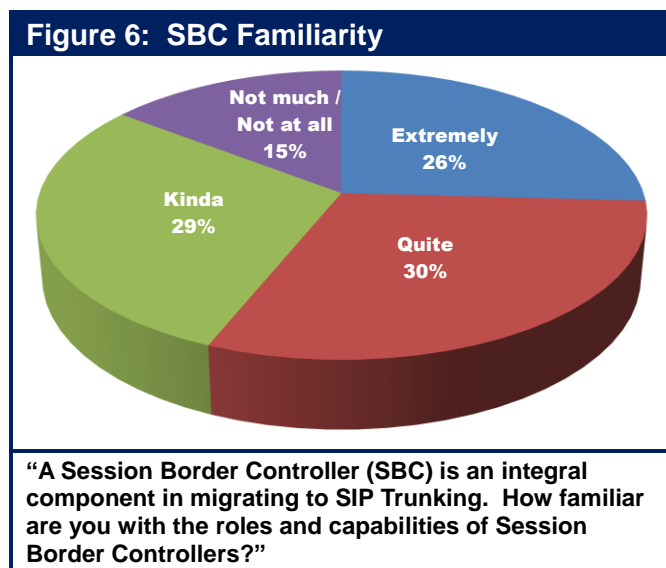76% - 100% — 2%

% of respondents 0% 10% 20% 30% 40% 50%
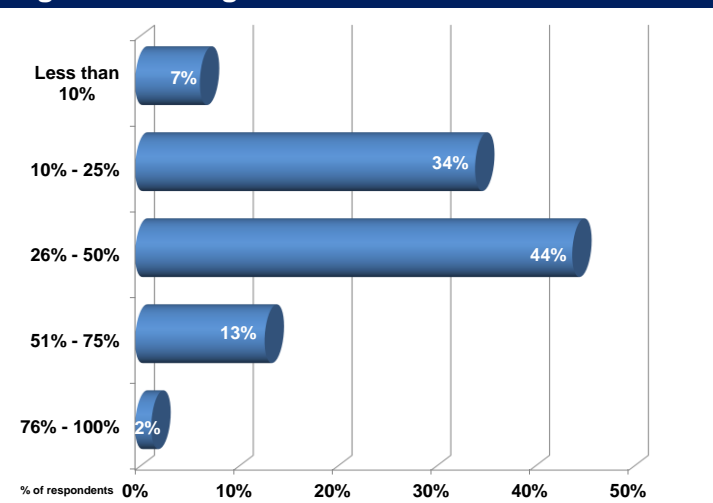
"Industry estimates vary widely on the cost savings realized by using SIP Trunking for connection to external networks. About what percentage of cost do you see as actual reductions in expense for SIP trunks that you have implemented?"

process but not in financial oversight. It is also quite possible – even probable – that they honestly don't know because the calculations are complex.

Even though the sample size gets a bit smaller (and consequently exact percentages are less precise) it is appropriate to limit the analysis to those who actually answered the question, while still maintaining the additional filters.

As shown in **Figure 5**, almost 80% of the savings estimates are in the 10% to 25% and the 26% to 50% ranges, with about 13% seeing 51% to 75% savings. An alternate analysis method shows that respondents have saved (on average) about 33%.

The Critical Role of Session Border Controllers

Figure 6: SBC Familiarity

Not much / Not at all 15%

Extremely 26%

Kinda 29%

Quite 30%

"A Session Border Controller (SBC) is an integral component in migrating to SIP Trunking. How familiar are you with the roles and capabilities of Session Border Controllers?"

A Session Border Controller (SBC) is an essential component of SIP Trunking, especially for providing security features. Some SBC device *must* "translate" between private IP addresses in the corporate network and public IP addresses on the Internet. However, as shown in **Figure 6**, a large fraction (44%) of respondents with "Significant" or "Extensive" SIP Trunking experience claimed little or no familiarity when asked *"How familiar are you with the roles and capabilities of Session Border Controllers?"* Our only explanation of this is that the SBC function is often included in SIP Trunking services and may not be highly visible to users.
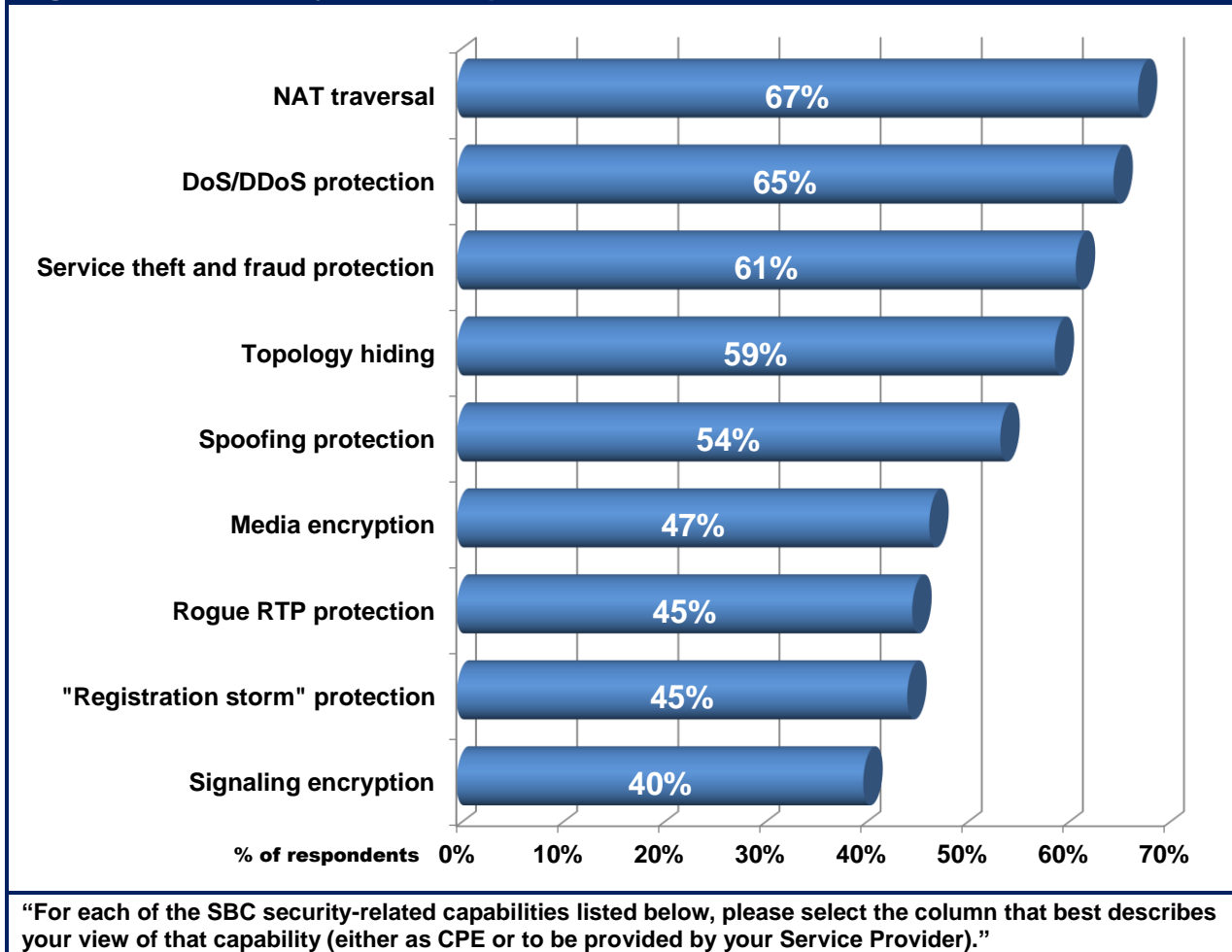
We do, however, expect this lack of understanding to improve considerably as SBC technologies enter a new generation, with a wide range of features beyond just IP address translation.

To analyze the most desirable features offered by SBCs, we applied two filters to the database: First we limited the responses to those who indicated that they are "Quite" or "Extremely" familiar with SBCs. Then we limited the answers – as shown in **Figure 7**, to those respondents indicating that the feature was "Critical in our situation."[4]

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[4] The answer options for the question were
- Critical in our situation
- Aware of as a "nice to have"
- Cool, but didn't know about it
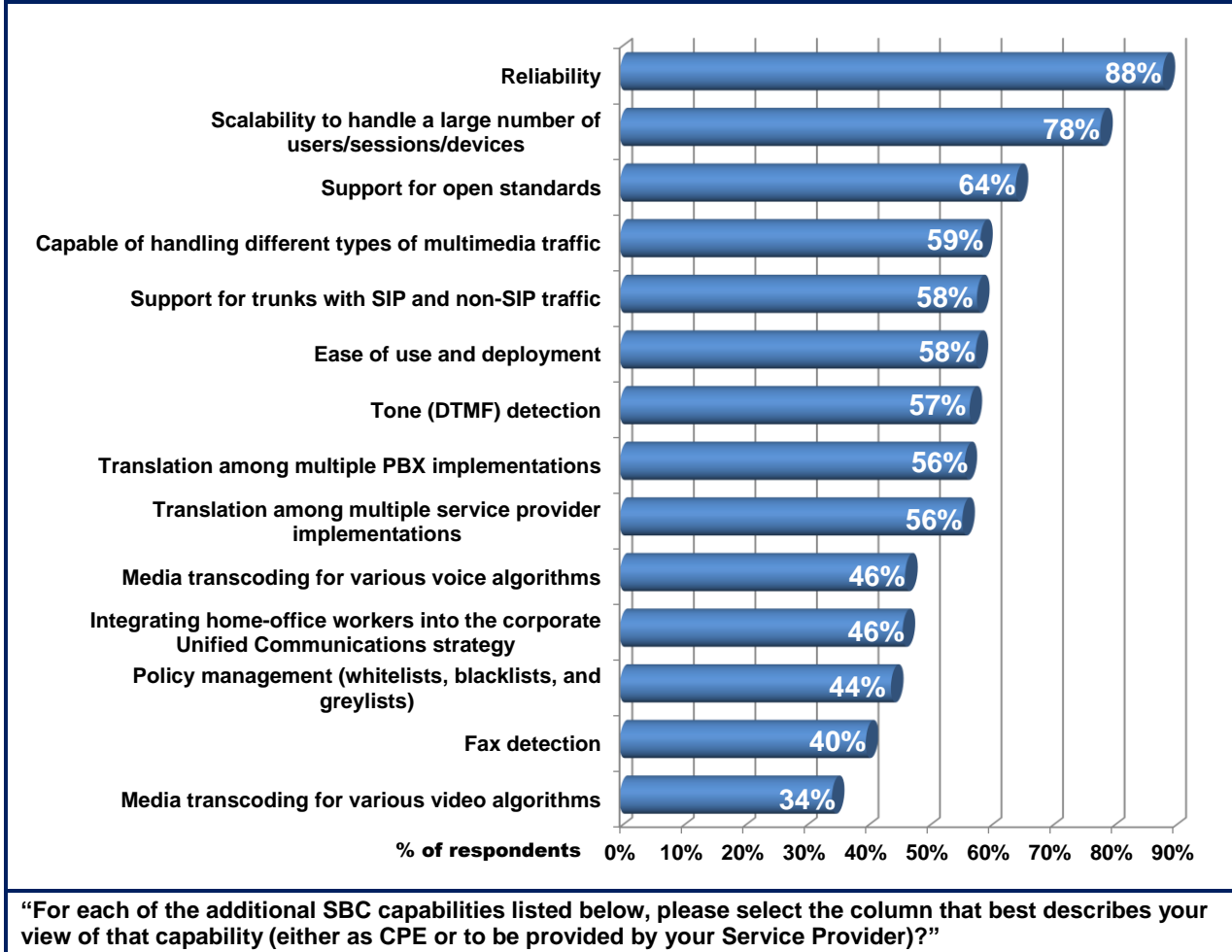- Don't currently require
- Don't know / NA

Figure 7: SBC Security-Related Capabilities

Capability	%
NAT traversal	67%
DoS/DDoS protection	65%
Service theft and fraud protection	61%
Topology hiding	59%
Spoofing protection	54%
Media encryption	47%
Rogue RTP protection	45%
"Registration storm" protection	45%
Signaling encryption	40%

% of respondents 0% 10% 20% 30% 40% 50% 60% 70%

"For each of the SBC security-related capabilities listed below, please select the column that best describes your view of that capability (either as CPE or to be provided by your Service Provider)."

While all features are apparently important to users, it is not surprising the NAT (Network Address Translation) traversal – the most fundamental function – ranks first. It is likewise not at all surprising that DoS/DDoS protection also showed extremely high importance.

With the second generation of SBCs emerging, a number of additional features are now becoming available as well. Using the same criteria as for security issues (strong familiarity and an indication of desirability), **Figure 8** represents the percentage of the subset of respondents indicating that the capability was "Critical." Some of the features users really want are not surprising. But others are.

Figure 8: SBC Additional Capabilities

Capability	%
Reliability	88%
Scalability to handle a large number of users/sessions/devices	78%
Support for open standards	64%
Capable of handling different types of multimedia traffic	59%
Support for trunks with SIP and non-SIP traffic	58%
Ease of use and deployment	58%
Tone (DTMF) detection	57%
Translation among multiple PBX implementations	56%
Translation among multiple service provider implementations	56%
Media transcoding for various voice algorithms	46%
Integrating home-office workers into the corporate Unified Communications strategy	46%
Policy management (whitelists, blacklists, and greylists)	44%
Fax detection	40%
Media transcoding for various video algorithms	34%

% of respondents 0% 10% 20% 30% 40% 50% 60% 70% 80% 90%

"For each of the additional SBC capabilities listed below, please select the column that best describes your view of that capability (either as CPE or to be provided by your Service Provider)?"

Because of the critical role of SBCs in all types of communications, it's not really surprising that "Reliability" ranks as the most important feature for users. However, it may be more surprising that (especially among users with considerable experience) "Scalability" is a very strong second – garnering 78% of the respondents.

Scalability's high rank shows that experienced respondents understand the importance of this issue. If nothing but voice calls were involved, scalability would not be a huge factor. That's because each new voice user needs only one additional device, which makes voice application growth fairly linear. However, *multimedia* communications mandate scalability for both multiple users *and* modes of communication. This creates an almost exponential need for session handling as the number of users *and* the number of devices per user *and* the number of applications per device continue to grow.

The clustering of perceived needs for "Support for open standards," "Capable of handling different types of multimedia traffic" and "Translation among multiple PBX implementations" (along with media transcoding and translation further down the list) represents a realistic view of today's "standardization environment." It's a bit surprising that "Support for open standards" did not take its usual top position. But in today's marketplace, "standards" are no longer truly standard, and even SIP has various implementations and extensions that vary from product to product. So these responses show that (in users' eyes) SBCs have an important role to play as the "traffic cops" that oversee both connectivity and translation in next-generation, fully converged networks.

We also find the relatively high importance of "Support for trunks with SIP and non-SIP traffic" (58%) to be interesting. If SIP trunks carry only SIP traffic, then other types of data traffic must be carried on separate trunks. The capability to support both SIP and non-SIP traffic on the same trunk, while far from universally available today, would allow dynamic utilization of all available bandwidth... and is something users clearly desire.

Conclusion

In this first annual SIP Trunking State-of-the-Market Report, we find that there is a nascent, and yet robust, movement toward replacing traditional connections between the enterprise and the telephony network with SIP-based trunks. Beyond delivering the expected savings that would come from replacing older functions with less expensive technologies, SIP Trunking opens up vast new capabilities, as truly Unified Communications become the norm in corporate networks.

A key component of this evolution will be the Session Border Controller. With its position (both figuratively and literally) at the network edge, the SBC is poised to play a critical role in both controlling existing communication modes and enabling unrealized – even unimagined – *true* integration of all parts of IT infrastructures.

Over the next year(s), we look for rapid development in this market as a new generation of feature-rich SBCs is deployed throughout both service provider and enterprise networks.

About Sonus Networks

This report is made possible in part due to the generous support of Sonus. Sonus helps the world's leading communications service providers and enterprises embrace the next generation of SIP-based solutions including VoIP, video and Unified Communications through secure, reliable and scalable IP networks. With customers around the globe and 15 years of experience transforming networks to IP, Sonus has enabled service providers and enterprises to capture and retain users and generate significant ROI. Sonus products include session border controllers, policy/routing servers, subscriber feature servers and media and signaling gateways. Sonus products are supported by a global services team with experience in design, deployment and maintenance of some of the world's largest and most complex IP networks.

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The primary author of this study was Steven Taylor.