

# Case Study



*Top-ranked iCi Sets Industry Benchmark  
with Lucent's PortMaster Remote Access Servers*

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## Executive Summary

Internet Connection, Inc. (iCi), based in Mansfield, Massachusetts, began providing Internet services in 1994. Since then, iCi has grown by 500 percent, with points of presence (POPs) in more than 75 locations throughout New England. Since inception, iCi has built its network with PortMaster remote access server (RAS) products and continues to rely on those products for dependable, economical, and scalable service. "We've grown our network using Lucent [formerly Livingston Enterprises] products," says E. Burke Anderson, iCi's president and CEO, "and the PortMaster 3 Integrated Access Server is one of iCi's top equipment choices."

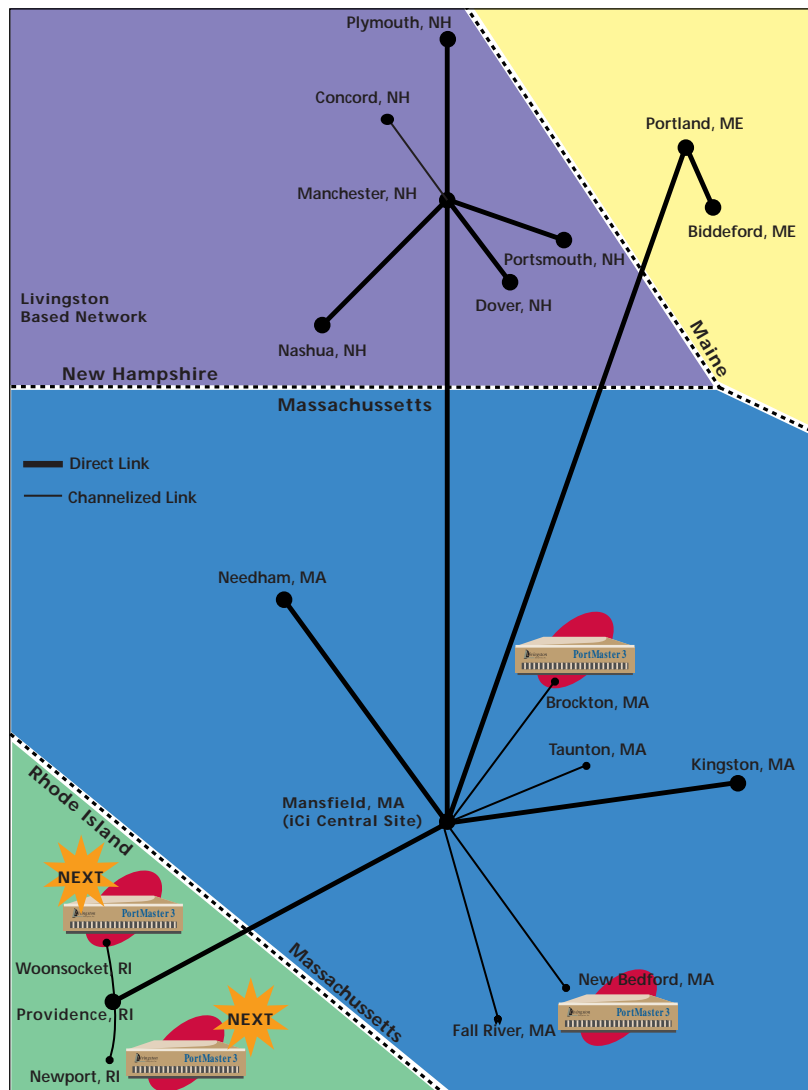
The company's Internet services reach from densely populated urban areas like Providence, Rhode Island, to the remote rural areas of New Hampshire. Currently, iCi has approximately 10,000 dial-up subscribers and well over 1,000 business clients. Among its business customers are independent Web site developers, retail stores, radio stations, newspapers, public utilities, and schools.

In addition to dial-up Internet connection, iCi provides a wide range of related business services, including mail gateway services, Web hosting, and a suite of leased line services supporting 56Kbps, ISDN Primary Rate Interface (PRI), Frame Relay, and Point-to-Point. The company's i-Pass Alliance, which supports iCi subscribers while they're traveling, delivers cost-effective Internet access worldwide.

## The Challenge

Initially, iCi offered Internet services only to customers close to its central site location in Mansfield. But, as Anderson explains, "We found out very quickly that, to compete with the large national providers, we had to offer considerably more than a closet full of modems." Major iCi customers like ABC-affiliate WLNE-TV6 and Hills Department Stores demanded a wide range of capabilities and services including:

- Rapid connections and downloads
- Skilled and readily available technical support
- Service enhancements such as the availability of high-speed modems or ISDN connections



*iCi's PortMaster-based Network*

As the figure shows, iCi met this challenge by building a redundant infrastructure that includes triple-homed T1 Internet access links to Sprint and MCI as well as a UUNET T3 link to iCi's Sun

SPARC station servers and rack-mounted 33.3Kbps modem servers. The company's remote POPs feed back to iCi's central site in Mansfield through multiple channelized and direct T1 links.

To ensure uninterrupted client connectivity across this backbone and also control overhead costs in the face of its own rapid growth, the company needed to deploy RAS equipment that would deliver:

- Optimal reliability and dependability
- Scalable architecture for future upgrades
- Ease of management from a central site
- Cost-effective price-per-port

### The Solution

In 1993, Livingston Enterprises developed the PortMaster 2 Communications Servers in response to the growing demand for RAS equipment and routers that combine multiple line speeds and interfaces. The PortMaster 2 series was expressly designed to provide an economical and easily expandable solution for securely connecting telecommuters, Internet users, and branch offices to network resources. That's why iCi selected the PortMaster 2 as the foundation for its Internet access solution.

"The PortMaster product line was in 1993, and still is today, just about the only show in town for dependable remote access," explains Curtis Wilbar, Jr., Chief Technology Officer for iCi. "We deployed 42 PortMaster 2Es in our central-site and at the majority of our remote POPs. It was an obvious choice. The product worked as advertised, and we've continuously received excellent support."

### Results

In May of 1997, *Smart Money* magazine chose iCi and only five other ISPs (out of more than 4,000), as "The Best Regional Internet Providers" in the United States. To select these star ISPs, *Smart Money* used criteria like the following:

- Minimum local dial-up rate of 28.8Kbps plus ISDN capability
- Reliable technical support
- Industry standard 10:1 user-to-modem ratio
- Support for both Mac and PC platforms

"Lucent's PortMaster products use their Internet-proven ComOS and RADIUS software to meet our needs in every one of these areas," Anderson says. "We pride ourselves on being one of the best, most reliable Internet services providers in New England, and Lucent's PortMaster products have been critical to the fulfillment of that mission."

Encouraged by their success, the management and staff at iCi are planning new service enhancements. As Anderson explains, "We're going to stay ahead of the competition by being different in several areas. We will offer Internet faxing, electronic commerce (e-commerce), virtual private networking (VPN) technology, and telecommuting services as well as differing levels of bandwidth availability so we can accommodate the rapidly changing needs of our customers." Recently, iCi responded to these

changing needs by offering free access to Planet Direct. Planet Direct is a content provider that organizes a collection of brand-name services tailored to such specific interests of iCi subscribers as entertainment, sports, travel, and general news.

### **Building Next-Generation Services with the PortMaster 3**

To support all these services and enable the continued growth of its business, iCi is now upgrading its network with Lucent's next-generation PortMaster 3 Integrated Access Server. This compact 3.5-inch concentrator consolidates Lucent-based K56flex™ modem technology, ISDN capability, CSU/DSUs, a communications server, and a router into one chassis. The integration of these separate remote access functions dramatically reduces iCi's support burden for installation, administration, and management.

Currently, the PortMaster 3 is supporting iCi's high-density POPs in Brockton and New Bedford, Massachusetts. An additional 100 ports are also being deployed at iCi's remote locations in Woonsocket and Newport, Rhode Island. "The PortMaster 3s were seamlessly integrated into the

RADIUS system and were up immediately when our telco installed the lines," says Technology Officer Wilbar.



*"The PortMaster 3 is one of iCi's top equipment choices." E. Burke Anderson, President and CEO*

### **Managing the Future**

"I suppose some would say we're too cautious and conservative —typical New Englanders', if you will," Anderson observes with a smile. "But maybe that's part of the reason we're considered one of the best regional ISPs. Unlike a lot of others, we at iCi know how to manage growth. We also know that the only way to ensure customer satisfaction is to build your network on the most reliable and scalable remote access equipment available. That's why we've used PortMaster products in the past and why we're planning to grow with them in the future."