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Upcoming Events

Join LB3 and TC2 at CCMi’s 17th Annual Telecom Negotiation Conference in San Diego, CA on September 14-15, 2009. For more information, call (866) 620-5938 or go to <http://www.ccmi.com/conferences/negotiate/home.html>.

Join Marc Lindsey at Digital ID World in Las Vegas on September 15, 2009 for “Identity Governance Frameworks” and Enabling Secure (and Legal) SSO. For more information, go to <http://public.cxo.com/conferences/agenda.html?conferenceID=51>.

Telecom/IT Blog

For the latest on IT/telecommunications from the perspective of the business user community, go to TC2’s new blog (<http://www.techcaliber.com/blog/>), hosted by David Rohde. You will find current commentary by David and guest posts from other TC2 consultants and friends of TC2.

MPLS – How Far We’ve Come

Over the past several years, MPLS has evolved from a carrier-class technology to the standard for enterprise customer data networks. This article discusses the remarkable evolution of MPLS and considers what the future holds.

MPLS in the Beginning

It has been over a decade since Network Service Providers (NSPs) introduced Internet Protocol Virtual Private Networks (IP VPNs) as replacements for aging wide area networks based on frame relay, Asynchronous Transfer Mode, and even IBM’s monolithic System Network Architecture. At about the same time, the Internet Engineering Task Force set out to define the specifications and standards for a VPN technology that could bring the speed of Layer 2 switching to Layer 3 routing. From these efforts, Multiprotocol Label Switching (MPLS) was born.

It did not take long for NSPs around the world to see the benefits of MPLS for their own networks, and they threw their support behind it. They knew that existing network technologies could not deliver scalable and robust network solutions to support the ever-growing demand for bandwidth while also providing a guaranteed quality of service. MPLS could.

Enterprise customers watching the controlled introduction of MPLS became intrigued by the functionality and services that it could deliver to *their* networks. In the early days of MPLS, however, few enterprises could justify a migration to a new and unproven technology. Network coverage and available bandwidth were limited, and NSPs were deterred from investing in MPLS infrastructure because they still had to support legacy technologies.

As a result, NSPs initially did little to incent enterprises to adopt the new service. MPLS was typically more expensive than frame relay and other legacy services. In addition, few NSPs had a standard rate card, so each installation required custom pricing. Finally, there was no way to forecast the cost of increasing a site’s bandwidth or class of service (CoS) configuration.

The global situation was even more daunting. Multinational companies knew they could only benefit from the new technology if they could get onto the MPLS highway, but they often found that the highway did not extend to countries where they needed service. In those countries where service was available, MPLS was hamstrung by the limited number of points of presence

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MPLS – How Far We’ve Come

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with Provider Edge (PE) routers that served as the entry points into the MPLS network.

And there were other hurdles. Few NSPs offered more than four classes of service, and several offered less than that. Because NSP account teams did not always understand their company’s port utilization policies, enterprises were unnecessarily over-provisioning (and overpaying for) access and ports. Although NSPs offered Service Level Agreements (SLAs), most only covered service up to the PE router, excluding the last mile and the on-site Customer Edge (CE) router. Some NSPs would only offer MPLS as a managed service, while others charged a premium for routing data packets to international destinations as a way to recoup the cost of building their international MPLS networks.

MPLS Today

Fast forwarding to today and one finds a radically different landscape for MPLS. One significant development is that enterprises now enjoy a number of access options. Ethernet has become a popular access option for enterprises demanding high bandwidth in metropolitan areas. Wireless technologies, such as 3G cellular and VSAT, can be used to back up wireline access. Wireless services are also used as a primary access method for remote locations or where the customer does not need the quality provided by a wireline connection. Enterprises are using xDSL and establishing IP VPNs through the Internet to access MPLS networks.

Managed services have become a key add-on to MPLS transport services. NSPs now offer managed router services that include the rental, maintenance, and management of customer routers. A key growth area for NSPs has been managed security services, including in-the-cloud managed firewalls, intrusion detection and prevention, URL and content filtering, and antivirus. Other managed services available today include application management, network storage and data centers, computing/software as a service, and hosted IP Centrex.

Several technologies can help to monitor and control how applications use an MPLS network. Many NSPs offer bandwidth-on-demand services, which allow an enterprise, through a web portal and in near-real time, to change the size and configuration of an MPLS port. NSPs

are also running special software that provides route analytics to help control the use of network bandwidth. WAN Optimization Controllers (WOCs) have become popular for controlling the amount of data that goes onto an MPLS network through techniques such as caching, compression, improving TCP efficiency, and implementing application quality of service.

As a consequence of these advances, MPLS has become a key tool for recession-battered companies seeking to reduce costs in areas other than IT and telecom. As enterprises enforce travel restrictions (or outright bans) to cut costs, real-time communications running on MPLS networks have become mission-critical. Companies now rely on applications such as VoIP, collaboration tools, telepresence, video conferencing, social networking, and unified communications to connect remote workers, customers, and trading partners. They have increasing confidence that today’s MPLS networks can deliver these important applications.

Part of this confidence comes from the NSP’s willingness to provide enhanced SLAs. Today, NSPs will provide provisioning SLAs that cover the customer’s CE router (if the customer is buying managed services), access, the MPLS port and CoS. Availability and time to repair SLAs cover the enterprise’s site and the elements that comprise the MPLS connection. Performance SLAs that guarantee round trip delay, packet loss, and jitter help to ensure the quality of VoIP calls. SLAs are measured end-to-end, from CE to CE router, rather than just in the NSP’s MPLS cloud. Finally, credit structures are getting more robust in the event that the service fails to meet the agreed SLAs.

The Future of MPLS

So what does the future hold for MPLS? First, NSPs will continue to add network capacity, both globally and domestically. Enhancements to core network infrastructure will help enterprises reduce the length, and cost, of local loops and increase network redundancy and resiliency. Improvements in interconnections with other MPLS providers will extend the reach of global MPLS networks. Ethernet, both as an access method and as a WAN solution, will grow, and WiMAX (and then LTE) will become an accepted alternative access method. Carriers will deploy new network routing techniques to deliver a more consistent network experience. Multicasting, support of six or more classes of service, mobile forced on-net, SIP trunking, and compliance with

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IPv6 will become standard fare. These enhancements will support the changing requirements of enterprise customers and solidify MPLS's position as the standard for data networks.

Conclusion

MPLS has come a long way. While the current economic environment may slow the adoption of new value-added services, it is clear that MPLS has become, and will remain, the strategic network platform for NSPs and enterprises alike for many years.

For more information, contact Joe Schmidt at jschmidt@techcaliber.com.

"Is Your Legacy IP Address Space Safe from ARIN?"

If your company obtained IP address space before 1997, some employee has probably received several letters from the American Registry for Internet Numbers, Ltd. ("ARIN") encouraging the company to enter into a Legacy Registration Services Agreement ("Legacy Agreement" or "Legacy RSA"). Over the last two years (and especially during the last two months), LB3 has received many inquiries from clients about the legitimacy and impact of ARIN's legacy RSA program. This article discusses several issues that legacy registrants should consider before they sign up for ARIN's legacy RSA program.

Who is ARIN?

Since December 22, 1997, ARIN has been the authorized administrator of IPv4 IP address allocations and services in North America. ARIN is one of five regional Internet address registries ("RIRs"), all operating under the authority of ICANN. ARIN obtained this authorization through a delegation from InterNIC, which previously handled the assignment and administration of domain names and IP addresses. InterNIC itself was organized by the National Science Foundation and Network Solutions, Inc. (a private company awarded the government contract to provide IP address services) in 1993. Before 1993, IP addresses were assigned through the Internet Assigned Names and Numbers Authority ("IANA").

Under InterNIC and IANA, Internet service providers ("ISPs") and certain end users were assigned IP address blocks directly, subject only to industry accepted best practices and Internet community standards. There were

no contractual obligations between the registries and these "legacy IP address holders."

By the time ARIN appeared on the scene, there was concern within the Internet community about possible IPv4 address space exhaustion. To protect against that, ARIN adopted policies designed to discourage IP address hoarding and to promote space reuse.

The Legacy Registration Program

Registrants obtaining IP addresses after 1997 entered into service agreements that fall under ARIN's jurisdiction, and are therefore subject to ARIN's resource utilization policies. But the IP address registrations of legacy IP address holders were not formally transferred to ARIN. In an effort to harmonize the policies across all IP address allocations (legacy and non-legacy) and to cement ARIN's jurisdiction over the legacy address holders, ARIN launched its Legacy Agreement program in late 2007.

As part of the program, ARIN (without conceding it lacked authority over legacy address holders) began offering the Legacy Agreement to legacy address holders. To participate, a legacy IP address holder must submit an application to ARIN (see <https://www.arin.net/resources/legacy/>). Participation in the Legacy Agreement program is voluntary, and is limited to the original registrants and subsequent transferees that can prove (with supporting documentation) to ARIN that their legacy IP addresses were obtained lawfully from an original registrant.

After ARIN approves the application, the legacy address holder and ARIN may then enter into the Legacy Agreement.

Should your company Sign the Legacy RSA?

To entice legacy address holders to formalize their relationship with ARIN and accept its policies on a voluntary basis, ARIN offers the legacy address holders several benefits through contractual guarantees embodied in the Legacy Agreement. The key contractual guarantees include (a) grandfathering of certain protected rights; (b) continued use (at no extra charge, at least for now) of IP address services like "in-addr" and "whois" listings; (c) reduced annual fees when compared to ARIN's regular IP address holders; and (d) future fee waivers in exchange for returning unused IP address space.

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"Is Your Legacy IP Address Safe from ARIN?"

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The Argument For

Grandfathering protected rights is a core Legacy Agreement benefit promoted by ARIN. The central protected rights are as follows:

- The terms and conditions of the Legacy Agreement, including the vested/protected rights unique to legacy address holders, trump any conflicting current ARIN policies and any future policies adopted by ARIN.
- The Legacy Agreement automatically renews in one-year increments unless (a) ARIN terminates it for cause or (b) the applicant terminates it for convenience or for cause (*i.e.*, due to ARIN's material breach). If the legacy applicant terminates for cause, the legacy applicant reverts to the status (and rights and benefits) it enjoyed prior to entering into the Legacy Agreement.
- ARIN may *not* terminate a Legacy Agreement for its convenience.
- ARIN agrees not to reduce the services it provides to the legacy IP addresses or to revoke unused legacy IP address resources (absent a breach of the Legacy Agreement by the legacy applicant). However, under its existing policies, ARIN may refuse to issue new IPv4 address space to any legacy IP address holder that has not fully utilized its existing block.
- If a company signs up for the current Legacy Agreement, it may switch to a subsequent Legacy Agreement that may be more favorable.

The implication for any legacy IP address holder refusing to enter into the Legacy Agreement by the December 31, 2009 deadline is that ARIN may deny holdouts the benefits of the guaranteed rights, and they will, as a result, be subject to future enforcement action by ARIN. Future enforcement action could materially diminish the value or limit the use of legacy IP address services not protected by the Legacy Agreement program.

The specter of having their legacy IP address allocation revoked creates significant concerns for legacy IP address holders who are otherwise inclined to reject the Legacy Agreement. ARIN has stated publicly that it currently has no plans to revoke the IP addresses assigned to legacy IP address holders that do not participate in the Legacy Agreement program. However, ARIN has also acknowledged that its plans in this regard could change if it adopts new policies or legal requirements.

ARIN's authority to revoke legacy IP addresses, enforce its current policies against legacy IP address holders or change the services provided for legacy IP addresses is unclear and untested. Indeed, it is likely that ARIN calculated that concerned legacy address holders would see the benefit of signing the Legacy Agreement in exchange for eliminating the risk that ARIN might otherwise try to revoke their legacy IP addresses.

The Argument Against

Entering into the Legacy Agreement requires legacy IP address holders to give up current benefits associated with their pre-ARIN registrations.

Under the Legacy Agreement legacy applicants must waive any and all claims of ownership in their IP addresses. The status of IP addresses as "property" has been the subject of considerable policy debate in the industry, and remains an unresolved legal question. ARIN's policy position is that IP addresses (like telephone numbers) are a shared public resource, and that ARIN is a steward of those resources. In ARIN's view, IP address holders are merely loaned the use of IP addresses, subject to continued compliance with the Internet community's policies (which are adopted and enforced by ARIN and the other RIRs). Waiving the legal right to assert ownership interests in their IP addresses could have significant economic consequences for legacy address holders if future judicial decisions hold that assigned IP addresses are property.

The Legacy Agreement obligates legacy IP address holders to comply with ARIN's policies, which may change over time. Refusing to enter into the Legacy Agreement may not shield legacy address holders from future attempts by ARIN to enforce its policies. Nevertheless, legacy address holders that do not sign the Legacy Agreement preserve their ability to argue that ARIN lacks authority to alter or diminish property rights claimed in their IP addresses.

Legacy holders outside of the legacy agreement are not required to pay fees to ARIN. By contrast, the fee payable under the Legacy Agreement is currently \$100 per year through 2013. That fee may increase after 2013 (but by no more than \$25 per year).

Impact on Transferability

The non-transferability of IP addresses has been a fundamental ARIN policy. In accordance with its standard transfer policy, IP addresses may not be

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assigned or transferred without ARIN's prior and express permission.

Some legacy registrants have – without regard to ARIN's policies – freely transferred their space to third parties, including their joint ventures, outsourcing vendors and corporate spin offs. For years, there has also been considerable speculation in the Internet community about the existence of a “black” market of IPv4 space. Legacy registrants that have not signed an LRSA could, by relying on the legal theory that ARIN's transfer restriction policies do not apply to them, participate in this unsanctioned IPv4 market without the black market stigma.

The Legacy Agreement provides participating legacy IP address holders with one exception to ARIN's general transfer policy. They may assign their legacy IP addresses along with the Legacy Agreements to their successors (without ARIN's consent) by notifying ARIN of the transfer, provided that the successors obtain controlling interests in the previous legacy address holders. As a condition of the Legacy Agreement, participating legacy registrants agree to end these liberal IP address transfer practices.

Although ARIN has historically prohibited the sale of IP addresses, it recently adopted a new transfer policy that, under the right circumstances, permit IP address registrants to transfer their unused space to third parties in return for compensation. Legacy registrants may only participate in this “white” market for IPv4 addresses if they enter into an LRSA.

Conclusion

The current Legacy Agreement program is set to expire December 31, 2010. At the moment, it is not clear what will happen to rogue legacy IP address holders after that. ARIN could enhance the legacy program benefits to encourage greater participation; extend the program as is; or attempt to enforce its standard policies aggressively against holdouts (e.g., demanding that they return unused address space). Only ARIN knows, and it is holding its cards very close to the vest.

If your company has concerns about entering into the Legacy Agreement, you should evaluate the pros and cons as they relate to your specific plans for your legacy IPv4 space. And if you decide that moving forward makes sense, consider negotiating changes to the LRSA with ARIN before you sign. LB3 has, on behalf of legacy registrants with considerable address space to contribute to the LRSA program, negotiated substantive

revisions to the standard LRSA to address our clients' key concerns.”

Please contact the author of this piece, Marc Lindsey, at mlindsey@lb3law.com, if you would like to discuss the topics covered in the article in more detail.

Third Quarter USF Contribution Factor Hits an All-Time High

If you think that regulatory issues are a relic of a bygone era, USF surcharges might cause you to think again, especially after the FCC announced that the proposed Universal Service Fund contribution factor for the 3rd quarter of 2009 jumped from 11.3% to a record 12.9%.

For more information about USF and other regulatory issues that impact enterprise users, contact Jim Blaszak at (202) 857-2541 or jblaszak@lb3law.com, or Colleen Boothby at (202) 857-2543 or cboothby@lb3law.com.

Another Illustration of Why Service Guides Matter

AT&T's service guide provides yet another example of how these documents can make customers' lives miserable. Customers buying service under AT&T's Business Network (ABN) offering might be surprised to find install charges on their invoices for jacks (RJ48 etc.). That's because ABN's Service Guide contains tables and an install charge calculator for jacks. By comparison, a recent copy of AT&T's OneNet Service Guide turned up no mention of jacks or install charges. Although there are waiver packages in the ABN offer that address a number of charges, jack charges are not explicitly mentioned in the waiver.

There are at least two morals to this story. First, if you are negotiating a deal that involves ABN, remember to negotiate the install waiver to include the jack. The larger lesson is that there are a number of “nickel and dime” charges in the ABN Service Guide, along with unfavorable terms and conditions. Read the Service Guides and be alert.

Paying USF on MPLS – An Update

Last March, fear, uncertainty and doubt reigned after the FCC, in what the agency later called a “nonsubstantive modification to FCC Form 499-A,” instructed carriers to begin including revenues for MPLS in their USF reports.

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LB3 and TC2: Working Together to Meet the IT and Telecom Procurement Needs of Enterprise Customers

LB3 and TC2 help enterprise customers maximize the value on their telecommunications and IT investments. LB3's lawyers have broad experience in telecom and information technology transactions, regulatory work, and dispute resolution. TC2's consultants inform, prepare, and position enterprise customers seeking to optimize the cost and performance of their increasingly complex voice and data networks. Together, LB3 and TC2 work to assist clients in network services procurement, benchmarking, compliance management, regulatory issues, and disputes.

Inside Wire is a quarterly newsletter designed to keep enterprise customers informed about the latest developments in the telecom and IT industries. If you have any questions about any of the articles in this edition of the newsletter, e-mail us at insidewire@lb3law.com, or contact us at this address:

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Paying USF on MPLS – An Update

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Some enterprise customers feared that the carriers would soon start slapping USF surcharges on their MPLS services, which had thus far avoided the surcharge.

The good news is that the worst-case scenario – USF charges on non-transport components of MPLS services -- has not materialized, and robust competition between AT&T and Verizon appears to be keeping expanded surcharges at bay (at least for the time being). The bad news is that enterprise customers need to remain vigilant, especially as they negotiate new service agreements. It has been our experience that many account teams are confused or ignorant about how their companies are treating USF and MPLS, which can lead to confusion, misinformation, and a substantial price hike.

For more information on MPLS and USF in recent procurement, please see David Rohde's recent post on TC2's blog at: <http://www.techcaliber.com/blog/index.cfm/2009/9/3/USF-on-MPLS-Dont-let-the-carriers-jump-the-gun-on-you>.

What does the future hold for USF surcharges on MPLS? Unfortunately, petitions regarding the FCC's order and the potential restructuring of the USF program (moving to a numbers-based system, for example) make crystal ball-gazing about the issue especially difficult. If you would like to know more about USF reform and how the latest developments in the regulatory arena could impact MPLS (and other services), please contact the LB3 attorneys with whom you work or either Colleen Boothby (cboothby@lb3law.com) or Jim Blaszak (jblaszak@lb3law.com).

Voice Report's Wireless Benchmark Survey

There isn't a large enterprise that we know of that isn't being challenged by wireless device and expense management. To help you get a handle on this one at no cost, take the *Voice Report's* 2009 Wireless Benchmark Survey:

<http://www.thevoicereport.com/WirelessSurvey2009>

Spend 10 minutes on the survey, supply your e-mail address at the end, and *Voice Report* will send you a copy of its Wireless Benchmarks Special Report, which will include the survey results and analysis on spending, usage and staffing benchmarks, and best practices for managing wireless expenses.

Visit www.lb3law.com for new articles, the latest on the telecom megamergers and other breaking news.

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