

The SIP School

Learn and Qualify

the SIP and Cloud survey 2018



Published: January 2019

Welcome to the SIP Survey 2018

This 8th year of the SIP Survey has again proven to be very popular with **840** professionals responding. One thing you may have noticed is that the results have been released at the very start of 2019 after collecting, analyzing and editing took most of the 4th quarter of 2018.

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.

As you know, SIP (Session Initiation Protocol) is evolving, thus this Survey does as well....!

Companies of all sizes are moving from legacy (TDM) lines to SIP trunks - this has been clear and well documented for years now. Whilst some are adopting Hosted services instead of having systems on-Premises. Nevertheless, it doesn't matter which path is taken, SIP is critical for all of these services.

The 'Hybrid' approach that some companies are taking is 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 SBC deployment, and so on. You will also find that companies are simply waiting to see what's left after the dust settles from the many mergers and acquisitions that have been occurring over recent years.

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 respected 'industry voices' 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.

Of course, we have always found it important to highlight on the experiences of the companies that are 'consumers' of SIP services; 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 thus more interesting to see the different viewpoints based on whether people are providing services or purchasing (and using) them....

Note: We use the Term **ITSP** (Internet Telephony Service Provider) to cover a 'whole range' of companies that actually provide connectivity to allow Voice service for customers across both public and private networks.

So to differentiate between the questions we asked, 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

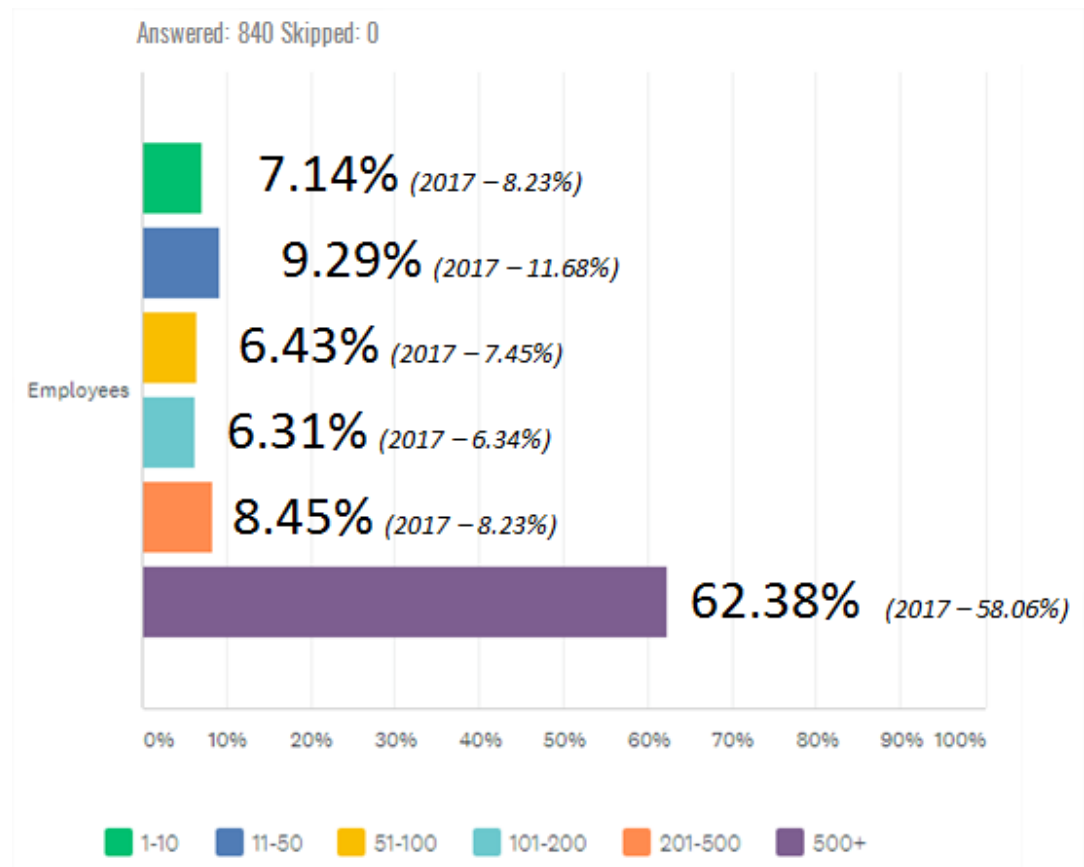
'Q' for
ITSPs

Cloud or Hosted?

These terms are used a lot and it's good to understand how they (can be seen to) differ. In simple terms, systems that have traditionally run on-premises but now are offered as a service tend to be referred to as 'Hosted', for example - your PBX that is now virtualized and running on servers on your provider network. Cloud services tend to be those 'born in the cloud'. Using email as an example, think Gmail and Yahoo mail – pure cloud and never existed as an option for on-premises. As time moves forward, a lot of ITSPs have developed 'Cloud' solutions that (again) have never been offered as an on-premise solution yet your trusty old PBX vendor with their new virtualized systems are evolving and adding services that again, have never been offered on-premises. The lines are blurring and that's why the terms tend to be used interchangeably.

1

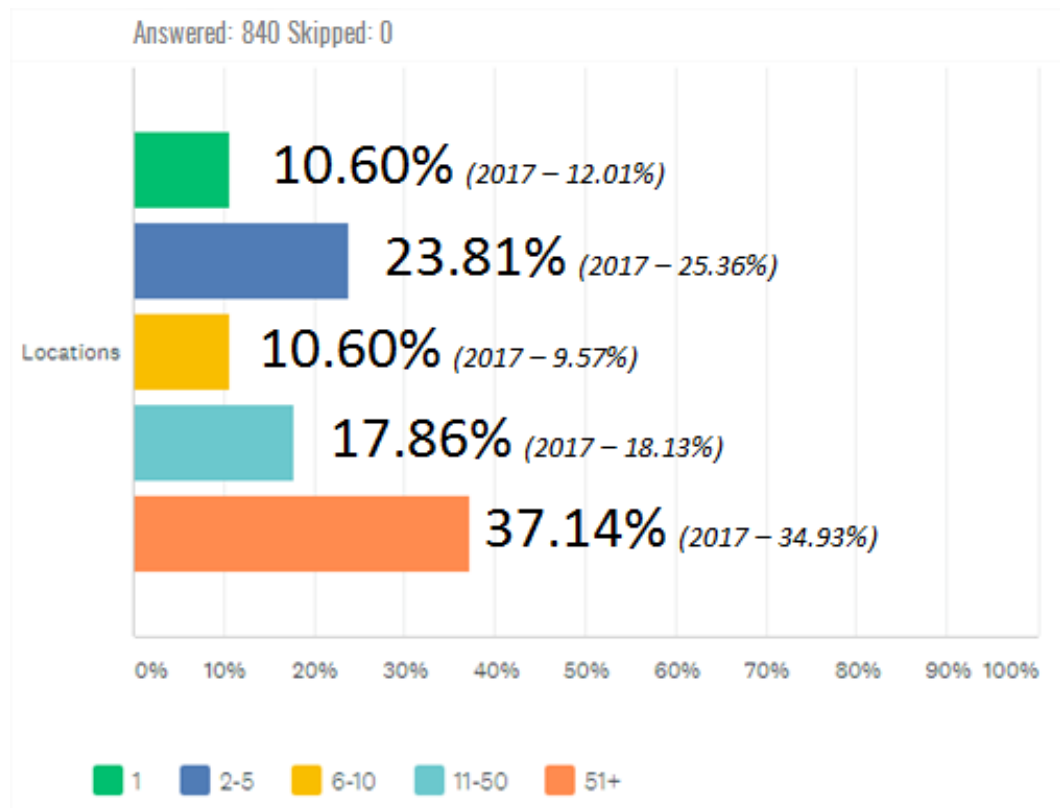
How many employees are at your company?

Question
for all

So here we're just establishing a few facts and as you can see, most of the respondents to this Survey work for some very large organisations. Even so, everyone from SMB to Large Enterprise can benefit from SIP based services.

2

How many locations or sites does your company have?

Question
for all

Companies with single locations can certainly benefit from SIP based services yet we feel that those with multiple locations can really gain the most with features such as Multi-site connectivity, flexible and fast scalability along with bigger cost savings as more lines are converted. Of course, SIP based services offer a lot more benefits and it's up to the ITSP to explain them to you as a potential customer.

3

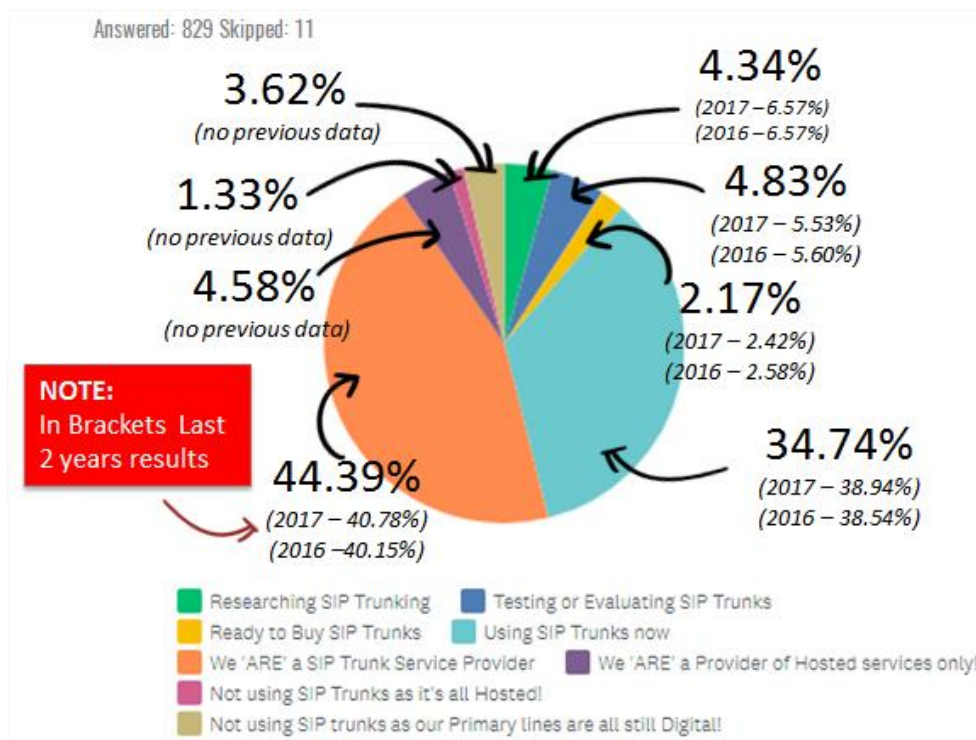
SIP trunks are increasingly popular,
where do you and your company fit in?Question
for all

We definitely continue to see an increase in customers migrating to SIP trunks. An underlying question is if they are 100% converted.

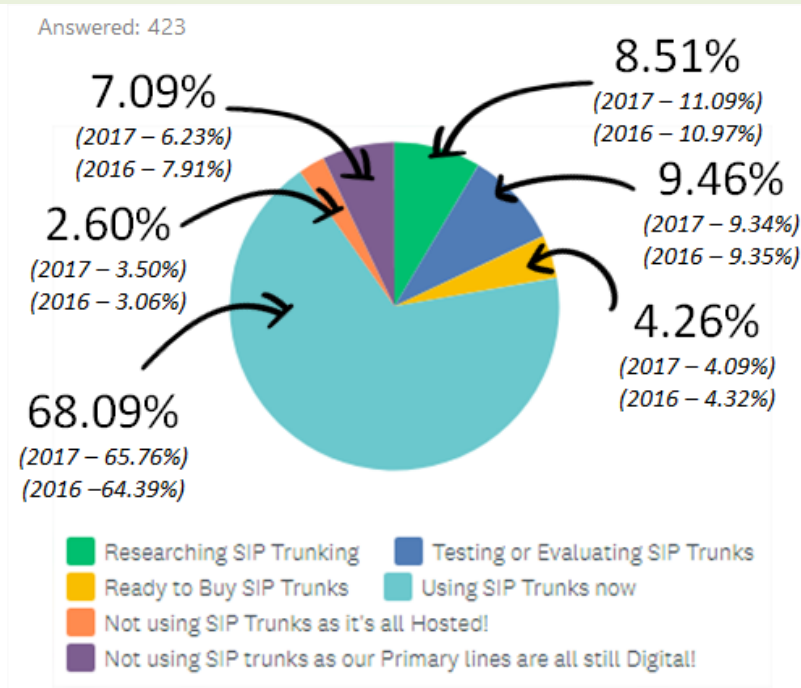
Larry Keefer, AT&T

It is a little surprising that the use of SIP has not grown more in the last two years than it has. It shows that there is still great opportunity for companies to start using SIP and benefitting from its capabilities.

Steve Johnson, Ingate



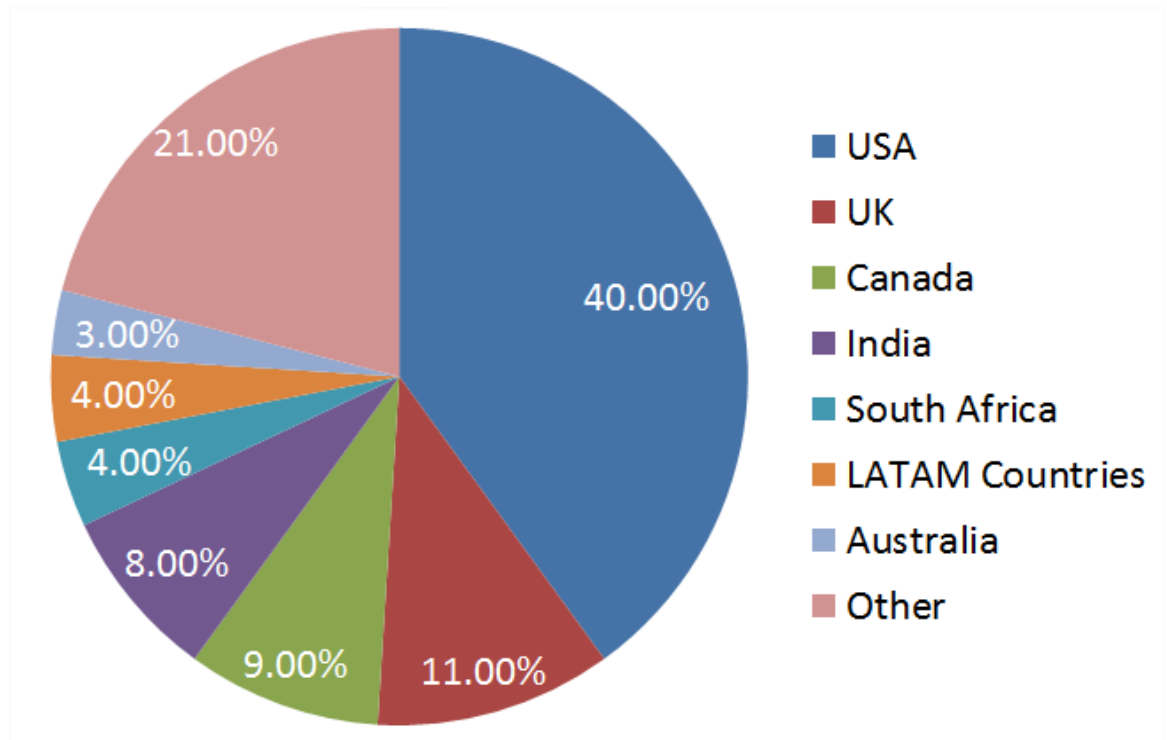
The PIE chart above is here for comparison to last year, BUT, if we remove the responses from the ITSPs themselves we see just 'client only' responses in the chart below.



We ourselves are a SP who offers and uses sip trunking as our main differentiator. It's remarkable to notice that in your survey we have a long way to go in LATAM, compared to the States.

**Sergio López,
Marcatel**

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



Fast-growing companies place a strain on IT systems. Scaling companies internal phone network to dozens of countries previously required multiple carrier agreements, complex routing, and high operations overhead. You can now use one provider (such as Twilio's Elastic SIP Trunking) with a virtual SBC to give PSTN Connectivity to dozens of offices worldwide.

Tim Beyers, Twilio

For the most part, the VoIP industry SHOULD be growing since (in the USA) the ILECs especially the biggest 2 have been cutting copper. UC grows but that's like saying SD-WAN is growing. 15 years of UCaaS and it is only at 15% penetration with 1000s of providers pushing it is the most telling stat that I can see. It is a solution without a problem.

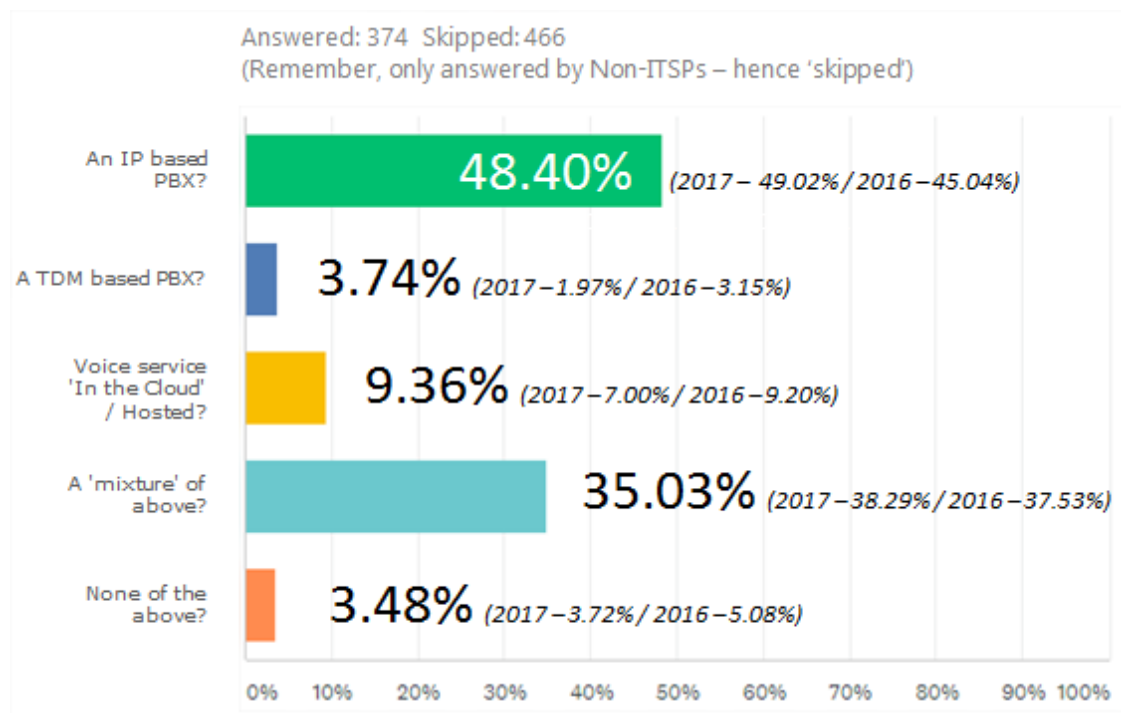
**Peter Radizeski
RAD-INFO INC**

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



A lot of companies are still operating (successfully) and purchasing on-site solutions where (sometimes) it *can* be cheaper to run this kind of system than to pay subscription charges for lots of handsets/accounts every month.

It's hard though for anyone to ignore cloud based offerings as they are perfect for a lot of companies such as those without any kind of communications system and that need to get up and running quickly. Also smaller, more dynamic businesses that move locations often benefit from the ability to get service speedily. It's always wise though to be wary and try to pay for services you need rather than getting caught up in 'solutions' that may promise more than what you want and be (potentially) difficult to integrate into your business.

Peter makes a good point where it's true that VoIP is growing, but people should focus on the VoIP service that meets their needs.

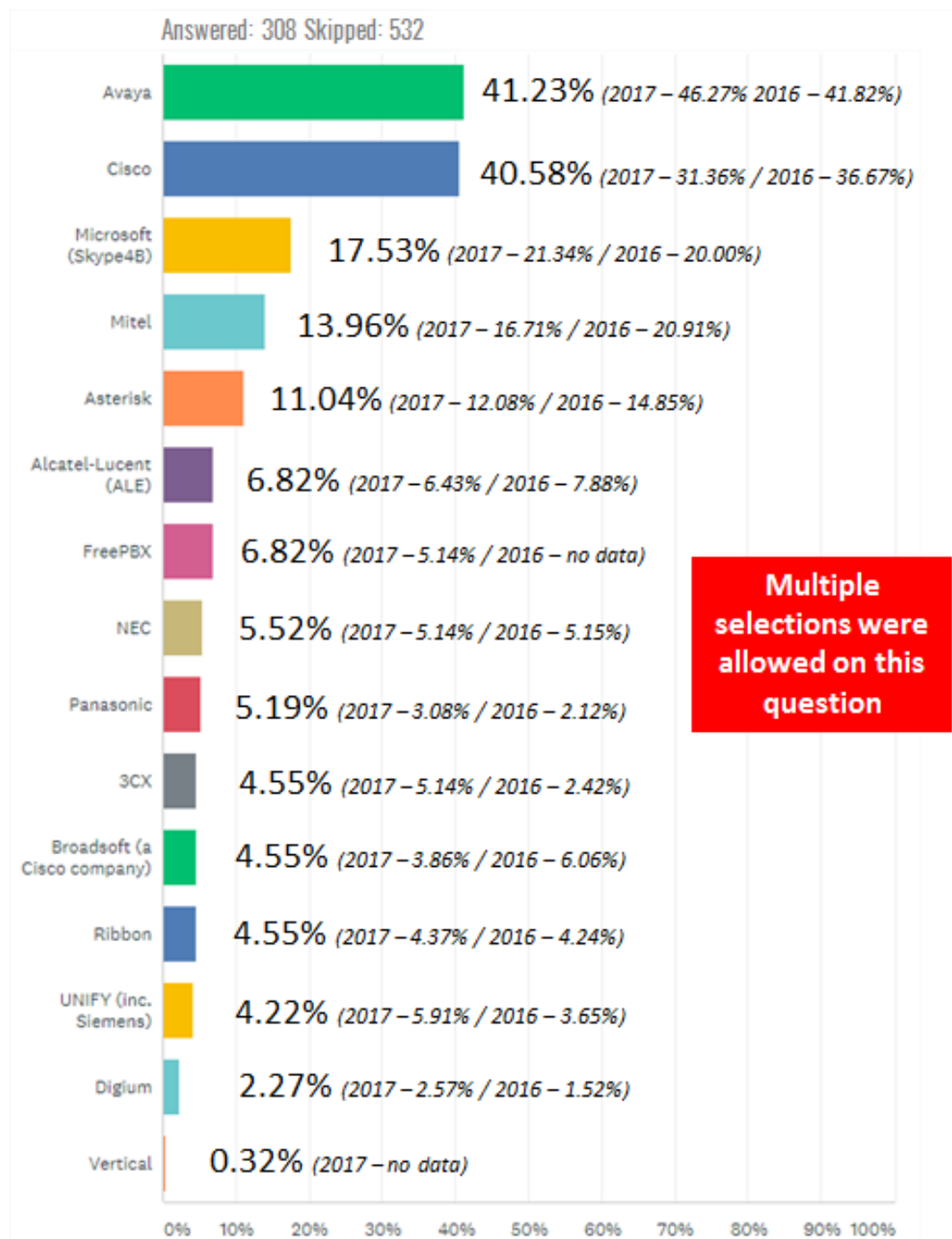
5

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

'Q' for non-ITSPs

Any explanation as to why there was a noticeable Cisco Down/Avaya Up event in 2017, followed by the reverse in 2018? Assuming Microsoft here is on-prem? (S4B Online could be considered Hosted.) Wherefore art thou Teams (with Direct Routing)? Would be interesting to identify vendor acquisitions that occurred during the year (or within the year since your last survey) and your thoughts as to how things shook out or might in the future.

Eric Newton, AT&T



Maybe other readers of this Survey can make the comments that Eric is asking for with regards to acquisitions and the repercussions?

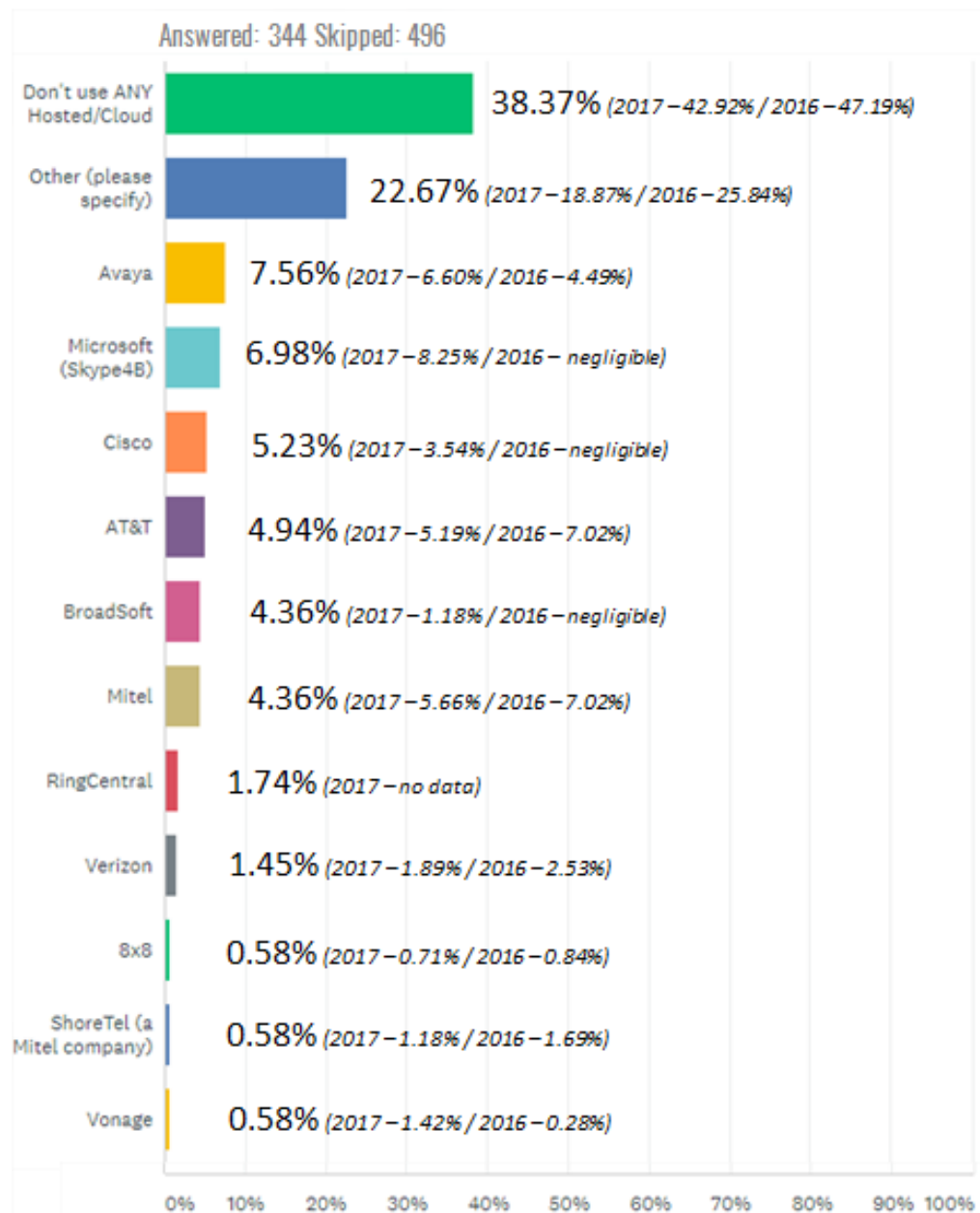
6

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

I believe a distinction between private cloud and public cloud services should be made. While private clouds are a good step they have many of the same negatives in common with premises solutions, the need to own licensing, pay for maintenance and management, data center space, etc. True cloud services shift that responsibility to the provider and most offer a monthly per user other "per the drink" model so evolving customer needs can be rapidly met.

Stanley Kumor,
Verizon



'Don't use ANY Hosted / Cloud service' is showing a drop over the last 3 years indicating that 'cloud' adoption is growing – slowly! Stanley makes a good point and maybe we'll ask next year on the 'type' of Cloud service being selected and why.

7

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

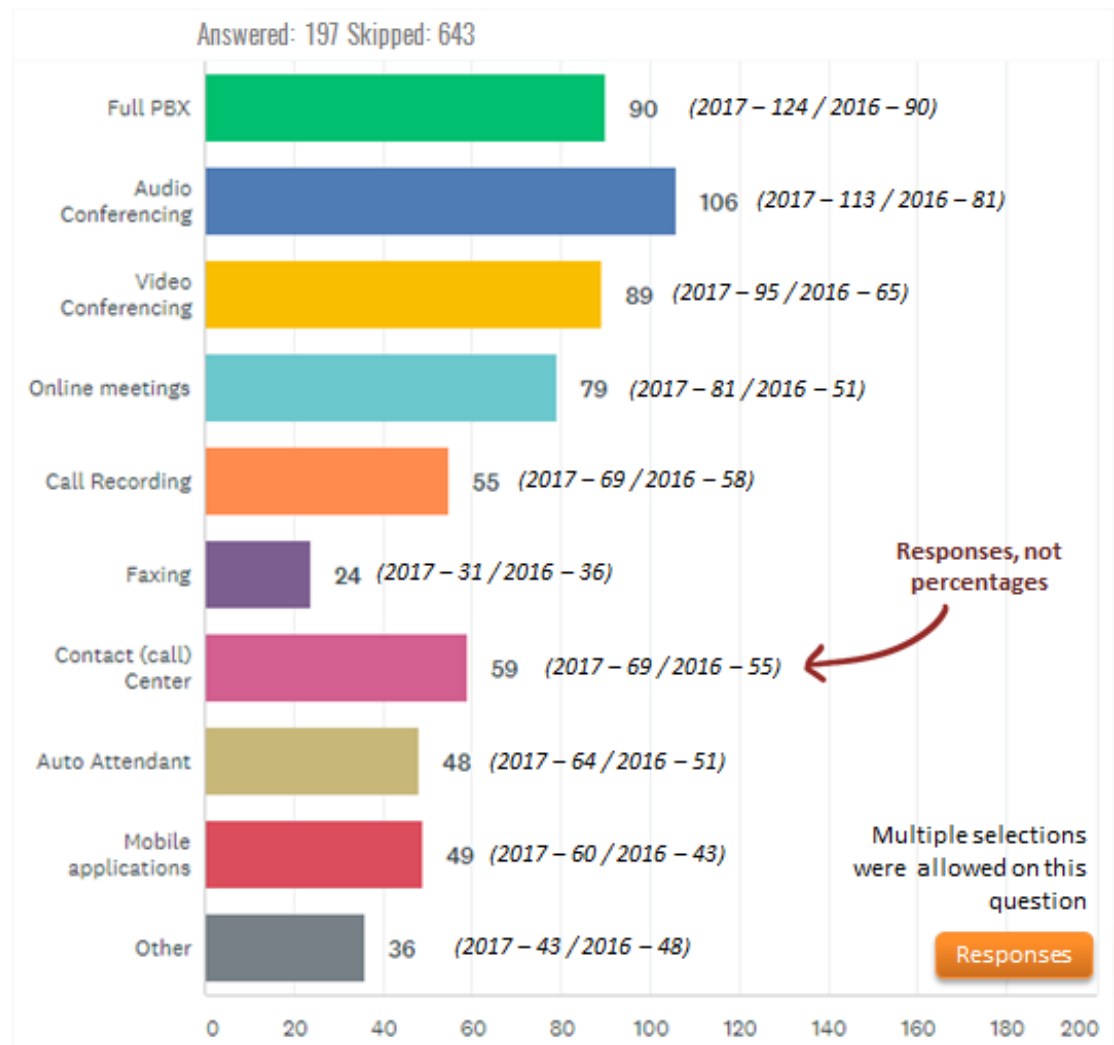
'Q' for
non-ITSPs

The move to cloud is accelerating...and many companies are making the move in one giant leap...but many companies are migrating to the cloud in multiple steps...sites, services, international.

Craig Gironda,
RingCentral

"The cloud is secure and ready for your workload. PCI compliant cloud services allow you to provide an IVR to collect payment information in addition to agent-assisted payments".

Tim Beyers, Twilio



Some companies will move to 'the cloud' gradually, and Craig's comment backs this up. It seems that migrating old functions and adopting new ones (where on-site options don't make sense) makes 'the cloud' the logical choice.

Of course, 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 thus experiencing much less disruption.

Phones are generally not directly portable between IP PBXs without software update, which may or may not be possible.

Jonathan Rosenberg,
Co-Inventor, SIP

We still sell auto provisioned hard phones to a many customers, softphones are important...Mobile apps and their synchronization with desk/softphones is extremely important...I say that productivity is not location-based

Craig Gironda,
Ringcentral

I guess you get what you pay for. Choose a carrier with multiple options so that as your needs or requirements change they can vary their offer. Cloud service should mean low touch, low effort to me. Making the service practical for small companies with small or low end technical staff. Large offices with support staff could have one model while small offices with no technical staff could have a different model.

Stanley Kumor,
Verizon

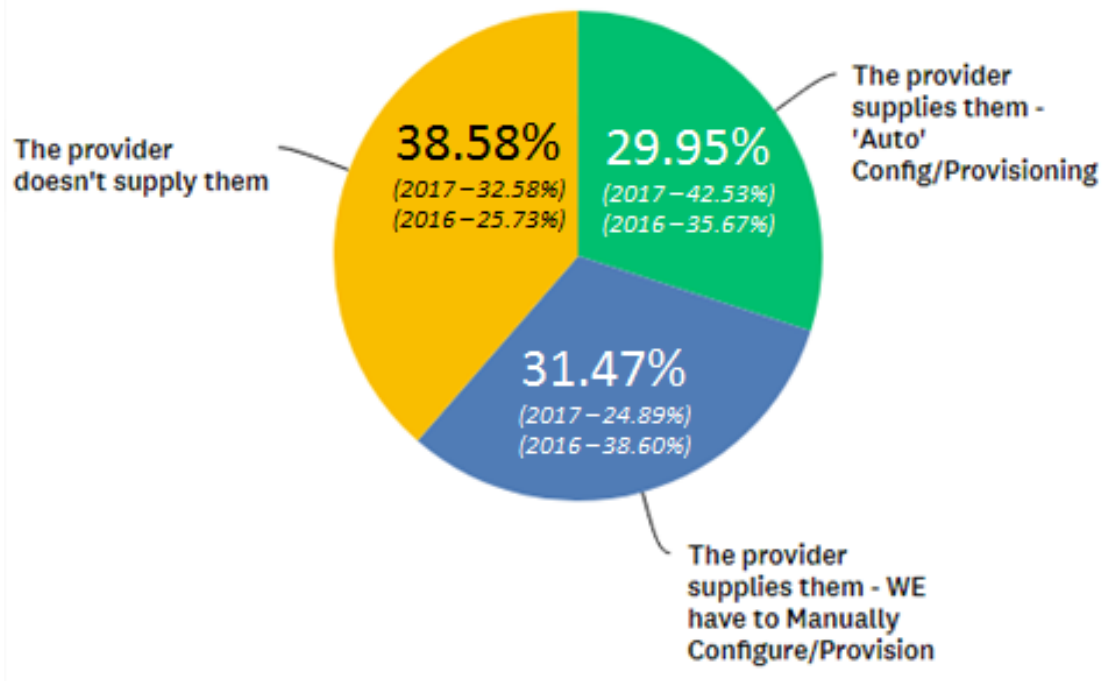
Again, focusing on Hosted/Cloud services.

8

What 'happens' with regards to Handsets and Softphones?

'Q' for
non-ITSPs

Answered: 197 Skipped: 643



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

Of course, you can provision your phones yourself but you will need to understand the work involved as well as being aware of some potential issues as highlighted by Jonathan's comment.

If you do not have the expertise to provision yourself and your provider is not an option for this, there are a number of 3rd party companies out there who can help where Phonism is but one example.

9

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

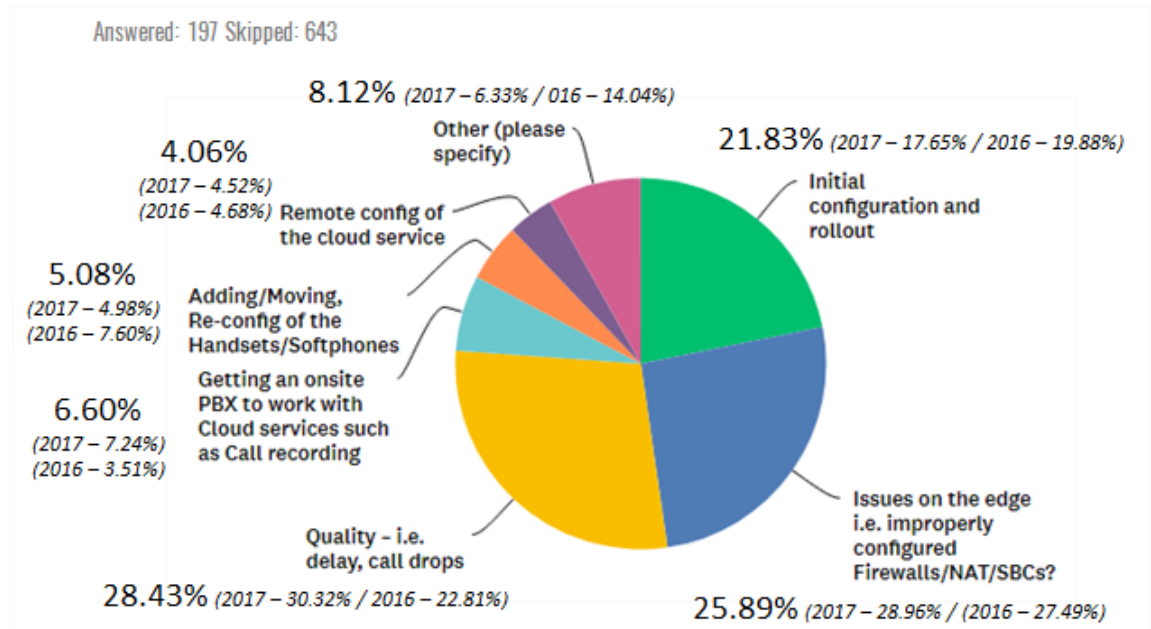
'Q' for
non-ITSPs

This is an interesting result showing that hosted services are not as easy to implement as many would have us believe. The other interesting item here is that SBCs are part of the implementation plan. Generally Hosted providers advertise that isn't necessary. We believe that any SIP service, hosted or on premise, can benefit from the use of an SBC to resolve many of the issues represented here.

Steve Johnson,
Ingate

No surprise that Quality dominates the responses. Un-managed Internet continues to plague SIP Trunking quality goals.

Alan Percy,
TelcoBridges



Before you even think about implementing any services there are a number of things you need to ask yourself and also check, for example.

- Is your Internal Network configured to support VoIP (Vlans / L2 QoS etc.)?
- Are you going to use an 'edge device' from your provider or a 3rd party and what functionality will you need from it?
- To avoid all the issues we see in this survey, who is going to configure the 'edge device' and are they qualified to do so?
- How are you going to handle phone provisioning? Small offices are 'easy' but campuses with 1000s of phone are not.
- Ongoing maintenance and monitoring of system activity, software upgrades to the phone etc. needs to be thought of so who will do this?

Another thing is that you may want to get your new communications system to work with some of your corporate applications and you need to see if they are compatible. If so, who will do the integration work for you?

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

Would be valuable to see how much is physical versus virtual (expect to see an increasing trend over time).

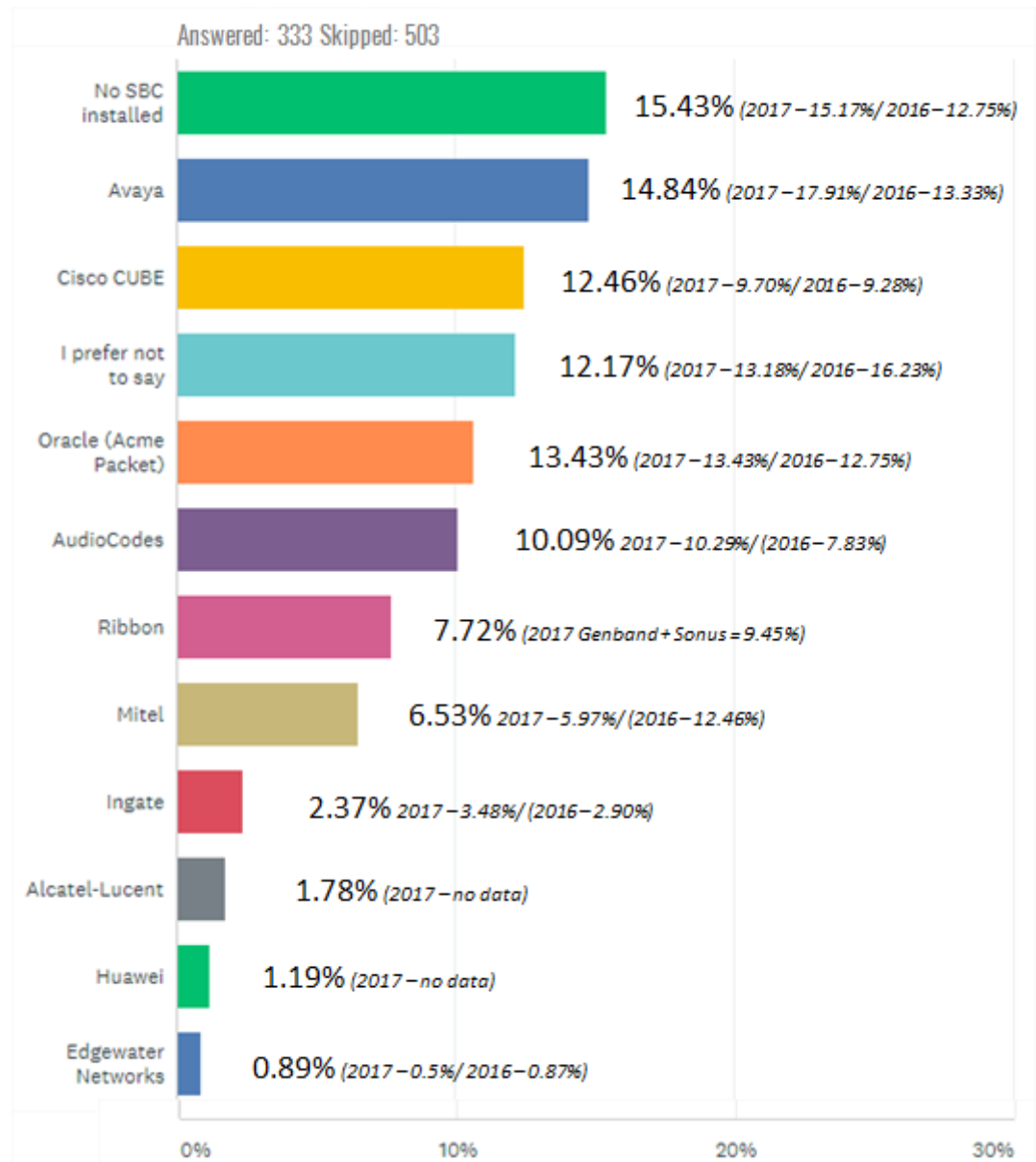
Eric Newton AT&T

These answers sort of make sense; I would think that Ribbon/Sonus would be making headway. Given the PBX answer the numbers fall in line. The "Prefer not to answer" is funny".

Stanley Kumor, Verizon

More than 15% of the respondents do not have an SBC. This is a slight increase from the 2017 survey. This is dangerous.

Gary Audin, Delphi



So we have **No SBC Installed** at the top of the list and as Gary says "This is dangerous"

Preferring not to say (at 12.17%) is ok as some people like to keep their security setup/configuration quiet.

11

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

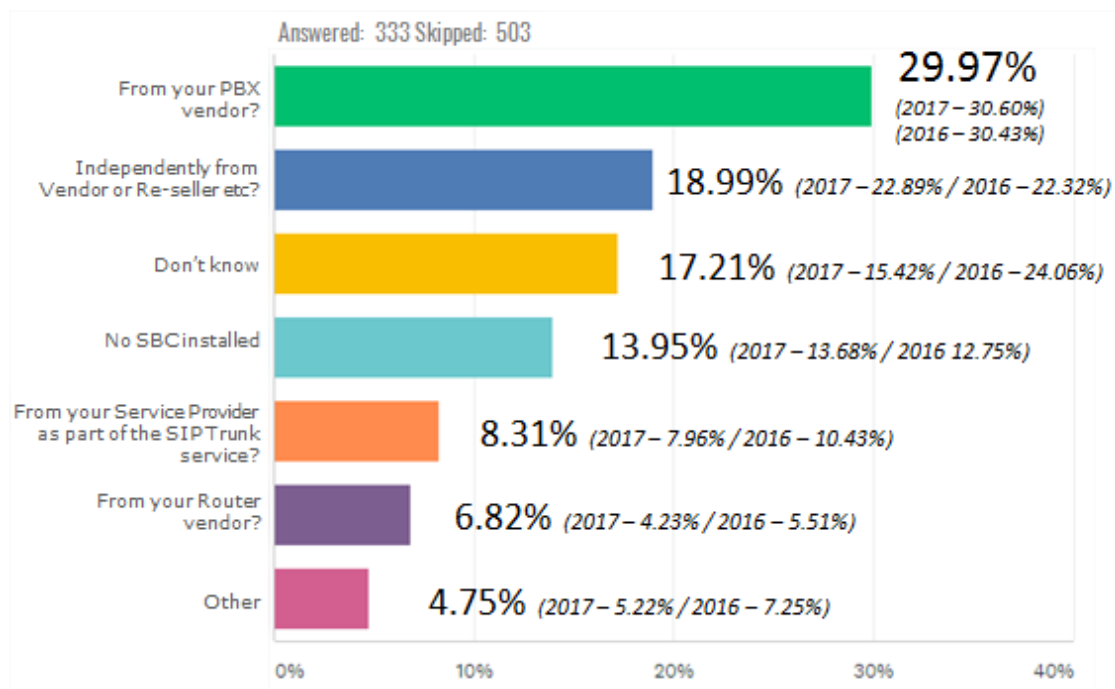
'Q' for
non-ITSPs

To a degree seeing "From your PBX vendor" as the high selection makes sense with high usage of Avaya and Cisco voice platform responses. Still concerned by "No SBC installed" and perplexed on the number of "Don't know".

Larry Keefer, AT&T

The fact that 14% of respondents don't have an SBC is concerning. SBCs can resolve many issues including insuring privacy. It is not surprising that the end users obtain their SBCs as part of the PBX package which is assembled either by the manufacturer or the dealer. Consistent with our experience.

**Steve Johnson,
Ingate**



Not all respondents knew where / how they got their edge device (17.21%) but we wanted to see what we could find out from those who did know

From the PBX vendor (29.97%)

Probably because it was part of a 'package' deal? It could be the vendors own SBC or one provided by a partner of the vendor.

From the Service provider (8.31%)

This option (hopefully) will be optimized for that particular provider, maybe even remotely managed?

'Independently' (18.99%)

There is definitely a healthy market for 3rd party vendors to offer a 'fuller' range of features for clients such as SIP normalization, QoS control, Security and more, especially as edge devices from some vendors are adding capabilities to work with IoT devices and connections as well as other new functions such as STIR/SHAKEN in helping to deal with combatting Robocalling.

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?

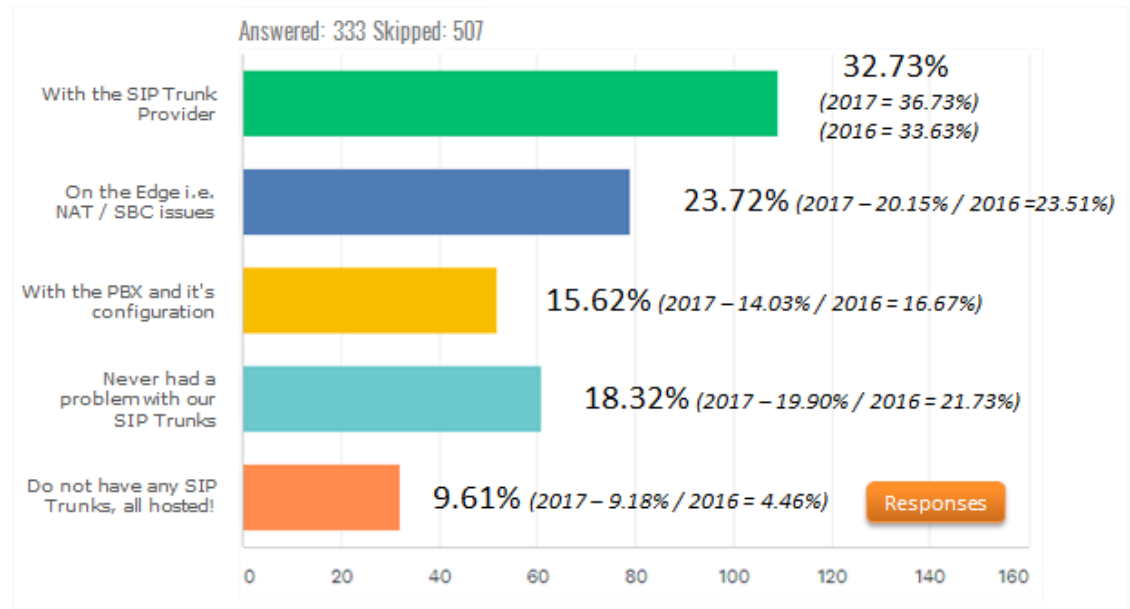
'Q' for
non-ITSPs

The issues with SIP Trunking providers continues to drop, but remains alarmingly high.

Alan Percy,
TelcoBridges

The number of customers that did not have a problem has decreased since previous surveys. This is heading in the wrong direction

Gary Audin, Delphi



Top of the list is the 'SIP trunk provider' having the issues and this 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 themselves responded to the *same* question – refer to **Question 26** – you won't be surprised...

People that have "Never had a problem" attribute this success mainly to good planning, trailing SIP services as well as having trained staff and good support from the providers themselves – all sounds like good sense to me.

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

Customers should be negotiating codecs versus locking into a single codec. Certainly selecting a preferred codec is appropriate, but they should offer and accept multiple codecs if at all possible.

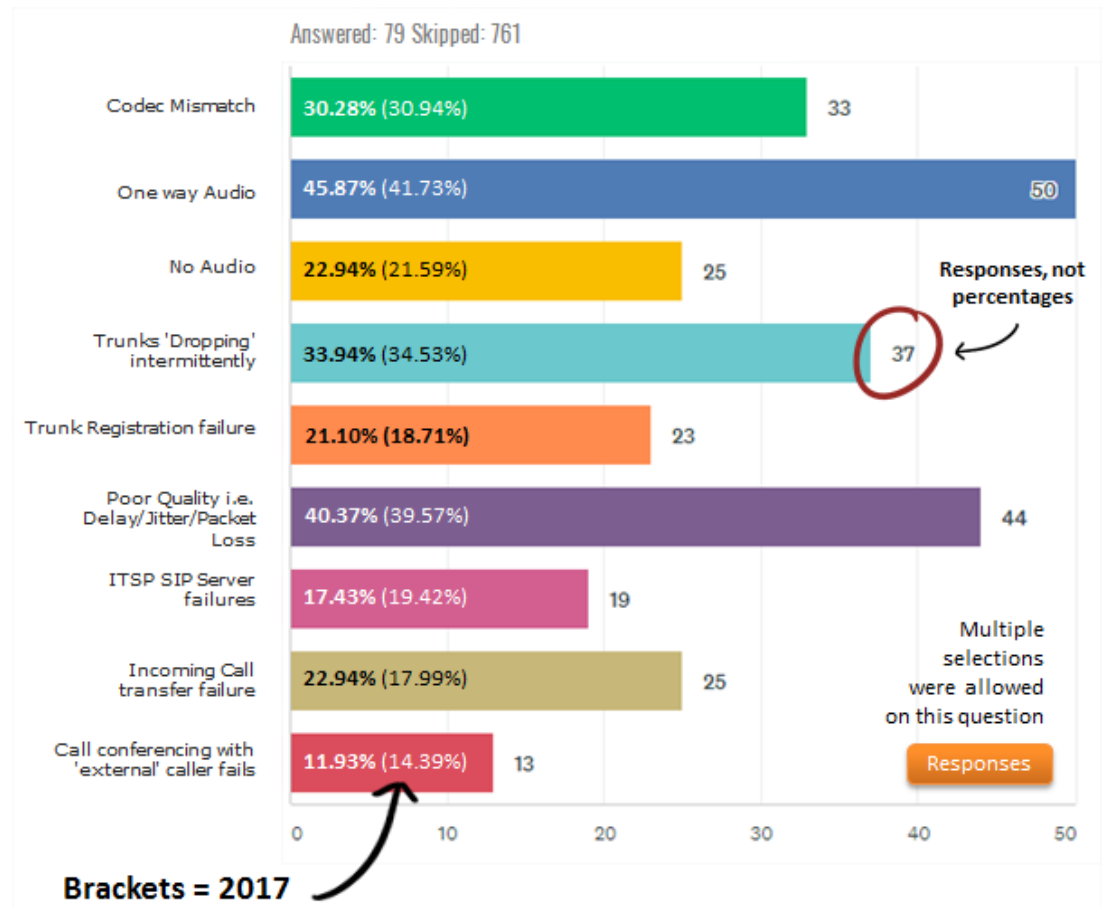
Larry Keefer, AT&T

The distribution of problems remains static. Some problems should have improved now that SIP trunks are a commodity.

Gary Audin, Delphi

Poor Quality begs the question: how much of this is Internet-based, versus private network-based?

Eric Newton, AT&T



Same old issues rear their ugly heads. The comments on the side also suggest that these problems should be going away by now, especially (for example) by letting Codec negotiation be automatic and not a manual setting.

Good documentation and support from vendors should be expected as well as properly trained staff to implement and configure the services

14

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

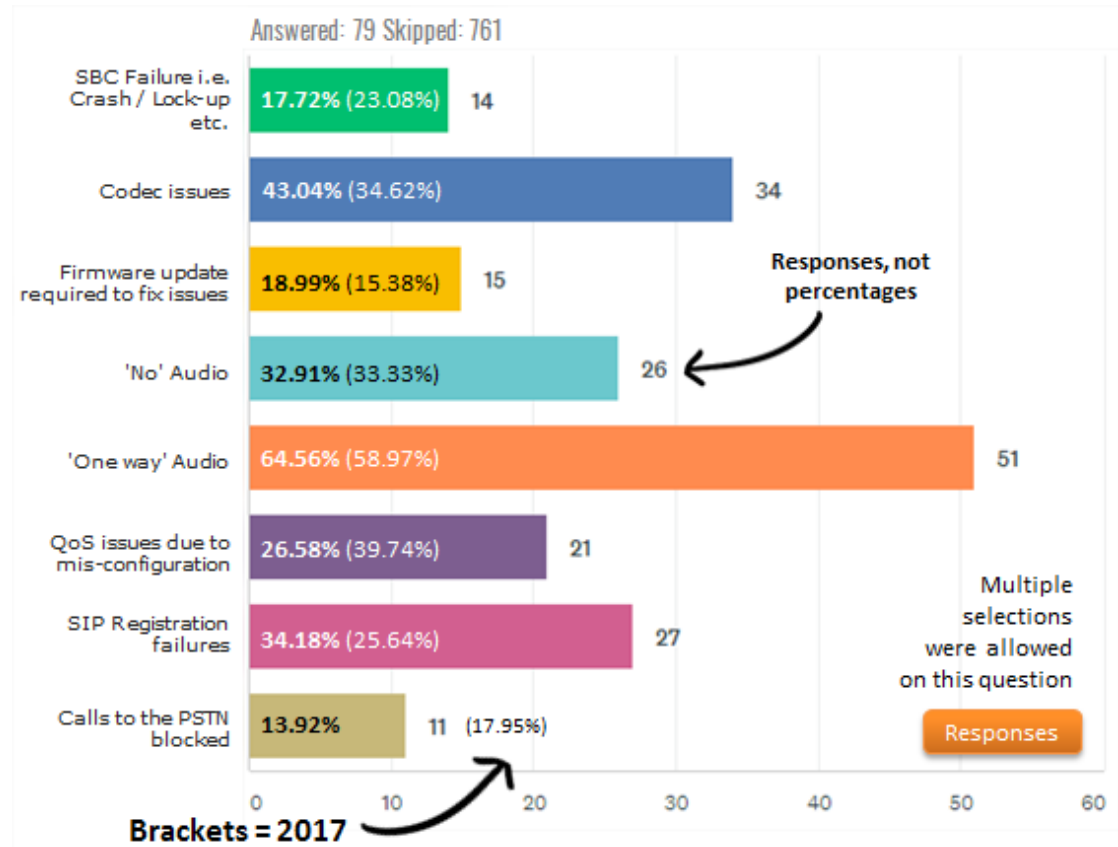
'Q' for
non-ITSPs

Tracking physical versus virtual SBC could be beneficial over time.

Eric Newton, AT&T

There are almost always customer cpe config errors during initial trunk turn-up. This is not due to lack of effort on anyone's part but the fact that every ITSP has a slightly different way of delivering SIP. Manufacturer application notes generally only cover the most basic configuration settings. In many cases basic inbound and outbound calling appears to work but a review of the SIP traces shows that signaling is not operating properly. This can cause more advance functionality to fail, intermittent call failures, etc. A detailed test plan with captures to ensure both the customer and ITSP devices are operating per specification is highly suggested.

Stanley Kumor, Verizon



Mis-configuration or incomplete configuration are usually the causes of the majority of these problems so the solutions are simple.

- Use correct and up-to-date documentation
- Get trained staff to do the configuration
- Test before going live
- Consider letting the Service provider do this for you, maybe even host in their own networks.

Let's move onto the PBX.

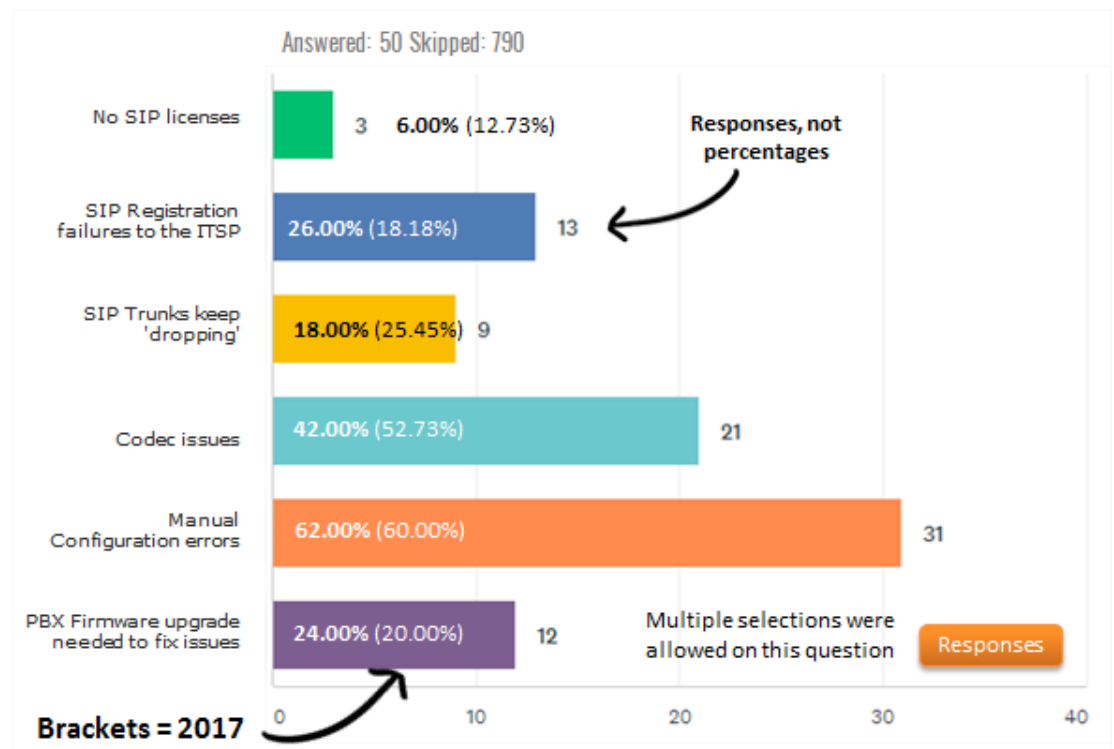
15

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

'Q' for non-ITSPs

"Manual configuration errors" is not something that any piece of equipment can fix. Even an SBC won't obviate the need for good configuration

Steve Johnson,
Ingate



'Manual Configuration errors' increasing to 62.00% clearly show that people need to understand what they are trying to do and take their time getting it right.

The same things we mentioned for the previous question apply re: best practices and in this particular instance, auto negotiating on Codecs would eliminate manual configuration errors of them.

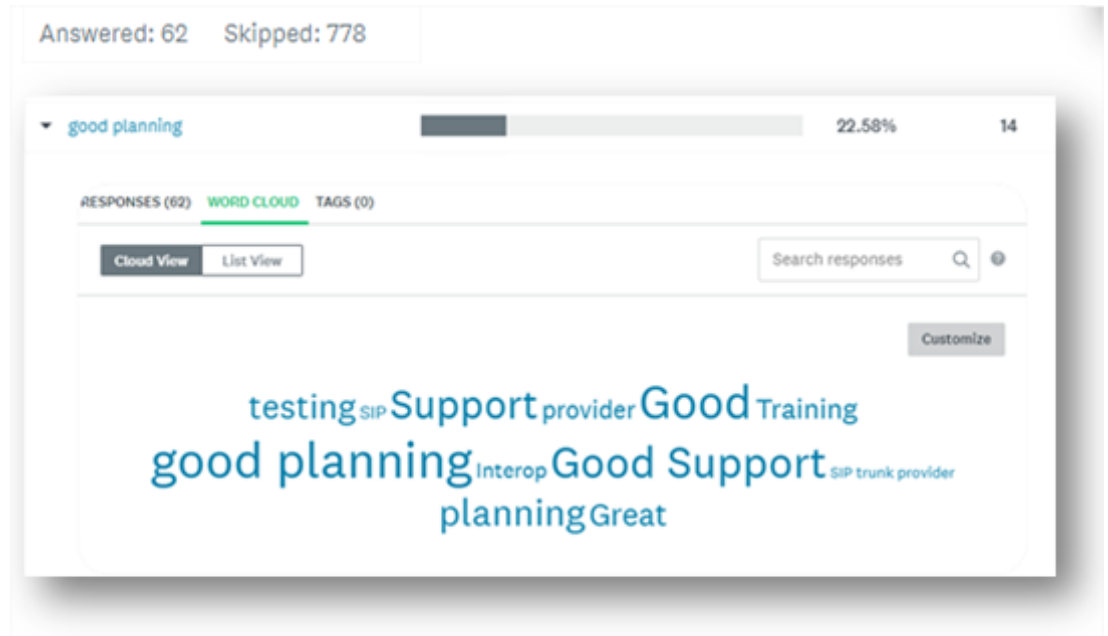
16

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

'Q' for non-ITSPs

Planning is key. And to be sure to avoid future problems, choose a very reliable and tested SBC, one that is supported locally and offers a world class support organization.

Steve Johnson,
Ingate



The screenshot here (from our Survey collection system) clearly says it all (with the stand out words) whereby planning and support as well as taking time to test each and every scenario will ensure that SIP based 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.

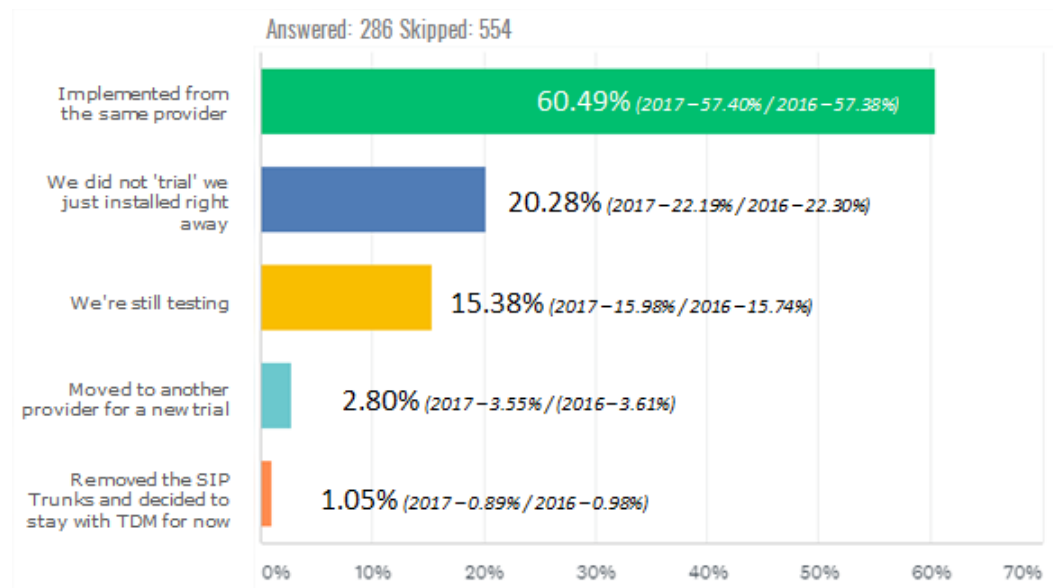
17

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

'Q' for non-ITSPs

How do the 1 out of 5 customers learn to trust their provider enough to avoid a trial?

Gary Audin, Delphi



ITSPs should offer a 'trial' and then work with the client to iron-out any issues. Doing this will probably result in the client staying with the ITSP. Early effort equals a long term gain for all involved and it looks like people are doing this.

With regards to Gary's comment – maybe the client only has one reasonable option for an ITSP (offering all the services they need) in their region and *has* to make it work.

18

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

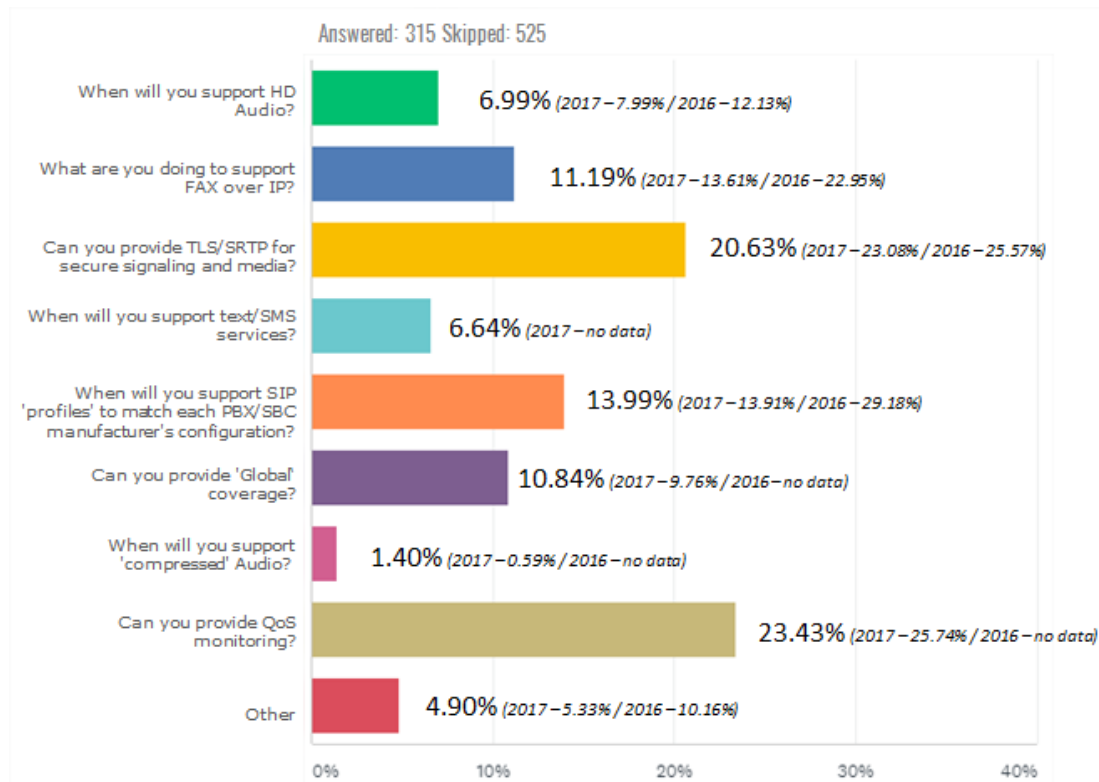
'Q' for
non-ITSPs

Expect HD audio to become increasingly important as it is being rolled out broadly in cellular networks, setting user expectations on voice quality.

Jonathan Rosenberg,
Co-Inventor, SIP

We are an ITSP, so it is useful to know that most customers care is the QoS

Sergio López,
Marcatel



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. Support for Fax is a request that seems to be dropping off. Either ITSPs 'are' proving Fax services now or people are using Fax less.

With regards to Fax, one interesting news item (Dec 2018) is in the UK, the NHS (National Health Service) has been told by the UK government to phase out Fac machines entirely by 2020. Reasons given are to "improve patient safety and combat security".

Jonathan makes a good point as with cell service in the past, people have had to put up with (and got used to) poor connections, calls dropping and often low quality voice – but whatever, they still choose cell calls first as it's the most convenient for them. THUS, as HD audio is rolled out by cell providers, people will then get used to hearing great sounding voice and will expect that of all other providers of Voice equipment and services. Let's see how quickly this happens though as a number of proviers still do not have LTE services available let alone the ability to facilitate cross provider LTE support.

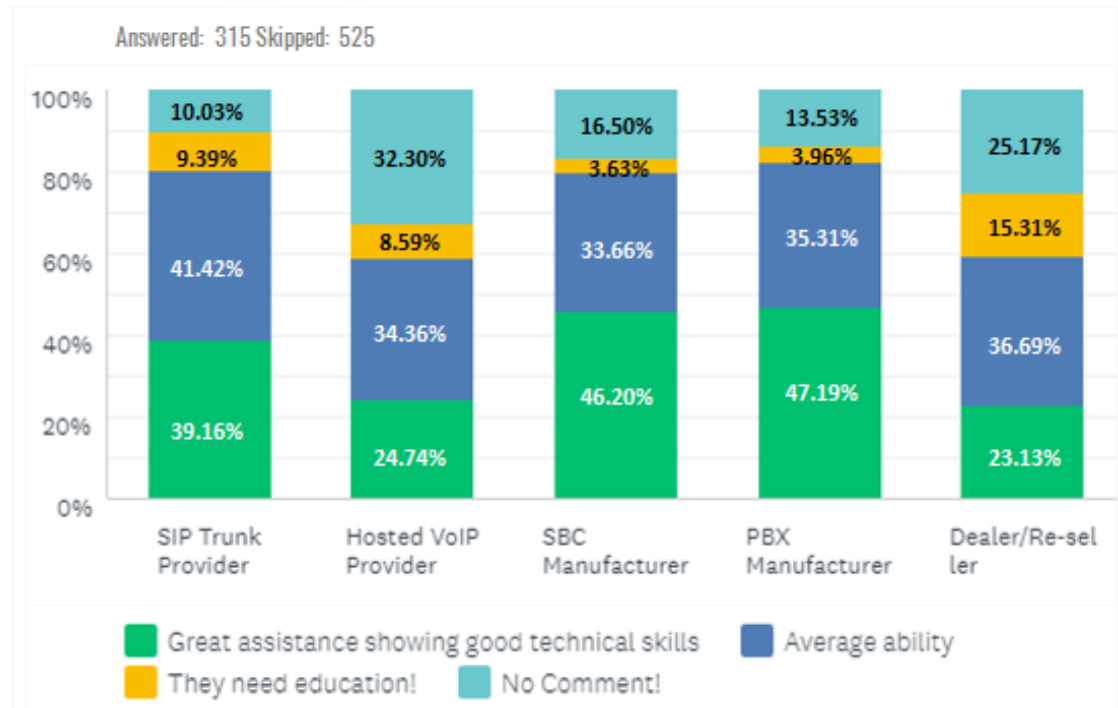
19

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

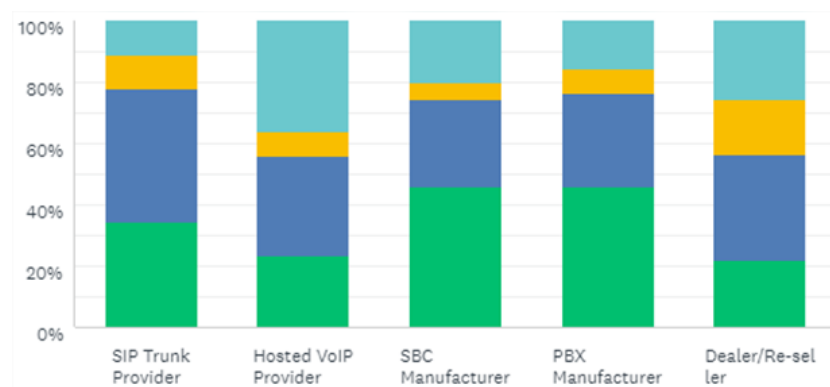
'Q' for non-ITSPs

The worst participants on this page are still the dealer/resellers. Is their poor showing due to training, experience, documentation? It is not usually the equipment vendors and providers. They all fair better in the survey every year.

Gary Audin, Delphi



This image below is the image created from the data last year and comparing it to this year is somewhat unnerving in the similarity.



As for previous surveys, we didn't ask for specific examples or even try to work out if support 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. We all know that it is customer experiences and perceptions that can win or lose business regardless of where any fault actually lies!

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

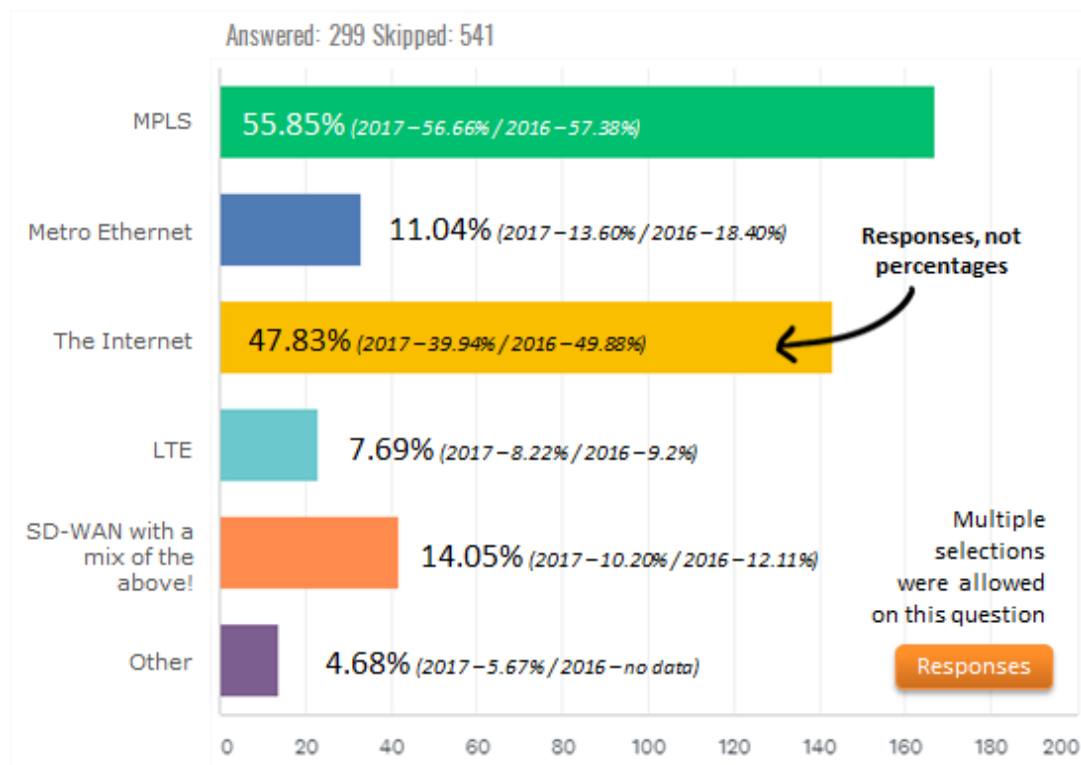
20

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

‘Q’ for non-ITSPs

SD-WAN should be growing in popularity as manufacturers and carriers standardize services and offer more hosted Virtualized Network Services like virtual SD-WAN.

Stanley Kumor,
Verizon



Mike Uttley (of CenturyLink) pretty much sums things up

“This one always interests me..... The large number that ‘use the Internet’ and yet when you get to the issues people are having i.e.Q27, Quality and Delay always come out fairly high. Obviously, the Internet quality is getting better than it used to be and MPLS is fairly flat or slightly decreasing in use, but I wonder. if the adoption of SDWAN is putting the tools and controls more in the customer’s hands so they can actively manage their networks or are they just looking for cost savings and better utilization. (Q22 vs Q29)?”

(Back to The SIP School)

Although internet services are getting faster (think Fiber, 4G and soon – 5G). there is still no guarantee of service from one second to the next. Putting all your voice services onto the internet means that you must be willing to accept (however rare) errors and outages or try to avoid these by having multiple providers or simply sticking with MPLS as the path of choice for Real-time traffic. All up to you of course.

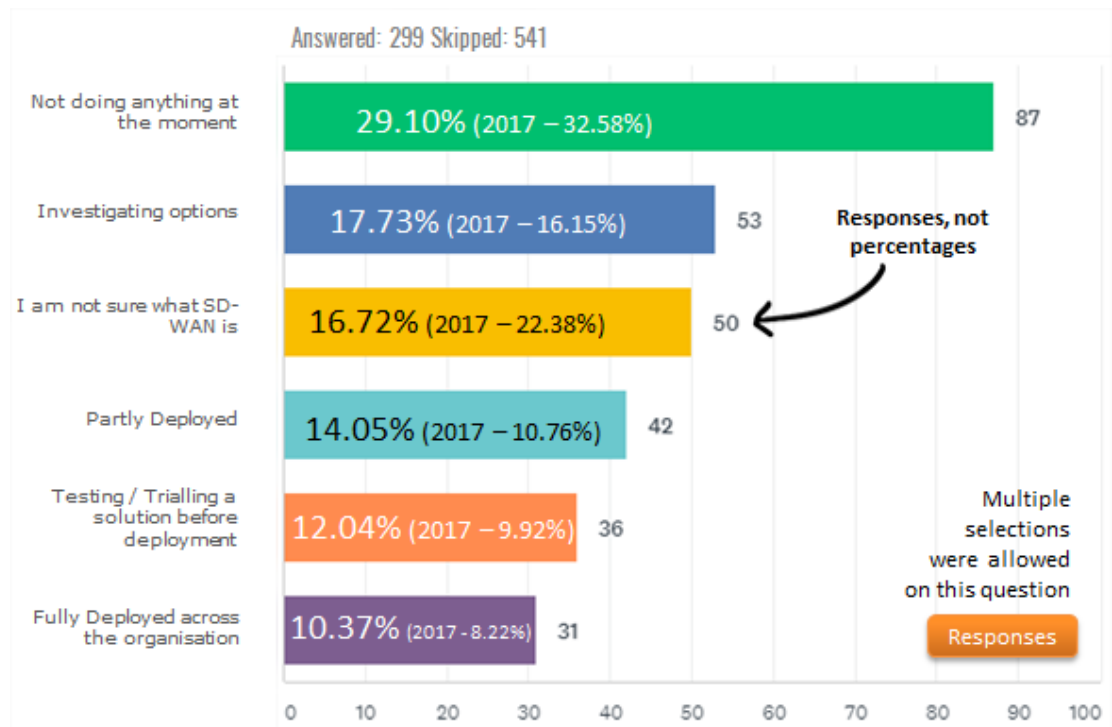
21

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

'Q' for
non-ITSPs

The number of “not sure what it is” and “not doing anything at the moment” responses is a bit alarming. SD-WAN offers many benefits beyond a traditional WAN. Benefits generally include cost savings, increased link connection or site survivability, the ability to deliver Virtualized Network Services (VNS) and others. These benefits all come with some complexity when related to Real Time protocols like VoIP and Video. The data networking and voice teams need to be in sync on this topic.

Stanley Kumor,
Verizon

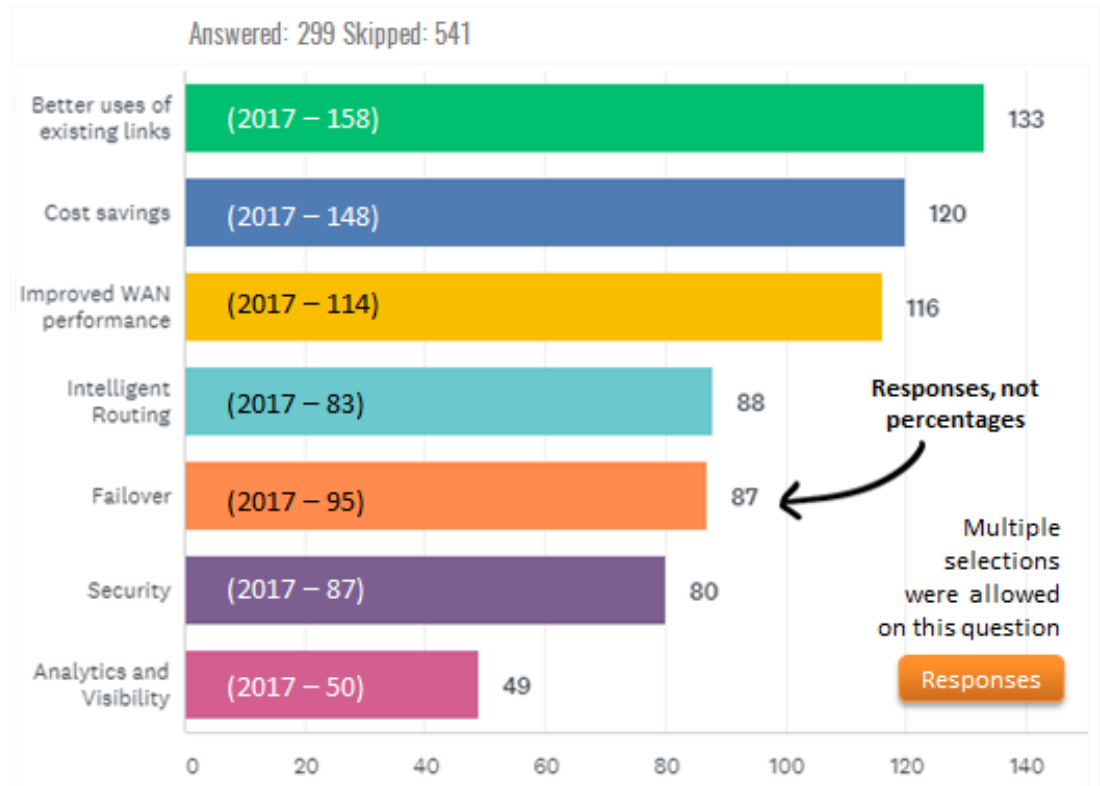


Positive movement in all of the results from last year is showing that SD-WAN is becoming more understood and also being implemented more – though slowly. As more vendors add SD-WAN into their products, i.e. Cisco integrating Viptela SD-WAN capabilities into their IOS XE software this year, the outcome will be that the SD-WAN services are just going to grow in popularity and usage.

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?

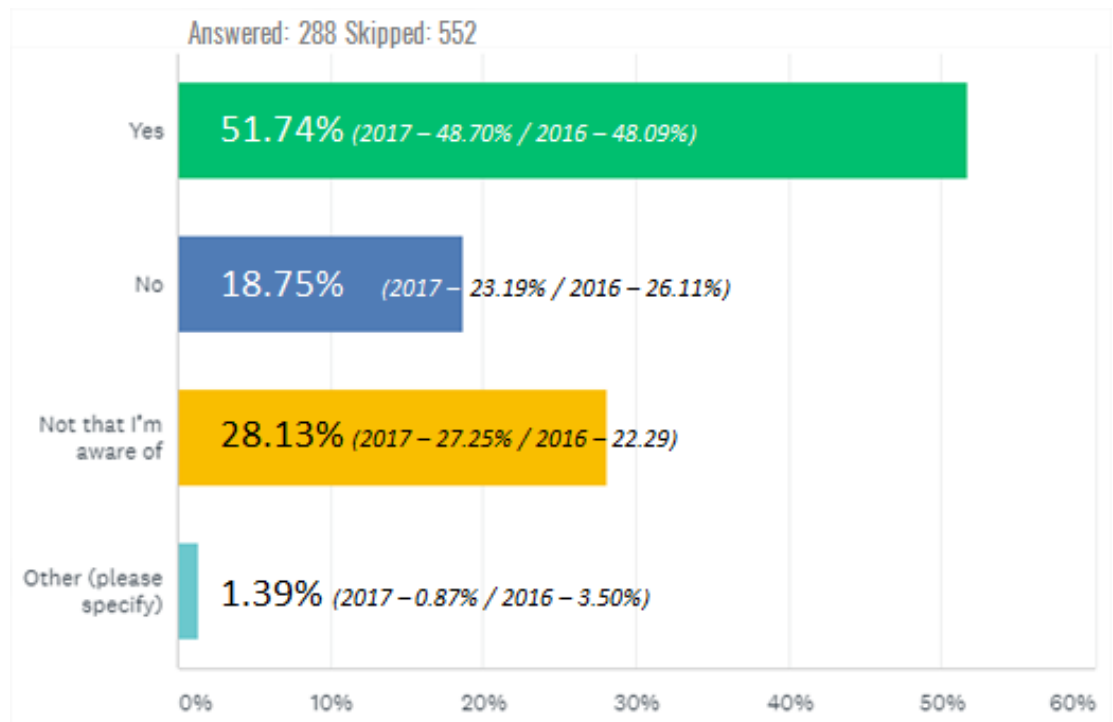
23

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

I'm surprised that this doesn't match the Internet vs. MPLS question. There being no real way to test an Internet link for more than a single moment in time.

Stanley Kumor,
Verizon



Not testing to see if Voice (or even Video) is working great is really not an option as the provider should be offering to do this. The provider is the one with all the (appropriate) tools to check out the link for suitability and if they have not offered to do this, then ask them to.

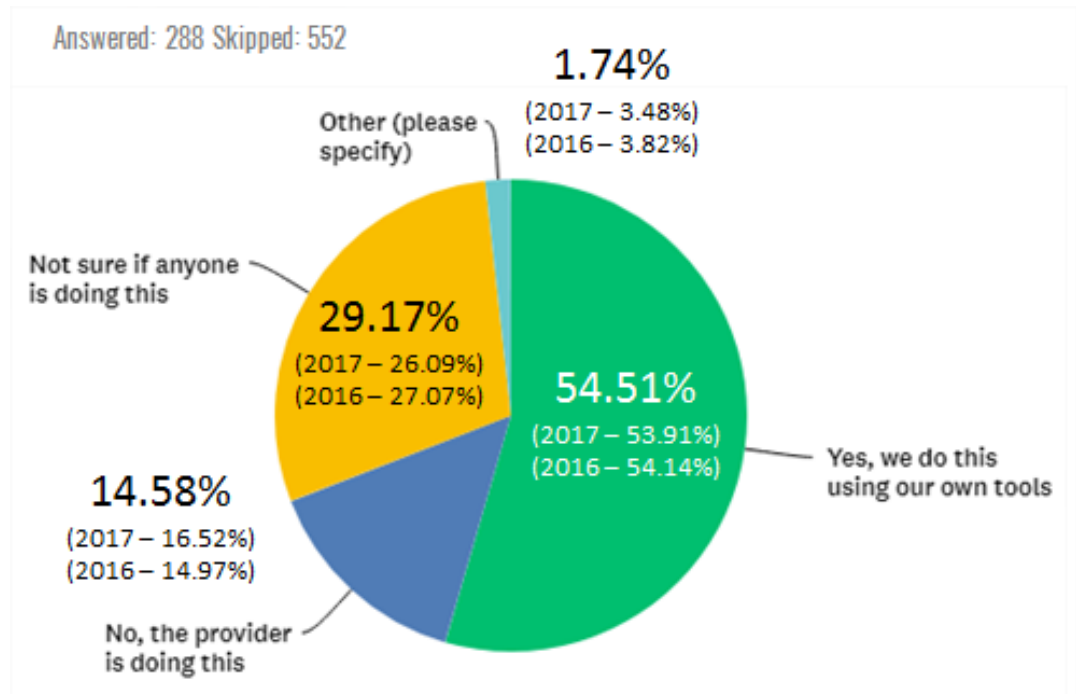
24

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

'Q' for
non-ITSPs

The majority of customers use their own tools. I wonder if the customer tools deliver information better than the provider's tools? Why is it that 14% trust the provider quality measurements? How do the provider's measurements compare the customer's tool measurements?

Gary Audin, Delphi



Monitoring and Alerting are vitally important so you need to either let your ITSP do it, do it yourself or both take responsibility – check to see if it's an ongoing feature of the service you are paying for.

Real time analysis is going to be of the utmost importance as links *will* have to carry more packets for a growing diversity of available and viable technologies such as the Internet, MPLS, 4G (5G) and so on; 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.

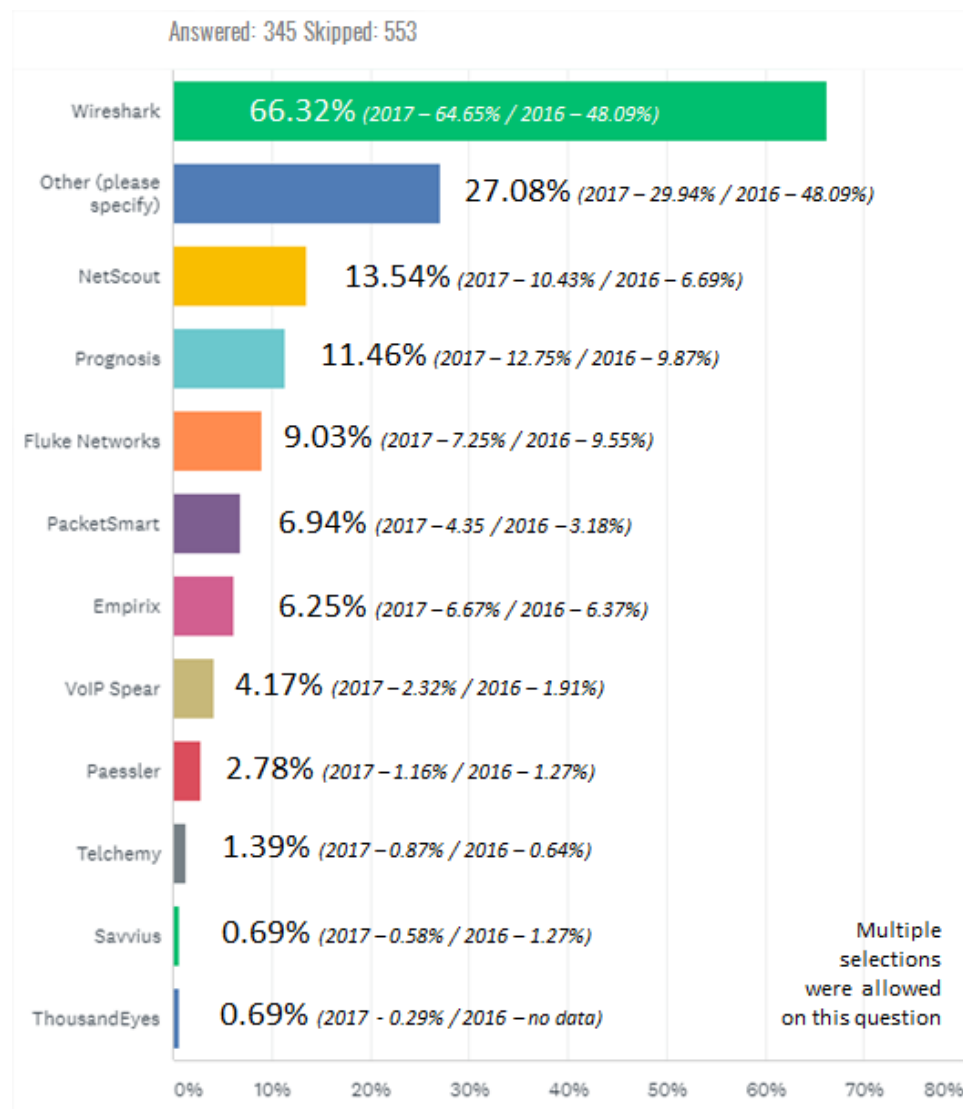
25

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

'Q' for non-ITSPs

While Wireshark is a great tool to isolate specific issues, a more comprehensive solutions should be part of every network QoS strategy, giving enterprises the data to hold their service provider to the SLA commitments.

Alan Percy,
TelcoBridges



Wireshark wins again by a long way though it's worth remembering that other tools provide specific services that Wireshark can't with regards to Real-time VoIP traffic such as analysis, Monitoring, Alerting and so on.

Remember... BLUE is for 'ITSP answered' questions

26

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

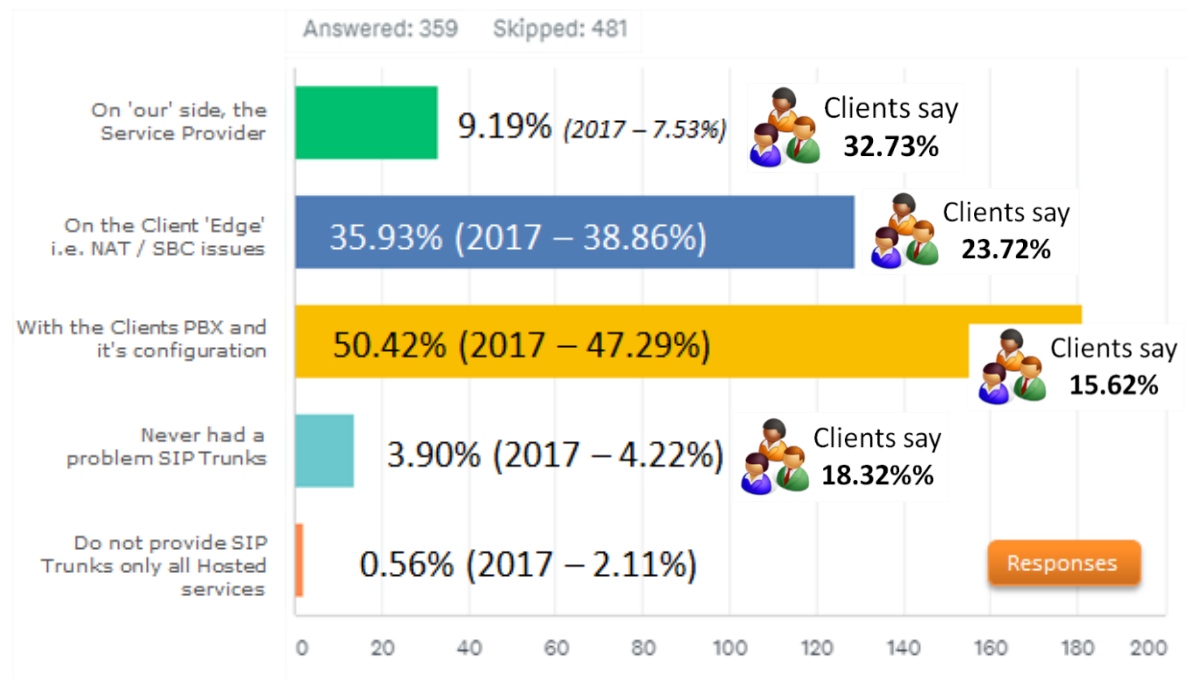
'Q' for ITSPs

While I can see the "blame game" perspective going on here, I would think that allowing the ITSP's to provide more than one answer might help. Example, our primary issues are in fact with the customers but there is no doubt that we also have network issues impacting customers, the customer is not entirely to blame once the trunk is active and working.

Stanley Kumor,
Verizon

As what happened last year in the 2017 survey, there is a great difference between customer reported problems and provider reported problems. They both cannot be right.

Gary Audin, Delphi



Ultimately, both sides need to talk to each other to work on and overcome the issues. With a good dialog, problems can be isolated and fixed regardless of who was to blame. Find it, Fix it, move on and enjoy a good working relationship.

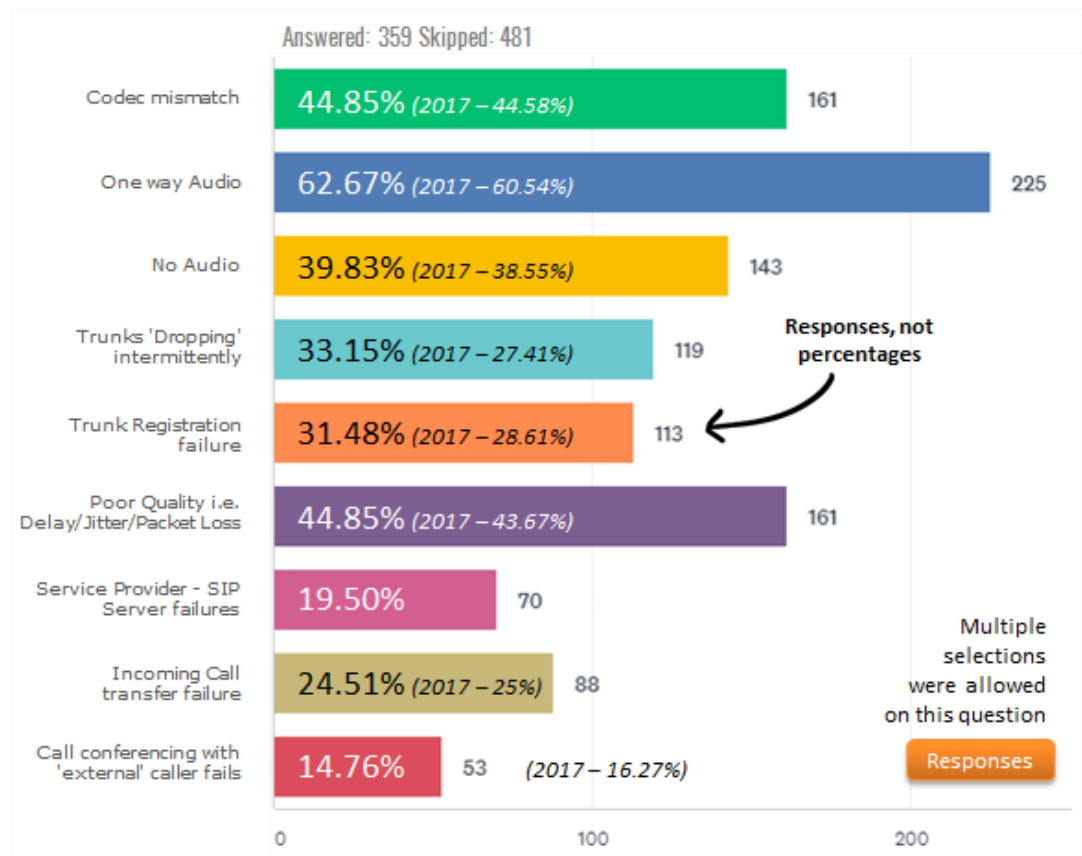
27

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

‘Q’ for ITSPs

A properly architected and tested during turn up SIP trunk should not have these types of issues unless a customer has changed their cpe config. As carriers we should strive to proactively prevent these by doing due diligence during the design and testing phase.

Stanley Kumor,
Verizon



A slight variation compared to the ‘clients’ responses in Question 13, but overall, the message is for all sides to implement the solution carefully to avoid any configuration errors. Done properly, a lot of the issues above will simply not occur.

28

Do you provide SD-WAN services?

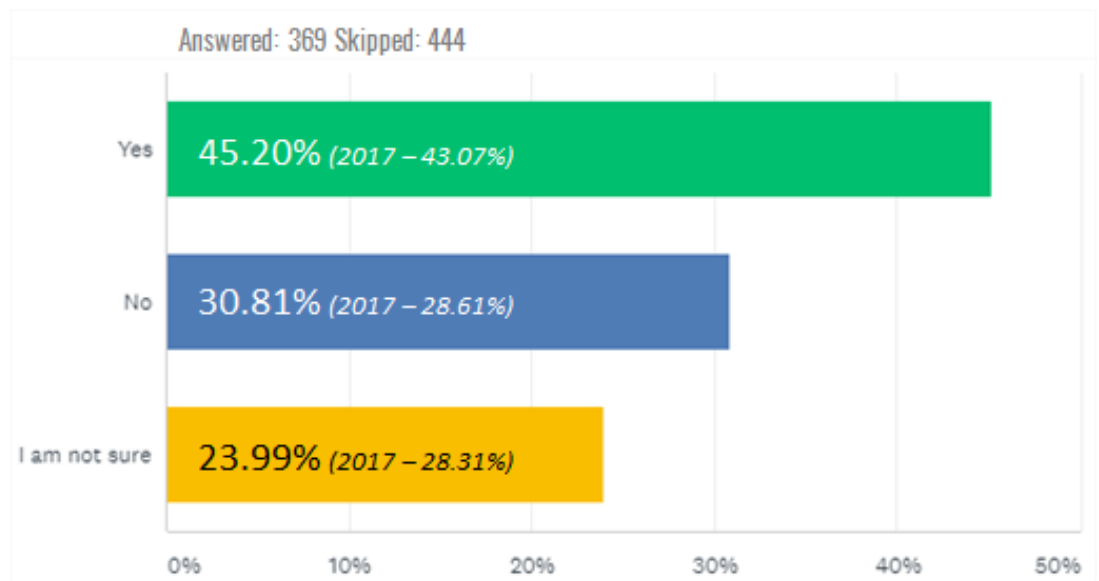
‘Q’ for ITSPs

SD-WAN...the technology/solutions are not being fully-utilized (neither are SBCs, still!)...and the benefits that SD-WAN provide are not being realized

Craig Gironda,
RingCentral

How does a carrier not know if they provide SD-WAN?

Stanley Kumor,
Verizon



So a small increase on last year for Yes as well as No.... interesting...

Maybe it's because those who are Not sure, has dropped as people become more aware of what SD-WAN is and can answer in a more precise way.?

I really do expect the Yes vote to increase in the next survey as both awareness of SD-WAN grows as well as vendors making it easier to implement through embedding in their own systems.

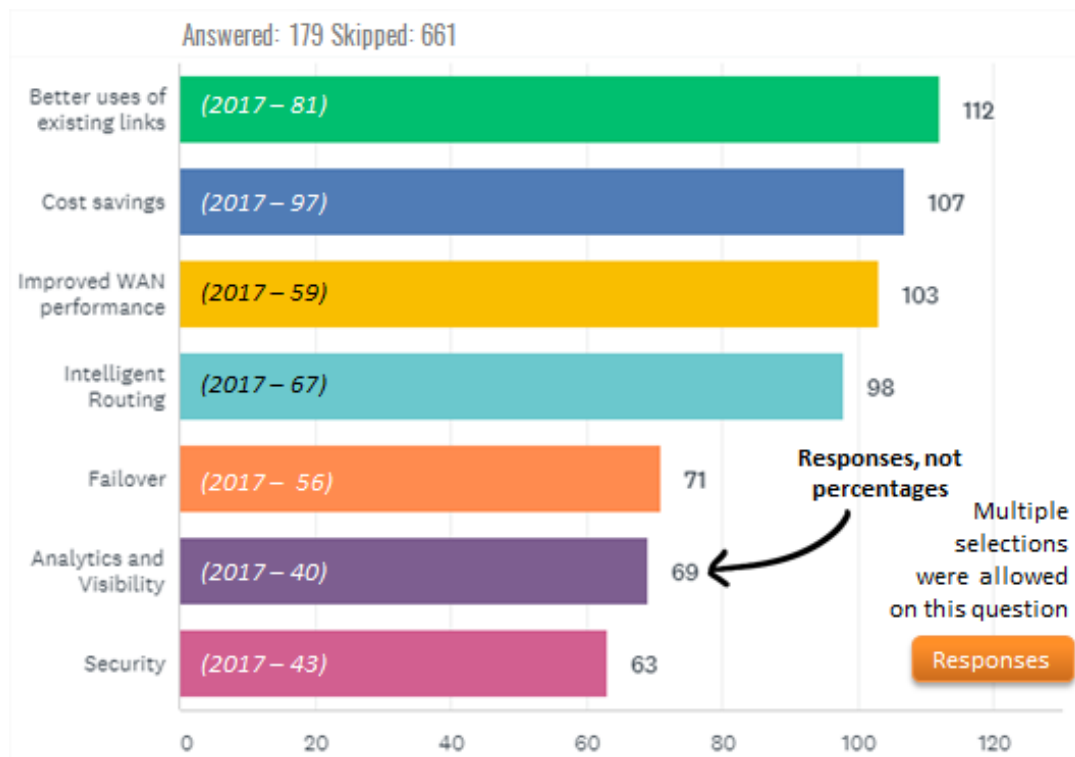
29

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

‘Q’ for ITSPs

I would hope the ITSP and customer answers match. We should be meeting their business needs or helping them discover them. If our answers are different we are missing the mark.

Stanley Kumor,
Verizon



The ITSP responses are the same top 2 as the clients (Q22), better use of links and cost savings.

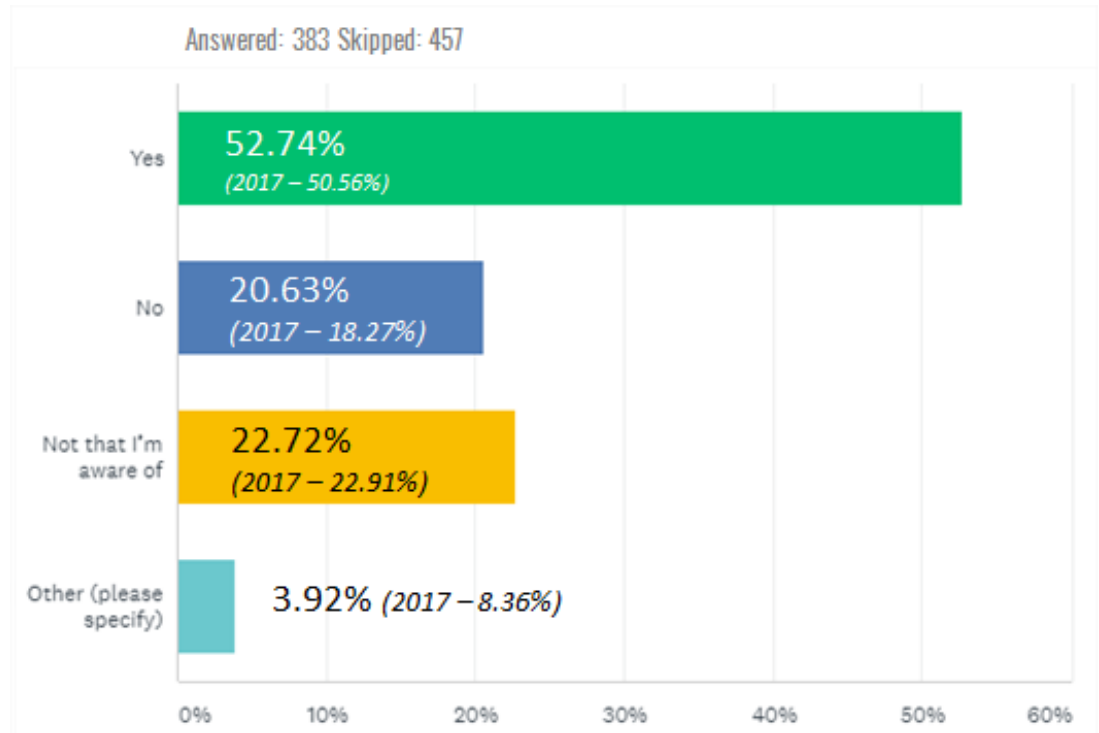
30

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

'Q' for ITSPs

If provider *does not* test the customer's WAN connections, the provider is inviting a lot of finger pointing at the provider that is not correct. Trialing the customer's WAN connection is both good for the customer as well as the provider.

Gary Audin, Delphi



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 almost the same – here 52.74% to the client's 51.74%. This is a good level though seeing this number rise would not be a bad thing to happen

31

Do you continually monitor Clients WAN links to ensure 'great' quality of service?

'Q' for ITSPs

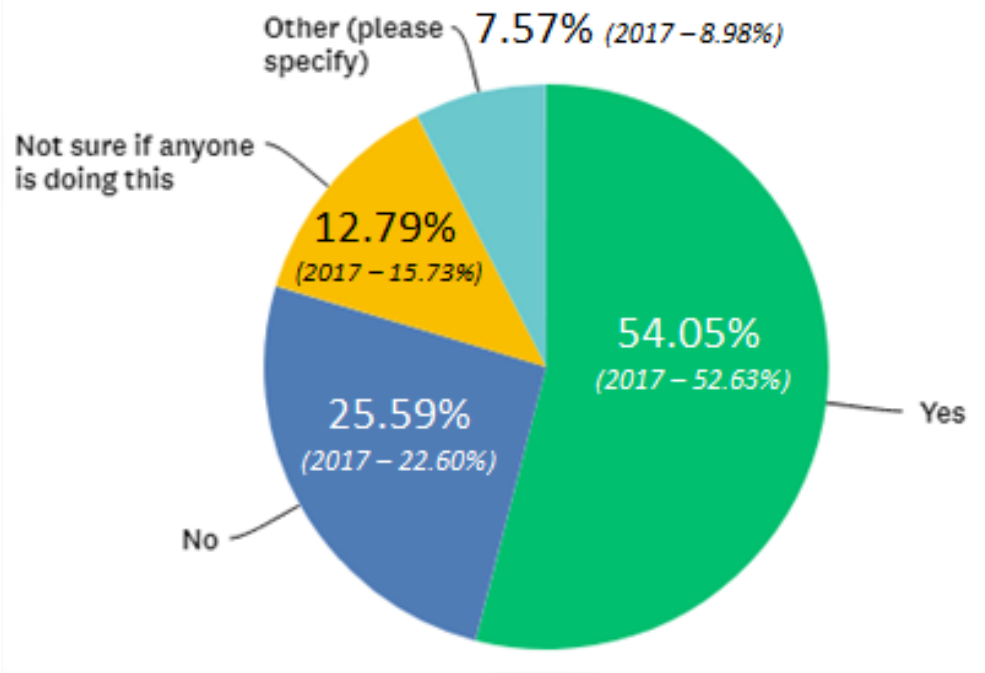
I think 'yes' is a bit high. Especially considering many of the ITSP respondents imply that they do not offer WAN, they may be interpreting this as monitoring at the SIP level. Those of us that do, charge for this monitoring at the WAN level.

Stanley Kumor,
Verizon

QoS matters...having comprehensive, powerful tools to monitor and measure is core...not just for QoS, but for being able to determine if the customer experience you are delivering has issues.

Craig Gironda,
Ringcentral

Answered: 383 Skipped: 457



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.

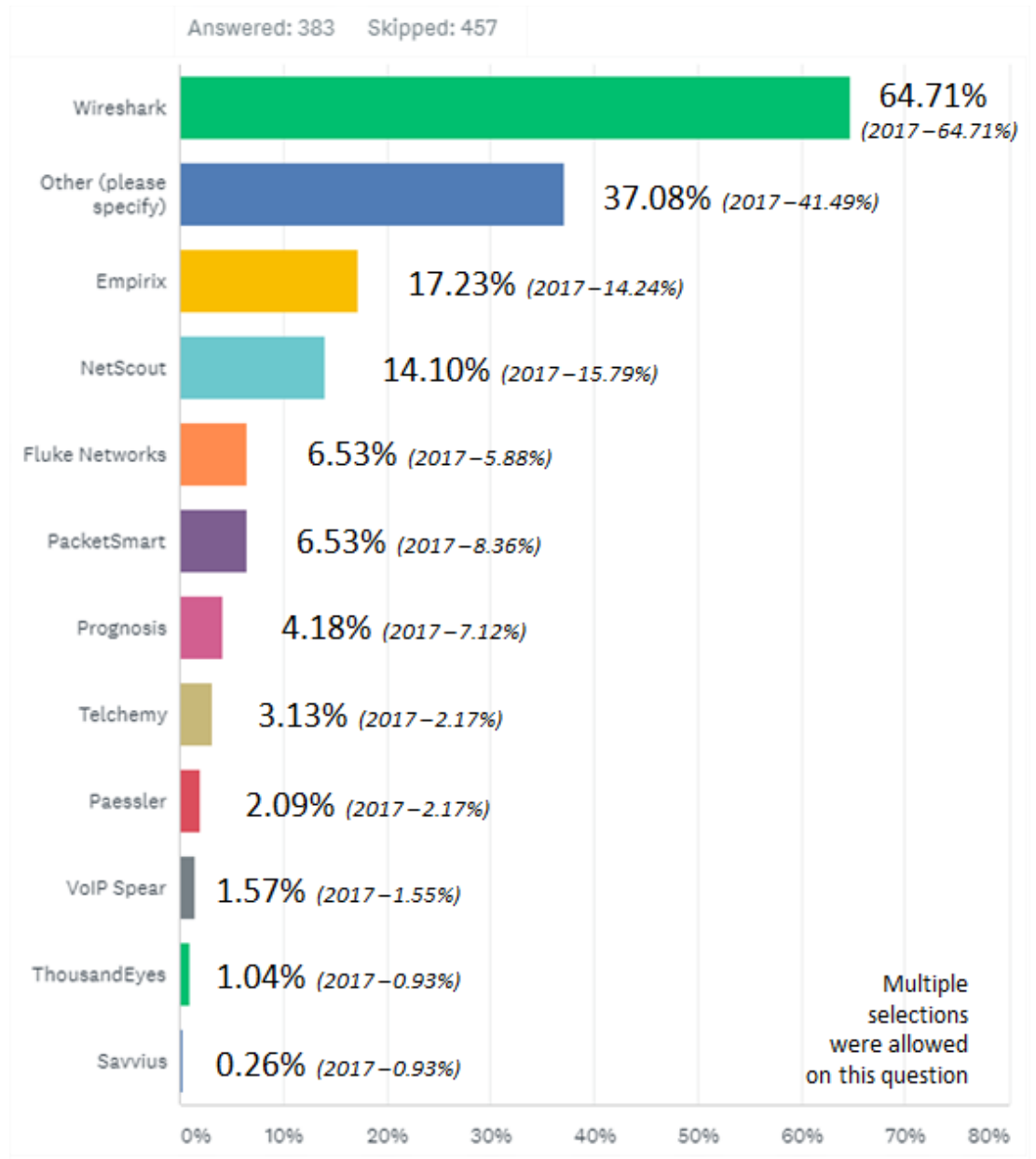
Some of the 'Other' responses stated that continual monitoring is only for clients opting for a 'managed service'.

32

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

'Q' for ITSPs

I can't see a carrier monitoring with a reactive tool like Wireshark as so many have reported here. Proactive management, and automated fault identification, with strong repair capabilities are how we keep customers satisfied. Carriers should have better tools, not freeware.
Stanley Kumor,
Verizon



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.

Codecs are an important area as well, especially given they are a frequent source of interop challenges, and their selection has a big impact on user quality.

Jonathan Rosenberg,
Co-Inventor, SIP

The education interest to learn more about SIP Trunking and SBCs portrays hope that many of the past issues will be resolved.

Alan Percy,
TelcoBridges

Strategy/Tactics...this is the one area that most companies have not embraced...defining the outcomes they want to achieve and then creating a strategy/tactics to define and ensure success...including testing, troubleshooting, business communications continuity (I preach Customer Experience Continuity)...and then making sure they have the QoS analytics tools in place to measure/evolve

Craig Girona,
Ringcentral

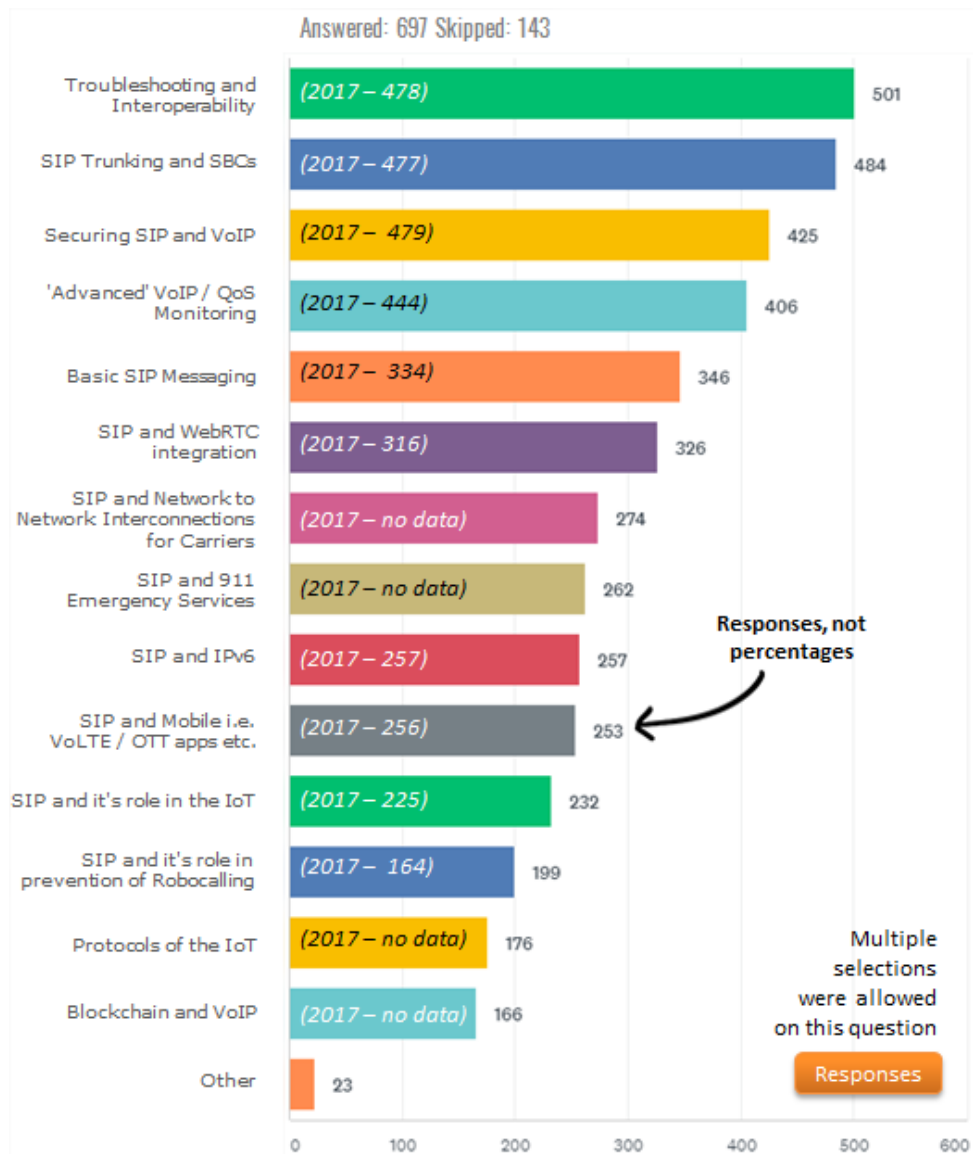
Most important thing is the interoperability and contention of customer.

Sergio López,
Marcatel

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



It's easy to see the top requests here as people look to understand configuration, interop, security and troubleshooting, This 'maps' to what's actually happening in the real world and what's needed to fix problems found in the survey.

Recently added to The SIP School's program is training 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 SSICA® Certification with almost 8000 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

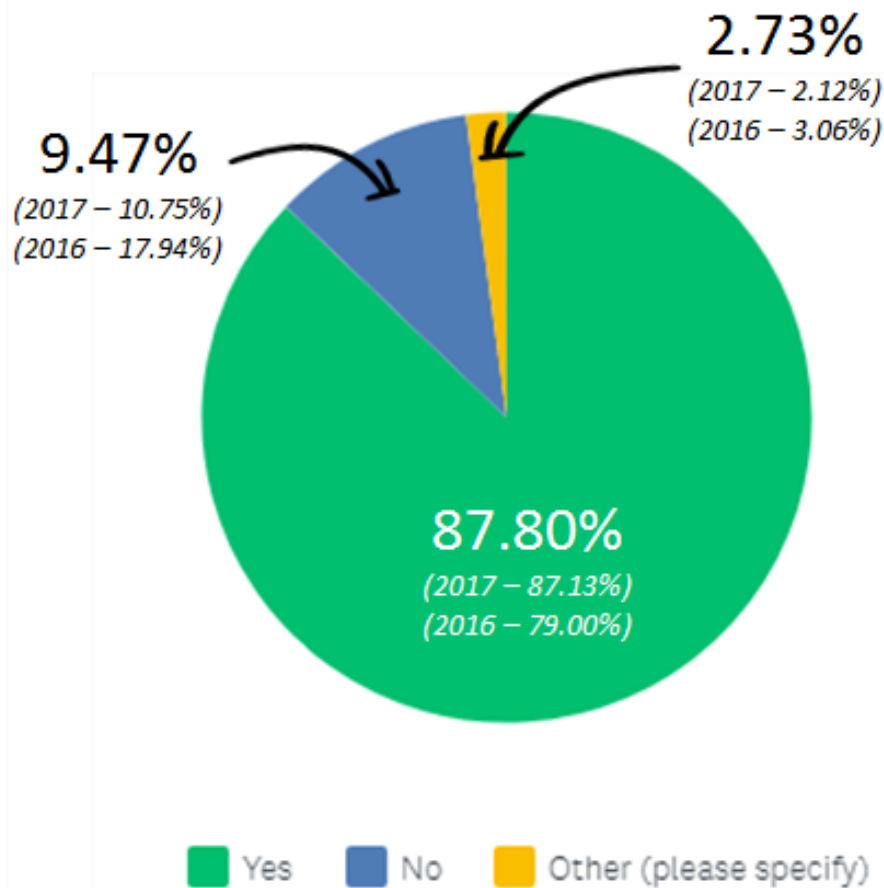
A demonstrated proficiency on a LinkedIn profile or CV can make a real difference in future career opportunities.

Alan Percy,
TelcoBridges

Everyone who works with communications today needs to be fully aware and proven capable with SIP. The SIP School does a great job of instructing students in the protocol and by hosting vendors' training classes, ensures that students are not only capable of understanding the protocol, but also the application of the protocol in various products.

Steve Johnson,
Ingate

Answered: 697 Skipped: 143



The Yes vote continues to rise for this question and shows how important people (and companies) value a recognized certification in the protocol that dominates communications. I don't see this trend changing as more and more countries 'turn off' their traditional PSTN services and move to a 100% IP based communications network.

[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. As things have evolved with more 'featured' SIP services (including Hosted services) coming to market as well as new technologies such as SD-WAN being introduced, this survey has been expanded to include questions about these services whilst always with a focus on what we think may be of most interest to you.

You may not agree with everything in our comments that relate to each of the questions but we do hope to get you thinking about either the services you are receiving from your ITSP or, if you *are* the ITSP, how well you are delivering them.

[Recommendations]



The survey shows that most issues occur during the installation and initial configuration of SIP trunks and Hosted services. Of course, there are many things that can be done to help eliminate these problems and most of these can be done relatively quickly. Our recommendations (**[green]**) are similar to those in last year's survey as the principles remain very much the same.

[talk]



This absolutely does not change at all from previous years and is most important for any service you are working with, so get talking to all parties involved before starting. Case studies are always useful, as well as any customer blogs where people share their own experiences with providers and vendors. It's not always possible but if you can talk to another client of the provider then ask them about any issues they have come across and how they overcame them. Interoperability testing and conformance to standards and recommendations such as SIPconnect from the SIP Forum are extremely important. ITSPs should be working to the recommendations set out in the SIPConnect 2.0 document to ensure the best chances of interoperability.

A comment from one of our other ITSP contacts (*who wishes to remain anaonymous*) does highlight that the work never stops

"The thing that comes to mind - is "what is" the importance of certifying a SIP product/service (interop) and how that plays a role in the selection of a PBX/SBC/SIP Trunking service. "How important" are interop guides between all the PBX/SBC/SIP Trunking providers when selecting a solution. Keeping these guides up to date is impossible for a single company to do. Too many combinations."

[assess] (contd.)



Get your ‘house in order’ first; which means here, do not start on the SIP trunking or Hosted path until you have assessed your own network for suitability i.e. VLANs and Layer2 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. 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 such as an SBC, again your PBX vendor should be able to guide you towards your own specific goals.

[ask a lot]



When talking to ITSPs to see which will be right for you, they need to respond to your business requests in a speedy and professional manner and show you that they can provide *everything* you need, from Service Level Agreements (SLAs) to full support for the smallest of sites in the remotest of locations, even if they are international ones. The ITSP must be able to provide the SIP trunk (or Hosted) service you need along with all the features you specify that are important to your business?

It’s also worth thinking about ‘the future’, i.e. What are the ITSP’s plans for new services that you may find both interesting and useful.

- Are they looking to provide Security/encryption for all communications?
- Will they provide an SD-WAN service soon?
- Is Mobility in their timeline i.e. providing support for Remote workers with (maybe) a Single Number for multiple devices with handover support?
- Do they have 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 decide to do this in the future?

[trial]



Testing things out whatever the service is always wise so an ITSP should be willing to let you trial their SIP trunk (or Hosted Services) for free for a reasonable period of time (30 days is good). The responses to Question 17 in this survey clearly show that a successful trial will usually result in a full implementation with both a happy client and provider.

[move or wait?]



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. As this industry is constantly evolving through mergers and acquisitions it can be hard to decide who to work with and have complete confidence that their situation will be static for a long period of time. So, move or wait? It’s your choice and also up to the provider to give you assurances where they can.

[documentation]



When it actually comes to the installation of SIP trunks, the stand out point is that you must have correct (and up to date) documentation that supports the configuration of the PBX and the SBC/Edge device in order to get SIP trunks to register and work. This is also true for Cloud based PBX and SBC systems using SIP trunks as well. On its own, the documentation is not enough, as it’s up to the (trained and experienced) installers to actually take notice and read the documentation carefully, whilst also taking care in configuration.

[watch]



It’s always best to spot things early in order to avoid any major issues or service loss. That means it’s wise to continually monitor your SIP trunk or hosted service to raise alerts if warning points are reached with regards to things like Mean Opinion Score (MOS) values falling, increasing packet loss, increasing Jitter values, any hardware/Router alerts and so on. You should also work with your provider to see what they do and if you need to complement their service to ensure you ‘catch’ all incidents.

[Conclusion]



SIP services will evolve greatly in the transition to cloud-based services (cloud telephony, cloud meetings, cloud contact center, etc.). Expect to see the SIP trunking service itself move to the cloud as part of this transition.

Jonathan Rosenberg,
Co-Inventor, SIP

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

SIP trunking adoption rates

SIP trunking services are being adopted by a lot of enterprises as they know that in the countries that they operate, the PSTN will be switched off at some point soon – if it hasn't been already. BT in the UK (as an example) will stop taking orders for digital lines from 2020, with the complete transition done by 2025. While a lot of SMB/Enterprises are done and migrated to SIP trunking (or Hosted services), some will probably wait a while and then as their own countries cutoff date gets closer will start to look around to see what's available to them. I just hope they don't leave things too late so that they then find themselves rushing into a decision without appropriately testing first. With approx. 50% of companies in the UK (as an example) not using SIP yet, this could be what happens here and is a scenario likely to 'play out' around the world as well.

Cloud (or Hosted) based services *[see page 3 for differentiation]*

The move to Hosted/Cloud based SIP services is the direction that 'seems' to be the way a lot of companies will go (if they have not already done so) but there are some cautionary tales. In the past, a 'multi-national' certification provider commented 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, so this clearly must be addressed by providers in order to deliver the services promised. It is also worth noting that a lot of enterprises are not encouraged by the 'occasional' outage of cloud based systems from some very large vendors/providers thus making them unsure about their options if their communications service is offline for an extended period of time. No specifics detailed in this conclusion but you can always see who has been affected by looking at online news sites with this article [here](#) being a good example. Overall, it does seem logical to host all (or some) of your services online but as ever, what exactly to put into the cloud needs to be thought through carefully.

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.

[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 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.

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