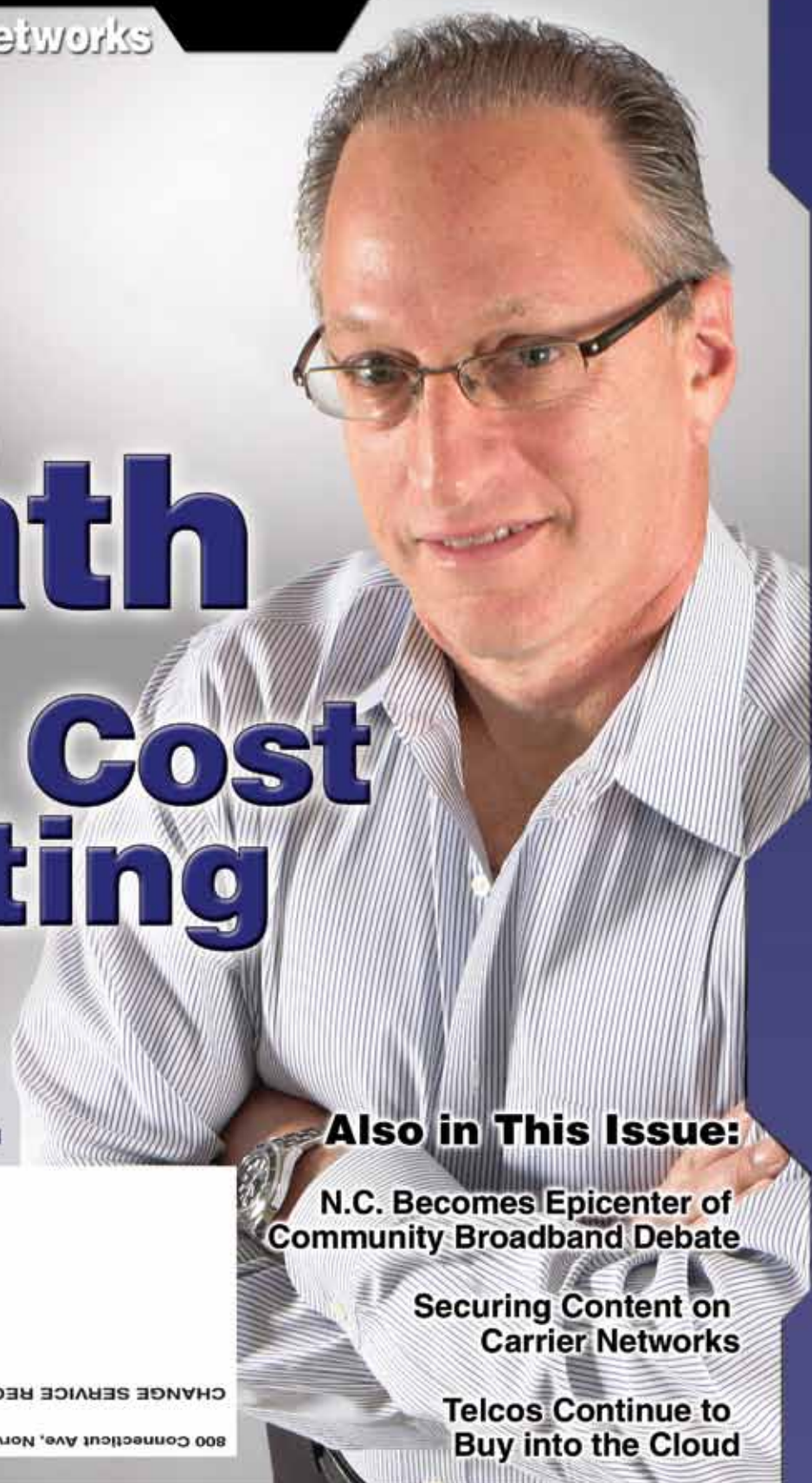




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Next Generation Networks

The Death of Least Cost Routing



GCS CEO Neal Axelrad

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The **DEATH** of Least Cost Routing

Least cost routing has always been a headache for carriers due to its inherent complexity, but in recent years it's become even more challenging as a result of the dramatic increase in the number of carrier interconnects and the development of the voice peering fabric that have arisen, among other factors. Gone are the days when carriers inter-connected with just a handful of other network operators – in the new world of VoIP peering they are inter-connecting with dozens, sometimes even hundreds, of other operators for the purpose of capitalizing on the lowest available termination rates.

This increase in the number of interconnects – combined with the fact that carriers are constantly changing their rates – means carriers need new tools that give them the ability to change their LCR strategies quickly and easily to capitalize on the lowest cost for transport and termination. Considering that carriers today compete on such thin margins (in fact, often on the fraction of a penny), it's easy to understand why they would want to seize every opportunity to terminate traffic for less.

As a result, handing LCR the traditional way just doesn't cut it anymore: The traditional way of handing LCR is an arduous, time-consuming, mostly manual process involving teams of experts tasked with negotiating rates with suppliers; obtaining rate schedules; loading rate tables into spreadsheets to calculate and compare termination costs; selecting the best routes based on cost; manually propagating call routing tables to the switches; monitoring traffic volumes and margins through reports from the billing system; and, lastly, investigating connections which, for whatever reason, resulted in a loss, and taking action to prevent future losses. Considering the number of personnel needed to carry out all these tasks, it's easy to see how this approach results in high overhead costs. Thus, carriers are looking for ways to automate these processes and reduce overhead associated with LCR.

Also adding complexity to LCR management is the fact that today's communications networks are more heterogeneous in nature than ever before – that is to say, no two carrier networks are alike in terms of equipment used. As such, today's carriers must utilize flexible, full-featured and scalable call routing platforms that enable them to connect calls across any network, regardless of whose switches are being used.

Further changing the call routing paradigm is the fact that cost is not necessarily the primary factor that determines how a call is routed – quality is playing an increasingly important role in how carriers approach LCR, as are other factors such as jurisdiction, local number portability and peering.

All of this has predicated a major shift in how call routing is approached by carriers. In fact, the game has changed so much that some feel the term least cost routing has become a misnomer, as cost is now just one of the many criteria used to determine how calls are routed.

“Least cost routing as we once knew it is dead,” proclaims Neal Axelrad, CEO of Global Convergence Solutions, a maker of next-generation call routing and rating platforms geared at tier 1 and 2 carriers. “So why do we say it's the death of LCR? Because today, cost is not the only thing carriers are looking at. Carriers today must route calls intelligently based on a range of criteria, including quality. They must have the ability to apply a greater range of business and network policies – and these policies must be applied to each and every call, on a call-by-call basis, in real time. This is what we call dynamic call routing.”

GCS, which counts Vonage, KDDI and One Communications among its customers, is one of several call routing solutions providers to adopt a whole new data-based approach to call routing. The company's flagship product, Dynamic Route Manager, is a browser-based next-generation routing management system that gives carriers complete control over how every call is routed across the network by simplifying the creation of least cost routing tables and the overall management process. In addition, the company offers its Dynamic Rate Manager solution, which also is a browser-based solution that, in the words of Axelrad, “allows carriers to manage every aspect of inter-carrier relationships.” That includes supplier management, CDR processing, rate deck management, credit and rich business analytics.

As Axelrad explains, the traditional approach to LCR, which involves the periodic loading of static routing tables into switches, is no longer practical because of the amount of data that now needs to be used to determine how each call is routed. In the traditional approach, large, complex call routing tables are created and then pushed out, or propagated, to all the switches on a network. The problem is, many of the next-generation and legacy switching platforms that are out there were

not designed to handle these massive call routing tables – which have grown exponentially larger (sometimes to millions of lines of codes and rate breakouts). In many cases loading these massive tables into the switches is becoming impossible; even if the switch allows these tables to be loaded, the sheer size of them is impacting switch performance.

With GCS' Dynamic Route Manager, however, all of the call routing tables reside in a database server that lives at the edge of the network. When a call hits the switch, the switch queries that database to get the routing policies that are applicable to that particular call. In this regard the solution applies call routing policies uniquely to each and every call, on a call-by-call basis, and in real time. This, in turn, gives carriers a far more granular level of control over their call routing schemas – and perhaps more importantly gives them the opportunity to capitalize on changing rates in near real time.

GCS' patent-pending approach to call routing is unique in that it utilizes the 300/302 redirect capability found natively in SIP to enable the switch to query the database and retrieve the call routing data for each and every call.

“The SIP protocol included a redirect methodology that GCS leveraged as its method of redirecting calls that hit the switch to the GCS Routing Engine for analyzing the best way to route that call given all the governing business, network and routing policies set by the carrier,” explains Jay Meranchik, CTO and co-founder of GCS. “Once the optimal routing options are determined, the call is returned to the switch for completion with the routing instructions. So, what we have done is leverage the way SIP employs this re-direct methodology and used it as vehicle for acquiring routing instructions.

“This is powerful because it means we aren't performing complex analysis of large databases of rates and routes on the switch, which would place burden on the switches,”



GCS CEO Neal Axelrad

Meranchik adds. “The switches off-load that complex necessary activity to a machine that was designed for the express purpose of determining the optimal routing on a call-by-call basis, and the switch can now focus on its primary purpose – to manage media sessions.”

What's revolutionary about this approach is that it means almost limitless amounts of data can be used to prescribe how each and every call is routed on a network.

“We have developed a unique, patent-pending methodology that is utilizing SIP/300/302 to dynamically route calls. We're one of the few vendors out there who

are leveraging this capability and building it to a scaleable, dependable carrier-grade architecture,” says Axelrad.

Along with that approach come the “kernels of innovation” that GCS bundles into the platform. That includes a comprehensive toolset that enables carriers to acquire, manipulate, utilize and disseminate vast amounts of data in an automated real-time fashion for the purpose of accurately routing each and every call based on business policies.

“In the end, it's all about automation,” Axelrad says. “In this day and age a carrier can't afford have an army of technicians in order to

properly operate its network, the margins are just no longer there. Considering the new technology that's available, this approach simply no longer makes sense. This new approach does an interesting thing for the industry – it brings down the cost tremendously in a way that margins per call are actually meaningful. While our market focus has been on the tier 1 and tier 2 carrier market, the power of our solution has enabled many service providers, new to the wholesale marketplace, – who never could have gotten into the industry before – to establish themselves quickly, because we allow them to do the technical things that they could never do before.”

The GCS Dynamic solution suite allows multiple tools (and functions) that have traditionally been separated in the telco business model to be consolidated into a single solution that can be used to run practically every aspect of the business. By consolidating business policy engines, routing engines, and real-time analytic systems into a single solution, carriers can further reduce operating expenses, improve margins, and gain new levels of reliability through automation, all at the same time.

Importantly, the GCS Dynamic Route Manager interoperates with all the major switch vendors out there, including Acme Packet, GENBAND, Metaswitch, Sansay, Sonus, and Stratus – “pretty much every next-gen platform with significant deployment in the market today,” Meranchik says.

Axelrad highlights a customer that has Sonus Excel switches and GENBAND SBCs deployed in its network. “With the GCS Dynamic Solutions suite they have taken all the work, all the different processes that support all those platforms, and centralized it in one database,” he says. “As a result, they eliminated over 90 percent of their overhead related to LCR creation and management. The GCS Dynamic Solution eliminated all that wasted, unnecessary effort and the risks of human error – all of that was completely eradicated with the GCS Solution while providing them centralized network intelligence.”

This is key for operators because it enables them to negotiate with the vendors they want, but not have to worry about how they're going to support a mixed switching environment from an operations standpoint.

Axelrad says today's carriers must start adopting next-generation switching solutions if they are to remain competitive and in business. The traditional OSS/BSS tools of the not-so-distant past no longer cut it.

“VoIP has enabled all carriers to interconnect in almost real time. Long gone are the days of 30-day to 60-day provisioning cycles – having to run cable, having to go to meet-me rooms, and having to do all those arcane, expensive and time-consuming activities just to send calls back and forth. Now it's just, give us your IP address, and we'll enter it into our softswitch or session border controller,” he says. “As a result of that, carriers have gone from managing 10, 12 or 20 suppliers to managing dozens or even hundreds of suppliers. But the challenge is the sheer volume of data that you have to support and intelligently manage. The tools that were available to carriers in the past several years were unable to keep up with the pace of the market evolution. They relied too much on individuals. And, given the speed at which the market moves, the number of suppliers and amount of traffic, it's simply impossible to have human beings involved in the processing of this data. The GCS Dynamic Solutions suite

turns these people into business policy managers, which allows them to be 10 times more effective than they were previously.”

Recently GCS started offering its routing and billing/rating solutions on a hosted, software-as-a-service basis, which many carri-

ers are gravitating to as a preferred delivery model. Axelrad says most customers are using the SaaS version while they migrate their switching platforms to next-gen platforms or to trial the software.

“It has worked out incredibly well for some of our providers who do not want to commit money to infrastructure,” he says, adding that smaller carriers using mixed, hybrid environments in particular like the SaaS option. “They use it as a bridge to IP – and some even stay with it.”

About 25 percent of the GCS business is now SaaS, but that figure is expected to grow. “We've probably tripled our hosted business in these past six months,” he says.

Currently, GCS boasts 50-plus customers. Axelrad reports that as 2011 unfolds the company's success has drawn the attention of tier 1 operators. He says 2011 is shaping to be the company's best year on record, which, after its record 2010 year really is quite an achievement.

“We're now getting higher and higher up market, because we have this end-to-end solution and it all works natively together,” he says, adding that the GCS team has deep roots in telecom and is well-seasoned, with the core team coming from pioneering companies such as ITXC and Nextone. “We're carrier guys, so we know exactly what you need when you run this business. We know where all the hidden issues lie, all the challenges carriers face, and how to compete in this industry. So when we provide our support with our product, the response has been no less than, ‘wow these guys have a great product, and they are solving 90 percent of my back office issues.’” **NGN**

Patrick Barnard is the group managing editor for TMC, the parent company of NGN Magazine.

Check Out the GCS Community on TMCnet

The Next Gen Network Solutions Community hosted by GCS and powered by TMCnet provides a good resource to the carrier marketplace on next gen solutions that help carriers deliver the services the marketplace demands. At <http://next-gen-network-solutions.tmcnet.com/> readers can find critical analysis about the challenges carriers are facing, what they must do to contend with the evolving marketplace from a technology and operations perspective, and what solutions are available to them. It also allows next gen solutions providers to weigh in on market trends and provide important insight to the community.