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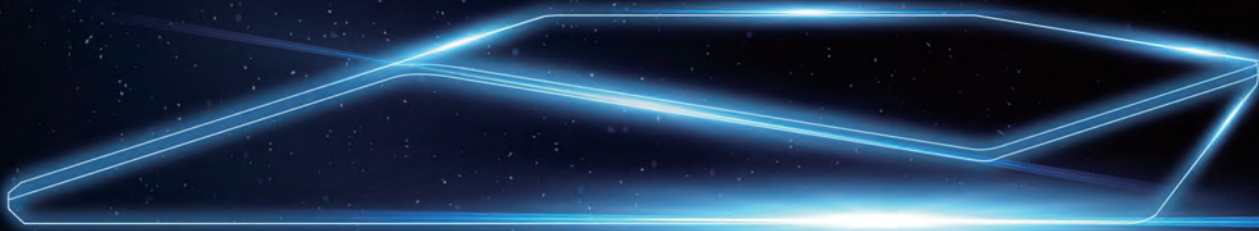
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INTERNET TELEPHONY® magazine is published monthly except February and August. Annual digital subscriptions are free to qualifying U.S., Canada and Foreign subscribers. Annual print subscriptions are free to U.S. qualifying readers; \$69.00 U.S. non-qualifying, \$99.00 Canada, \$119.00 foreign qualifying and non-qualifying. All orders are payable in advance in U.S. Dollars drawn against a U.S. Bank. Connecticut residents add applicable sales tax. For more information, contact our Web site at www.itmag.com or call 203-852-6800.

POSTMASTER: Send address changes to: **INTERNET TELEPHONY**®, Technology Marketing Corporation, 800 Connecticut Ave, 1st Floor East, Norwalk, CT. 06854-1628 USA. Canada Post: Publications Mail Agreement # 40612608, Canada Returns to be sent to: Pitney Bowes International, PO Box 25542, London, ON N6C 6B2, CANADA

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Harnessing Change

Changing expectations, imperatives, technologies, and timelines are altering how we should be thinking about and managing our businesses.

One of those changes is the growing importance of technology in businesses of all types. Technology is no longer used to power desktop computers and factory floors for internal uses alone. Now it touches virtually every aspect of our organizations – from how we deliver customer service; to how we enable employee collaboration and deliver corporate communications; to how we collect, analyze, and use business intelligence.

In a recent column I talked about how this is elevating the position of the CIO and IT staff within organizations. And that means IT types need to step outside the box and stop thinking of themselves as support employees and instead reinvent themselves and their organizations as strategists to meet the goals of the business at large.

Hollis "Terry" Bradwell III, executive vice president and CIO at AARP, talked about the need for IT staff to be proactive in his speech "Unleashing the Hidden Value of IT" at ITEXPO in August.

I recently listened to another interesting presentation that offered a different twist on how technology is impacting business, and what we should be doing now to prepare for that. This speech, by Tim Hahn of IBM, was about how the rise of the Internet of Things will require businesses to fundamentally rethink how they design, engineer, manage, and operate their products and organizations.

Hahn, chief architect of connected car and IoT at IBM, who spoke at the recent Fog Computing Conference in San Jose, said that whether you're talking about a car, a microwave, or some other device, once it's connected, people will have different expectations as to its longevity and performance. The good news is that con-

necting devices opens the door to remotely managing and updating them. But how, when, and under what circumstances, updates will be done are important questions each device provider will have to figure out internally, he said, and that is likely to require the input and buy in from diverse interests and teams across an organization.

"Software change shall be the norm," said Hahn, "and motion is not a bad thing. So maybe we should plan for that."

A couple of best practices related to device application management, Hahn said, are to expect to add features and updates via software and firmware after the initial release of a device, but to make sure there's a fail-safe mode in case an update doesn't work as planned. Without the fail-safe mode, he said, a once useful device could turn into "a brick." Device compa-

Now it touches virtually every aspect of our organizations – from how we deliver customer service; to how we enable employee collaboration and deliver corporate communications; to how we collect, analyze, and use business intelligence.

nies also need to devise software update release schedules so they can make sure they have the adequate resources in place to support those efforts, he added.

One positive aspect of the rise of connected devices to product designers and marketers is the ability to try different versions of a product and let the market decide which is best, said Hahn, adding that this basic concept is referred to as AB testing.

In the IoT world, using different software in two or more versions of a device could allow for variation in functionality or the user interface. The company could release both versions of the device into the marketplace and whichever one generates more money or positive feedback, for example, could move forward. Or perhaps, Hahn said, an organization would decide to keep both versions to meet the needs of different regions or interest groups. **IT**



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10 Reasons Why Microsoft is Winning

With new CEO Satya Nadella at the helm, Microsoft is changing into something it needs to be: a company embracing a changing tech landscape.

It is apparent that Redmond has woken up to the threats that it faces in today's world. Over the past decade Microsoft has been bleeding from a thousand cuts. Apple really killed off Microsoft's mobile business; Google never slipped up in search so Bing is stalled; and Android, Chromebooks, and competition in the office apps market have all put pressure on the company. But Microsoft is finally fighting back and doing it well.

The Surface Pro 3 shows Microsoft understands hardware enough to be dangerous to Apple, Samsung, and Google. The device is a perfect blend of tablet and laptop – it does a lot well but nothing perfectly. It is still a technological marvel in terms of its light weight and thinness. Perhaps most importantly it makes Microsoft cool. It is a reason for people to linger in its stores.

Another of its recent moves has been to embrace the freemium model by giving away Office 365. It had to be done but it is a very bold strategy as it risks watching paid users not renew. Like any company relying on this model, however, the trick for Microsoft will be giving away enough features to be useful but not enough to keep the people with money from shelling out for a subscription.

The Work & Play bundle is an ingenious ecosystem lock-in which offers a 12-month subscription to Office 365 Home, Xbox Live Gold, Xbox Music Pass, and Skype Unlimited World + Wi-Fi for \$199 – this is a significant savings from the separate price of \$450 for the individual components. What we see here is Microsoft is learning to leverage its combined strengths more than ever.

Meanwhile, Skype for Business is Microsoft's way of embracing the popularity of Skype with its in-house communications

platform Lync. This is a smart move from a BYOD perspective and immediately makes Skype seem safe for any enterprise.

Low-priced Windows machines are flourishing thanks to new Intel processors, licensing changes made by Microsoft, and the company's vision in giving away Office 365 for free to secure customers of these devices. The latest high profile low-cost Windows machine is the \$199 HP Stream.

And Sway is a new idea from Microsoft that allows users to create documents with Internet support which can be seen on a variety of devices easily. It's like a creative canvas for the web without the bloat associated with past software from Redmond.

Microsoft also finally embraced WebRTC – a hot new technology that is expected to bring real-time communications to the masses via browsers and/or their favorite applications – via ORTC support in Internet Explorer. That means it has beaten Apple to the punch and likely just forced Cupertino to make a WebRTC support decision soon

The company is also moving into the exciting new wearable technology arena with a 10-sensor bracelet called Microsoft Band.

One move that Microsoft is making that I'm not sure of, however, is the renaming of Nokia products to Microsoft. Nokia is a strong mobile brand in the developing world, and this move could hurt the company in some areas, decreasing adoption rates. Still, Nokia is not the brand it used to be, and it may make sense to replace a decaying name with one that is gaining momentum.

So Microsoft is winning in the ecosystem wars, the PR wars, and is not making itself more relevant and even somehow cool in the process. Sure, it is not Instagram-cool, but if the company continues down this path it will certainly help thwart the efforts of Google and Apple, who have been doing damage to the company for a number of years. **IT**

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FCC Tightens E-Rate Oversight

In its continued efforts to “modernize” the federal E-rate program, the Federal Communications Commission recently adopted a Report and Order and Further Notice of Proposed Rulemaking (the “Modernization Order”), which made certain changes to the E-rate program, including the “lowest corresponding price” requirement and price transparency.

The Schools and Libraries Program component of E-rate is a federal effort that provides eligible K-12 public schools and public libraries discounts of 10 percent to 90 percent, depending on need, on approved telecommunications services, broadband Internet access and internal network connections. A key component of the E-rate program is the rule that providers of eligible services cannot charge the schools and libraries a price above the “lowest corresponding price”. The LCP is “the lowest price that a service provider charges to non-residential customers who are similarly situated to a particular school, library, or library consortium for similar services.”

Both the FCC and Universal Service Administrative Company, the private entity that administers the E-rate program, have taken recent steps to ensure that E-rate service providers are complying with the LCP requirement. This past spring, USAC issued payment quality assurance assessments to E-rate service providers, which for the first time forced service providers to certify compliance with the LCP requirement. Among other perils, this untethered certification requirement put service providers on alert for a wave of fraud investigations and claims under the False Claims Act. On the heels of the PQAs, the FCC, through the Modernization Order, sought to reinforce the LCP requirement, further step up enforcement of the LCP rule, and increase price transparency generally.

Until recently, this was the LCP requirement:

Providers of eligible services shall not charge schools, school districts, libraries, library consortia, or consortia including any of these entities a price above the lowest corresponding price for supported services, unless the commission, with respect to interstate services or the state commission with respect to intrastate services, finds that the lowest corresponding price is not compensatory.

In other words, as the FCC points out in the Modernization Order, the LCP rule prohibits an E-rate service provider from charging E-rate applicants a price higher than the lowest price the provider charges to similarly situated, non-residential customers.

The FCC’s Modernization Order, however, amends this regulation to further tighten the reins on service providers. Recognizing that 47 C.F.R. § 54.511(b)

makes no mention of an obligation to offer applicants the LCP, and to ensure that applicants receive the best possible bids from service providers, the FCC amended the regulation, effective Sept. 18, 2014, to add that service providers cannot “submit bids for” a price above the LCP for E-rate services. In other words, the regulation now expressly states that service providers must offer and charge applicants the lowest corresponding price.

The FCC also stated in the Modernization Order that stepped-up enforcement of the LCP requirement is needed. It therefore directed the Enforcement Bureau to devote additional resources to investigating LCP compliance and bringing enforcement actions against service providers that violate the LCP rule. Additionally, in an even further effort to ensure that schools and libraries are purchasing cost-effective services, the FCC ordered that information regarding the specific services and equipment purchased by schools and libraries, as well as their line item costs, be made publicly available on USAC’s website. Although some current contracts may be exempt from this rule, all contracts executed after Sept. 18, 2014, are subject to this transparency requirement.

While the Modernization Order does not impose drastically new requirements on E-rate service providers, the adoption of this order, especially on the heels of USAC’s PQAs, increases the pressure from the FCC and serves as a strong warning to service providers to ensure that they are both offering and charging E-rate applicants the LCP. This is particularly concerning for service providers, however, as there is little regulatory guidance available on the scope and meaning of the rule.

As the FCC and USAC ramp up LCP enforcement via administrative oversight, a recent Fifth Circuit Court of Appeals decision has mitigated the potentially draconian impact of the combination of the LCP rules with the False Claims Act. Although service providers that fail to





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comply with the LCP rule may still be subject to contractual liability, commitment adjustments (COMADs), and administrative protest procedures, the Fifth Circuit has concluded that service providers are not subject to liability under the FCA for E-rate related work.

In *U.S. ex rel. Shupe v. Cisco Systems, Inc., et al.*, Case No. 13-40807 (S.D. Tex. July 7, 2014) – a *qui tam* case under the FCA – the Fifth Circuit concluded that the E-rate program does not trigger FCA liability because it does not involve federal funds, and USAC's relationship to the government is too tenuous.

With regard to the question of whether E-rate funds were "provided" by the government, the Fifth Circuit explained that the FCA applies when the government "provides any portion" of the money requested or demanded. In the case of the E-rate program, the court concluded that because the money in the Universal Service Fund, from which E-rate funds are derived, is untraceable to the U.S. Treasury, "the government does not have a financial stake in its fraudulent losses," and thus no FCA liability can attach.

Further, the Fifth Circuit held that government oversight of USAC was not enough to make false or fraudulent claims submitted to USAC fall within the scope of the FCA. Notwithstanding that the FCC maintains regulatory supervision over USAC and the E-rate program, USAC is a private corporation, not the government nor an agent of the government.

Ultimately, the Fifth Circuit concluded that because there are no federal funds involved in the E-rate program, and because USAC is not the government or an agent of the government, alleged fraud in the E-rate program cannot be policed under the anti-fraud provisions of the FCA. The court therefore reversed the district court's decision on this, which resulted in a dismissal with prejudice of the case in the district court.

Service providers
should expect
heightened scrutiny
of their E-rate pricing
even in the absence
of the FCA.

Despite the FCC and USAC's recent attempts to up the ante on LCP compliance, the Fifth Circuit's decision has all but eliminated the False Claims Act as a tool that the FCC, Inspector General, and Department of Justice may use to ensure E-rate programmatic compliance. Because the FCA allows for significant civil penalties in the form of three times actual damages and penalties up to \$11,000 per false claim, this decision comes as a significant relief to service providers trying to navigate the still murky waters of E-rate. Service providers should not view the Fifth Circuit's decision as a free pass, of course, as PQA, "red light" or "Code 9" audits could lead to substantial clawbacks and COMADs, and even programmatic debarments. With both USAC's and the FCC's increased focus on the LCP requirement, service providers should expect heightened scrutiny of their E-rate pricing even in the absence of the FCA. ■

Jeff Belkin is an attorney within Alston & Bird (www.alston.com) Construction & Government Contracts Practice.



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By Michael Oljemark

Creating Opportunities for Improved Communication

Although we are in the business of technology, I like to think that we're really in the business of creating opportunities for improved communication between people.

Communication between people is the foundation of the successful development of all sorts of human systems: corporations, organizations, as well as society, and even mankind if we put it in a really big context. Today, our efforts in this arena make voice-based communication accessible, affordable, and secure. SIP trunking is a good example of this. When SIP trunking first came onto the scene, it was an opportunity to make SIP-based voice communications (VoIP) available to a wider range of businesses at a competitive price point. SIP trunking has now been embraced by the industry as a whole, becoming a must have for SMBs, large enterprises, carriers, MSOs, you name it.

SIP trunking also opens the door – in a very accessible, cost-effective way – to unified communications. This has been Ingate's goal since 2001, to enable global real-time communications.

Moving forward, our devotion to innovation and technology leadership will make communication between people take

another big leap. With WebRTC implemented in a smart, strategic way, high-quality audio and video will become truly accessible and something that you rely upon and appreciate in your daily communications – for everyone, everywhere.

And by the way, high-quality communication is not only a technicality, it is to what level we are actually able to exchange information, ideas, and thoughts with each other – to successfully understand one another. High-quality real-time communication will be a competitive advantage for businesses as well as for making all kinds of governmental organizations and NGOs more successful in reaching their goals.

And finally, my guess is that solutions that can bridge WebRTC with today's SIP-based UC infrastructure will have a head start since then you will be able to use your existing and well-working infrastructure also for WebRTC – fully integrated, a smooth transition into the new era. **IT**

Michael Oljemark is the CEO of Ingate Systems (www.ingate.com).

Enterprise View



By Max Schroeder

Education Can Assuage Fears

Today's rapidly changing markets and shorter product life cycles are raising concerns in some quarters that the pace is too rapid and security is being compromised. However, delaying a decision to move forward can weaken an organization's competitive position. Some managers have even used the term Catch 22 to describe their situation.

FDR's first inauguration address in the depths of the Great Depression included the admonition "...the only thing we have to fear is fear itself – nameless, unreasoning, unjustified terror which paralyzes the needed efforts to convert retreat into advance." By addressing the public's fears head-on at the outset of his administration, FDR got the support needed to move forward quickly with the necessary reforms.

Today's Internet Revolution is affecting every aspect of life just as the Industrial Revolution did in the 19th Century. It also raised concerns. Eventually, the enormous benefits conquered the fears. The early adopters were in the best position to capitalize on the benefits and did quite well. The reason for this short history lesson is to stress that any anxiety in the marketplace should be identified, addressed, and assuaged at the outset of the sales cycle.

Many customer prospects are new to cloud services and have a limited understanding of the technologies, so they are apprehensive. It is your job to educate them. Your website is their first point of contact, so follow FDR's strategy and start there. Even if only 20 percent of your website visitors have doubts, it could have a significant impact on sales. One head-on tactic is to prominently display case studies or white papers with titles like "Avoiding Cloud Dangers", "Combat Security Breaches", or other similar titles. Then use the papers to illustrate the true fact that implementing cloud services is much more secure and efficient than retaining in-house legacy technology. This is a proven tactic used by many successful cloud service providers.

For additional marketing materials and ideas, leverage TMC's online communities, channels, newsletters, and web conferences. They are excellent sources for cloud marketing materials demonstrating the reliability and cost effectiveness of cloud solutions. I receive the newsletters daily, and they do a great job keeping me up to date.

Another great place for products and ideas is the upcoming ITEXPO 2015 at the Miami Beach Convention Center from Jan. 27 through 30. **IT**

Max Schroeder is vice president emeritus of FaxCore Inc. (www.faxcore.com).



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Hosted PBX: The Transition to Unified Communications

Communications technology has been in a constant state of transition since the appearance of the Internet and, soon after, the appearance of VoIP. Briefly, the office phone system became the IP PBX, then became the hosted PBX, and now we are seeing a large effort to move from something that looks and acts like a phone or a phone system to the next thing – usually called unified communications.

If you ask 10 telecommunications professionals to define UC you will get at least 10 different definitions – indeed, there has been a large and ongoing debate about how to define UC. Rather than weigh in on that debate, my goal in this article is to propose a business methodology for considering how the concept of UC is relevant and when a business VoIP service provider should apply the technological advances made accessible by UC integrations to its advantage.

Nuts and Bolts: What is Available?

In 2015, the transition from premises PBX to hosted PBX is in full swing. Practically speaking, what this means is that more business phone systems are housed in data centers that are running a host of other cloud applications. Essentially, the phone servers, email servers, CRM servers, storage servers, billing servers, database servers of all stripes, etc., can easily talk to each other. The result is that accessing information and rolling up communication media into common streams is a cinch, relatively speaking. In short, with almost a decade and a half of insistence on including programmatic interfaces (APIs) for all new software builds and over half a decade of smartphone/tablet feeder apps showing how to turn these APIs into mobile real-world means of communications, there is very little information that is inaccessible on purpose.

Of course, there are still some incompatibilities to be sorted – such as video codecs, use of common presence protocols, and encryption standards. However, WebRTC – the new panacea for common communication standards – is already breaking down some of these walls.

What is Possible?

With the technology for integration so far advanced and the emergence of WebRTC, the better way to ask this question might be: What is not possible?

Some of the notable UC applications integrate access from any Internet-connected device – desk phone, smartphone,

tablet, computer; allow all relevant media types – voice, video, documents; and can archive and organize historical media like voicemail and conversations.

Here are a few that have impressed me:

Acano is a shared workspace for scheduled meetings and for situation meetings that offers extensive collaboration and historical recall of meeting progress. Access is provided from all devices. Voxer is an application for management of a rolling field workforce (plumbers, taxi drivers, etc.) with walkie-talkie communications coupled with historical recall and rich media sharing. Zoom offers integration of videoconferencing, online meetings, and presence management into a single service accessible from any device.

Bottom Up or Top Down?

How do you decide from the growing list of already amazing UC accessible technologies and already-baked applications what makes sense to offer to your hosted PBX – or prospective hosted PBX – customers?

Here are a few rules of thumb.

Usability is key. From smooth delivery, to clear user interfaces, to intuitive options for setup and preference management, users are easily frustrated by poorly presented software – even poorly presented great software.

Be as specific as possible to a target segment. For instance, if you are targeting companies that run field services, understand what they are doing in the field and build features to meet niche needs. In a testing phase, get detailed feedback from your market ahead of deciding on UC features.

Don't overwhelm your operations team. UC features and applications each require support and in-house expertise. If you introduce too many different options for too many business segments at once, you risk sub-optimal delivery. Focus.

The move to unified communications is creating another exciting transition in telecommunications technology that, for the time being, is an evolution of the PBX. Service providers will see that certain integrations – depending on their target audience – are important to offer simply to keep up with the market. Listen to your clients, they will let you know what they like and don't like. ■■

Micah Singer is CEO with VoIP Logic (www.voiplogic.com).

If you introduce too many different options for too many business segments at once, you risk sub-optimal delivery.



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Defining 'Unique' Dark Fiber Routes

In a recent report titled "Bandwidth Infrastructure: A New Investment Opportunity" published by Colby Synesael of Cowen and Company the subject of dark fiber is discussed extensively. This report is probably one of the best, current and most accurate depictions of the reality of this segment of the communications network landscape. For too many years dark fiber has been stigmatized and misunderstood. It is refreshing to see such intelligent reporting on what is one of the most critical dimensions of any nation's economy.

From the Report:

A legacy bias to the fiber industry will incorrectly skew your view.

"Today, we no longer refer to the group of companies that offer fiber-oriented data services as CLECs and instead more appropriately refer to them as bandwidth infrastructure companies.

footprint, and a unique set of connection points that may be advantageous for some enterprise or content customers. Having a unique route (or set of routes) is also appealing for carriers (and enterprises for that matter) to lease as backup in case of an outage on more common routes. Lastly a unique route and its ability to connect in to an uncommon set of access points may allow for performance metrics (such as lower latency) that give a network an unparalleled competitive advantage."

Source: Cowen and Company

Definitions and attributes play a major role in any aspect of life. The definitions of words and how they are used is the basis of the entire legal profession, so it should not be taken lightly in any other. In this report and as in this case of defining dark fiber and the uniqueness of a specific route from which an investment would derive value, the attributes that make the route unique need to be expanded.

Of everything stated, this one comment needs further clarification.

If possessing dark fiber is important and valuable to network operators, which it is, this then still leaves the issue of how to extend the benefit and reach of dark fiber between the metros.

"They also are more focused on metro builds vs. long-haul builds, although builds that connect cities that previously weren't connected to one another or utilize unique routes are also valuable."

While these companies are still building networks, they are more focused on building differentiated networks and therefore a heavier concentration on building unique routes and what they connect to (enterprise locations, data centers, wireless towers). They also are more focused on metro builds vs. long-haul builds, although builds that connect cities that previously weren't connected to one another or utilize unique routes are also valuable.

This is implying that new "long haul" dark fiber builds are not valuable, or as valuable as metro fiber builds, unless they are connecting cities that were never connected, or are otherwise utilizing different route paths than what already exists. This is true, but there is something missing here.

The primary ways in which a network can differentiate and add value is through 1) connection points, 2) uniqueness of routes, and 3) scale/breadth."

Source: Cowen and Company

These are succinct and excellent points and all worthy of attention and further discussion, but in focusing specifically on "uniqueness of routes"...

From the Report:

The Uniqueness of Routes

"In many cases the uniqueness of a fiber route can in and of itself provide inherent and meaningful value to a bandwidth provider network. Having a unique route means a unique

The missing element is that not all fiber is available as dark fiber for lease. For example the vast majority of long-haul dark fiber in the United States is owned by carriers. These carriers have no interest in selling off their dark fiber assets to enable "competitors". So, how then do the metro fiber providers connect their metros?

Data center to data center, or tower to tower within a metro is not trivial, but it is more manageable to obtain as there are more providers of this type of dark fiber. The reason for that is that metros are a smaller geography to cover, so therefore require less capital to construct and hence have a shorter payback period for the investment. If possessing dark fiber is important and valuable to network operators, which it is, this then still leaves the issue of how to extend the benefit and reach of dark fiber between the metros. This leads to the conclusion that building new "carrier-neutral" dark fiber even on existing fiber routes is valuable. **IT**

Hunter Newby is CEO of Allied Fiber (www.alliedfiber.com).

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Does Your Self-Service Have an Exit Strategy?

Self-service is on the rise. And with the mobility revolution started by Apple's introduction of the iPhone, consumers around the world have realized the potential of finding answers to customer service questions themselves, by asking peers, on the go, or whenever they want, instead of relying on call center staff operating during business hours only. While self-help has the advantage of quick and convenient access to information when needed for the customer, it also shows quick ROI for businesses that can have their contact center staff focus on more elaborate inquiries or for customer retention efforts. This is a win-win for both company and customer, but not a be-all and end-all. The need for live assistance from knowledgeable staff will not go away, as only certain types of inquiries are self-serviceable. Complex account inquiries or the desire to understand a company's business processes will continue to have customers reach out for human help. For simple inquiries, however, self-service is now usually preferred. In fact, a newly-released consumer survey conducted by GfK for Aspect found that 82 percent of consumers prefer to use self-service to address easy/simple customer service issues.

With the explosion of customer care channels available in the age of pervasive mobile computing, a smooth handover from self to live service is more crucial than ever to provide exceptional support. A continuity of consumer experience is needed when moving from self to live service and switching between channels and/or between proactive outbound communication and inbound service inquiries. When it comes to self-service, the question for companies becomes: What is your exit strategy?

The following considerations should be the foundation of self-service planning as it relates to handover to live service:

1. Ubiquitous Accessibility

Older implementations of IVR systems, often by design, hide agent access for reasons of cost savings, and customers tend to respond with an increased willingness to take their business elsewhere when they feel locked in or poorly served. To address this, businesses should open up and allow access to live service anywhere in self-service portals, be it on the voice (IVR) channel, on the web, in mobile apps, SMS services, or even social networks. At the same time, quality functionality and an excellent user experience should always be a priority to keep users engaged in self-service as much as possible.

2. Channel Stickiness

As new service communication channels emerge, such as mobile apps, SMS, or via the web, access to live service typically lags behind. This shows human inertia at work: new channels are easier to optimize for self-service versus only software sys-

tems and are usually easier for consumers to understand. And consumers will quickly embrace new channels with ease, using their mobile devices more often for customer support. According to Gartner's "Six Best Practices to Deliver Powerful Mobile Consumer-Facing Applications" report released in June, by 2017, 35 percent of all customer support interaction will take place on a mobile device, an increase of 300 percent. Driving this change is a desire for convenient access to live assistance when needed, whether the customer journey started with a self-service attempt or not. Businesses should therefore strive to offer live assistance on the same channel that the customer used for self-service. For example, an agent conversation should stay on SMS if this is where the customer started asking questions, and not force the user to switch to a phone call. After all, there is a reason why the customer selected SMS as his or her preferred channel for the inquiry to begin with.

3. Context Preservation

Once access to live assistance is offered, it is important to preserve any context and data collected during a self-service interaction to deliver continuity of experience. This means having the ability to seamlessly continue a customer service conversation when switching between channels, or from self-service to live service. An Aspect study from late 2013 showed that 89 percent of consumers say they are annoyed when they have to repeat themselves about the same issue.

To implement a concept like experience continuity, companies need an easily accessible data store that can memorize past transactions on any channel to store so-called context cookies – small traces of information about the journey of a customer. Examples would be:

- drop out points in IVR interactions, i.e. incomplete business tasks;
- last transaction performed in a mobile app;
- last time the customer talked to an agent;
- last issue discussed with an agent; and
- most recent page of your website the customer visited.

While some of this information might already be stored in a traditional CRM system, the data might not always be easily accessible cross-channel. The beauty of embracing the idea of context cookies, similar in function to web cookies, is that you do not have to introduce them on a grand scale. Adding cookies here and there to a customer interaction trail and leveraging them to provide select continuity experiences will create those little wow moments companies are looking to deliver while engaging their customers. **IT**

Tobias Goebel is director of mobile strategy at Aspect (www.aspect.com).

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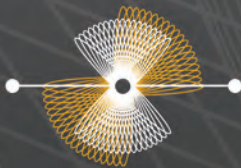


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Media Servers Are Here to Stay

Obtaining Scalability When Moving from Hardware- to Software-based Infrastructure

Media servers play an important role in telecommunications networks, and will only grow in importance as media traffic volume and variety increase in the future. This role includes the processing of real-time transport protocol media such as voice and video; the routing of media service requests in the network; quality of service enforcement; media transcoding, transizing, and transrating to reduce network bandwidth; recording, playback, and archiving of media; and the delivery of real-time media streaming. Media servers also manipulate media streams to improve the user experience (e.g., echo cancellation for voice) and extend media functionality (e.g., fax interoperability, speech recognition, text-to-speech, etc.). Media servers are here to stay.

As the telecom world moves closer to software-based infrastructure, many questions are being asked about scalability of these software-based infrastructure solutions, including software-based media servers. After all, when there are hardware cards full of digital signal processors you could simply plug in more boards or add more systems (at greater cost) to get to the scalability desired. In the software world, when using a single machine, the scalability is directly related to the power of the processor used in the box.

One model to obtain higher scalability with software would be to use software-based infrastructure software to start, and then use a DSP assist to get higher scalability. But this defeats the purpose of going with software in the first place. First of all, it's no longer software running on COTS hardware, so expensive purpose-built hardware will need to be deployed. And employing virtualization even on the same server means even more efficiency because multiple software programs can share the same COTS environment. These are core tenets of the move to network functions virtualization.

Additionally, time to innovation is much faster with software. New features and enhancements can be added to a software-

based solution more easily via a software upgrade as opposed to trying to upgrade a piece of hardware. For instance, with WebRTC a software-based media server can support VP9 much faster than a DSP can.

What is the alternative though? There are software mechanisms for scaling that have been tried and true with many software programs of the past. Bringing these techniques to software-based communications network infrastructure enables these programs to scale as well. A media server has historically been chock full of DSPs because of the intense media resource requirements described above. Huge inroads have been made with software-based media servers over the past few years that allow them to run in service provider environments. For one, Moore's Law has now enabled 2,000 channels of voice to run comfortably on a single machine. That will continue to contribute going forward. But those kinds of densities are not good enough for the movement to software-based media servers.

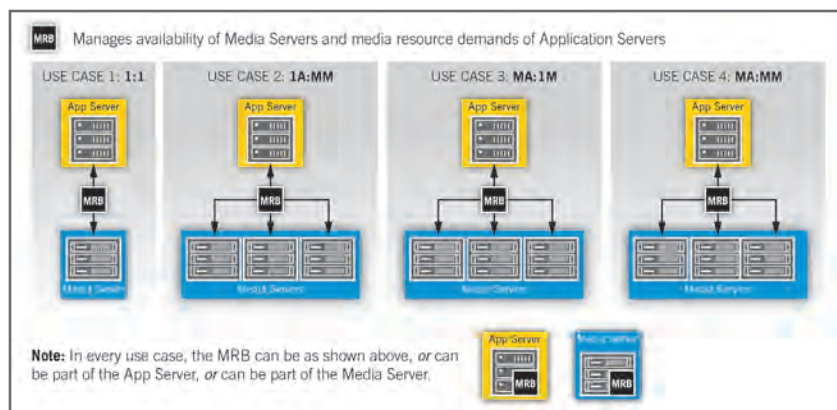
The media server in the IMS network is referred to as a media resource function. The MRF spec calls out an element referred to as the media resource broker, which is a media resource controller and software load balancer that provides scalability, resiliency, and redundancy of media services in the network. The MRB is described in Internet Engineering Task Force RFC 6917 as well as in the 3GPP specification for IP multimedia session handling (TS 23.218).

The MRB essentially controls multiple media servers at one time and in this way scalability is achieved. Additionally, the presence of the MRB in the network ensures that media service requests are handled in the most efficient manner possible. The MRB has visibility into both the capabilities (e.g., codec support) and availability of each media server in the network, and routes media service requests to the most appropriate media server accordingly. The current Dialogic MRB can control up to 30,000 sessions at a time. We know how to get higher sessions as well and continue to work on that.

Another benefit is high availability since the MRB can be used to manage multiple media servers in different locations. A software MRB can be deployed in a standalone configuration or as a redundant pair for high availability/scalability scenarios.

When large numbers of media sessions are required, software-based media servers can meet your needs. **IT**

Jim Machi is vice president of product management at Dialogic (www.dialogic.com).



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WebRTC[®] Conference & Expo Update

In case you missed it, the WebRTC[®] Conference & Expo was held Nov. 18 through 20 in San Jose. This is the event that brings together the movers and shakers of WebRTC and the webification of communications movement. I thought this would be a good time to comment on some of the highlights of the event and the state of the industry.

The event was very well-timed as, in the weeks before, there were two major events that will define the path of WebRTC for 2015. In October, Microsoft announced its intent to support WebRTC, albeit through the emerging ORTC extensions and H.264. The WebRTC community has been waiting for the Microsoft position. While it fell short of committing to the current SDP-based protocol, the commitment to WebRTC and ORTC, when combined with the fact that Microsoft and Google are working closely on

focusing on ecommerce, education, finance, and health care showed that WebRTC is not just recreating existing telecom in a new way, but transforming vertical applications. This message was reflected in the plenary panel entitled "What is the WebRTC Killer App?" In that panel, leaders in WebRTC opined that there was probably not a single killer app, but a swarm of apps as real-time communications was added to a variety of applications. This was already in evidence as multiple companies showed specific end user deployments of WebRTC that were impacting revenue, ranging from the Amex solutions by CafeX to MedWeb, a company delivering medical solutions using WebRTC.

The WebRTC demos were much more focused this year, with both more demonstrations of integration with real applications as well as new focus. Ericsson started the first set of demos with a demon-

stration of controlling an earthmover by WebRTC using Oculus Rift optical headsets. The demos moved from videoconferencing to real-world uses of the technology and applications. There were a number of demo highlights, and all are viewable on the WebRTC World site.

The event was also leveraged to roll out the WebRTC World WebRTC Ecosystem. The WebRTC Ecosystem has been defined to enable organizations that are considering WebRTC to under-

stand the hundreds of companies that are offering products and services in the WebRTC domain. The WebRTC Ecosystem defines eight user solutions and 22 development areas. In addition, the event saw the initial public review of the WebRTC Ecosystem report, the most comprehensive overview of the industry, with 210 companies reviewed in detail and positioned in the Ecosystem. The free Ecosystem overview and the purchasable Ecosystem Report, with 686 pages and 493 diagrams, is available at <http://www.webrtcworld.com/webrtc-ecosystem.aspx>

Finally, some comments made by attendees were important in judging the maturity and velocity of WebRTC. While many of the attendees were WebRTC veterans, comments like "I am a WebRTC newbie" were heard as well. Another attendee commented that there were more sport coats than at past events, which shows that companies are now evaluating WebRTC not as a technology to understand, but as a means by which to generate real revenue and value. Overall the event was a rousing success and points to the growth that is coming in 2015 as WebRTC and the webification of communications accelerates. We look forward to seeing you in 2015. **IT**

Phil Edholm is the president and founder of PKE Consulting LLC (www.pkeconsulting.com).

The event was very well-timed as,
in the weeks before, there were
two major events that will define
the path of WebRTC for 2015.

these eventual standards, does give significant hope that Internet Explorer will join the WebRTC browser fold. While there was no word from Apple, there is a high level of hope that Apple will follow in endorsing WebRTC and including WebRTC in Safari.

The other topic that generated a large amount of conversation was video codecs. Just the week before WebRTC[®] Conference & Expo, the RTCweb working group reached agreement on a proposal that both H.264 and VP8 be made mandatory codecs for browsers and mandatory for all other devices unless there is a major change in royalty costs for one or the other. The agreement in the working group means the proposal is being sent to the mailing list for comment and approval. This opens the door to interoperability between the current browsers and IE through H.264 or VP8 if Microsoft and Google support these. The support of H.264 is critical for interoperability without transcoding into the existing H.264 video systems, including Skype and Lync.

Other highlights included sessions by Google detailing the VP9 codec. The VP9 codec delivers a 30 to 40 percent improvement over VP8 with minimal increases in processing. This session, combined with a number of sessions about using media servers, showed how WebRTC and video are maturing. The vertical focus track was one of the most highly attended tracks. Sessions

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Mobile Cybersecurity: A New Oxymoron?

Mobile is the new cybersecurity focus. CIOs are delivering iPads and tablets to all the employees. Bring your own device, or BYOD, smartphones and tablets are used for company and for personal use. No longer are managers carrying around two devices like a company BlackBerry and a personal iPhone. Because mobile BYODs are connecting to the corporate network, where all the corporate jewels are stored, the way in for cyber theft is now the mobile device.

Cybersecurity is a very big deal. Home Depot reported \$34 million lost through a cyber-breach, not to mention damage done to its consumers. JP Morgan reported a breach that "compromised" information for 76 million households and will spend \$250 million on cybersecurity in 2014. USIS, which performs background checks for government employees including the U.S. Post Office, may have compromised personal information of 800,000 USPS employees through a breach, according to The Wall Street Journal.

In October 2014, Kmart was reportedly breached. In November 2014, Beth Israel Deaconess Medical Center was fined \$100,000 for the disclosure of 3,767 records when a laptop was stolen. The FBI is upset at Apple and Google for new tight encryption schemes on smartphones, locking out law enforcement. However, smartphone users are looking for encryption protection.

In 2014, 31 percent of mobile users reported fake links and phishing scams, according to the Norton Cybercrime Report. Mobile malware experienced a 614 percent increase, according to the Mobile Threat Report. Cybersecurity attacks happen silently. The average breach takes place 229 days before detection. Spending is huge. Gartner projects that global cybersecurity spending will be \$83.2 billion by 2016.

Mobile carriers face government-imposed liability. The SEC is currently considering rules to require disclosure of breaches. Companies are fighting back with the U.S. Chamber of Commerce opposing the SEC regulations arguing that disclosures will only help attackers. If mobile carrier information is hacked, the carriers will face tremendous FCC fines. On Oct. 24, 2014, the FCC held that two small wireless and wireline carriers were subject to \$9 billion in fines, but then lowered the fine to \$10 million. The carriers, the FCC found, allowed open access to 300,000 customer records. They allegedly used "unprotected" servers that "anyone in the world could access with a search engine and basic manipulation."

FCC Commissioner Ajit Pai strongly dissented for the FCC's imposing a fine based on violations of law that were not expressly included in

the FCC rules, commenting "there is no pre-existing legal obligation to protect personally identifiable information ... or notify customers.... The Commission has never adopted rules regarding the misappropriation, breach, or unlawful disclosure of information." Pai pointed out that the fine was "by far the biggest in our history. It strains credulity to think that Congress intended such massive potential liability for 'telecommunications carriers' but not retailers or banks or insurance companies or tech companies or cable operators or any of the myriad other businesses that possess consumers."

Mobile opens the door for cyberattackers. The FCC will have opportunities for future fines. Small cells give cyber hackers the ability to create phantom carriers that smartphones will connect to as legitimate providers. A hacker's small cell next to an office building can sniff on nearby phones. Mobile applications are supposed to be walled off in smartphones to prevent data theft. However, users rapidly give all permissions thus opening the door for app malware. CIOs can require that BYODs use a controlled OS – where techs can approve applications and wipe the phone when stolen.

"It is only a matter of the when, not if, that we are going to see something traumatic," warned Admiral Michael Rogers, U.S. Cyber Command head. This means it is inevitable that one or more of the big four mobile carriers will soon be reporting a cyberattack. The FCC's controversial fine equaled \$33 per customer record. Such an FCC fine on 125 million records would equal \$4.125 billion. Carriers are doing all they can to prevent cyber theft, but even the government itself is unable to plug holes in the network fence.

Like banks, government agencies, and utilities, mobile carriers are spending millions on cybersecurity. Device makers are accelerating efforts to encrypt devices as a mobile solution. Encryption is the key and going forward will likely include Bitcoin block-chain technology. Encrypted data, at the customer record level, could be protected even if taken by hackers.

Government fines will not help solve the mobile cybersecurity problem. Cyberattackers are, we have learned, for the most part outside the U.S. jurisdiction and are often nation-state intelligence groups working for both commercial and military reasons. No matter how secure the networks become, human error will leave a back door open. We have just begun to fight cybersecurity and there is no easy solution, technical or regulatory, in sight. ■

Barlow Keener is the principal with Keener Law Group (www.keenerlawgroup.com) out of Boston.

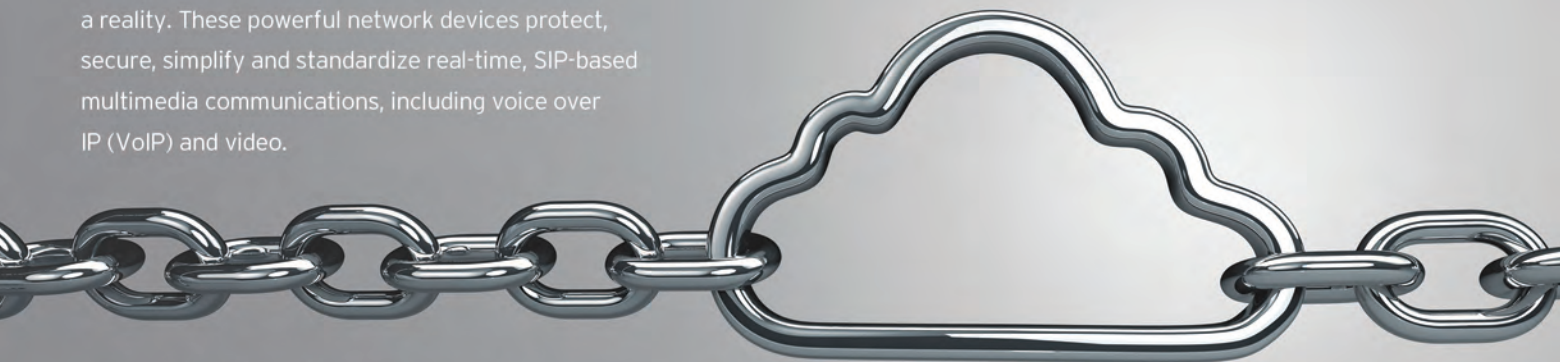
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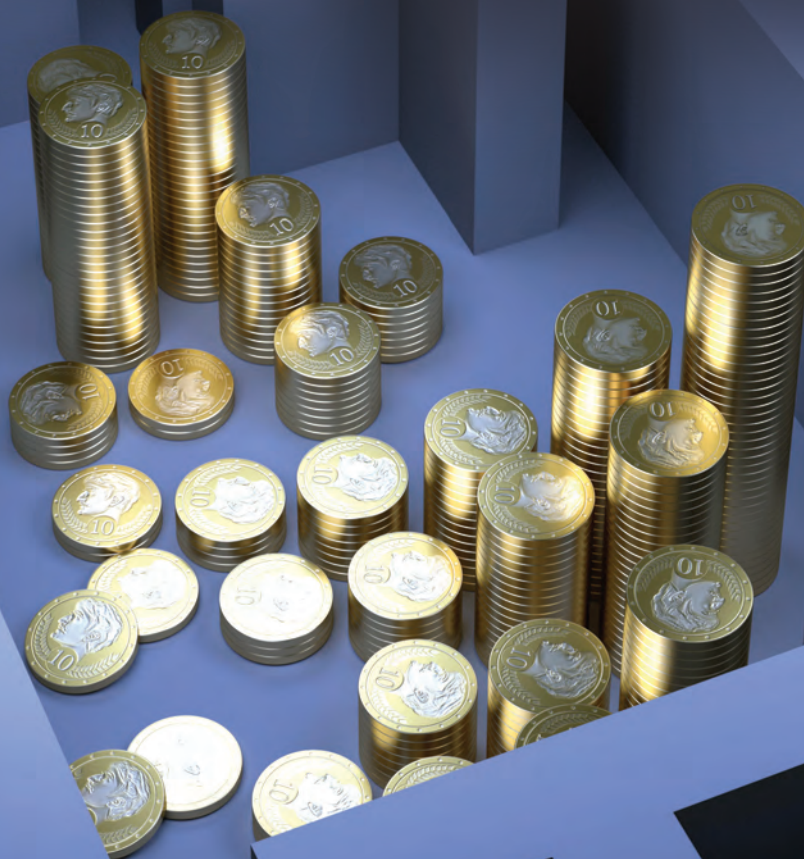
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THE Billion-Dollar

Schmooze Com and the



Game Changer

Open Source Community Set the PBX Free

BY PAULA BERNIER

A million dollars isn't cool.
You know what's cool? A billion dollars.

This dialog was lifted from "The Social Network", but it could just as easily apply to FreePBX, an open source platform from Schmooze Com Inc. But change the billion to billions, because that's how much value FreePBX has contributed to the communications industry.

That's why Schmooze promotes FreePBX as the billion-dollar game changer.

Starting Line

Schmooze was founded by a group of telephony and IT entrepreneurs with the goal of building a better business phone system based on software. Requiring a stable, customizable, feature-rich, software base to build on, Schmooze licensed FreePBX as the core of its PBXact commercial telephony platform. The company actively contributed to the FreePBX project while continuing to improve upon its own solutions.

Schmooze's contributions to open source telecom increased over time, until eventually it made sense for Schmooze to acquire the trademark and copyright to FreePBX to become the project's primary sponsor and manager. Today Schmooze's core focus

is to provide direction, technical innovation and financial support for the FreePBX Project and its millions of users. Specifically, Schmooze does open source development, delivers commercial add-ons, provides support, and manages the expansion of the FreePBX ecosystem across the globe.

Great Growth

FreePBX initially was designed as a simple GUI for managing Asterisk configs, says Tony Lewis, Schmooze Com CEO. Before FreePBX, he explains, all configuration of Asterisk was done manually via the command line, and it required users to manage config files, so it wasn't scalable. FreePBX quickly grew from four simple database tables to a modular design allowing developers to add their own applications along with hooks into the GUI and dial plan.

It takes the Asterisk telephony engine, adds PBX capabilities, dialplan logic, and extra features to deliver a fully featured unified communications system that can be managed from a web browser-based GUI. FreePBX can be installed on premises-based hardware, virtualized, distributed across multiple locations, or implemented in the cloud. It can also be utilized across multiple endpoints, ranging from hardware-based phones, software clients, mobile devices, and even fully supported WebRTC endpoints. Telephony connectivity options are just as versatile as the rest of the system, allowing the use of standards-compliant VoIP connections, fully supported legacy PSTN connections, or to enable integration with wireless networks.

This broad functionality and support has enabled FreePBX to make the leap from a hobbyist technology to a mainstream solution. And it continues to grow.

Apply Liberally

"Open source communication platforms powered by FreePBX have been under continuous development for more than 10 years, with no signs of slowing down," says Preston McNair, vice president of sales and marketing at Schmooze Com. "FreePBX accounts for millions of installations contributing billions of dollars in hardware, software, and services sales. We have analytics show-

ing installations of FreePBX in more than 210 countries and territories around the globe, making it the most prevalent open source PBX platform in the world.”

Small home office, multi-location large enterprise customers, and the world’s largest contact centers can and do use FreePBX. The system’s feature set allows system administrators to manage unlimited extensions, voice applications, endpoints, conferencing, instant messaging, integrated faxing, automated call distribution, interactive voice response, paging, time-based call management, ring groups, call accounting, call recording, music on hold, company directories and call queues, and more, plus all the standard features expected from a phone system – all from one location.

Moving Forward

FreePBX continues to evolve to meet the latest communications challenges.

For example, in the latest version of FreePBX the User Control Panel, a new system portal for end users, has been written to be mobile-friendly, scalable to any device, and functional without having to install a browser plug-in. So whether end users are on smartphones, tablets, or desktops they can access their own settings, view and listen to prior calls, listen to and manage voicemail, and even place calls with the integrated WebRTC phone. They can also originate calls to their desktop extensions or wireless phones, forward their calls, as well as send and receive faxes and SMS/text messages.

Simple Solutions

While the open source development model allows for an innovative product, the Schmooze business model provides a simple way for businesses to deploy communications systems effectively. Schmooze supplies FreePBX Certified hardware, software, professional consulting, training and support, as well as a FreePBX integrated SIP trunking service through its popular SIPStation.com VoIP service.



Tony Lewis
CEO
Schmooze Com Inc.

All of these services are available directly from Schmooze; however, the primary distribution across all industry segments and sizes is through the Schmooze Channel Program for distributors, resellers, system integrators, and VARs. This program allows channel partners and service providers to offer seamless communications technology integration, paired with their local industry expertise.

Schmooze also continues to add value to the FreePBX ecosystem by delivering solutions in collaboration with major hardware and software providers such as Sangoma, with which FreePBX is exhibiting at ITEXPO in Miami. These extensive collaborations connect every aspect of the unified communications space, and help users deploy integrated and certified configurations of FreePBX. Certified FreePBX software undergoes rigorous testing to ensure it is easy install and uninstall, delivers a great user experience, and is compatible with FreePBX.

“FreePBX users have a wide range of support options starting with a very active online forum at community.freepbx.org,” says Lewis. “Tens of thousands of knowledgeable participants are also involved with an actively monitored IRC Channel (#freepbx on Freenode) and for in-depth documentation we provide a constantly updated wiki (see wiki.freepbx.org). In addition to free support options, the project also employs a team of



Preston McNair
Vice President of Sales and Marketing
Schmooze Com Inc.

professional support engineers that can be engaged on an hourly or contract basis to support systems all around the world. The FreePBX team also conducts certified training and provides resources for our resellers in the form of our channel partner program.”

New users to FreePBX can get started quickly by installing the FreePBX Distro. The Distro installs everything required to build a phone system, and provides consistent upgrade paths to keep up-to-date with the latest features and software versions. The FreePBX GUI also has a modular design that allows support for additional functionality as needed, and when needed.

“Customers of proprietary solutions are generally at the mercy of the vendor’s vision, requirements, dictates, prices, priorities and timetable, and that limits what features they can implement,” says McNair. “With FreePBX, users are in control to make their own decisions to do what they want with the software. They also have a worldwide community of developers and users at their disposal for help and support.”

All of the above help adopters and supporters of FreePBX continue to move forward as their needs change and grow. That’s why the mascot of FreePBX is a red-eyed tree frog – because both the solution and the amphibian always move forward. **IT**

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Creating a Mastermind Can Help Improve Your Game



In their day, Pablo Picasso, Salvador Dali, and Andy Warhol (and others) were friends who hung out together. To improve their own game, they lived near one another. They influenced each other; and they were rivals. This also bettered their game.

What are you doing to better your game?

We live in the age of information. There is so much education available right at our fingertips. Podcasts, videos, webinars, e-books, blogs and so much more are available to you. Yet beyond that are peers, mentors, coaches and subject matter experts.

Today, Dali wouldn't need to move to Spain to hang with Picasso. Through LinkedIn, groups, forums, Hangouts and other platforms of communication, partners can mastermind with other partners to learn, share best practices, advice and more.

There are a number of channel partner shows per year from Informa, CVX, master agencies, et al. These provide a number of opportunities to network and meet your peers.

I encourage you to take that one step further. Wrap some organization around one to three peers. Meet regularly (virtu-

ally and in person). Put your goals and needs out there. Those needs might include utilizing their expertise or referrals to educate yourself or support your customers. Your peer support might look like accountability or just a boot in the butt via email to get you to focus.

There's great value in mastermind. Napoleon Hill first wrote about it in "Think and Grow Rich". "When you use other people's knowledge and then organize that knowledge towards a specific goal, you can accomplish anything. No one has ever gained substantial success without using this mastermind principle. All great minds grow and prosper through contact with others."

Mastermind groups offer a combination of brainstorming, education, peer accountability and support in a group setting to sharpen business and personal skills, writes the Success Alliance. One more major factor is commitment. This mastermind only works when the members are committed to the success of others. Henry Ford, Thomas Edison, Harvey Firestone, and Carnegie vacationed together and supported each other as a mastermind. It can work for you too. **IT**

Peter Radizeski is head of telecom consulting agency RAD-INFO Inc. (<http://rad-info.net/>).

Channel Briefs

VoIP Pioneer Buys Telesphere

Vonage in November announced plans to buy Telesphere Networks Ltd., a unified services provider that sells to business users via the channel, for \$114 million. The move comes a year after Vonage got into the UCaaS market, and the Telesphere deal enables the VoIP services pioneer to accelerate that strategy.

TBI Pushes the Cloud

In December master agency Telecom Brokerage Inc. announced it would begin offering Evolve IP's cloud services for contact centers, disaster recovery, unified communications, virtual data centers and servers, and virtual desktops. The same month TBI posted a blog that urges VARs to sell cloud services, noting that new data from CompTIA suggests in the last five years 90 percent of companies have begun using or exploring the use of cloud computing for applications, business continuity/disaster recovery, infrastructure, and/or storage.

CompTIA: Cloud Requires Big Change

The CompTIA study mentioned above also reports that the channel, which once viewed the cloud with fear, is now embracing cloud business models and technologies. Carolyn April, senior director of industry analysis at CompTIA, added: "This is a positive development, but there is much

more work to be done. While cloud computing may be the overarching driver of business transformation among IT channel firms, it is not a single, isolated offering. It requires big structural change."

Rajant Creates Kinetic Program

Mesh networking company Rajant Corp. has launched the Kinetic Mesh Partner Program through which it will work with authorized distributors and their respective reseller and integrator partners to introduce its kinetic mesh infrastructure to a broader range of customers and vertical markets.

iQSG Reaches New Heights

The iQ Solutions Group is launching a new cloud computing services platform, iQ Cloud Infrastructure as a Service, powered by Peak. As a result, iQSG can now replicate client applications into Peak's cloud, enabling new operational efficiencies. Tom Richardson, principal at iQ Solutions Group, added: "Instead of our customers investing in capital resources of their own, they now have the opportunity to subscribe resources from us. By utilizing Peak's secure cloud infrastructure, we also eliminated the need to build out our own platform, which would have taken a number of years to build, along with a significant financial investment." **IT**

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TMC Recommends the Z-60 as a Solid

BY RICH TEHRANI

The number of options for small business communications has never been greater, as Moore's Law has been responsible for bringing better and better solutions to the market at price points that are truly affordable. Then there is the cloud, with its pay-as-you-go pricing – yet another competitor in the mix. Small businesses never had it so good. But then again this is a confusing time to choose a system because the companies providing hardware are getting really aggressive with features, and they offer great values and capabilities for the dollar. Case in point is Mission Machines Z-60, a VoIP phone system, which comes with four phones and costs about \$1,000.

Installation

The installation was fairly straightforward. A tech came to our office and configured the server. The phones were set up already, and we configured a few soft clients. He installed three fixed phones and one cordless SIP DECT phone from Panasonic. It took about an hour for everything, but in reality these phones and the system come preconfigured so you should just be able to plug everything in and have the whole thing work fine.

Documentation and Training

The tech went over the system with us by exploring the various menu options in the web-based configuration screen. Generally, this was fairly straightforward, but it is worth paying close attention as the Z-60 is quite powerful. In fact it is a phone system as well as a firewall, router, 802.11 access point, DHCP server, auto-attendant, and more.

Features

As mentioned above – this is a very powerful system allowing a small business to minimize its spend on various devices. It further supports six PSTN/FXO ports and 14 SIP trunk line ports, 49 IP-2061 IP speakerphones, and one FXS analog port. In addition, the phones support 24-button DSS/BLF expansion modules (IP-24EXP). The voicemail support is 32 hours.

In addition, the phone supports simultaneous ringing of cell and office phones, can record calls, has voicemail to email notification, support for 100 mailboxes, auto-attendant, and can network to nine sites.

Some other interesting features are line appearances, 24-button expansion modules, and call parking where users can park a call and another user can get access to it. These were important features to small businesses in the days when key systems were popular – about 20 years ago or so. Over time, however, many solutions stopped providing some of these options; but SMBs still love them, and it's great to see them supported in the Z-60.

Design

There isn't anything to complain about with regards to build quality. The phones are rugged. They look as good as any other entry-midlevel phones on the market, and when I closely examined the gaps in the plastic, for the most part there wasn't much variation.

Then there is the software or web portal interface, which I liken to what you might see in a home or SMB access point. It isn't the fanciest UI, but it gets the job done in a no-frills manner.

Performance

The performance of the phone system was also great. We conference called. We transferred calls. We parked calls and picked them up on other phones. We used SIP clients on Android and iOS and more. We experienced no problems or technical issues.

Quality

This is a quality system from the hardware to the software. We didn't find anything here worth complaining about.

Value

The cloud is generally looked at as a low-cost solution, but doing some rough numbers shows how a small business can save a lot of money with this solution over the cloud. Assume a company with 20 users for which it pays \$30 per month each. Over a year this is \$7,200. Paying \$1,000 for the Z-60 suddenly seems like the deal of the century.



Telecom Value

Moreover, the 20 users likely use no more than four lines at a time. Mission Machines will sell you SIP trunks at \$28.50 per month for the first one and \$19.50 for each one thereafter. This includes unlimited local and long-distance calling, caller ID, and a fail-over number which you can forward to. Monthly cost would be \$87 or \$730 per year. Moreover, you can add a PSTN line or two for failover/faxing and still save a ton of money over the cloud and have a more resilient solution. In fact, you could buy a second system as a spare and still save a lot of money.

Differentiation

This system stands out from some of its SMB competitors because it provides so much functionality for a low price. That includes firewall, DHCP server, router, and Wi-Fi functionality, and more. A small business really can save a lot of money on equipment with an all-in-one system like the Z-60.

Moreover, the ability to support SIP and PSTN lines means easier faxing as well as the ability to fall back on non-IP telephony if there is an Internet or even a network problem. If you have a UPS or generator, you can even communicate without a hitch in the case of a power outage, even if your broadband provider has an outage when the power isn't functioning. Yes, the system supports PoE, so no power is required by the phones beyond what the system provides.

In addition, you can connect the desk phones wirelessly by adding an XBLUE Networks X-2020 Wi-Fi adapter if you choose. This could be important in areas where it is impossible to run cables because of cost or other issues.

The MM Z-5SP Ceiling Public Broadcasting Wired and Wireless-based IP Phone also is available. It supports two SIP accounts, 20 paging groups, a built-in microphone, remote web management, PoE, and more. This is perfect for small businesses, factories, and areas in which there may be a need for enhanced communications in emergencies such as schools and hospitals, etc.

RATINGS	MY SCORE
Ease of Install	★★★★★
Ease Of Use	★★★★★
Interface	★★★★
Functionality	★★★★★
Overall	★★★★★



Finally, the SIP DECT phone from Panasonic is a great addition. It worked flawlessly in our tests, and obviously the Japanese company is well-versed in making such devices.

Ease of Use

The phones are intuitive to use, but its user manual is not fancy. It is a piece of paper folded in half with black ink. Still, it was just right in that it showed us how to park calls, transfer them, conference, access the phonebook, and more.

Support

We made one call to support to get help with configuration issues, and the technician quickly got into our system, showed us what the problem was, fixed it, and was on his way.

Room for Improvement

One of the challenges for equipment providers in a world in which Moore's Law reigns supreme is dealing with falling prices and providing the best bang for the buck. In addition, cloud providers are making the case that their solutions are cheaper than hardware. Mission Machines has done an admirable job of delivering a system with all the crucial bells-and-whistles at a price point that is dirt cheap.

One thing that could make it even better, however, would be if each screen on the user interface offered the ability to click to learn more about the specific options. Theoretically an experienced person would set the phone system up for you, meaning this isn't really needed. But for the person who wants to truly understand all the powerful features this system provides, without spending hours on Wikipedia researching such information, some extra help would be appreciated.

Bottom Line

Mission Machines Z-60 is a powerful solution for companies looking for an alternative to cloud-based phone systems or for companies looking for a solid value from people who have been in the telecom business for many decades and bring lots of experience to the table. Not only can a company save money compared to competitive cloud-based systems, they can also enjoy redundancy in the case of Internet outages. We recommend the Z-60 as a solid telecom value. **IT**



Call Recording

Whether used for coaching, productivity enhancement, regulatory compliance, or other purposes, call recording is garnering a lot of interest lately for its ability to make organizations more efficient and effective. Here's a rundown of some of the leading players in the call recording market place.

3CLogic www.3CLogic.com

3CLogic offers a full suite of cloud-based inbound, outbound and blended contact center solutions. Covering all customer interactions including voice, chat, email and social media, 3CLogic seamlessly integrates with existing CRM software to provide businesses with a 360-degree view of customer interactions regardless of channel. 3CLogic provides contact centers with accurate and timely information about prospects and customers so they can efficiently respond to communications, ensure satisfaction, and drive toward a larger lifetime value for each customer. 3CLogic's technology is flexible when it comes to recordings. First, customers can choose where they want the recordings to be stored. Recordings can be stored on the customer's server or on the cloud. Second, they can choose what percentage of calls are recorded, depending on their needs. Finally, APIs can be used to mark or process the recordings. A SaaS contact center solution, 3CLogic is built on a distributed architecture that eliminates the pitfalls and limitations of legacy centralized server architectures found in many contact centers. Unlike existing hosted offerings, 3CLogic unleashes the full power of the cloud with the benefits of VoIP to provide unprecedented security, reliability, flexibility and scalability. Equipped with its Virtual Telephony

Application Grid technology, 3CLogic pushes telephony functions to the edge of the cloud, which removes bandwidth bottlenecks, avoids outages, ensures data security, and enables contact centers to increase capacity as needed.

Agero www.agero.com

In the early '90's, we invested in our first call recording system, Auto Quality. At the time, the new monitoring system enabled us to obtain and listen to a wide sample of recorded calls. The best feature of the system was that the associates did not know when they would be monitored. This allowed us to capture a true sample of their call quality. A few years ago, we purchased the Witness eQuality call monitoring system. Witness has enabled us to capture both the voice and data portion of a recorded call. As an added benefit, the monitor form has been integrated into the system to allow us to simultaneously monitor and grade phone calls. The ability to run complex queries on the quality database has enabled us to identify trends and create training modules to correct them faster than we have ever been able to do in the past. In addition to internal monitoring, our associates are graded from the point of view of the customer (by the voice of the customer), which is captured in real time via IVR, and also receive feedback from sessions where associates from each site gather to listen and critique calls from other sites.

AudioCodes ▼ www.audiocodes.com

SmartTAP is an ideal solution for companies in the financial services, manufacturing, hospitality, medical, branch office, and many other highly regulated industries. Historically voice recording focused on the call center or public safety, but today's UC





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platforms make it cost effective to record anything and anyone. SmartTAP is a security-enhanced call recording solution that enables the recording of key business interactions. Capable of recording any call type including but not limited to mobile, remote and conference all from the same solution. SmartTAP is a fully IP-centric software application built on open standard protocols like SIP, HTTP, SNMP and REST utilizing the latest design methodologies. It can be used for recording not only Microsoft Lync but also any other IP or TDM interface at the same time. Built on proven technology and based on years of experience in developing and integrating call recording solutions, SmartTAP is compatible with many VoIP, TDM, and hybrid telephony environments including Microsoft Lync and ShoreTel UC. The solution will unify all your locations even if there are disparate voice platforms. Easily record any conversation including those by mobile and work at home users. The solution can be configured and centrally managed using an intuitive web-based interface, simplifying system deployments and reducing ongoing support requirements.

Cisco www.cisco.com

Call recording capabilities within Cisco WebEx Meetings allow users to get more from a meeting and focus on interactions instead of taking notes. WebEx Meetings, the top-rated business productivity solution available across platforms including Android, iOS, BlackBerry and Windows 8, and accessible via desktops, smartphones and tablets, provides video and voice recording with easy file retrieval and editing capabilities. WebEx allows users to record and capture the full meeting dialog for anyone unable to attend, including voice and active speaker video, desktop or file sharing, and chat. The meeting recording is then available through Meetings Spaces and can be downloaded with a copy and paste URL for sharing via email, chat, social media, or on a website. Recording as either .ARF or .WRF files, the meetings are easily watched, edited or converted. In addition to recording via WebEx Meetings, Cisco also offers customers the ability to capture and record video for both live streaming and video on demand viewing via the TelePresence Content Server, part of Cisco's Capture Transform Share solution. The TelePresence Content Server is compatible with Cisco TelePresence or third-party standards-based video endpoints.

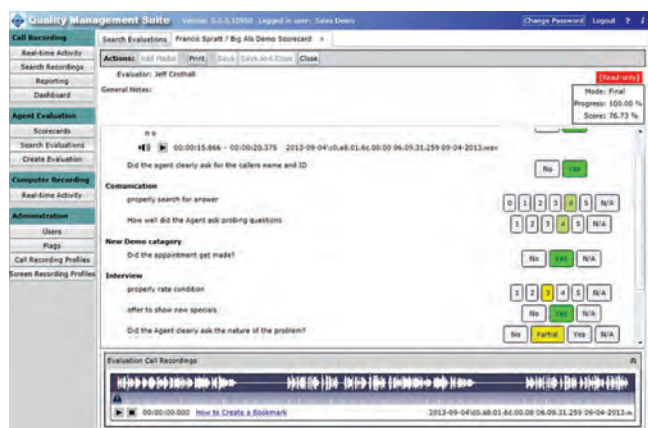
Enghouse Interactive ▶ www.enghouseinteractive.com

Enghouse Interactive Quality Management Suite is a comprehensive IP call and computer recording, monitoring, and evaluation software suite. QMS empowers companies to document customer interactions, identify and address trouble spots, and provide

consistent, detailed, and constructive feedback to staff. QMS features a web-based user interface that features multimedia search capabilities including desktop captures and call recording, access to reports, interaction recordings, and evaluation capabilities. Enghouse Interactive Call Recording, available as a standalone solution or with QMS, records interactions on demand, full time, or using triggers. The Computer Recording module of QMS enables companies to capture the entire interaction – telephone and computer activities – to ensure consistent and correct usage of business systems, to identify training opportunities, and to improve productivity. Recording profiles can be set to suit business needs, from selectively recording business applications to recording screen activities full time or during set hours.

Genesys www.genesys.com

Genesys Call Recording and Quality Management Solutions records calls to gain insight into what your customers are saying and how your service impacts satisfaction and churn rates. Enterprises can set criteria for automatically recording certain calls or all calls, or recording calls on demand as situations arise, and can encrypt sensitive recordings as needed to meet compliance requirements. Genesys lets supervisors and evaluators search for calls using call flow data and business parameters, such as agent ID, customer ID, and order number. Enterprises can play the entire call from the customer's point of view, including IVR prompts; transfers; holds and conferences; and in its entirety to gain a complete view of the customer experience. Share and send call recordings via email to agents, managers, or a customer. Every time a call recording is accessed, an audit trail of information is kept to ensure that sensitive data is kept secure. The modular and scalable architecture provides flexible deployment options whether distributed or central-



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ized in design. Unlike legacy recording systems, this is entirely SIP based, specifically designed for voice over IP recording. There are flexible call search options, and support for regulatory compliance requirements for PCI-DSS, vHIPAA, Sec 17a (3, 4) and SOX.

Hewlett-Packard Co. **www.hp.com**

HP Autonomy delivers a contact center management solution with HP Qfiniti 10, which brings the next generation of workforce optimization and advanced, real-time multichannel analytics to the contact center. The product offers a flexible solution that simplifies complex business processes, increases effectiveness, and lowers overall costs. HP Qfiniti 10 delivers the advanced tools needed in today's global and multisite contact centers, including solutions for workforce management, quality monitoring, liability recording, coaching and eLearning, performance management, surveying, desktop analytics, and multichannel analytics. Built on the HP Intelligent Operating Layer (IDOL), the solution has the ability to truly understand the voice of the customer. HP IDOL extracts meaning from all forms of human information, including audio. By leveraging this advanced analytics platform, HP Qfiniti 10 can automatically identify patterns in customer communications as well as classify calls – both on historical data or in real time. It offers highly integrated workforce management modules, each performing a specific contact center management function. Individual components can be deployed to allow customers to get the modules they require, offering them a customizable solution that best fits their needs.

HigherGround **www.higherground.com**

HigherGround's Calibre product suite offers a unified call recording, agent evaluation, and reporting solution for multi-source contact centers. With today's stringent requirements of contact centers to keep customer data secure, these tools work to provide full regulation compliance. The HigherGround Calibre product suite ensures customer data security and PCI and HIPAA compliance as well as support of a myriad of rules and regulations. Contact centers have the ability to record analog, digital, and IP phones; ACD, CTI, PBXs, and e-mail communications from a single unified platform providing a holistic view of call center, team, and agent performance.

inContact **www.inContact.com**

inContact provides synchronized voice and data recording to capture conversations between your customers and agents, as well as the corresponding activities taking place at agents' desktops, such as keystrokes, data entry, screen navigator, and after-call wrap-up.

Recorded interactions are tagged and stored automatically for easy, intuitive search and replay. This can enable authorized users throughout your company to view the entire flow of the contact. With the proper security, you can export these interactions to non-system users for review on any multimedia PC. The intelligence of speech analytics adds a unique dynamic to any audio recording. Understand why customers are calling, without ever listening to the call. Through LVCSR technology, the speech analytics engines identifies what is said and displays those key words and phrases that you need be aware of to drive change in your business. With our Analytics-Driven Quality recording tool, understanding customer emotion during a call, and what drives that emotion, has never been easier.

InfoCision Management Corp. **www.infocision.com**

InfoCision Management Corp. offers both audio and video recording of all interactions within its environment. When video recordings accompany audio recordings, the playback is synchronized. Over 500,000 call recordings are created and maintained on a daily basis. All recordings are harvested and stored securely in accordance with Payment Card Industry standards. Access to recordings is made possible internally through InfoCision's proprietary web-based interface called Contact Search and externally to clients via extranet, which allows users to locate and play calls based on criteria such as date and time, campaign, phone number, agent and call result.



Intelligent Recording Ltd. ▲ **www.usbcallrecord.com;** **www.callrecordingsolutions.com**

Intelligent Recording offers solutions for recording IP, digital and analog phones as well as line-side solutions for analog and PRI with integration to most phone systems that enables tracking the call to the extension that made or received the call as well as the flexibility of excluding certain phones from recording. A combination of hardware and software solutions allow for simple to install desktop solutions as well as more robust back office solutions for enterprise-wide recording. This flexibility scales the cost down to a very affordable level whether for one user or hundreds, which is unique in the industry. For the home office or mobile user we also offer simple devices that allow recording from mobile phones

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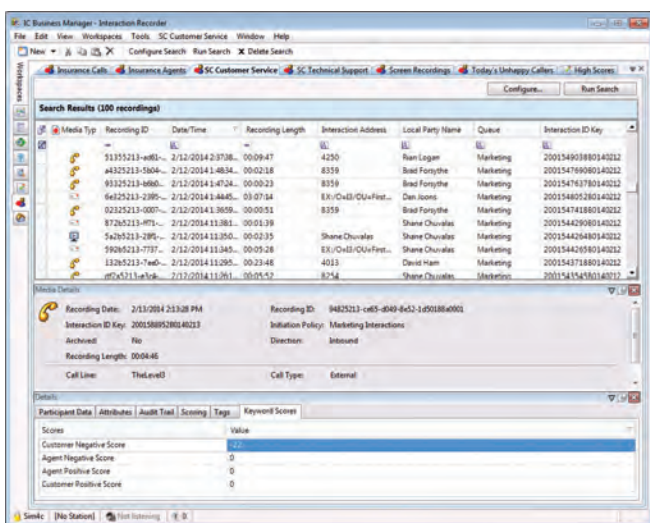
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or your home office. These record in the same format as our other solutions, allowing the user to manage and playback all calls using the same software. The Intelligent Recording solutions cover you when at home, in your car, or in your office.



Interactive Intelligence www.inin.com

Interaction Recorder, which can be deployed in the cloud or on-premises, provides multichannel recording functionality. It can capture, store, and replay customer interactions via voice, email, chat, IVR, and other contact channels. Interaction Recorder also offers synchronized playback of screen and audio recordings. By giving insight into the customer experience and employee performance, Interaction Recorder helps organizations improve service quality and ensure process compliance.

IntraNext Systems www.intranext.com

iGuard is an automated security software for contact centers that completely conceals customers' personal data, like credit card, social security or ID numbers, to protect customers, agents and the company from identity theft during every telephone transaction. It allows customers to directly input or speak their sensitive data during a call, while blocking the data from the agent on the call. Instead, the information is transmitted directly to the appropriate back-end systems for processing. It can help you comply with numerous privacy regulations and standards, including the Payment Card Industry Data Security Standard, the Health Insurance Portability and Accountability Act of 1996, Statements on

Standards for Attestation Engagements No. 16, Service Organization Controls, and Safe Harbor Privacy Principles.

IR Prognosis www.ir.com

Many organizations currently risk heavy compliance fines due to failed or inaudible call recordings in contact centers and other regulated environments. IR Prognosis offers patented Call Recording Assurance technology, which is constantly checking the system health. Users receive immediate notifications of failed recordings coupled with real-time visibility to ensure optimal performance. Call Recording Assurance also removes the need for time-consuming manual checking to confirm call recording is working. For businesses in financial services and health care in particular, this minimizes the risk of being fined, which can be more than \$2,000 for each call that fails to be recorded and archived, or losing their license to operate.

Monet Software Inc. www.monetsoftware.com



Monet Record provides an easy and affordable web-based solution to record, archive and retrieve customer interactions that help contact centers improve customer service as well as ensure regulatory compliance. The system automatically captures and securely stores call transactions to protect data and comply with legal, security and company regulations and policies. Comprehensive search allows users to easily and quickly retrieve calls based on phone number, agent, tags, date, time and other user-defined parameters. A comprehensive security model ensures that only authorized users get access and are able to export calls using standard audio formats. Managers can easily identify patterns and analyze metrics at various levels for training and quality assurance. With fully integrated quality monitoring, Monet Quality contact centers can even go one

step further and establish the foundation for a robust and effective quality management system based on their unique needs. Monet Record is fully integrated with Monet's Workforce Optimization suite and delivered as a cloud-based subscription service. Monet's cloud-based WFO platform efficiently and securely delivers web-based applications that are fast to set up, easy to learn, and highly scalable to grow with the customer's needs.

NICE

www.nice.com

NICE Real-Time Authentication significantly reduces average handle time and improves the customer experience by utilizing voice biometrics to authenticate customers in real time. Voice Biometrics uses more than 50 physical and behavioral factors, including pronunciation, emphasis, speech rate, accent, and unique physical traits of the vocal tract, etc., to verify callers' claimed identity against the voiceprint stored on file for accurate and reliable speaker identification and verification. Seamless Enrollment is patent-pending technology that leverages NICE Interaction Recording to effortlessly create voiceprints for a large proportion of customers – those who call into your contact center annually – all with no customer effort or impact. Context, Telephony and Transaction Analytics can automatically analyze IVR events, caller geo-location, automatic number identification matching, and other data from agent desktops to fuel the authentication process. To close the loop, automatic decisioning draws on insights from analytics to verify identity and generate dynamic security questions as the call unfolds and cues agents through the customer authentication process, automatically notifying agents whether callers have been positively identified or guiding them with dynamic security questions.

OAISYS ▶

www.OAISYS.com

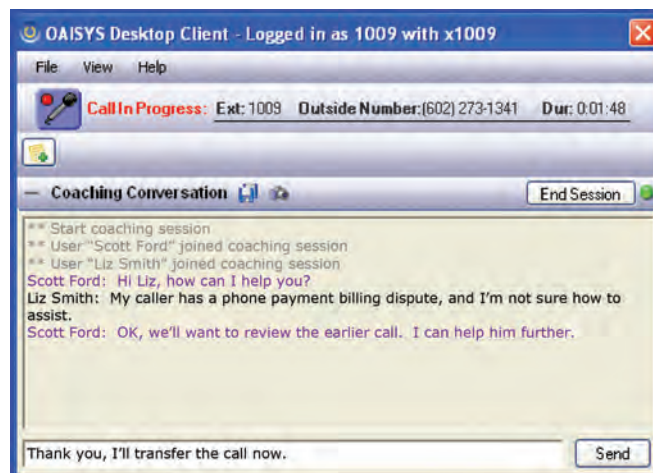
The OAISYS Talkument voice documentation and compliance management software utilizes patented OAISYS Portable Voice Document technology to create digital media documents from business telephone calls, making them available to organize, retrieve, play back, annotate, and share as needed. It provides company-wide control over compliance management, risk mitigation, dispute resolution, and other critical business concerns. OAISYS Tracer is the contact center interaction management application used in conjunction with the Talkument voice documentation software. Tracer also leverages OAISYS PVD technology paired with advanced contact center management features, including customizable employee performance evaluations, live and automatic call monitoring, quality and resource utilization

reporting, and synchronized desktop video recording capabilities. Engineered to support virtualized deployments and compatible with leading IP business telephone systems and SIP-based communications services, including those from Avaya, Mitel, ShoreTel and Toshiba Telecommunication Systems Division, OAISYS' Talkument and Tracer call recording solutions empower user organizations to improve customer service, mitigate risk, adhere to compliance regulations, reduce costs, increase revenue and drive overall profitability. Version 7.4 of the OAISYS software solutions, announced in October 2013, features enhanced integration capabilities with industry-leading business communications platforms from Avaya, Mitel and ShoreTel. Version 7.4 also includes new feature functionality to support cloud services.

Red Box Recorders

www.redboxrecorders.com

Red Box Recorders is a global provider of voice and data recording solutions that solve often technical and complex business challenges in the most simple and effective manner possible. This ensures that financial services organizations are not only fully compliant, but can also become more competitive, productive and efficient. Red Box's software enables the capture, authentication, analysis and evaluation of multimedia communications from a wide range of data sources including fixed line and mobile calls, radio, screen, SMS, instant messaging and social media. Red Box Quantify Recording Suite is a user-friendly and intuitive voice and data recording software solution that is suitable for companies and organizations of all sizes. It can be tailored to meet precise customer requirements with a wide range of functionality including quality management, PCI compliance, call management and billing, event reconstruction, and audio analytics.





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Roundup

to Dodd-Frank, regulated industries can rely on Engage Record to meet their requirements for regulatory program compliance. Its DOD-grade security capabilities include end-to-end AES 256-bit encryption, fully multi-tenant/department partitioning, watermarking, and SSL/HTTP web access, ensuring rock-solid security and data integrity. A convenient web services interface lets Engage integrate with third-party CRM and other back office solutions. Supporting multiple voice technologies and PBX platforms on the same server, Engage is highly scalable, with up to 1,000 call recording channels per server. Efficient bandwidth usage, storage area network support, and convenient, web-based centralized management accommodate system growth. Clustering and centralized archive support simplifies implementing resilient systems. Both at-a-glance dashboards and in-depth, custom reports provide complete knowledge of call metrics and performance. Engage Record is available for SMB, large customized enterprise deployments, and cloud-based environments with perpetual or subscription purchase options.

UberConference ▲ www.uberconference.com

The conference call has just ended, and you all accomplished a lot. But exactly what was said? Remembering that is not a problem with UberConference. Call recording is an integral feature of UberConference's teleconferencing service. When you set up your conference call, all you have to do is click on the Record button in the lower right corner of the call setup screen, and that's it. Your conference call is then recorded and saved in .mp3 format for you to use for future reference. How accessible is this recording? You'll be able to grab it from the Past Conferences section of your account, as well as in the Call Summary e-mail that is sent to all callers after the call. With the call recording feature, the problem of remembering what everyone said – and agreed to do – is now solved because a permanent reference of the actual call exists.

Verint Systems Inc. www.verint.com

Verint Call Recording is an enterprise recording solution designed to meet the needs of large, multi-site, virtual, and outsourced contact centers. This software-based recorder provides full-time recording and compliance recording to help larger contact centers increase operational effectiveness, reduce liability, comply with the Payment Card Industry Data Security Standard and other industry standards, and expedite dispute resolution. Verint's call recording solutions provide synchro-

nized voice/data recording and real-time monitoring across traditional TDM, IP, and mixed telephony environments. In addition to recording conversations between customers and agents, Verint Call Recording can also capture the corresponding activities taking place at the agent desktop, such as keystrokes, data entry, screen navigation, and after-call wrap-up. The solution immediately works with most major telephony environments and offers application programming interfaces to facilitate integration with proprietary systems. Because Verint Call Recording can support many channels of IP voice and screen recording on a single server, it can help reduce the space, energy, and maintenance costs associated with traditional, multi-server recording systems. It provides a range of functionality that's offered in a flexible, service-oriented architecture, helping to reduce the cost of ownership.

Versadial Solutions ► www.versadial.com



The Versadial call recording solution offers enterprise features at a small business price. Available as a plug and play system or as a budget friendly call recording kit, Versadial recorders are compatible with most PBX systems, capable to record

digital, analog or VoIP lines and devices. Expandable architecture allows systems to grow and change with your business for years to come. Included is a quality control module that allows managers to grade calls and share recordings among employees or outside personnel. For large-scale deployment, multiple recorders may be installed across a network and configured with centralized or distributed storage. Standard operations such as search/playback, reports, export, silencing, bookmarking, notes, flagging and live monitoring are just a few of the robust features included with each solution. Recreate incidents, improve customer satisfaction, conduct employee training, and reduce business liability with solutions from Versadial.

VirtualLogger LLC ▶ www.virtuallogger.com

VirtualLogger offers PCI-compliant, cloud-based, pay-as-you-go call recording, screen capture, speech analytics, and quality monitoring. VirtualLogger records IP, TDM and POTS phones from more than 30 PBX brands, with or without on-premises equipment. Unique features include Numerase, which deletes PCI-sensitive data; RecordingMagic, which cost-effectively records the smallest offices; VirtualSmartView, which captures screen images and screen analytics on any PC; AgentPrescience, to identify agents without CTI or mapping; and BackIP, a radical approach to IP recording that can achieve 99.999 percent reliability. IP recording is available using SPAN, network taps, SIPREC, SIP forking, and single step conferencing. PCI compliance features include 256-bit AES encryption and leading edge key management. Quality monitoring users can build and use agent evaluation forms using just a web browser. And the VirtualLogger QM application can be integrated into other web-based recording systems for customers using cloud-based IP PBX systems. Customers with older equipment can integrate their legacy call recording systems to minimize the cost of replacing recorders that work,

but are too small or have limited features. Finally, VirtualLogger offers a powerful, easy-to-use API that provides for integration with other call center applications and provides many of its features separately to upgrade legacy recorders. **IT**

Note: We do our best to include as many of the players in a given Roundup as possible. But this exercise does rely on the companies listed submitting entries, so this is not intended as a comprehensive list of market players, but rather as a sampling of what's available in the category. Check out our editorial calendar to see what categories will be featured in future issues, in case your company would like to submit a listing for an issue in the year ahead. There is no cost for a listing.



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Assembly Helps Developers Find,

The open source movement has been lauded for driving software innovation by welcoming all interested parties to the table. But the time and skills of software developers are valuable things, so expediting the process of bringing together the ideal candidates for specific jobs, and giving them the ability to benefit from the fruits of their labor, can be pretty great as well.

To address all of the above, a company called Assembly has opened for business.

Armed with \$2.9 million in funding from Box Group, Collaborative Fund, Union Square Ventures, and some angels, Assembly has introduced a platform through which developers and other makers can pitch projects, collaborate on efforts, and receive remuneration – tracked

Network Infrastructure

Reaching SMBs with IP

Having debuted well over 10 years ago, VoIP technology is now mature. Today, most large enterprises have adopted SIP trunking service to reap the cost savings and worker-productivity benefits that IP telephony and unified communications promise. Small-to-medium businesses, however, typically lag behind in SIP trunking adoption. Meanwhile, telecom carriers are eager to push the entire market, including SMBs, into SIP-based communications services so they can retire their aging TDM networks and break free from the expenses of operating and maintaining those legacy networks.

Why have SMBs been reluctant to make the transition to IP telephony? And what will it take for carriers and service providers to penetrate the SMB market with their all-IP service offerings? The reasons – and the answers – are complex.

While an article of this scope cannot provide an exhaustive answer, we can suggest a few things that SMBs need, which have been largely missing, before they will get on board the SIP trunking train. One key factor in the business equation points to the missing features and functions of the enterprise session border controller, installed on the customer premises, that delivers the

SIP trunk service while providing secure separation between the provider WAN and the customer LAN.

Most E-SBC vendors initially provided large-scale, carrier-grade session border controller equipment designed to secure the boundaries of peer-to-peer carrier networks. When entering the SMB space, however, such suppliers have often misunderstood the needs of those smaller organizations.

For SIP trunking providers to woo and win SMB customers, they will need to deploy customer premises equipment that satisfies the unique requirements of smaller enterprises.

Scale

Very small businesses, those that need calling capacity for just one or two workers, have been largely ignored by SBC manufacturers. Further, many larger organizations require support for small and remote offices staffed by, say, two to 10 workers. The SMB market needs small-scale E-SBC solutions, ranging from as few as two concurrent calls, and including solutions for four, eight, 12, 24, and so on – up to, say, 64 SIP sessions. Space in the IT closet, if there is one, is typically at a premium with smaller organizations, so compact form factor is important. For a small company, the

Monetize Open Source Contributions

in a cryptocurrency called App Coins – for their contributions.

Gig Radio is among the products in which Assembly played a role. It's an app that lets you listen to music by artists who will soon be playing in your area.

Assembly, according to TechCrunch, has to date brought together 4 million users who have completed a total of five projects

using the platform. The article says some people on the platform are making more than \$1,000 per month for their work related to efforts on Assembly.

A Nov. 11 blog by Assembly core team member Andrew Barisser talks about how the company recently made some improvements to how contributors are credited for their work.

"Early contributors are awarded proportionally more than later ones, reflecting the increased value of the product," he writes.

For products that are profitable, he adds, Assembly takes the average income per month in the product's history and extrapolates to average yearly profits, and then out of five suggested increments it normalizes the middle increment to a reasonable dollar per year value. **IT**

By Glendon Flowers

Telephony and UC

E-SBC must be small. Which leads to our next observation.

WAN Interfaces

How is the company or small office going to reach the Internet? E-SBC vendors that are tuned into the real needs of SMBs will build in an integrated modem port (ADSL, G.SHDSL, fiber optic, etc.) to provide WAN access. A built-in WAN interface simplifies the company's LAN architecture, saving

valuable set-up time as well as physical space. Meanwhile, the device's software should provide transcoding between high-bandwidth codecs (providing high-quality voice on intra-LAN calls) and low-bandwidth codecs (for WAN optimization).

Downstream Quality of Service

Speaking of high-quality voice, business-class telephony requires it. So the E-SBC must provide mechanisms that ensure phone calls don't get mangled by big data downloads, or video viewing by co-workers. Such mechanisms on the downstream path include pre-allocated minimum bandwidth for voice traffic, and TCP rate control, which throttles downstream data bursts in the presence of a phone call.

Support for Legacy Telephony Technologies

For a small business, making a profit is a big challenge. Dumping valuable capital equipment, especially if it still works, is really not an option. That working PBX – now bought and paid for – represents hard-won profits. Most SMBs that get it are interested

in migrating to IP communications, just not all in one go. They also recognize the need for a fallback solution in the event of Internet failure. Such savvy organizations require an E-SBC that can IP-enable their POTS or ISDN phones and PBX, while preserving PSTN connectivity for local breakout calling, network survivability and business continuity.

That means the E-SBC must offer FXS, FXO, T1, E1, BRI and PRI interfaces. In addition to voice calls, many businesses (including large enterprises) require other connection types, including fax, modem-data, ISDN data, monitors and alarms devices, point-of-sale devices, stamping-machines – even earlier H.323-based VoIP solutions – and more. Sadly, too many E-SBC vendors are still ignoring the business reality of integrating legacy technologies with new-generation SIP-based communications technology. **IT**

Glendon Flowers is product marketing manager at Patton Electronics Co. (www.patton.com).



The Rising Threat of SIP-based Phone Hacking

BY MYKOLA KONRAD

SIP has been billed as the future of communications, serving as the foundation for running VoIP networks and unifying communications. Its adoption has been growing steadily, up 42 percent in 2014 over 2013 and continuing to rise, according to Infonetics Research. However, as companies deploy these SIP trunks, they're susceptible to hackers performing denial of service-type attacks on their communications networks. While this issue is hardly a new concept, the rising ubiquity of SIP trunking and increased computing power has recently brought this issue to the forefront as large-scale availability of SIP trunks across the world expose new companies. The threat is imminent, and we'll see more attacks before the industry begins to understand how to handle them. However, to protect themselves, organizations need to start paying attention now.

The Nature of a SIP Attack

There are multiple avenues of attack through SIP, some at the IP or protocol layer and some at the voice application layer. Let's consider the voice application aspect. If a company's real-time communications network is exposed without proper safeguards, hackers can use PCs as a gateway to flood their network with voice or video calls. By using SIP, an attacker can target a company by creating a botnet that will use a calling application directed over a SIP trunk to repeatedly call an 800 number. Most attackers will then disguise themselves as an interconnect carrier and get paid each time a call to the 800 number originates, goes through the interconnect carrier, and then terminates with another carrier. These hackers make money off the delta between the origination and termination point, but the customer who is receiving the bogus call is stuck footing the bill. Not only do these insistent calls tie up phone lines and interfere with customer service, they can also cost companies exorbitant amounts of money. In 2013, the Communications Fraud Control Association estimates that fraud alone cost the industry \$46.3 billion.

To prevent such a situation, it's important for the enterprise to monitor traffic and take action quickly whenever possible. Since hacking typically originates in a handful of eastern European and African countries, watching for suspicious and unusual traffic from unfamiliar locations is a good start. As an example, take the case of a bank that started experiencing such a SIP attack. Customer service agents at the bank's call center began receiving strange calls where no one was at the other end. The calls began sparingly – not frequently enough for anyone to mention or realize that this was becoming a normal occurrence. As these calls increased in frequency, agents began to take note. After an investigation, the carrier found the calls were originating in one primary country where they had no business presence. Ultimately, they easily solved the problem by blocking incoming calls from that region, and involved international government entities to pursue the hacker. However, the effects of the hack were far-reaching: money was lost and customer service had been slowed.

Planning Ahead

While it's important to know how to fix a problem, ideally, it's better to be able

to prevent it in the first place. On the technology side, one of the main reasons that networks become exposed is that companies rely on old technologies to manage their security. These PBXs have been around for the past 10 to 15 years and are well known to hackers, who easily maneuver around them. Instead of relying on these, enterprises need to invest in newer, more secure technologies that can sit in front of the phone system or PBX to block against hacks, and are relatively unknown to hackers.

At the same time, carriers – especially interconnect operators – need to be vigilant about managing call traffic. They need to analyze and share business information to marry the data provided by the enterprise about where their traffic is expected to come from with the call data they've been gathering, analyze it, and share their findings. Should they recognize suspect activity, they can work together to determine an appropriate strategy, such as blocking calls coming from suspect countries or regions like Serbia, Russia, and Zimbabwe. Though this sounds like a simple solution, it is much more difficult to achieve than expected. Most of these carriers work in silos and do not have the strategic business discussions that they need to stay ahead of such security issues.

With the current growth of SIP, these phone system attacks will become more mainstream unless the industry takes steps to make changes. With a little investment and collaboration, enterprises can be a step ahead of these attackers. **IT**

Mykola Konrad is vice president of cloud and strategic alliances at Sonus Networks (www.sonus.net).

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Wearable Cameras Proliferate

BY PAULA BERNIER

A recent Saturday Night Live skit did a takeoff on the GoPro wearable camera, promoting the fictional GoProbe as a fun way to capture your colonoscopy. If you saw the SNL sketch and didn't immediately recognize it as a parody, you probably weren't alone, as cameras are now invading nearly every aspect of our lives. And the widespread available not only of camera-equipped smartphones but also of a new breed of wearable cameras is making the capture of both far-out adventures and our everyday lives easier than ever.

The rise of social media clearly illustrates our unbridled interest in naval gazing and sharing. And the potential for all of the above is expected to broaden and become even more personal as wearable cameras allow us to capture moments — like a player's view of her soccer goal, a zipper's zipline ride, or even a trip to the neighborhood park with the kid — that would otherwise be lost.

Whatever your view of the need for this kind of exercise, or to what extent you think such video will actually be usable or used, wearable cameras already have begun their ascent, and some of these devices are pretty darned cool.

Wearable cameras are a significant and growing part of the wearable computing market. In 2013, 6.64 million wearable cameras shipped worldwide. Last year that number was supposed to increase to 13.61 million. And this year it's expected to reach 15.81 million.

Those selling wearable cameras including well-established consumer electronics companies like Casio and Panasonic, well-known specialists like GoPro, and a wide array of newcomers.

Casio, for example, recently introduced the Exilim FR10 wrist-mounted camera. It is designed for use on the wrist, but can also be mounted onto a helmet, backpack or just about any other object. Listing for just under \$500, the device features a detachable LCD screen unit and a lens unit that controls all of the camera functions.

The LCD screen and lens system has a combined total weight of only around 175 grams, or just over six ounces — around the same weight as a smartphone, as reported by TMCnet, the online entity of INTERNET TELEPHONY parent company TMC. The lens features a 14-megapixel sensor for displaying recorded images and video on the 2-inch LCD touchscreen display. Not only is the detachable lens equipped with Wi-Fi for connecting to computer and Internet sharing networks, but Bluetooth commands can also be used to control the camera. As an example, a user could place the camera on a tree and program it to take a picture when everyone says "cheese."

This Casio solution has been described as GoPro for beginners.

GoPro, meanwhile, appears to remain focused on rather bulky wearables that promise high quality video and target the adventurous type.

The company recently introduced HERO4, which it says is its most advanced solution to date. The \$400 and \$500 models offer a 4K30 frame rate, 2.7K50 and 1080p120 video, up to 30 fps, and built-in Wi-Fi and Bluetooth

"Life is either an incredible journey or it's nothing at all," the GoPro website tells us as it begins to display a beautiful collection of images from around the world.

Other wearable cameras, meanwhile, are apparently targeting those of us who want to capture what most would consider more mundane pursuits, like a walk in the woods.

That includes Autographer, a \$400 small black brick that hangs around the neck on a lanyard. MeCam, meanwhile, is a cute and colorful hands-free video camera that can clip on to a pocket and is useful for fitness training, taping your kids, and travel. The Narrative Clip, which looks like the second-generation iPod shuffle, offers a 5-megapixel camera that takes pictures every two minutes. It starts at \$229, stores up to 4,000 pictures, and has a two-day battery life.

One of the most interesting wearable cameras being talked about is in the works at a company called Nixie, which was founded by Christoph Kohstall, a PhD in experimental physics and postdoctoral research at Stanford. Nixie has created a small wearable camera that the user wears on a wristband, but the straps unfold to create a quadcopter that flies, takes photos or video, and comes back to the user when it's done. It then syncs with a mobile device to upload its content. Even unfolded, the Nixie fits in the palm of the hand.

Nixie in November won \$500,000 as part of the Intel Make It Wearable Challenge.

Of course, not all of the wearable camera companies have seen success. For example, a company called Looxcie says on its website that it is restructuring and will exit the consumer camera and accessories business and had discontinued support of these products as of the end of December 2014. The company says it is shifting its focus to enterprise, which it will target under the brand Vidcie.

The opportunity for wearable cameras in business and government environments appears to be rich as well, of course. For example, following the shooting of Michael Brown in Ferguson, Mo., Rep. Adam Schiff (D-Calif.) asked the Department of Justice to fund wearable cameras for local police departments. Police in some cities, including London and Rialto, Calif., already use wearable cameras. **IT**



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AT&T Offers an Update on

It's been years since the rise of the bring-your-own-device trend. Many companies have since introduced solutions aimed at helping businesses get a better handle on the challenges created by BYOD while retaining their employees' ability to benefit from the enjoyment, flexibility, and productivity that using the devices of their choice enable.

AT&T was among the early entrants to this space with its AT&T Toggle solution. More than three years after first covering the offering, INTERNET TELEPHONY circled back with AT&T to see how AT&T Toggle has progressed. Here's what Sundhar An-namalai, executive director of big data and advanced solutions at AT&T, had to say.

Why do we need AT&T Toggle?

In today's business world, mobility is no longer a luxury. It's a necessity. To take full advantage of the changing culture, organizations need to implement solutions that address employee privacy while providing a highly secure platform that helps protect proprietary information. We

understand the importance of that need, and offer AT&T Toggle as the answer.

With AT&T Toggle, a company's IT department can manage work-related functions remotely, applying mobile and security preferences based on employee responsibilities. This ability enables CIOs to help protect business data – one of their top priorities – while simultaneously saving on the costs of issuing separate devices to employees.

Who is the AT&T Toggle target customer?

AT&T Toggle is an ideal solution for businesses of all sizes and industries. In fact, according to Gartner, by 2020, 85 percent

of organizations will adopt BYOD in some form. Small businesses are able to adopt AT&T Toggle more quickly than larger organizations, as they were more advanced in the mobile management environment. Companies in the health care and education industries are also big adopters.

Who specifically is using AT&T Toggle?

For example, health care institutions are moving to BYOD to reduce costs and increase productivity and convenience. Using Toggle will allow their communities to use their personal devices for work with a high level of security – which is of the utmost importance in the health care industry. Their staff will be more mobile and connected. As a result, they can improve workflow, and ultimately, patient experience and outcomes.

We can't disclose what our sales are, but we've found that a lot of companies – especially those in health care and education – are interested in BYOD.

Wi-Fi Goes Big

Wi-Fi continues to get bigger, better, and more widely available.

For example, Aerohive Networks recently announced that it's part of an Apple-led contingent that will be providing broadband tools to U.S. schools via the federal government's ConnectED initiative. ConnectED aims to shrink the digital divide, as less than 30 percent of the nation's schools have the broadband they need to teach using today's technology, according to the U.S. government.

Apple this autumn announced plans to donate \$100 million in iPads, MacBooks, and other products and tools to the one-

and-a-half-year-old ConnectED program, which aims to bring connectivity and the access to advanced learning technologies to 99 percent of schools in the United States by 2017. Details as to the scope and geography of the deployment are expected to be announced by Apple in short order.

Aerohive was been tapped to provide the wireless infrastructure – including 802.11ac wireless access points, switches, and cloud-based management – as part of the Apple effort. The gear will be deployed and

maintained by managed service provider Education Networks of America; JAMF Software will provide related mobile device management; and AT&T and Sprint will provide the wide area broadband connectivity.

Already a key player in the education vertical, Aerohive says it's seen significant growth for its solutions in schools, which like its affordability, ease of deployment, and incremental scalability. Bill Hoppin, vice president of business development at Aerohive Networks, says that Aerohive has integrated Apple's self discovery Bonjour capability into its Wi-Fi access points, which he says

makes Bonjour more manageable and scalable.

On a separate but related front, Meru Networks recently announced news related to Bon-



Its Toggle BYOD Solution

Our readers in California may be interested to know about a court ruling last year and how it relates to their interests and to AT&T Toggle. Explain.

Providing access to corporate assets via an employee's personal device isn't just a technology issue – it's a policy and a people management issue as well. Therefore, successful deployments involve stakeholders from across the organization, including HR, legal, business executives as well as IT, in developing the policies and the people strategies to effectively deploy a BYOD strategy.

The California Court of Appeals has ruled that companies must reimburse employees for work-related use of personal cellphones. The ruling is placing pressure on CIOs to modify their BYOD programs.

With AT&T Toggle, organizations have a BYOD management tool which helps them to meet the requirements of that ruling and helps satisfy the critical security concerns

of CIOs while supporting growth strategies for CEOs and enabling today's always-connected employees to efficiently balance their personal and professional lives.

What makes AT&T Toggle unique in the sea of BYOD solutions?

AT&T Toggle has helped shape the market for BYOD workspace solutions. When deploying a BYOD solution, the separation of personal and professional data is critical for both the company and its end users. Thanks to new innovations in the industry, some of the dual-persona solutions can segregate corporate data from an employee's personal data.

AT&T Toggle even takes it one step further by offering a second dedicated voice line that can be used for business calls and enables the company to purchase AT&T wireless data plans for business use. These enhancements help companies to manage corporate data while providing peace of mind to employees that their personal information won't be

shared or inadvertently erased. We believe it is an incredibly powerful offering.

With the availability of dual-persona solutions like AT&T Toggle, organizations finally have a BYOD management option that helps satisfy the critical security concerns of CIOs while supporting growth strategies for CEOs and enabling today's always-connected employees to efficiently balance their personal and professional lives. AT&T Toggle is also complementary to many traditional device management solutions.

How does AT&T Toggle integrate with other corporate solutions?

AT&T Toggle administrators can wrap and manage corporate and available third-party apps and make them highly secure for distribution through AT&T Toggle hub, a custom enterprise application store. And a third-party application ecosystem – application developers and vendors – can enable their commercially available applications for use within the AT&T Toggle workspace. **IT**

By Paula Bernier

jour. This came as Meru Networks in late October unveiled an application provisioning and management dashboard called Meru Center, and the Meru App Store, along with the first two

apps available from it.

The platform, explains Manish Rai, Meru's vice president of marketing, allows for the discovery and delivery of SDN applications. The idea here is to make it really easy to consume SDN applications, he says. Meru Center, which streamlines allocation of storage, memory and infrastructure in virtualized environments, features single sign-on, seamless backup, application licensing, and management capabilities for all Meru applications.

The Meru App Store, part of Meru Center, will eventually house a variety of IoT, SDN, Wi-Fi applications both from Meru and

from third parties. Initially, however, there are just two applications available. That includes the Meru Collaborator for Lync and Personal Bonjour, both of which Meru says are SDN applications.

Microsoft Lync, a widely used business phone and unified communications solution, requires an optimized and low-latency Wi-Fi network to support it, says Rai, adding that Meru's 802.11ac products were previously Lync certified. The Lync application is multivendor and can work on any wired or wireless application built on OpenFlow.

Personal Bonjour allows Apple's Bonjour discovery capability

to scale more elegantly. With Bonjour, which is actually a protocol that Apple devices use, when a printer or other device broadcasts its availability on the network, it broadcasts it as a packet that goes to everyone on the network. That works just fine in smaller environments like homes, in which there are a dozen or fewer devices, says Rai, but when you get into an enterprise or dorm environment with a bunch of Bonjour devices, it can overwhelm the network. Meru's SDN application addresses that problem by making the Bonjour discovery process a one-to-one rather than the existing one-to-many operation. **IT**

The Cloud, The Phone,

BY ERIK LINASK

Unless you've been living under a rock for the past few years, you undoubtedly have heard of the cloud. In fact, even in the instance you have been under said rock, you almost certainly have been using cloud apps in your daily routines.

As it relates to telecom, there is an abundance of providers capitalizing on the cloud trend. A quick Google search returned close to half-a-billion results for the term cloud phone. Further analyzing search trends in Google, you can quickly see why companies are trying to take advantage of these trends. Since the end of 2008, according to Google Trends, worldwide interest in the search term cloud phone has increased by more than 1600 percent. As with most trends, terms tend to get overused and mutated, ultimately creating confusion among users. Let's try to find some clarity.

In the most fundamental terms, cloud represents storing and accessing data and services over the Internet instead of on a local machine. The cloud is really just another term for the Internet. For the cost-conscious business, it's an opportunity to replace expensive infrastructure by purchasing lower cost services from providers that allow access via Internet connections. In some cases, companies are replacing servers and software applications, while in others, they are able to replace telecom infrastructure and gain access to more advanced systems and services without the costly infrastructure. Hence, the popularity of the term cloud phone.

So then, why is there so much confusion about cloud phone services? For starters, because few providers are willing to give up prospective customers, and confusion often creeps in when discussing business needs – which also lends itself to a discussion of terms like virtual and hosted, both of which are often used interchangeably, though they shouldn't be.

"This is where the confusion starts and where providers do a bad job of simplifying offerings," says Ron Kinkade, director

of marketing for Voxox. "There are really two kinds of services that are available in the market. To simplify these, I'll refer to them as vPBX (virtual pbx) and hPBX (hosted pbx)."

According to Kinkade, the difference is really in use case. A virtual PBX is ideal for very small businesses with fewer than 10 employees, and is particularly useful in home or mobile office scenarios. It isn't designed to replace existing phone services, but to provide additional phone numbers with enhanced features that are unavailable – or very costly – with traditional telephony.

"Imagine an event planner with a couple of assistants working from home offices," explains Kinkade. "With a virtual service, the business can add a business phone number, have callers greeted professionally, and have calls routed to a landline or smartphone based on time of day or other rules, with the ability to integrate voicemail, transcription, extensions, fax, and other features."

On the other hand, hosted PBX services are meant to replace existing phone service, allowing businesses to move to VoIP, reducing costs and integrating advanced routing and other features. Hosted solutions are available to meet the needs of nearly any size business from small businesses to enterprises, and often offer a variety of IP endpoint options. Services can also include collaboration, video, SMS, business continuity, and other virtual apps – and, of course, SIP trunking, which allows businesses that have recently invested in on-premises PBXs but want to enjoy the cost savings associated with VoIP by replacing their analog trunks or PRI T1s with SIP trunks.

For businesses that have recently invested in their own solutions – especially many of the low-cost open source solutions available – most of the SIP-based phones that work with those systems are also compatible with the majority of hosted providers, including phones from Polycom, Cisco, Grandstream, Yealink, Panasonic, and Astra.

All in all, the benefits of a cloud solution are fairly easy to recognize:

- **Lower Cost** – The price of standard analog phone systems or the PSTN can be very expensive, especially when factoring in long-distance charges. Hardware can be expensive and requires knowledge to maintain or expensive long-term contracts. Cloud-based systems provide much lower costs and the maintenance/updating of equipment falls on the provider.
- **Expertise Cost** – With in-house systems also come the personnel cost to maintain equipment. With your system in the cloud, this expense is handled by your provider. There is likely some level of support cost built into the service, or as an add-on, but it typically is substantially less than the cost of dedicated IT staff.
- **Enterprise Features** – Because providers are serving a wide range of clients, high-end features that previously were either unavailable or very costly are often accessible at lower cost, or even included in many feature packages in cloud-based solutions.
- **Voice Quality** – While at one time quality was spotty, current VoIP services are at least as good as traditional telephony and, when you factor in the G.722 codec, the wider spectrum creates a much crisper and cleaner conversation that can't be imitated by TDM telephony.
- **Service/Support** – Cloud-based systems come with simplified user interfaces and better access to support. Top providers in the space make servicing clients a priority. The UIs

The Simple Alternative

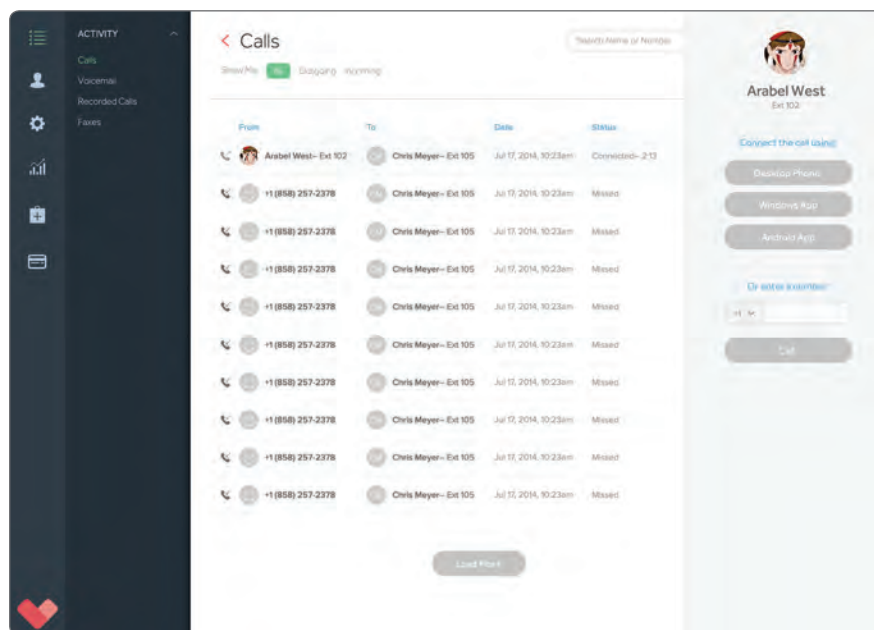
allow simple tasks, such as moves, add, changes, to be made quickly and easily, while more technical tasks are left to the provider.

Naturally, there are variations and long-term cost benefits can vary based on the level of support services, enhanced unified communications features, and other add-on options – and this, of course, is where hosted vendors and managed service providers make their money. But, while overall cost benefits can vary dramatically, the support and service means internal teams don't have to manage or maintain the infrastructure or software, and system and feature upgrades are implemented seamlessly by the provider. It is one of the oft-forgotten TCO benefits of a hosted solution. In fact, Kinkade says that support, along with cost reduction and efficiency improvements, are the three main drivers of hosted migration.

"When pricing the service out, we need to verify bandwidth availability in the building, features desired, traffic patterns, IT staff and infrastructure, as well as other items," says Kinkade. "In general, hosted systems are less expensive both to set up and in terms of monthly cost but, sometimes, a premises-based solution can be less expensive or more effective for a certain situation."

Indeed, with any technology, there is not a one-size-fits-all solution and, while simplicity has long been a key to success of new technologies, many businesses are still hesitant to move from their in-house solutions to new hosted VoIP solutions. There is plenty of support for making the sale internally based on TCO and business efficiency benefits, but the fear of complexity of migrating to a new solution still lingers.

This is where Voxox has sought to make its mark. Feature sets are more or less the same from one provider to the next, but support services and ease of implementation and use can be significant differentiators. Kinkade also says there is a



sizable market gap left by carriers not fully embracing cloud solutions and many OTT providers focusing on consumer markets, leaving businesses, integrators, and resellers without a complete cloud-based solution for all these needs.

With Cloud Phone, Voxox (www.voxox.com) has sought to achieve three main goals:

- to create simple products and offer incredible value;
- simplify virtual and hosted product offerings for both consumers and businesses; and
- provide complete solutions for dealers, agents, and wholesale partners.

With Cloud Phone – its virtual solution targeting businesses with fewer than 10 users – and Cloud Phone Pro – its newly re-branded hosted offering – Voxox has been able to bring to market a combination of solutions that allow businesses of all sizes to achieve their communications needs.

With Cloud Phone (www.cloudphone.com), Voxox has taken a complex hardware/software combination and streamlined it into a package that anyone can understand.

For instance, Fitocracy CEO Brian Wang, a Cloud Phone user, explained his motivation for moving to the service: "I wanted something really simple."

With the simplicity, however, Wang isn't giving up features, as Cloud Phone offers all the features any small business user needs at a price point that isn't going to break the budget. Rates start as low as \$10 per month for two extensions and 1,000 monthly minutes.

Cloud Phone Pro, on the other hand, is a full-featured hosted PBX, including authorized service and support partners that are tasked with providing customized solutions for each customer – including wholesale offerings for partners and carriers, and a variety of add-on features available for clients, including SIP trunking, business continuity solutions, SMS, call recording, conference bridges, fax, and more.

Voxox has made a splash quickly with its focus on simplicity without sacrificing quality, inking a deal with Lenovo that will see its platform pre-installed on the vendor's laptops, and being ranked No. 224 in Deloitte's Technology Fast 500 list. **IT**

TMC Reveals INTERNET TELEPHONY Product of the Year Award Winners

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Allworx Corp.
Allworx Interact
&
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Alteva
Alteva Mobility

ANPI
ANPI VIP Hosted Unified
Communications

Avotus Corp.
Avotus Intelligent Communications
Management Usage Management 8.4

Broadview Networks
OfficeSuite Phone

Calix
844G GigaCenter

Callture Inc.
Cloud based Business Phone Service

CounterPath
CounterPath Stretto Platform



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I-Gate PRO 4000 MGW
&
PowerMedia Cloud-Ready MRF

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Switchvox

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UCx Hosted Unified
Communications Service

EarthLink
Integrated Hosted Voice,
Mobile Communicator and Hosted
Contact Center Solution

Eaton
Eaton ePDU third-generation platform

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EdgeMarc 4750 Enterprise Session
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Audience Measurement Platform for
Adaptive Streaming

IPitomy Communications LLC
IPitomy Cloud PBX

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RFoCPRI Added to CellAdvisor Base
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Vonage Extensions/
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- Drones Go on a Wild Ride
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BYOD Anywhere in the World – International Connectivity Made Easy

Mobility – meaning mobile connectivity – has changed the way we behave, both personally and professionally. Digital interactions are the norm; interpersonal communications are becoming a challenge for many who would prefer to text or IM. On the flip side, digital communication can be much less disruptive to others and can take place at nearly any time, despite not requiring real-time response.

Especially across geographic barriers, digital communication has enhanced our ability to both conduct business and stay in touch with friends and family – if you can afford it. Despite mobile connectivity being available nearly anywhere, actually leveraging that connectivity outside your home market can be prohibitively expensive. International roaming plans can cost a small fortune – anywhere from .99 to \$4.99 per minute for voice calls and \$25 per 100 MB for data from Verizon (plus .50 per text message sent and .05 per message received). Ouch!

Enter XCom Global, which has quite a simple concept for resolving the issue – mobile hotspot rentals. XCom Global offers an

unlimited data plan for \$14.95 with its mobile hotspots (MiFi devices), which allow you to not only connect multiple devices, but with Skype, WebRTC, and other data-based calling services, voice calling is just as easy.

“It’s a very simple rental service we are upgrading across the world to create a simpler, better experience,” COO Joe Fennell told me recently. “Our target is really the major carriers who don’t offer very good international data roaming plans.”

XCom Global offers an unlimited data plan for \$14.95 with its mobile hotspots.

In fact, it is that simple. Just like you would rent a vehicle, a room, a DVD, or anything else, XCom Global lets international travelers rent mobile connectivity at rates that are much more reasonable than the embarrassingly high rates North American carriers charge.

The way it works is simple as well. XCom has relationships with typically one carrier in each local market – or two in markets where it makes sense, like the U.K., where it works with both Telefonica and Vodafone. It buys a block of service from the carriers and leases the hardware and service on a daily basis, including universal adapter kits to make charging easy.

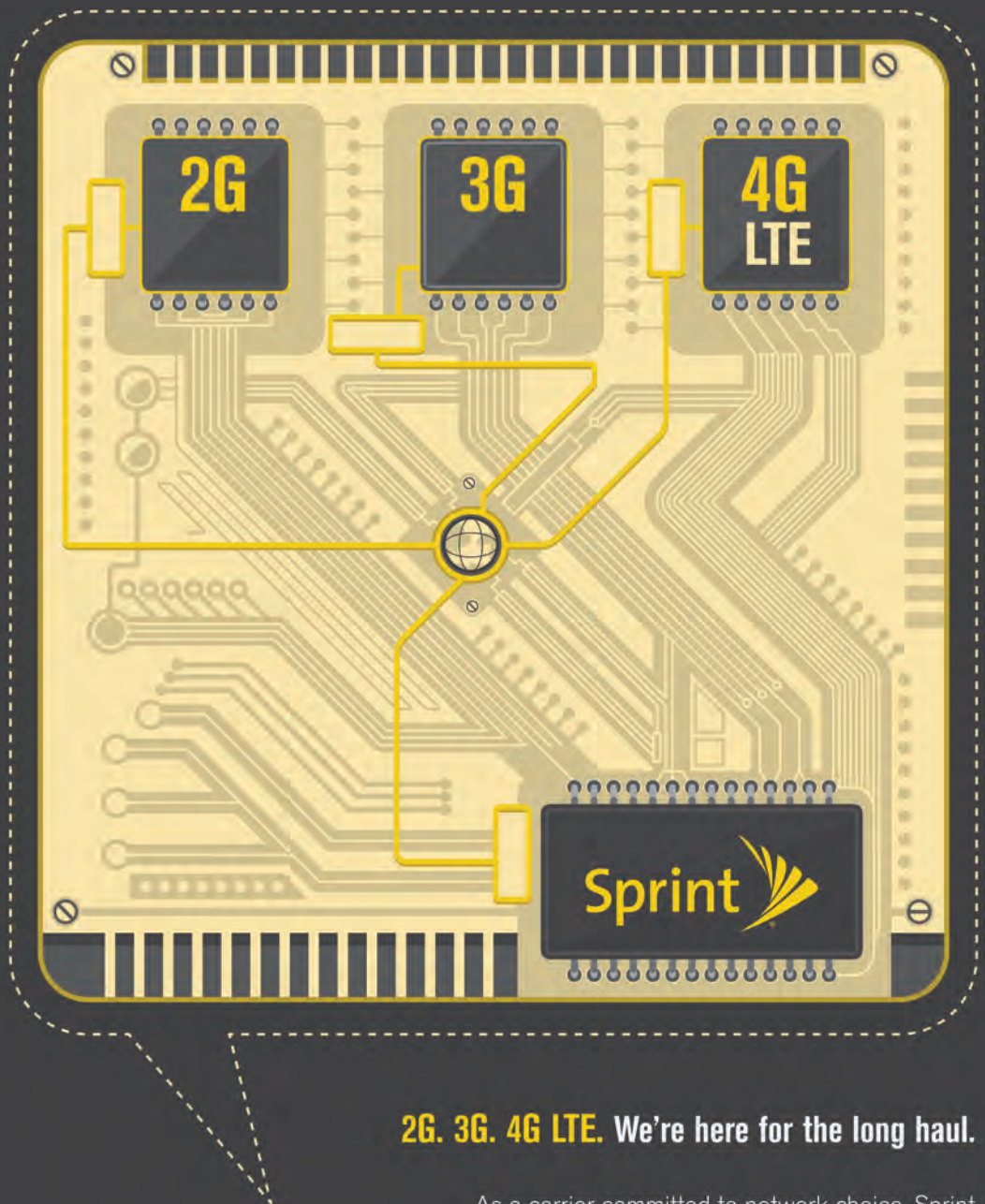
Clearly, while there is a consumer angle here, the big money will come from the enterprise customers, which have regular international travel needs and connectivity requirements.

“Smaller businesses provide a nice boost during vacation periods, but the sustainable business comes from larger corporations,” confirmed Fennell.

Who knows, however; in the future, you may have the option to rent a hotspot when you pick up a rental car, when you check into your hotel, or even when you make your flight reservation. There are many potential partnership opportunities for XCom. Anyone who has experienced the trials of international connectivity likely has no difficulty understanding the benefits of XCom Global’s service, and any of the partnerships would be welcome.

Sorry, Verizon and AT&T – you may have a grip on our domestic calling budgets, but internationally, we are free from your rates. **IT**





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