VoIP Fuels OSS, but Will Regulators Crash the Party?

By Edward J. Finegold

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VoIP is a technology, a service and a topic for regulatory debate. While VoIP technology and services have great potential, key decisions that will drive its future in the United States are yet to be made. While VoIP's progress as both a technology and a service can be assessed, what its final regulatory trappings will look like cannot. The FCC has made some statements in favor of a non-regulatory approach to certain Internet-based VoIP applications, but there may be very little else about VoIP that is de-regulatory in the end. Those service providers investing in VoIP in spite of what may come face a market full of developing products – both network and OSS - that in some cases are six months to a year away from functional maturity. The next year may see VoIP's future dictated in the United States, and what's at stake is critical both for Americans and the OSS business.

The Greatest Nation on Earth

The United States is patriotic to where Americans – particularly America's leaders – repeatedly insist to the rest of the world that ours is the greatest nation on Earth. This judgment depends entirely on one's perspective. When it comes to things like entertainment, military capability, and cold hard cash, the United States is clearly number one. But when considering other facets that are important to people's lives - like healthcare, education, transportation and communications - the United States continues to fall behind. VoIP represents an opportunity for the United States to remain in stride with the developing global economic community that is being fueled by deregulation and Internet-born technologies. Regulators, however, have the opportunity to cut U.S. corporations and residents out of this bigger picture.

Without regulatory barriers, VoIP can be the staple capability to provide a foundation for numerous integrated services that connect people and enable business in new, more effective and more compelling ways. Regulating VoIP like a common carrier service, and protecting the rivers of cash that flow from existing voice regulations, will do little more than hinder the United States in the midst of a communications race that places like Korea, Japan, China, India and Western Europe are already winning.

Unfortunately, it appears increasingly clear to those in the know that a de-regulatory approach to VoIP just isn't likely. "I feel strongly that the revenue stream that is now made up of things like access charges, subscriber line charges and the like is not going to go away because you're using packets instead of circuits. You'll have some equivalent mechanism that pays the same people that get paid now," says Robert Curtis, senior vice president of strategy for Z-Tel, a strong CLEC that continues to fight regulatory battles in the DC circuit courts and on Capitol Hill. For the people running ILECs today, it's protecting numbers for the short term that matters. People and businesses in the United States will pay for their myopia, however, both with arbitrary rates and a growing inability to compete on level ground with nations that encourage, rather than restrain, communications advancement.

British Telecom Outs the ILECs

A crystal clear example of where U.S. ILECs should be steering VoIP – in their networks and in Congress – comes from their counterpart in the United Kingdom. On June 9 the BBC released a report examining British Telecom's plans to transition its entire voice network from POTS technology to broadband and VoIP. While the initial testing and trial stages are underway today, BT plans to spend £3 billion to gradually migrate its customers to an all VoIP network by 2009, with mass migration beginning in 2006.

BT has already begun building its operational infrastructure for its enterprise VoIP services. MetaSolv recently announced successful completion of its first wave of OSS deployment for BT including order management, inventory and activation systems. BT has publicly stated that these new systems are already providing them with 97 percent order success rates and 50 percent reductions in time-to-provision. The UK's largest network operator expects the cost savings resulting from its transition to VoIP to equal roughly £1 billion per year, according to the BBC.

Meanwhile, in the United States, the ILECs may be offering a lot of lip service around their commitment to VoIP, but they are not following it up with action. "We see carriers in the U.S. that, because they don't know where the regulation is going, are making decisions lightly," says Derek Bell, product manager for discovery and activation solution provider Syndesis. "They (tier one carriers) want to be larger than life and say they are in this VoIP game when they really aren't investing in this technology. They look at it from a tariff standpoint, not as something new and different." adds Bell.

Syndesis, which currently provides solutions to several incumbent carriers in North America, shares this perspective with many others in the OSS business. "I think the ILEC claims are all smoke and mirrors and they aren't really investing – it's more to show the regulators that they are trying this technology," says John Konczal, vice president of business development for Telution, an OSS solutions provider and integrator that has done pioneering work in VoIP deployment with market leaders such as Z-Tel. "You have to imagine the cost savings of moving to a VoIP network for a large ILEC would just make sense," Konczal adds. Given the numbers BT has stated publicly – and the expectations thus set for its investors – it would seem Konczal is right.

Destroying UTOPIA

In most cases, ILECs are not only failing to invest in a devoted transition to VoIP, but they are preventing others from doing so as well. For example, it was Qwest that was largely responsible for seeing legislation passed in Utah that has severely hampered the much publicized UTOPIA initiative. UTOPIA is a municipally funded project to connect Utah's most populous cities with a high-speed, metro-optical network that would deliver a range of services including triple play, business communications, education and public safety applications. The idea behind the project is both to drive economic development and improve quality of life for people in Utah.

Part of what's driven UTOPIA at all is the fact that Qwest has not itself invested in high-capacity networking in Utah. What Qwest has invested in, alternatively, is lobbying the Utah legislature to rule that municipalities are not permitted to own and operate telecom networks. The end result of this course of action was a less extreme ruling that undercut the public, tax-based funding available to UTOPIA and in turn forced Salt Lake City to exit the project.

This same type of attitude is being brought to Capitol Hill, where ILECs are actively lobbying to create barriers for CLECs and cable MSOs as they invest in delivering VoIP and other broadband services. Beyond the typical lifeline arguments that involve issues such as network power, CALEA compliance, and universal service fund contributions, more spurious regulations are within the realm of possibility. For example, ILECs may be pushing for rules that would require cable companies to reimburse customers for any loss of service availability – even if the customer is never actually affected. ILECs themselves are not subject to such rules, which would potentially put their cable competitors in an arbitrarily disadvantageous position.

Further, ILECs have already secured the right not to un-bundle any new fiber they deploy. With the current structure for wholesale rates set to expire June 15 - thanks to the White House's apparent indifference – it will only become more difficult for those actively investing in VoIP capabilities to access the last mile connections they need to deliver service to customers. "In order for there to be a robust VoIP market, there has to be access to broadband capable loops," says Z-Tel's Curtis. The next bellwether to mind is an upcoming Notice of Proposed Rulemaking

(NPRM) that will set the direction – for better or worse - for the first and most critical wave of VoIP regulation.

The U.S. Senate Speaks on VoIP

While few rules have yet been made, there is both good news and bad news. The good news is that the handful of Senators who have commented thus far on VoIP's regulatory treatment have been in favor of letting it grow. The FCC has created a VoIP forum through which it plans to gather information and opinions to prepare for a NPRM. Several senators have written letters to FCC Chairman Michael Powell to express their initial, apparently positive, opinions on VoIP regulatory treatment.

For example, Sen. George Allen of Virginia notes that the United States is being outpaced by Asia, and even Canada, in broadband penetration and hopes that VoIP will be "free of unnecessary or unreasonable regulatory costs or burdens." He also notes that the development of VoIP and related broadband services are "crucial to local economies and job growth." Sen. John McCain of Arizona argues that "existing regulatory uncertainty…threatens to quickly create an unhealthy environment for continued investment and development of competition in [VoIP]."

Sen. John Sununu of New Hampshire argues that "regulatory burdens…would stem the digital migration" and that "if states approach VoIP in the same manner they regulate the current local phone system, the external benefits of the technology…would be lost…and might undermine the ability of this new technology to develop and succeed." Sununu's heart is in the right place, but it's important to note that VoIP will succeed regardless of U.S. regulations because of global investment – but the United States could be left out of the game.

"IP starts to flatten out the world a lot, and the U.S. becomes less important," says Andrew Hurrell, Director of Marketing for Ottawa-based Atreus Systems, an OSS provider focused on IP service creation and delivery. Hurrell, a veteran of industry giants such as Nortel and Bell Canada adds that, "being the richest nation doesn't matter in this case because the U.S. isn't the most populous. The U.S. doesn't matter a whole lot in terms of broadband penetration anymore. The rest of the world will drive this technology."

There is another problem with some of the Senate's perspective on VoIP, as the focus is on bringing lower cost voice service to consumers. This is most apparent in a letter from Sen. Ron Wyden of Oregon, co-author of the Internet Tax Freedom Act and the Internet Tax Non-Discrimination Act. Wyden states in his letter to the FCC that "VoIP holds tremendous promise in offering low-cost voice service to American consumers." He rightly points out that disparate treatment of VoIP – with rules varying from state to state – creates unnecessary barriers and holds back investment, a sentiment the other senators share. The problem, however, is the idea that VoIP is simply a means to provide lower cost voice. If VoIP is viewed this way, and regulated as such, it could lead to its downfall in the United States.

VoIP Can't Only Be About Low-Cost Voice

While one of the factors that help VoIP to gain momentum is the reality of lower cost voice services, that point of view overlooks its real value. The message that needs to be sent to lawmakers, regulators and investors is simple: "You have to forget about the V in VoIP. It's not about voice, but content," says Mark Nicholson, chief technology officer for Syndesis. The real vision for VoIP is in services that include voice as a staple and a platform for other capabilities like messaging, presence capabilities, and a range of other services that can include voice.

The problem with viewing VoIP as nothing more than cheap voice service is that it may never be taken seriously as being a bulletproof technology. “The LINUX sub-culture mindset plays a role here. VoIP is a living science project and makes for cool programming, but it’s difficult to scale, to maintain, and to run a business on. I see the guys who treat this like a huge HAM radio as the Achilles Heel. They’re pioneering, but it’s tough to build a business on something you can’t count on.”

The only rules made thus far around VoIP involve a decision not to regulate Internet-based services like Pulver.com. Further, Vonage has been making news – and was ruled a phone company in Illinois – but its service can’t be taken seriously as a business-grade offering for specific technical reasons (see below). “I think VoIP on its own, despite what Vonage will say, is not a sustainable business in the current environment and given the billing models that exist,” says Alan Sheehan, chief technology officer for Interactive Enterprise, one of the world’s leading cable services activation software providers.

Without access to lucrative business markets, pure-play VoIP providers are likely to run out of momentum and funds quickly. Similarly, if the waves of CLECs entering the VoIP game focus only on low cost voice, they will have aimed too low and will cut themselves out of their real potential for competitive advantage and profitability. If the regulatory structure that’s ultimately created focuses on VoIP as a pure voice technology, it would not only increase the possibility of regulating VoIP just as POTS is regulated today, but could also result in it being difficult to deploy integrated voice applications because of tariffs, taxes and state-to-state variations.

For example, imagine several partnering companies in different states holding network-based meetings using integrated voice, video, white boarding and messaging all over a mesh IP VPN that hits different provider networks. If voice is singled out in the regulations, this kind of application can become unnecessarily difficult and expensive to deploy. This is not for technology reasons, but because of accounting, taxes, and surcharges designed for a regulated, monopoly environment that differs for every end-point on the call. This is the kind of challenge cable MSOs and CLECs face today as they roll out VoIP services.

MSOs and CLECs Say – To Heck with Them…
“I met with a top five cable MSO and they have twelve different jurisdictions and sets of laws to implement as they roll out VoIP services…the cost of meeting the regulatory requirements made the economics make less sense,” says Sheehan. Whether or not VoIP regulation will be treated uniformly from a Federal level remains to be seen. Despite this uncertainty, however, many cable MSOs and major CLECs are moving full speed ahead with their VoIP plans. “I think [CLEC and cable] investment in VoIP is real and it’s heavier than I anticipated in the lifecycle in this product,” says Telution’s Konczal. The competitive carriers are resigned to the fact the regulated voice environment will change to favor the incumbents, and we see people getting out of it,” he says.

Cable operators, unlike most incumbent telcos, recognize that the future of VoIP is in integrated services. To them, VoIP is one more service to integrate into a pipe that already delivers home entertainment and broadband. “They are ready in the cable environment. The video network is always on, and adding voice is reasonably easy,” says Sheehan of his company’s experiences in helping MSOs build a service fulfillment infrastructure for VoIP.

OSS Readiness
If the cable operators’ readiness is not at issue, technology readiness is. Going back to the image of VoIP as a HAM radio-like hobby, it’s not surprising that hardware and software alike aren’t always ready for primetime. As is the case with most new technologies, most of the specifications have been laid out, but the practicalities of deployment and service management have not been

met just yet. “This is new enough and there are so many ways to deploy that vendors are struggling with obtaining the real-life expertise in-house…they build a product that’s in line with published specs, but won’t function in real life,” says Eric Nelson, CIO with Netifice Communications, a competitive IP service provider that has aggressively rolled out broadband and VoIP services to business customers.

One of the driving issues in VoIP is quality. VoIP has always been highly sensitive to QoS issues and is a service that must be managed end-to-end to be truly reliable. One of the problems with Vonage’s approach, for example, is that it’s dependent upon the user’s broadband connection being highly reliable and having plenty of bandwidth. Unlike a cable operator, Vonage cannot segment the network at the transport layer to provide a clear path for its VoIP traffic. “They have no way to monitor your end point unless they put something on your PC,” says Nelson. In short, this limitation means the service is not really reliable enough for users other than those at the lowest end of the market.

This is where the economic equation begins to make less sense. In order to provide a fully managed VoIP service, something has to be deployed at each end point to provide statistics and diagnostic capability to the operator. The problem, however, is that VoIP – and broadband in general – is already a low margin service. “Adding even $5 in cost to an end point destroys the whole business model,” argues Nelson.

Assurance Solutions Need to Catch Up

This is not only a weakness of the service, but reflects the fact that mature service assurance OSSs for VoIP are still six months to a year away. “There are some technologies that require you to put software on a user’s computer, but that’s too intrusive and not meant to be used at every end point,” says Sharief Elgamal, OSS design engineer in Comcast’s OSS planning and design group. “It’s just for testing network quality, so it doesn’t diagnose on a per subscriber basis,” he explains. Similarly, says Elgamal, edge-based applications are used for testing, but don’t reach individual end points. There are also passive monitors, network probes that “sniff” packets for network information, but these tend to deliver too much data and not enough information.

In fairness to service assurance vendors, VoIP is very new, and operators like Comcast are driving the requirements that will result in product maturation from companies like Concord, Brix and Xacct. Agilent, for example, announced its new VoIP QoS management solution for enterprises and managed service offerings. While this technology is in trials at several major carriers, it is not yet in production. It is, however, designed to measure and enforce VoIP SLAs for traffic volume, service availability and voice quality. This third measurement is the real trick, however, because in the end service quality is all about what the customer actually experiences.

Fulfillment Solutions are Further Ahead

The market for VoIP OSSs on the fulfillment side is a bit more mature. “This side of the picture isn’t bad,” says Comcast’s Elgamal. “We’re putting in a new provisioning system (from COTS products) that will handle all of our services together.” Fulfillment solutions benefit from broadband requirements developed during the past several years. For example, Syndesis has already deployed capabilities for service providers that allow for dynamic, variable bandwidth allocation – an anticipated capability in the OSS space. “Users can come through a portal into our software and crank up the bandwidth when they need it, and then turn it back down,” says Nicholson.

The key to this kind of capability is having a platform that sees beyond the IP layer and can interact with and manage QoS at multiple layers. “We’re doing end-to-end IP over layer 2 technologies running over layer 1.5 technologies like gigabit Ethernet and PNNI. You have to

have all of those layers in the platform and know how to map the QoS from layer to layer," he says. What Nicholson is talking about is having a view of the network's complete topology from end to end and top to bottom. Having this kind of information and the ability to affect changes to the network on the fly is critical to delivering managed, personalized IP services – including business quality VoIP.

This is good news for VoIP, because it should mean that when demand for VoIP explodes, the infrastructure may be ready to deliver it – thus avoiding the kind of fulfillment problems DSL continues to suffer. This also, however, assumes that VoIP providers choose to use the solutions available to them. "There's an astounding majority who are rolling their own provisioning systems…which is unbelievably short sighted because it's not going to scale, survive, be reliable, and it will make for miserable service," says Atreus' Hurrell. When providers choose to build their own platforms, it is often a sign of hesitancy to make a committed investment in a new technology.

Judge For Yourself

The only way for any provider – ILEC, IXC, CLEC or cable MSO – to truly judge the suitability of any OSS product for its own environment is to test it, trial it, and/or put it through its paces in a defined proof of concept project. More and more often, vendors and service providers alike are turning away from endless PowerPoint presentations and moving directly to lab trials and POCs. While the issue of who pays for such trials is always at hand, the end result will undoubtedly save money. Ultimately, service providers are burned and waste money when they sign large contracts only to discover their chosen vendor – often chosen for a cheaper price – either cannot deliver its technology, or isn't quite suitable for the unique environment. The cost of a trial should be shared between vendors and service providers. In the end, this insures that everyone has something at stake. It also insures that guilty vaporware vendors – those that sour the OSS business for the good guys – have no chance of perpetuating their bad business practices and making the whole industry pay.

A Final Word and Warning on VoIP

VoIP is already happening on a global scale, so there's no question that service providers and OSS vendors alike need to invest in this technology in a committed way. Committed investments should also help regulators to see that their interference in the market will only cause the United States to fall further behind the rest of the world in broadband applications development. The onus is on members of the CLEC, cable and OSS communities, however, not only to conduct their businesses in an honorable manner, but to voice their needs to Congress, the FCC and to state PUCs. It would be easy to stand by and allow special interest lobbyists to spoil the party for everyone but ILEC CxOs and their minions. If VoIP is the first step for the future of ubiquitous communications, then now is the time to make sure that future is secure.