NovaTec Internet Pathfinder

VoIP was yesterday! NIP is now!

Decrease your telecommunication costs by using NIP, whilst handling your company's internal communication and parts of long distance and international calls over NIP.

NIP means Independence, cost efficiency and scaleable capability in modern telecommunications.

With the use of the NovaTec Internet Pathfinder (NIP) two worlds moves together. Fixed network telecommunication now not only takes place over the usual PSTN-Telephone system, but there are now new ways on offer to create communication safely, low priced and in high digital quality.

The keyword here is Voice-over-IP (VoIP) in combination with convergence systems, which stands for a unification and simplification of professional telecommunication. This way is the right direction, but it should be walked carefully. Providers of emerging solutions „demonise“ the existing and approved ISDN infrastructure and hardware and try to sell the customer a massive change instead of a step by step migration.

With these offered solutions there comes a large amount of required investment and a high dependency from the customer on the solution provider. Companies, who decide to go the road of a VoIP based convergence system are then forced to buy expensive IP based telephones and additional hardware.
NIP takes another way!

To enable the use and the advantages of internet telephony, NIP doesn´t need any expensive and specific adaptation. NIP is integrated on the existing ISDN infrastructure between the PBX Switch and the digital NT. Thereby NIP can be used in larger size companies with one or more S_{2M} or in small home offices with single S_0. By using NIP in a company all ISDN-features can be mirrored to the NIP remote station in a Sub-branch office or home office. This provides the opportunity to handle incoming and outgoing call in the same way as if they had come from an office telephone.

ISDN features such as CLIP will show the company's telephone number to the called telephone instead of the number of the home office. Incoming calls at the company office can be received in the home office.

Become independent from locations. Communicate from anywhere in the world as if you were in the office. The only requirements are a NIP system and an IP connection.
Simplify and centralise your telecommunication costs by producing them only at one place - in your company.

Decrease drastically the costs for long distance calls and international communication.

NIP can be adapted exactly to your requirements. You can route a defined group of numbers over IP others over ISDN or, in combination with our NovaTec Mobile Gateway also to the GSM network and further reach an optimised cost structure.
Use the extensive features and individual configurations of the NIP and combine, according to your requirements the several features of the NovaTec product line in one device. Scale to your requirements the number of channels which should be routed over IP, ISDN or GSM.

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Features

NIP works independently from of the PBX and because of its scalability can be configured individually to your company's telecommunication requirements.

* **Models and Interfaces:** In the smallest size, the mobile NIP Home, this offers one incoming and outgoing S_0 and converts them into two B-channels over IP. In the NIP Business S5 up to one S_{2M} can be converted into IP. The next larger model is the NIP Business S6, in which several S_0 and up to two S_{2M} can be converted into IP. The largest model is the NIP Business S20, which provides the most extensive possibilities and combinations with products such as the NovaTec Mobile Gateways or NovaTec Network Multiplexer. In this model several S_0 and up to two S_{2M} can be converted into IP and different combinations with one or more channel GSM Gateways can be created.
* **Features:** Each location, which is equipped with a NIP, can be integrated completely into the tele-communication infrastructure of the company. Here NIP mirrors the complete ISDN infrastructure. All services and features can be used with the NIP via the Internet. Compared to VoIP the possibilities are not limited to voice services but can also offer Data, Fax and Video conferencing.
* **Protection of Investment / Savings:** NIP is an ideal extension to your existing PBX. By using NIP all company internal calls can be handled over the Internet. These calls will not realise any costs. NIP does not need any special IP telephones or additional VoIP server to realise calls via the Internet. Usual VoIP solutions require extensive hardware investments.
* **Supported Codecs:** With the possibility to use compression, the demand on required bandwidth can be adapted. Here the B-channels are transmitted uncompressed and transparent or compressed. The D-channel is always transmitted transparent. Thereby the B- and D-channels are embedded in our proprietary protocol. In the following table available codecs are listed The quality of service is influenced by the different compression rates.
* **VLAN (virtual LAN)** according to 802.1 Q.

Voice Coder Set:

Codec	Bitrate/kb		MOS*
G.711	PCM-uLaw:	64,0	4,2
G.711	PCM-aLaw:	64,0	4,2
G.726	ADPCM:	16,0	3,2
G.726	ADPCM:	24,0	3,2
G.726	ADPCM:	32,0	3,7
G.726	ADPCM:	40,0	4,0
G.729 A,B	CS-ACELP:	8,0	4,0
G.729 E	CS-ACELP:	11,8	4,1

*MOS: Mean opinion score

Codecs with a MOS-level lower than 4,0 are not recommendable due to the unfavourable compression - quality ratio.

Recommended bandwidth for recommended modes:

NIP in Transparent-Mode:
Demand of bandwidth at a packet time of 20 msec: per ISDN-line 165 Kbit/sec.

NIP with G.711 (uLaw, aLaw) Vocoder:
- G.711 Annex I (PLC: Packet Loss Concealment)
- G.711 Annex II (VAD/CNG Format: Voice Activity Detection / Comfort Noise Generation)
- G.168 Echo Cancellation (16 msec Near End)

Demand of bandwidth at a packet time of 20 msec: per ISDN-line 101 Kbit/Sec.

NIP with G.729 E Vocoder:
- G.729 (PLC: Packet Loss Concealment)
- G.168 Echo Cancellation (16 msec Near End)

Demand of bandwidth at a packet time of 20 msec: per ISDN-line 61 kBit/Sec.

NIP with G.729 A,B Vocoder:
- G.729 (VAD/CNG Format: Voice Activity Detection / Comfort Noise Generation)
- G.729 (PLC: Packet Loss Concealment)
- G.168 Echo Cancellation (16 msec Near End)

Demand of bandwidth at a packet time of 20 msec: per ISDN-line 53 kBit/sec.

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