

Motorola VoIP for WiMAX

Increase WiMAX ARPU with VoIP

Achieve WiMAX VoIP success with Motorola

Voice is still the most used communications application globally. There are a number of shifts happening, however, in the market for voice service. It is well known that around the world, consumers are using mobile handsets for voice instead of their fixed line connections. The number of mobile VoIP minutes carried annually on 3G and 4G networks will rise from 15 billion minutes in 2010 to 470.6 billion by 2015, finds a report from Juniper Research.

This all demonstrates that consumers are willing to shift their buying away from traditional phone service for something more compelling. In addition, service providers that can serve mass numbers of customers at a low cost per user will win in this market.

WiMAX has been built at the foundation as a cost-effective technology for bringing connectivity to the masses. Along with that connectivity comes a variety of applications. Just like other data applications, WiMAX can be used to deliver voice successfully and cost-effectively. Motorola has designed our WiMAX systems and our Voice over IP (VoIP) solution so that service providers can be successful with voice service in competitive markets and increase the ARPU of their WiMAX customers.

Motorola WiMAX Designed for Successful VoIP

Through each major component of Motorola's solutions for WiMAX, VoIP has been considered. Enhancements and features have been built into our network to be able to offer voice services at different tiers and price points, and support each with unique QoS requirements.

- End-to-end Design Approach & Motorola Services
 - End-to-end optimization
 - Rigorous testing
- Customer Premises Equipment (CPE)
 - +5db Rx sensitivity then WiMAX standard
 - "Toll Quality" and "Basic Calling" codecs
 - High quality electronics for signal stability
- Core Network
 - Market leading components
 - Tight integration with RAN
- IP Transport Network
 - Dis-aggregation of bearer traffic
- Access Network
 - Full QoS support (five classes)
 - Optimized handoffs (bearer traffic re-routed pre-handoff)
 - Scheduler
 - Minimizes contention
 - Closer to network edge
 - Implemented in software
 - QoS in changing conditions
 - Tunable
- Network Management
 - Proactively identify and resolve faults

VoIP Solution Summary

Motorola VoIP Solution is an integrated switching platform that enables the scalable, simplified and cost-effective delivery of VoIP and multimedia services for communication providers and network operators. Designed to provide carrier-class performance and reliability, while increasing network integrity, security and privacy, Cedar Point's SAFARI C³ Multimedia Switching System supports legacy circuit, NCS and SIP-based voice services and offers a cost-effective migration path to IMS.

Motorola VoIP Solution supports up to 250,000 lines of capacity in less than a cubic meter of space, incorporating all of the components that make up the voice-switching infrastructure. It is being deployed for residential and business services by a diverse customer base that includes:

- Cable operators
- Competitive Local Exchange Carriers (CLECs)
- Class 5 operators
- Class 4 tandem operators
- Wireless network operators
- Universities

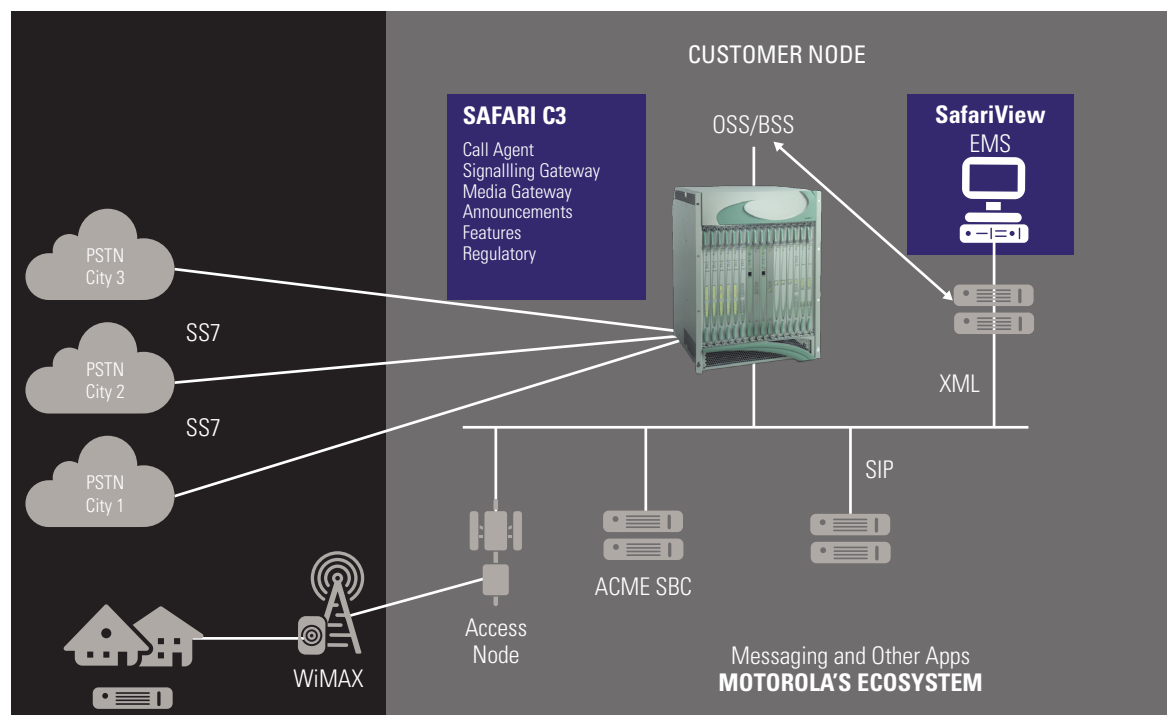
Solution Benefits

SAFARI C³ Multimedia Switching System is the only totally integrated, carrier-class VoIP switch that incorporates all of the components that make up the voice-switching infrastructure and provides SIP-based and NCS-based features today and a seamless evolution to IP Multimedia Subsystem (IMS). Motorola VoIP Solution provides superior performance and reliability, significantly reducing capital expenditures, system integration and operations costs for providers of telephony services while increasing network integrity, security and privacy.

VoIP Solution Highlights

- Call features/processing/routing
- Media functions
 - Packet/circuit handoffs
 - Encoding/decoding/echo cancellation
 - Announcements
 - Conferencing
- Signaling functions
 - SS7, SIP, SIGTRAN, ISDN, R2, TGCP
- Integrated packet switching fabric
- Access interfaces (end points)
 - MGCP
 - SIP
 - ISDN PRI
- Lawful intercept (ETSI LI and U.S. CALEA)
- Call detail records (AMA)
- Event messages

Architecture



Reducing the Total Cost of Ownership

The Motorola VoIP Solution improves the economics of voice and multimedia services and helps network operators reduce the Total Cost of Ownership (TCO) and drive down both capital and operating costs. The space saving and cost-effective Motorola VoIP Solution provides dramatic advantages over deploying a distributed softswitch, allowing network operators to:

- Reduce rack space by 66-75%.
- Minimize deployment time and resources by relying on a single platform instead of having to deploy multiple network elements.
- Consume less than 10% of the power requirements.
- Reduce cooling needs by 75-80%.
- Maintain the platform using less than a tenth of the engineering resources of distributed softswitch solutions.
- Implement software upgrades in less than 4 hours—instead of the multiple days required for deploying software updates to distributed softswitch solutions.
- Reduce sparring costs by 75%.

Motorola VoIP Solution enables network operators of any size to realize substantial comparative savings for initial equipment and integration costs, as well as the long-term benefits of impressive returns in ongoing operational cost savings.



Available Features

Motorola VoIP Solution offers an extensive list of available features. The following are just a few of the many features available with the SAFARI C³ Multimedia Switching System:

Highlighted Residential Features

- Call Forward Fixed/Variable
- Message Waiting
- Selective Call Rejection
- Anonymous Call Blocking
- Caller ID
- CNAME
- Block Caller ID
- Call Waiting
- Residence Distinctive Alerting
- Speed Dial
- Announcements
- Privacy Manager
- 3-Way Calling

Highlighted Commercial/Centrex Features

- Call Groups
- Extension Based Dialing
- Single Billing Number
- Hold
- Transfer
- Call Pick-Up
- Barge-In
- Call Park
- Authorization Codes
- Account Codes
- Hunt Groups
- Preferential Hunt Groups
- Bridged Line Appearance
- Attendant Console

VoIP Solution Specifications

PHYSICAL SPECIFICATIONS

Slot Capacity	16 Slots <ul style="list-style-type: none">• 12 universal slots• 4 switching and control
Rack Capacity	Maximum of 3 shelves per 7' rack
Switching Fabric	160 Gbps redundant switching fabric
Dimensions	Height: 62.2 cm (24.5 in) Width: 48.3 cm (19 in) Depth: 53.5cm (21 in)
Power	Dissipation: 2000W typical -48V DC, -40 to -60VDC

REDUNDANCY/PROTECTION

Power	Distributed, dual feeds
System Control and Switch Fabric	1:1
POS interfaces and SONET/SDH	1+1
T1/E1, T3	1:N
Network Interfaces	1:1
Timing	1:1

ENVIRONMENTAL

Operating temperature	0C to 45C
Operation humidity	5-90% (non-condensing)
Cooling	Filtered, vertical forced air
Physical	NEBS Level 3, Zone 4

PSTN CONNECTIVITY

Interconnection Modes	IMT-SS7/ANSI, ITU, ETSI Variants of SS7, CAS E&M, ISDN
PSTN Interfaces	T1, E1, DS3, STM-1
Codec Support	G.711A-Law, G.711 μ -Law, PCM, G.729E, G.728, G.729A/B, G.722, ILBC, transcoding
Fax/Modem Capabilities	Transparent Fax/Modem detect and Codec negotiation, T.38

IP CONNECTIVITY

Signaling	MGCP/NCS, SIP, SIP-T, SIGTRAN
Protocols	PacketCable, AES, COPS, IPSec, DQoS, CMSS, RTP, RTCP
Ethernet	10/100/1000

VOICE SERVICES

Feature Set	Residential, small business and large business (Centrex)
Regulatory Features	Including LNP, E-911 (including 911 call-back), ETSI LI, CALEA, Operator Interrupt
Regulatory Certification	FCC Part 68, ACTA TIA/EIA/IS-968 and ETSU TBR 12, 12/A1, and 13 FCC Radio Frequency Interference, Part 15, Class A IC CS 03 Part II IC CS 03 Pat II UL 60950/CSA 60950/EN 60950 GR-1089-CORE EN-300 386 GR-63 NEBS



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