

## Overview on Cirpack SoftSwitch solution

The CIRPACK SoftSwitch platform is a field-proven Class-4 (Transit Node) or Class-5 (Local Exchange) switch delivering dial tone, call control and telephony services to any subscriber over any local loop and any trunk connection.

Thanks to its unique flexible architecture, it can offer a wide variety of copper and fiber interfaces (E1, SDH, ATM, Ethernet and POS) over a scalable platform which can range from a very small shelf (suitable to up to 200 E1s) to a distributed switch able to handle up to 6,000 E1s.

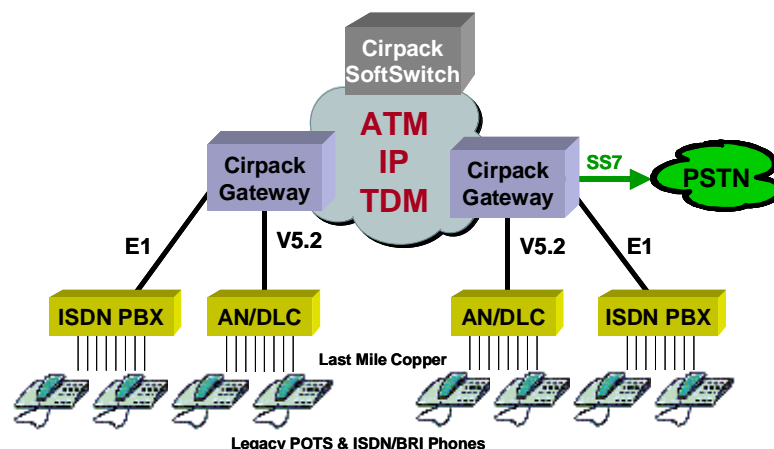
The single-shelf solution incorporates in one chassis integrated call control, media and signaling gateway functionalities for easy deployment in any collocation room without costly facilities. The distributed architecture (MultiNode) makes use of the same shelves for media gateway functionalities, while the media gateway controller runs on a cluster of high-availability servers for signaling centralized management.

The CIRPACK SoftSwitch natively supports TDM, ATM and/or IP operation, giving to the Operator the big advantage of an easy upgrade while new value-added services are introduced. In addition it supports more than 30 national ISDN and SS7 variants (including Czech ISUP) and it provides a field-proven carrier-class availability (99.9998%) with the strong local support of TTC MARCONI experienced technical team.

## Delivering legacy POTS and ISDN services

CIRPACK's next-generation softswitch can entirely replace legacy TDM switches at a fraction of their cost, enabling operators to continue providing all the POTS Class-5 and ISDN supplementary services that subscribers require. CIRPACK NGN platform has been designed with TDM requirements in mind: it actually features built-in SDH interfaces and full support for V5.2 POTS/BRI Access Node control protocols; it supports all local SS7 signaling variants and can connect to IN service platforms.

Operators can use CIRPACK SoftSwitch to cut the cost of delivering legacy voice services, but also to optimize their architecture and prepare it for the future. The same switch can be equipped with high-density IP and ATM interface boards, to connect packet backbone and prepare your infrastructure for Next Generation Networks (NGN). Call control can be centralized to facilitate deployment of small nodes dedicated to connecting subscribers to reduce the cost and time to market of new services. The same CIRPACK carrier-class voice switching platform can be upgraded at a later date, to deliver high-margin voice services via new broadband local loops (VoDSL, VoIP, VoCable, etc.).



## Building legacy PSTN infrastructure at lower cost

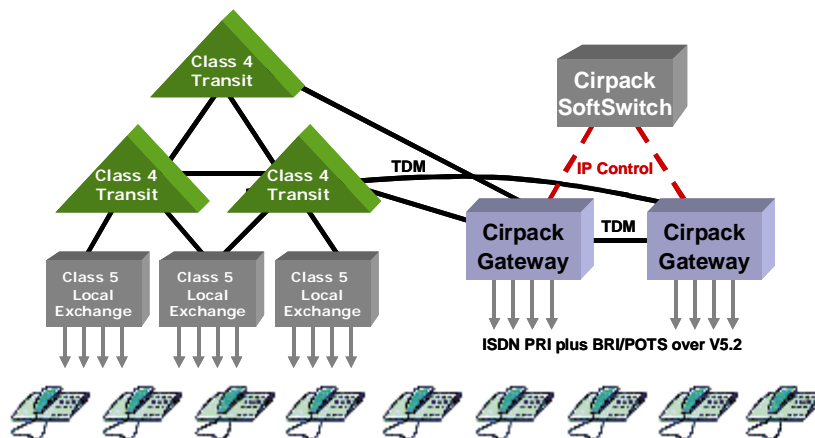
In some countries, the quantity of traffic transmitted over the PSTN is still increasing, forcing telecom operators to expand the capacity of their TDM infrastructures. Operators are reluctant to do so because TDM voice switching systems do not support new broadband technologies and are now outdated. Furthermore, legacy switches are made using proprietary hardware and software that is very expensive to deploy and maintain.

CIRPACK SoftSwitch is the ideal alternative for extending the PSTN. It is much easier to install, configure, operate and upgrade. Many operators have been using CIRPACK switches as pure TDM switches for years. This is a field-proven technology that is ready for the future, since CIRPACK switch units can be equipped with high-density IP and ATM interfaces for packet telephony services.

CIRPACK SoftSwitch fully supports R2, ISDN and SS7 protocols, including all local variants; they have built-in SDH interfaces for E1 transmissions over fiber and can be configured as Transit (Class-4) and/or Local Exchange (Class-5) switches. Interface cards can be loaded with whatever drivers or signaling functions are required, making for a very flexible solution that can be deployed in just a few days, and which is very quick and easy to adapt, upgrade and maintain.

When configured as Transit switches, CIRPACK units support advanced routing features and value-added services, such as number portability, complex SS7 interconnection, reverse billing, dynamic routing, 800 services, Least Cost Routing (LCR), indirect access services, multi voice-conference control, etc.

When used as Local Exchange switches, CIRPACK units offer all the transit features as above, plus all legacy Class-5 and ISDN supplementary services use by operators and subscribers. They can connect PBXs via ISDN PRI/BRI or R2, and fully support V5.1 and V5.2 protocols for extensive interoperability with legacy Access Nodes providing POTS and ISDN BRI connectivity.

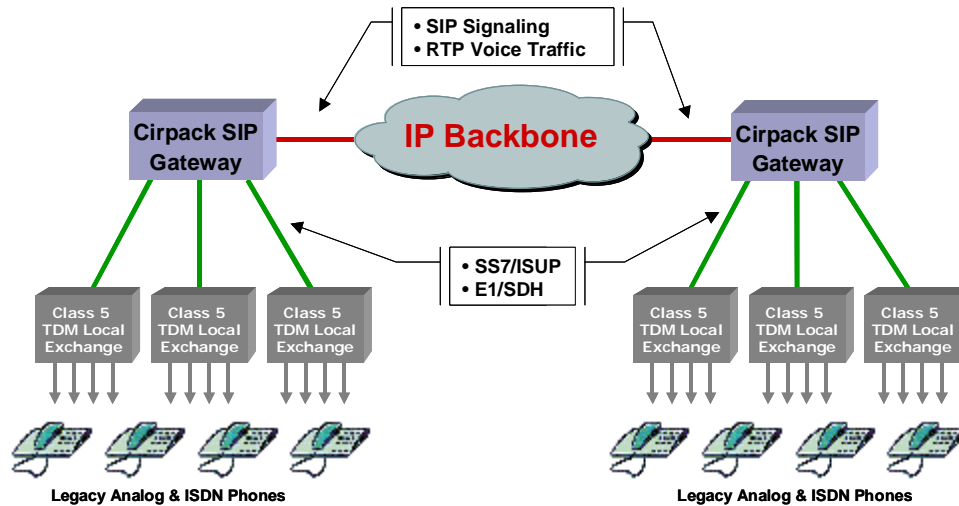


## Migrating transit backbones to VoIP

In order to reduce the complexity and cost of their transmission networks, more and more operators are migrating their transit infrastructure from TDM to IP. This means connecting legacy TDM Local Exchange switches to a packet backbone that offers the right set of features to guarantee voice quality and transparently transfer calls to their destinations, in order to maintain legacy services.

CIRPACK SoftSwitch is the ideal equipment for migrating transit infrastructures to carrier-class VoIP. It connects to TDM Local Exchange switches via SDH or copper E1 using any local SS7 variant, and to the backbone using SIP-T or BICC signaling via CIRPACK's high-density IP interface boards.

CIRPACK SoftSwitch controls the transit network, handling advanced Class-4 services. It supports a wide variety of codecs to suit any network conditions, and provide scalable DSP resources shared across all interfaces for echo cancellation and toll-quality voice services. Advanced voice compression and smart routing policies maximize bandwidth use and enable least cost call routing.

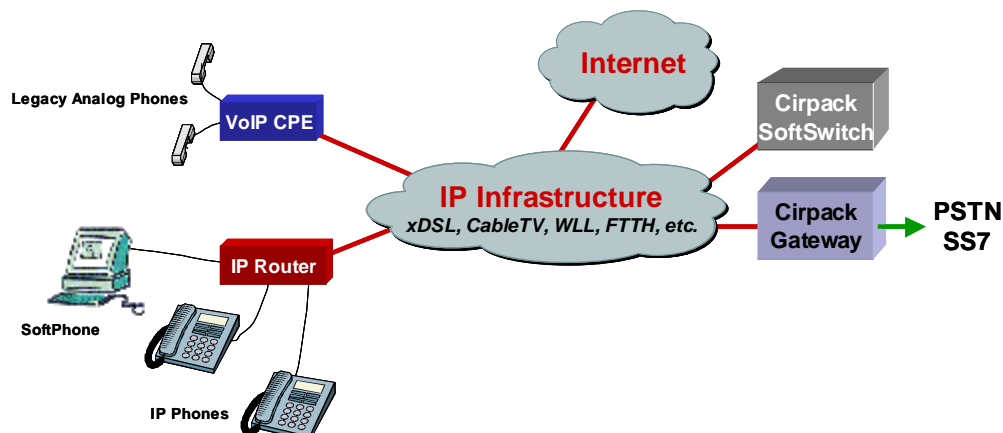


Using a packet backbone for long distance voice transit reduces the cost of deploying distributed networks and makes the best possible use of the existing data transmission infrastructure. Deploying next-generation switching equipment means that operators require fewer and smaller equipment systems. This leads to significant savings in capital expenditure and even more in operating expenses. Such an initiative also paves the way for introducing VoIP local loop services and connecting to long-distance VoIP carriers, further reducing the cost of delivering telephony services.

## Delivering Residential VoIP services

Operators are deploying broadband equipment in their local loops to meet their customers' growing needs for higher data bandwidths: DSL, CableTV, Fixed Wireless, etc. However, this requires massive investments that can only be made profitable by targeting mass markets or increasing the average revenue per user (ARPU). Delivering telephony services over broadband local loops represents an excellent opportunity for service providers to achieve higher profitability.

Voice over Broadband harnesses the packet transmission principle, enabling multiple simultaneous calls and high-speed Internet accesses via a single line per subscriber. Some operators might see this as a mean of increasing revenues, or just as a free service aimed at reducing churn or growing the number of subscribers. In both cases, Voice over IP (VoIP) technologies can deliver voice services of comparable and sometimes higher quality than PSTN.



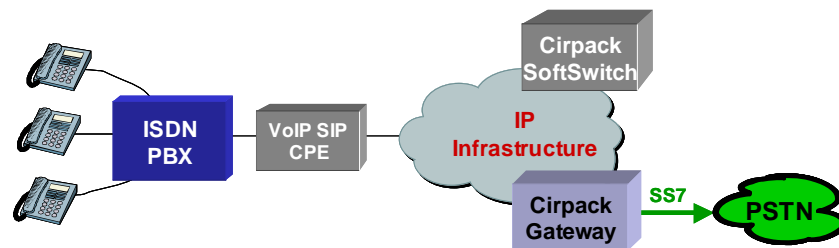
When used in conjunction with third-party access equipment (residential gateways, IP Phones, DSLAM, CMTS, etc.), the CIRPACK SoftSwitch enables full end-to-end voice traffic over broadband solutions: VoDSL, VoCable, VoWireless, VoEthernet, VoIP, etc. Customer premise equipment is an essential component in an operator's VoPackets business plan. CIRPACK is committed to continuously testing these devices, ensuring constant interoperability with the chosen solution and allowing operators to increase market share and profitability.

## Delivering Corporate VoIP Services

CIRPACK SoftSwitch let service providers design voice service offerings that address the needs of every segment of the enterprise market:

1. IP Centrex/Hosted PBX services for small enterprises looking for a powerful end-to-end solution with no need to manage the complexity of a local PBX;
2. Connecting legacy ISDN PBXs over an IP local loop via small ISDN BRI/PRI-to-SIP gateways at the customer premises;
3. Using SIP trunking to connect next-generation IP PBXs to the broadband local loop.

Each of these applications uses broadband local loops to deliver high-speed data and voice services over the same infrastructure. Thanks to open standards and cost-effective IP technology, both service providers and users will enjoy significant savings on both capital expenditure and operating costs. CIRPACK's ability to deliver a wide range of Class-5 subscriber services and to support SIP, MGCP, H.323 and ISDN signaling means that businesses can follow any migration path from ISDN PBX to IP Centrex or IP/SIP PBX, while leveraging existing investments.



This architecture also allows for quick deployment of powerful and very flexible service packages. Using dedicated service platforms that further enhance the capabilities of CIRPACK switches, operators can deliver innovative, additive features that reduce customer churn and meet the needs of certain business segments. Examples of such features include Voice VPN, ACD (Automatic Call Distributor), unified messaging and self-provisioning.