BROADSOFT

BroadWorks® Overview

BroadWorks is a VoIP applications platform and provides revenue-generating voice features for service providers. BroadWorks offerings include Hosted PBX, Business Trunking, IP dial tone and Class features, and enhanced overlay services for wireless users.

BroadWorks is a standards-based, next-generation platform and uses leading protocols such as SIP. Deployed at the network core, BroadWorks provides features through multiple architectures, including Softswitch, Class 5, and IP Multimedia Subsystem (IMS).

BroadWorks delivers these features with unmatched interoperability, back office capabilities, redundancy, and scalability. BroadWorks is deployed in the most incumbent networks worldwide, offering carriers the most innovative VoIP applications and a compelling return on investment.

PLATFORM BENEFITS

Dominant IMS Application Server: BroadWorks has been selected as the IMS Application Server for leading wireless switching providers (e.g., Ericsson, Lucent, etc.) representing the majority of worldwide ports deployed.

Single system for unified communications: BroadWorks offers the widest range of features from a single network-based system, including call control, private voice networking, unified messaging, conferencing, and call center support.

Open, standards-based architecture: BroadWorks operates entirely on open standards, including session initiation protocol (SIP) for interoperability with the broadest array of network, access, and back office equipment.

IP PBX features through hosted solution: BroadWorks delivers enterprise-wide, web-based features with carrier-grade reliability and scalability.

Reduced operating costs: BroadWorks enables users to self-manage services and administrators to perform moves, adds, and changes via an intuitive web interface.

Centralized service management with global reach: BroadWorks enables centralized management of nationwide/global voice services, offering uniform feature-functionality to sites, regardless of location.

Operates on standard hardware: BroadWorks operates on NEBS-complaint, Sun/Solaris and IBM/Linux hardware.

Multi-tiered administration: BroadWorks provides web-based service administration at 6 distinct levels. The flexible service hierarchy allows reseller support for 3rd party providers.

Business Services for Wireless: BroadWorks enables wireless carriers to offer differentiating overlay services to more effectively target business users.

Service creation environment: BroadWorks allows the rapid creation of services and functionality for vertical and enterprise-specific applications.
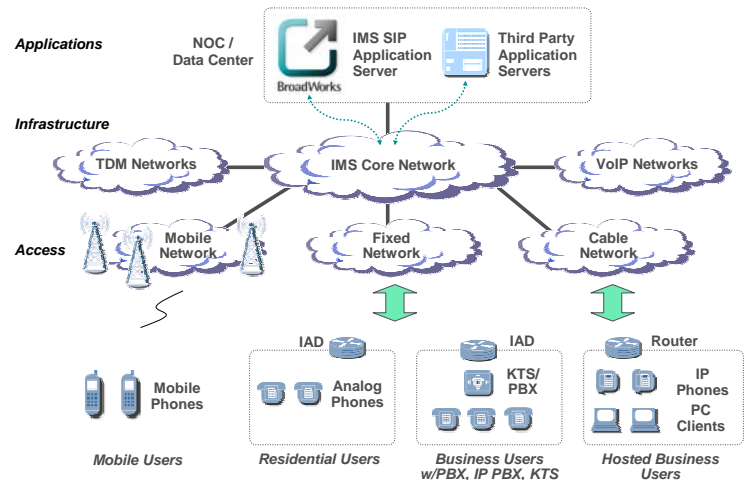
BroadWorks interconnection, CPE interoperability, and applications

BroadWorks Applications

BroadWorks applications provide a cohesive set of communication features aimed at specific market needs. Applications include media-based features such as voice mail, auto attendant, and personal calling features like selective call forwarding, simultaneous ring, and click-to-dial. From a single system, BroadWorks can support any single or combination of the following applications:

Hosted PBX: A network-based telephony application that provides IP dial tone, personal and group calling features, and web-configurable service management equivalent to an IP PBX.

- Offers greater deployment flexibility without the investment, maintenance, and overhead of a traditional PBX.

- Can be rolled out to specific sites, or across multiple sites to replace and/or complement existing premise equipment.

IP Centrex: Calling features (e.g., call forward, voice mail, instant conferencing, etc.) equivalent to typical Centrex offering, often provided with bundled access, Internet connectivity and other data services.

Mobile PBX: Enables providers to overlay enhanced PBX features such as screening, hunt groups, and extension dialing for mobile handsets. Provides a integrated feature set for a user's desk phone and mobile phone. Functions over existing 2G and wireless networks such as GSM and CDMA. Also functions through the IMS architecture.

Residential Broadband Voice: POTS replacement service that provides basic and enhanced personal calling features over broadband access. Meets regulatory requirements for primary and secondary line service.

Business Trunking: Provides connectivity and network services for premises equipment such as a PBX, IP PBX, and Key Telephone Systems. Enables service delivery over integrated IP access networks. Also, enables providers to overlay enhanced features such as Mobility, Hunt Groups, and messaging for users behind premises equipment. Can serve as the first step in an enterprise's transition to fully hosted voice.

PLATFORM COMPONENTS

BroadWorks is a software-based platform with a standards-based, modular architecture and uses common protocols and open interfaces. BroadWorks operates on standard, NEBS-compliant hardware with functionality distributed across the following:

- **Application Server:** responsible for execution and management of enhanced personal and group services; also includes optional web server.
- **Media Server:** provides a host of media services typically found in multiple servers, including Unified Messaging, IVR, Auto Attendant, service announcements, & Lawful Intercept.
- **Network Server:** provides translations and routing, media resource selection, private dial plans, emergency and service center routing, and system ingress/egress points.
- **Conferencing Server:** provides n-way scheduled, recurring, and meet-me conferencing with web-based setup, web-presentation, recording, and manager control panel.
- **Element Management System:** provides a single point of access and interconnection for system management and troubleshooting.
- **External Web Server:** provides secure portal access, provisioning & call control proxy, and third party application support.
- **Call Detail Server:** stores call detail data for enhanced call log services, and 3rd party applications such as customer care, SMDR, and pre-paid calling.

IMS ARCHITECTURE

BroadWorks is currently deployed in the IMS (IP Multimedia Subsystem) architecture within several incumbent carrier networks.
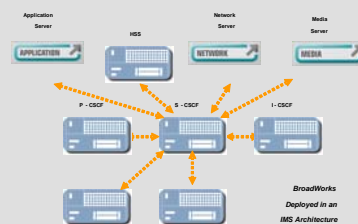
IMS (shown above) enables carriers to deliver fixed mobile convergence (FMC) and offers an environment for integrating multiple applications. These applications can complement and augment the array of voice, video, and media feature-functionality available from BroadWorks and are categorized as real-time and non real-time. Real-time applications include Presence, Instant Messaging, Contact Center and non real-time include Email, Directories, Search Engine, File Sharing and many more.

BroadWorks offers a seamless transition to IMS. The same BroadWorks software base supports both standalone and IMS architectures and provides the same rich set of call control and enhanced voice features.

WEB APPLICATIONS

BroadWorks supports multiple web-based applications that enhance access to feature configuration and user productivity. The BroadWorks CommPilot web portal enables users to self-configure and manage group and personal features in real-time, minimizing support required for moves, adds, and changes. CommPilot can be deployed in multiple languages including Asian 2-bit characters.

BroadWorks offers a thin-client call control agent, the CommPilot Call Manager. BroadWorks also interworks with desktop clients that provide increased feature-functionality. Desktop clients include a toolbar with drop-down click-to-dial functionality from Internet Explorer and MS Outlook. Other clients include (shown below) a desktop attendant console that provides group member's call status and click-to-transfer functionality.

FEATURES

Personal Services

- Alternate Numbers
- Automatic Callback
- Automatic Call Hold
- *CommPilot Call Manager*
  - Dial, Answer, Release, Hold, Retrieve
  - Blind Transfer, Transfer with Consultation
  - Three-Way Calling
  - Calling Line ID Delivery & Blocking
  - Phone Lists (Personal, Group & Call Log)
  - Outlook Integration
- Call Forwarding
  - Always, Busy, No Answer, Selective, Remote Access, Ring Splash
- Call Hold
- Call Notify
- Call Trace
- Call Return & Last Number Redial
- Call Screening by Digit Pattern
- Call Waiting & Cancel Call Waiting per Call
- Custom Ringback & Ringback w/Video
- Distinctive & Priority Alert/Ringing
- Directed Call Park, Directed Call Pickup
- Diversion Inhibitor
- Do Not Disturb
- Enhanced Privacy on Hold
- Extension Dialing
- Flash-Enabled Services & Star Codes
- IP Phone Support & Authentication
- Push-to-Talk (Intercom)
- Remote Office
- Selective & Anonymous Call Rejection
- Shared Call Appearance
- Simultaneous Ring (personal)
- Speed Dial 8 & 100
- Voice Portal Calling
- Web Portal Call Logs

Messaging

- Retrieval from Phone
- Voice Message to Email
- Personal Greetings & Name Recording
- Immediate Voice Mail
- Voice Message Call Back
- Voice Message Waiting Indication
- Voice Messaging Notification

Group Services

- Account Codes
- Authorization Codes
- Auto Attendant & Video Auto Attendant
- Attendant Console
- Business Trunking
- BLF for SIP Attendant Console Devices
- Call Centers & Video Call Center
- Call Intercept & Video Call Intercept
- Calling Group ID Delivery
- Calling Plans (Incoming, Outgoing)
- Configurable Extension Dialing
- Configurable Feature Codes
- Device Inventory
- Department Support
- Group Custom Ringback & Group Ringback w/Video
- Hoteling
- Hunt Groups
- Instant Group Call
- Multiple Call Arrangement
- Series Completion
- Simultaneous Ring (group)
- Instant Conferencing (n-way)
- Loudspeaker Paging
- LDAP Integration
- Music on Hold, & Video on Hold
- Printable Group Directory
- Voice Portal

Network Services

- Voice VPN
- Far-End Hop-Off
- Lawful Intercept (e.g. CALEA, ETSI)
- Least-Cost Routing
- Service Center Routing
- Network URL Dialing
- E911 Support
- Equal Access Policy
- Subscriber Location Service

Web Conferencing

- Scheduled, Recurring, Meet-me
- Web-based Setup, Account Codes
- Monitor Add, Drop, Hold, Mute Participants
- Conference Recording
- Web-Presentation and Sharing of MS Files (e.g., Word, PowerPoint, Excel, etc.)
- MS File Download

PLATFORM

Operating Systems

- IBM/Linux
- Sun/Solaris

Reliability

- Distributed fault-tolerant network redundancy
- Primary, hot-standby Application Server configuration
- Clustered, load-balanced Network Server
- N+1 redundant Media/Conferencing Server
- N+1 redundant External Web Server
- N+1 redundant Call Detail Server
- N+1 redundant Element Management System

Performance & Scalability

- Highly scalable, distributed architecture
- Up to 10 million users and 40 million busy hour call attempts (BHCA) per system
- Supports rolling, hitless upgrades
- Supports G.729, G.726 compression

System Management

- Accounting Management
  - Call Detail Records, Transaction Logs
- Configuration Management
  - E.164 Number Support, Call Capacity Management, Command Line Interface
  - Configuration Audit Trails Configurable Time Zones, Custom Web Content
  - External Provisioning Interface (CORBA), SSL, Portal Support, Reseller Support, Web Branding
- Fault Management
  - Integration with 3rd party network management systems (Micromuse Netcool, HP OpenView)
  - Trouble-shooting tools, HW & OS MIB integration
  - Optional Element Management System for centralized operations and support
- Resource Management
  - Phone numbers, services, domains, & devices
- SSL Security
- Six layer administrative & provisioning hierarchy
- Performance Management
- Service Creation

Regulatory

- Carrier Selection: Equal Access, Dial Around
- Emergency Calling (E911) & Service Center Routing
- Lawful Intercept: Event and Media Monitoring
- Call Trace (Malicious, Subscriber, CDR search tools)