Voipac Softswitch

Voipac Softswitch is robust, highly scalable solution for delivering of VoIP services determined by the Internet Service Provider, CATV and telecommunication operator. After implementation of Voipac Softswitch, you will be able to simultaneously provide new generation converged voice services and the Internet-based and data transmission services on packet networks.

Solution for the next generation networks

The logical outcome of pace in telecommunication development seems to be merging of voice and data networks. Network and service merging, price reduction pressure, and arbitrage options force the shift from PSTN switched network model to the next generation model that is inevitable for success of telecommunication and data services providers. This solution is designed to facilitate such trouble-free shift, but at the same time it allows telecommunication service providers to make use of investments made to existing networks. The Voipac SoftSwitch is the center of each telecommunication solution for Voipac products.

Scalability and reliability

Voipac SoftSwitch consists of two components - Voipac Command Center and Voipac Gatekeeper. Number of simultaneously running Command Centers and Gatekeepers is not limited. Individual doubled components within the Voipac Softswitch are commonly sharing load and are backing up each other. Because Command Centers are run on independent servers, service providers may create fault-tolerant IP phone networks with continuous network operating time.

Voipac Command Center

In Voipac networks, Voipac Command Center along with central ODBC database provides subscriber authentication, user account network administration, dynamic call routing, flexible call charging and centralized billing. These services are inevitable for telephone operators, ISP, CATV and other providers, because these services are vital for distributed network administration from one location.

Voipac Command Center is specially designed to provide intelligent network control of Voipac Softswitch solutions. It means simple billing and call record check for all types of networks, regardless to type of gateway they use. Such heavy flexibility supports hundreds of thousands of simultaneous phone calls and can be configured to support PSTN and Edge access of Softswitch solutions supplied by Voipac Company. Voipac Command Center provides easy access to routing tables, call charge tables, subscriber information, call category and call billing information. All of these are orderly collected in the central database.

Because current information is stored in the central database, administrators can easily add gateways and subscribers, modify charge call tables and execute other administrative functions within the highly-scalable and distributed network architecture. You may view or change content by SQL statements or by Voipac Management Console. Voipac Command Center supports Oracle and MS SQL as well as MySql databases with ODBC interface and it allows for export of database information into existing operation support systems and billing systems that use SQL statements. Command Center is running under Linux or Microsoft NT/2000 operating systems.

Management through the Web - all Voipac's network elements, including Command Center, can be managed by Voipac Management Protocol (VOMP), which uses SSH to achieve top security level possible. Network Operation Center (NOC) permits service providers the following: centralized network management, including alert handling and administrator notification by e-mail or SMS. All properties are accessible via Voipac Management Console, which uses VOMP protocol for safe communication. Because all controls are Java (TM| platform based they are not dependent on any operating system.

Dynamic Call Routing - Voipac Command Center is routing each call upon complete phone number, or abbreviated digit form of any other number. Large-capacity complex dialing plans can be easily implemented by means of digit translation function. For one destination can be specified any number for an alternative dial of call diverting. Such type of checking can also be used for load distribution among gateways.

Flexible Call Charging - call charge rate is specified by particular phone number and it is possible to set different charges for incoming and outgoing calls, intracompany calls and for out-of-network calls. The charge rate may depend on current time and day. You may set up free of charge calls for particular destinations.

Domain Management - for selected customers and groups you can generate special routing and charge rate tables.

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Voipac, s.r.o., Janka Kráľa 3
911 01 Trenčín, Slovak Republic
Phone: +421 32 653 85 55
Fax: +421 32 653 85 33
Email: info@voipac.com
Web: www.voipac.com

Billing Options - Voipac Command Center supports standard open account billing and prepaid cards billing, while it adopts real-time billing to avoid duplicate use of prepaid cards in the same time.

Call Detail Report - in database is stored incoming and outgoing call information along with many parameters customer account, time and duration of a call, destination code and more.

Fault-Tolerant - multiple Voipac Command Centers running on independent machines allow service providers to create highly-robust and large-scale fault-tolerant IP phone networks with continuous network operating time.

The following are elementary features of Voipac Command Center

- Password based authentication, which distinguishes between authorized and unauthorized users. In addition to user authentication, the Command Center authenticates gateways and Gatekeepers.
- Domain identification allows formation of logical groups comprising gateways, subscribers, routings and call charge rates. For example, a company with branch offices can create domain, for these offices, possessing its own routings and intracompany call charge rates.
- Dynamic call routing is routing calls dynamically upon the selected gateway, domain, user-defined dialing rules, predefined local area codes and many other factors.
- Dynamic call routing ensures continuous phone service. Server groups provide duplication within gateway group, while secondary server groups provide duplication for primary server groups for the purpose to keep operation running round the clock.
- Load balance is balancing the transmission at each call, which results in faster and more reliable communication.
- Flexible call charging allows defining both individual and uniform rates.
- It is possible to separately charge domestic, regional, or urban calls. The system is able to distinguish between calls made within the network and calls being routed out-of network. You can also set different charges for incoming and outgoing calls.
- Monitoring, status detection, and gateway and Gatekeeper status statistics verification.

Voipac Gatekeeper

Voipac Gatekeeper provides open architecture for smooth integration of H.323 terminations of various brands. Voipac Gatekeeper provides access control, address translation and functions for call management of all H.323 v4 compatible gateways within the network.

Voipac Gatekeeper allows H.323 gateways to access dynamic call routing, flexible call charging, billing information and other Voipac functions.

Interoperability Based on Standards - Voipac Gatekeeper maintains ITU-T H.323-v4 recommendations, including H.225-v2 for RAS (Registration, Admission and Status), H.225.0/Q.931 and Fast Start Procedure for call signaling and making, H.245-v3 with H. 245 tunneling for call management, gatekeeper routed call signaling model and locating services (LRQ).

Call Detail Report - Voipac Gatekeeper generates H.323 call information in the form of call detail report (CDR). Such reports include call ID, time and call duration, call cost, dialed number and call termination code. You can order Voipac Gatekeeper hardware platform either as software product or as pre-installation on Voipac NetGate Server hardware.

Management - Voipac Gatekeeper is designed to use Voipac Management Protocol (VOMP), which is used to manage all Voipac network elements. VOMP defines, how to acquire and update network information, e.g. Gatekeeper setting parameters. In order to ensure top security level possible the VOMP uses SSH. All Gatekeeper's components are available via SSH (VpacAdm tool), Voipac Management Console or graphical Web-based interface. Voipac Management Console is based on Java ™ platform and Swing library. It means that Gatekeeper can be managed via any OS supporting Java™. Voipac Gatekeeper generated alerts and alerts generated by other Voipac network elements are collected in Network Operating Center (NOC), which provides centralized network management. You may configure NOC in a way, so it will notify administrators via e- mail or SMS.

Voipac Exchange Gateway

Voipac Exchange Gateway serves as a connection point among H.323 networks. Exchange Gateway will divert signaling transmission (and voice potentially) from one network to the suitable endpoint in the partner network.

Voipac ExGateway represents complex software and hardware solution providing reliable calling via the Internet. Gateway software is preinstalled and configured in Voipac' plant according to your specific telephony requirements. Voipac ExGateway may operate as the following:

- Exchange Gateway service providers will be allowed to interconnect H.323 networks, so that they will register themselves to Gatekeepers on both sides.
- H.323 Proxy allows users to phone beyond firewall, because it translates addresses and customizes H.323 protocol (NAT + RTP translation).
- Voipac Gateway provides the following functions:
  - Handles incoming and outgoing calls,
  - Confirms connection establishment requests.

Bidirectional H.323 signaling - the gateway allows bidirectional communication of H.323 units scattered in various H.323 networks**.**

RTP translation - the gateway captures RTP data into the required length.

Password authentication - the gateway allows to use MD5 or SHA1 H.235 Annex D authentication algorithm. This provides for H.323 terminal equipment full mobility, while the high level security remains well preserved.

Frequency Width Control with Max. Call Settings - is used to limit frequency width that is used by a gateway.

Duplicity - Voipac Softswitch solution permits operation of multiple gateways for the same destination, which provides doubled security and load distribution.

Two interfaces - gateway is able to route H.323 voice signaling and voice data between two network interface cards (NIC) units or it shares one NIC for both.

Multiple instances per host - gateway may also have multiple instances running at one machine, where it is run as a service or daemon.

Alerts - are generated when abnormal conditions are detected within the network, or when the connection between gateway and Gatekeeper is lost.

Full remote control - remote reconfiguration, restart, and shutdown of a gateway could be executed via SSH client and SSH secured protocol. Upon the request, the SSH console client operating in command line mode can be substituted for Java GUI application, which is wrapping VOMP protocol.

TOS insertion - allows labeling of voice RTP payload packets so a switch or a router can give them higher priority over other IP packets.

Firewall traversal - the gateway is able to customize RTP payload and pass transparently through firewalls while using UDP masquerade. Even, when it is used as exterior border gateway, the kernel built-in prioritizing rules could be enabled, which will result in maximum quality of voice for narrow frequency band connections that are also being shared by other IP transmissions. The gateway may also be located beyond a firewall. In such a case it will still provide sharing of one public IP address by multiple users.

CLIR - if enabled, all information involving source H.323 endpoint will be cleared and H.323 signaling will be shifted to the partner network.

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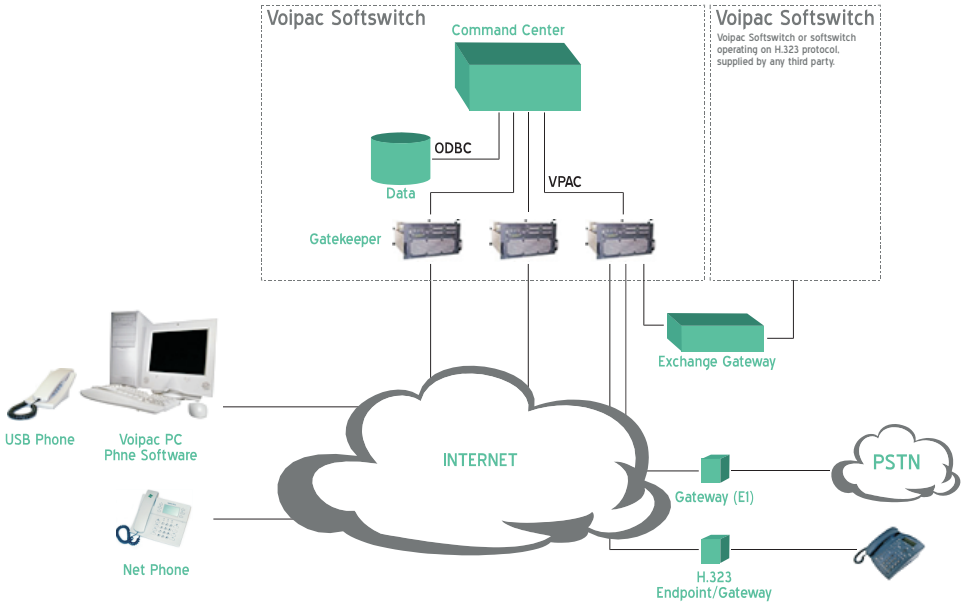
Charakteristika

- Dynamic call routing
- Subscriber management
- Password or static IP address authentication
- Real time call category matching
- Call charging
- Load balancing on call routes, resulting in faster and more reliable communication.
- Support of prepaid and reverse payment phone card application
- Windows NT/2000 operating environment
- MySql, MS SQL or Oracle databases



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