

## CITEC Service Node System Goes Carrier Ethernet with NEBS & ETSI Certified Switches

### A Telco Ethernet Application

#### TECHNOLOGY TODAY

From the late 1800s onwards, the construction and development of an increasingly extensive, complex and technologically advanced telecommunications system paved the way for Italy to begin the process of industrialization and modernization that was to make it one of the world's most advanced nations. In 1984, the Italian telecommunications market was opened up to competition and this paved the way for the foundation of Telecom Italia, TIM and TIN. With escalating competition and demands in the Telecommunications market, companies are increasingly using Carrier Ethernet to improve reliability and reduced the cost of voice and data management applications.

Carrier Ethernet refers to Ethernet products that are heavy duty, exceptionally reliable, have high EMC (Electromagnetic compatibility), and have been successfully tested to telecom industry standards such as NEBS (Network Equipment Building System) and ETSI (European Telecommunications Standards Institute). NEBS/ETSI certified products are suitable for demanding Ethernet applications in the Internet infrastructure and in Telecom facilities such as Central Offices, POPs, Service Nodes and network management centers where equipment space is at a premium.

#### ABOUT CITEC

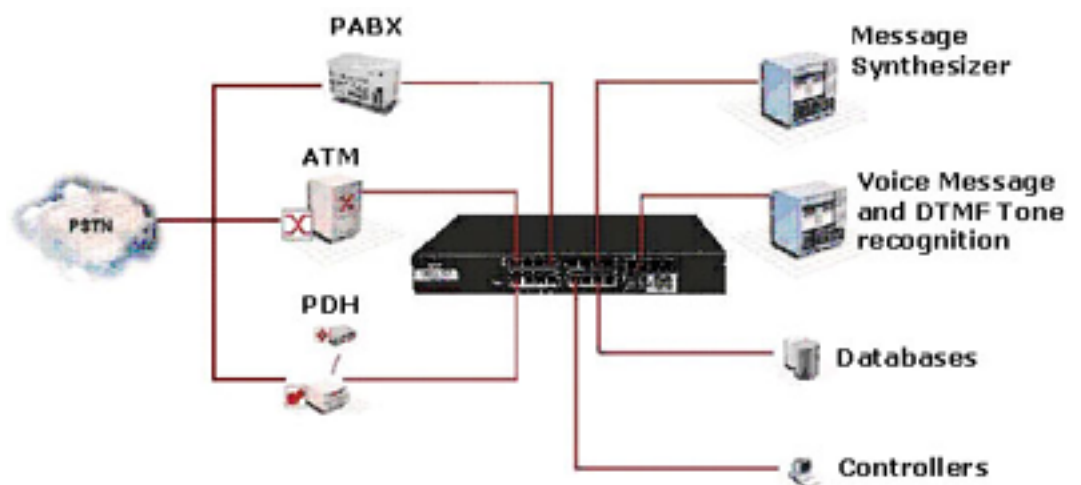
CITEC designs and implements communications systems and computerized solutions supplying the Italian Telecommunications market with a broad range of voice and data systems. For nearly 30 years CITEC have been at the forefront in information and communication technology by investing heavily in innovative technology. Particular attention is devoted to research and development work. Customers include Telecom Italia, Vodafone (Italia) H3G, Alitalia, and Banca di Roma.

#### THE CHALLENGE

CITEC customers required a platform incorporating a suite of voice applications which would provide the interrogation and updating of databases, voice messages, alarm calls, the exact time of telegram dictation, and a set of intelligent network services such as information on subscriber telephone number changes or urgent service calls.

A mixture of hardware and software designed to operate in demanding telecommunications environments was required. Telecommunications environments require redundant -48V DC power capability, and NEBS/ETSI certifications that prove whether networking equipment qualifies for these mission-critical applications and guarantee that the equipment will perform safely and reliably. The rigorous testing fulfills the criteria deemed necessary by the telecommunications industry to support mission-critical applications that demand high reliability, electromagnetic radiation immunity, and sustained operation under temperature stress - among other tough conditions.

Another challenge for CITEC was that, because the Service Node incorporates a large number of Ethernet-enabled high performance servers, telecommunication and bespoke equipment, they could not rely on all the ports to consistently auto-negotiate to the optimum speed (e.g. 100Mb full-duplex). CITEC turned to GarrettCom to find the solution.



## CITEC

### THE SOLUTION

CITEC engineers chose GarrettCom's 6K25 Managed Switches. The Magnum 6K25 offers configuration flexibility and high reliability with dual source -48V DC power and NEBS level 3 and ETSI level 3 certification.

The management features also provide the ability for CITEC to fix the port speeds, enabling all connecting equipment to function correctly. The diagram shows a simplified switch setup. When a call comes in from a customer through the PSTN via either the PABX, ATM or PDH interfaces, it is received by the CITEC service node.

The caller is identified by their CLI (calling line identifier) and verified against the database. The caller is offered a selection of functions using a message generated by the voice synthesizer. The user selection is then recognized by either DTMF tones or voice recognition. The selected service is then offered to the customer.

### THE RESULT

CITEC's Service Node platform is a line of products for the Italian Telecommunications market. The platform is designed to provide telephone operators with a suite of voice applications. The Service Node functions as the interface between the telephone customer, who enters the system via the public network, and the service manager.

The 6K25 managed switches have established highly reliable Ethernet LAN connections for the Service Node platform. CITEC was able to increase reliability resulting in improved customer service and reduced operating costs.

The 6K series of managed Ethernet switches offer modularity, supporting a mix of fiber and copper ports, and advanced management features including standards-compatible support for self-healing rings and the most comprehensive set of web management and security features to be found in an industrial switch.

A small footprint and flexible mounting hardware allow the 16, 25, and 32 port 6K-series units to fit easily into telecom facilities spaces.

### ABOUT MAGNUM PRODUCTS

The **Magnum 6K25 Managed Switch** supports up to 25 ports with four configuration modules. The Switch comes with comprehensive MNS-6K software including Secure Web Management with GUI interface, QoS, Tagged VLANs, SNMP, Telnet, and Port Security.

The **Secure Web Management (SWM)** offers users a safe and secure method for accessing mission-critical switches from the convenience of graphical web browsers. SWM monitors switch activity and supports changing configuration settings from a web browser.

### ABOUT GARRETTCOM

GarrettCom is the leading manufacturer of industrial and Carrier Ethernet LAN products. GarrettCom offers a comprehensive line of ETSI and NEBS-certified switches and hubs for use in telecommunications, industrial, and automated environments. Software applications, embedded in the company's MNS-6K management software, support redundant rings and secure web-based access to local and remote networks. GarrettCom markets its products through a network of resellers, OEMs, system integrators, and distributors worldwide. For more information on GarrettCom and its products, visit [www.GarrettCom.com](http://www.GarrettCom.com).

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