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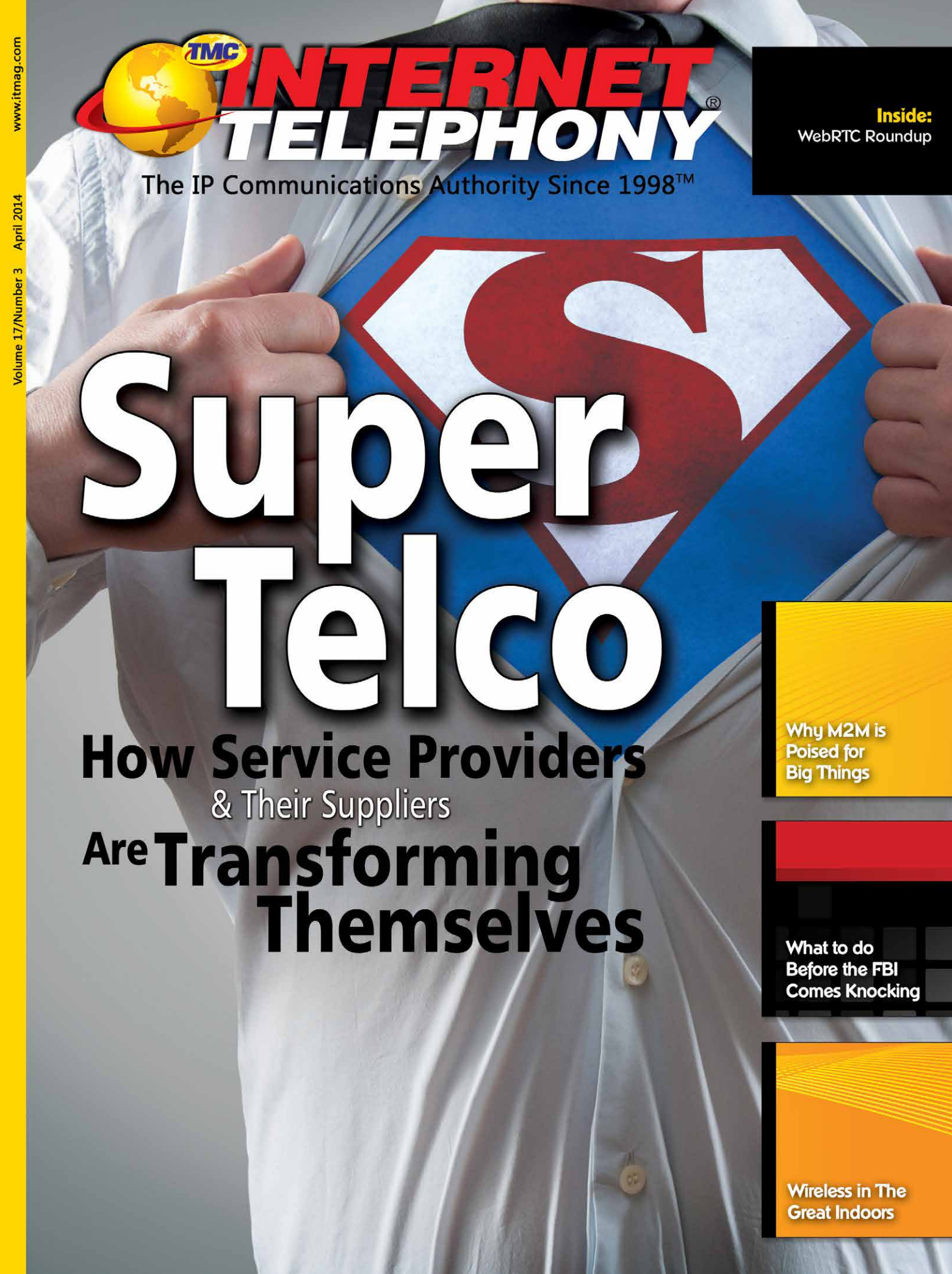
WebRTC Roundup



Super Telco

How Service Providers & Their Suppliers Are Transforming Themselves

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INTERNET TELEPHONY®

What's Now & What's Next

Facebook's acquisition of WhatsApp was the big news circulating as I was putting this issue of INTERNET TELEPHONY to bed.

In case you're not already aware (and even if you weren't before the Facebook deal, you probably are now), WhatsApp offers an over-the-top mobile messaging app that people can use to avoid cellco SMS charges. Facebook has reportedly been interested in the company for some time, and finally was able to reel it in for the generous offer of $19 billion (yes, billion).

That's interesting not only because it represents the largest ever purchase of a company backed by venture capital (Sequoia Capital, which invested $60 million) and because it involves Facebook, but also because most of us don't know what kind of revenues WhatsApp (which is just five years old and has just 55 employees) generates. The perceived value of WhatsApp, according to most reports, is in its large user base – 450 million monthly users, which is nearly twice that of Twitter.

Now the trick will be for Facebook to figure out how to monetize the WhatsApp service. And at $19 million, Facebook will have a lot of monetizing to do.

Getting its hands on the phone numbers WhatsApp has captured is also of value, as is WhatsApp's strength in Asia and the Middle East, according to Eden Zoller, principal analyst of consumer telecoms at Ovum, which forecasts that social messaging volumes will reach 69 trillion and subscribers will grow to 1.8 billion by the end of this year.

"The access to phone numbers now bridges the offline and online worlds of Facebook users," says Zoller. "WhatsApp will also enhance Facebook's mobile strategy and make the service grow faster and be stickier with mobile first users. Facebook will in turn provide WhatsApp with the funds and resources it needs to develop the service and become an even stronger competitor in an increasingly over crowded messaging market."

Over crowded indeed. As this issue's cover story discusses, the telephone companies are scrambling as they see over-the-top services such as Skype and WhatsApp eating into their revenues.

The move by Facebook to acquire, and possibly strengthen, WhatsApp, and Microsoft's previous move to snap up Skype, further illustrate the value – and the threat – of over-the-top players and offerings. And all of the above only strengthens the argument that telcos need to move fast to figure out how to respond to that threat both by providing their own over-the-top offerings and by retooling their networks to be more flexible so they can turn on a dime and quickly introduce and tweak new service offerings as needed.

We'll discuss all of the above at Software Telco Congress – The NFV Event, which INTERNET TELEPHONY parent company TMC will be holding Aug. 11-14 at The Rio – Las Vegas. For more information, visit www.softwaretelco.com/conference/.

As I mentioned in this column a couple months ago, at the moment telcos appear to be more interested in moving to agile networks based on network functions virtualization and software-defined networking technologies primarily in an effort to lower their operational expenses. In fact, Craig Farrell, vice president and CTO of the global telecom industry practice at IBM, said just that at our last Software Telco Congress.

What telcos should, and to some extend already are, thinking about and moving toward is a completely new way of looking at networking in an effort to be more responsive to customers and the market so they can survive and thrive in the age of the over-the-top service and Internet time.

As Phil Harvey, director of corporate communications at Metaswitch, aptly explained during a panel at the recent ITEXPO event: "We're asking service providers to fundamentally change some part of who they are and embrace a new approach to product development and service development."

But, as the move by AT&T, BT Group, Deutsche Telekom, Orange, Telecom Italia, Telefonica and Verizon to create the ETSI Network Functions Virtualization Industry Specification Group back in 2012 demonstrates, it's not just telecom vendors doing the asking. The telcos themselves seem to be doing some real soul searching – and, more importantly, taking action.

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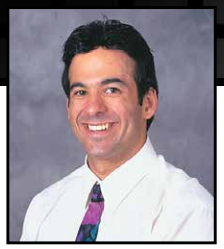

Why I'm Neutral on the Comcast, Time Warner Cable Deal

There has been lots of controversy over the merging of two of the largest cable companies Comcast and Time Warner Cable. Concerns range from fear of a monopoly to worse customer service to higher fees and data caps.

Jim Edwards at Business Insider, for example, says you will get screwed if the merger goes through. Consumers Union thinks if the merger happens, prices will increase and service will suffer. Peter Radizeski, who I consider to be a foremost expert on telecom and M&A, hates the deal, saying it is terrible for consumers.

Radizeski's blog on the topic reads as such: "'The transaction will generate approximately $1.5 billion in operating efficiencies.' IN THEORY! The only operating efficiency will be the reduction in personnel. So even more layoffs in the telecom space. Awesome! The FCC's sole job is to protect the consumer. This is not a pro-consumer move. We already have enough too-big-to-fail companies with massive debt and flat markets."

Another TMCnet writer, Tracey Schelmetic, penned a piece titled Comcast Can Afford to Buy Time Warner But Not To Improve Its Awful Customer Service?

Tara Seals, also a TMCnet contributor, noted Free Press and Public Knowledge comments indicating the combined company would have outsized influence when it comes to negotiating content deals and network peering arrangements.

Cable companies are fascinating because they are government-sanctioned monopolies in their own areas so a merger of two companies doesn't change much since they don't really compete with each other. In other words there should be less concern than if two large oil companies like Exxon and Mobil wanted to merge as their gas stations compete on price on many street corners.

From a competitive standpoint both of these cable companies are seeing an onslaught from the phone and wireless competitors – in many cases from both at once. In fact, a wireless broadband router can easily replace a cable connection and with bonded LTE-A around the corner, the speeds of wireless will actually be faster than wired for many households.

If that wasn't a big enough of a threat, Google Fiber is a solid alternative that will potentially put even more pressure on cable companies. Which would you want: broadband from your cable company or Google broadband with a Chromebook, Chromecast, enhanced Google cloud storage and an Android device thrown in?

Speaking of Chromecast, YouTube, Xbox, Netflix and Hulu are just some of the serious competitors to cable companies at the moment. I wager we all know people who have cut the TV cord at home and are getting all their video from OTT providers.

The reality is this merger gives these companies economies of scale to compete effectively and lower prices if needed.

The flipside to this argument comes from Doug Mohney who writes for TMCnet sister site TechZone360 that Verizon's lowering of prices yesterday is a direct result of competition from T-Mobile. Moreover, this competition comes because AT&T was not allowed to acquire the company. Meaning, the more competition you have in the market, the lower the prices.

A few years back I argued against the T-Mobile acquisition on the basis that small telecom equipment and software companies would be shut out of working with smaller carriers and would in-turn negatively impact choice in the market. I am still a believer in this idea, and it holds true as a reason to block this merger.

So in the end I am neutral on the acquisition – I think it will be bad for equipment and software companies, but it will allow the combined company to compete more effectively with satellite, phone and Google, who I expect to become a major force in the market over the rest of the decade.

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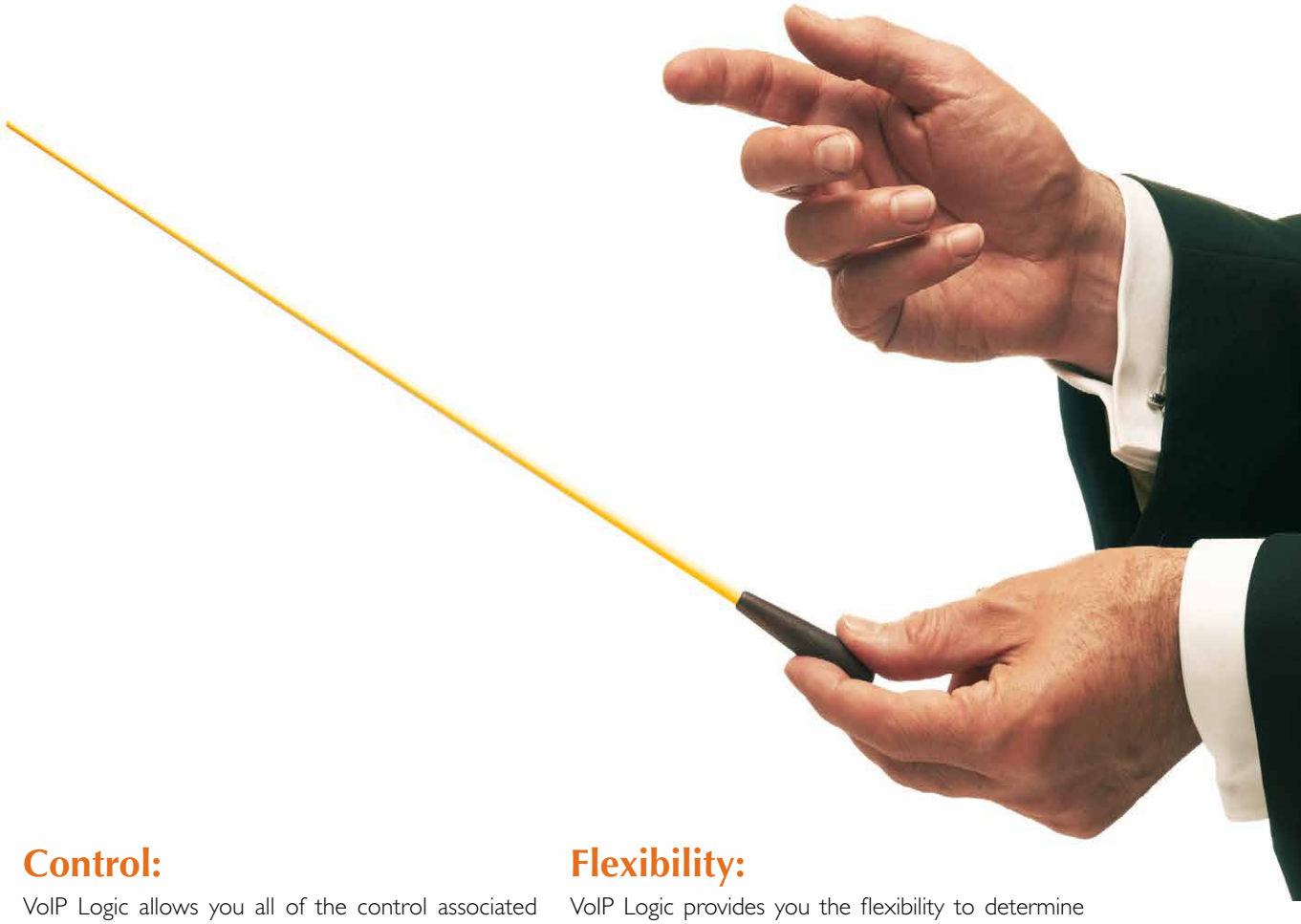

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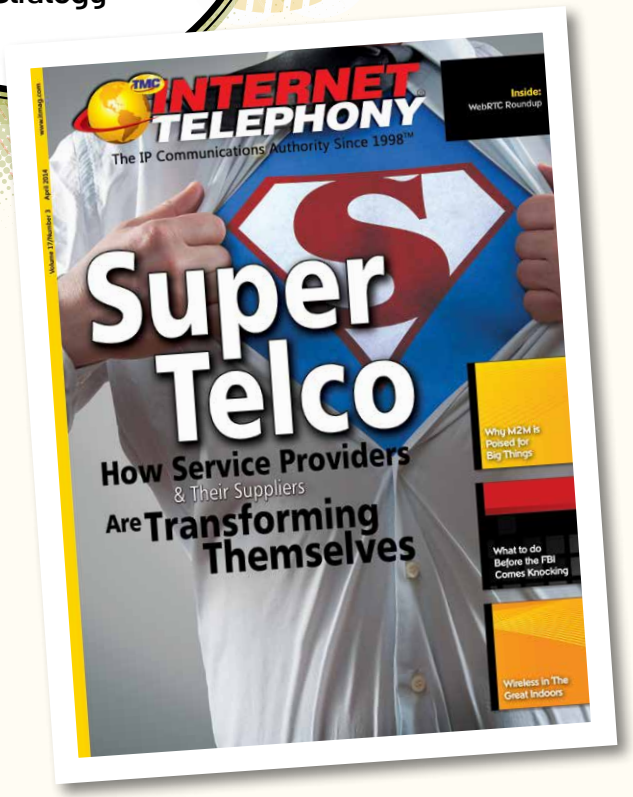

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By Steve Bock

A Cloud Provider's Checklist for CALEA Compliance

(Or, What to do Before the FBI Comes Knocking)

Nearly a decade has passed since federal policymakers expanded the reach of the Communications Assistance for Law Enforcement Act to VoIP, cloud, and certain broadband service providers. Yet a surprising number remain in the dark over their responsibility to comply with the law and provide technical support to law enforcement for lawful intercept.

Make no mistake: If you are a CALEA-defined "telecommunications carrier" and you operate in the cloud, CALEA compliance applies to you. You must have a technical solution to implement a court order or an "exigent" (emergency) request for surveillance, and the people and processes in place to carry it through successfully.

By being fully CALEA compliant in advance you can avoid a day in court.

CALEA compliance is complex. However, by taking the right steps in advance, your company can jump into action when and if a court order for lawful intercept arrives, and avoid penalties and legal injunctions for failure to observe the law.

Here are two straightforward checklists: one on how to select and implement a technology solution, and a second on the necessary staff and planning processes.

How to Choose and Set Up a Surveillance Technology Solution

There are five basic areas to consider when selecting and implementing a technology solution for CALEA compliance:

Network Topology Check first to see that the surveillance solutions under consideration work with your specific network topology. And, as importantly, make sure the solutions are standards-based to meet the exact technical requirements specified in CALEA.

Choosing the Right Technology There are two types: active and passive. An active surveillance solution uses a mediation device. Passive probes tap network segments and perform deep packet inspection on designated traffic. Active solutions scale for large networks and are typically more expensive than passive probes, which are designed for smaller networks.

Configuring the Device Active solutions require a range of commands and protocols that sync with a switch or router to provision, capture, and mediate targeted data. Passive solutions require a probe connected to a network SPAN (Switch Port Analyzer) to access the data flowing across a network. Whether active or passive, the solution must be configured.

Provisioning Administration Interface and the Database A specialist must configure the administration interface or terminal that offers a unified mechanism to administer different network and target types; and the database that stores the system configuration data, target criteria information, users' information, and activity logs.

Testing Once deployed, the solution must be tested to ensure it operates on-demand and meets industry-acceptable standards.

The Plan and the Process

Compliance involves a lot more than just technology. You will need a plan and a process in place to manage your surveillance solution. That involves:

Expert Staff The service provider must designate technical and legal staff to manage the intercept process when a court order arrives. Legal experts must review each court order to ensure that it is correctly worded so that the data captured during an intercept will be admissible in court, and that the privacy of other subscribers is protected as specified under CALEA. An engineering team will need to switch on the technology solution to capture the target's communications traffic, shut it down when the intercept time period expires, or modify the intercept to capture different data if the court order changes mid-stream during an investigation. Finally, the service provider must assign someone to ensure that the targeted intercept data reaches the appropriate law enforcement agency.

Compliance Plan Every detail of your CALEA compliance program must be put in writing in a System Security and Integrity Plan, which is then filed with the Federal Communications Commission in Washington, D.C.

Avoid Your Day in Court

There is no way around CALEA compliance, and the pressure is on. Authorized intercepts nearly tripled between 2002 and 2012, and that's for "full content" orders alone. Add other forms of lawful intercept such as "pen/traps" that record telephone numbers called by targets, and the count goes higher.

Ignorance or denial of the law is not a defense. Excuses don't fly before a court of law empowered to demand your explanation and levy fines up to $10,000 per day for any failure to comply. By being fully CALEA compliant in advance you can avoid a day in court.

Steve Bock is president of Subsentio (www.subsentio.com).

By Barlow Keener

Spectrum Sharing Summit
Commercial Production is Here

From Jan, 29-31, 2014, the Super Wi-Fi & Shared Spectrum Summit gathered in sunny Miami Beach. Hosted by Crossfire Media in conjunction with the M2M Evolution conference, the summit will reconvene again on Aug. 29 in Las Vegas. Super Wi-FI, aka TV white spaces, TVWS and spectrum sharing are gaining strong momentum from regulators, engineers, and mobile carriers as the most effective solution for the feared spectrum crunch.

The Miami conference buzzed with excitement as reports on the first commercial deployments and production started for the shared spectrum database-controlled broadband radios. One of the main points of the conference was an industry move away from the debate of licensed vs. unlicensed spectrum. As pointed out by speakers like John Malyar, iConectiv chief architect, the database is constantly updated by real-time data from regulators, carriers, licensors, public safety, geographical requirements, terrain, and radio locations. These database parameters would determine which spectrum slice a software-defined network database-controlled radio can use and when.

There were several big takeaways from the summit, including:

Standards New IEEE standards 802.11af and 802.22 are being implemented in pilot radios, as pointed out by Hitachi Kokusai Electric's Toh Keatbeng and Dr. Hiroshi Harada of NICT. IEEE 802.11af would provide a standard for short haul such as using 470-698mHz inside a home to propagate as much as 426mbps using four spatial streams and four bonded channels down to the basement and far outside the backyard to a tablet enabled with 802.11af. 802.22 would deliver standardized long-haul broadband through trees. Chipsets will dramatically lower the costs.

Through the trees Wireless ISPs are buying SDN 470-698mHz agile radios and getting solid results. The new radios are delivering broadband where 3.5gHz WiMAX and 900Hz radios failed completely. Ken Garnett, CTO for Cal.net, gave a spell-binding presentation showing actual propagation comparisons of WiMAX 3.5gHz and 900mHz to the new 470-698mHz radios through real trees and hills. The results proved that super Wi-Fi is a thriving ecosystem.

TV incentive auction uncertainty Economist Dr. Giulia McHenry of Brattle Group; Marty Stern of K&L Gates; and Bruce Jacobs of Pillsbury Law forecasted that it was likely that more available spectrum would be unleashed by the auction than is now available in NFL cities by dedicating the duplex-guard band and other new spectrum to unlicensed TVWS use. However, all noted that until the FCC provides an order defining the auction in more detail, their prognostications are merely best guesses. The panelists were more certain that available TVWS spectrum would remain in rural areas because there was already more than enough vacant spectrum.

> One of the main points of the conference was an industry move away from the debate of licensed vs. unlicensed spectrum.

Satellite sharing Counsel for the four major satellite firms discussed sharing issues with economist Armand Musey of Summit Ridge. Globalstar's Vice President Barbee Ponder, Lightsquared's Executive Vice President Jeff Carlisle, SES's Senior Vice President Gerry Oberst, and Dish's Senior Vice President Jeff Blum explained that with the spectrum crunch, satellite companies are proposing new methods for using available terrestrial spectrum. There is the unresolved problem of poorly designed GPS radios receiving interference by operating outside of the assigned spectrum.

FCC approval for Carlson Radio Carlson Wireless CEO Jim Carlson reported that Carlson got approval for the third commercial SDN controlled 470-698mHz radio.

West Virginia bus nomadic connectivity pilot Adaptrum's Darrin Mylet reported on a pilot with the University of West Virginia where Wi-Fi was delivered nomadically to buses driving through tree-covered areas in Morganton using TVWS Adaptrum radios. Nomadicity is the first step to mobile use.

The Customers: Video & M2M Wireless ISPs are the primary buyers but are accustomed to purchasing lower cost 900mHz and 3.5gHz WiMAX radios. However, KTS's Andy Mancone and Meldtech's imediaReach Gary Bonner explained that other industries such as national parks, stadiums, oil and gas, construction, heavy equipment, and M2M are buying and are not so price sensitive.

Gigabit Libraries delivering Wi-Fi hotspots Don Means, founder of the Gigabit Libraries presented on the application for the new Super Wi-Fi by public libraries. Libraries across the country responded and purchased TVWS radios to deliver Wi-Fi out to various points beyond the library building.

The enthusiasm among the attendees was clear, and Super Wi-Fi should have a good year in technology improvement and in revenue growth.

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

By Hunter Newby

Net – Net, Who's There?

The fact that the net in net neutrality actually refers to the term network and is not a reference to the Internet is lost. The difference between network and the Internet is profound, and the results of the confusion of the legal definitions and functions of each are then therefore profound as well.

The statement by FCC Chairman Thomas Wheeler alludes to this difference. It also alludes to where the power and control to create rules and enforce them sits and where it is a bit hazy.

The FCC website says that FCC Chairman Thomas Wheeler issued the following statement regarding an opinion issued by the U.S. Court of Appeals for the District of Columbia on a challenge of the commission's Open Internet rules: "The D.C. Circuit has correctly held that 'Section 706 . . . vests [the Commission] with affirmative authority to enact measures encouraging the deployment of broadband infrastructure' and therefore may 'promulgate rules governing broadband providers' treatment of Internet traffic.' I am committed to maintaining our networks as engines for economic growth, test beds for innovative services and products, and channels for all forms of speech protected by the First Amendment. We will consider all available options, including those for appeal, to ensure that these networks on which the Internet depends continue to provide a free and open platform for innovation and expression, and operate in the interest of all Americans."

There are two key factors with this that are actually one – creation and enforcement of rules and the network, be that access to the Internet, or the Internet itself. Both are about control.

First off, the FCC very magnanimously states that the court was correct. The FCC has not just authority, but affirmative authority, so it is very clear that they have power. The power that they have enables the commission to "enact measures" that "encourage". That sounds like having the power to instill aspiration. As a result of this power the FCC therefore is allowed to promote, or make widely known, the rules that govern broadband providers' (network) treatment of Internet traffic, but it doesn't seem that the FCC has the power to create those rules, and there is no mention of the ability to enforce rules. They can just promote the rules that already exist, or are created by another entity, or person, if they so chose to do so.

So, the FCC can enact measures that encourage the deployment of network infrastructure that the Internet requires and depends on to exist, but it cannot create that infrastructure itself and, or create the rules governing how the Internet traffic is treated. It sounds like those that build their own broadband (a.k.a. fiber) networks can create their own rules and enforcement is just executing on the business plan. That sounds very similar to the FirstNet model.

Interestingly, the D.C. circuit court judge, Judge David Tatel, was not saying that control of the network by the owners/providers with no oversight was what he was in favor of. He actually said: "The commission has adequately supported and explained its conclusion that absent rules such as those set forth in the Open Internet Order, broadband providers represent a threat to internet openness and could act in ways that would ultimately inhibit the speed and extent of future broadband deployment."

The difference between network and the Internet is profound, and the results of the confusion of the legal definitions and functions of each are then therefore profound as well.

Judge Tatel was really, specifically ruling that the FCC does not have the power over providers that sell access to the Internet to require them to treat all Internet protocol traffic that is going to, or from the Internet equally. So, that then leaves us all with the question, if the FCC cannot create, or enforce Open Internet rules, who can? This situation brings to mind The Golden Rule. The one who has the gold makes the rules. In this situation fiber is the gold.

The U.S. national broadband and Internet policy is like a riddle wrapped in a knock-knock joke. Net – Net, who's there? No one. No one who? No one, who knows who.

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

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Cloud or On-premises

By Michael Stanford

Anonymity and Privacy

The Internet used to be the great anonymizer. 1993 saw the famous New Yorker cartoon: "On the Internet, nobody knows you're a dog."

Times have changed. Now on the Internet, Google knows more about you than you know about yourself. Amazon watches your behavior through your browser, logging which pages you visit, how long you stay on each page, even how long your mouse lingers over a button or link. It knows your buying history and selects ads designed to appeal to you.

A new technology called Bluetooth LE beacons aspires to do for bricks and mortar retail stores what browser monitoring does for Amazon online. The beacons dotted around a store triangulate into a smartphone app and enable the retailer to track how long you linger at each spot in the store, allowing the store to tailor specific offers to nudge you into a purchase. A new(ish) technology called addressable TV allows TV broadcasters to work like direct mail, targeting ads to particular individual set-top boxes, based on demographics like party registration and home ownership.

But a smartphone app alone has the potential to do far more egregious spying on you than this. For example, your Android phone tells Google how fast it is moving. That's how Google marks traffic congestion on its maps. By the same token, Google knows whenever you are speeding, and of course everywhere you go, and how long you spend there. Your cellular provider (and the NSA) knows everybody you call or text. There's no need to marvel at how accurate LinkedIn is at suggesting your acquaintances; it uploaded your address book – and theirs.

The accelerometer in your phone knows when you go to bed and when you get up. It can estimate how much exercise you are getting, and diagnose some neurological disorders like Parkinson's disease. With millions of fertile minds dreaming up new apps, and as new sensors are added to phones over time, the mind-reading powers of your phone will continue to evolve.

In 1999 Scott McNealy of Sun was pilloried for saying "You have zero privacy anyway. Get over it." In retrospect it seems like sage advice. But if you (like me) are interested in a quixotic rearguard action, Phil Zimmerman's new Blackphone may be of interest.

Michael Stanford has been an entrepreneur and strategist in VoIP for more than a decade. (Visit his blog at www.wirevolution.com.)

By Max Schroeder

Timing is Everything

Timing is everything is a phrase commonly associated with new product launches or financial transactions. Were you too early, too late, or spot on? Cisco went public in 1990 at $18 a share. The stock jumped 24 percent on the first day, and some players cashed in their winning chips. By 2000 the stock was up more than 50,000 percent, so holding the Cisco hand was also a winning decision. However, the actual winning strategy was playing the Internet poker game in the first place and selecting Cisco as the best bet on the table.

In 2000, I can recall several discussions with ardent advocates of H.323, who held the position that SIP was not going to be a winning hand. Time has definitely proven them wrong. TMC covered SIP early on, which helped a lot of vendors and resellers get the information needed to make the right communications choices. Some companies like Dialogic and FaxCore bet on SIP early. Ingate and ShoreTel doubled down by also betting on SIP trunking. So, you may ask, how can I get dealt a winning hand? The answer is by letting the past be your guide.

TMC has been a leader in the coverage of communications technology for a long time and is again leading the way with its coverage of WebRTC, an open standard that works within a web browser. A major advantage is the simplicity in writing a WebRTC application. You can begin with just a Notepad application and a browser. Some live WebRTC demos have even presented how to code a WebRTC solution in a matter of minutes. A recent report by Smith's Point Analytics, titled "WebRTC and Cloud RTC Platforms: Communications as a Feature," predicts that real-time communications technology could be a $4.5 billion opportunity by 2018. Also mentioned in the report is that 2014 is a critical year for cloud RTC and WebRTC platforms.

One thing any successful bettor will tell you is that to win you will have to be sitting at the table and playing. You can reserve your place at the table by registering for the WebRTC Conference and Expo IV, June 17 - 19, 2014 at the Cobb Galleria in Atlanta, Georgia. Your time is now – go to www.tmcnet.com and register today.

Max Schroeder is vice president emeritus of FaxCore Inc. (www.faxcore.com) and co-chair of the SIP Forum Fax-over-IP Task Group (www.sipforum.org)

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20 Notable Communications Infrastructure Products by CRN — CRN

By Jon Arnold

Is Voice Really Dead?

ITEXPO continues to evolve, and the latest iteration recently took place in Miami Beach. A welcome addition was the SmartVoice track, where the current state of voice communications was closely examined.

Before IP came along, voice only meant one thing – telephony. Of course, if you take technology entirely out of the picture, voice means face-to-face communication. For all kinds of reasons, this is the mode of choice, unless you're hearing impaired or don't speak the language.

We prefer voice not just because it's real-time, but also because it creates intimacy. There is much more to voice than the words being spoken, and that simply doesn't apply to other modes. While this may be our preferred state for communicating, it is becoming less common given how atomized the workplace is now. Telephony is effectively the next best thing for most of us, but with IP, this is not the only way to do voice.

There is much more to voice than the words being spoken, and that simply doesn't apply to other modes.

In one way, VoIP adds value by making voice more accessible beyond landline telephony, namely via Wi-Fi on mobile devices, via the PC with services like Skype, as well as via a softphone on those same PCs. While more is better in this case, VoIP also reduces telephony to a commodity by making it so easy to do. VoIP providers don't need to run their own network, and you don't even need a phone to use the service.

Countering this, however, is the fact that VoIP is data, and packets flow over data networks at virtually no cost. Since the cost of providing VoIP is lower than legacy telephony in every regard, the prices charged for the service are lower as well. While this is great news for subscribers, it renders the conventional business model unsustainable.

This poses major challenges for service providers, and to survive, they must find new ways to add value.

Martin Geddes was the keynote speaker during the SmartVoice event, and his focus on what he calls hypervoice is one approach to consider. The theme for SmartVoice was voice is dead, with the implication being that carriers have to move beyond telephony to make money. In my view this proclamation is a bit misplaced, as it only applies to voice in its current form.

Semantics aside, the main message is to stop thinking of voice as an audio mode of communicating. Instead, carriers need to view voice as being raw information that does more than convey speech in real time. This isn't such a big leap when you consider that VoIP is just a series of packets consisting of digitized strings of binary code. In this regard, voice carries a great deal of information about callers, their device, their location, etc. When that information is integrated with other forms of digital content in the network or even with the party being called, that voice call has value beyond the real-time conversation those parties are about to have.

Carriers have traditionally viewed voice as telephony, and in that context, it's fair to say that voice is dead. Despite the advances in technology, however, the primacy of voice doesn't change. We still need to speak to each other as often as before, but the monetary value of that experience continues to fall. In other words, carriers don't have to convince subscribers that they should still keep talking.

While there may be less money for the carriers here, there is an unrealized potential in the information that goes alongside these voice conversations. This potential will remain unrealized unless carriers find ways to utilize the information in those voice packets, either to enhance the value of phone calls, or create new forms of value elsewhere. Prime examples noted during SmartVoice would be call recording or voice-activated applications, especially those that can trigger transactions. Another would be person-to-machine, where the endpoint has enough intelligence to process voice-based messages into actionable responses.

Building on this, we have the emerging field of predictive analytics, along with the broader umbrella of big data. When voice is reduced to data, it can be readily integrated with other forms of data, meaning that a simple voice conversation can tell us a lot about a caller's previous behaviors and preferences, along with how this might predict his or her future behavior with the other party on the call.

This is getting a bit ahead of where we are today, but provides an indication of what Martin is getting at with hypervoice. In short, with VoIP, a conversation is more than just a conversation, meaning that a voice call can have more value beyond what can be charged for a phone call. Taking this a step further, Martin frames this in terms of the virtual experience being better than the real experience. As noted earlier, a face-to-face conversation only imparts information in the moment.

The virtual experience of a VoIP call over an IP network can add to that conversation by triggering other activities or processes without asking any more from the parties on the call. This is something that the carriers will eventually monetize, and when that happens, they may echo the chorus for voice being dead, but they'll also be glad that people are still talking.

Jon Arnold is principal of J Arnold & Associates, an independent telecom analyst and marketing consultancy.

By Steven Johnson

What is Necessary for SIP Trunking: The PBX

One of the critical elements of a SIP trunking installation is the PBX. A PBX is the central switching system for phone calls, video calls, e-mail, fax, instant messaging, conferencing solutions, SMS, and mobile telephony within a business. The PBX handles internal traffic between stations and acts as a gatekeeper to the outside world.

A PBX offers shared access to limited resources. Rather than having a separate line for each phone, a PBX allows a business to share a smaller pool of lines across the entire business, saving money. It serves as the backbone of your business, providing call routing, call transfer, voice messaging, and more.

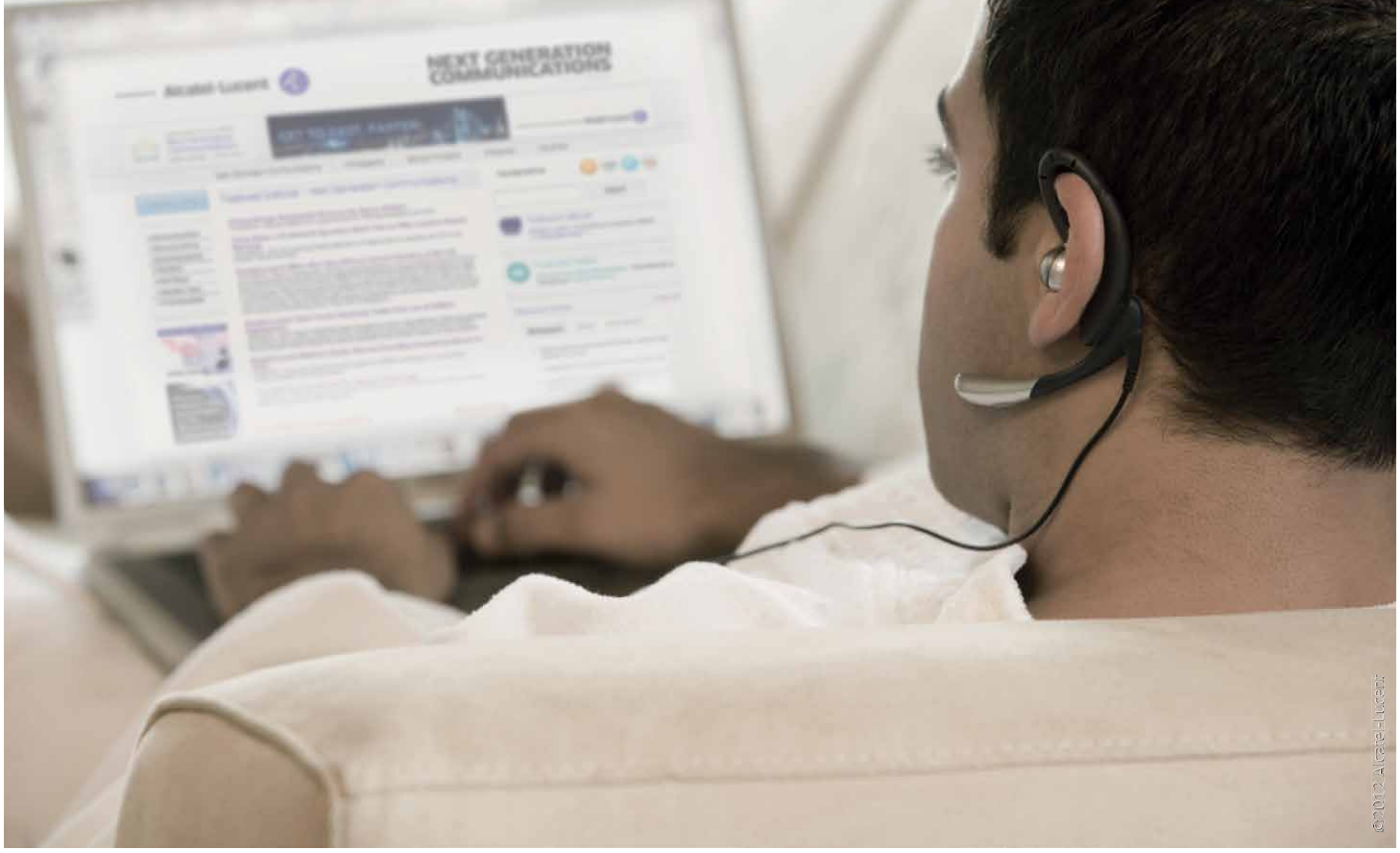
An IP PBX offers even more advantages. For employees it means mobility, with access to voicemail, SMS, presence, and more. An IP PBX also affords more communications options – fax, video, video surveillance – giving you more products to offer customers. It also means you have an interconnected business with one platform for all communications, and boosts productivity with videoconferencing and other real-time communications capabilities.

(Grandstream gave an informative presentation on the benefits of PBXs at the recent SIP Trunking, UC and WebRTC Seminars at ITEXPO, available online on the Ingate Website).

One of the problems for end users and SIP trunking service providers is interoperability between the service provider's telephony switches and the PBX at the customer premises. To be truly effective – and secure – every customer's IP PBX must work seamlessly with the SIP trunk service. Achieving certification with every vendor is a costly and time-consuming process, but very necessary.

The solution: utilizing an enterprise session border controller at the edge of the network, which serves as a normalization engine – or universal adapter – connecting the PBX to the SIP trunk and supporting requirements for authentication and signaling. With a single E-SBC, the carrier is instantly, truly interoperable with the IP PBX, offering its customers the reliability of a proven interop solution.

Steven Johnson is president of Ingate Systems (www.ingate.com).



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AT THE SPEED OF IDEAS™

By Jim Freeze

Consumers Ask for Omni-channel Customer Service
Are Companies Returning the Call?

The majority of American consumers say they should be able to pick up a customer service interaction about the same issue right where they last left off – 91 percent of them in fact. Unfortunately, less than 40 percent of them have actually been able to do so according to a survey we conducted with consumers who have contacted customer service.

This disconnect is concerning to say the least, and it has not gone unnoticed. More and more, consumers are pushing brands to address their service dissatisfaction, as they are plagued with sounding like a broken record to get resolution. For example 89 percent are annoyed when they have to repeat themselves about a customer service issue.

This frustration could be why 80 percent are demanding major customer service changes by the companies they do business with. And what is that change? Omni-channel.

Omni-channel customer service is the ability for customers to begin an interaction on one channel or device and seamlessly continue on another without feeling alienated, forgotten, or having to start all over again – all channels, all the time, all devices, fully integrated. But a clear distinction needs to be made between omni-channel and multi-channel. Multi-channel is offering customer interaction on all the channels through which a customer wants engagement with a company. The difference is in the integration of those channels. Omni-channel, by contrast, is the linking and connecting of those channels so that customers are able to have an uninterrupted conversation even if they move from one channel to the next. The data and context is available on both so if a chat about a sick kitty and its vitamin dosage for example turns into a call, that consumer is able to pick up where he or she left off without having to repeat little frisker's story. The agent on the phone will know exactly where to pick up the conversation.

But it doesn't just benefit the consumer. Omni-channel creates business value by building higher customer retention and loyalty because of the differentiated care shown by the organizations that deliver it. Because omni-channel customer service can develop unique and personal relationships with customers, it is the next horizon in customer service.

How do companies get there? Bringing on omni-channel requires consistency, knowledge and openness.

- Be consistent: Just 57 percent agree that their experience is consistent no matter how they contact customer service.
- Have, and use, the right info: While 94 percent say customer service should have the most up-to-date information on them no matter the care channel, nearly half (47 percent) say the data customer service typically has on record rarely seems to help resolve their issue.
- Break down the silos: As the lines blur between brick-and-mortar and online transactions, 91 percent want customer care to be more informed about current promotions.

It's clear that omni-channel interaction is what consumers are calling for. And ignoring this call is futile for any brand that wants to keep up with its ever-changing consumers.

Jim Freeze is CMO at Aspect (www.aspect.com).

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By Frank Yue

Delivering a Quality VoLTE Experience Depends on Policy

Service providers are working to roll out VoLTE services within the next couple of years. They are being cautious with their deployment as they transition from circuit switch-based voice services to voice over the LTE IP infrastructure. The voice call will be sharing the same infrastructure as other Internet data communications within the S/Gi interface. Service providers need to ensure that the voice calls receive the appropriate priorities and have policies applied to ensure that web browsing and video streaming services do not adversely affect the voice quality.

The LTE architecture brings significant changes to the signaling for voice communications. Legacy circuit-switched protocols such as SS7 used in 2G/3G networks are making way for IP-based Diameter and SIP messaging. It is essential to leverage the control plane messaging provided by Diameter signaling and SIP to gain insight into the subscriber intentions for the VoLTE call. That insight can then be used to define the appropriate policies through the policy and charging rules function and apply those policies through the policy and charging enforcement function or traffic detection function within the S/Gi network.

Before any kind of action can be taken to deliver QoS or manage the voice call itself, the service provider must understand the nature and importance of the call. A call to my colleague has a different relative importance when compared to a call to the fire department or emergency services. Other factors may be taken into effect when determining the priority and importance of a VoLTE call such as time of day, potential importance of caller and receiver, and network congestion.

The service provider can gain insight into these parameters and others, by inspecting the Diameter and SIP messages associated with the call along with the monitoring of its network. Based on the service provider's understanding of the relative importance of the call, policies can be defined within the PCRF based on the subscriber profile. Once the policy for the call has been established, it is now just a matter of applying that policy.

It is critical to leverage this information and the policy that has been created from it. The bearer channel of the VoLTE call traverses the SGi interface in the LTE network using the RTP and RTSP IP protocols. Since this traffic has to compete for SGi resources like bandwidth, firewall services, and VAS solution capacity, it becomes critical that the service provider apply appropriate policies to the data traffic to maintain the expected levels of quality that both the service provider and subscriber expect.

The application of the policy defined within the PCRF typically occurs at the PCEF and recently defined TDF. Here, various data management tools are utilized, including rate limiting, application of QoS priority tags, and intelligent traffic steering to VAS solutions to optimize certain classes of traffic. As an example, if there is congestion on the network, the service provider may apply a high priority QoS tag on the VoLTE RTP communication stream to force the network infrastructure to drop lower priority traffic such as web surfing before the VoLTE call is affected. In addition, the service provider can steer all streaming video traffic to a VAS solution that compresses and optimizes the video stream, making more valuable bandwidth available to VoLTE calls.

> Service providers may want to deliver tiered subscription plans that have differing levels of guaranteed quality for VoLTE calls.

One of the questions that all service providers have is whether they can generate new revenue streams based on the new network architectures and shifting subscriber habits. While it is critical that service providers deliver the quality and priority for VoLTE calls for emergency and other essential services, there is a lot of flexibility concerning the handling of all other calls that subscribers place.

Service providers may want to deliver tiered subscription plans that have differing levels of guaranteed quality for VoLTE calls based on the premium that the subscriber is willing to pay. They may also look back at subscription models used in the past such as applying different rates for in-network calls vs. out-of-network calls.

Ultimately, the service provider has the ability to create different service packages based on delivering tiered quality of experience plans for VoLTE to the subscriber. They must understand how to extract policy from the control plane protocols and apply those policies in a meaningful manner to provide value to their subscribers. When designed and implemented properly, VoLTE is a technology where everyone wins.

Frank Yue is technical marketing manager with F5 Networks (www.f5networks.com).

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By Paula Bernier & Rich Tehrani

Super Telco

How Service Providers and Their Suppliers Are Transforming Themselves

Carriers are scrambling as they see over-the-top services such as Skype and WhatsApp eating into their revenues. Indeed, OTT players have captured 30 percent of voice traffic in seven years, and now service provider voice growth is around 3 percent per year.

In response, carriers have joined forces to develop standards that will allow their telecom equipment to run on off-the-shelf servers so they can more effectively compete with their app-based competitors. This initiative, known as network functions virtualization, or NFV, will help turn hardware-based telcos into software telcos – allowing them to be more flexible in rolling out new offerings while saving money in the process. Meanwhile, software-defined networking will help them more effectively manage their networks.

All this, however, will take time to happen. In the meantime, carriers need to respond to this threat.

To learn more about both the technology and the cultural and procedural aspects of the move to SDN and NFV, attend Software Telco Congress – The NFV Event from Aug. 11-14 at The Rio – Las Vegas http://www.softwaretelco.com/conference/.

In the Meantime

GENBAND is one of the solutions providers that is positioning itself to help carriers respond both now and in the future. Like the service providers to which it sells, GENBAND wants to be more than just an underlying infrastructure provider. It wants to move up the stack to also provide more applications like real-time communications solutions.

In its latest effort to enable this transformation both for itself and its customers, GENBAND in February revealed plans to acquire uReach Technologies. The deal, for which the details were not disclosed, was expected to be finalized last month (in March).

Privately-owned uReach provides a variety of unified communications solutions – including Advanced VoiceMail, VideoMail, VisionMail, and VirtualReceptionist – to service providers of all stripes. The company appealed to GENBAND because of its product line, its size, and its proven and scalable solutions, said John McCready, executive vice president of corporate development for GENBAND. The uReach solution aligns with GENBAND's strategy to support cloud, mobile and over-the-top options. Competitors of uReach like Comverse and France's StreamWIDE are both quite a bit bigger, he said, while uReach – which has been around since the late 90s and had its last funding round many years ago – was primed for the next level of growth and international expansion.

To date, uReach has been focused exclusively within North America, where its biggest customer is Verizon. The tier 1 telco called on uReach to replace its legacy voicemail with a new solution, said McCready, adding that there are lots of legacy voicemail systems out there that are no longer supported by their suppliers, some of which no longer even exist. The new uReach solution supports millions of mailboxes for Verizon alone, so it's been proven to be scalable and reliable, he said.

Now GENBAND intends to take that and uReach's other solutions – along with its existing product portfolio – and bring them to additional fixed and wireless tier 1 and 2 telcos and MSOs/cablecos in North America and beyond.

"We have our go to market channels already all set for those market segments," said GENBAND's Sanjay Bhatia, senior director of product marketing.

This is not GENBAND's first acquisition targeting real-time communications. In September, the company announced the acquisition of fring.

The acquisition of fring was GENBAND's move to enable its carrier customers to get into the OTT game immediately with a new real-time communications solution. Fring was one of the earliest apps on the iPhone and it supports VoIP. At the time the deal was announced, there were 40 million fring users.

Speaking of real-time communications, GENBAND – among others (see our WebRTC roundup in this issue) – also has been a pioneer on the WebRTC front. In April 2013 the company introduced a WebRTC gateway called SpiDR that sits at the edge of the network and provides open APIs that application developers can use to leverage the rich communications services of the telecommunications network – including voice, video, presence, shared address book, call history, instant messaging, and collaboration. Earlier this year GENBAND introduced SMART OFFICE 2.0, a WebRTC-enabled unified communications platform that delivers voice, videoconferencing, chat, presence and collaboration via a browser. And in February GENBAND unveiled a new UC solution named Call Grab-

ber, which is based on SMART OFFICE and allows people to move a live call seamlessly from one device to another.

More applications are in the pipeline, McCready said, adding that both GENBAND and uReach have been working on interesting new things that he is not yet ready to make public. Additional acquisitions are also likely to be in the pipeline, he added, commenting that "inorganic growth is definitely part of our strategy."

That strategy, added Bhatia, involves GENBAND delivering an intelligent messaging portfolio to its service provider customers to help enable their transformation into more agile competitors in the marketplace.

Telco Transformation

The longer-term vision of this transformation, of course, involves facilities-based service providers like the telcos embracing network functions virtualization and software-defined networking so they can more easily and cost effectively leverage and control their network resources to support any existing or new application they might want to deliver. In the near term, much of the focus on NFV and SDN is about how to enable carrier cost savings. But in the longer term, it's about the transformation not only of carrier networks, but also of the basic mindset and business strategies at these carriers.

"We're asking service providers to fundamentally change some part of who they are and embrace a new approach to product development and service development," explained Phil Harvey, director of corporate communications at Metaswitch. The move to NFV and SDN undoubtedly involves a major rethink in how networking is done, but it's not just companies like Metaswitch that are doing the asking. It was the big telcos themselves – including AT&T, BT Group, Deutsche Telekom, Orange, Telecom Italia, Telefonica and Verizon – that drove the creation of the ETSI Network Functions Virtualization Industry Specification Group, which came together in November 2012 and has since seen many more companies join the charge.

AT&T followed that up about a year later when, in September of 2013, it launched what it calls the next generation of its Supplier Domain Program – Domain 2.0.

Calling Domain 2.0 a transformative initiative, AT&T said it will trigger "a swift and broad move to a modern, cloud-based architecture that is expected to significantly reduce the time required to pivot to this target architecture while accelerating time-to-market with technologically advanced products and services." Leveraging NFV and SDN, AT&T explained that it plans to simplify and scale its network by separating hardware and software functionality; separating network control plane and forwarding planes; and improving management of functionality in the software layer. And, while this new initiative doesn't mean an increase in capital spending for the company, AT&T said this year it will begin selecting vendors as part of the initiative.

"Our goal is to ensure that each investment accelerates our move towards an advanced all-IP broadband, all-wireless, and all-cloud infrastructure, delivers on the full promise of game-changing technologies, provides an industry leading customer experience, and maintains focus on a capital-efficient network," said Tim Harden, president of AT&T Supply Chain.

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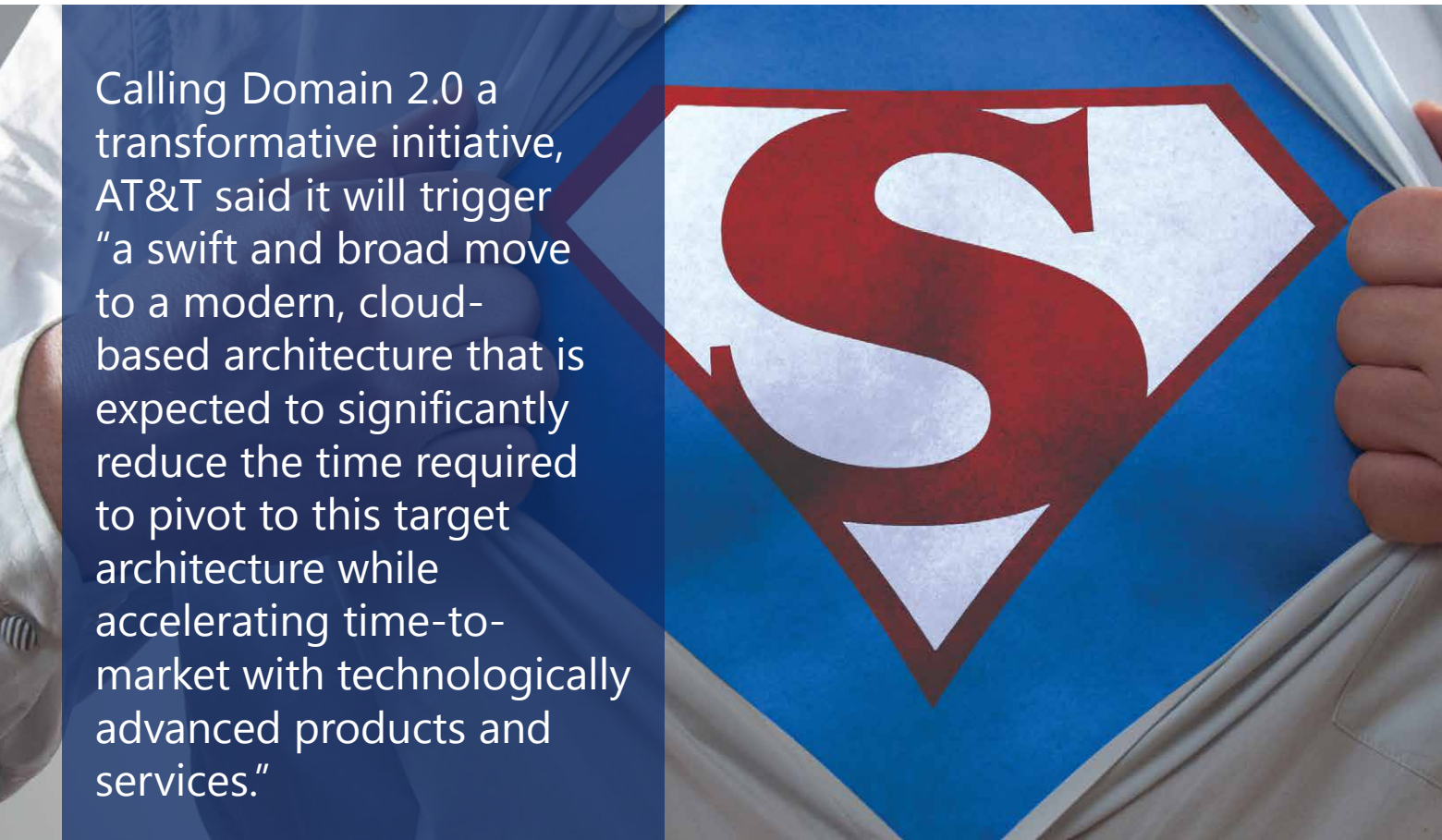

At TMC's recent Software Telco Congress, speakers indicated that the core of service provider networks would be the initial target of virtualization efforts at the telcos, as will specialized network elements such as SBCs. But Metaswitch's Harvey said that any network element at layer 2 or above with a gigabit Ethernet interface is ripe for virtualization.

Core Exercises

The focus on the core explains why we've seen so much news recently in this arena.

For example, just before Mobile World Congress in late February, telecom network infrastructure giant Ericsson unveiled a new, virtualized evolved packet core solution. The vEPC, which is slated for general availability in the fourth quarter, is built on the previously announced Ericsson Cloud System, which is now in trials with several service providers. It has feature parity with Ericsson's existing EPC solution.

At Mobile World Congress, Alcatel-Lucent and China Mobile demonstrated voice and video delivered over a virtualized proof of concept LTE RAN Baseband Unit and virtualized evolved packet core on-boarded to the cloud by CloudBand 2.0 – the company's second generation NFV platform, as reported by TMCnet's Peter Bernstein.

ALU's virtualized portfolio includes a Virtualized IMS solution, which is a cloud communications platform for delivering a rich portfolio of multimedia services over IP networks, and a Virtualized RAN portfolio, which encompasses a virtualized 3G Radio Network Controller and virtualized proof of concept for LTE and LTE-Advanced Radio Access Networks.

Startup Connectem in February issued a press release highlighting its recent trials with tier 1 carriers for its vEPC solutions.

"The introduction of network functions virtualization is changing the vendor environment for telecom operators, expanding the field to include innovators and new players," said Iain Gillott, founder and president of iGR. "With its unique design for the virtualized Evolved Packet Core, Connectem is one of the earliest and fastest movers in NFV for telecom operators, and it has already completed trials for tier 1 carriers in all major geographies."

Connectem said in the past 12 months it has completed eight trials of EPC functionality and integration testing with tier 1s in various locations around the world. During that same time period, the company also has established a subsidiary in India; forged agreements with distributors iCent of South Korea and Macnica of Japan; filed network virtualization patents; garnered new funding; collaborated on NFV with Cyan, HP, IBM, Intel, and VMware; and joined Cyan's Blue Orbit partner ecosystem, an effort focused on NFV and software-defined networking.

"Building an NFV solution is not an exercise in isolation like designing a discrete network box or simply porting software from a network box to a virtual machine. It requires rethinking the way system functions should be realized in a virtualized environment. It also demands deep and rich collaboration with key partners to move quickly," said Nishi Kant, CEO at Connectem.

New Big Switch Networks CEO Talks Strategy with INTERNET TELEPHONY

By Paula Bernier

SDN upstart Big Switch Networks has made a lot of big changes in the past few months. The company's CEO Doug Murray spoke with INTERNET TELEPHONY recently to explain the new strategy.

In case you're not already familiar with Big Switch Networks, the company was one of the early entrants to the software-defined networking market created around the concept of openness, and using OpenFlow to achieve new service provider network efficiencies. Indeed, Big Switch specifically made a big splash on the SDN front for the expected threat pundits said it posed to networking giant Cisco.

But then the waters shifted and rumors circulated in September that Cisco might acquire Big Switch, which at the time was reportedly suffering from a shrinking valuation and ecosystem. Shortly after that Big Switch announced new leadership and yet another new approach to networking.

"We moved to the new P+V strategy," said Murray, who added that "the one other company announcing a P+V strategy was Cisco."

The original Big Switch approach involved overlay networks, Murray explained, but he said that relied too much on physical elements like switches and didn't work from a scaling point of view. So Big Switch made a "course correction" and adopted the Unified Physical + Virtual (P+V) Cloud Switching Fabric.

The new approach leverages a cloud fabric with both physical and virtual components that Big Switch manages end to end. Murray explained that this new method enables service providers to implement and manage networks and policy across both physical and virtual elements using a single controller that acts as a single pane of glass. That benefits Big Switch customers (LTE and cloud service providers, that is) by providing them with a modern network operating environment so they don't need a purpose-built top-of-rack switch that is SDN enabled; giving them more flexible and programmable networks; delivering zero-touch provisioning from the controller; and driving down costs because this approach uses bare metal.

Big Switch has a set of Big Tap applications, now shipping in 3.0 release, that leverage bare metal

Business Communications

and a monitoring fabric and enable multi-tenancy. It can, for example, allow security personnel at a network operator to get traffic flow information about certain devices while someone on the IT staff is capturing other information about the network. What's noteworthy here, explained Murray, is that rather than requiring different personnel to access the network via separate ports, they can do it through a single network management system, which can be up to 60 percent less expensive. LTE carriers are really embracing this because of the massive amount of network visibility tools from companies like Gigamon that they need on the back end, said Murray. While carriers will still need those tools, he added, the Big Switch solution helps to bring the tools together efficiently.

In addition to the current Big Tap applications, and the additional apps the company expects to introduce in the future, the Big Switch Networks product line also includes its cloud fabric. That solution, which is now in beta with five customers, is expected to ship later this year. This is a solution that will actually replace legacy networks, said Murray.

Murray is a relatively new addition to the Big Switch Networks management team. He came aboard in November, replacing in that role co-founder Guido Appenzeller, who remains a member of the board. Previously Murray served as senior vice president and general manager of the data center security business and senior vice president of Asia Pacific, Japan and Greater China at Juniper Networks. He's also worked with Altor Networks, Extreme Networks, FireEye and Jaega Software.

About a month after Murray joined Big Switch Networks the company hired on Jeffrey Wang as vice president of engineering to lead engineering for the company's SDN Fabric solutions. Wang spent 15 years in various engineering positions at Cisco involved with that company's hypervisor and VM efforts, and has also worked at Brocade and Nuova Systems.

More recently, Big Switch Networks tapped Joe Palazola as vice president of operations and customer support since in the last six months the company began shipping products, Murray explained, adding that the company is in a good position in terms of financing and more than a year ago did a Series B round that raised $47 million from some of the big VCs.

What Else is New

Also new from Ericsson is Service Agility, a framework in which several software stacks are deployed to enable faster and more reliable service fulfillment and assurance. It's a combination of Ericsson's own software and some acquired capabilities. This software is available now for trials and implementation in customer networks. Telecom Cloud Transformation, meanwhile, is a new practice that provides operators with consulting and systems integration services to help them move to what Ericsson refers to as an network-enabled cloud architecture.

Coming soon is the Ericsson Network Manager, an SDN-based tool that lets administrators automate and manage virtualized networks. This kind of tool is important because as carriers upgrade their networks they are using many more base stations/nodes, so they need the tools to enable them to deploy and do network optimization on these elements more easily – and that, in turn, can allow for a better end user experience. The first domains will be managed by Ericsson Network Manager in the fourth quarter of this year.

"Ericsson Network Manager provides unified network management in a single platform, making for ease of transition as service providers look to consolidate their network operations," said Anil Rao, industry analyst with Analysys Mason's Telecoms Software research team. "Communication service providers know that achieving the best end user customer experience is one of their top priorities today. The Ericsson Network Manager is a step-up and the right approach toward providing an integrated, end-to-end network view, along with the flexibility and automation needed to deliver a compelling customer experience that can differentiate the operator."

In February, Ericsson also announced a strategic partnership with packet optical equipment vendor Ciena, through which the companies will jointly develop an IP optical solution that will leverage Ciena's optical transport technology (specifically the Ciena WaveLogic coherent optical processors); build IPoWDM interfaces/boards for the Ericsson SSR 8000 platform; and create multi-layer and multi-vendor open service provider SDN transport control. The deal also involves a global resale agreement that will see Ericsson resell Ciena's 6500, 5400 and OneControl NMS.

Ciena, which Ovum says is the No. 3 converged packet optical vendor globally with 14 percent market share, delivers coherent optical technology as part of its SSR edge router that addresses layers 4 through 7 applications and should be "readily adaptable to SDN/NFV," according to Ovum analyst Ron Kline.

"The partnership could also open the door for future collaboration in the mobile backhaul market where both companies are quite strong," Kline adds. "A combination of an integrated Ciena packet backhaul and Ericsson microwave radio would be tough to beat especially given Ericsson's global strength in LTE."

That looks to be a big opportunity. As Strategy Analytics recently said, SDN-related mobile backhaul operational savings could reach $9 billion worldwide by 2017. An earlier report from Strategy Analytics indicated service providers could use SDN to save $4 billion in capital expenses related to mobile backhaul by 2017.

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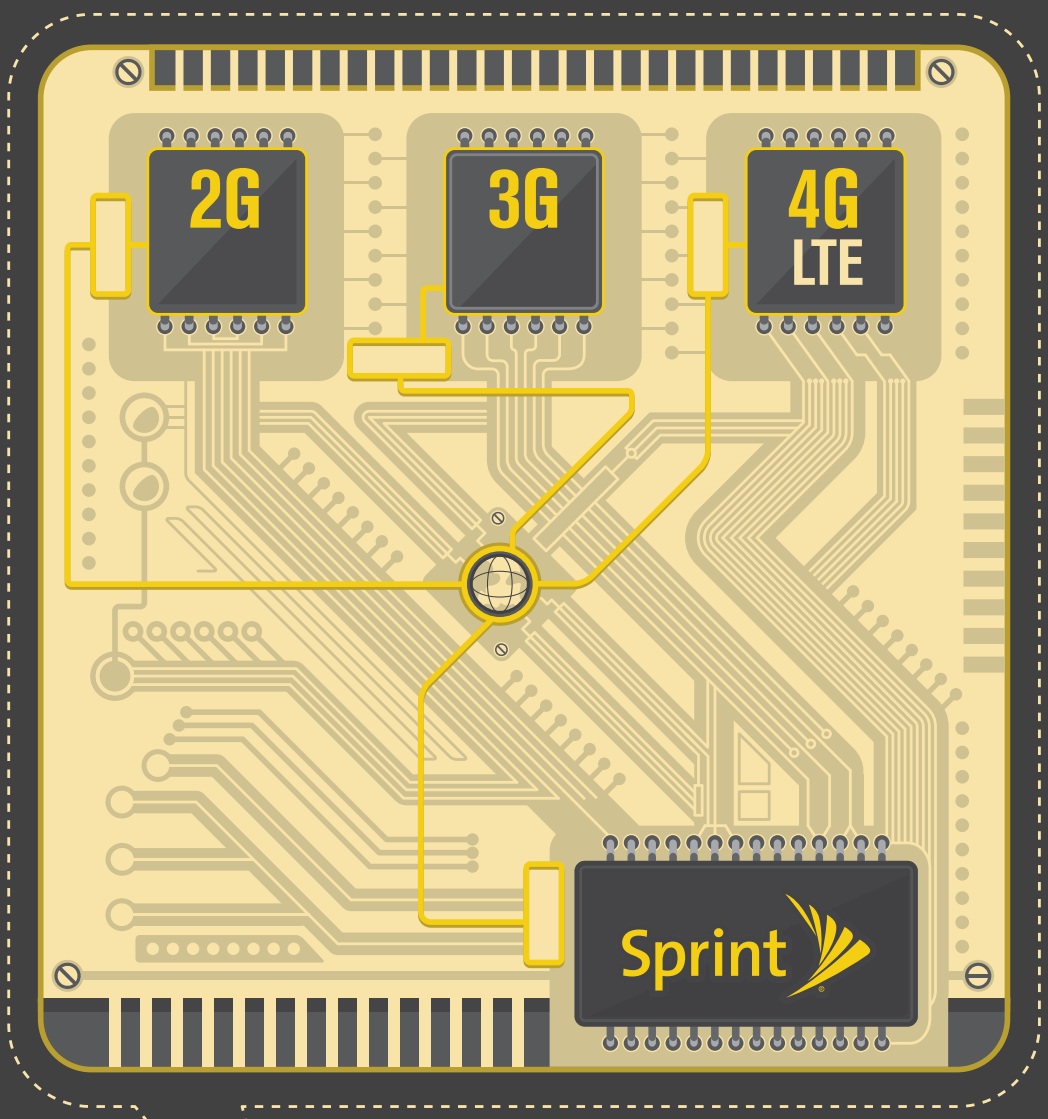

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By Peter Radizeski

The 3 Reasons to Shift

Every channel chief in the U.S. is parroting Gartner's Tiffany Bova to tell channel partners to shift their business model – or perish. It's tiring to hear it repeated – like Chinese water torture. Here are the three reasons to start the shift now.

One, it takes time to shift your business to a new model. The CLECs – like Cbeyond and EarthLink – have had to replace personnel and executives a number of times to shift their businesses over the last two years.

Monthly recurring revenue takes a lot of deals to build up to a number that is meaningful.

Two, every one of your vendors is shifting its business model. From Cisco to Microsoft to the CLECs, business models are changing. If your vendors are shifting and you are not, your business will be like a blind squirrel: Sure, you will catch a nut anyway, but not efficiently or sufficiently.

Three, the shift to all IP is on. AT&T is already trialing it, as it is anxious to get rid of copper and TDM. Verizon wants out of copper, just look at the events after Storm Sandy in the New York area.

Every business – your vendors, your competitors, and your customers – is shifting. Maybe you think your own business is okay and not shifting. However, if you are honest and stop staring at your navel, you will see that like your customers and vendors – and yes even your competitors, your business is trying to handle a number of problems that weren't a problem two years ago. Utilizing cloud services and mobile devices; handling BYOD; and so many more buzzwords are troubling SMBs – even yours.

IT has gone far beyond what it was just 5 years ago – so have communications, telecom, apps, devices, gadgets and the personnel. Buyers have changed – now the IT budget is spent by the CMO, CEO, CFO and HR.

Can you afford to stay static as the world around you shifts? Last person out, please shut off the lights.

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

Dimension Data Gets Polycom Props

Polycom has awarded Dimension Data a Partner of the Year designation for the third consecutive time. Polycom recognizes honorees based on execution, performance, customer success, business results, and overall commitment to co-developing innovative solutions. Dimension Data delivers a complete Microsoft and Polycom Lync solution, which includes all hardware and software, on premises or via the cloud.

LiveVox Announces Certification Program

Cloud contact center solutions provider LiveVox Inc. has launched its Agent Certification Experience program. The self-navigated program provides at no charge contact center agents with comprehensive training and best practices for the LiveVox platform, and requires an average of 45 minutes to complete.

Pritchard Tapped to Lead Unify Channel Effort

Unify, formerly Siemens Enterprise Communications, has appointed Jon Pritchard to lead the company's global channel program. As executive vice president of worldwide channels, Pritchard will head up all indirect channel activities. Pritchard previously was president of Comstor Worldwide, a $2.5 billion channel IT business operating across 40 countries.

Integra Partners with Agent Alliance

Facilities-based service provider Integra is now a a preferred provider of the Agent Alliance, an industry consortium of telecom and IT companies with a focus on cloud services. This affiliation gives Integra the opportunity to work directly with the alliance's 18 member agencies. "We've recently realigned and streamlined ourselves to better reflect the industry's changing environment and enhanced our focus on cloud services," said Bill Power, Agent Alliance CEO. "Adding Integra to our provider portfolio serves that mission well."

DataXoom Joins AT&T Partner Exchange

DataXoom Corp. has joined the AT&T Partner Exchange program and as a result is authorized to resell mobile services from AT&T. DataXoom provides no-contract mobile data services to mid- to large-sized enterprise customers. Customers can purchase 2 GB, 5 GB, or 10 GB plans where data is pooled across an entire account. Customers have access to AT&T's 4G LTE and HSPA+ networks.

ShoreTel Expands Cloud Opportunity for Partners

ShoreTel has expanded its Champion Partner Program. The program now includes cloud partner tiers. "As part of the ongoing integration of our internal cloud and on-premises teams, we're now enabling the channel to sell the full ShoreTel portfolio," said David Petts, senior vice president of worldwide sales at ShoreTel. "More than 600 Champion partners will have access to sell ShoreTel Sky supported by ShoreTel sales experts upon adding cloud tiers to their selling portfolio. In addition, we're recruiting new partners into the ranks. With the cloud track in place, partners can earn high commissions for the life of the customer, while businesses receive the solution that best meets their needs."

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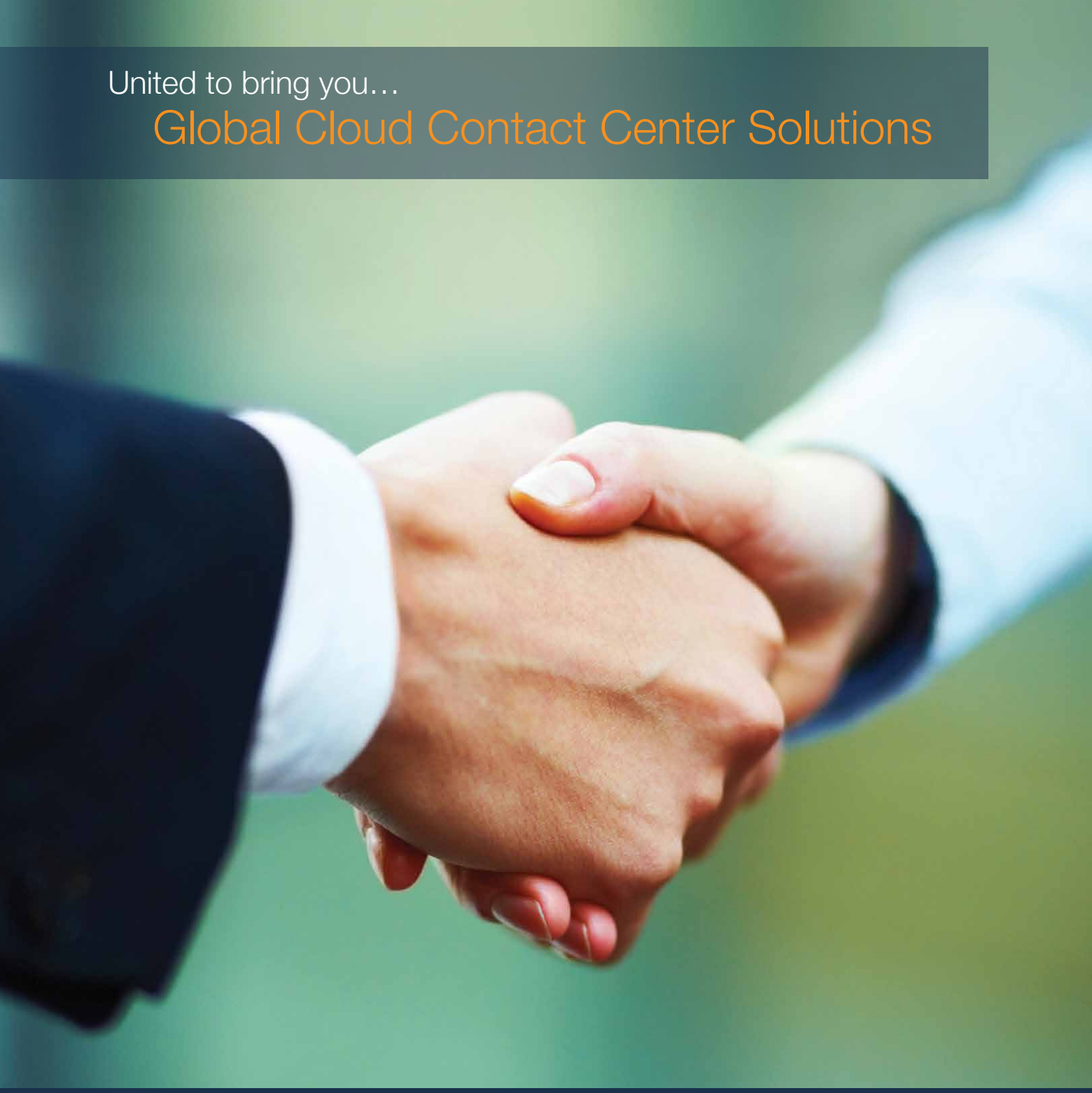

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By Gina Nomellini

Backup Comes to the Cloud Front

With the rapid influx of complex information and data increasing exponentially in both sophistication and volume, ensuring business continuity through a holistic data management strategy is critical to survival. Business continuity goals are best achieved by implementing a strategy that encompasses data storage, backup, access requirements, retention and the ability to apply recovery point and recovery time objectives in granular detail. The ever-increasing reliance on storing information electronically makes implementation of a reliable backup solution more important than ever before. The right strategy will save enterprises time, money, and peace of mind.

Ensuring that a business can continue to operate seamlessly, even after catastrophic events such as a technology failure or a natural disaster, is one of the most significant challenges facing enterprises today. Traditional backup methods are capex- and opex-intensive, and ill-equipped to meet current and future data storage and recovery requirements.

Traditionally, backup has been done via tape or disk, with each medium having distinct advantages and disadvantages. Tape backup is generally less expensive than disk, particularly when larger amounts of information must be stored. Tape backup also offers easy portability between locations. However, this option also has a few disadvantages, such as longer file retrieval times. Disk-based backup is considerably faster than tape in terms of duplication speed, which is one key reason it is chosen. However, it is also much more expensive than tape for long-term storage.

Faced with many different models and vendor offerings, how can enterprises choose the right backup model for their business needs?

Many enterprises are beginning to realize the limitations of both disk and tape solutions and are looking to cloud-based, managed backup platforms, or backup-as-a-service. This option involves replication of information over the Internet with storage available via the service provider. Customers use a secure client login application to back up files from their LAN or data center to the online storage server via an encrypted connection. The advantages of cloud-based backup are significant and include increased efficiency through faster and easier data recovery, lower costs, and better ability to focus on core competencies. This type of backup is also highly scalable and can easily accommodate spikes in data volume on demand.

Managed backup is built on the principle of making the complex simple, with data information and backup accessible through a single, centralized management console. A fully managed solution supplies all required backup infrastructure, including file system and application backups, disk-based storage and off-site tape storage, as well as an easy recovery process. The offering is cost-effective, fully managed and backed by service-level agreements.

For disaster recovery and redundancy purposes, BaaS platforms back up data fully to disk and copy the information to tape offsite. One of the key advantages of a BaaS offering is flexibility: Whether an enterprise is backing up a small or large amount of data, or prefers a hybrid over a pure cloud-based model, a cloud-based platform can be easily adapted.

Other characteristics and advantages of cloud-based backup and recovery solutions are that they:

- provide options to meet diverse customer needs – from Internet-based backup to installation of a dedicated circuit with the appropriate bandwidth to accommodate larger backup requirements
- are backed by service level agreements;
- are designed to meet specific business needs of individual enterprises;
- are adaptable to hybrid solutions, comprising an on-site appliance for the customer; and further redundancy from the cloud; and
- require no capital outlay.

A fully managed, cloud-based, enterprise-grade backup offering can help businesses lower capex, improve efficiency, and meet business continuity initiatives. BaaS offerings supply all backup infrastructure and provide comprehensive, rapid recovery capabilities for peace of mind.

Not all service offerings are the same in terms of their capabilities. IT decision makers need to carefully evaluate different cloud backup offerings and ensure that they are designed for enterprise use. The right provider of disaster recovery consulting and managed backup services will work with an enterprise to ensure what steps must be taken in the event of a disaster, and to make sure data gets where it needs to be, when it needs to be there.

Extensive experience designing, deploying and managing backup, storage, network and virtualization solutions for global enterprises will help ensure that a business' critical information remains protected, yet easily accessible. The managed service provides seamless recovery as well, including full restoration of data.

Unanticipated downtime and loss of business-critical information can be devastating from a financial, customer and brand standpoint. A cloud-based backup solution can provide data storage, backup, replication and retention that keeps data secure, yet easily accessible through a single portal.

Gina Nomellini is chief marketing officer for One Source Networks (www.onesourcenetworks.com).

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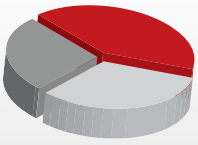

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By Chris Cullan

Telecom Industry Success Hinges on Compliance with Carrier Ethernet Standards

As Carrier Ethernet continues to ascend into the mainstream, the Metro Ethernet Forum's Five Attributes of Carrier Ethernet – standardized services, scalability, reliability, quality of service, and service management – have evolved into more clearly defined standards. The MEF has laid out a clear path for the telecommunications industry to adopt Carrier Ethernet 2.0 and associated best practices, providing a more structured framework for communications service providers to better deploy services and meet customer expectations. Despite this, confusion exists, specifically when it comes to Carrier Ethernet 2.0 performance management standards.

Take, for example, the MEF's Specification 35, which defines "an Implementation Agreement for MEF Service Operations, Administration and Maintenance Performance Monitoring… The goal of this IA is to define specific performance measurement procedures and specify solutions for collecting the information needed to compute the performance metrics," as laid out in previous specifications. Though MEF 35 focuses on the best practices for Carrier Ethernet 2.0 performance monitoring, the specification itself came after the launch of Carrier Ethernet 2.0. The service-based Carrier Ethernet 2.0 certifications, which CSPs are quickly acquiring for their offerings, ensure that a service is, in fact, compliant, but that doesn't mean it's measured and monitored based on the best practices defined in MEF 35.

Further, some network equipment providers have yet to implement MEF 35 or its related specification – MEF 36 – that defines a simple network management protocol management information base for the collection and storage of these performance metrics. Today, many NEPs have developed their own proprietary mechanisms for collecting and storing performance metrics on their devices. For example, a vendor may implement some or all of MEF 35, but do it in its own, separately defined MIB structure or via its element management system, making it difficult to implement standardized best practices efficiently across multiple NEPs. Every vendor's equipment must be integrated differently to accommodate those nuances. Without network equipment that fully supports these standards, CSPs are challenged to completely adhere to the performance management best practices the MEF has outlined – at least right now. The result: Multi-vendor solutions become more challenging to manage, because it means more time and effort is needed to create the necessary Carrier Ethernet reporting structure.

CSPs will be better able to adhere to MEF standards as the market matures and other industry stakeholders, such as NEPs and OSS vendors, implement and align with the MEF specifications. Time and discipline on the part of CSPs will ensure this transition occurs. Once it does, CSPs will be able to address MEF best practices in a standard fashion across multiple vendors and accelerate time-to-market for their Carrier Ethernet offerings.

It's important to remember that there is real value in MEF standards right now, despite the initial confusion. Carrier Ethernet 2.0 has defined new service types, management and deployment techniques, and a framework for delivering business services that have multiple classes of service.

The introduction of Carrier Ethernet 2.0 also means that suppliers of performance management solutions can use the same standards to better address market needs with rapidly deployable solutions, making it far easier to manage multi-vendor networks and eliminate proprietary, vendor-specific nuances that bog down CSPs and significantly slow new implementations. Carrier Ethernet service assurance and network performance management will become vastly more time- and cost-efficient, with both CSPs and their customers reaping the rewards.

The Carrier Ethernet landscape will be further explored this November at the MEF's Global Ethernet Networking (GEN14) conference, the largest gathering of senior professionals in all industries in the technology ecosystem that have been directly affected by Carrier Ethernet 2.0. Mobile operators, cloud service providers, data center and interconnect providers, and NEPs and solution vendors, will contextualize how Carrier Ethernet 2.0 is affecting many verticals, show the value of Carrier Ethernet 2.0 and MEF standards-based reporting, and explore some of the adoption trends surrounding wholesale and retail enterprise Ethernet services.

Carrier Ethernet 2.0 has the potential to facilitate the delivery of more dynamic, innovative, responsive services to end users, and eventually, unified support for Carrier Ethernet standards and certifications will prove their value. As adoption of Carrier Ethernet 2.0 and its associated standards expand, CSPs, suppliers and vendors within the telecommunications industry will continue to accelerate the implementation of MEF best practices and standards. All Carrier Ethernet 2.0 stakeholders will reap the benefits. CSPs and NEPs will be able to achieve consistency across products and services, lower performance testing costs, and enhance end user confidence, while end users will be able to make more efficient use of these increasingly critical WAN services.

Chris Cullan is product marketing manager for business services solutions at InfoVista (www.infovista.com).

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VSS Monitoring Unveils Next-Gen Security Fabric

The architecture of enterprise networks makes it difficult, or impossible, for security tools to have comprehensive, network-wide visibility. Another consequence of that architecture is that removing, adding or upgrading security tools can create unforeseeable network latency or even halt network operations altogether. To address that, VSS Monitoring has come out with a solution that decouples the security layer from the network layer, allowing security teams to add, upgrade or remove security tools from the network without impacting network availability or performance. "Security systems need to scale out to address the threats on networks that are growing faster than ever before," says Andrew Harding, VSS Monitoring's vice president of product management. The new product line, he says, gives network technicians the ability to scale out firewalls and intrusion detection and prevention systems by adding a layer in the network that allows people to use whatever tools they want without having to make changes to the network.

VMware Buys AirWatch

Virtualization pioneer VMware is acquiring AirWatch for $1.175 billion in cash and an additional $365 million of installment payments and assumed unvested equity for AirWatch. A provider of enterprise mobile management and security solutions, AirWatch was named a "Top Player" in the Enterprise Mobility Management Market Quadrant by market research firm The Radicati Group in December.

Google Reels in Click Fraud Detection Company

Following on the recent acquisition of SlickLogin, a developer of technology that relies on inaudible sounds transmitted by a smartphone to a PC to authenticate a user, and Impermium, a provider of cybersecurity/threat protection services, comes the news that Google is buying (for an undisclosed sum) click fraud detection start-up spider.io. "Our immediate priority is to include their fraud detection technology in our video and display ads products, where they will complement our existing efforts," wrote Neal Mohan, vice president of display advertising for Google. "Over the long term, our goal is to improve the metrics that advertisers and publishers use to determine the value of digital media and give all parties a clearer, cleaner picture of what campaigns and media are truly delivering strong results. Also, by including spider.io's fraud fighting expertise in our products, we can scale our efforts to weed out bad actors and improve the entire digital ecosystem."

ZyXEL: IDP is Changing

Intrusion detection and prevention traditionally was a application layer (layer 7 of the network protocol stack) scanning feature that inspected every packet header to match up against defined signatures to identify and block Internet borne attacks, such as trojans and malware. But that's starting to change, says Steven Joe, executive vice president of the channel business for the Americas at ZyXEL. "Today ZyXEL sees the IDP engine as an application control engine to also identify and block LAN threats," he says. Public Wi-Fi environments such as hotels are a good example of where this kind of thing is needed, he says. "Especially in public Wi-Fi areas, people are using these kinds of applications to download movies and music, in many cases illegally, resulting in ISPs sending out cease and desist notices to owners of public Wi-Fi networks like hotels," he adds. "In using IDP scanning, we are able to use the engine to identify specific P2P application packets and block them."

Craft Retailer May Have Been Hacked

Michaels is investigating a possible breach of its payment card network and is telling customers to check their financial statements. If the breach did indeed happen, it would be the second time since 2011 the craft retailer has been hacked.

Elastica Secures Cloud Apps & Services

Startup Elastica has released CloudSOC, a solution for securing cloud applications and services. The company also released four Elastica Apps on CloudSOC that provide audit for cloud application usage and shadow IT, granular transaction visibility, real-time threat detection, security controls and post-incident forensics analysis capabilities. The company also recently raised $6.3 million in Series A funding from the Mayfield Fund.

Denim Group Unravels App Mysteries

The ThreadFix 2.0 AppSec vulnerability management system from Denim Group can identify the exact line of code causing application vulnerability, making it the first with this capability, according to the company. It can improve dynamic scans with threat model intelligence making the scans more comprehensive and able to identify vulnerabilities that were missed because of hidden web pages in an app. It also can provide scan orchestration of multiple scanning tools across the enterprise so that scans can be automated. All of this resulted from research funded by the Department of Homeland Security.

Stoke Fires Up Software-Based Security

A new software-only version of Stoke's LTE security gateway is now available. Stoke explains that network functions virtualization offers a more cost-effective and rapid way for operators to provision, deploy and meet the performance requirements of modern 4G networks and their subscribers.

By Paula Bernier

AudioCodes Helps Lync Scale

A little more than a year ago AudioCodes launched its One Voice initiative after coming to the conclusion that the Microsoft Lync ecosystem was just too complex and contained too many vendors for most IT managers to comfortably navigate. The idea was to bring a wide variety of solutions under one umbrella to create a one-stop shop for Lync and, essentially, to give customers one throat to choke.

This approach has made a lot of Lync customers and resellers breathe easier, says Nimrod Borovsky, global vice president of marketing at AudioCodes. Around 200 resellers worldwide, including big names like AT&T, Dell, ScanSource, Verizon, and Westcon, already have signed on to partner with AudioCodes to deliver One Voice solutions.

"The message we brought to the market really hit the nail on the head," he says.

Now AudioCodes is rolling out new solutions to help its partners and customers scale their Lync solutions.

In January, the company introduced a session border controller called the Mediant 9000, which is the company's biggest SBC yet. The Mediant 9000, which is in limited release and will be generally available by early summer, supports up to 16,000 sessions. That's as compared to the company's next-largest SBC, the Mediant 4000, which supports up to 4,000 sessions.

Targeted at very large enterprise and/or contact center applications, the Mediant 9000 was designed to address SIP trunking consolidation in large enterprises, which as a result have a need for larger SBCs, and to address the migration to SIP trunking in the contact center, which tends to involve high port usage. While the new product is comparable to large enterprise SBCs in the market from other vendors such as Oracle/Acme Packet and Sonus, AudioCodes says that because it comes at the SBC space from the enterprise and not the service provider side, its per port cost is far lower than similar solutions.

Mediant 9000 is part of the company's One Voice for Lync product portfolio, which also includes gateways, IP phones, other SBCs, survivable branch appliances, and services and support. The company followed that product unveiling with another new solution that helps Lync scale. That solution is called the AudioCodes One Voice Operations Center, a suite of applications that enable the management of large cloud-, premises-, or service provider-based unified communications networks. They will be generally available starting in the second quarter.

AudioCodes One Voice Operations Center provides voice quality monitoring and assurance, including on-net and off-net calling via SIP trunks, and addresses operations, administration, maintenance, and provisioning for the AudioCodes One Voice network elements listed above. As a result organizations can now from any location remotely configure and maintain all One Voice for Lync or One Voice for Hosted Services network elements.

Borovsky says one of AudioCodes' key observations about the economy is that while low interest rates make it easy to raise money, the slow economy makes some business models difficult to sustain. As a result, most organizations may be comfortable with spending right now, but want to control their operational expenditures. AudioCodes One Voice Operations Center addresses that reality, he says.

AudioCodes One Voice Operations Center provides voice quality monitoring and assurance.

Here he offers an example of a large North American retailer whose IT manager gets a call for help whenever someone accidentally leaves a phone unplugged in the corporate conference room. The problem is simply an unplugged cable, so doesn't require any technical know-how, he notes, and with One Voice Operations Center the IT staff can monitor IP phones to see that from a remote location. Of course, this is just one example of how AudioCodes One Voice Operations Center can simplify Lync management. Another is by allowing IT staff to do targeted remote software updates.

AudioCodes One Voice Operations Center also can be used to monitor quality of service and support SLAs. The Operations Center gives users a uniform view of the network, with links color-coded based on the quality of experience/MoS on that link. That way if, for example, a gateway in Hong Kong is having a voice quality issue, the network administrator can see that and see what's causing that problem so he or she can address it.

"Now we can provide IT managers with a powerful set of tools to manage our One Voice portfolio of products in large scale, global deployments," Borovsky says.

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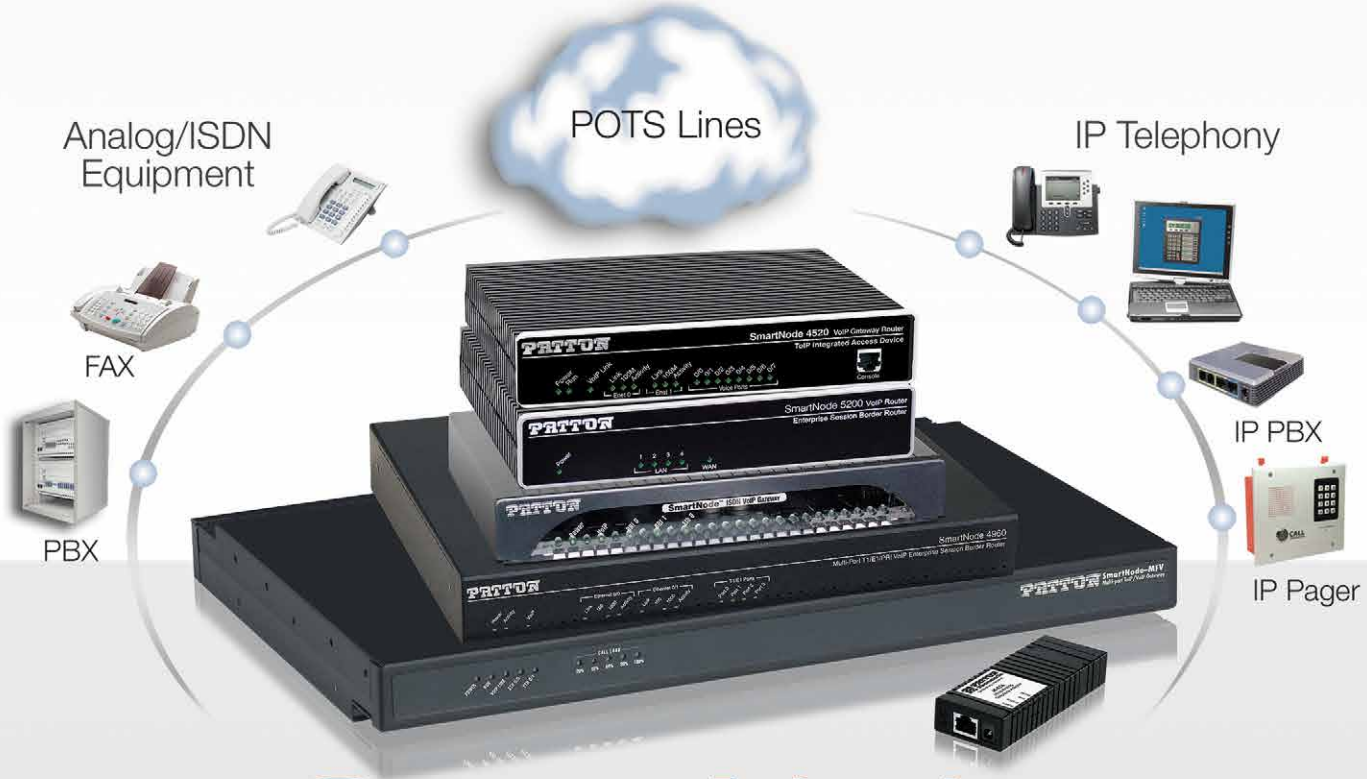

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By Paula Bernier

Assessing the Costs and Savings of Lync

Microsoft Lync has seen strong uptake, primarily due to organizations' interest in improving internal communications and increasing employee collaboration. But many enterprises that have employed the unified communications solution also hoped to realize new savings in the process. Yet more than half of the organizations recently surveyed said they are unsure of the actual savings Lync has delivered. What's more, these organizations typically don't know how to get any insight on the matter.

That's the word from Dell Software, which recently sponsored a Dimensional Research survey on Lync. The survey talked to 204 individuals from companies with more than 500 employees.

Findings indicated that, of the organizations that weighed in on their adoption of Lync, 80 percent hoped to save on their travel budgets; 76 percent hoped to reduce costs of other web and teleconferencing tools; 66 percent hoped to reduce spending on meeting room space; 55 percent hoped to reduce spending on traditional telephony costs; and 36 percent hoped to reduce their e-mail expenses.

Lync users have a hard time gauging their savings, however, because it can be tough to get a handle on the costs of the Microsoft solution, says Curtis Johnstone, senior software developer and MSFT Lync MVP for Dell Software. To guide enterprises in their quest to get a better idea on the true costs and savings that Lync brings to the table, Johnstone suggests that they start measuring their usage of Lync; figure out how much individuals and groups are using advanced Lync features; aggregate those numbers; and compare those costs to existing non-UC costs like telephony, e-mail, and office space.

"That way you can do an apples-to-apples comparison," he says.

Dell sponsored this research to illustrate the need for tools like its recently released MessageStats for Lync. The solution delivers a variety of functions, including a chargeback feature so users can assign estimated costs of Lync and its various features, Johnstone explains. It's also integrated with ActiveDirectory, so users can roll those costs up at an organizational level.

He adds that costs of Lync include not only licensing, but also indirect costs such as the extra bandwidth an organization might need to support collaboration via video.

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By Greg Levin

Text Appeal

Answering the Call for Customer Chat

We need to have a chat. More precisely, you need to have chat. The phone may still be the most used (and, sadly for contact centers, the most expensive) channel in customer care, but demand for web chat has grown significantly. In 2013, Forrester reported a 24 percent rise in chat usage over the previous three years. And according research by BoldChat, after using live chat for the first time, more than two-thirds of consumers actively look for websites that offer chat as an option.

Many contact centers are answering the call (I mean chat). A recent study conducted by ContactBabel revealed that 43 percent of U.S. contact centers now offer chat, compared to only 15 percent five years ago. It's a good thing, too – especially for companies whose customer base includes millennials – many of whom would rather do virtually anything other than use a phone to speak with another human being.

Of course, just because a contact center has chat doesn't mean it's using it well. To make sure you and your customers get the most out of chat interactions, consider adapting the following best (or at least very good) practices.

Invest in an advanced chat solution. While it's certainly possible to get by using a basic chat tool, getting by just doesn't cut it in the age of customer experience. Most contact centers that rock the chat scene have a sophisticated chat solution in place (sometimes as part of a complex multi-channel management system) that plays a big part in consistently achieving objectives for service level, C-Sat, first-contact resolution, and sales.

Forecast and schedule. Research has shown that only about half of contact centers offering chat take the time to formally forecast and schedule for those interactions. Not good. Forecasting workload and scheduling agents is just as important with chat as it is with calls, as both are real-time contact channels.

Failure to develop sound workforce management practices around chat will often result in not having enough chat agents on hand, leading to customer ire (and defection) and agent burnout (and turnover).

Hire and train. Just because most young people in today's labor pool could text before they could talk doesn't mean you can put just any millennial in the chat seat. Your center needs to be able to attract and obtain candidates with strong written communication skills and plenty of web savvy. A solid e-cruiting program – where you post job openings on online career sites and social media (and ask interested candidates to respond in writing) – can help a lot in this regard.

In addition, it's important to train for chat excellence. Leading contact centers provide comprehensive training on chat performance objectives; preferred writing style/tone; how to use tools to enhance chat efficiency and consistency; and how to fight through severe hand cramping while handling multiple chats simultaneously.

Measure the chat metrics that matter. Contact centers that own the chat scene embrace metrics that promote a healthy balance between productivity and quality. While it's okay to keep an eye on straight productivity metrics for planning purposes and to identify training needs, more of an emphasis should be on customer-centric metrics including chat abandonment rate, chat quality, chat C-Sat, and first-contact resolution.

By taking a kinder, more customer-centric approach to chat metrics, agents can relax a little and truly focus on taking care of the customer, which results in fewer mistakes and fewer repeat contacts – which means things like average chat handle time and the like will end up falling in line anyway. So, in the end, customers are happy, costs are kept in check, and agents aren't overwhelmed.

Greg Levin is founder of Off Center (www.offcenterinsight.com).

The Perfect Match

By Geoff Mina

Finding a chat solution that your customers love requires a solution that offers:

- intelligent routing that quickly gets the customer to the best available agent, or at least one that is awake;
- immediate agent access to customer account and history – with rules-based screen pops – to help agents provide highly personalized service and product offers that don't make the customer want to punch them;
- a comprehensive and customizable knowledgebase that can be filled (and easily updated) with FAQs, response templates and web links – all of which help agents to be agile and super smart; and
- web collaboration tools (or at least the ability to integrate such tools) that enable agents to direct customers to web pages, help complete online forms, and – if the customer is angry – send images of puppies as a last resort.

Geoff Mina is CEO of Connect First (www.connectfirst.com).

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Norwalk, CT 06854

By Paula Bernier

WebRTC Roundup

As discussed in the September cover story of this magazine, the sun is setting on the PSTN and narrowband voice networks, while the WebRTC ecosystem and the number of solutions based on the new technology are growing.

Already, WebRTC is supported on more than 1 billion endpoints, says Google, one of a raft of important tech companies driving this new technology. And Disruptive Analysis expects that to grow to 3.9 billion by 2016.

Here's our roundup of some of the companies offering solutions in the WebRTC space.

AddLive
www.addlive.com
AddLive is a WebRTC platform that allows developers to add live video and voice communications to their applications. AddLive offers a full RTC stack that includes SDKs for all major platforms including WebRTC browsers, non-WebRTC browsers (via a plugin), native mobile applications and native desktop applications.The AddLive cloud infrastructure provides reliable and secure multipoint control units for multiparty sessions; and firewall and NAT traversal infrastructure. AddLive clients include Citrix, Genband and Bratton Technologies. It is deployed to more than 20,000 businesses through our customers' applications.

AGNITY Inc.
www.agnity.com

ACONYX Unify is a mobile contextual communications and collaboration solution built on the latest WebRTC and mobile technologies that empowers service providers to support enterprise mobility and BYOD for enterprise customers. ACONYX Unify functions as a cloud-based enterprise communication and telephony application server with a rich set of components: Business Mobile Connect (IP Centrex-based voice and video calling, auto attendant, and FMC), Converged Messaging (single unified mailbox for text, voicemail, videomail, fax), and Multimedia Conferencing & Collaboration (audio, HD video and text conferencing for LTE operators). The solution provides a customizable rich communications client for iOS/Android-based mobile devices and a web client for PCs and Macs that utilizes HTML5 and WebRTC technology to provide SIP-based multimedia communication. Contextual communications are delivered through rich in-call media sharing capabilities as well as through integration with external systems such as Salesforce CRM, Dropbox, Google Drive, etc. Developed on the proven ACONYX CAS platform, ACONYX Unify delivers carrier-grade high availability and scalability. ACONYX CAS is a multi-protocol next generation converged platform which has a robust and flexible architecture with extension points to integrate with other subsystems and network components. With ACONYX Unify, service providers are able to monetize their network investments by offering revenue-generating multimedia services that increase ARPU and enhance service differentiation.

Alcatel-Lucent
www.alcatel-lucent.com
Today, web applications often run over the top of the carrier network and do not take into account its capabilities. Alcatel-Lucent WebRTC helps service providers deliver carrier-grade communications as a web experience and makes it easy to embed real-time communications into applications, websites and browsers. Building on the WebRTC standard, the Alcatel-Lucent WebRTC border controller is implemented on its own field-proven IP Border Controller. Purpose-built for multimedia and naturally supporting the web, the IBC scales readily to support growing web and VoLTE traffic volumes. Additionally, Alcatel-Lucent WebRTC-verified IMS provides a cloud communication platform that includes critical functions like session logic, identity management, routing, security, transcoding, interconnection, operations and regulatory support. The fundamental openness and reach of WebRTC helps service providers gain traction with web developers. To capitalize on the full potential of WebRTC and fast-track innovation on device and application sides, the solution provides complementary (WebRTC) client and (OMA Network) server New Conversation APIs, allowing the creation and delivery of new web-scaled communication

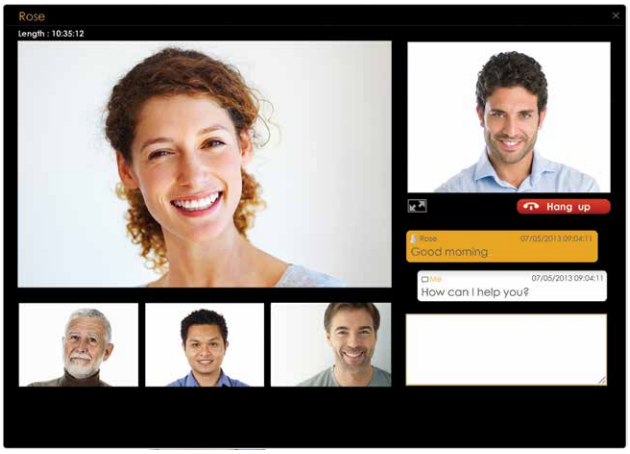
services and clients faster and cheaper. Carriers and developers can freely join Alcatel-Lucent's web developer portal to develop, test and taste the new flavors of cloud communication services.

ANYMEETING Inc.
www.anymeeting.com

ANYMEETING is an all-in-one conferencing tool designed and priced for small business. It serves all the conferencing needs of small businesses – from a web, video and phone conference to a 200-person webinar. ANYMEETING is also one of the first companies to apply WebRTC to a full-featured web conferencing product. With ANYMEETING SaaS-based service, meeting hosts are able to invite up to 200 attendees per meeting with no time limits, and enjoy a full range of features including integrated videoconferencing, phone conferencing, screen sharing, presentation sharing, recording, file sharing, custom branding, meeting notes, registration forms, social media integration and more. The ANYMEETING WebRTC-enabled platform delivers exceptional audio performance through best in class echo cancellation, low latency response times, and high quality audio codecs. It is currently available to users of Chrome 27+ (with Firefox coming soon), while supporting older browsers through Flash technology.

Apizee
www.apizee.com

Apizee develops WebRTC instant messaging, audio and video cloud communications solutions for integration in applications and websites. Telephony and videoconferencing are available from a web browser on any devices. Apizee real-time communications SaaS platform allows developers to add audio and video calling functionality without any knowledge on VoIP and without investment in any specific equipment. This is a simple way for our customers to take advantage of real-time communication and to focus on their business application specificities. Apizee solutions are available through simple API to accelerate integration by our partners (web agencies, SaaS applications developers, web stores, integrators and operators). In addition to the

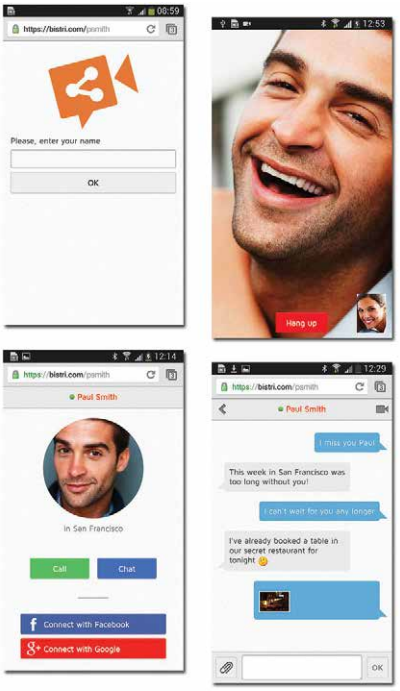


API, Apizee provides packaged modules for easy integration without any knowledge requirements on software development. IzeeChat is a customer's relationship module to add chat, audio and video on websites to improve sales conversion rates. Izeelink is a ready-to-use module to add unified communication between connected users in intranet or web applications.

AudioCodes
www.audiocodes.com

WebRTC brings voice, video and data communication to the browser and provides web developers with no VoIP experience easy access to VoIP communication technology. When required to bridge WebRTC communication with existing enterprise communication platforms there is a need for native support for WebRTC media technology in the end user equipment in the enterprise. Support for the WebRTC voice Opus codec and encryption algorithms natively on the enterprise IP phone yield better call quality, privacy, scalability, reduced cost and an easier migration to multi-purpose cloud platforms. In support of this strategy, AudioCodes recently demonstrated two product offerings. The demonstration showed a click-to-call web browser to IP phone contact center simulation using the wideband Opus codec. The product demonstration included the AudioCodes 440HD SIP Phone, a multi-line executive IP phone supporting the Opus Codec, and the AudioCodes Mediant 800 Session Border Controller with WebSockets, terminating the WebRTC call control and integrating SIP session management with the above IP phone.

Bistri
http://bistri.com



Bistri is the new way to make video calls. Bistri provides everyone with their own link, like an online phone number. Your friends can chat, send some files, and make a video call with you for free, even if they are on a web browser on a mobile with no Bistri account. Based on the WebRTC standard, part of HTML5, Bistri is available on the web, on Android, on Chrome OS, on Surface Tablets, on iOS and Linux. Bistri Platform is now open to help any developer or company to implement WebRTC features. Bistri SDKs provide an easy way for the developers to integrate video calling, videoconferencing, screen sharing, chat, and P2P data in any kind of website, game, application, even on Google Glass. Bistri Widgets for Wordpress make the integration as simple as a few clicks on a form.

Blue Jeans Network
http://bluejeans.com/

Blue Jeans Network offers a cloud-based video collaboration service requiring no additional hardware or software. All parties can connect to the same Blue Jeans meeting using their platform of choice. This includes mobile phones or tablets using the Blue Jeans iOS, the Android app, or third-party solutions on Android. Users can also join through their browser, meaning that all they require is a computer and a webcam. Dual-stream support ensures the quality of both the video feed and shared content. Blue Jeans meetings can also be recorded including the audio, video, and content being shared. All recordings are stored in the cloud so they can be accessed from anywhere. Using Firewall/NAT traversal and encrypted meetings, even in a multi-vendor environment, participants can meet with privacy and confidence. Blue Jeans also supports single sign-on and integrates into Outlook or Google Calendars for easy scheduling. Blue Jeans began using WebRTC in June 2012, when it released a WebRTC-based browser connection to the Blue Jeans videoconferencing service. To overcome current WebRTC limitations (WebRTC was still in beta at the time), Blue Jeans made several enhancements allowing participants to join high quality video meetings from any browser including IE, Safari, Firefox and Chrome.

Brook-Pro
http://brook-pro.com/

Brook-Pro offers a complete line of products to support spontaneous team collaboration. A family of scalable WorkPoints, from laptops to oversized multi-screen room systems, facilitates HD team collaboration regardless of distance or endpoints, by providing HD collaboration meeting rooms in-a-box functionality much like working in the same physical conference room. Video images, documents, files or applications originating from local PCs, or streamed by auxiliary cameras, whiteboards, and video recordings can be shared by WorkPoint users with other participants without delay nor any need for IT facilitation. Separately, subscriptions to Virtual Meeting Rooms from the BPRO-Invite series provide individuals the freedom of hosting HD video meetings at any time and any place, even while travelling. The BPRO.Net cloud provides participants global reach and flexibility of choice: WebRTC calls, as well as Skype, Lync, Jabber, H.264, H.363, are accepted simultaneously in Brook-Pro VMRs and WorkPoint sessions. Brook-Pro.net, a global public/private video exchange, allows free registration for WebRTC end user clients as well as multi-corporate tenant hosting. Customer relationship management augmented by integrated HD Brook-Pro WorkPoint and VMR support, provide the highest quality customer engagement in a number of verticals.

CaféX Communications
www.cafex.com

CaféX Fusion Live Assist integrates WebRTC voice and video plus much more with existing business web and mobile applications, enabling customers to initiate personal interactions with enterprise representatives at the touch of a button. Web developers can access easy-to-use client-side toolkits to light up applications with voice and video chat, screen sharing, drawing on screen, file push and remote control of applications to facilitate an in-person experience between customers and enterprise experts. Real-time collaboration functions can be extended to business applications with just a few lines of code using native iOS, JavaScript and Android platforms. No plugin is required for browser platforms. Live Assist server-side components provide a bridge between WebRTC-based applications and

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APEX Voice Communications The Application Server Company

TollFreeClicks TollFreeRewards

www.webrtcexpo.com

existing enterprise infrastructure, devices and business logic. A signaling gateway creates communication sessions between client applications and SIP endpoints, while external media streams can be converted and adapted for enterprise consumption, including voice and video transcoding. Live Assist can also capture static and dynamic contextual information about the customer, such as user profile, online activity, or geo-location and relay it to the contact center for context-based routing, call back, analytics and other specialized call treatment. Companies can as a result transform customer service into personalized client engagement, while at the same time reusing existing collaboration technologies and tapping the full potential of internal knowledge and experience.

Commodisee
www.commodisee.com
Commodisee is a web platform that serves as a retail store extension, enabling shoppers to enter a retail store from home and visually interact with the store's staff. Commodisee utilizes Google's WebRTC technology + SIP over web socket to enable high quality audio-video communication between sellers and shoppers. What makes this platform different from other third-party video chat software is privacy – no registration or logging in is needed for the shopper to enter a store and shop. And Commodisee does not stream the video from the shopper's end, keeps his privacy, and makes him even more comfortable to shop through this platform. Because no extra software is needed, this platform is very spontaneous for browsing and shopping, just like in a live mall. With Google's VPX codec and under normal conditions, you get a very nice, high quality video stream (up to 720p).

Dialogic Inc.
www.dialogic.com
Dialogic's PowerMedia XMS is a software media server that addresses many of the greatest challenges facing WebRTC deployment for application developers, enterprises, integrators and telecom carriers. It efficiently mixes diverse media streams, enabling any-to-any network connectivity and cloud-based services. It connects legacy networks, mobile and Internet endpoints and WebRTC to simplify multi-party communications and collaboration. Companies leverage PowerMedia XMS to energize application delivery by boosting virtualization performance and cloud delivery through a software-based model, offering proven scalability in telco environments and a supercharged integration to WebRTC. Business logic of applications deployed on SIP application servers and web application servers control PowerMedia XMS to execute high-density, multimedia functions including inbound and outbound session and call control, audio and video play and record, transcoding, transrating, transizing of video streams, conferencing, content streaming and advanced supporting functions for

communication sessions. Supporting standard media control interfaces such as MSML, VXML, NetAnn, MRCP, JSR 309 and RESTful API, PowerMedia XMS does the legwork in both mobile and broadband environments.

Digium Inc.
http://digium.com; www.asterisk.org/WebRTC
Asterisk, the world's most widely deployed open source communications platform, is used as a media server, PBX, and protocol gateway. For many years Asterisk has provided the foundation for everything from enterprise call centers to carrier applications. Since 2012 WebRTC support within Asterisk has included SIP transport over WebSockets; SRTP; ICE, STUN, and TURN for NAT transversal; G.711a/u trans-coding; H.264 pass-through; and a built-in mini HTTP server to provide web content. In 2013, pass-through support for Opus and VP8 was also added to Asterisk. Three key Asterisk WebRTC roles are acting as a gateway between WebRTC and other technologies like SIP, analog, PRI, BRI, or IAX2; provid-ing media services such as prompts, IVR, and conferencing functionality; and routing of traffic based on customizable criteria. Free to download and deploy, Asterisk provides a low barrier to entry. A proven track record and large global community has made Asterisk the platform of choice for a growing number of WebRTC deployments.

DilogR
www.dilogr.com
Meet your new intelligent digital agent. She can engage, educate, evaluate and help customers in real time. Through Q&A, she can deliver the right message at the right time through your videos. DilogR is your automated companion to WebRTC that allows you to engage customers in a virtual conversation. It's the modern version of the automated phone system, but with video. It can be used in conjunction with WebRTC in multiple ways including before getting to a live person or during a call to show videos and slides that help communicate information to a caller. With DilogR, you

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can field sales inquiries with a virtual salesman, support inquiries with a video FAQ, and then give the viewer the option to immediately connect to a live person through WebRTC. And the agent can get all of the information communicated through the virtual agent so that she can immediately jump into the sale, support issue, etc. While you're solving your customer's needs, you're gathering real-time analytics and creating up-sell opportunities. With DilogR, you can reduce sales and support expenses, equalize call center load, and keep current on complex issues without constant training.

Flashphoner
http://flashphoner.com

Flashphoner Web Call Server 3 is a middleware platform for WebRTC, Flash, SIP audio and video calls, and instant messaging. The developer is the company Flashphoner LLC. Main features include voice and video calls, browser-to-browser applications, and browser-SIP. Browser-PSTN and browser-GSM calls are also available if a SIP provider or VoIP equipment allow calls to PSTN and GSM phones. Two-way calls are available; you can call to a webpage open in a browser directly from a landline phone or SIP phone. Additional features include holding and transferring calls, instant messaging, DTMF, and additional codecs. For calls from browsers that do not support WebRTC, Web Call Server is compatible with Adobe Flash Player, which is installed by default in most web browsers. The product includes two browser applications, Webphone and Click-to-Call. It has open source code to allow users to easily change its look and feel while integrating the Webphone into an existing web interface. The license is for a lifetime. The cost depends on the number of simultaneous calls and the set of features, and varies between $26 to $500 for one audio line or from $28 to $900 for one audio/video line with additional options included.

FreeCRM.com
www.freecrm.com

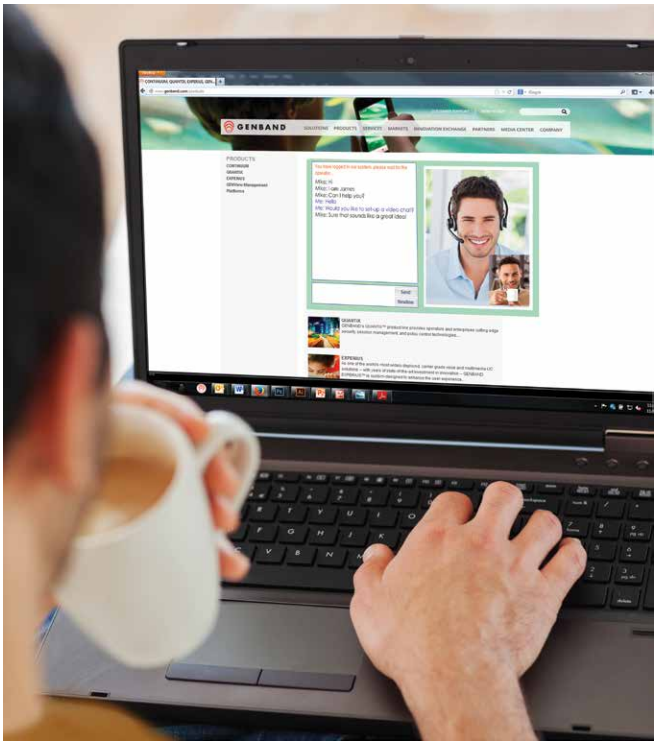
FreeCRM.com is the first cloud CRM to offer click-to-call powered by WebRTC. Simply right-click on any phone number in FreeCRM.com and you can call any U.S. phone number instantly using just your computer and a WebRTC-powered browser. FreeCRM.com keeps track of the call and pops up a call information screen and has powerful call scripting and follow-up management. FreeCRM.com with click-to-call makes it simple to quickly make outbound calls to any phone number and track it with a simple click. By combining WebRTC with CRM, users can quickly build targeted call lists and automate the calling process as well as taking advantage of the huge cost savings using this new VoIP-style technology. FreeCRM.com uses WebRTC to make it easier to call any U.S. phone number straight from your browser using your speakers and microphone.

Frozen Mountain Software
www.frozenmountain.com

IceLink is a collection of libraries that enable developers to create reliable UDP media streams between peers, regardless of the peers' network configuration and environment. IceLink traverses every possible firewall/NAT combination to guarantee connection establishment. It uses IETF/IANA standards to provide the broadest compatibility with third-party components. IceLink includes a WebRTC extension for select platforms that implements the WebRTC standards for communication, including stream formatting, RTP/RTCP packet processing, DTLS key exchange, audio/video capturing/rendering, audio/video encoding/decoding, data channels, a full MediaStream API, and more. IceLink works in conjunction with any third-party signaling library (like WebSync, XMPP, or SIP) to perform an initial offer/answer exchange when setting up peer connections.

GENBAND
www.genband.com

In April 2013 GENBAND introduced SPiDR, a WebRTC gateway. SPiDR sits at the edge of the network and provides

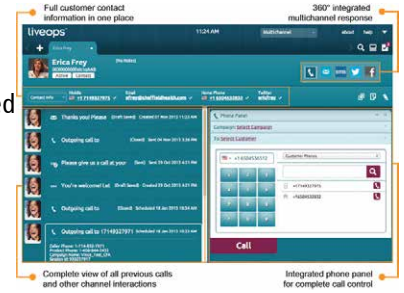


open, web-centric APIs that allow application developers to leverage the rich communications services of the telecommunications network – including voice, video, presence, shared address book, call history, instant messaging, and collaboration. Leveraging SpiDR's advanced technology service providers can now quickly extend the reach and breadth of their offerings to include rich multimedia directly from any web browser – including voice, video, IM and presence. The OS-agnostic SpiDR (Windows, Android, iOS, BlackBerry) makes it possible to offer rich unified voice, video and shared-data services to all subscribers, via desktop, laptop, smartphones, tablets or mobile phone browsers. Additionally, GENBAND's SPiDR investment enables the integration of WebRTC into all areas of the service provider network – from the core, to the edge, to the experience – and across any network architecture. Earlier this year GENBAND introduced SMART OFFICE 2.0, a WebRTC-enabled unified communications platform. Designed in HTML5, the SMART OFFICE 2.0 soft-client is the first WebRTC compliant multimedia user experience that delivers the premium suite of voice, video, conferencing, chat, presence and collaboration features through a browser.

Ingate Systems
www.ingate.com

The Ingate WebRTC & SIP PBX Companion is an OEM product for PBX and call center vendors, bringing all the benefits and features of WebRTC to the enterprise SIP PBX and UC solution. It includes a WebRTC/SIP gateway, a SIP E-SBC, a firewall for security and Ingate's Q-TURN technology for quality assured videoconferencing. Everyone's web browser becomes the soft client, both locally and remotely for the PBX, UC and call center infrastructure, both for enterprises and service providers. Click-to-dial buttons into the PBX are easily added to the enterprise website, and http links can be passed as invitations to call individuals or to join meetings. Ingate's Q-TURN technology is included in Ingate's line of session border controllers and also licensed to firewall vendors and carrier network equipment vendors. Q-TURN gives WebRTC, or any real-time traffic using the ICE/STUN/TURN standard for NAT/firewall traversal, end-to-end connectivity and priority over data traffic. That allows the telepresence capabilities in PCs, laptops, tablets and smartphones to be used with WebRTC person-to-person communication. Existing Ingate SIParator E-SBCs can be upgraded with Q-TURN and Q-TURN technology enabling carriers and network providers to offer WebRTC-ready broadband access.

LiveOps Inc.
www.liveops.com



LiveOps Inc., which provides cloud contact center and customer service solutions, has led the charge in transforming the contact center by expanding its traditional voice support with WebRTC – the emerging standard for browser-to-browser communications. LiveOps Engage, a single integrated multichannel agent desktop, provides native integration with Twilio Client to deliver a true virtual contact center. LiveOps Engage users are now able to handle voice calls directly from their browser – whether from a PC or tablet – with zero requirements for a landline, mobile phone, or any downloads. The need for expensive servers, software, landline and phones required by traditional call center technologies can now be eliminated, which dramatically reduces costs while enhancing agent experience and productivity. Furthermore, companies can continue to create sophisticated and personalized call routing strategies to increase call resolution with advanced call management and dynamic business rules. Leveraging Twilio Client, LiveOps Engage provides an option for any company looking for an opportunity to forgo its telephony infrastructure and have everything – contact center plus telephony – in the cloud.

Metaswitch
www.metaswitch.com

The advantages of extending clientless multimedia service options to mass-market consumers are obvious. Complementing native client-based SIP endpoints, network operators must ensure that both their legacy and new telephony infrastructures can support browser-based real-time communications. Acting as a SIP server, terminating WebSockets from a browser and converting them to UDP or TCP, Metaswitch has implemented SIP-over-WebSockets gateway functionality, formalized within the IETF, within the Perimeta session border controller platforms and as part of the Open Source Project Clearwater. With a JavaScript SIP application instantiated within a WebRTC-compliant browser and these gateways, carriers can deliver standard and innovative rich communications, on demand, to virtually any device, with the resiliency and quality of service demanded of business and residential offerings alike.

Net Medical
www.netmedical.com

The company's WebRTC Telemedicine videoconferencing tool allows organizations to set up users, groups and subgroups with crystal clear, real-time, face-to-face web-based connections significantly facilitating doctor-patient and hospital

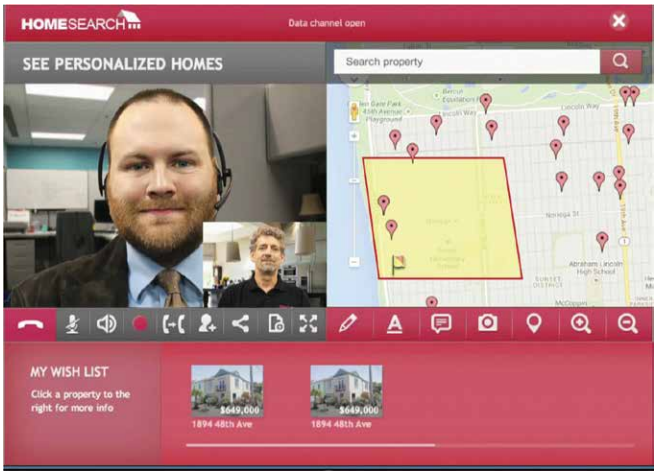
communications. Although designed specifically for the health care industry; other types of companies and organizations can also use the system. RTC Conference Switch and RTC Receiver can be embedded on a website for one-to-one and multiparty calls. Features include push-to-talk, echo canceling, data channels for text and speech recognition, and medical device integration. No plug-Ins are required and the solution is compatible with existing browser technology from Firefox, Google Chrome and Opera.

Nex Gen Bits LLC
http://ngmsvid.com
NGVX, or Nex Gen Video Exchange, is a video calling server from Nex Gen Bits, bridging together the worlds of SIP and WebRTC. This software-based conferencing and streaming server is intended for anyone looking to deploy a solution for video collaboration, conferencing, webcasting, recording, and live video streaming. NGVX allows you to securely host a meeting, record the video and audio content while simultaneously webcasting to any number of native devices such as iPhones, Android, BlackBerry, and desktop clients. It supports WebRTC, allowing anyone with a web browser to seamlessly connect through the conferencing server to any other endpoint for real-time collaboration. Leveraging the media engine of Nex Gen Media Server, it is capable of operating as a multipoint conference server, providing video interoperability and live video streaming services to a variety of devices. It can be deployed as a stand-alone server or in conjunction with the IMS calling architecture to provide real-time media services in the role of a media resource function processor. The software is open source and customizable for integration into your own proprietary streaming solution and architecture.

OnSIP
www.onsip.com
OnSIP InstaCall (Beta) is a complete, secure, end-to-end WebRTC offering that allows a company's website visitors to seamlessly call or video call any destination or phone on the

company's enterprise PBX with just a click of a button. Installation is simple; OnSIP administrators create an InstaCall button in the OnSIP hosted PBX administrative portal just like they would any other PBX feature (voice mailbox, auto attendant, etc.), and a snippet of JavaScript code is generated that can be placed into a website's HTML. InstaCalls initiated when site visitors click on these buttons can be answered on traditional SIP phones (audio only), or on the newly released InstaPhone browser application. InstaPhone allows OnSIP customers to take video calls from their websites, and receive custom caller information even before they pick up the call. InstaPhone users can also invite others to call them with an easy-to-use Instant Call Link.

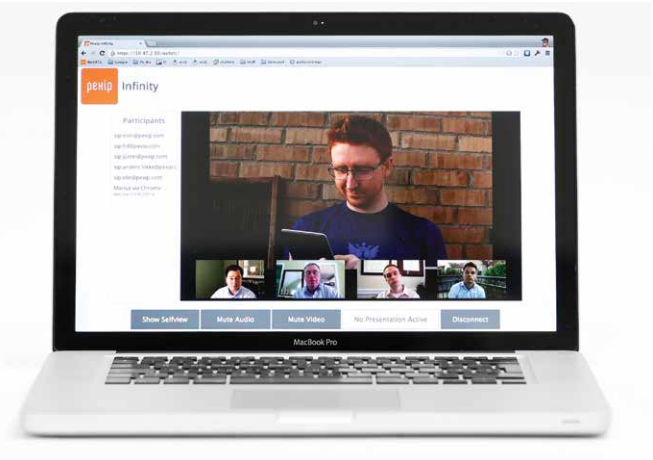
Oracle
www.oracle.com
Oracle Communications announced the Oracle



Communications WebRTC Session Controller in September 2013. The product enables communications service providers

and enterprises to offer WebRTC services – from virtually any device, across virtually any network– with carrier-grade reliability and security. The Oracle Communications WebRTC Session Controller is designed to support the emerging demand for WebRTC communications and supports the development of WebRTC-based applications and services to enable simple peer-to-peer web communications without a plug-in download. Specifically, the product enables CSPs and enterprises to integrate carrier-grade signaling, policy and charging with any WebRTC application to help reliably scale WebRTC offerings to millions of subscribers, and also provides robust security and authorization capabilities not currently built-in to the open-source WebRTC API standard. The product also facilitates interworking between WebRTC clients and SIP-based, multivendor unified communications systems, enabling users to more easily access their enterprise communications environment and seamlessly switch WebRTC sessions between devices.

Pexip
www.pexip.com
Pexip Infinity is a software-based, virtualized conferencing



platform providing personal meeting rooms to any number of users on video, voice and mobile. It runs on standard X86 servers using hypervisors from VMware and Microsoft. It is a distributed architecture, and a voice/video/data conference can exist on one or more servers in one or more locations at any time. Infinity provides broad interoperability. A single conference may have SIP, H.323, Microsoft Lync and WebRTC endpoints connected, providing HD video, wideband audio and data sharing to and from all the different participants. All protocols are supported natively in the Pexip Infinity product – no gateways are required for interoperability with H.323, SIP, WebRTC, H.263, H.264, H.264SVC, VP8, BFCP, H.239, MPEG4 AAC, Opus, etc. WebRTC participants connect to a Pexip conference without any browser plugins. Voice, video and desktop sharing from WebRTC is transcoded on the fly to any protocol required by H.323, SIP or Lync participants. A typical deployment leverages the distributed architecture by deploying Pexip Infinity conferencing nodes in all major regions. Videoconferencing endpoints connect to the closest Pexip conferencing node. Between Pexip conferencing nodes bandwidth is preserved, only forwarding required video stream in full resolution.

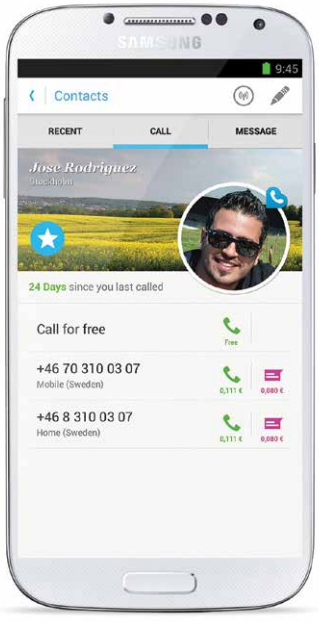
PubNub
www.pubnub.com
PubNub offers an open source template to allow developers to quickly and easily add Skype-like video chat into their apps. The free template provides a fully functional video chat platform using WebRTC, PubNub and Google Authentication for a global, reliable collaboration solution. All the core elements needed to build and deploy a fully featured WebRTC video chat product are available as a documented, open source template. This new template leverages the browser's built-in WebRTC API for peer-to-peer audio and video, and adds the additional components needed for a fully deployable video chat application. This includes collaborative features such as presence detection to see which friends are online, call signaling and initialization, text chat, and friend lists. This can be easily extended to use Facebook, LDAP or other homegrown directory services. Together, these components allow any developer to add a globally scaled video chat solution to apps running on WebRTC-compatible platforms. All the source code, a website with a working app using the template, and a tutorial are available online.

Radisys
www.radisys.com
With more than 6 million ports deployed, mobile network operators, service providers and converged communication developers depend on Radisys media processing solutions to develop and deploy a growing variety of WebRTC, VoLTE, OTT and other real-time IP communication services. Radisys has added WebRTC features and codecs to its standards-based Media Resource Function for IMS architectures, enabling its media processing products to support

scalable HD video transcoding and transrating for WebRTC to IMS gateway vendors. Its broad range of multimedia processing capabilities allows WebRTC service developers to rapidly integrate and deploy revenue-generating WebRTC services, such as IP contact center communications, or multimedia conferencing between IMS and WebRTC endpoints. MPX Operating Software provides the common software foundation for all of Radisys' media processing products, allowing WebRTC customers to develop with the Radisys Software MRF for virtualized cloud deployments, and later seamlessly scale to the purpose-built Radisys MPX-12000 platform. Radisys' MRF product portfolio delivers the real-time IP media processing required for WebRTC service revenue generation.

Rebtel
www.rebtel.com

An independent mobile VoIP firm whose products have more than 23 million users globally, Rebtel has two products that utilize the WebRTC framework. The first is a calling app, Rebtel, available for iOS and Android. It lets users make free calls to other Rebtel users anywhere in the world, and calls to non-Rebtel users are super cheap (just 1.5 cents per minute to call the U.S. from abroad). Callers can make international calls over Wi-Fi/mobile data, or they can use their local minutes. During a call, users can switch seamlessly between Wi-Fi /mobile data and local minutes using Rebtel's Keep Talking feature. Rebtel also features seamless contact list integration, so users can automatically see which of their contacts are Rebtel users who can be dialed for free. Rebtel also uses the WebRTC framework in the Rebtel SDK, which lets developers add free app-to-app voice and IM communication to their apps with just a few lines of code. It's an ideal solution for developers making apps in categories like social, enterprise, dating and gaming. Developers can even use it to distribute their own mobile VoIP app without a major backend commitment.



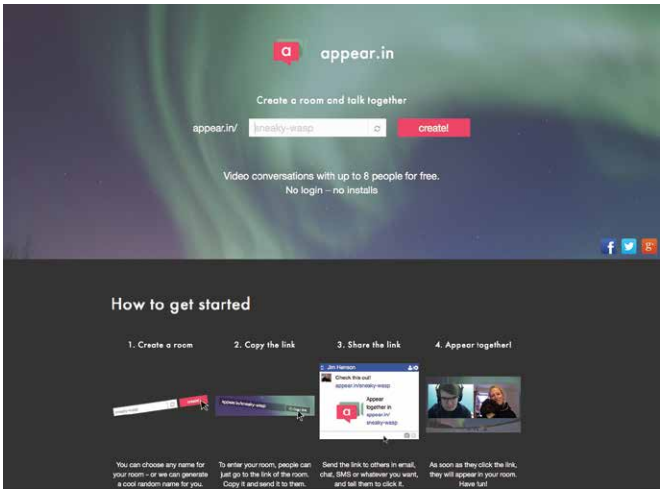
Swarm Labs LLC
www.swarmcdn.com

Swarm utilizes WebRTC to create a private peer-to-peer content delivery network for websites. Much in the same way a traditional CDN file serves to end users based on geographical location, Swarm does this in a similar fashion but

with the users already on your site at that time. By utilizing WebRTC, Swarm has evolved content serving one step closer to the end user. Swarm's software is an add-on to a site's current CDN or host so companies don't have to switch hosting. In addition, using JavaScript and the WebRTC protocol, implementation of Swarm is kept to a minimum (adding a short JavaScript code and changing a few content tags). While the software helps offload image and video content, the HTML, CSS, and JavaScript continue to load direct from a site's host. The goal of the Swarm technology is to reduce bandwidth and hosting costs for companies.

Telenor Digital
https://appear.in

Developed by Telenor Digital, the new service appear.in



allows users to easily set up video conversations in the browser without any logins or downloads. As opposed to existing videoconference solutions such as Skype and Lync, appear.in uses your Internet browser, thus making it

easy to set up a call with both friends or business associates without requiring any downloads, installations or even a login. Up to six simultaneous guests simply click on their invite link to enter the unique room. Users can even customize the background images to make their chat room more personal or representative, and can claim ownership of their personalized room name for repeat usage. Built on the new standard for real-time communication in the browser, WebRTC, the goal of appear.in is to make talking over video as natural as using a phone.

www.uberconference.com

One of the most powerful and appealing features of UberConference is its use of WebRTC. UberConference was one of the first to adopt the WebRTC standard, working directly with the Google Chrome team to develop an elegant integration. UberConference was also the first audio conferencing service to offer HD audio over WebRTC. UberConference allows users of its award-winning visual conference calling solution to "dial in" directly from the Chrome browser, making calls more accessible for all. Now anyone can use the service without the need for a phone or a U.S. telephone number – just as long as they have Internet access. This works well for international callers, eliminating long-distance charges and making UberConference available from anywhere around the world. All you have to do when you're connecting to your UberConference is choose the option Use Your Computer. You will then join the call in HD audio via your computer. It's that simple.

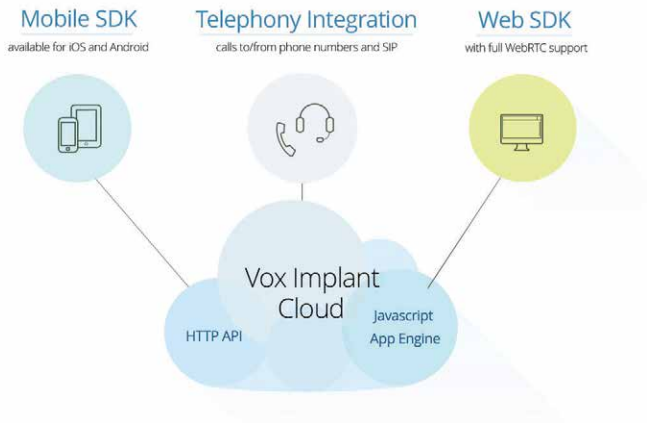
Weemo
http://weemo.com/

With Weemo WebRTC Platform, you can add real-time video to your app that users can experience on any browser, any device and any network. And you can do this in less than a day. Weemo WebRTC Platform encompasses a global real-time video infrastructure and a development framework composed of APIs and mobile SDKs. Weemo's telecom-grade infrastructure is built to handle millions of simultaneous real-time video sessions throughout the world. Tier one data centers are positioned across the globe, minimizing video and audio lag during communications. For front-end development, the framework includes a JavaScript API abstracting native WebRTC browser APIs and extending real-time video capabilities to non-WebRTC browsers. For mobile development, iOS and Android SDKs accompanied by PhoneGap plugins are ready to use out of the box. For the back-end integration, the framework provides authentication, reporting and provisioning APIs. Weemo WebRTC Platform abstracts the complexity associated with leveraging WebRTC such as deploying hardware, authenticating users, auto-adjusting the resolution to the environment, or delivering reliable multi-party video chat.

XirSys
http://xirsys.com/

XirSys is a WebRTC hosting platform, providing a cloud server network, API, developer tools, and personal hands-on support to make using WebRTC easy. As you may have found out first-hand, it's extremely difficult to develop your own backend infrastructure, especially when accounting for all the super secure NAT scenarios and complicated firewalls. Our service takes care of all that for you, so you can focus on the important stuff: your project's functionality and creating a great application. And our simple pricing model makes it easy to see what you are paying for; we charge only for the bandwidth you use from our servers and nothing else. Although WebRTC is a more recent initiative, we are far from novices in the practice of real-time communication. We've been practicing RTC for more than 11 years under the name of Influxis, so we have a solid understanding of the requirements, expectations, and general know-how that are needed for successful WebRTC implementations.

Zingaya Inc.
http://voximplant.com



VoxImplant is a cloud platform designed to allow developers to embed real-time communication functionalities into web-based or mobile apps quickly and easily. Developers can use VoxImplant to add audio and video communications capabilities to their apps and build services like click-to-call, cloud PBX, contact center and many others. VoxImplant utilizes a cloud app engine approach to provide all the infrastructure and coding so that developers can focus on their apps without having to struggle with complicated, low-level technologies. Most of the platform functionality can be accessed using JavaScript. The VoxImplant Web SDK uses WebRTC for WebRTC-enabled browsers and Flash for all others to provide in-browser voice and video capabilities. The call control logic is written in JavaScript and can be uploaded into the cloud, where the VoxEngine will run whenever a call is made or received on the platform. VoxImplant's scalability and flexibility allow even enterprise-level scenarios to be efficiently and painlessly implemented. The platform also supports SIP, such that calls can be made and received to and from any SIP endpoint.

By Paula Bernier

The Great Indoors

Seventy to 80 percent of mobile data is generated indoors. This is a refrain we're hearing more and more lately from companies in the wireless infrastructure arena as they introduce new solutions to help service providers better address the in-building opportunity, which ABI Research says will be worth $4 billion in 2018.

Just what technology and products best fill this void is the question. The answer, of course, depends upon whom you talk to.

Ericsson, a giant in cellular networking, continues to push its small cell story. The company last year introduced the Radio Dot System, a small and low-cost LTE antenna/amp that interfaces with Category 5/6/7 cables. Then, in February, it announced Small Cell as a Service. Arun Bhikshesvaran, the company's CMO, told INTERNET TELEPHONY that these solutions make sense because modern buildings tend to have glass coatings and heat and light protection that inhibit good coverage from macro cellular networks, so this solution addresses all that.

Several companies, including TE Connectivity, consider distributed antennae systems (or DAS) as an ideal technology for in-building wireless. Some believe DAS is too expensive to be used for many deployments, but TE Connectivity has told INTERNET TELEPHONY that DAS is a good choice if you need to address high-density applications. (Indeed, DAS is the indoor wireless technology of choice at AT&T Stadium where the Giants play in San Francisco.) DAS also can enable service providers to leverage all of their frequency assets.

However, Axell Wireless at Mobile World Congress in February launched an in-building solution allowing mobile operators to allocate capacity to locations only where and when it is needed. The company is promoting the system as a more cost-effective way for mobile operators to handle the challenges of large-scale in-building coverage.

Axell says because they are "hard wired", traditional DAS solutions tend to be more expensive, but that its new solution, called idDAS (intelligent digital DAS), allows mobile operators to dynamically allocate capacity around a facility and, in effect, provide a DAS system that can react to user demands.

Meanwhile, Taqua, another well-known network infrastructure provider that has recently come out with an in-building wireless coverage solution, is focused specifically on addressing voice over Wi-Fi.

Given that 80 percent of all mobile data traffic is streamed indoors, 39 to 61 percent of offices have noticeably poor in-building coverage, and 70 percent of data is carried by Wi-Fi today, it makes perfect sense to leverage Wi-Fi not only for data but also for voice, John Hoadley, CTO of wireless, and Frederick Reynolds, vice president of marketing, at Taqua said.

While major cellular carriers are involved in moving this model forward, it also makes sense for any company with a large network, like a cable TV company or even an outfit like Boingo Wireless, Reynolds said.

Based on the Taqua Virtual Mobile Core, this VoWiFi solution leverages the small cell technology Taqua got via its 2011 acquisition of Tatara Systems. The new solution includes two components, some software in the network that can run on an industry-standard server, and a client on the user's smartphone. The in-network piece does SIP translations and essentially acts as a switch. The client piece, available initially only for Android devices, checks for Wi-Fi access points on which the user is registered and if it sees one it turns off the device's cellular connection and instead sends all communications through the WiFi.

"This is all integrated with your existing device" and it's not an over-the-top capability like Skype, explained Hoadley.

One of Taqua's service provider partners worked with suppliers of Android devices to put the client on their phones so it's available out of the box when consumers purchase the devices, he added. Hoadley declined to provide an indication as to when Android devices with the VoWiFi client would begin shipping or to disclose the identity of the service provider partner involved.

Taqua is also working with the Android ecosystem to deliver a downloadable client for older devices or endpoints that are distributed by other methods than cellular carriers, Hoadley added. In the second quarter Taqua will be in trials with a service provider outside the U.S. that is offering the VoWiFi capability based on downloadable clients. Taqua is also working to make available downloadable clients for iOS devices.

While the VoWiFi solution from Taqua can be viewed as an alternative to VoLTE, Taqua Virtual Mobile Core also supports some VoLTE applications, so service providers that leverage the solution can use it later for that purpose. However, Hoadley expects that its VoWiFi application will have a lifespan of a decade or more.

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By Paula Bernier

Machine-to-Machine Communications

The M2M Space is Poised for Big Things, But Faces Key Challenges

Global M2M cellular connections are forecast to hit the 374.9 million mark by 2017, expanding at a compound annual growth rate of 26.5 percent from 91.4 million in 2011, according to research firm IHS. Berg Insight, meanwhile, forecasts that M2M devices with cellular connectivity will increase by 22 percent this year to reach 164.5 million in emerging markets, and estimates that M2M connections will grow at a CAGR of 24.4 percent with 489.9 million connections in 2018. And Analysys Mason says the M2M market will be worth $88 billion in the next 10 years.

To meet its potential, there's little doubt that M2M has to overcome some barriers. But there's been a good amount of forward momentum to date, and all signs point north.

Perhaps the biggest challenge M2M has faced to date is fragmentation within the marketplace.

"Today, there is a great deal of complexity involved in the development and implementation of M2M solutions that is directly related to there being a very large ecosystem of suppliers offering a wide mix of intermingled solution sets," explained Larry Zibrik, vice president of market development at Sierra Wireless. "There is an array of devices, management services, subscription services, application and cloud platforms. They are all essential in creating a customer solution that delivers value but can quickly overwhelm a customer."

Daniel Obodovski, author of the new book "The Silent Intelligence", also sees hardware as a big bottleneck to more widespread M2M adoption. The issue is that many companies have shied away from the hardware side of M2M because hardware tends to be low margin, so the hardware is not always available to do what people want to do, said Obodovski, a former Qualcomm guy who co-founded and is currently co-chair of M2M SIG at CommNexus San Diego. This is a great opportunity for investors who may want to consider pumping some funds into this under-appreciated but sorely needed piece of the M2M ecosystem, he indicated.

There's also an absence of established business models for M2M. Some believe M2M suffers from a lack of standards. And additional education of potential users on the benefits of machine-to-machine solutions wouldn't hurt either. But, then, most new technologies face similar challenges.

The good news is that M2M appears to be poised for big things. Just look at the expanding adoption of these solutions, the decreasing costs of hardware, the growing array of products and businesses in the M2M space, and rising interest from investors in machine-to-machine companies.

And while there are too many players in the M2M market, at least by some accounts, consolidation has begun. At the same time, there's been a realization that businesses need M2M integrators to help them formulate strategies around M2M and then put together the pieces to meet those goals – and M2M companies are stepping up to fulfill this role.

A new report from IHS indicates the market for M2M-related value-added services will expand from $1.5 billion in 2012 to reach $10 billion by 2017. VAS includes business and technical services that complement managed cellular connectivity and application platform services to enable application developers, service providers and corporate adopters to create, deploy and manage cellular M2M applications.

Sam Lucero, senior principal analyst for M2M & Internet of things at IHS, said that mobile network operators are increasingly helping their customers connect the dots among M2M ecosystem players, including suppliers and developers. Such efforts, he added, range from establishing module supply programs to developing partnerships with platform vendors and solution suppliers to reduce overall complexity in the value chain. In addition to cellular network operators, Lucero said others in the VAS space include enterprise IT vendors, MNOs, module vendors, platform providers and system integrators.

"It sounds cliché to say, but there is close to limitless potential for connected solutions in 2014," said Mark Bartolomeo, vice president of connected solutions at Verizon Enterprise Solutions. "We're entering a time when nearly everything can be connected to the Internet or to another computer system. Our responsibility is to work closely with our clients and show them how they can move across a continuum of M2M services to improve their business."

The businesses leveraging M2M technology are extremely wide ranging. Indeed, the verticals and applications in which M2M can have a positive impact seem limitless, and even those categories that have embraced M2M in a real way have plenty of runway.

"There are a lot of industries that are in low levels of penetration," said Mike Ueland, senior vice president and general manager of Telit Americas. "So there's lots of upside."

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By Thomas Cottereau

WebRTC Fuels Surge in Telehealth Services

WebRTC's ability to enable video chat in a browser without the hurdle of a download is spurring new use cases across several industries. One of the most promising is the health care industry.

Every week, it seems, a new telehealth service pops up in this space. Most of these services come with the promise to deliver more efficient care by connecting physicians and patients through video. Video consultations are especially relevant in three scenarios:

- when patients need an initial assessment in the case of an emergency;
- for follow up consultations that do not require a visit to the office; and
- when patients want medical advice on an ad-hoc basis such as to ask questions regarding a prescription.

These improvements in the delivery of health care come at a timely point. The roll out of the Affordable Care Act promises to expand the health care benefits being offered to the 55 million Americans with no health coverage, as well as millions more who are underinsured. One of the potential outcomes of this landmark legislation is that it could potentially cause a shortage of doctors in the United States.

"As the demand for adult primary care explodes," health care experts Thomas Bodenheimer and Mark Smith wrote in the November issue of Health Affairs, "the capacity to provide that care is shrinking."

Part of the plan to overcome this looming threat is to give priority to the quality of the care provided rather than the volume. Doctors and hospitals are accountable to align with these new key performance indicators. Telehealth helps them provide more cost-effective care. The market opportunity is significant for telehealth providers. According to a new report from IHS, the telehealth market will grow eightfold in the U.S over the next five years, from about $240 million this year to $1.9 billion in 2018.

Videoconferencing has been used for some time by health care providers. However, until recently, it was mainly restricted to internal collaboration between members of the medical staff. It is now being opened to patients, as laws and regulations drive an increasing demand for telehealth, and WebRTC allows application developers to build new telehealth services.

However, there are several factors to consider when leveraging WebRTC to build a telehealth app. Delivering video on mobile apps and complying with the Health Insurance Portability and Accountability Act are the main roadblocks that often arise.

Are WebRTC-powered telehealth services HIPAA compliant?

HIPAA intends to protect individually identifiable health information. As defined by HIPAA, there are two types of entities that must comply with the rules: the covered entities and the business associates. Covered entities are the health care providers and insurance companies that maintain Protected Health Information. Business associates are a person or organization that conducts business with the covered entity that involves the use or disclosure of individually identifiable health information. In other words, telehealth apps that access PHI are considered as business associates, and so they must be HIPAA compliant.

However, a company that only transmits the data without having access to that information is not considered as a business associate. This scenario has been defined as the Conduit Exception. For instance, the postal service, UPS, or private couriers are companies that act as a conduit for PHI. In the case of a video consultation, companies that only transmit the encrypted PHI and never have access to the encryption key also benefit from the Conduit Exception. By encrypting media streams with 128-bit AES, WebRTC addresses these two requirements so the use of WebRTC does not create additional constraints for a telehealth service to be HIPAA compliant. However, in the case where a video chat session is stored, the telehealth service must ensure the storage is implemented following HIPPA rules.

Eliminating the barriers to deliver WebRTC on mobile

WebRTC significantly lowers the barriers to adoption from a user standpoint. As long as doctors and patients use a browser supporting WebRTC, they can establish a video chat session in a single click with no download required. This convenience of use is one of two core factors that will drive the adoption of telehealth services.

The other factor is mobile. Tablets and smartphones are the devices on which patients expect their digital experiences to be delivered on. Today, a telehealth service that wants to embed video chat into a native mobile app can do it by relying on a WebRTC platform such as Weemo. This is how MediSprout (disclaimer: MediSprout uses Weemo for its telehealth solution) provides both a web and a native telehealth experience.

The market is ready for adoption. According to a global study released last December by Intel Corp., 72 percent of respondents said that they would willingly see a physician via videoconferencing for non-urgent appointments. Third-party WebRTC platforms exist to remedy the technological and HIPPA challenges developers and providers currently face. And companies like MediSprout have shown that knocking down these barriers allows them to focus on what matters most: the experience.

Thomas Cottereau is founder and CEO at Weemo (weemo.com).

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By Erik Linask

Making the Connected Home Smart

The smart home market may be reaching a critical juncture, judging by the acquisition of Nest by Google.

Cees Links, founder and CEO of GreenPeak Technologies, would likely agree there is progress toward smart homes – a term he much prefers over connected home, noting that our homes have long been connected, but they have hardly become smarter as a result – despite the ZigBee chip in the Nest remaining dormant thus far. So, until the entire home becomes connected internally, that external capability has limited value.

As a manufacturer of ultra-low-power silicon for the purpose of enabling communication and control between wireless devices, and competitor to the likes of TI, Atmel, Freescale and others, GreenPeak certainly would benefit from an increase in ZigBee market penetration. While it is not the most recognized chipmaker, Links says its quality and cost combination are second to none, and one of the reasons it takes only orders of a million chips or more.

Is there merit to his claim? His client list boasts names like Comcast, DirecTV, Cisco, Sony, Philips, Arris, Samsung, NTT, Time Warner Cable, and many more. The cableco relationships are significant because, as Links points out, the set-top box is rapidly becoming the hub of home automation and connectivity and will likely serve as the gateway to the smart home. Most recently, GreenPeak signed a deal with Bosch, announcing certification of its chips for Bosch motion sensors. Currently, the deal doesn't extend to other Bosch lines, but Links is confident this is only the beginning.

There's little doubt ZigBee will be the wireless technology of choice, given its low power consumption and NLOS technology that is ideal for smart home applications. In fact, Links says many devices with GreenPeak chips never need a battery replacement. When you consider the number of devices that will eventually be connected, that's quite a savings in time and sanity, not to mention cost. Come to think of it, it's not unlike swapping out all your light bulbs for LEDs – which, at long last, the federal government has mandated in the U.S.

The point Links makes is really that devices aren't all that smart on their own, but require each other to become smart – along with intelligence garnered from each device and analyzed and leveraged as a cloud-based resource. When entire home systems – entertainment, lighting, cooling and heating, safety and security – are all not only network-connected, but also on a single management system, the intelligence is able to be leveraged for an enhanced lifestyle.

Devices aren't all that smart on their own, but require each other to become smart – along with intelligence garnered from each device and analyzed and leveraged as a cloud-based resource.

When you are able to combine the intelligence from all of these systems, almost any scenario becomes a reality, because the system is able to understand individual and group habits based on data collected from each of these sensors, which it then translates into action items – turning on the TV when Lefty tees off, turning the security system on when it recognizes everyone has left the home, adjusting lighting systems to environmental factors such as clouds or sun.

Links believes we will realize true smart homes in the next four to six years, when the Internet of Things comes to fully exist.

One challenge thus far is cost. Not only are smart products priced significantly above their non-connected counterparts, but when it comes to connected lighting, for instance, a homeowner who has installed LEDs throughout the home already is much less likely to be willing to absorb the cost of that than switching to smart lighting. And obviously, there are soon-to-be-connected items with much longer buying cycles that will take years to be replaced (refrigerators and other appliances).

That said, the real key will be education. For smart technology to become ubiquitous, consumers will have to be made aware, and their purchasing will have to be made easy – as will the connectivity. Despite its inherent advantages, if ZigBee isn't as easy to use as Wi-Fi, it will fail. Based on what Links says, it's a no brainer.

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