



PROTEI
R & D center

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Controlling communication networks – a modern approach

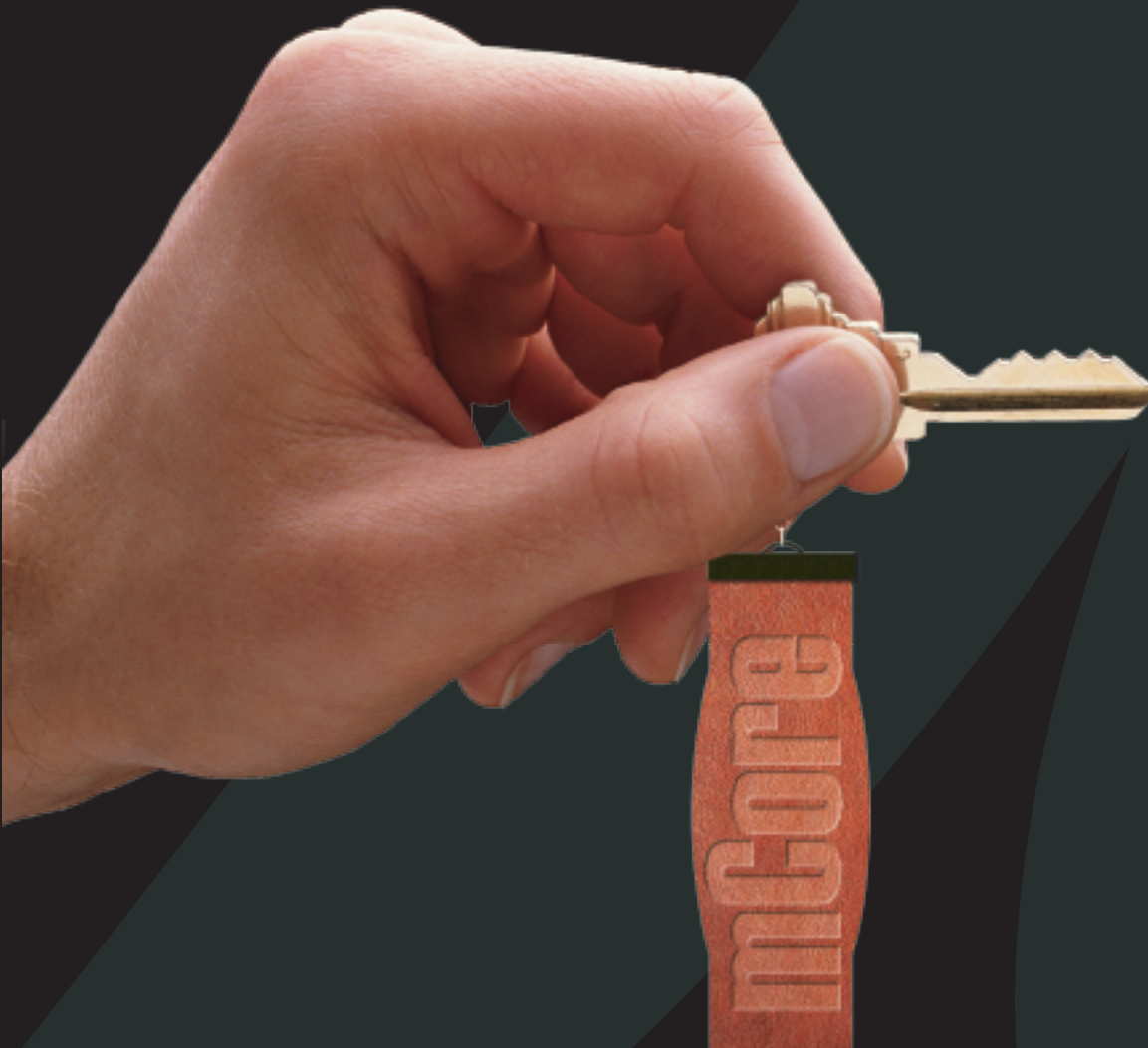
The growth of NGN from a work-in-progress into a ubiquitous technology with widespread deployment is becoming a clear reality. To perform effectively and competitively in the telecommunications market, operators have no other choice than to make the switch to next-generation networks.

In NGN networks, call and service control is separated from transport functions. As a result, it is now possible to use a single service logic regardless of the carrier and exchange technology. Call control in NGN networks is handled by the softswitch.

The softswitch is the central element of NGN, thus the quality and reliability of the network depend heavily on the correct choice of softswitch.

The PROTEI mCore solutions line is a combination of softswitches of various classes. Installing mCore in an existing telephone network makes it possible to deploy an NGN segment and connect to other elements of the network through gateway equipment.

mCore can be deployed in metropolitan as well as rural settings. It can also be used for creating office and corporate networks. mCore-based networks support new Triple Play and IN services along with traditional telephone network services. 



Equipment line

The mCore solutions line is as follows:


- **mCore.MKD-4** – Transit softswitch;
- **mCore.MKD-5** – Softswitch for building subscriber networks;
- **mCore.CPBX** – IP-PBX, Centrex PBX equipment.

mCore.MKD-4 – a transit softswitch with functions for load balancing according to destination, collection of statistics and storage of detailed information about connections. Suitable for varied applications involving routing of user information streams.

mCore.MKD-5 – class 5 softswitch that operates as a control node in NGN.

mCore.CPBX – a device specially developed for

building corporate networks. Features a wide range of functions for use in administrative networks.

mCore.MKD equipment is designed for call routing, controlling access equipment and providing intellectual services in NG networks. In metropolitan, rural and corporate networks, mCore also routes calls, provides a range of additional services and manages connection establishment and associated processes. 



Functionality

mCore.MKD connects to the carrier IP network through an Ethernet 100/1000 Mbit/s interface using SIP, H.248/MEGACO signaling protocols. SS7 and EDSS-1 are transferred over the

SIGTRAN protocol via a gateway to existing PSTN networks.

mCore can provide connection between different networks and can be used to set up connection between IP and PSTN networks.

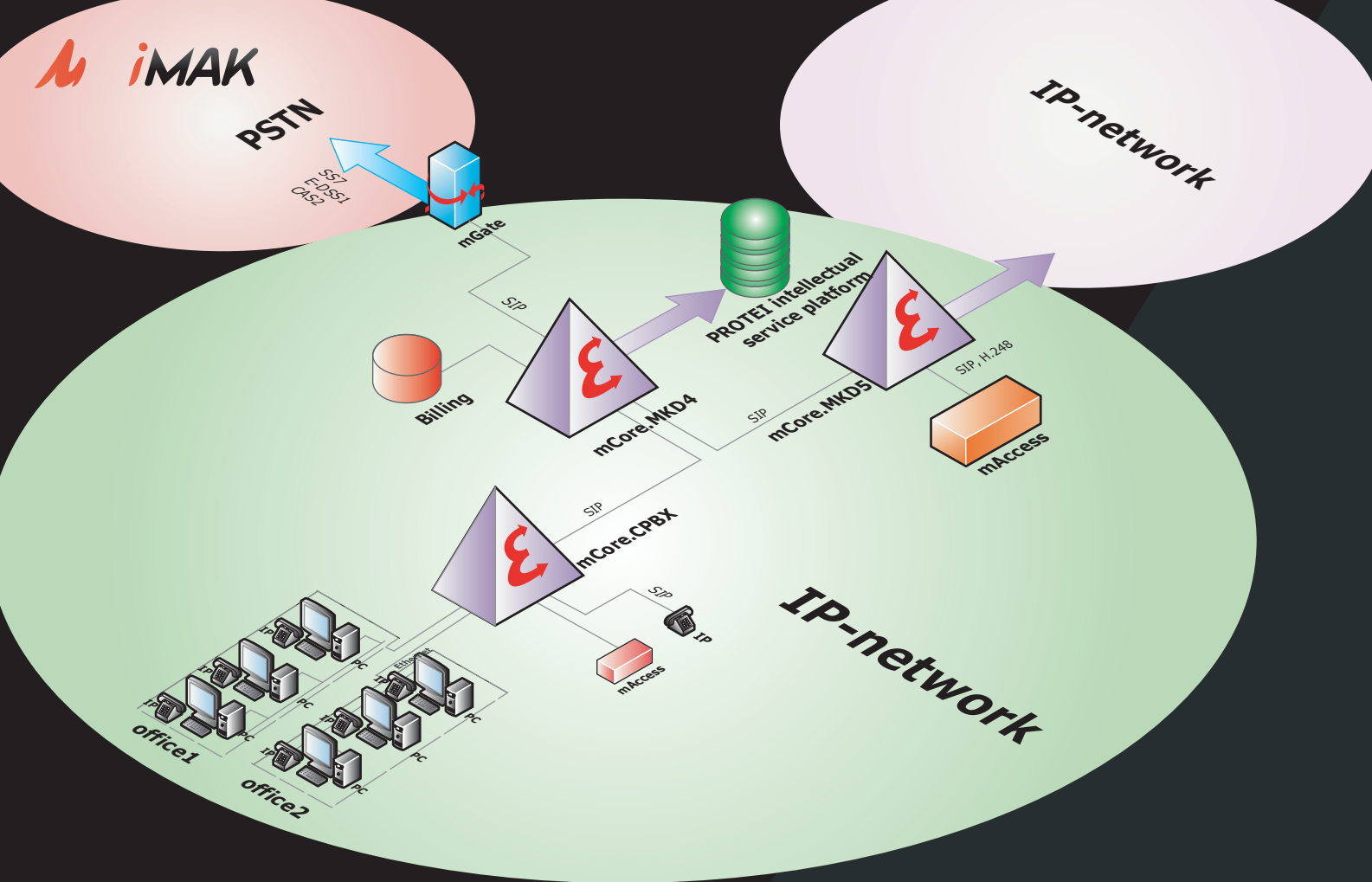
The system provides a wide array of functions, including:

- **Call routing.** A specially developed PCP system is used for configuring call routing in mCore.MKD. The choice of node used for call servicing is made on the basis of the source and destination numbers, the source IP address, destination and a number of other call parameters.
- **Provision of Additional Services.** mCore can provide users with a wide range of additional Centrex and various special services, such as 'private office'. mCore controls user privileges for access to additional services.
- **Provision of Intelligent Services.** The mCore line of solutions is fully compatible with the PROTEI Intelligent Services platform, which provides a wide range of services including call centers, voice mail, IVR, calling cards and much more.
- **Basic call service.** mCore equipment provides basic voice call services and allows flexible call routing rules.
- **CDR and statistics.** mCore.MKD records data related to calls and services handled by the system. CDR information is stored for every attempted (successful or not) call. These records can be used by the billing system for calculating call costs as well as for amassing statistics.
- **Lawful Intercept Functions.** Intended for sanctioned interception of calls made by subscribers under the surveillance of law

enforcement bodies.

- **Session Border Controller (SBC) applications.** 





Capabilities

Construction of metropolitan telephone networks. Installing mCore.MKD-5 equipment in the central exchange creates the option to serve subscribers connected to it with a wide range of additional services and a new level of service quality. Full compatibility with PABXs allows a gradual changeover of equipment when modernizing the network. mCore in combination with mAccess and mGate allows the construction of NG networks of any scale and for any purpose.

Construction of rural telephone networks. mCore in combination with mAccess and mGate give significant advantages when building rural networks in areas with low terminal concentration and uneven distribution of users.

mCore is installed as a central station. The PROTEI mAccess line (mAccess.MTU, mAccess.MAK) can be used for branch stations. Using mCore gives rural subscribers access to the entire range of services provided by IN and NGN.

Construction of corporate networks. The best solution for building corporate networks is to use mCore.CPBX. The expediency of this solution is easily justified – with minimal outlay, it provides access to the full range of next-generation services. It allows connection of analogue terminals as well as IP telephones and PCs with appropriate software.


Construction of transit networks. Both our own gateway and third-party equipment can be used when employing mCore equipment for providing inter-network transit between

operators. The transit network can be used for connecting networks of different types and, thanks to mCore, it can satisfy the most demanding operator's needs for running statistics, detailed service records, flexible routing rules and solid reliability.

mCore equipment line features

- **Support for large number of signaling protocols.** mCore supports SIP, H.248/MEGACO for connection to IP network elements and SIGTRAN for transfer of SS7 or EDSS-1 signal information.
- **Modular architecture.** This approach to system architecture allows functional duties to be divided among different modules, allowing for ease of use and maintenance and making it possible to create high performance cluster solutions.
- **Audio signal generation.** The mCore.MKD switch can generate various sound signals such as 'ringing', 'engaged' and others, as well as playing voice instructions. Audio signals can be changed by the operator.
- **RTP proxy capability.** mCore can work in one of two RTP processing modes: with or without RTP-proxy.
- **'Alarm signal'.** The alarm signaling system allows real-time alert to emergency situations with both mCore and equipment connected to it.

- **Equipment reliability.** Redundancy of main mCore elements ensures high reliability. Redundant elements periodically refresh their information from active components. In case of malfunction of a main component, the redundant element takes over.

- **Remote maintenance capability.** mCore system maintenance can be carried out using Telnet/SSH and FTP with a web interface and command line interface. 

Main mCore characteristics:

Characteristic	Value
Number of subscribers served in standard configuration: mCore.MKD-4, mCore.MKD-5 mCore.CPBX	Up to 25000 subscribers Up to 5000 subscribers
Interface with packet-switched networks	100/1000 Base-T
Protocols for connection to NGN nodes	SIP, SIP-T, SIGTRAN, H.248
Protocols for working with billing systems and AAA systems	RADIUS, CDR sending
Supported additional services	<ul style="list-style-type: none"> - Autoredial (CCNR) - Call interception (LH) - Call holding (HOLD) - Invitation to conference (CONF) - Call transfer (CT) - Various types of redirection (CF) - Subscriber-group connection (CUG) - Call waiting (CW) - Hotline - Centrex services - Intelligent Network services (IN) - 'Private office' services - Voice instructions, welcome messages and others <p>*Flexible options for creating new services</p>
Maintenance	Secure WEB management of configuration, CLI, Telnet/SSH, FTP, SNMP
Power supply	1) -48B (-10/+15%) DC -60B (-10/+15%) DC 2) - 220B AC

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