

THE LIGHTNING FLASH

A VISION OF NETWORK WORLD ISSUE 3/98

Dear Customer,

Welcome to the inaugural issue of our new "Lightning Flash". LIGHTNING is continuously developing its MultiCom® range of secure routers, based on the requests of our large customer base, as well as innovations of LIGHTNING's research and development labs, based in Switzerland.

We also know that solutions are not just software or hardware. Solutions are products, support, services and the relationships that develop. Our customers choose Lightning because we offer reliable and secure solutions that perform, scale and port easily to their environments.

In this issue, we will present you two exclusive features of LIGHTNING's MultiCom routers: AutoConfiguration™ and the Never Busy Line™.

LIGHTNING's AutoConfiguration is THE hot innovation of CeBIT '98's networking world: for the first time in TCP/IP and router history, an entire network of computers can be automatically connected to the Internet or an Intranet, with only one mouse click!

We hope our new newsletter will help keep you up-to-date with our products and services. Our intent is to provide summary information in this newsletter while providing detailed information on our Web site <http://www.lightning.ch>. If you have any comments or suggestions about topics you would like us to cover, please contact us.

Thank you for your interest in Lightning

Dr B. Brunner
Managing Director

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AutoConfiguration™ is a giant step forward in user friendliness. It greatly reduces the work of setting up a network. The computers connected to the local network (LAN) are now automatically configured by the router. To a large extent the router itself is also automatically configured. The configuration is based on a minimal amount of information given by the Internet Service Provider (ISP), eg. the ISP's phone number and the account's user name and password. This information is entered using the Easy Setup feature of a configuration program under Windows 95/NT or with the setup command on the router's configuration port.

The new features not only greatly facilitate the setup of a network connected to the Internet, they also save money since a single Internet user account can be used to connect the complete network to the Internet.

All you need to enter to configure the machines on the network and the router is the following information:

- ISP's phone number
- ISP account: user name & password
- ISP's domain name service (DNS) information

This is typically the information provided by an ISP when a new account is requested. The information can be entered either with the EasyConfig wizard under Windows 95/NT or with the setup command on the router's console. Using this information the router will configure itself and all the computers on the LAN so that all users can access the Internet by using the same account.

Several new components in software release 2.3 team up to make



product news

Easy Setup and AutoConfiguration: relax and save money

Easy setup and AutoConfiguration™ are the new revolution in firmware release 2.3. AutoConfiguration greatly reduces the work of setting up a network

Auto Configuration work:

Dynamic IP addressing

The MultiCom routers are now able to be assigned an IP address dynamically by the remote end of a PPP connection. There is no need to request static addresses from the ISP anymore and no

address needs to be configured in the router.

Contrary to the products of other vendors, the MultiCom routers support multiple remote sites with dynamic IP addressing, and even remote sites with static addressing at the same time. This allows for a router to

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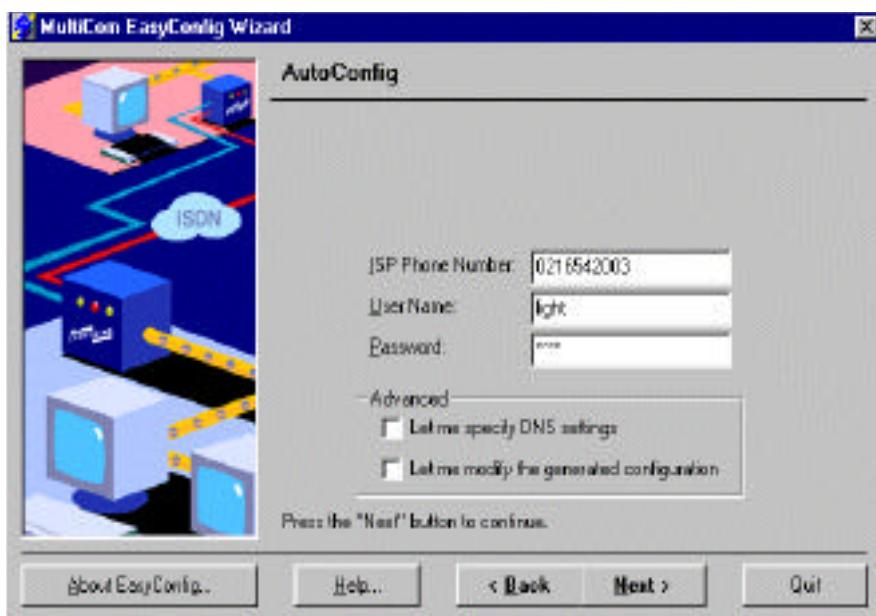


Figure 1: Setup screen of the configuration wizard

connect to the Internet with a dynamic IP address and to another part of the intranet with a static address. Also, the number of computers on the LAN benefitting from this and the following features can be unlimited.

Dynamic Host Configuration Protocol (DHCP)

The MultiCom routers now include a DHCP server able to configure all the computers connected to the LAN. There is no need to enter IP addresses or other parameters in the computers anymore. They can be set to configure themselves by querying the DHCP server. This option is available on Windows 95/NT, Mac OS8 and other popular platforms, and is often the default configuration. Upon request the DHCP server provides a machine with an IP address, the address of the DNS servers (primary and secondary) and the domain name in use.

One advantage of using DHCP servers at home and at work is that it allows to use a portable

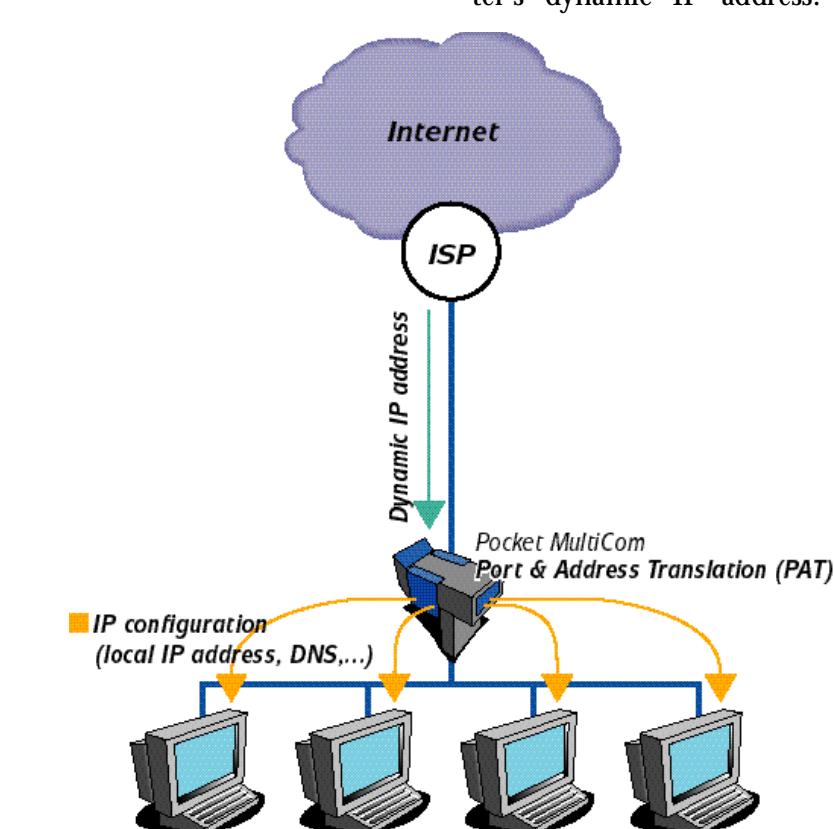


Figure 2: AutoConfiguration.
The MultiCom router is assigned a dynamic address from the ISP. Using DHCP, the router configures the PCs with local IP addresses. PAT translates the local addresses to the dynamic address and vice versa.

computer at both places without having to reconfigure it.

If necessary, the DHCP server can be configured with static mappings so that some machines always get assigned the same IP

address. This is very useful for servers that need to be reached by other machines on the LAN or even from the Internet (see PAT below).

Port and Address Translation (PAT, sometimes referred to as PNAT, NAT or SIUA)

PAT is a function that automatically translates addresses and port numbers in the packet headers as they leave or enter the LAN. In outgoing packets the source address of the machine that sent the packet is replaced by the router's dynamic IP address. The

Matching the destination port of incoming packets with the source ports of outgoing ones yields the intended destination. When two machines use the same source port at the same time, the router translates one of the source ports to make sure that after translation all source ports identify a single machine.

Lightning's PAT implementation works seamlessly with all popular protocols and applications like the World Wide Web (HTTP), file transfers (FTP), Telnet, E-mail (SMTP), ICMP and others.

The tight integration of these three new features, dynamic IP addressing, DHCP and PAT, allows the MultiCom routers to

Easy Setup and AutoConfiguration are a giant step forward

configure a complete network with a minimum amount of information entered in the configuration application or using the setup command.

Easy Setup and Auto Configuration are a giant step forward in user friendliness. The simplicity of the configuration of a complete network (router and machines) not only makes it feasible for non-technical people but also greatly reduces the potential for error. It makes the networked office easy to set up with out-of-the-box products and without technical knowledge.

Dr. Philippe Oechslin
Product Manager

MultiCom Backup IV, Access IV and MultiCom Serial IV

The MultiCom Series IV is a new range of high performance multi-protocol ISDN Routers. The Serie IV units have all standard software features available and are fully compatible with the other routers of the MultiCom range. This includes all the security fea-

tures and especially the 128-bit key encryption option.

MultiCom Access IV is the best solution for secure remote ISDN access. This unit connects up to 4 ISDN BRI interfaces and 2 leased lines at 2 Mbit/s. It is the first router able to backup a leased line over

Ethernet interface. Up to 8 remote locations can be served simultaneously. This router is an efficient solution for small and medium-sized central sites providing Internet and Intranet access through ISDN.

MultiCom Backup IV is specifically dedicated to the reliability and the security of a network. This unit connects up to 4 ISDN BRI interfaces and 2 leased lines at 2 Mbit/s, allowing the full backup of the leased-line. Most typical applications for these new routers are the secure and reliable communication of remote branch offices from large corporate enterprises, especially in the banking, insurance or governmental fields.

MultiCom Serial IV is his small brother with just 2 leased lines at 2 Mbit/s and an Ethernet interfaces

Management systems for hotels perfectly maintained with LIGHTNING multiprotocol routers

Management solutions for hotels have to be absolutely reliable, as guests expect perfect service and the highest comfort. Since 16 years, HOGATEX Software leads the way in supplying hotels and other companies with software solutions especially developed for this branch. The service for small,

Software management systems, every single hotel will get a LIGHTNING Pocket MultiCom. This installation enables not only communication between HOGATEX and the customer, but even the branches amongst themselves. LIGHTNING Pocket MultiCom can be



medium-sized and large companies includes individually designed management systems, technical and management consulting and support.

HOGATEX Software especially sets great store on perfect customer support. In order to offer their customers 24 hour maintenance for their management software, HOGATEX Software needs a very reliable technical equipment, which is independent from the implemented operating system. Since about one year, HOGATEX Software therefore uses worldwide the LIGHTNING ISDN multiprotocol router Pocket MultiCom for TCP/IP routing. Every HOGATEX software management installation includes a LIGHTNING Pocket MultiCom. If for example a hotel company with five branches is provided with HOGATEX

used for WAN and LAN and because of that is an ideal solution for these kind of installation.

In case of difficulties with the software management system, the LIGHTNING Pocket MultiCom routers enable HOGATEX Software to analyse and solve the problem by remote access. The system's functionality is restored much faster than by sending a HOGATEX employee to the hotel for the software's maintenance. And the faster the management system is repaired, the better hotels can satisfy their guests' demands to get perfect service and highest comfort.

EDV-Lösungen für Hotels müs-

For demanding customers, integrated 128 bit key encryption can guarantee full confidentiality

Hotel-management Systeme perfekt gewartet mit Multiprotokoll routern von LIGHTNING

sen besonders zuverlässig funktionieren, denn Hotelgäste erwarten rund um die Uhr perfekten Service und höchsten Komfort. Seit 16 Jahren ist die HOGATEX Software GmbH Vorreiter in der Versorgung von Hotelbetrieben und anderer Unternehmen mit speziell auf die Bedürfnisse dieser Branche zugeschnittener EDV-Systeme. Das Angebot umfasst kundenspezifische Softwarelösungen, fachkundige Beratung sowie Betreuung bis hin zum Management Consulting für Anwender aus der internationalen mittelständischen, Groß- und Kettenhotellerie.

Besonderen Wert legt die HOGATEX Software GmbH auf einen gut funktionierenden Kundensupport. Um seinen Kunden Fernwartung rund um die Uhr bieten zu können, braucht das Unternehmen eine besonders zuverlässige, betriebssystemunabhängige Ausstattung. Deshalb setzt HOGATEX seit etwa einem Jahr für das TCP/IP-Routing weltweit die ISDN-Multiprotokollrouten Pocket MultiCom der LIGHTNING Instrumentation SA ein. Zu jeder Installation einer

Hotelmanagement-Software von HOGATEX gehört ein solcher Router. Wird etwa eine kleine Hotelkette mit fünf Häusern von HOGATEX ausgestattet, wird in jeder Niederlassung ein Pocket MultiCom installiert. So können Hersteller und Kunde sowie die einzelnen Häuser jederzeit miteinander kommunizieren. Pocket MultiCom eignet sich für den Einsatz in LANs und WANs gleichermaßen und ist deshalb für eine solche Lösung ideal.

Treten nun Schwierigkeiten bei der Anwendung der Hotelmanagement-Software auf, kann HOGATEX das Problem rund um die Uhr remote analysieren und sofort eingreifen, um Fehler zu beheben. Auf diese Weise wird die Funktionsfähigkeit des EDV-Systems wesentlich schneller wiederhergestellt, als wenn ein Mitarbeiter der HOGATEX Software GmbH sich erst vor Ort begeben müßte, um sich ein Bild der Lage zu machen. Und

Pocket MultiCom eignet sich für den Einsatz in LANs und WANs gleichermaßen und ist deshalb für eine solche Lösung ideal.

je schneller die Hotelmanagement-Software wieder funktioniert, desto besser lassen sich die hohen Ansprüche der Hotelgäste an Service und Komfort erfüllen.

Für anspruchsvolle Kunden bietet eine integrierte 128 Bit Verschlüsselung volle Vertraulichkeit

NEWS

NEW PARTNER IN AUSTRIA

HIGHSPEED CABLING ist ein 1994 gegründetes junges, dynamisches Unternehmen, das Produkte für strukturierte Gebäudeverkabelung produziert und vertreibt. Das vielfältige Zubehörprogramm reicht vom Schranksystem bis zum Kabelbinder, über Lichtwellenleiter-kabel und Hubs, Active Stars, LWL-Converter bis



hin zur eigenen Patchkabelproduktion in Österreich. Vor kurzem wurde der Vertrieb von ISDN Routers von LIGHTNING aufgenommen.

Highspeed Cabling
2351 Wr. Neudorf
www.highspeed-cabling.at/hsc

NEW PARTNER IN POLAND

Cellco Communications Ltd is a firm whose main activity is fiber optic technology, corporate networks based on IDSN and WAN connections. Cellco has built many fiber optic installations based on home components production. Cellco's clients are power industry companies, industrial companies, banks and all sort of telecommunications firms.

Cellco Communications Ltd
70-832 Szczecin
www.cellco.com.pl

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Special focus on NEXT ISSUE

security & encryption

product highlight

The Never Busy Line : The end of frustration

The Never Busy Line is one of the exclusive features of the MultiCom router family. This article describes this interesting feature and its potential applications in more detail.

We all know how frustrating it can be to get a busy signal when trying to log onto the network, be it on the Internet to surf the Web or on our employer's intranet to upload that important report that was due yesterday.

128kb/s. When a remote user, say *B*, tries to connect to the Access router, the router detects that a connection would have to be refused because all *B* channels are occupied. It releases one *B* channel and the remote party finds an

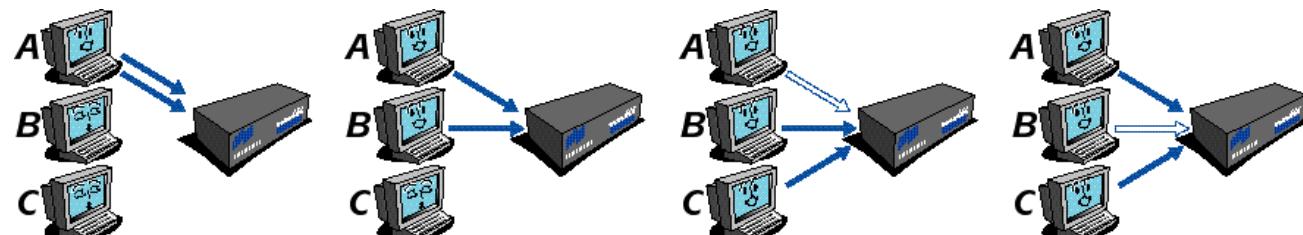


Figure 1: The Never Busy Line feature allows the MultiCom routers to be called by more remote parties than there are *B* channels available.

We will explain the Never Busy Line with a MultiCom Access IV router. For the sake of simplicity, however, we will consider only

available channel after a few seconds. This is shown on the left in Figure 1. The right side of Figure 1 takes the example further. Imagine that a third remote party *C* also tries to establish a call to our router. The channel which has been connected for the longest time is disconnected, leaving one channel available for *C* to connect. From here on the operation resembles a juggling act. Assuming that *A*, *B* and *C* all have data to transmit, they will all be disconnected in turn and reconnected later. A timer mechanism makes sure that each connection stays connected at least for a given minimal amount of time.

With more channels, say eight *B* channels for a MultiCom Access 4, the operation is exactly the same. However, since there can be

eight connections at the same time, the disruptions are much shorter when a ninth connection has to be accepted since each connection is only disconnected once in nine times. This allows to exploit statistical multiplexing - the fact that eight channels can be enough for twelve users if they rarely are all active at the same time - even further.

Although it is possible to have file transfers from three different remote sites at the same time on a single MultiCom Pocket router, the Never Busy Line is obviously not a viable solution for providing extra channels on a permanent basis. However, it can make a big difference and has already been the key factor in selecting a MultiCom solution in contexts like the following:

- When there is a small but significant probability that the number of incoming calls exceeds the

number of *B* channels of a given router (two for a Pocket MultiCom, eight for the Access 4 or thirty/sixty for the Lan Access Center), the Never Busy Line allows for a high availability without requiring an extra router.

- When availability is of paramount importance, for example in an emergency call center, the Never Busy Line assures that calls will eventually get through even if all lines are busy.

Dr. Philippe Oechslin

Product Manager



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The lightning flash is published three times a year for LIGHTNING Instrumentation SA,
Av. des Boveresses 50 - 1010 Lausanne - Switzerland
Tel. +41 21 654 2000 - fax +41 21 654 2001 - Internet: www.lightning.ch
Email: info@lightning.ch