



May 23, 2001

**Electronic Filing**

Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.- Suite TW-A325  
Washington D.C. 20554

Re: *Ex Parte* CC Docket Nos. 98-147 Deployment of Wireline Services  
Offering Advanced Telecommunications Capability, 96-98 Implementation of the  
Local Competition Provisions of the Telecommunications Act of 1996

Dear Ms. Salas:

On May 23, 2001, Copper Mountain delivered a copy of the attached letter to William Kehoe, Counsel to the Policy and Program Planning Division, Common Carrier Bureau, with copies to Brent Olson, Kim Cook, Jerry Stanshine and Paul Marrangoni. In this letter, Copper Mountain followed up on a previous meeting regarding its product design considerations for collocated equipment. Please include a copy of this letter in the record of the proceedings noted above.

Sincerely,

/S/

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CC: Brent Olson  
William Kehoe  
Paul Marrangoni and  
Jerry Stanshine  
Kim Cook

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Dear Ms. Salas:

This letter is intended to follow up on the meeting between Copper Mountain and various members of the FCC Staff that took place on February 27, 2001 (*ex parte* letter filed March 1, 2001). In that meeting we discussed the impact of the FCC's collocation rules on Copper Mountain's ability to develop state of the art telecommunications equipment for competitive service providers. Copper Mountain discussed a new product it was developing that relies on "softswitching" technology to send broadband customers' local calls directly to public switched telephone network ("PSTN") destinations served from the same wiring centers. Copper Mountain has recently announced the launch of this new product, the VicinityVoice Local Trunk Gateway ("LTG"). Attached are the product documentation and public materials describing the features, functions and capabilities of the VicinityVoice LTG.<sup>1</sup>

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<sup>1</sup> The materials Copper Mountain forwarded to the media regarding the Vicinity Voice LTG are attached to this letter. In addition, Copper Mountain has drafted a more Data Sheet on the Vicinity Voice LTG. This document is large and is a "living document." To ensure that the FCC has the latest version, the actual document is not attached but can be found at [www.coppermountain.com/library/datasheets/pdf/13100ds.pdf](http://www.coppermountain.com/library/datasheets/pdf/13100ds.pdf).

## **Product Design to Meet CLEC Goals**

Pursuant to Paragraph 78 of the Commission's *Second Further Notice of Proposed Rulemaking*, CC Docket 98-147 (Released August 10, 2000), Copper Mountain takes the Commission up on its invitation to describe its equipment offerings that are intended to be collocated and used for interconnection or access to unbundled network elements. To avoid crippling the competitive industry's move to offer innovative new services to consumers, the Commission's new collocation rules must take into account the incentives that equipment manufacturers use when meeting CLEC demands.<sup>2</sup>

For example, Copper Mountain designs its products to meet two seemingly conflicting CLEC goals: to reduce costs, while at the same time offering new value-added services. Indeed, high-speed Internet access, the foundation for broadband services, is becoming commoditized. Going forward, providers will need to grow their revenue streams by offering premium services? such as multi-line voice, virtual private networks, Web hosting, and Frame Relay for business customers, second-line voice, streaming video and application services for consumers. And providers will need to be able to bring these emerging services to market quickly and scale them just as quickly, but at lower costs to reflect the shrinking capital markets.

As described in the previous meeting and the attached materials, the VicinityVoice LTG is an example of new and innovative equipment that Copper Mountain developed in response to carrier demand. By keeping local calls local, the VicinityVoice LTG helps CLECs meet their goals by reducing the cost of backhaul transport, while at the same time allowing the carrier to reliably increase and scale the capacity of their packet voice services.

The VicinityVoice LTG is specifically designed as collocated equipment that interconnects with the incumbent network. Because one of its main functions is to reduce transport backhaul facility costs between the carrier's collocation arrangements and its local switching center, by keeping traffic within the wire center, it must be collocated.

## **Intelligence at the Edge**

To accommodate the goals of cost savings and offering value added services, there is more demand for network intelligence "at the edge." This means that service providers and equipment manufacturers, like Copper Mountain are pushing network intelligence to distributed locations throughout the network and at the customer premises, as opposed to centralizing the intelligence in one big box buried deep in the carrier's network. This move towards the edge enables carriers to scale more efficiently and allows for more differentiated services on a per subscriber basis. For many CLECs, especially DSL carriers, the "edge" of their networks includes the incumbent central offices. For example, the VicinityVoice LTG, while only a protocol converter, *enables* intelligence at the edge. Intelligence at the edge requires multi-function collocated equipment for cost and space efficient design. Even today's DSLAM, which CLECs clearly use to access unbundled network elements, will become "smarter" to allow carriers (CLECs or ILECs) to efficiently compete. Tomorrow's DSLAMs will have to enable aggregation, conversion and prioritizations functions, all the while accommodating loop length restrictions thereby having to be collocated.

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<sup>2</sup> See paragraph 79, Second Further Notice of Proposed Rulemaking.

The FCC's collocation rules will have to keep up with this trend of intelligence at the edge by allowing carriers to place intelligent, multi-function equipment in the central office. Rules that do not accommodate intelligence at the edge will force competitors and equipment manufacturers into an inefficient game to design the least productive piece of equipment to ensure it can be collocated.

### **Conclusion**

As a telecommunications equipment manufacturer with a variety of different customers, Copper Mountain is well aware of the safety, space and usage concerns regarding incumbent collocation and incorporates its sensitivity to those issues in all of its product designs. However, to encourage innovative competition and wide-scale deployment of affordable broadband services, equipment manufacturers like Copper Mountain cannot be held hostage to an ever-changing landscape of unnecessarily rigid collocation rules. Copper Mountain is ready to provide further information and answer questions in order to facilitate decisions that will encourage ubiquitous broadband deployment.

Sincerely,

/S/

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## **COPPER MOUNTAIN INTRODUCES VICINITYVOICE™ 100 LOCAL TRUNK GATEWAY**

***Innovative New Product Works with Copper Mountain's VantEdge™ and CopperEdge® Concentrators and with Multi-Vendor Softswitch Packet-Voice Solutions to Reduce Cost of Transporting Local Phone Calls***

**PALO ALTO, Calif., May 21st, 2001?** Copper Mountain Networks, Inc. (Nasdaq: CMTN), a leading provider of copper-based broadband access solutions, today introduced the VicinityVoice 100 Local Trunk Gateway (LTG). The VicinityVoice 100 LTG is a new class of product that enables providers deploying next-generation, packet-voice networks to reduce the cost of transporting local phone calls between broadband voice customers and the Public Switched Telephone Network (PSTN). Collocated in phone company wiring centers with Copper Mountain's widely deployed CopperEdge DSL concentrator or with Copper Mountain's new VantEdge Broadband Services Concentrator [*Note to Editors: Please see the other press release Copper Mountain issued today: "Copper Mountain Introduces New Product to Dramatically Improve Economics of Large-Scale Broadband Networks"*], the carrier-class VicinityVoice 100 LTG interoperates with the CopperEdge and VantEdge platforms and next-generation packet-voice solutions to send broadband customers' local calls directly to PSTN destinations served from the same wiring centers. By allowing broadband providers to send local PSTN-destined calls directly to their destinations through the wiring centers' Class 5 switches, the VicinityVoice 100 LTG enables providers to avoid the trunking costs associated with sending these calls through more distant Class 4 tandem switches. A typical wiring-center Class 5 switch serves between 20,000 and 30,000 Plain Old Telephone Service (POTS) phones. Between 20 and 25 percent of all voice calls are purely local, placed to recipients served from the wiring centers where the calls originate.

The VicinityVoice 100 LTG's local call-handling capability further enhances the cost advantages of next-generation packet-voice solutions? most commonly referred to as "Softswitches"? which include feature servers, media gateways, media gateway controllers, and SS7 gateways. Softswitch technology uses advanced signaling protocols like the Media Gateway Control Protocol (MGCP) to provide line-side calling features and voice-routing functions that have been traditionally supplied by more expensive, centrally located Class 5 switches. The new Copper Mountain VantEdge Broadband Services Concentrators and the popular CopperEdge DSL Concentrators are equipped with IP IQ™? Copper Mountain's Internet Protocol (IP) service intelligence? which allows them to support Softswitch solutions by sending calls to the collocated VicinityVoice 100 LTG or to the wider voice transport network, as appropriate. IP IQ enables VantEdge Broadband Services Concentrators and CopperEdge DSL Concentrators to see IP voice packets, which contain information indicating whether a call is destined for a PSTN recipient served by the Class 5 switch in the same wiring center or a recipient elsewhere. The VicinityVoice 100 LTG converts IP voice packets to the Pulse Code Modulation (PCM) signals that are processed by Class 5 switches.

"The VicinityVoice 100 LTG is an entirely new class of product that enables broadband providers and other carriers to leverage packet-voice technology to substantially reduce the costs of providing local voice service to their customers," said Rick Gilbert, president and chief executive officer (CEO) of Copper Mountain Networks. "In the past, if a broadband voice customer placed a local call to a PSTN-connected pizza parlor around the corner, the provider would have to transport that call from a wiring center, over a leased line, to a Class 4 tandem switch many miles away and then haul it back to a Class 5 switch in the same wiring center. With the VicinityVoice 100 LTG, the provider can send the call to the pizza parlor from the VantEdge or CopperEdge Concentrator directly to the Class 5 switch and eliminate the backhaul costs. This results in significant ongoing savings, because the provider no longer needs to lease a line from the wiring center to a remote Class 4 tandem switch for purely local calls."

"Going forward, broadband providers must offer differentiated, value-added services to be successful, and voice will be an essential component of any successful provider's service portfolio," said Jeff Kuenne, director of technology planning at Birch Telecom. "Distributed

packet-voice solutions will be key to cost-effective VoDSL service. Copper Mountain's new VicinityVoice 100 LTG works with its VantEdge and CopperEdge concentrators to enhance VoDSL cost-effectiveness by leveraging Softswitch technology to cut the costs of delivering local calls over DSL."

"The market for packet-voice service is poised for dramatic growth," said Erik Keith of Current Analysis. "Softswitch packet-voice solutions, which significantly improve the economics of IP voice service, will become increasingly prevalent as packet-voice service matures. With the VantEdge and CopperEdge Concentrators' IP service intelligence enabling Softswitch solutions in the wiring center and the new VicinityVoice 100 Local Trunk Gateway enabling significantly reduced operational costs for purely local packet-voice calls, Copper Mountain is well positioned to be a major player in the IP-voice solutions market."

International Data Corp. projects that voice traffic across IP networks will increase from 9 billion minutes in 2000 to 135 billion minutes in 2004, boosting IP telephony service revenue from \$1.6 billion to \$18.7 billion.

### **About the VicinityVoice 100 Local Trunk Gateway (LTG) Solution**

An essential component of next-generation packet-voice networks, the VicinityVoice 100 LTG is a low-density, 192-port, NEBS-3-compliant media gateway designed to be collocated with Copper Mountain's VantEdge Broadband Services Concentrators and CopperEdge 200 DSL Concentrators in a wiring center. Working in conjunction with the collocated VantEdge or CopperEdge 200 and remotely located feature servers and media gateway controllers, the VicinityVoice 100 LTG enables providers to reduce the costs of voice service by sending locally destined packet-voice calls directly to Public Switched Telephone Network (PSTN) phones served from the same wiring center. When a call is initiated by a packet-voice subscriber, the remotely located feature server and media gateway controller work together to determine the call's destination. They encode this information in the voice packets, which are read by the VantEdge or CopperEdge Concentrator. If the call is destined for a PSTN phone served from the same wiring center where the VantEdge or CopperEdge Concentrator is located, the VantEdge or CopperEdge sends it to the collocated VicinityVoice 100 LTG. The VicinityVoice 100 LTG then

converts the packet-voice traffic to 64 kbps Pulse Code Modulation signals and sends the call to the wiring center's Class 5 switch, which forwards the call to its final destination.

### **Availability and Pricing**

The VicinityVoice 100 LTG will be generally available in Q4 2001, at a list price of \$24,995.

### **About Copper Mountain Networks**

Copper Mountain Networks, Inc. (Nasdaq: CMTN) manufactures intelligent DSL and aggregation equipment for central office, digital loop and multi-tenant unit (MTU) broadband networks worldwide. Its DSL solutions enable carriers and service providers to deliver cost-effective, high-performance data and voice services over existing copper telephone wiring. Its CopperEdge® 200 DSL Concentrator is deployed in some of the world's largest public networks, and its environmentally hardened CopperEdge® RT (remote terminal) DSL Concentrator extends the reach of DSL to the millions of customers served by digital loop carriers (DLCs). Copper Mountain's OnPrem™ MTU Concentrator offers a cost-effective and scalable platform for MTU service providers. With IP IQ™, Copper Mountain's robust Internet Protocol (IP) service intelligence, service providers can maximize bandwidth utilization, support value-added broadband services, and scale to meet the demands of hundreds of thousands of subscribers. Copper Mountain's CopperRocket® CPE family and CopperCompatible™ program ensure that Copper Mountain DSL concentrators are interoperable with the broadest range of customer premise equipment (CPE). Customers wanting more information about Copper Mountain products or office locations worldwide can contact Richard Washbourne at 1.650.687.3380 or visit the company's World Wide Web site at <http://www.coppermountain.com>. For investor relations' information, contact Margaret Kuhn at 858.812.8265 or call toll free 1.877.INFO.CMTN (463.6268) or contact us at [IR@coppermountain.com](mailto:IR@coppermountain.com).

### **Safe Harbor Warning**

Portions of this release contain forward-looking statements regarding future events based on current expectations and are subject to risks and uncertainties, such as factors regarding the rate of market acceptance and the future business prospects of the Vicinity Voice 100 LTG. Copper Mountain wishes to caution you that there are some factors that could cause actual results to differ materially from the results indicated by such statements. These factors include, but are not limited to: factors

affecting design, manufacturing, marketing, and other difficulties that could result in significant unexpected expenses or delays in the successful introduction, development, and enhancements of the Vicinity Voice 100 LTG; price competition in our industry and between DSL and competing technologies; our ability to penetrate the international, multi-tenant unit (MTU), and the incumbent telecommunications service provider (ILEC/IXC) market; quarterly fluctuations in operating results attributable to the timing and amount of orders for our products, the concentration of our revenue in a small number of customers, our ability to keep pace with rapidly changing product requirements, factors and market conditions affecting the telecommunications industry, the demand for DSL solutions, the rapid changes in the service provider landscape and among our CLEC customer base, and economic conditions generally. Prospective investors are cautioned not to place undue reliance on such forward-looking statements. Furthermore, Copper Mountain expressly disclaims any obligation to update or revise any forward-looking statements contained herein to reflect future events or developments after the date hereof. We refer you to the documents Copper Mountain files from time to time with the Securities and Exchange Commission, specifically the section titled Risk Factors in our Annual Report on Form 10-K for the year ended December 31, 2000 and other reports and filings made with the Securities and Exchange Commission.

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# VicinityVoice™ LTG Introduction

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May 2001



**COPPER MOUNTAIN**

*High Performance DSL Networking*



# DSL Business Outlook

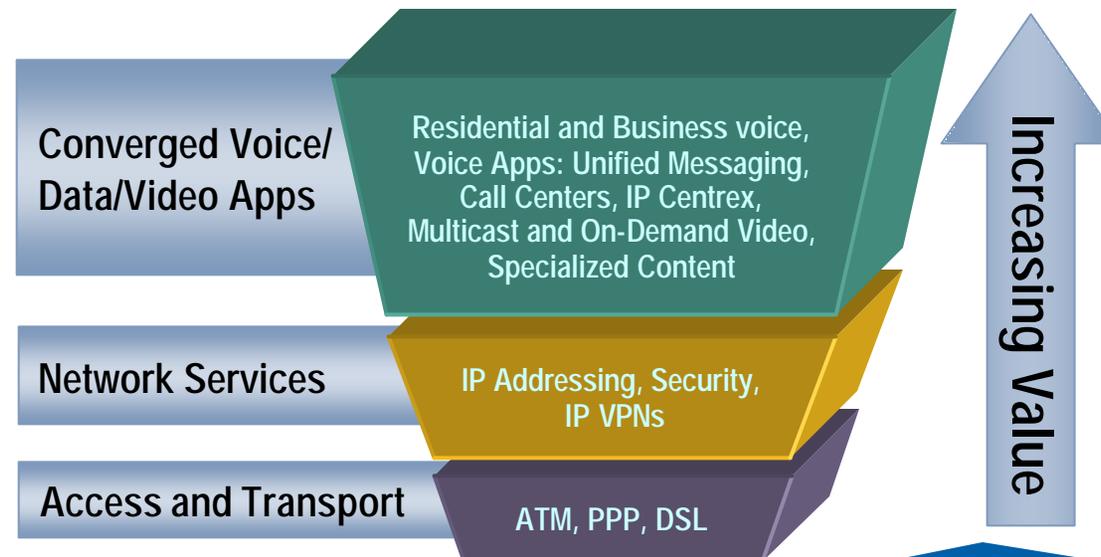


## ✂ Copper-based Broadband Access

- DSL is experiencing strong global growth with continually expanding end-user demand in all segments

## ✂ Multi-service Broadband Access

- DSL deployment will be profitable only for those providers who develop and deliver value-added services on top of Internet Access DSL
- Voice is the single most profitable revenue-generating service



# Profit Depends on Multiple Services



## Business IP Services

- ✍ Intranet / Email / Extranet Hosting
- ✍ Basic and Premium Internet Access
- ✍ Application Hosting
- ✍ File Sharing
- ✍ Online Storage & File Backup

## Consumer IP Services

- ✍ Consumer Internet service
- ✍ Low-delay gaming service
- ✍ Pay-per-use software applications
- ✍ Online file backup
- ✍ Photo/video sharing

## Business Voice Services

- ✍ Multi-line voice with standard features (ATM or IP)
- ✍ Advanced IP voice capabilities
- ✍ Web-based feature management (IP)

## Consumer Voice Services

- ✍ 2nd & 3rd line voice (ATM or IP)
- ✍ PC-based videoconferencing (IP)
- ✍ Web-based phone books with auto-dial (IP)



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# Carrier Challenges *(in priority order)*

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## ✍ Cost Reduction

- Flood of new traffic and per-subscriber, per-service virtual circuit model means massive new investment in ATM switches (Capital Expense)
- More subscribers using more services means increased provisioning of ATM virtual circuits & constant ATM network re-engineering (Operating Expenses)

## ✍ Enabling Value-added Services

- To reduce time to market for emerging IP services, IP intelligence must be added to network at the edge

## ✍ Transitioning IP Service Traffic from ATM to IP-based architectures

- Some applications require end-to-end ATM, but...
- It is not desirable to make massive new investments in the ATM transport network to carry IP services traffic

*This is a return to the traditional order of priority, exactly reversed from the architectural exuberance of 1999-2000.*

# VicinityVoice 100 LTG

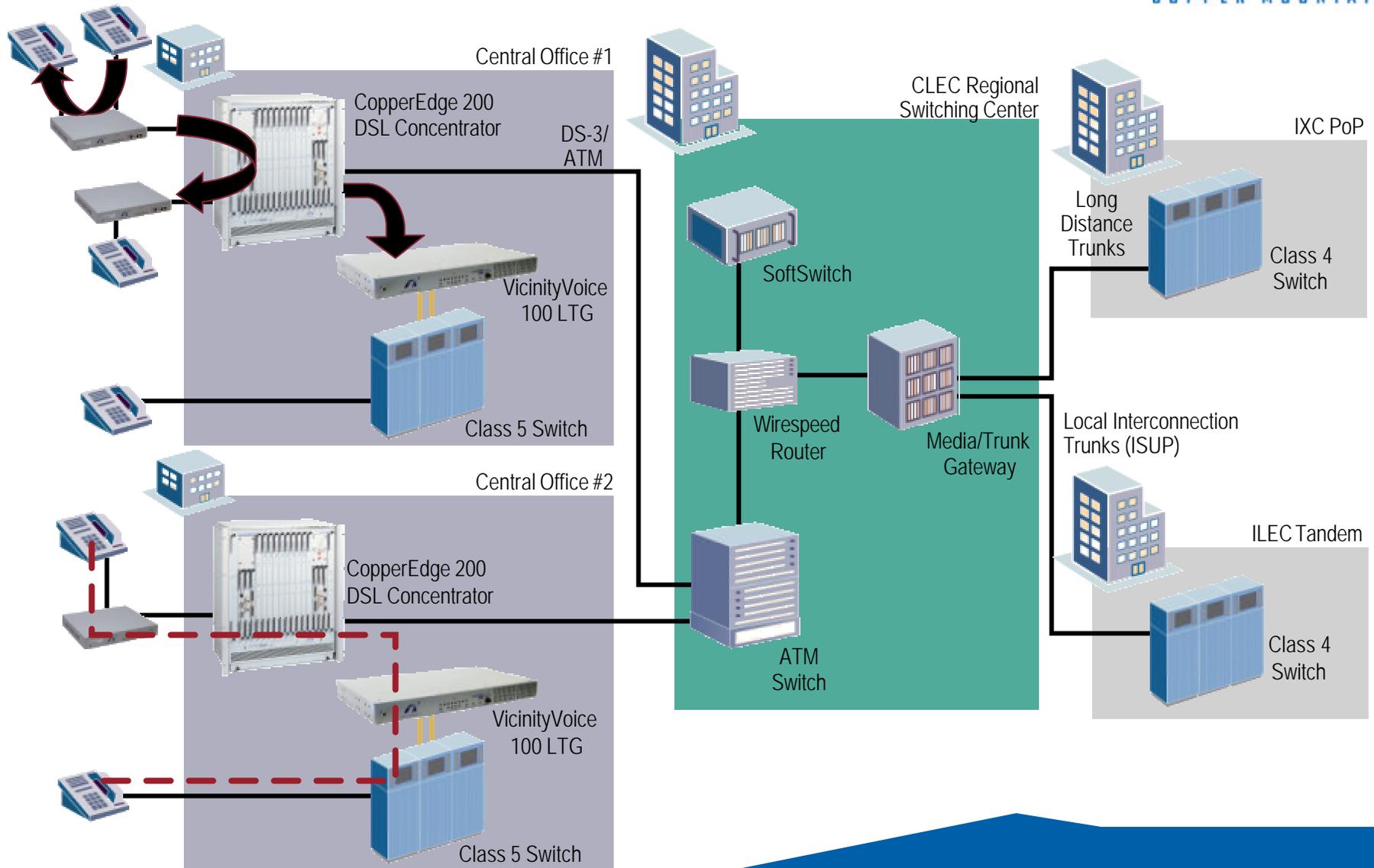


COPPER MOUNTAIN



- ✍ VicinityVoice is a small-scale media gateway for Voice over IP softswitching implementations, designed for collocation with an IP DSLAM or Broadband Services Concentrator in a central office wiring center
- ✍ Benefits:
  - Keeps local traffic local
  - Improves scalability
  - Reduces PSTN end-office trunking costs
  - Compatible with 3rd party softswitches and media gateways

# VicinityVoice LTG— Unique Advantages for the Carrier

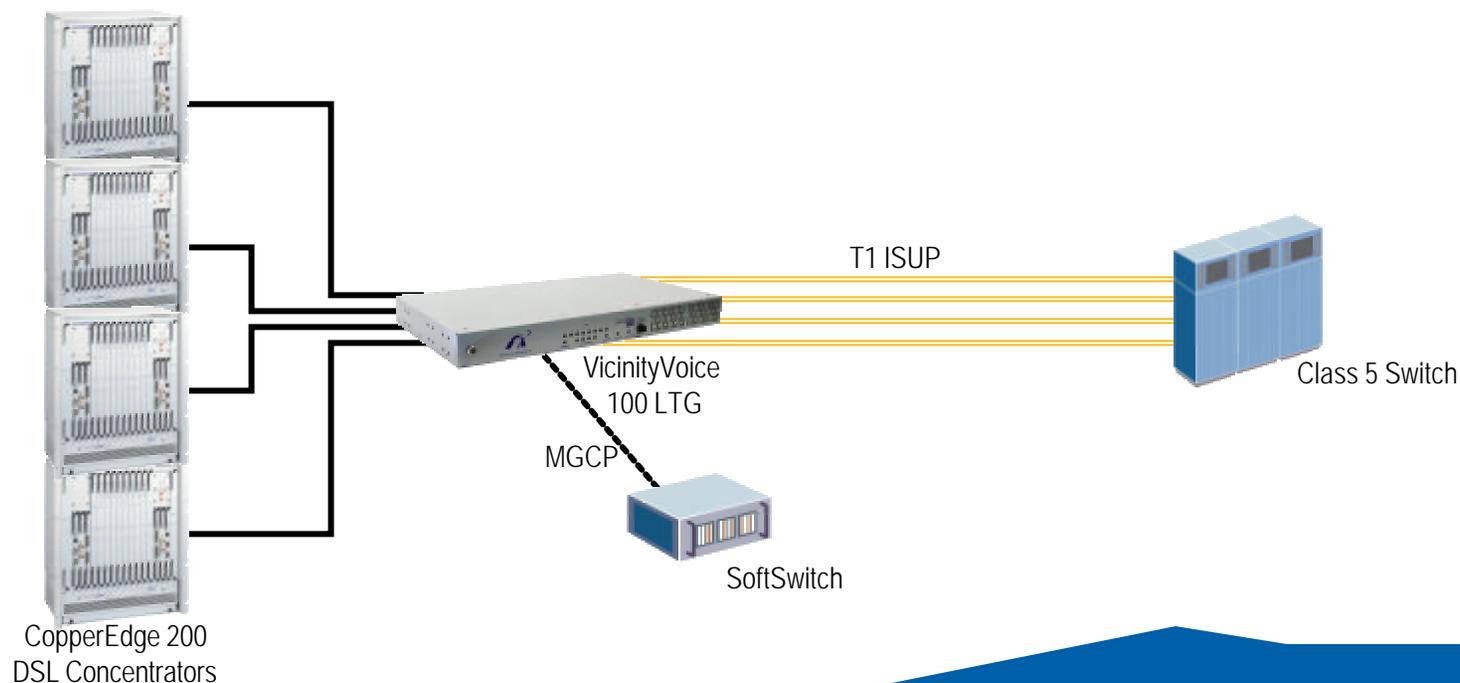




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## VicinityVoice 100 LTG

- ✍ Provides eight B8ZS T1 ISUP for two-way Local Interconnection Service
- ✍ Softswitch controlled via MGCP messages
- ✍ Supports up to 192 trunks

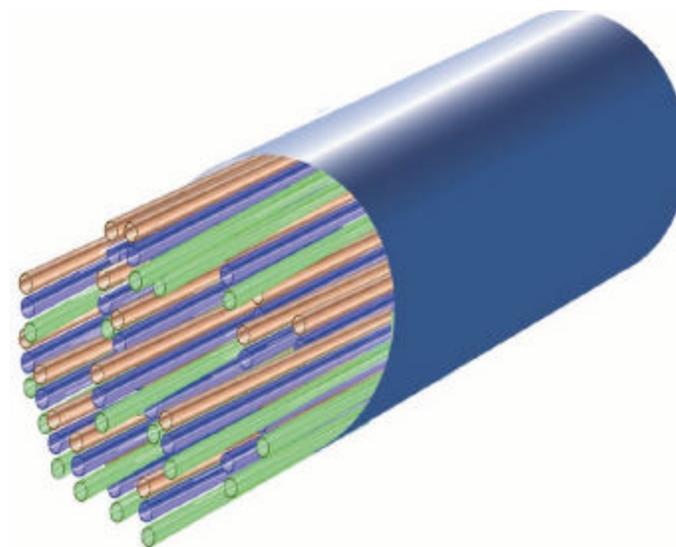




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## Compelling Economics—VicinityVoice LTG

- ✍ Cost/port at parity with regional Media/Trunk Gateway
- ✍ Backbone facility supports more subscribers
- ✍ Core routers and switches scale better
- ✍ Direct End-Office Trunking facilities are NOT needed
- ✍ Save \$150-\$750 per month per central office (CO) in Direct End-Office Trunking charges alone



**Local, intranet wire traffic stays local**

**Lower monthly recurring operating cost per subscriber**