



# Kloud 7

## Business Communication Services

Hosted Voice Services  
Technical Overview

### Documentation Guidelines

Documentation relating to services provided by Kloud 7 LLC. are informational guidelines that showcase technical details and use case scenarios designed to enhance product usability. Please contact [hello@kloud7.com](mailto:hello@kloud7.com) or call 844-855-6837 for all additional inquiries..



## Hosted PBX Platform Overview

Kloud 7's Hosted PBX Platform delivers cloud-based PBX functionality encompassing traditional PBX features as well as cutting-edge Unified Communications features. It is available over the Public Switched Telephone Network (PSTN), dedicated IP circuit, or the public Internet for Service Providers to leverage as part of their overall communications and/or Information Technology offer to business customers.

Typically, Hosted PBX is provided by telephone, cable, and wireless service providers, using equipment located in the cloud or at geographically redundant data centers. This means the business does not need to buy or install call processing equipment on the office site, other than telephone handsets, aggregator devices or other SIP capable hardware or software.

Kloud 7's Hosted PBX Platform offers both the traditional Class 5 switch features and services, in addition to more advanced services often categorized as Unified Communications which include integrating business phone services with desktop computing and mobile smartphones as well as the deep technical integrations with third party applications.

## Kloud 7 Unified Communications Example

Image 1: Kloud 7 Unified Communications Example



## Key Components of Kloud7's Hosted PBX Platform

This section targets technical readers who are seeking more detailed information about the components which comprise Kloud 7's Hosted PBX Platform. The Hosted PBX Platform is designed to appeal to companies with and without dedicated IT staff. Kloud 7 can provide the desired level of interaction with the technical components of the Hosted PBX infrastructure upon the clients request.

### Application Server

The application server is the system that provides the calling features. Features allow things such as: call flow automation, inbound and outbound call management and integration with mobile and desktop applications. The Kloud 7 Hosted PBX provides an extensive list of standard PBX call functionality as well as a growing list of enhanced features including video calling, ACD/call center, conference calling, web collaboration, SIP Trunking and Unified Communications clients for computers and smart devices. Kloud 7's application server also has the ability to integrate with third-party software via programmatic interfaces (APIs) for both provisioning and call management to closely integrate with existing business applications.

The application server is managed through a native web portal. Kloud 7 will manage this portal and its configurations as part of our service offering. Kloud 7 also offers self-service to this portal to organizations with IT staff or the need to self-manage their voice service features.

With its powerful feature capabilities, its geographic redundancy failover capabilities and the unsurpassed scalability of the Hosted PBX application technology, Kloud 7's deployment of the BroadWorks Hosted PBX application server empowers clients to grow their business operations knowing their critical communications are housed on a resilient/redundant platform.

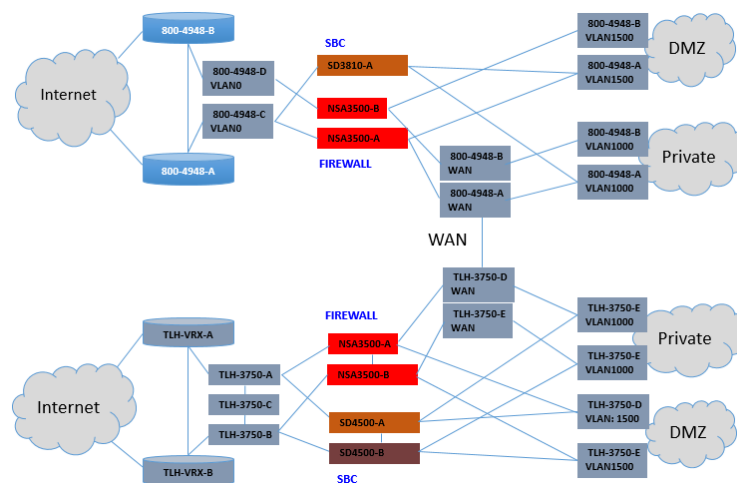


Image 2: Kloud 7 Infrastructure

## Session Border Controller

A session border controller (SBC) is a multi-purpose device used in VoIP networks to provide control over the signaling and/or media involved in setting up, conducting, and tearing down voice, video or other interactive media communications.

SBCs reside in between an access network (public IP, MPLS, private IP, private circuits, etc.) and a backbone infrastructure to provide service to enterprises and their end point devices or between two service providers in a peering environment, or between.

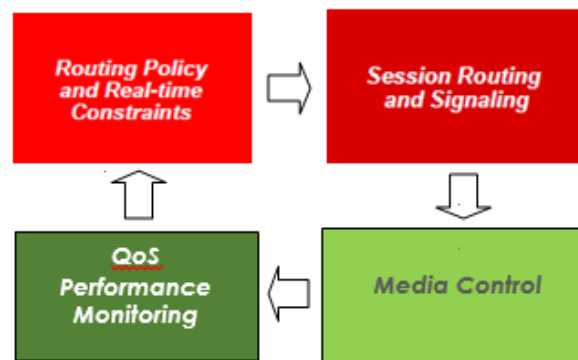


Image 3: Routing Policy example

### Access SBC

Kloud 7 employs Oracle Communications' Acme Packet Net-Net SBCs as part of its platform for access network control.

In aggregate, these devices maintain full session state and offer the following functions:

- Security – protect the network and other devices from attacks such as denial of service.
- Connectivity – allow different parts of the network to communicate by, for example, supporting NAT traversal.
- Quality of service – the QoS policy of a network and prioritization of flows is often implemented by the SBC.
- Regulatory – many times the SBC is expected to provide support for regulatory requirements such as emergency calls and lawful interception.
- Statistics – since all sessions that pass through the edge of the network pass through the SBC, it is a natural point to gather statistics and information on these sessions.

## Peering SBC

Kloud 7 employs Genband's Quantix-series SBCs as part of its platform for VoIP Peering and routing which allows granular control of provisioning and routing and call information.

Peering supports flexibility in SIP Trunking in the following ways:

- Customers have the assurances that all SIP Trunking traffic transits over Kloud 7's resilient core infrastructure, but still have complete controls over their SIP Traffic
- Kloud 7's resilient core infrastructure does not require active customer level rerouting and monitoring capabilities due to the underlying Advanced Peering capabilities and transparent failover mechanisms

## Media Gateway

Media Gateways are a media translation service that converts digital media streams between disparate telecommunications networks such as PSTN, SS7, Next Generation Networks (2G, 2.5G and 3G radio access networks), VoIP and PBXs.

Kloud 7's Media Gateway array enable converged multimedia communications across multiple transport protocols such as MPLS-VPNs and Internet Protocol (IP). Media Gateways also provide call stream corrections to normalize echo and the use of DTMF tones.

Our Media Gateways are deployed as redundant servers in our core infrastructure. Each server has a mirrored instance of the Broadsoft Media Gateway application. Using a Hosted Media Gateway configuration provides the following advantages over customer on-site Media Gateway installations for Service Providers:

- Voice and data content can be sent in a converged call over a single managed packet network (LAN, WAN, or VPN) that interfaces directly to a legacy PBX
- Supports media translation support without having to install Media Gateway Servers at each customer premise.
- Ensures high availability to Media Gateway Services. Worries about premises based device failures are removed.
- Upgrades and Maintenance are no longer a worry, since all the Media Servers are mirrored. This reduces the need to work with disparate devices at customer premise across multiple networks.
- Kloud 7's use of the Broadsoft Media Gateway application means that Media Gateway translation capabilities are tightly aligned to the Application Server avoiding any mismatches from non-aligned technology evolution.

## **Integrated Access Devices (IADs) and other Edge Access Equipment**

IADs and Edge Access Devices combine multiple voice and data features, network firewall, and SIP Application Level Gateway (ALG) into a single network services gateway. Typical models may have up to 4 T1 WAN interfaces or a single Ethernet WAN, a 4 port managed VLAN switch, a call quality (QoS) probe and a Wireless Access Point. Some models may also include integrated analog phone and line ports.



Kloud 7 delivers a wide range of modern and legacy services to clients needing line based services such as SIP Trunks, PRI's and Analog Lines using IAD and ATA devices. This bridges the gap between the Hosted PBX Platform allowing Kloud 7 to service customers that want to manage an on premise PBX system.

## **Telephones and other End User Devices and Clients**

A VoIP handset or VoIP client software allows telephone calls to be made over an IP network such as the Internet that uses packet switching as opposed to the PSTN. The phones and soft clients use the SIP control protocol to manage calling capabilities and much more. These IP phones can be simple software-based soft-phones, mobile applications, purpose-built hardware devices that appear much like an ordinary telephone or next generation communication systems that support video conference, file sharing and organization wide collaboration.



Kloud 7 currently partners with Polycom using the VVX and SoundPoint series to deliver a uniform and full featured range of phone handsets to clients from the top hardware manufacturer in the world. From simple use cases to video capable feature rich integrations, the Polycom series of phones has become a tested and true component of Kloud 7 Hosted PBX services offering.

## Monitoring and Troubleshooting Platform

While each network device may provide limited independent monitoring and troubleshooting tools, a network-wide monitoring and support tool is necessary to ensure proper deployment and troubleshooting across Kloud 7's Hosted PBX network. This must include all parts of the core infrastructure and will, ideally, extend out to include the business premises.

Kloud 7 utilizes Oracle Communication's Palladion SIP monitoring software package. This monitoring and support platform gives Kloud 7's network engineers full visibility to the call sessions traversing all components within the core service delivery network. Palladion enables Kloud 7's support engineers with the ability to monitor and troubleshoot network and SIP related issues from our core to the customer premise. This allows the Kloud 7 to maintain direct control of the customer premise, providing rapid and effective troubleshooting if an issue arises.

The benefits of Kloud 7's Palladion system are:

- DASHBOARD — an overview of the network health for each client
- USER TRACKING — aggregates information about each single SIP End User of the monitored platform.
- CALL DETAIL — The Segments tab shows details about each call leg including State per call leg, Call-ID, From and To tags, Request-URI.
- CALL FLOW — The software gathers SIP messages from multiple points on the core network and correlates them in call legs, which are then merged into calls.
- ACTIVE CALL MONITOR — The Recent Calls table shows the recent and history information about the calls that where started in the last few days. The calls from this table are updated in real-time as their state changes.
- REGISTRATIONS — allows the examination of the registration events detected on the monitored platform. Registration events are generated using the SIP protocol method 'REGISTER'.
- USER DEVICES — provides statistics about user devices as well as detailed information about users per device.
- VOICE QUALITY — The probes associated with the Palladion platform gather voice quality information and attempt to derive a MOS quality score. The information collected related to quality is:
  - The number of lost packets.
  - The variance of delays between the received packets (jitter).
  - The distribution of lost packets inside the stream.
  - The codec used.



## **Kloud 7's Hosted PBX Enhancements and Add-Ons**

Kloud 7 has extended the Broadsoft Hosted PBX Application features to accommodate the needs of our customers more effectively. Over the years, Kloud 7 has responded to feature requests with these Add-Ons to provide our clients with solutions meet their business objectives without hassle and with full integration into their existing voice services platform.

- Call Recording Capabilities
  - o Kloud 7 offers Call Center with Call Recording delivered as a flexible Platform-as-a-Service add-on to our Hosted PBX offering. Kloud 7 offers a high degree of flexibility to clients by providing a user level fully cloud hosted call recording platform with 180 days of recording retention.
- Unified Communications
  - o Unity Communicator is Kloud 7's application that enables full featured use of phone services from the following devices: iPhone, Android, Windows and Mac OSX. Unity Communicator also provides:
    - Internal Extension Dialing Remotely
    - Instant Messaging
    - Video Calling / Conferencing
    - Call Management Features (Hold, Transfer, Pull, Park, etc.)
    - Screen Sharing & Presentation Capabilities
    - User Status Monitoring (On / Off Call, Away, Busy, etc.)
    - Integration with MS Outlook Calendars & Contacts
- Control and Flexibility Options include every aspect of the physical and virtual relationship with Kloud 7's Hosted Platform. These options include
  - o Self-Management Portals for the Hosted PBX for technical IT staff
  - o Endpoint configuration and management and provisioning
  - o Direct access to Kloud 7's engineering staff to training and advanced support



