The SIP School

Learn and Qualify

the SIP survey 2017

Including 'Cloud' and SD-WAN

November 20, 2017

Welcome to the SIP Survey 2017

This 7th year of the SIP Survey has proven to be extremely popular with **895** professionals responding.

Why this kind of Survey?

The survey's purpose started off (years ago) with a focus on SIP trunking and specifically, to document the most common issues that occur during SIP trunk implementations and what can be done to help mitigate these issues, if at all. Inputs are collected from vendors, service providers, integrators, resellers and also from small to enterprise clients from all around the world.

Yet… this Survey evolves as SIP evolves….!

A lot of companies are migrating from legacy TDM trunks to SIP trunks - this is abundantly clear and well documented across the industry... Yet some are also adopting cloud services instead of having systems on-Premises. SIP is critical for all of these services.

Some companies are taking the 'Hybrid' approach where they retain things like Call control on-Premises, utilize SIP trunks for connectivity and then connect to the 'cloud' to add on functionality such as Contact Center, Call Recording, IVR (Interactive Voice Response), virtual eSBC deployment, and more. Also, some companies are watching and waiting to see what happens with mergers and acquisitions etc. as who can ignore the recent announcement by Cisco re: acquiring BroadSoft along with Level3 being absorbed by CenturyLink? What will the 'landscape' look like next year? That's why some companies wait to see what's left after the dust settles.

As the survey has been carried out by The SIP School, all of the opinions in this report are our own unless clearly stated. Our comments do change over the years though you may find that some stay the same as the message we want to deliver is the same but with extra emphasis to drive a point home. We have been able to embellish this report with comments from people who work in this area and we believe that their insights can help people understand what is important and actually happening out in the real world.

We have continued to highlight on the companies that are 'consumers' of SIP services and have done this to really focus on what the customer is experiencing; because when all is said and done, it is *they* who will decide if a service is successful or will fail.

Editorial and Research
Graham Francis
CEO The SIP School

MUST READ!

The Colors and the Results

As we asked **EVERYONE** to complete this survey we thought it would be of more value to show the results based on who the respondents are and more interesting to see the different viewpoints based on if people are providing services or purchasing them….

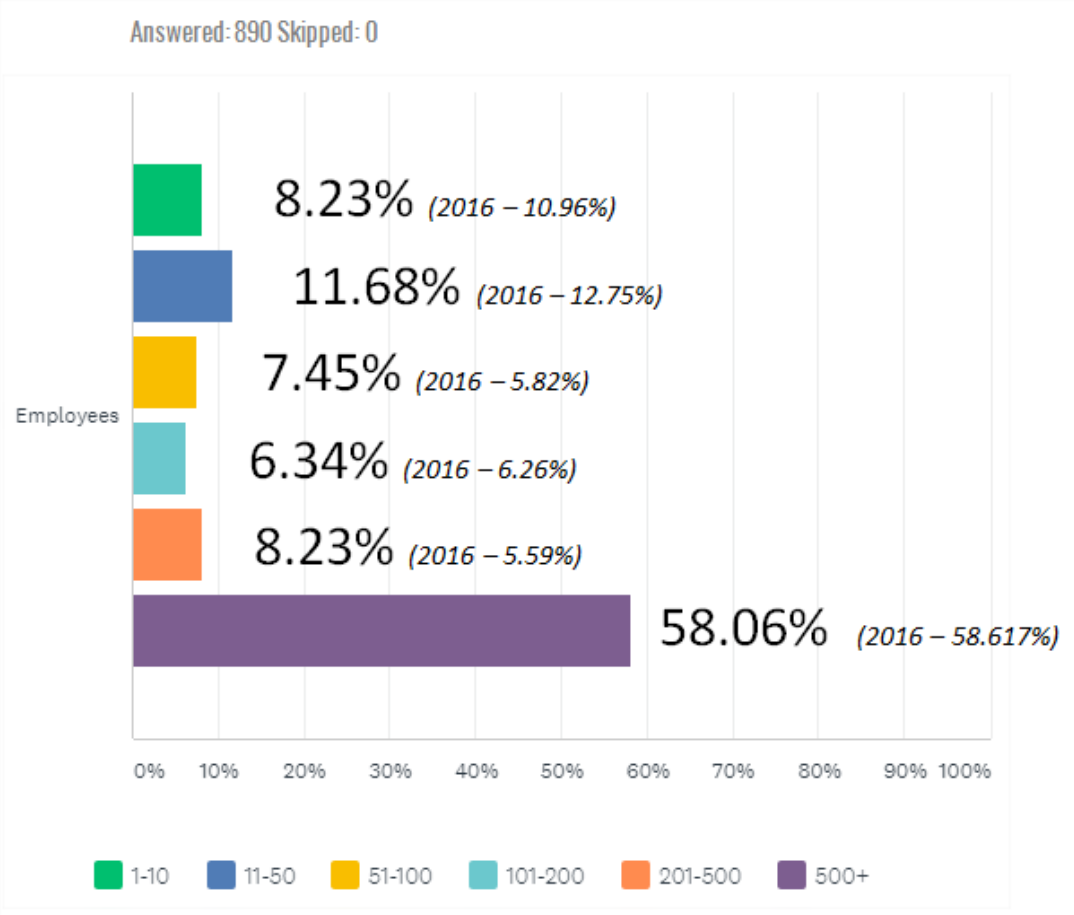
Note: We use the Term **ITSP** to cover a 'whole range' of companies that provide connectivity to allow Voice service for customers across public and private networks.

So to differentiate we have a color scheme that is shown here.

Purple = Answered by everyone	Question for all
Green = Answered by non-ITSPs (i.e. clients) only	'Q' for non-ITSPs
Blue = Answered by ITSPs only	'Q' for ITSPs

1 How many employees are at your company?

Question for all



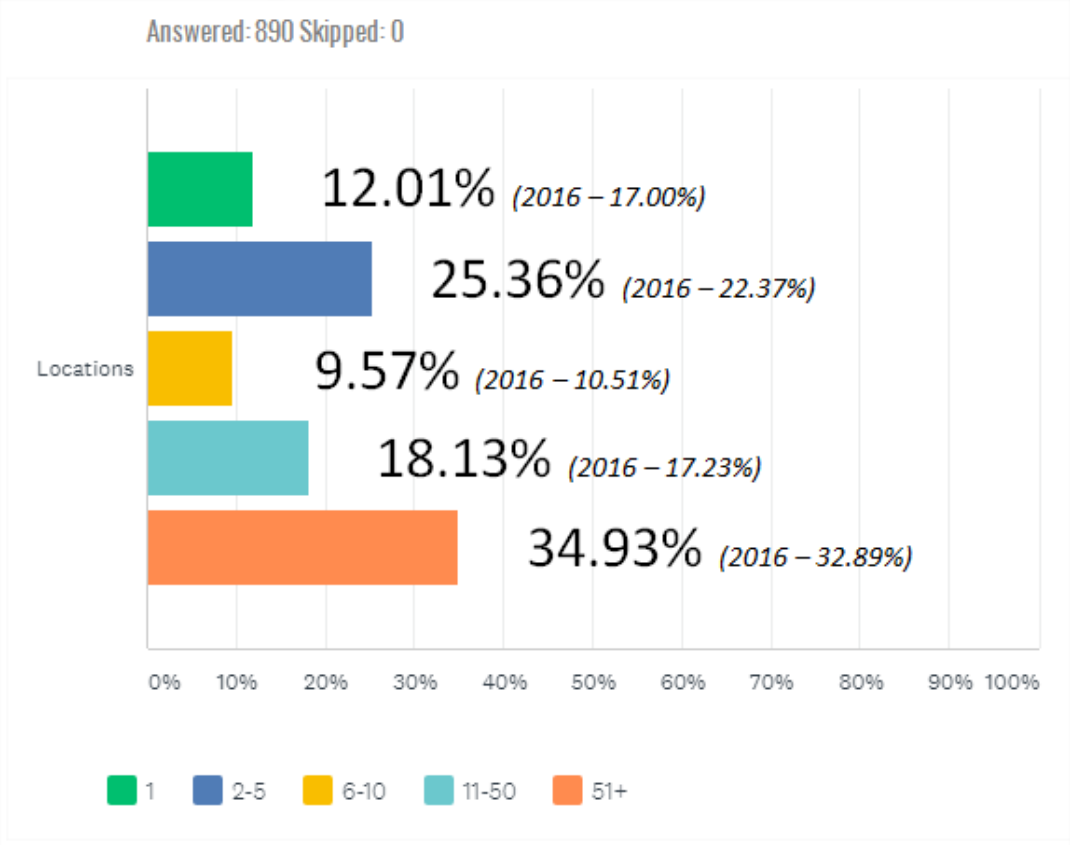
Based on the responses it is apparent that many Enterprise category accounts are leveraging the research of this report

David Leon Guerrero, COX

Everyone from SMB to Large Enterprise can benefit from SIP trunks and at some point soon (with the PSTN destined to be switched off), SIP will be the only choice.

2 How many locations or sites does your company have?

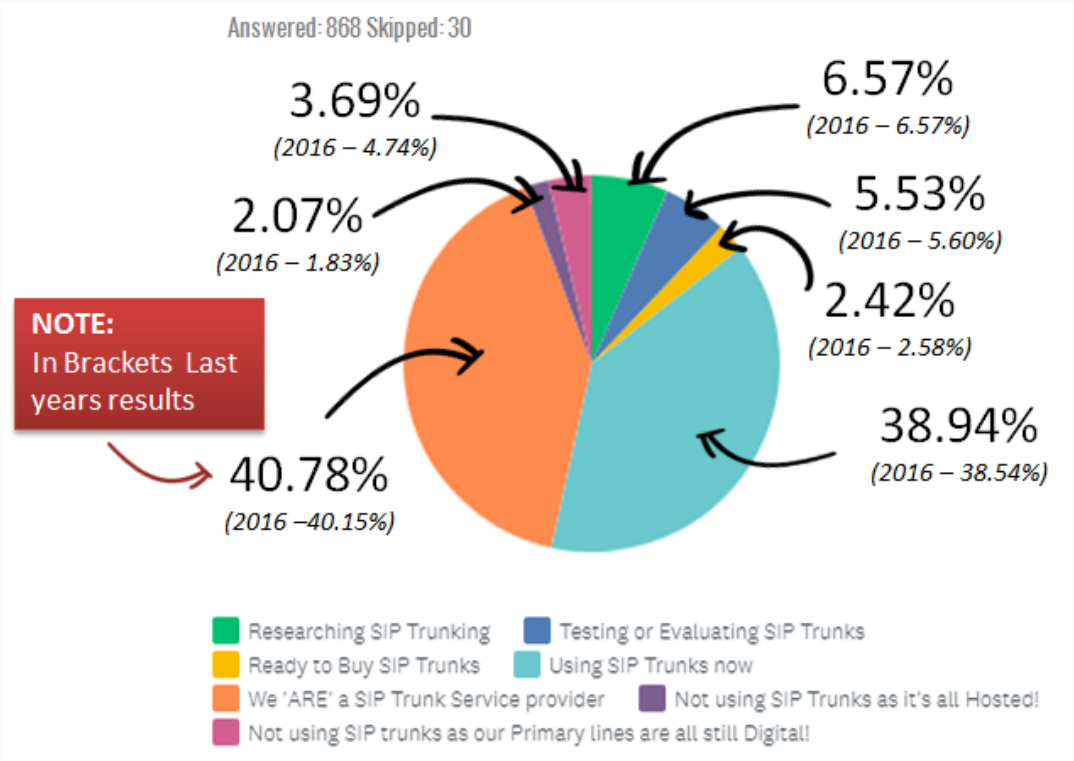
Question for all



From one to many locations, it's clear that SIP is being adopted by all.

3 SIP trunks are increasingly popular, where do you and your company fit in?

Question for all



ITSPs have announced plans to transition everyone to SIP in the next few years. I expect the number of firms that have transitioned to SIP will rise dramatically next year.

Steve Johnson, Ingate

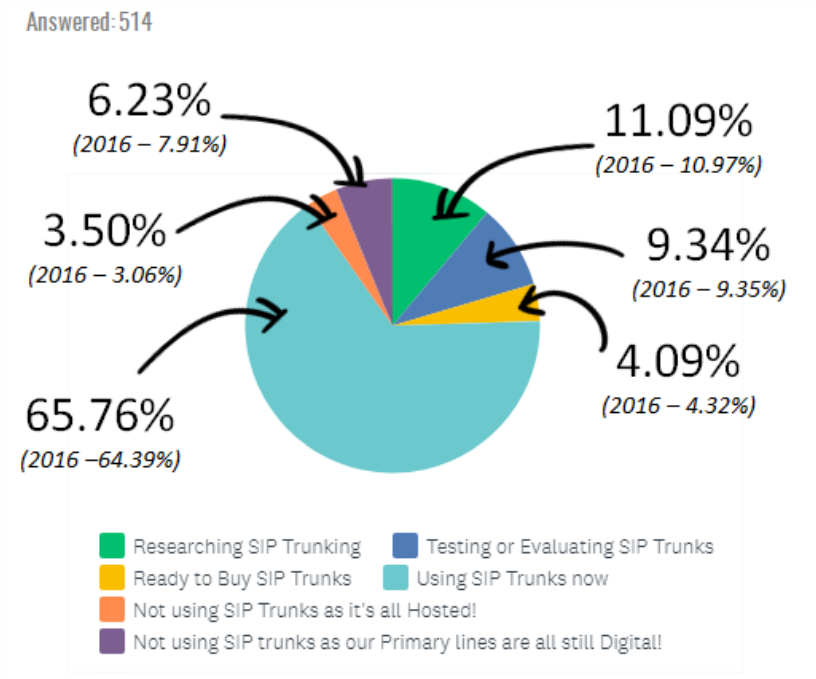
Would be interesting for next year's survey to ask of the companies claiming both multi-site and SIP Trunk deployments - how many of the respondents are Leveraging a centralized SIP Trunk deployment vs. dedicated SIP Trunks deployed on a per location basis

David Leon Guerrero, COX

About what I would expect, clearly SIP is dominate and TDM is going away

Mike Uttley, Level3 (now CenturyLink)

This 1st PIE chart is here for comparison to last year, BUT, if we remove the responses from the ITSPs themselves we see just client only responses…



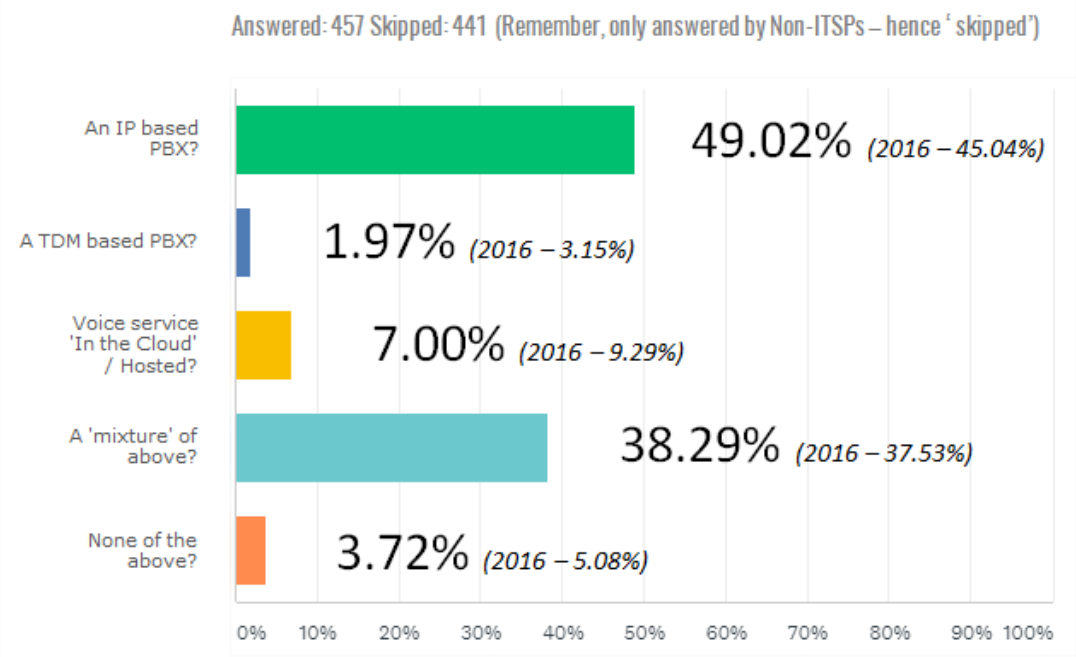
To get some idea of where the respondents are from, here is a small breakdown of the countries involved here.

- USA 44%
- UK 10%
- Canada 8%
- India 8%
- South Africa 3%
- Australia 3%
- Other 24%

Let's get some information about what equipment people are using so we'll start with the PBX. We also have some options to reflect how companies may be using multiple systems and possibly even transitioning to the cloud.

4 Does your company have for its own 'Internal' use?

'Q' for non-ITSPs



The results are not as expected since most reports say that hosted is dominating today. It is interesting that so many firms continue to use on premise PBXs.

Steve Johnson, Ingate

What were some of the drivers behind the decision to deploy an IP based PBX?

(a) Future proofing the Enterprise for collaboration and IP based comms strategy?

(b) Remote worker / remote site support?

(c)Support of multi-modal and omni-channel communications?

David Leon Guerrero, COX

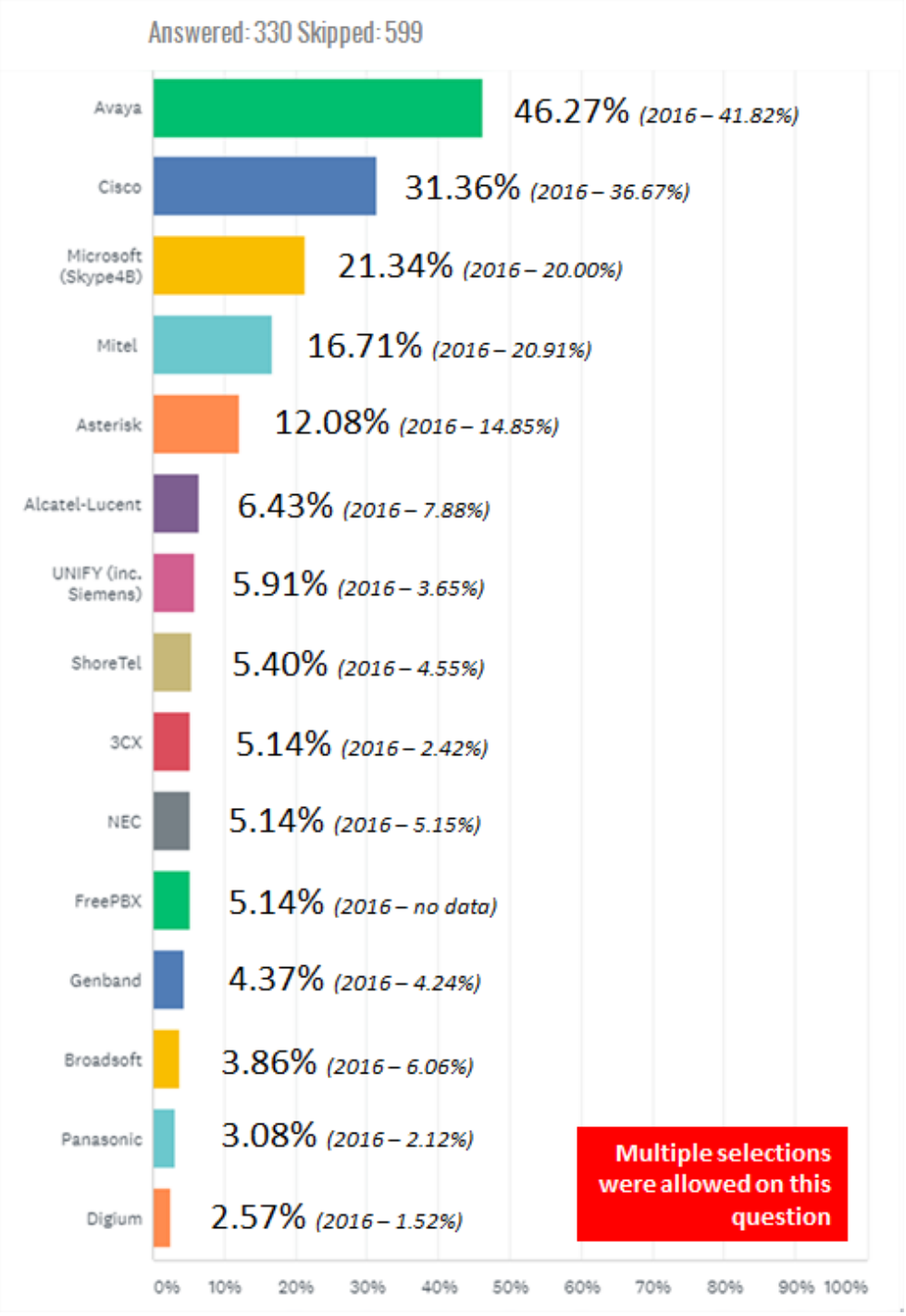
The PBX market is still going strong and there are clearly a lot of companies that are sticking with an on-site solution. Of course it's hard to ignore 'the cloud' and people *are* migrating to it – a good example being smaller businesses that are setting up new offices, maybe even businesses that move locations often - cloud provides flexibility for those that need it.

A common scenario is where larger companies do not 'rip and replace' but simply add more services to their existing communications infrastructure by adopting 'cloud services' slowly and carefully. They cannot be faulted for this approach especially as the market is experiencing a lot of merger / acquisition activity.

This question relates to the manufacturer of any installed PBX system.

5 If you use an IP based PBX, who is the manufacturer? (Allowed to select multiples)

'Q' for non-ITSPs



Any options that were made available to Survey responders that dropped under the 1% mark we made the decision not to display them.

NOTE:

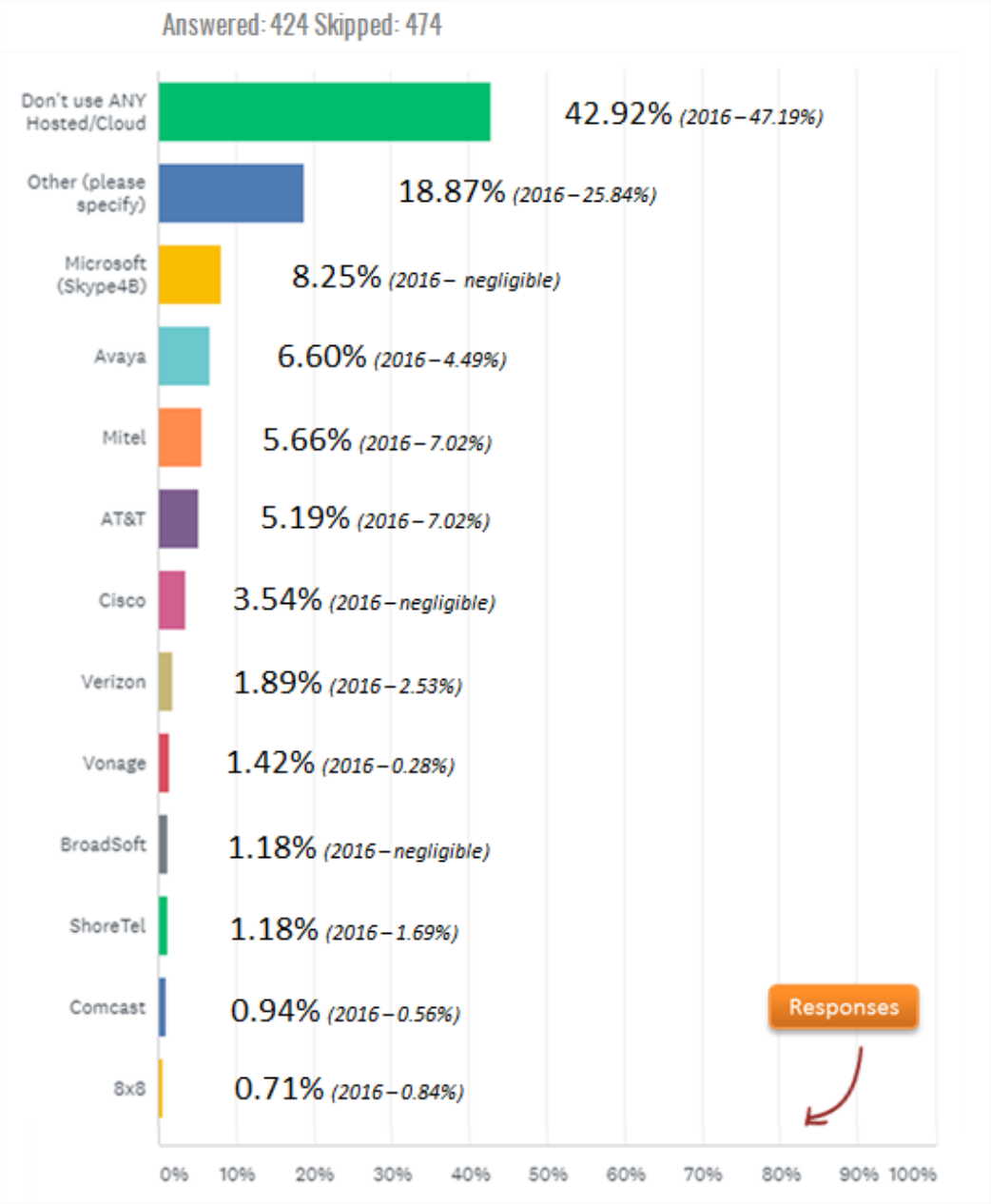
Mitel and ShoreTel are now One company as of Sept 2017

Also, Asterisk and Digium are the same company - i.e. Digium the Asterisk Company but we show them separately as Asterisk is available for free

We asked earlier if a company is using a cloud based service so….

6 If you use a 'Hosted/Cloud' provider for your 'Primary' Voice service, who are they? If your prime company location is not in the USA then please use the 'other' option to tell us.

'Q' for non-ITSPs



It is interesting to note that those not using the cloud at all has dropped from 47% to 43%. That does indicate that the use of cloud-based VoIP, at least to this survey audience, is growing. Whereas Microsoft shows no growth, the wide range of other providers indicates that there is no one or few dominant players. The market remains wide open for one or more players to assert their dominance. It will be interesting to see if this happens in 2018, especially with the Cisco acquisition of Broadsoft.

Joel Maloff, Phone.com

With 58% of your respondents over 500 employees, I'm not at all surprised by question 6. 500+ seaters are still not moving to hosted in a big way. I would bet the majority of "don't use hosted" are larger companies. It doesn't make sense to pay $25+ per seat when you can put your own PBX in place for much, much less.

Mike Oeth, OnSIP

Even though a drop on last year, all other market research points to 'cloud' being the way in which a lot of companies are moving. One of the things that can slow adoption is a poor network as a lot more traffic will need to cross it to get to the cloud services. Get the network right first otherwise it won't be a happy experience.

Sticking with 'the Cloud' for a moment.

7 What 'services' do you have hosted in the cloud at the moment?

'Q' for non-ITSPs

This explains the answers to Question 4. And it seems reasonable to use hosted services for certain functions that might be costly to implement internally.

Steve Johnson, Ingate

Those answering Full PBX grew by 38% over 2016 (90 to 124) indicating significant movement towards a total PBX replacement solution rather than individual components. Whereas most of the categories also grew to some extent, the only identifiable one that dropped was fax! Some people may say "about time" but fax has managed to remain a viable technology much longer than anyone expected!

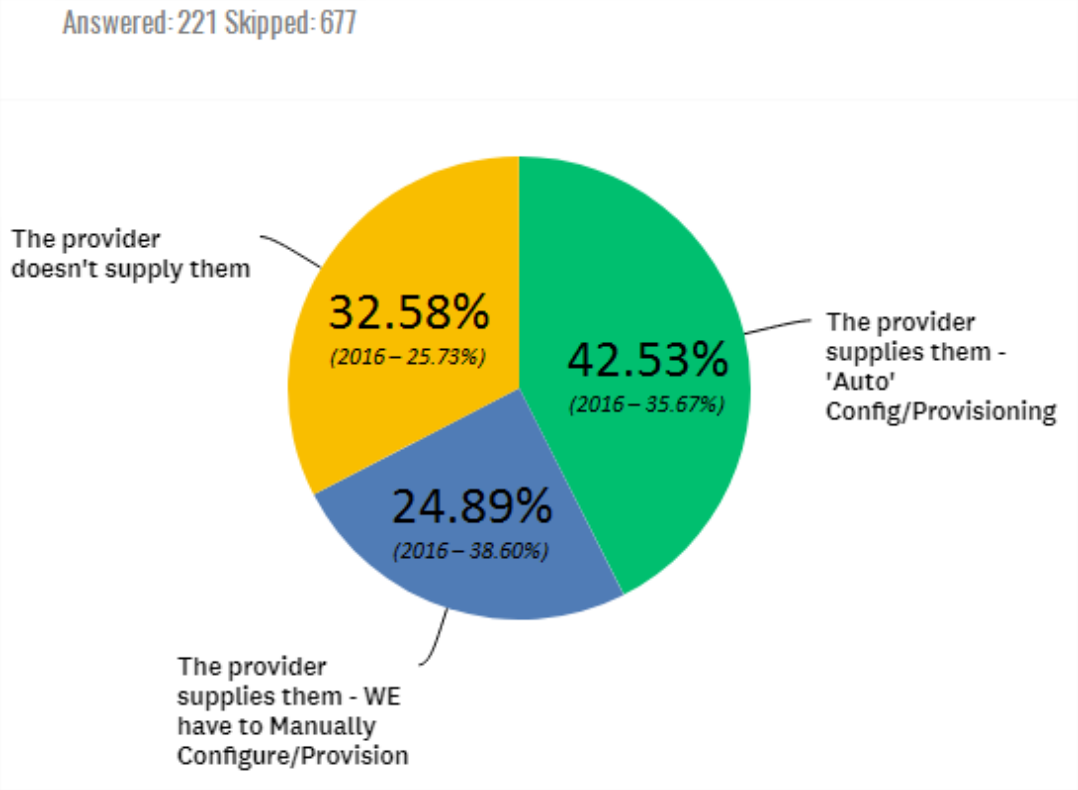
Joel Maloff, Phone.com

As previously mentioned, some companies will move to the cloud gradually; by migrating old functions and even adopting new ones where on-site options don't make sense. Some companies will 'rip and replace' everything – though these may be the ones with only a few locations and a smaller number of people to get up and running. It's clear that with the numbers above, all cloud service areas (apart from fax) are growing – maybe this is because some services that would have cost a lot of money for an onsite option are available now at a more palatable price point.

Again, focusing on cloud services.

8 What ‘ happens’ with regards to Handsets and Softphones?

‘ Q’ for non-ITSPs



What about maintenance replacement?

David Leon Guerrero, COX

So many ways in which you can get your phones delivered, installed and connected but which is the best and what works for you?

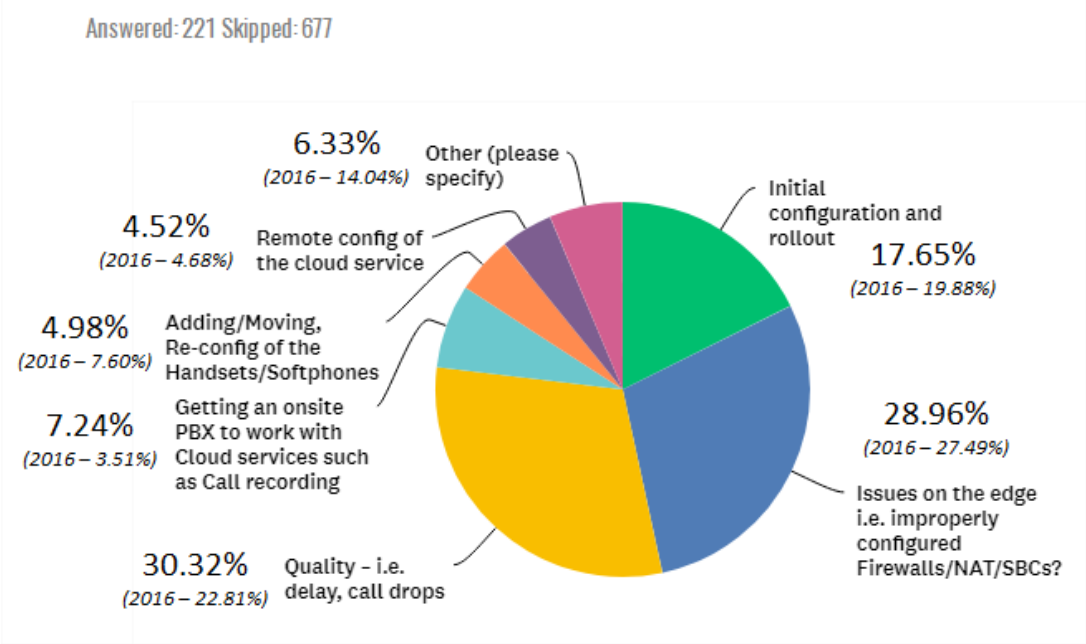
If you have your own expertise across the locations you need the phones then you may provision them yourselves. Remembering that SIP is involved should tell you that sometimes this is not an easy option – you need to make sure you have all the correct SIP parameters set in the phone before it will register and you can make calls. There are companies that will help with the automation of this so check them out.

If your provider can do this for you then it may be wise to let them manage it all. It’s also worth noting that if a provider offers a range of preferred phones then it’s because these phones have been proven to work with their service so may be your best option.

OK, one more **'Cloud'** question

9 Which areas - when adopting a Hosted VoIP solution have caused you the most 'headaches'?

'Q' for non-ITSPs



As we've seen in the past, configuration issues still dominate. The implementers seem to create more problems than they resolve. The fact that the quality of service as actually worsens, it makes me wonder what the providers are not doing for managing QoS in the networks.

Gary Audin, Delphi

Issues on the edge, such as improperly configured firewalls or NATs remained consistent at 27%-29%. However, overall quality including delay and dropped calls rose from 23% to over 30%. While that might not be statistically significant, the fact that it increased at all is of concern. That may be related to the overall growth of hosted solutions and that customers may not understand what should be expected. It also may indicate that the vendors need to do a better job of educating their customers as well as maintaining their networks.

Joel Maloff, Phone.com

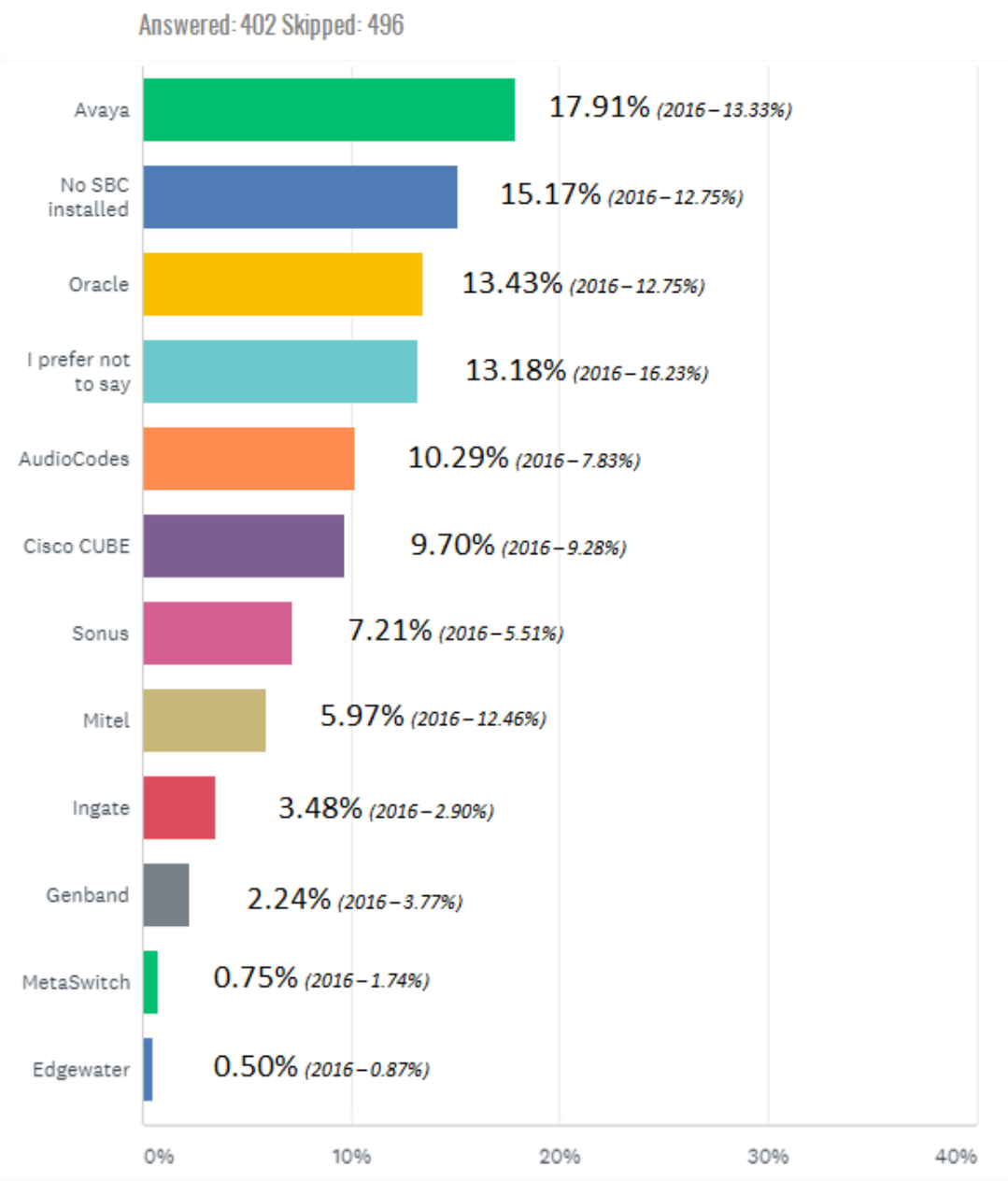
A Hosted VoIP service can be just the right solution for your business yet there are a number of things to consider before you jump in - such as: Is your Internal Network configured to support VoIP (Vlans / L2 QoS etc.) Are you going to use an edge device from the provider or your own? Whichever, is it configured to avoid issues such as one-way audio, voice delay, call drops etc? Who is going to configure it? Who is going to provision all the VoIP phones – you can probably do it yourself if there are just a few but across a campus with 10,000 handsets (for example) – that's a big job. Also, understanding what happens 'after' the installation i.e. what remote configuration options you have along with knowing how phone firmware updates are carried out – manually or automatically pushed, and when does this happen? How long will the phones be offline? Will all 10,000 be downloading software, rebooting, re-registering at the same time – this could bring a lot of headaches if not thought through properly.

One more thought, do you have a business application that you'd like to interface with your hosted system? Find out if it will work before you rush into anything.

Next we asked about the Session Border Controller (if any) people were using.

10 If you use a Session Border Controller on the Edge of your network (or even a virtual SBC), who is the vendor?

'Q' for non-ITSPs



The percentage not using an SBC has grown. An SBC resolves NAT and firewall issues, provides control for admission of calls, and supports many other functions to enhance the use of SIP. Use of an SBC is a Best Practice for all SIP installations.

Steve Johnson, Ingate

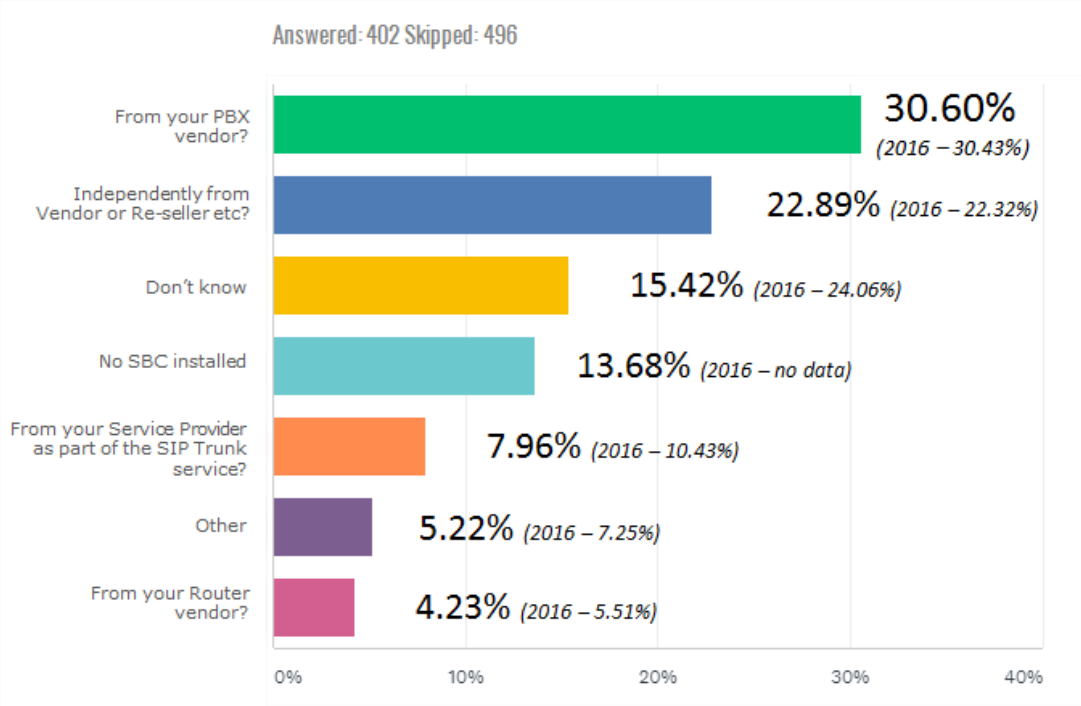
For those that responded "No SBC" - what was the primary reason for electing not to deploy an SBC

David Leon Guerrero, COX

So we have Avaya at the top closely followed NO SBC – yikes! Preferring not to say (at 13.43%) is ok as some people like to keep their security setup/configuration quiet.

11 Did you get your SBC (Physical or Virtual)....

'Q' for non-ITSPs



Not all respondents knew where / how they got their edge device (15.42%) but we wanted to see what we could find out from those who did know

From the PBX vendor (30.60%)
Is this because it was part of a 'package' deal? Maybe because it offers 'extensions' to the PBX that other SBCs cannot - due to a 'Vendor specific' issue or feature?

From the Service provider (7.96%)
This is a decent option as (hopefully) it will be optimized for that particular provider, maybe even remotely managed.

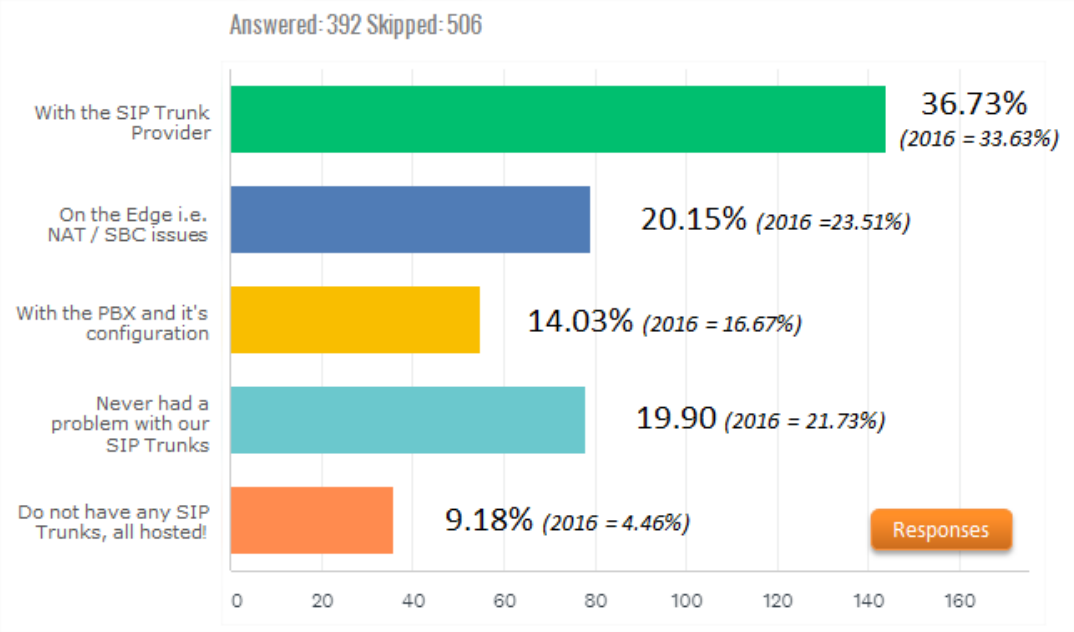
'**Independently**' (22.89%)
Shows that there is a healthy market for 3rd party vendors to offer extra a 'fuller' range of features for clients such as SIP normalization, QoS control, Security and more…

Some of the '**Other**' responses were from vendors of SBCs themselves so chose to answer that way.

If SIP trunks are installed and all works fine, then that's great and your business is reaping all the rewards promised. But what if things go wrong?

12 If you've had problems with SIP trunks (even if you are still trialing them) where have the 'primary' issues been?

'Q' for non-ITSPs



The problems with NATs and Firewalls are easily solved with an SBC, which should be a part of any SIP Trunking or hosted installation.

Steve Johnson, Ingate

It is surprising that the providers have degraded in their performance. For many years, the same problems have arisen and yet the providers seem not to be paying attention. Compared to previous years, the PBX vendors have continually improved their implementations. They are learning from the survey.

Gary Audin, Delphi

So an increase in the SIP trunk provider having the issues is interesting as you would think that by now the ITSPs will be absolutely sure of how their services work and how to provision them. I suppose it will be interesting to see how the ITSPs responded to the same question – refer to Question 26 – you won't be surprised.

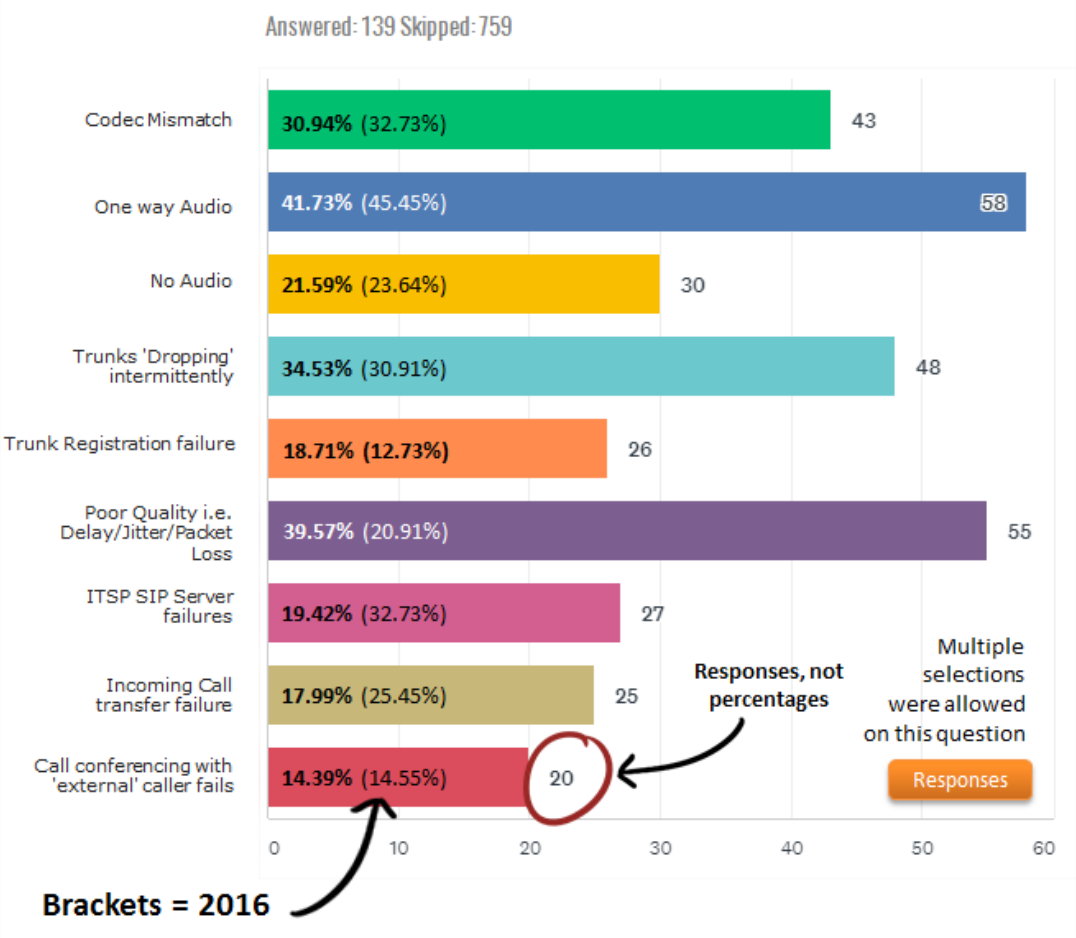
Some things people attributed to 'Never having problems' are:

- Good ITSP support and knowledgeable in-house IT staff
- Good planning, good support, good service provider, good configuration
- Good planning and redundant providers
- Good Support and good infrastructure
- Planning, and lab/testing environment
- Understanding of product and protocol

Now, let's look at the PBX, the SBC and the Provider in isolation, starting with the SIP trunk provider

13 If you've had problems that were found to be on the SIP Trunk provider side, what were they?

'Q' for non-ITSPs



Same old issues year on year and the answers to these problems remain the same. Good documentation and support from vendors, well trained staff to implement and configure and also good support from knowledgeable staff on the ITSP side.

One of the comments in a response mentioned that the provider did not tell the client what number formats to use in Caller-IDs, frustrating as they must have had to tell others about this and could have added this information to a 'configuration guide'.

Poor quality (delay/jitter/packet loss) nearly doubled from 21% to 40% of respondents. Again, this may be due to network configuration issues, customer expectations, or true issues within the service provider network. Ensuring that these numbers come down in 2018 should be a primary concern for all service providers.

Joel Maloff, Phone.com

I was very surprised that the poor quality problems increased from around 20% to 39%. This should not have happened. There is no mystery on how to solve these problems yet they still exist.

Gary Audin, Delphi

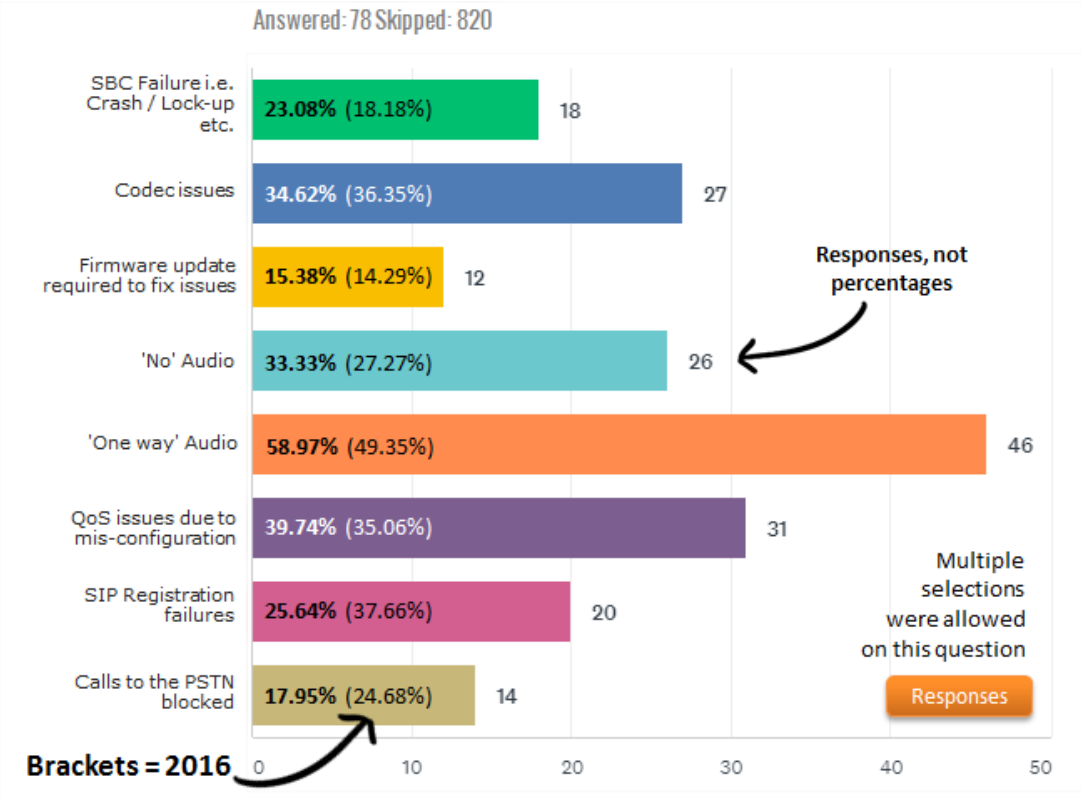
The SBC is designed to resolve many of the issues reported here, especially one-way audio and no-audio which are issues generally created by NATs and firewalls.

Steve Johnson, Ingate

The 'Edge' is where we find our next question.

14 If your problems were with your SBC / Edge devices, what were they?

'Q' for non-ITSPs



One way audio still appears to be a challenge (questions 13 and 14) - one easy fix would be to have a structured QA pre-turn-up process in place to minimize day of activation challenges. This is reiterated by the responses to Question 16

David Leon Guerrero, COX

One way audio is configuration issue. For it to increase from 49% to 59% is obvious that implementers are not paying attention.

Gary Audin, Delphi

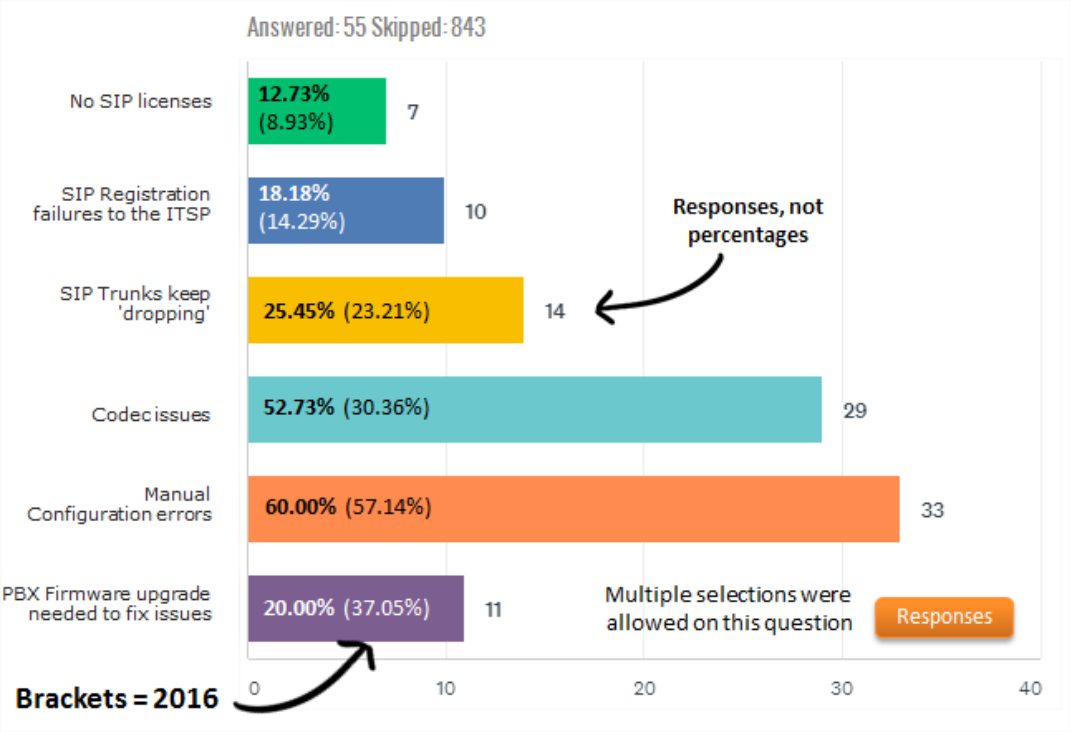
A lot of these issues are caused by mis-configuration or following incomplete/out-of-date documentation. Some issues may be through an SBC being used with an ITSP that it has not been tested with before, thus it's always wise to trial things first to find and eliminate problems before going 'live'.

I've previously mentioned that as ITSPs move (potentially) toward a model where they can offer the SBC as a virtual device 'in the cloud' it will then be off the client site and more easy to manage by the ITSP for their service offering. It may be easier to apply a setting to thousands of virtual SBCs in their own environment than try to ensure that thousands of devices on individual client sites get the required change/s applied and applied correctly.

Let's move onto the PBX.

15 If the problems were found to be with your SIP/ VoIP based PBX what were they?

'Q' for non-ITSPs



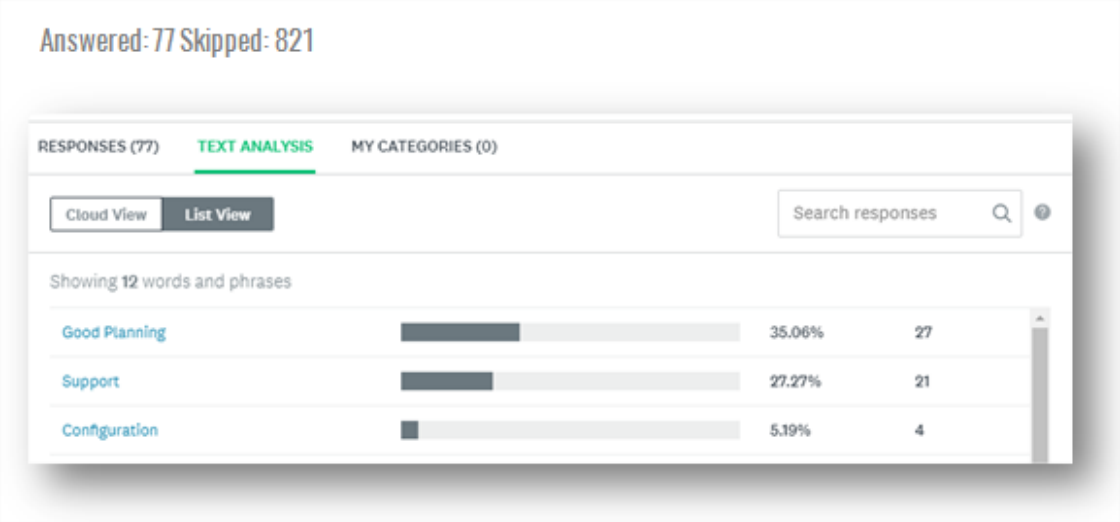
Codec issues appear to be significantly more than in 2016, jumping from 30% to 53% of respondents. This is an area that is within the control of service providers and should be aggressively addressed going forward.

Joel Maloff, Phone.com

'**Manual Configuration errors** at 57.14% clearly show that people need to understand what they are trying to do and take their time getting it right. I'd also like to bet that most Codec issues are down to mis-configuration issues as well.

16 If you've 'Never' had a problem, what do you attribute that to? Good Planning? Good Support?

'Q' for non-ITSPs



Good planning is key to success. When planning please consider that an SBC will help you both in the initial setup and in production.

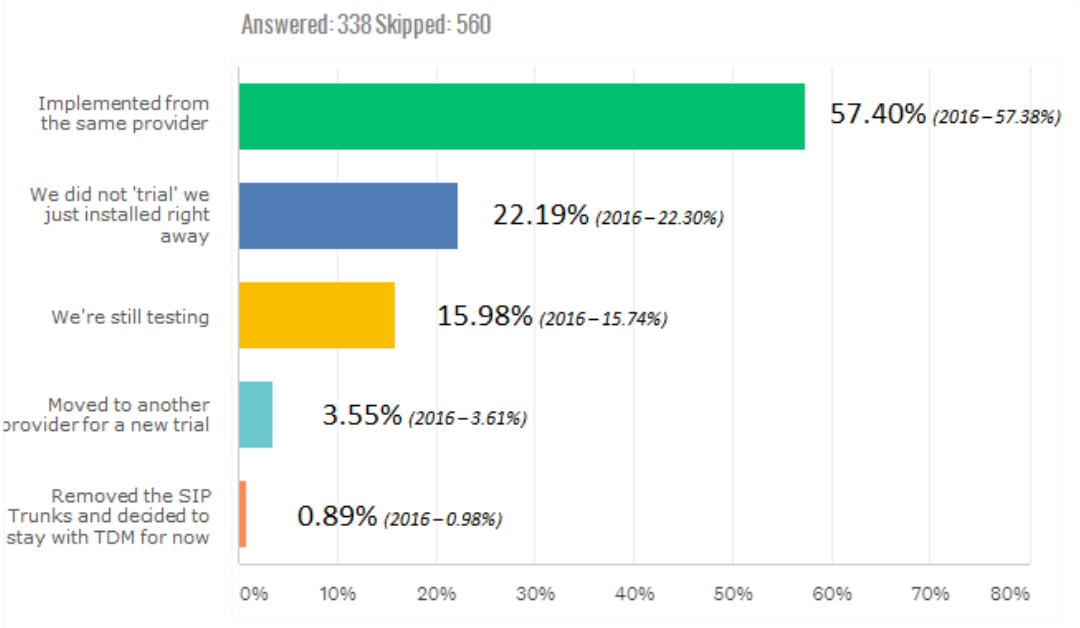
Steve Johnson, Ingate

The screenshot here clearly says it all whereby planning and support as well as taking time to test each and every scenario will ensure that SIP implementations will go as smoothly as possible.

This next question explores how people approached SIP trunking installations along with their reactions when things didn't quite work out as planned.

17 After your initial SIP trunking 'Trial' period, what did you do?

'Q' for non-ITSPs



The main thing to learn from this question is that if the ITSP gets it right, they keep the customer. This is a big incentive to work hard in both the trial and then full deployment stages to meet all the needs of the customer. Its unlikely customers will move if things go well but this is no reason to let things slip – keep up the good work!

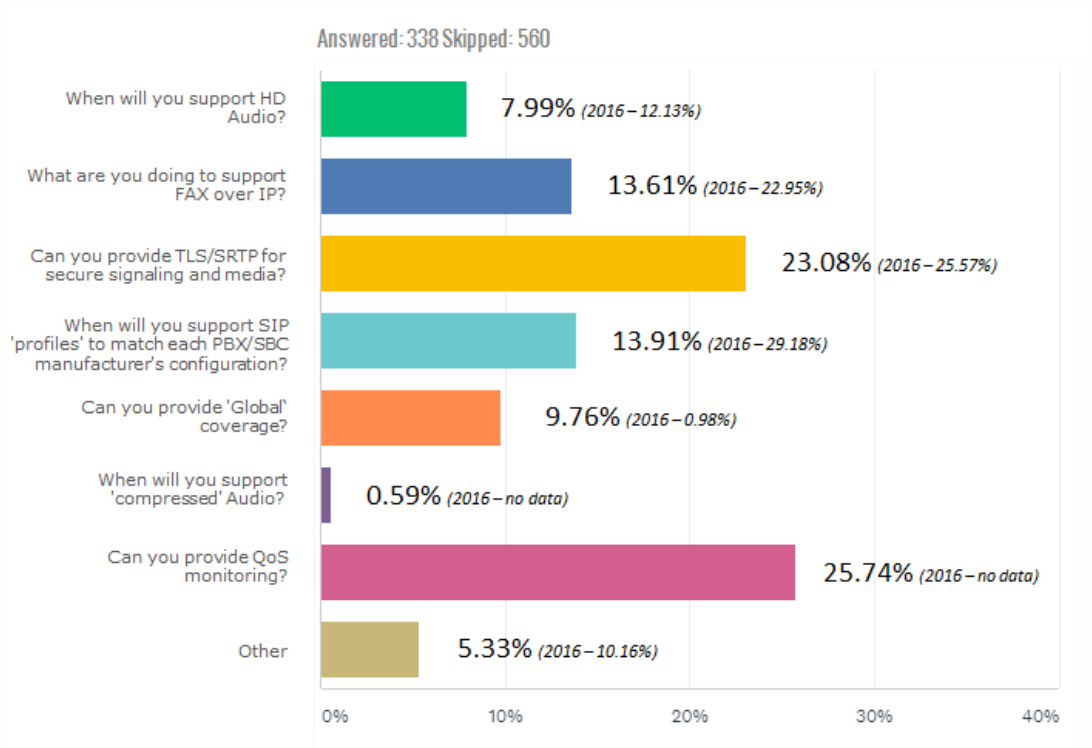
More and more next-gen providers are creating seamless experiences when it comes to provisioning SIP trunks, which is why it isn't surprising that over half the respondents said that they move from trial to implementation almost immediately. Gone are the months and months of waiting–with the move to a more application-centric model, SIP trunk providers are providing cloud platforms where users can easily set up connections and scale on demand.

Michael Bratschi, Telnyx

What are companies asking for from the ITSP for the (not to distant) future.

18 If you could ask one question of your SIP trunk provider what would it be?

'Q' for non-ITSPs



We have seen a large spike in Outbound Toll-fraud (IRSF) in the industry and a demand for greater controls be provided either by SBCs, PBXs or SIP Trunks.
I think that will be an increasingly important feature for the SIP trunks in the coming years.

Tim Beyers, Twilio

It makes sense that queries on security and service quality topped the list. With IBM reporting SIP as being the most targeted protocol (over 51% of the security events they analyzed were on SIP) for VoIP, it only makes sense that users question provider capabilities when it comes to encryption.

Michael Bratschi, Telnyx

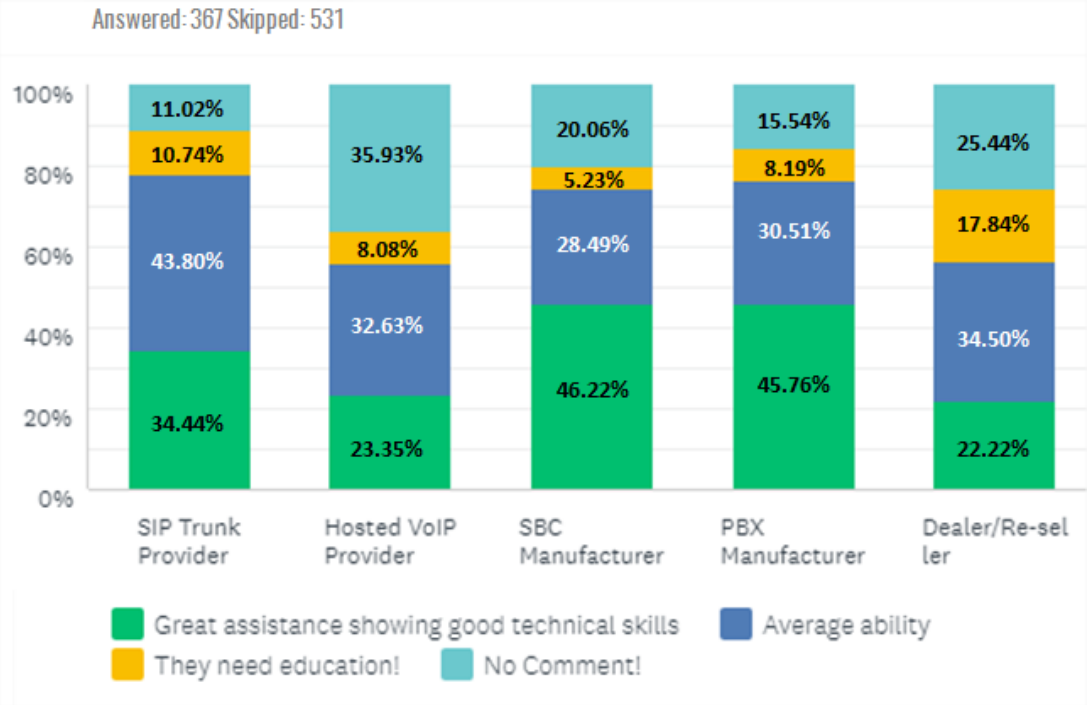
So 'top of the pile' is Qos monitoring. Well of course people want great sounding voice so it makes perfect sense to offer this as a service by default.

Security is also important and to reduce any potential 'hack/security' issues it would be wise to include securing SIP trunks as an element of a corporate wide security policy.

Now let's focus on what happens when things *do* go wrong.

19 When things go wrong with the SIP trunks (operationally) and you talk to support staff, how do you rate their ability to fix problems?

'Q' for non-ITSPs



The VARs and resellers have not improved their implementation skills year after year. Is this because of training, certification, documentation, experience, or negligence?

Gary Audin, Delphi

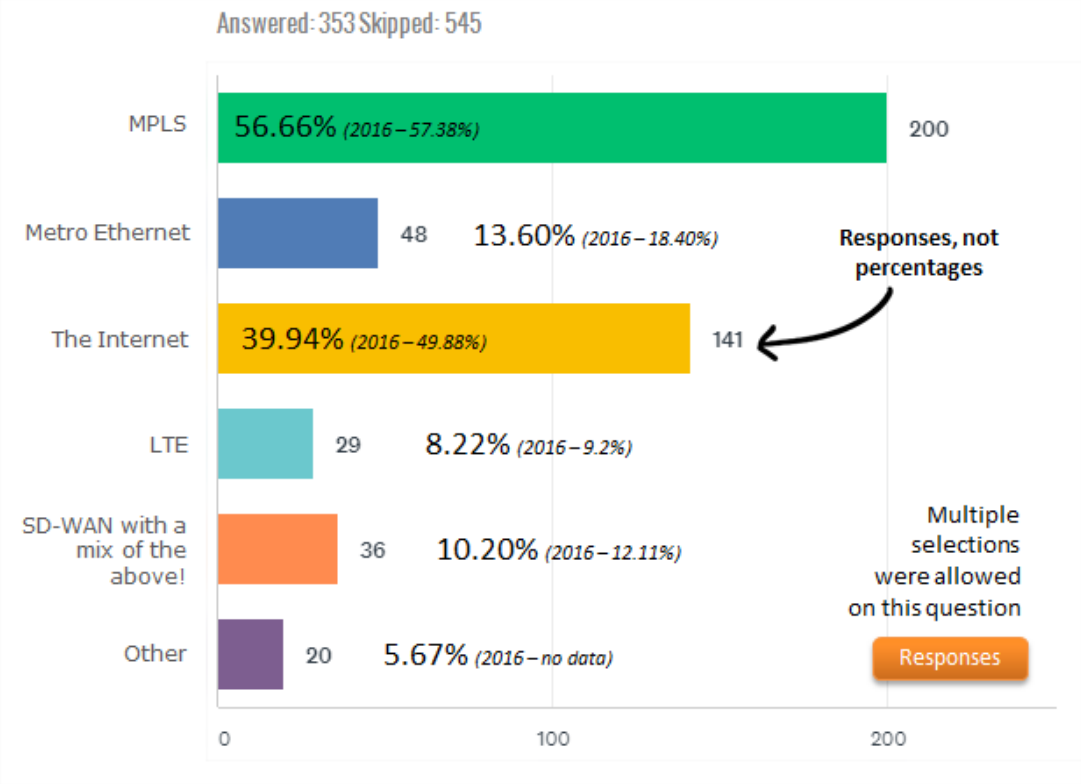
We didn't ask for specific incidents that support people had to deal with during the implementation. We also didn't seek to qualify if staff were Tier1, 2, or 3 as all we wanted to get from this question was the customer's *view* of their support experience in general. **Remember** - it is customer experiences and perceptions that can win or lose business regardless of where the fault actually lies!

We fully understand that working in support can be a tough job, though if people at both ends of the conversation have a good technical understanding of SIP then it bodes well for a satisfactory and quick resolution but this is not always the case.

We wanted to see what underlying technologies were being used to run services across, so we asked….

20 To help us understand your setup a little more, what technology are you utilising for your SIP trunk or Cloud/Hosted services?

'Q' for non-ITSPs



It would be interesting to see how the ones that have had trouble (like one way audio or dropped calls) matched up to using MPLS or the Internet or Other

Mike Uttley, Level3 (now CenturyLink)

MPLS stayed steady from last year though all others actually fell. Yes we did give people another option – **Other** – which did take some % marks off the table. Some of the 'other' comments were - All of the above, Military Specific, Not Sure and also GPON! ….

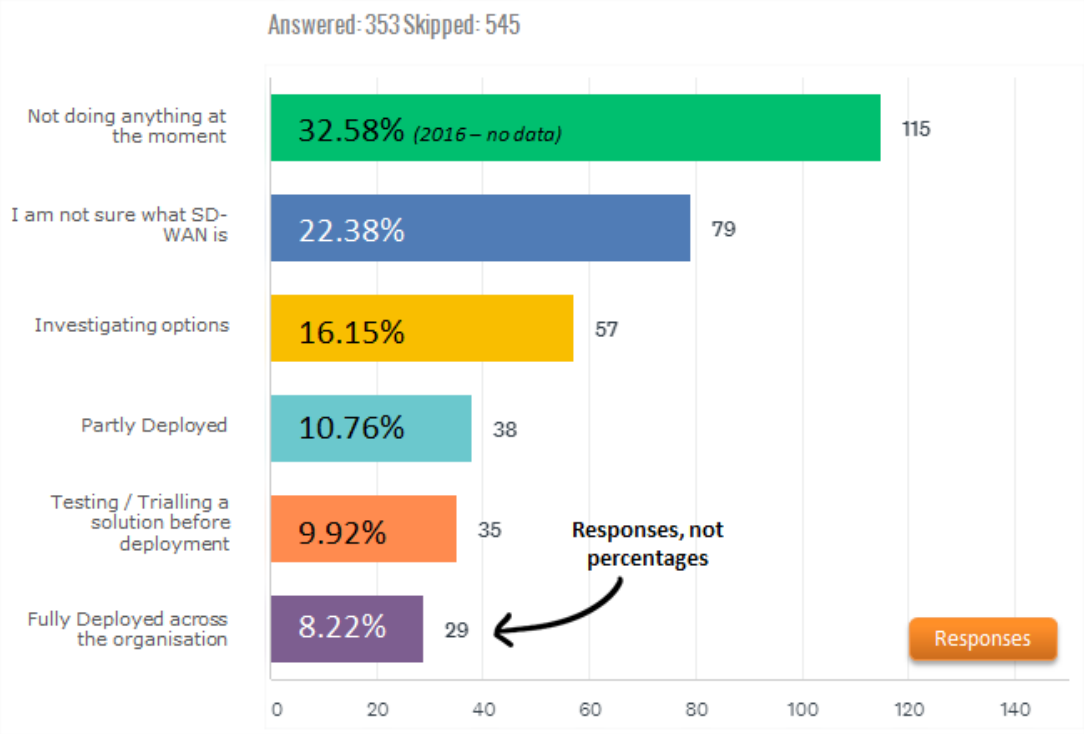
The thing to remember here is that MPLS has been available for a while and is still the best option to provide a guaranteed QoS service for Real-time communications. The Internet has no guarantees and not a lot of people rely on LTE for their primary link, usually it's a backup.

SD-WAN, although not completely new is still emerging and people are only now starting to understand this technology, of course it then takes time to research, test and implement.

A **New question for 2017**

21 What' s your company' s current position with regards to SD-WAN?

'Q' for non-ITSPs



I was surprised that so many SIP Trunking users don't know what SD-WAN is and still use MPLS as their transport method.

Tim Beyers, Twilio

SD-WAN solutions help combat some of the inherent issues that arise when transmitting data over the public internet.

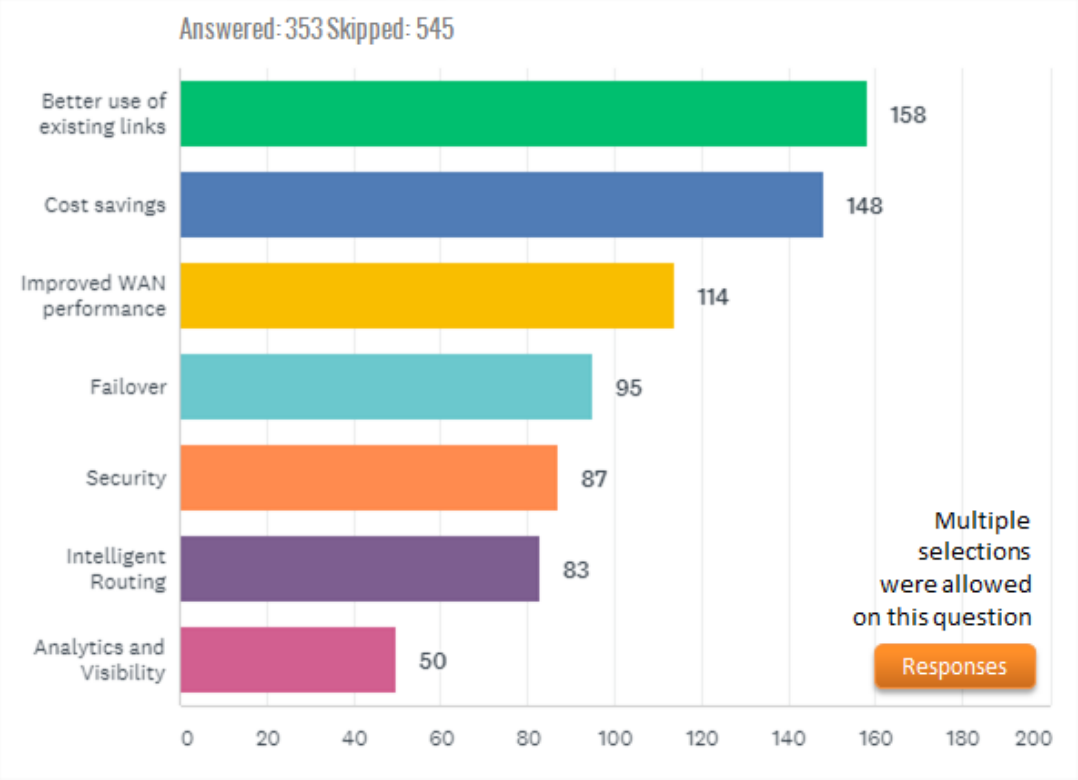
Michael Bratschi, Telnyx

Even though there are plenty of deployments of SD-WAN services and lots of companies out there offering these services, it's still a new technology that's yet to be understood and embraced by all. It may be that as larger service provider's work with SD-WAN vendors and even purchase them (example Verizon and VeraCloud) that customers find they will get SD-WAN services included in the equipment that the provider includes in their deal. It will be interesting to see how fast this market moves when results from the next survey are produced.

Another **New question for 2017**

22 What are the main reasons for you Deploying / Investigating SD-WAN solutions?

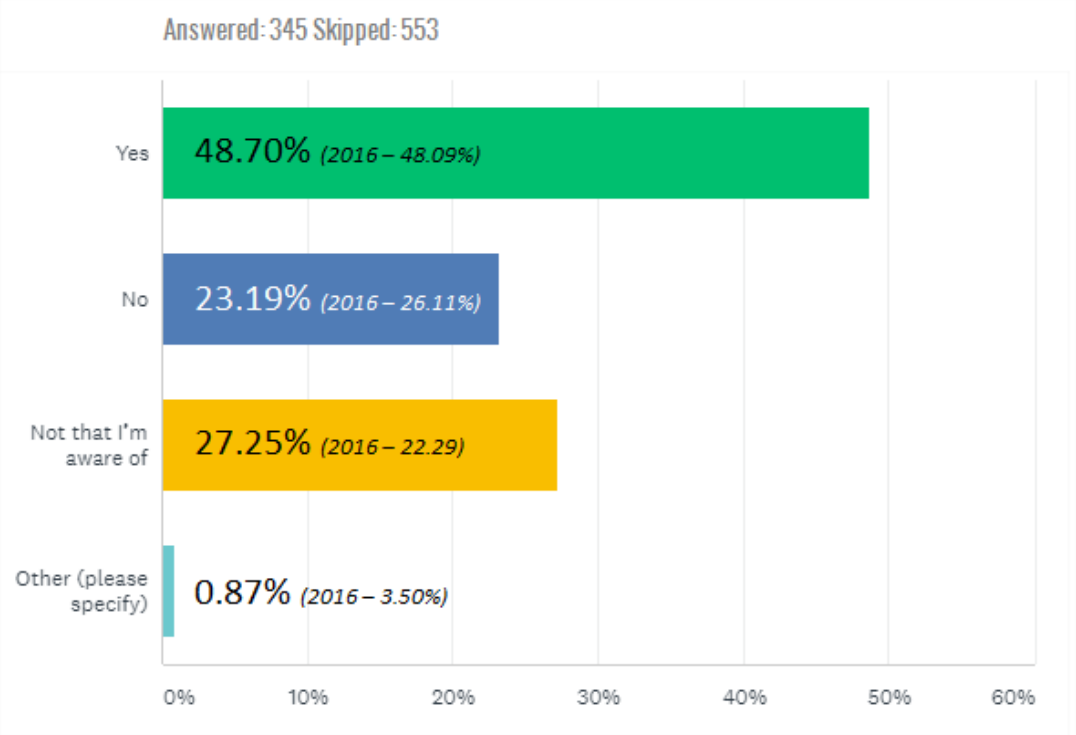
'Q' for non-ITSPs



SD-WAN services promise a lot of great new features for companies yet it's clear that reducing communication costs and improving the use of existing links are the most important. Who wouldn't want a better service for less money?

23 Did you (or the provider) run any evaluation tests on your WAN link before you configured your SIP trunks or adopted Hosted VoIP?

'Q' for non-ITSPs



For now, think of your WAN connection in this sense…

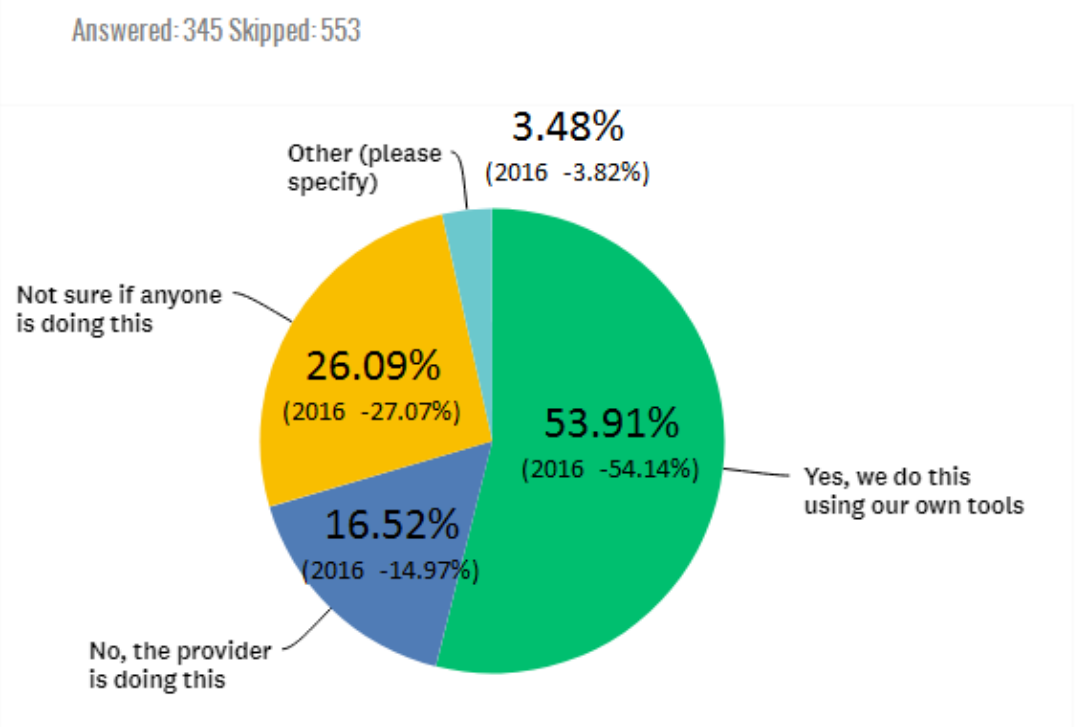
It's pretty important to know that the road you are going to drive on doesn't have big holes in it, isn't uneven to the point of being dangerous and of course when congestion is going to occur. If you know a route is 'bad', you'd take a different one if possible. If you are on a poor road like this you will suffer from Delay, Jitter and Temper loss!

The same principles apply for testing a link that you are hoping to put voice across. You need to first make sure that it is capable of carrying Voice over IP traffic because if not, you will fail regardless of what else you do.

The provider is the one with all the tools to check out the link for suitability and if they have not offered to do this, then ask them to.

24 Do you continually monitor your WAN to ensure 'great' quality of service?

'Q' for non-ITSPs



Monitoring and Alerting are vitally important so you need to either let your ITSP do it, do it yourself or both take responsibility. You need to decide and it will probably cost you more if the ITSP gets involved.

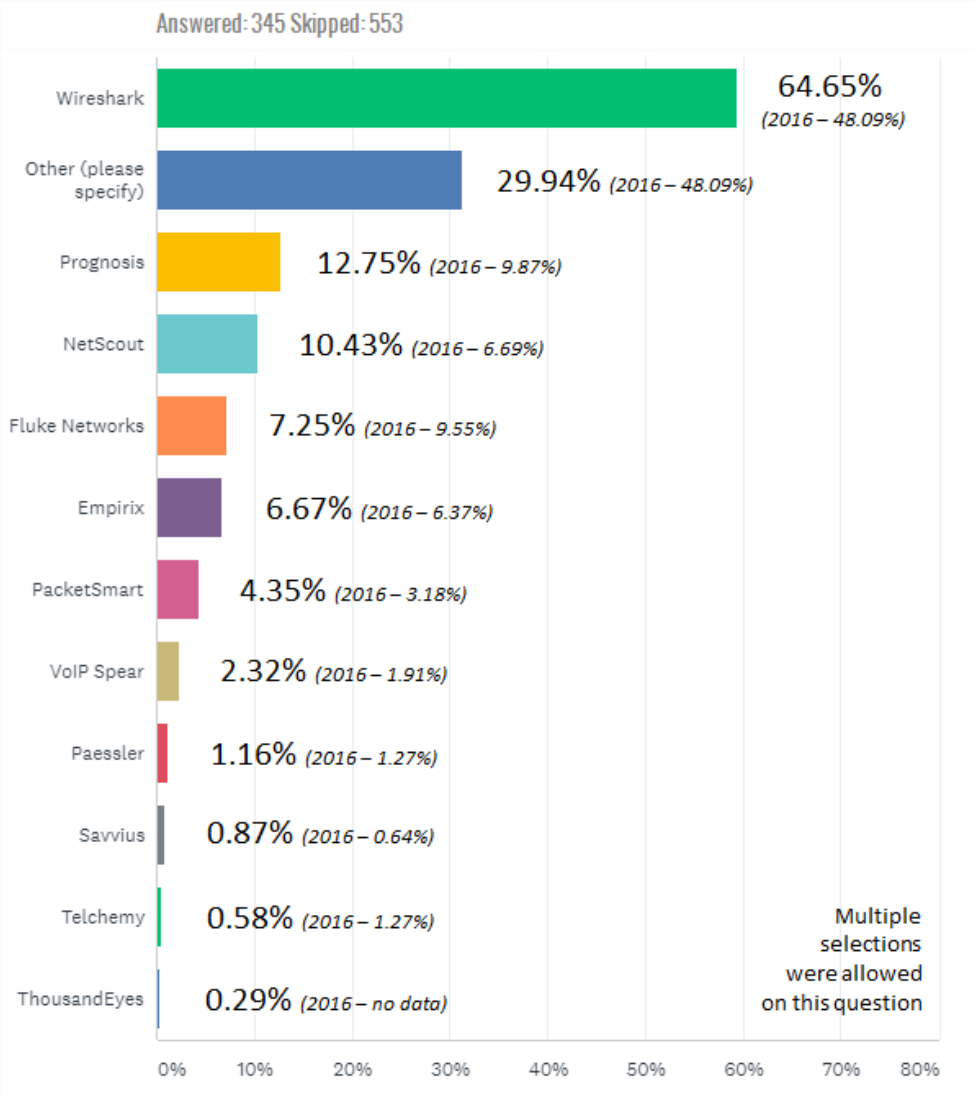
If you do this yourself then make sure that you use the right software / hardware combination for your own purposes. Have trained people who can manage the monitoring solution. Set alerts on things that are important to you i.e. Delay, Jitter, Packet Loss etc. and ensure that if there is an alert, there is someone around who can deal with it.

Real time analysis is going to be of the utmost importance as links *will* have to carry more packets for a growing diversity of communications services; this means that you should investigate what you have and what you may need.

We wanted to find out what tools people used to test / troubleshoot their communications services.

25 If you actively monitor your 'Voice services network', what tool/s do you use?

'Q' for non-ITSPs



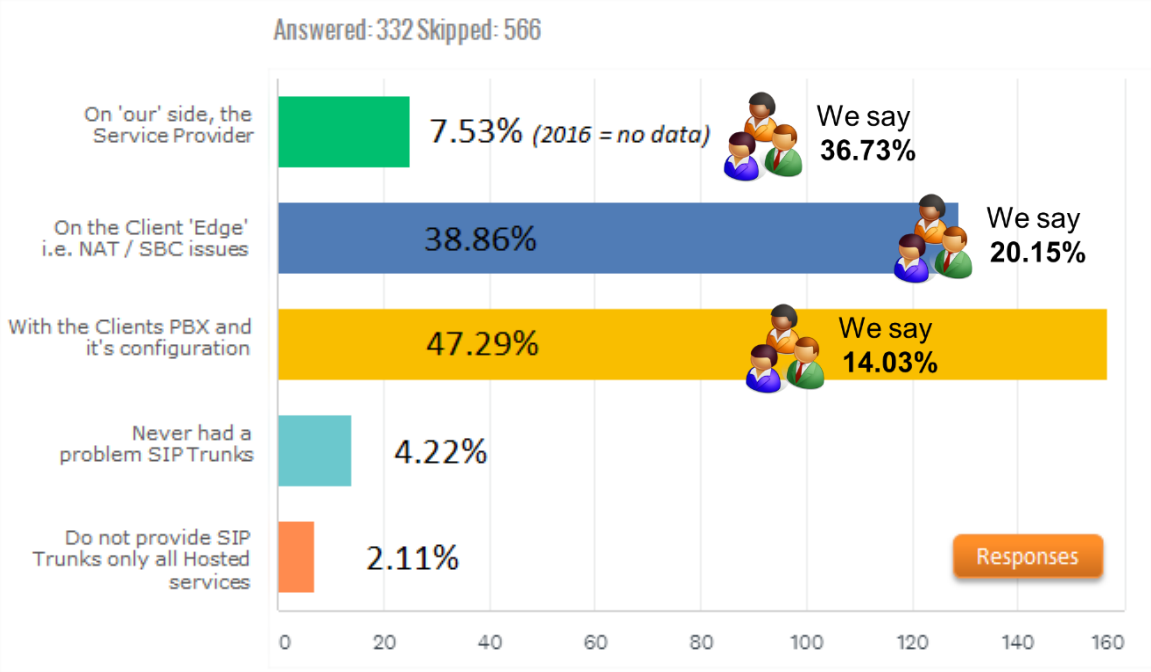
Every year **Wireshark** is the clear leader. Other tools provide specific services that Wireshark can't with regards to Real-time VoIP traffic such as analysis, Monitoring, Alerting, Report generation yet may be used more by the ITSP than the customer.

'Other' provided a worrying result where about 50% of those adding an extra comment said they either didn't know or that they were not doing any monitoring.

Remember… **BLUE** is for ITSP answered questions

26 If you have had problems with SIP Trunks, where have the 'primary' issues been located?

'Q' for ITSPs



Wow! Comparing the responses from the ITSP side of things to what the clients said is an 'eye opener' yet why are we not surprised? This really does highlight the need for both sides to communicate effectively in order to fix problems. It's not good when a problem occurs - though finding the source, owning the problem and applying a fix quickly is good for all parties.

If the ITSP were to deliver an SBC with the service, the two largest problems could be resolved quickly.

Steve Johnson, Ingate

Also what I would expect…clients not understanding their configurations or expertise to implement

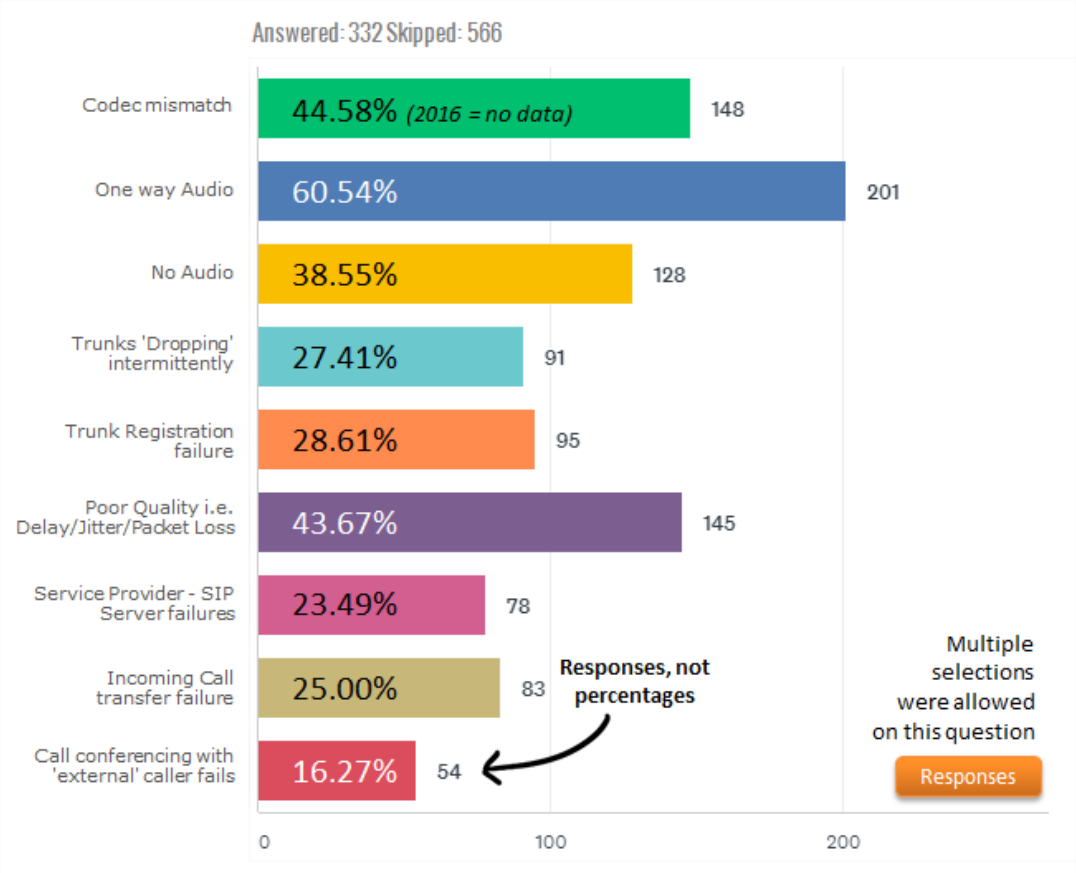
Mike Uttley, Level3 (now CenturyLink)

The responses from the ITSP's about problems don't seem to match what the customers see as problems. This makes me wonder who are more accurate at reporting problems.

Gary Audin, Delphi

27 If you have had problems with SIP Trunks, what were they?

'Q' for ITSPs



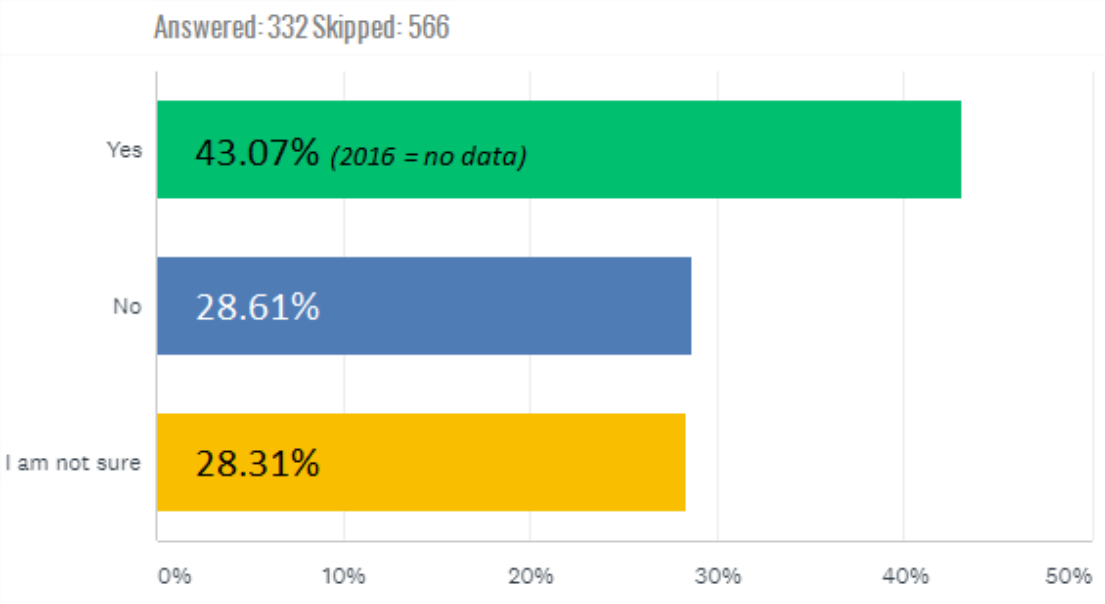
Although the numbers have a slight variation in them, the results here match up to the clients results on Question 13.

One Way Audio, Codec mismatch are most likely going to be config errors, but are they on the ITSP side or client side? Who cares as long as the two sides talk to fix these avoidable issues?

Poor quality etc., again – Was the network evaluated before deployments? Who's monitoring it after deployment? Things to be decided by all parties early on.

28 Do you provide SD-WAN services?

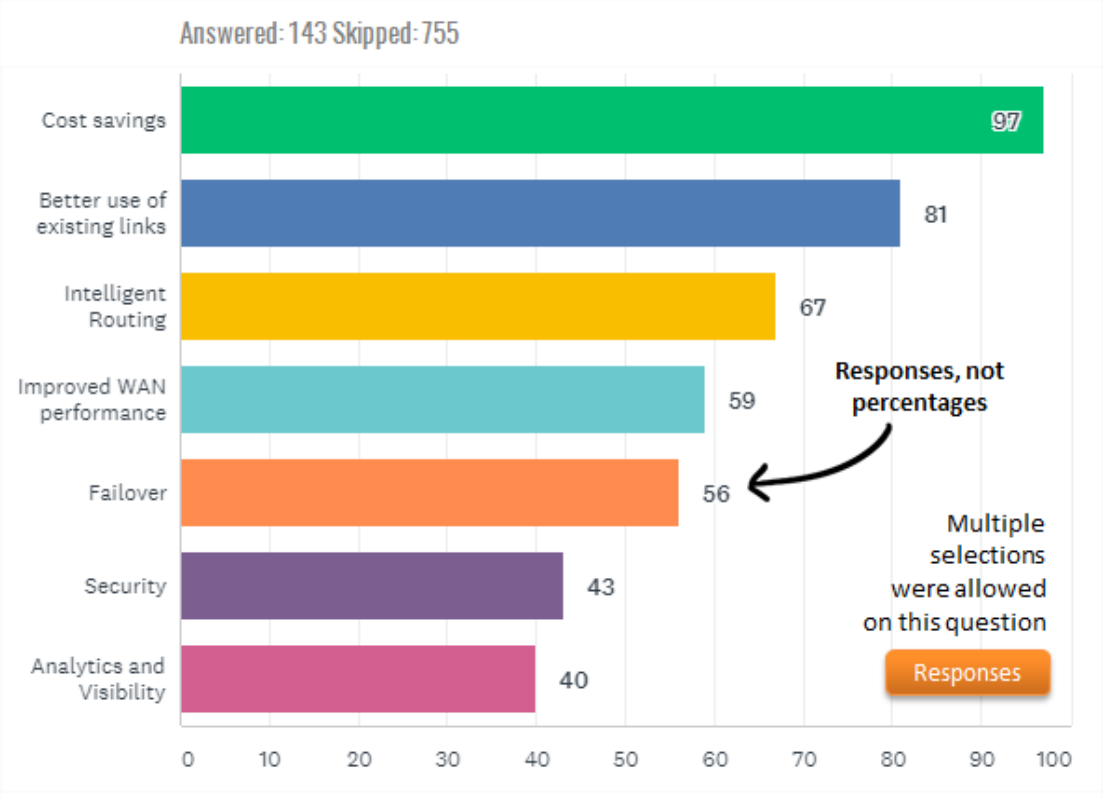
'Q' for ITSPs



For this question, the results are what they are and stand as a 'marker' to see how things change for next year. Hopefully a lot more ITSPs providing this service and some of the people who didn't know, become more aware of their own service offerings.

29 What do YOU think are the main reasons for clients to deploy and SD-WAN solution?

'Q' for ITSPs

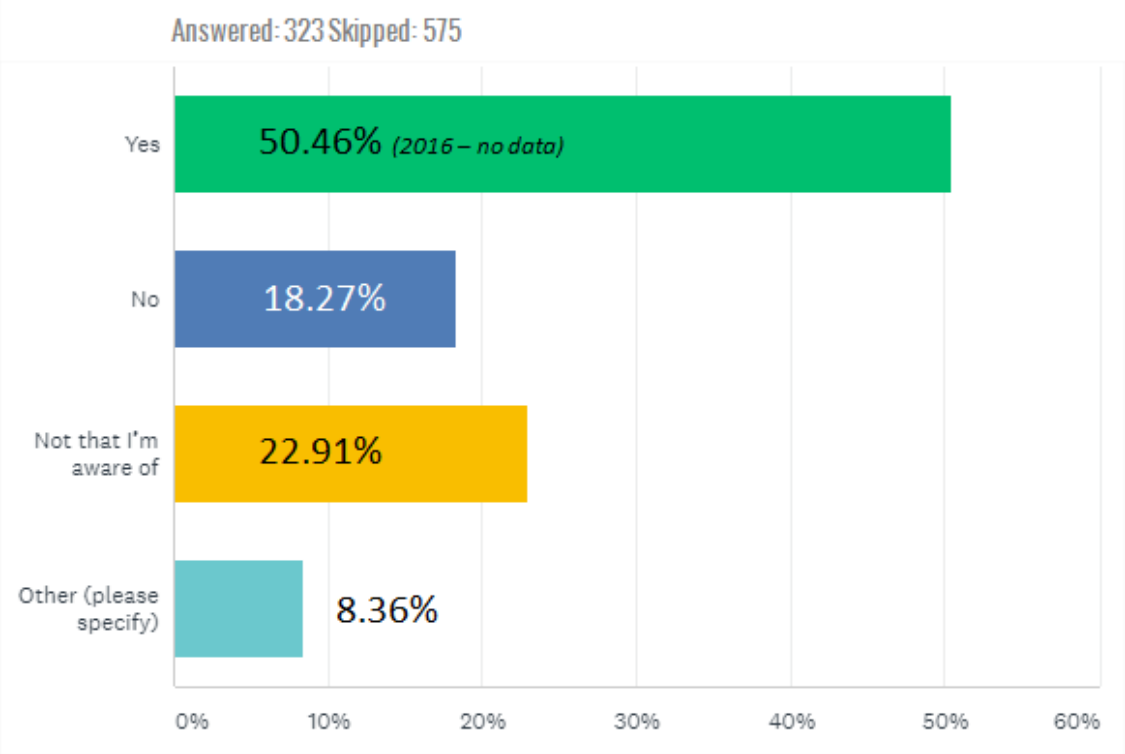


The ITSP responses have the same top 2 as the clients (Question 22) but in reverse. Better use of links and cost savings.

All on the same page here re: the most desirable benefits of SD-WAN though once implemented I'm sure that people are surprised and hopefully happy with the other benefits available.

30 Do you run 'evaluation tests' on Client WAN links **before** provisioning SIP-based services?

'Q' for ITSPs



Interesting that the response to this Question would make one think that any challenges would be known before actual service activation and hopefully could be addressed/resolved prior to actual Production turn-up. This data point seems to contradict the user inputs for Questions 13 and 14.

David Leon Guerrero, COX

Before anything is set to run across a WAN link it's best to test to see if the link is capable of support these new services. Testing will show the condition of the line and supporting Routers in the 'desired' call path. Fixing things early on will ensure a smooth deployment.

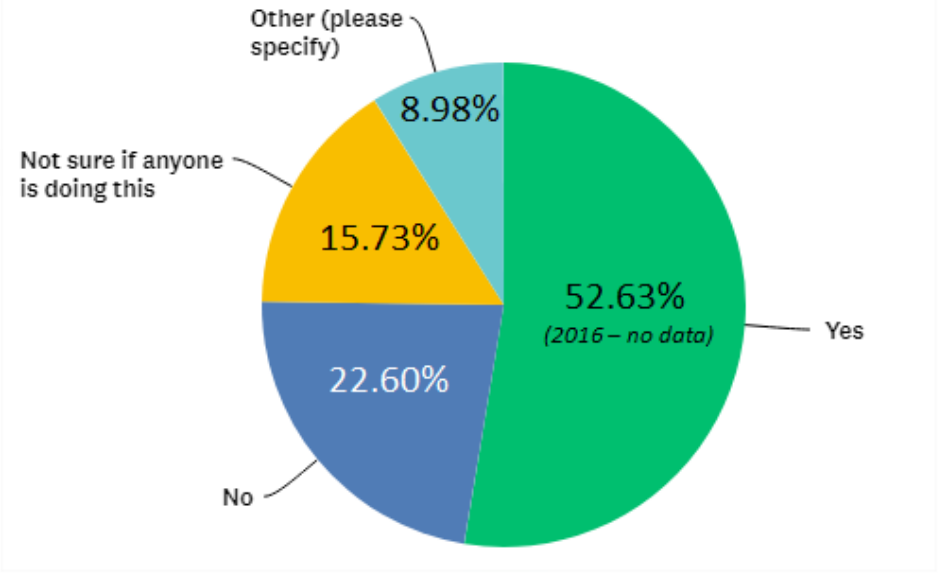
Comparing to the 'clients' responses on Question 23, the YES response was close – here 50.46% to the client's 48.70%. This is a good level though seeing this number rise would not be a bad thing to happen

Some of the '**Other**' responses added extra comments that told us - evaluation may only be run on a case by case basis or only as an optional / costed extra.

31 Do you **continually** monitor Clients WAN links to ensure ‘great’ quality of service?

‘Q’ for ITSPs

Answered: 323 Skipped: 575



Again, the ITSP and Clients responses (Question 24) are quite similar

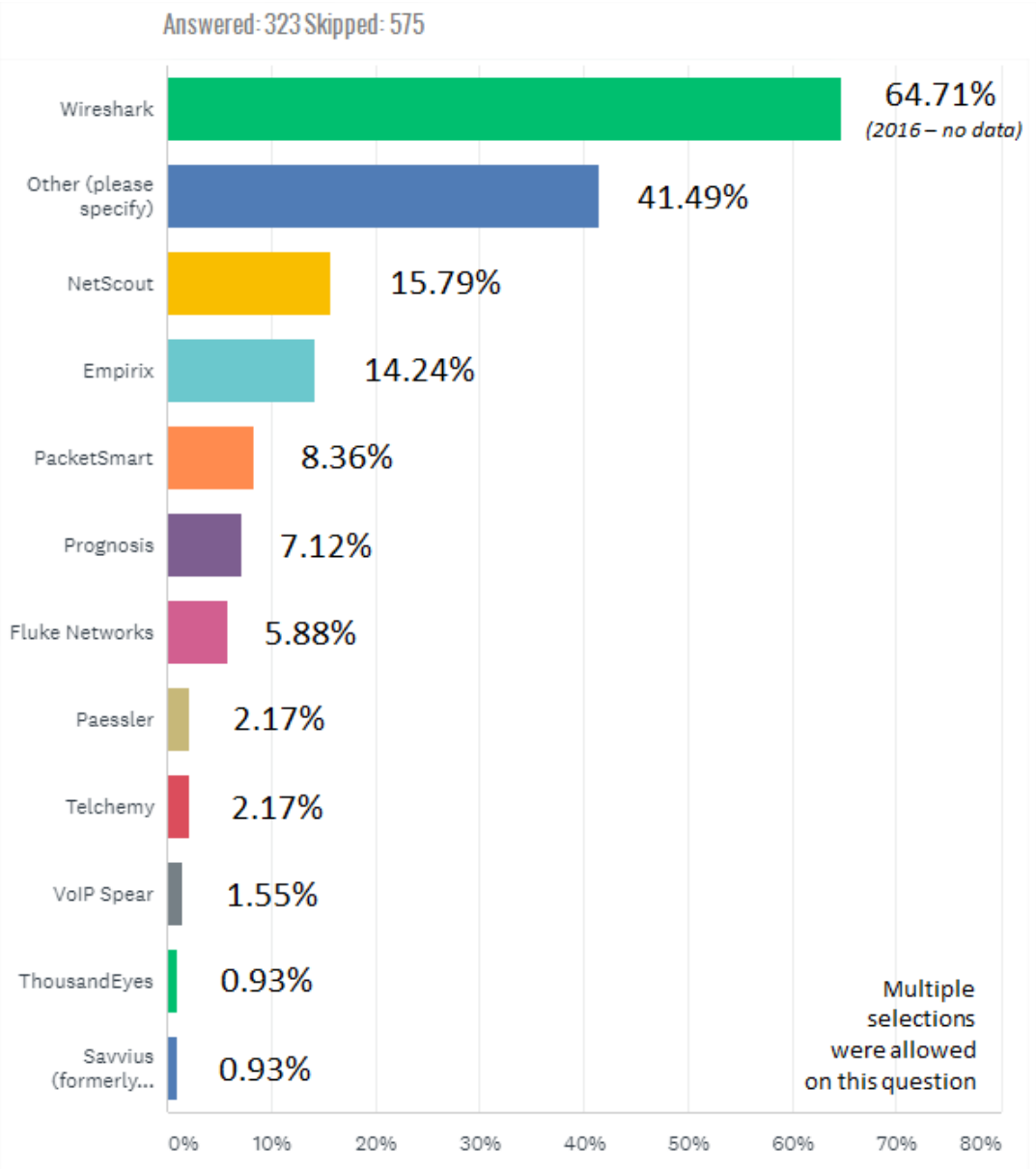
This is something that we believe all ITSPs should do as by not only monitoring to ensure that Voice quality (along with Video where offered) is at its best, potential problems can be picked up early and addressed before anything significant occurs which may have a serious impact on the network.

Of course, some people may have answered this where they work for an ITSP but still not know what is being provided in this area.

Some of the ‘**Other**’ responses stated that continual monitoring is only for clients opting for a ‘managed service’.

32 If 'YOU' actively monitor your 'Voice services network', what tool/s do you use?

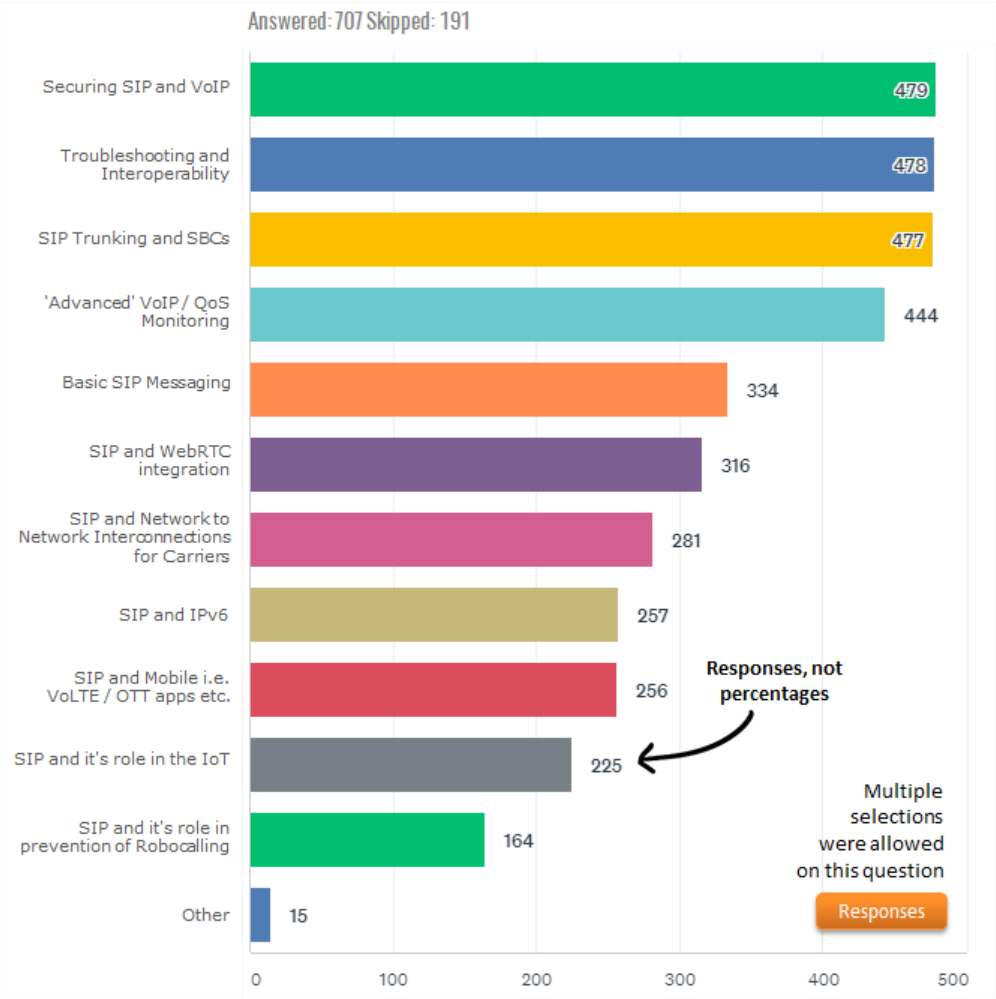
'Q' for ITSPs



Interesting to see Wireshark (the free program) at the top, yet when comparing the answers provided by the ITSPs to the ones from the clients (Question 25), some other programs fare better such as NetScout and Emprix with Prognosis looking less of a favorite for ITSPs and more for the clients. This is more of an 'informational' question as we want people to use a multitude of applications that cover all areas thus helping them deliver great service.

33 Understanding SIP is important yet as SIP touches all parts of a communications network - which areas most interest you with regards to training?

Question for all



The SIP School offers excellent online courses that address these issues.

Steve Johnson, Ingate

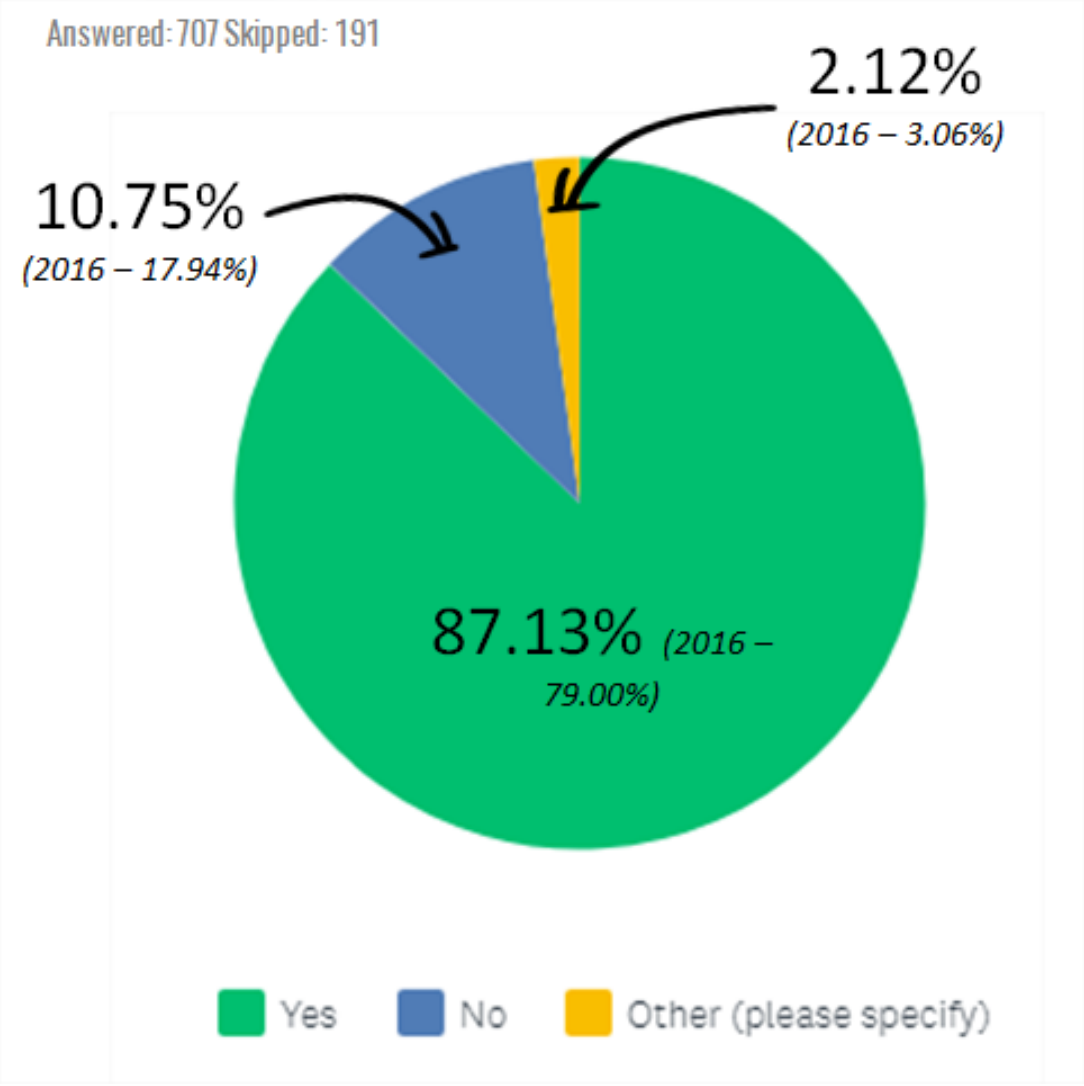
Security, Troubleshooting, Trunking, SBCs and QoS all stand out at the top here as the areas that people are most interested in and we're not surprised as this 'maps' to what's actually happening in the real world and what's needed to fix problems found in the survey. Of course there are new areas gaining ground such as SIP in the IoT and SIP with IPv6 and we'll be sure to address these.

Coming soon to The SIP School's program are details on the STIR/SHAKEN initiative to help combat Robocalling and also the ATIS/SIP Forum work on IP Network to Network Interconnection profiles for ITSPs.

The SIP School™ is the issuing authority for the SSCA® Certification with over 6300 certified engineers around the world. We know that this survey presents a good opportunity to see if people want or even need a SIP Certification. So, we asked:

34 Is an 'official' SIP Certification important to you?

Question for all



A significant rise from last year indicating that more and more people value a recognized certification in the protocol that dominates communications. We expect this trend to continue as more companies adopt SIP based services from Trunking to Hosted SIP.

It would be interesting to see if the ones that didn't think SIP Certification was important are the same ones That have/had trouble implementing their SIP networks.

Mike Uttley, Level3 (now CenturyLink)

People look for certification as a way to assess whether a person possesses the right skills and knowledge to be successful at the tasks they're meant to do. Would you trust an electrician without a certification to fix your home's wiring? The sentiment rings true when it comes to SIP trunking (although the consequences may be less hazardous!), and it looks like the majority of respondents agree.

Michael Bratschi, Telnyx

[the Final analysis]

The SIP survey's initial purpose (back in 2011) was to focus on SIP trunking and specifically, to document the most common issues that occur during SIP trunk implementations and what can be done to help mitigate these issues. Along the way we've expanded the survey to cover Hosted SIP based services and this year have included questions on SD-WAN as we think that a lot of clients will be running SIP across these technologies and networks if not now, then in the future.

From all of the responses to the questions we've put together what we think are reasonable recommends to the client moving towards a SIP based communications service and also for the ITSP who has to deliver on promises made for services charged. You may not agree with everything we say but we hope to get you thinking.

[Recommendations]

This survey shows clearly that issues occur (in the main) during the installation and initial configuration of SIP trunks and Hosted services and in order to make things as painless as possible for all parties involved, there are some simple things that can be done and most of these can be done relatively quickly. These recommendations are quite similar to those in last year's survey as the principles remain the same.

[talk]

Firstly, it's always wise to talk to all parties involved before moving forward. Get case studies from ITSPs and the vendors you are working with. Talk to their people about their own installation experiences along with discussing the issues they have come across and how they overcame them. Talk to people about interoperability testing and conformance to standards and recommendations such as SIPconnect from the SIP Forum especially now that SIPconnect 2.0 has been released. Good research and talking to people early on will help you decide which companies to work with.

[assess]

Do not start on the SIP trunking or Hosted path until you have assessed your own network for suitability i.e. VLANS and L2 QoS configuration. There are a lot of WAN assessment tools available for you to test your existing WAN links and these tools should highlight any potential issues such as link instability, router problems, bandwidth issues etc. MPLS networks can deliver on Quality of Service (QoS) but can also be expensive. New 'developments' such as SD-WAN may be able to 'beat' MPLS for cost but needs to deliver an 'assured service' to be taken seriously. Look closely at what any SD-WAN provider offers with regards to QoS assurances and SLAs.

If you are using your own PBX, is it an old TDM based one, a Hybrid or Fully VoIP enabled one? Ensure it can support SIP connectivity or you'll need gateway services, again your PBX vendor should be able to guide you towards your own specific goals.

[ask a lot]

If you are an enterprise looking for a SIP trunking solution to suit your needs then ask ITSPs to respond to your business requests and see if they can cover *everything* you need, from Service Level Agreements (SLAs) to full support for the smallest of sites in the remotest of locations, even international locations. You must ensure that everything can be covered by the ITSP and that they understand all you need before things move closer to provisioning SIP trunks. You may also want to consider if the provider can offer the following as if not now, you may need these in the future.

- Security for all communications.
- Potential of utilising new technologies such as SD-WAN for making best use of WAN links and also improving/providing network redundancy
- Support for Mobility i.e. Remote workers and a Single Number for multiple devices with handover support.
- A 'forward looking' plan on how their services will integrate with others i.e. CRM, Support, Marketing, and other business services that (should) allow API connectivity.
- If you are sticking with an on-Premise solution for now, does the ITSP have a migration route to the cloud if you decided to do this in the future?

[trial]

ITSPs should be willing to let you trial SIP trunking (and Hosted Services) for free for a reasonable period of time (30 days is good). Survey responses clearly display that a successful trial will normally result in a full implementation. If so, then do it and test the Trunks using all the call scenarios you can think of such as call transfers, conferencing and so on. Also *test* the ITSP's support people at various times of the day to see how well they perform to what they promise.

[move or wait?]

The industry landscape is changing quickly with companies of all sizes merging and/or being 'absorbed' meaning that where they may have been 5 provider choices there are now only 3 (for example)
If you are 'looking' for SIP based services be it trunking or hosted then you need to decide who can deliver exactly what you need today as well as being around in the long term to continue to deliver these services – not an easy thing to predict with such market activity at the moment.

[documentation]

When it actually comes to installation of the SIP trunks, the one thing that really stands out is the need for correct documentation that supports the configuration of the PBX and the SBC/Edge device in order to get SIP trunks to register and work. BUT, not only must clear documentation be provided; it's up to the installers to actually take notice and read the documentation carefully. If there is something that needs clarifying, then the provider must be able to deliver the information. It's a 2 way street and if everyone works together, then the SIP magic can happen.

[watch]

To ensure that SIP based services continue to operate and function at their best it's wise to continually monitor either your trunk or hosted service performance. It must be established whose responsibility it is to run monitoring/alerting software to check for Mean Opinion Score (MOS) values falling, increasing packet loss, increasing Jitter values and so on, is it YOU or the provider?

[Conclusion]

In conclusion there are some things that I want to cover.

First the **Speed of adoption** of SIP based services.

SIP trunking is being adopted by a lot of enterprises with the knowledge that one day the PSTN will be switched off. For example, BT in the UK will stop taking orders for digital lines from 2020, with the complete transition done by 2025. I suspect that companies understand the need to migrate may have already done so, with a possible lull in the market - then a panic and rush towards the cutoff date. With approx. 50% of companies in the UK not using SIP yet, this could be what happens here and most likely around the world as well.

Cloud based services

The move to Cloud based SIP services is the direction that 'seems' to be the way a lot of companies will go (if not already done so) but there are some cautionary tales. A 'multi-national' certification provider mentioned at a recent event that a lot of companies want to move their systems to the cloud but had to abandon projects due to the lack of skilled staff. Also, reading this post on No Jitter shows that there may be a short term rise in costs of service when moving to the cloud that should be looked at. Will this put companies off moving to the cloud? Who knows? It seems quite logical to host certain services online but as ever, what to host online needs to be thought through carefully.

The link is here. http://www.nojitter.com/post/240172552/cloud-ucc-costsavings-fallacy-what-you-need-to-know - with acknowledgements to Robin Garreiss and No Jitter.

The 'us and them' factor

The survey did show some differences in opinion between the client and ITSP when asked the same questions though I expect that this will always be the case. What's important is that each side listens to each other and then deal with the issues together. It's in everyone's interest to fix things, move on and reap the benefits from the experiences gained along the way.

Now for the 'last word', with a thank you to Andy Barrett of Samsung.

I'll simply put here what Andy said as it sums up what we are thinking here at The SIP School.

"All in all the survey is encouraging in respect of SIP becoming more popular and essential to business, and the fact that a lot of the more pressing issues with regard to VoIP/SIP performance and Customer/Technician knowledge levels are recognised. We are in an industry that is going through perpetual change and we need to understand that keeping up with the technologies involved, is an ongoing challenge for Customers all the way through to the technicians who implement the services.

A good and accurate survey that basically confirms most of my own thoughts and assessments arrived at through talking to the guys at the coal face, and Customers."

About The SIP School

The SIP School does not formally recommend any one provider, service or product as we are a friend and supporter of all who are involved in the world of SIP, Voice and Video over IP and now, WebRTC.

The SIP School™ is owned by Vocale Ltd which was founded in April 2000 (Vocale Ltd is also the owner of the WebRTC School). It's SSCA® SIP training and Certification program has become recognized as the globally accepted Certification for VoIP professionals to strive for. Organizations such as the Telecommunications Industry Association officially endorse the program and BICSI value the program at 21 CEC credits towards their own certifications.

Details of more industry supporting companies can be found at http://www.thesipschool.com/industry.html

Contact: Graham Francis, CEO graham@thesipschool.com