



## A Perspective on IP Centrex

### Centrex

Centrex is a collection of telephony services designed for the business user. This service was developed by telecom operators in the mid-sixties for the purpose of hosting large business telephony services. Special Centrex switches were built for this purpose aside from the simpler switches for regular telephony (POTS). This meant that a company could benefit from advanced business voice services without an in-house telephony switch.

With the emergence of digital switching technologies, the differences between normal and Centrex switches disappeared and these special functions became software-based. For Centrex services, a user group with special privileges was defined within the regular telephone switch. This allows users to call each other using speed dialing, for example.

A few examples of Centrex services are:

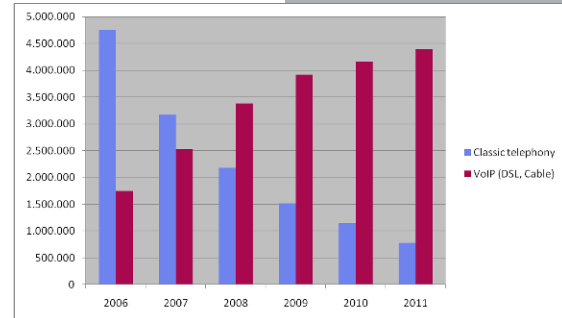
- Hunt groups
- Speed dialing
- Receptionist switchboard
- Interactive Voice Response (IVR)
- Call Center
- Tele-conferencing

Centrex allows the customer to control his connections. The benefit to the customer is that it is not necessary to acquire and maintain a PBX. The drawback is that the company is dependent on the service provider for its internal telephony as well.

### IP Centrex and VoIP

With the emergence of Voice over IP (VoIP) and the large-scale use of IP data networks, the IP Centrex service is now available as well. IP Centrex has similarities to traditional Centrex, with the key difference being that a specific telephony infrastructure is no longer required. Voice is now an application that is handled across the IP data network using SIP signaling.

Furthermore, within the company a separate telephony cabling-infrastructure is no longer required.



**Figure 1: Emergence of VoIP**

Also, PBXes have evolved towards VoIP. Consequently, IP-PBXes can supply comparable services.

### Integration of services

The major strength of IP Centrex is however their ability to link systems and services.

En example is linking voice services to office applications. Conference meetings can be initiated from the agenda and everyone is called in time. The required directory numbers can be retrieved from the address book or from an e-mail received in the inbox. In addition, a telephony call can be combined with an online presentation

On company level integration of CRM-applications and advanced voice-services as IVR and Call Centers have a huge potential.

Also on service provider level integration will be more and more visible. Voice services will be integrated with web applications. A click to-dial service in Facebook or LinkedIn that enables your contacts to call you for free, is a representative example.

### IP Centrex and Fixed-Mobile Integration

IP Centrex also offers support for companies that combine fixed and mobile extensions. Employees can everywhere use the same services as in the office. It does not matter anymore whether the user dials from a fixed phone or from a mobile. Using smart routing, considerable savings can be achieved. In the near future, using presence information, IP Centrex can determine how and when a person can be reached.

Accessibility can be via:

- Fixed access
- Mobile phone
- SMS

- Video call
- Voicemail
- E-mail
- PC/Laptop
- PDA

### Opportunities

IP Centrex offers new opportunities for users, as well as suppliers.

For users and companies:

- New forms of collaboration
- Efficiency and cost-savings
- Improved accessibility
- Integration of services

For operators

- Sale of product combinations
- Transition to a service provider
- Involvement in the business process

### Implementation within companies

Of course the introduction of new technologies also carries risks. For example, the probability of failure is higher due to technical teething problems and furthermore the data network must be able to accommodate the higher load placed on it by the new services. In addition, control over the entire systems chain is a key success factor.

To introduce IP Centrex within a company requires a great number of decisions to be made. Aside from the technology-related decisions, it will also be necessary to review the business processes to make the correct functional and technical choices. It is the interaction between technology, processes and end-users that determines the success of an IP Centrex implementation project.

Companies have the option of delivering this combination of services using their own systems or to purchase these services from an operator. Furthermore, they have the choice to integrate the application themselves or they can choose the ease provided by a total solution from a service provider.

### VDVL Expertise

VDVL has contributed to the introduction of IP Centrex services for various Telecom Operators. This involved the preparation of functional requirements and detailed designs



for IP Centrex service delivery and provisioning systems (OSS). The application servers, the underlying IMS infrastructure and the SBC (Session Border Controller) are configured via entirely automated workflows. VDVL in this respect successfully applied its IT-OSS, as well as its network provisioning expertise.



Figure 2: VDVL's core competencies

### Additional Information

Since its inception (1987), VDVL has gained a great deal of experience in the Telecom field. We support our customers in the introduction of new services and technologies and in the continuous improvement of critical business processes and ICT systems.

We are currently involved in various innovations and the rationalization of services such as VoIP, IP Centrex, Mobile Broadband, Wholesale xDSL, Triple Play, IPTV and VoD, IP Interconnect, FTTx and IP VPN developments.

Call us for a further introduction and for more detailed information about our experience and references.

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