Alcatel-Lucent OmniPCX Enterprise Communication Server

Delivering powerful, reliable and scalable IP communications to drive your 21st century business

PRODUCT OVERVIEW

The Alcatel-Lucent OmniPCX™ Enterprise Communication Server (CS) is a highly scalable solution based on a pure software communication server platform that provides multimedia call processing for both Alcatel-Lucent and third-party clients/phones including TDM, IP and SIP.

This rich call-handling application delivers world-class business telephony features for medium, large and very large sized companies and offers a choice of either centralized or decentralized IP telephony solutions.

The Alcatel-Lucent OmniPCX Enterprise CS provides the building blocks for any IP and/or legacy communications solution, incorporating the latest Linux®, XML, SIP, and VXML technologies, and open standard practices such as QSIG, ITU-T H.323, CSTA, and SIP. It offers broad scalability ranging from 10 to 100,000 users, who can be spread across multiple geographical sites. Plus, it offers highly reliable, real-time, carrier-grade performance solutions with an unmatched 99.999 %percent uptime.

The Alcatel-Lucent OmniPCX Enterprise offers:

- *Architectural flexibility* – which enables centralized or decentralized IP configurations, a choice of IP, IP/TDM or TDM, minimizing additional investment and enabling a smooth migration at your own pace, when and where it makes financial sense. The Alcatel-Lucent OmniPCX Enterprise features a native SIP controller that provides an unmatched level of services on in-house or third-party SIP phones, including a full third-party call control from applications.

- *Simplified management* – because the same network management software is used across the enterprise, independent of the underlying infrastructure. The Alcatel-Lucent OmniVista™ Network Management System is a single, open management platform designed to manage and control a global, OmniPCX IP communication solution.

- *Intelligent networking* – reducing the cost to support all users at different sites. For instance, feature transparency across servers, or advanced route selection (ARS) is available from any site without having to duplicate the software at each site. A single image across fully networked servers provides simplified management of large and very large configurations.

- *Openness , interoperability and integrated solutions* – the OmniPCX Enterprise integrates open standards and state-of-the-art technologies to provide a very flexible solution. Alcatel-Lucent helps maximize customer investment returns by simplifying the interworking and integration of its solutions within existing or future communication environments. This is supported by hundreds of applications validated through the Alcatel-Lucent Application Partner Program (AAPP).

FINANCIAL BENEFITS

A rapid and measurable return on investment and visible savings:

- Shared bandwidth in multi-site networking yields 5 percent to 30 percent savings in subscription and communication costs.
- Centralizing applications yields 5 percent to 20 percent savings in carrier subscription and communication costs.
- Integrated management of data and voice networks yields 10 percent to 40 percent savings.
- Centralized maintenance, upgrades and related operations yield 5 percent to 20 percent savings.
- Moves, adds and changes (MACs) yield 20 percent to 30 percent savings – 30 percent to 60 percent savings in cabling!
- Fixed-mobile convergence solutions (cellular extension and dual-mode Wi-Fi®/SIP) yield 10 percent to 20 percent savings of cellular costs.
- Faster response from embedded IP contact center improves customer satisfaction.
- Smooth migration path yields 20 percent to 5 percent savings in annual PBX hardware investment.

TECHNICAL SPECIFICATIONS

Software
- Client/server
- Chorus MIX micro kernel operating system
- SQL/CQL database
- Linux LILO/GRUB-compliant
- Red Hat® Linux® and Linux Kernel 2.4.17

System
- Centralized or distributed system
- Communication server and database duplication
- Main-standby seamless communications fail-over
- Passive communication server watchdog: central or remote
- Single server: 15,000 IP users/ 5,000 TDM users
- 100 servers in a single network
- Fully networked servers, 100,000 IP/TDM users with single image
- 250 servers in a supra network
- >1 million users in a supra-network
- BHCC per server: 300,000

Hardware
- Industry appliance servers or "in-the-skin processing"
- Native Ethernet connectivity on all CPUs
- Modular hardware
- TDM or IP switching
- Power supply
- Auxiliary power supply

OmniTouch™ 8600 My Instant Communicator

The Alcatel-Lucent OmniTouch™ My Instant Communicator is an integrated multimedia service that is accessible through multiple interface choices (desktop, deskphone, mobile) and openness via Web Services. It provides an innovative, easy-to-use user interface through non-intrusive toast windows, notification windows and menu options for enhanced accessibility to services, applications and settings.

- Incoming/outgoing interaction management (voice, IM, presence)
- Business communication services
- Conferencing and Collaboration
- Call by name, call by skill
- Call logging
- Notifications (missed calls, new voice messages)
- One-number services
- Visual mailbox
- Desktop integration (Microsoft Outlook/Microsoft Office Communicator®, IBM® Lotus Notes®/IBM Lotus® Sametime®)
- Multi-language

The world's leading IP communications platform for medium-sized to very large enterprises

- Softkeys
- Call planning
- Call related notes
- Access to collaborative services (Alcatel-Lucent OmniTouch™ My Teamwork)
- TAPI, MAPI, DDE, OLE.com, LDAP
- Integration within IBM® Lotus Notes® and Microsoft® Outlook®
- Kit/library for developers such as Alcatel- Lucent XML Telephony API v1.0

Desktop phones: OmniTouch IP Touch™ 8 and 9 Series

- Business Communication Services (see next section)
- Embedded alpha keyboard for:
  - ¬ Instant messages
  - ¬ Call-by-name: internal, external user, LDAP
- Add-on supervision modules
- Absence message
- Adjustable handset volume
- Centralized directory, spelling and syntax adjustment
- Call-by-name can be used in all communication contexts (direct call, inquiry and more)
- Caller name display
- Conditional/unconditional differentiated forwarding of multiple directory numbers
- Contextual voice prompts
- Fixed function keys
- Hands-free
- Headset capability (Bluetooth®, etc.)
- Help key
- Individual customization
- Informative icons
- Interactive guidance with softkeys
- Language synchronization: display, voice prompts, and voice mail
- Loudspeaker announcement
- Multiline: multi-appearance and multi-numbers
- Multilingual (user choice)
- Macro commands
- Message waiting indication
- Mini-text messages
- Personal password for consultation of non-reply
- Personal calls log
- Programmable function key
- Supervision of user/trunk/bundle

Mobile phones: Mobile IP Touch 310/610 (WLAN) and 300/400 (DECT)

- Business communication services (see next section)
- Absence message
- Adjustable handset volume
- Call-by-name: internal and external user
- Centralized directory, spelling and syntax adjustment
- Call-by-name can be used in all communication contexts (direct call, inquiry and more)
- Caller name display
- Conditional/unconditional differentiated forwarding of multiple directory numbers
- Contextual voice prompts
- Hands-free
- Headset capability
- Help key
- Individual customization
- Informative icons
- Interactive guidance with navigator
- Language synchronization: display, voice prompts and voice mail
- Multiline: multi-appearance and multi-numbers
- Multilingual (user choice)
- Message waiting indication
- Mini-text messages
- Personal calls log
- Programmable function key
- Full integration with notification servers (AAPP) and location-based services (AAPP)

Alcatel-Lucent Advanced Cellular Extension solution

The Alcatel-Lucent Advanced Cellular Extension (ACE) solution is a powerful fixed-mobile convergence (FMC) solution that extends the advanced voice features of the Alcatel-Lucent OmniPCX Enterprise CS to mobile devices. This software-based application turns any smart mobile phone into an extension of the communication server. The full suite of communication tools is made available on the leading edge mobile platforms — Microsoft® Windows Mobile®, Nokia® Eseries™ and the RIM® BlackBerry® — through a cellular extension solution.

- ACE for Microsoft Windows Mobile
  - ¬ Nokia Intellisync Call Connect (ICC) for Alcatel-Lucent
  - ¬ ACE for BlackBerry

The ACE includes two components:

- A server application, hosted on the Alcatel-Lucent OmniPCX Communication Server, provides corporate telephony services to authorized mobile devices

- A client application, hosted on the smart mobile device, provides a menu-driven interface to access Alcatel-Lucent OmniPCX Communication Server features

Standard Business Communication Services
- Speed dialing
- Account code charging
- Appointment reminder
- Associate (definition, modification by user)
- Automatic call-back on busy trunk/bundle/network link
- Automatic call-back on free/busy extension
- Broker's call
- Call forwarding unconditional on busy/no reply to extension, hunt group, voice mail, operator, paging, etc.
- Call pick-up
- Call waiting indication
- Calling line identification restriction for internal calls
- Camp on busy telephone/hunting group/voice mail
- Conditional external forwarding (busy or no reply)
- Call waiting
- Controlled private call by PIN code and password (optional)
- Distinctive ringing according to hierarchical levels
- Do not disturb
- General night service
- Hunting group (fix head, cyclic, longest idle time, parallel)
- Immediate forwarding
- Individual hold
- Individual directory
- Internal/external music on hold
- Internal/external inquiry call
- Intrusion
- Last internal/external number redial
- Local and external call
- Moving service
- Multiline appearance (MLA)
- Multiline selective forwarding
- Multiple conference calls
- Multiple call protection

Multi-tenant services
- Speed dial numbers per entity
- Calling line identification
- Integrated auto attendant services per entity
- Calling line identification presentation (CLIP) per entity
- Greeting message per entity
- Music on hold per entity
- Night service per entity

- Over-dialing
- Personal code modification
- Priority call
- Store and redial external number
- Substitution
- Three-party conference
- Transfer in conversation on free/busy telephone
- 29-party, meet-me conference
- Voice prompts on/off per telephone
- Voice message deposit on forwarded telephone
- Call-waiting pickup

Advanced Business Communication Services
- Calling line identification presentation/restriction (CLIP/CLIR)
- Digit-by-digit dialing mode
- End-block dialing (digit correction possible)
- ISDN, H.323 or SIP identification (CLIP) converted into name
- ISDN mini-text messages (carrier-dependent)
- Malicious call identification
- Storage of unanswered calls with date, time and callback
- Sub-addressing

Manager-assistant team
- Access to manager's voice message headers from assistant's telephone
- Filtering scenario allocation to designated assistant
- Flexible configuration: multiple manager/assistant team
- Forwarding of private line
- Immediate forwarding of manager telephone to assistant activated by manager or assistant
- Manager-assistant specific online text messaging
- Manager discreet listening (on filtered lines only)
- Overflow assistant in case of main assistant absence
- Private lines
- Main assistant, absence notification and assistant overflow
- Selective filtering (scenarios)

Teamwork configuration
- Common/exclusive hold
- Group call pick-up
- Hunting groups
- Log on, log off
- Manageable ring indicator
- Manageable waiting queue

MyPhone on IP Touch 4068 and 4038
- Call log (incoming/outgoing calls made)
- Call-back list (non-answered calls)

- Universal directory access (UDA: LDAP call-by-name)
- Telephony and instant messaging (IM) presence
- IM fully integrated with telephony (i.e., IM to answer a call)

Buddy list
- Direct access to conference
- Instant video escalation (available on IP Touch 4028 as well)

Hotel Communication Services
- Available on all desktop phones (IPT or analog)
- Check-in/check-out individual or group
- Pre-check-in/partial check-out
- Cyclic DDI
- Multi-occupant room
- Room allocation from the telephone
- Do not disturb
- Guest/patient personal code
- Internal call barring
- DDI call barring according to time schedule
- Wake-up service (up to four wake-up calls per room)

Room service
- VIP
- Guest number or name
- Called service identification
- Guest language
- Room status
- Multilanguage voice prompts (eight simultaneous languages)

Room directory
- Call-by-name
- Prepayment (deposit)
- Flexible suites
- Alcatel-Lucent hotel/hospital link (AHL)
- Secret identity for calls between rooms
- Public booth
- Guest personal identification number
- Manual call detail record (CDR) creation
- Minibar
- Billing

Attendant Services
- Abbreviated dialing
- Activation/deactivation of DND
- Add-on module
- Alarm indication
- Attendant groups
- Automatic answer
- Attendant specialization options (individual or group)
- Busy lamp field
- Call-by-name in all communication situations

- Call charge request (carrier-dependent)
- Centralized or distributed attendant in network
- Call queuing with indication
- Call routing depending on class of traffic, DID, company or called service (entity)
- Call waiting with indication
- Called party resources
- Call pick-up
- Charging recall service (carrier dependent)
- Chained call
- Choice of system status
- Conference
- Creation, cancellation and modification of abbreviated number with name
- Creation, cancellation and modification of subscribers (name, rights and more)
- Discrete call offer
- Discrete call offer by mini-text messages on busy/free
- Reflexes telephone
- DTMF over dialing
- Large busy lamp field
- Flexible attendant routing time-out overflow based on caller waiting time
- Headset capability
- Hold individual or multiple
- Create/delete directory items
- Internal call name/number displayed
- ISDN VIP monitoring
- Last number redial
- Line reservation
- Malicious call identification
- Manual reservation mode
- Mini-text messages
- Multi-tenant services
- Override on directory number
- Paging
- Password
- Personal call
- Priority call (internal/external)
- Receipt and read charging units and costs (carrier-dependent)
- Record online on associated entity
- Status of calls routed to operator
- Store and number redial
- Synchronized multinode routing (entity)
- Time and date display
- Transfer with/without announcement
- Trunk allotting with barring
- VIP telephone monitoring

Attendant Positions
- Greeting attendant on IP Touch 8 and 9 series
- PC-based IP attendant

- Alcatel-Lucent 4059 Multimedia Attendant Console
  - ¬ IP Touch 8 or 9 Series phones for audio
  - ¬ Multifunctional keyboard

Integrated Greeting
- Integrated automated attendant
- Personal automated assistant with context-sensitive greeting
- Synchronized greeting message

Voice and Fax Mail
- Automated attendant
- Call transfer
- Direct reply on receipt message
- Extended recording and playback control function
- Fax broadcast, on demand, overflow, store and forward
- General distribution lists
- Greeting message according to user status
- Immediate or supervised transfers
- Message acknowledgment
- Message attributes: urgent, normal, private
- Message notification via light, display, dialing tone, voice prompt, outgoing
- Multilanguage
- Multi-user password
- Networking protocols: IMAP4, VPIM, Octelnet and Amis
- Private distribution lists
- Record online
- Shared mailbox: home, guest, and assistant mailbox
- User-friendly interface on IPTouch 8 & 9 Series phones via softkeys or via PC-client My Messaging
- Voice message attached to a fax
- Voice and DTMF forms
- Web access to voice and fax messages
- Alcatel-Lucent 4645 Voice Messaging Services: Embedded software-based voice mail for small/medium sites (branch autonomy)

Alcatel-Lucent OmniPCX Enterprise OmniTouch Contact Center Standard Edition
- Active matrix call distribution
- Call flow based on pilot
- Skill- and cost-based distribution
- Conditional pilot overflow on voice mail
- Look ahead call routing
- Pilot forwarding to other pilot
- Pilot routing to waiting queue according to priority
- Routing time schedule

- Types of queues: waiting, help and dissuasion
- Virtual pilot
- Intelligent routing
- Outbound call management
- Direct agent call management
- Remaining wait time announcement
- Integration with outbound campaign management
- Native integration with interactive voice response (IVR)

Voice guidance
- External voices guides
- Synchronized internal voices guides
- Storage from audio station or IP Touch 8 & 9 Series phones

Agent features
- Administrative withdrawal
- Agent break
- Agent direct call with statistics
- Agent can belong to different groups
- Digital recording IP and TDM (DR-Link)
- CCA applications: IP Touch 8 & 9 Series phones on toolbar providing personal statistics
- Group selection: fixed head, cyclic, longest idle time
- Free sitting agent position
- Help supervisor
- Home agent with analog telephone or IP Touch 8 & 9 Series phones
- Logon/logoff
- Open or close pilot from agent position
- Personal call barring
- Suspension of group waiting queues
- Wrap-up (automatic or manual)
- Transaction code (with reporting)

Supervision and statistics
- Alarm handling
- Call level information
- Customizable alarms
- Customizable reports
- Detailed communication reports
- Reports based on communication events
- Discrete call listening for supervisor
- Microsoft Excel-based statistics and reporting
- Export of communication reports (ASCII files)
- Free sitting supervisor position
- Full Windows user interface
- Native Windows management look and feel
- Predefined reports
- Real-time service level per pilot
- Real-time statistics

- Statistics compilation and archive (FTP)
- Wallboard display control

Alcatel-Lucent OmniPCX Enterprise OmniTouch Contact Center Premium Edition

Segmented media distribution
- Visual contact center (CC) user interface reuse of popular/patented CCS matrix concepts
- Visual CC Windows Explorer drag-and-drop configuration capabilities
- Blended e-mail and voice routing and distribution
- Contact flow based on type of service qualification
- Contact segmentation based on qualification
- Visual IVR call prompting with DB lookup
- Visual IVR embedded reusing OmniPCX resources, no additional hardware
- Visual IVR navigator icon selected from Visual CC user interface toolbar
- Visual IVR script creation via drag-and-drop icons
- Optional integration with full-featured IVRs
- E-mail auto-acknowledgment and redirection
- E-mail keyword classification
- E-mail backlog and work-bin management
- Skill- and cost-based resource distribution
- Contact queue management: waiting, dissuasion, overflow
- Conditional overflow defined by CC activity
- Estimated waiting time information with options
- Look ahead contact routing
- Multistage queuing
- Multilevel prioritized queuing
- Multimedia group, queue and agent selection
- Scheduled time-of-day routing
- Outbound call management
- Integration with outbound campaign management

Voice announcement
- Agent tutorial voice guides
- Routing voice announcement updates
- Redirection, closing, opening announcements
- Recording from audio station or telephone

Agent features
- Administrator unavailable

- Agent unavailable with reason
- Agent private call tracking
- Consult, transfer, conference
- Logon/logoff
- Private call barring
- Wrap-up
- Supervisor assist
- Agent skill and group levels
- Group selection: cyclic, top down, longest available
- Emergency conversation recording
- Optional digital recording IP and TDM (DR-Link)
- Agent desktop VoIP and IP plug-in
- Multimedia Genesys Agent Desktop (GAD) interface
- Desktop with screen-pop and contact history
- Free sitting agent position
- IP Touch 8 and 9 Series phone support
- Remote IP agent

Supervisor features
- Visual CC easy-to-use, Windows-compliant management and monitoring tools
- Object configuration
- Drag-and-drop media distribution design
- Object alarm monitoring
- Alarm/alert customization
- Object including both voice and e-mail – real-time statistics monitoring
- Service-level management and monitoring
- Object including both voice and e-mail historical predefined statistics reports in Microsoft Excel® spreadsheets
- Scheduling and generation of historical reports
- Enhanced, easy-to-use customization of Excel-based reports
- Supervisor call monitoring barge in and discrete listening
- Remote agent state change management
- Agent licensing overrun capability
- Overrun option automatically increases agent licenses during 10-day peak period by 30%
- Overrun unique in the industry

System specifications
- Genesys Open Contact Center Software Suite Release 7.2
- Wizard installation procedures
- IP connectivity to OmniPCX Enterprise CS
- Windows 2000® and XP® operating systems
- Microsoft SQL database

- Unicode supporting multiple languages
- Customizable, visual CC user interface
- Zero footprint deployment

Openness options
- Wallboard connectivity
- End-to-end detail statistics reporting
- Peripheral IVR connectivity
- Workforce management system interface
- CRM Gplus adapters – Microsoft Dynamics® business software, SAP® software

Professional services provided options
- Interface to Remedy, Salesforce, Pivotal
- CC Teamer real-time communication with presence status, conferencing and collaboration via OmniTouch My Teamwork™ Conferencing and Collaboration desktop integration

Mobility Infrastructure DECT
- Radio DECT/GAP
- Radio frequency range
  - ¬ 1.88 GHz to 1.90 GHz (Europe)
  - ¬ 1.91 GHz to 1.93 GHz (South America)
  - ¬ 1.92 GHz to 1.93 GHz (U.S.) with power adaptation
- Optimized Radio Base Station (IBS)
  - ¬ Six simultaneous communications
  - ¬ Connectivity: 2 x UA interfaces
  - ¬ Inline-powered
- Advanced Radio Base Station (RBS)
  - ¬ 12 simultaneous communications
  - ¬ Dedicated system board DECT8
  - ¬ External power supply
  - ¬ Outside versions
- Frequencies
  - ¬ European
  - ¬ North American
  - ¬ Latin American
  - ¬ Asian

Mobility Infrastructure Wi-Fi

Wi-Fi infrastructure – OmniAccess wireless LAN access points and WLAN controllers
Wireless standards
- IEEE 802.11a/b/g
- IEEE 802.11i

Radio frequency range
- 2.4 GHz to 2.4835 GHz ("b" and "g")
  - ¬ 5.150 ~ 5.250 GHz (low band)
  - ¬ 5.250 ~ 5.350 GHz (mid band)
  - ¬ 5.470 ~ 5.725 GHz (Europe)
  - ¬ 5.725 ~ 5.825/5.850 GHz (high band)

Automated radio coverage
- Up to 32 SSIDs per access point
- Dynamic RF management for AP channel power and channel optimal setting
- Self-healing around failed access points

Wireless security
- WEP, WPA, WPA-PSK, WPA2 and WPA2-PSK
- Integrated stateful firewall
- Rogue access point detection and containment
- Wireless IDS/IPS

Quality of service
- Standardized
  - ¬ Over-the-air QoS: 802.11e - WMM (EDCA)
  - ¬ 802.11e Power Save (U-APSD)
  - ¬ 802.11e Traffic Specification (TSPEC)
- SRP mode
- Connection Admission Control with graceful load balancing
- 802.1p DiffServ marking

Call persistency
- Proxy mobile IP for Layer 3 handover
- Fast handover – WPA2 opportunistic key caching
- Voice-aware scanning
- Voice-aware 802.1x re-authentication

Telephony protocol decode
- SpectraLink Radio Protocol (SRP)
- Alcatel-Lucent OmniPCX (NOE)
- SIP

Paging
- Connections handled by the Alcatel-Lucent OmniPCX Enterprise: ESPA 3 protocol
- External call waiting on voice prompt
- Internal and external calls transferred to pager
  - ¬ On selection
  - ¬ Immediate forward
  - ¬ No reply or busy
  - ¬ Paging by prefix or suffix

Voice over IP
- G.711 A-law and µ-law digital voice compression algorithm
- Compression algorithm: G.723.1A, G.729.AB
- Compression rate: 6.4 kb/s/8 kb/s
- Automatic compression algorithm allocation
- Dynamic jitter buffer
- Echo cancellation: 64 ms/128 ms with voice signal analysis and signal quality enhancement
- Packet loss concealment (PLC)

- VAD: silence suppression and comfort noise generation
- Packet framing: 20 ms, 30 ms and 40 ms
- Call admission control to IP domains
- DTMF Q23 codes interpreted, coded and regenerated (robust DTMF relay, RFC 2833 or out-of-band)
- Generic signal qualification and modem transport
- Anti-saturation mechanism; backward and forward automatic gain control
- Embedded signal quality diagnostic tool
- QoS: TOS or DiffServ tagging, 802.1 p/Q

Fax
- G3, super G3 fall-back
- Automatic fax detection
- Fax: G.711 transparent (Alcatel-Lucent protocol) and T.38 (Alcatel-Lucent protocol, H.323 and SIP)

Service continuity
- Backup signaling link on media gateway
- Passive communication server

Private networking protocols
- Alcatel-Lucent Business Communication (ABC-F) Networking protocol based on enhanced QSIG (tunneling) and H.323 for VoIP
- Line, star, meshed configurations
- Multivendor networking: QSIG BC, GSIG GF, QSIG Supplementary Services (SS) and DPNSS for TDM connectivity

H.323, SIP for IP connectivity
- Analog and digital channel associated signaling protocols
- ABCVPN for networking over ISDN/PSTN network (signaling on IP network)

ABC-F: Telephone Features
- 3-party conference
- 6-party casual conference
- 14-party meet-me conference
- 29-party conference
- Alcatel-Lucent Hospitality/Health-care Link (AHL)
- Auto-assignment for guests/patients
- Automatic call back on busy private link
- Basic call
- Broker call
- Call back on busy links
- Call back on free or busy extensions
- Call by name
- Call deflection
- Call offer
- Call waiting indication

- Camp on
- Conditional forwarding (forwarding on no reply, forwarding on busy)
- Data communication
- DISA
- Distinctive ringing based on hierarchies
- Do not disturb
- Entity routing for multi-company/department configuration
- Hold
- Individual call pickup
- Inquiry call
- Intercom call
- Intrusion
- ISDN supplementary services
- Number and name identification
- Reading of personal charging pulse meters
- Retransmission of last number dialed
- Substitution
- Text mini-messaging
- Transfer
- Transparency in decade and Q 23 dialing
- Unconditional forwarding

ABC-F: Distributed GroupWare Features
- Associate in network
- Conditional forwarding to associate
- Hunting group of subscriber
- Immediate forwarding to associate
- Manager/assistant filtering team
- Object supervision: free, partially busy, totally busy, ringing
- Supervision of trunk, bundle, subscriber

ABC-F: Mobility Features
- On-site mobility in network: roaming, user rights and accounting allocated to home node number
- Paging services in networks
- Remote forwarding
- Substitution
- Ubiquity services

ABC-A: Networking Applications
- Centralized Contact Center (OTCC)
- Centralized Contact Center (OTCC) supervisor in network with real-time supervision
- Centralized or shared messaging system distributed in network
- Centralized Contact Center (OTCC)
- Centralized OTUC (messaging, softphone, collaboration, assistant)
- Mutual aid between Contact Center (OTCC) groups in different nodes with look ahead call routing

ABC-R: Routing Mechanism

- Adaptive routing
- Automatic Route Selection (ARS):
  - ¬ Access to alternative routes based on caller rights
  - ¬ Multi-tenant
  - ¬ ARS time dependent: day of the week, hour, and minute of the day
  - ¬ ARS per IP domain
- Cost limit barring per user/installation status
- Dialing command tables with add/delete digits for number
- Direct or indirect multi-carrier access
- Five daily tables per weekly table
- Information (voice prompt) to callers if cheapest route is not available
- Information (voice prompt) to caller if he/she needs permission to use a more expensive route
- Break in
- Break out
- Break in via secured DISA
- Forced on net homogeneous numbering plan

ABC Network Management

- Management from attendant
- CLI local management
- Centralized or distributed management from external applications
- Topology map
- Configuration
- Alarm management
- Call accounting
- Directory
- Traffic analysis
- Security
- Graphical user interface
- Remote management
- Alarm domains and alarm centralization
- Audit mechanism
- Broadcast of configuration data
- Remote maintenance access
- Remote software downloading

Voice-Based Virtual Private Networks (VPN)

- ABC VPN via overflow to public ISDN, QSIG
- Dissociating signaling over IP network (lower bandwidth)
- Full ABC services

QSIG – Basic Call

- Calling line identification
- Connecting line identification
- Data calls bearer
- Malicious call identification
- Sub-address

QSIG – Generic Function Protocol

- QSIG – Supplementary services
- Advice of charge
- Call completion on no reply
- Call completion to busy subscriber
- Call forwarding – busy
- Call forwarding – no reply
- Call forwarding – unconditional
- Calling/connected line identification restriction
- Calling/connected name identification restriction
- Calling line identification presentation
- Calling name identification presentation
- Call transfer
- Call offer
- Connected line identification presentation
- Connected name identification presentation
- Generic functional procedures
- Message waiting indication
- Path replacement

DPNSS

- Call back when free (call completion on busy phone) (9)
- Call forwarding (11)
- Call offer (14)
- Call waiting (17)
- Centralized night service (25)
- Conference (13)
- Do not disturb (32)
- Hold (12)
- Inquiry call (13)
- Intrusion (10)
- Loop avoidance (37)
- Route optimization (19)
- Service independent string (16) name
- Transfer (13)
- Voice and data call (6 and 7)

Session Initiation Protocol (SIP)

- SIP proxy/registrar/redirect server and SIP gateway
- Server redundancy (active/passive)
- Authentication (http digest)

Supported SIP standards

The Alcatel-Lucent OmniPCX Enterprise Communication Server is based on the latest SIP standards. The following RFCs are supported. They can be found on the IETF site at http://www.ietf.org

SIP messages are used in strict conformance with RFCs.

Standards driven SIP evolutions for 3rd party endpoints and SIP trunking:

- SIP Telephony services described in draft ietf sipping service example-15
- RFC 4504 conformance SIP Telephony Device Requirements and Configuration (hardware, IP, security characteristics, SIP conformance, …)

RFC SIP

- 2543 (obsolete by RFC 3261, 3262, 3263,3264, 3265): SIP: Session Initiation Protocol
- 2782: A DNS RR for specifying the location of services (DNS SRV)
- 2822: Internet Message Format
- 3261: SIP: Session Initiation Protocol
- 3262: Reliability of Provisional Responses in SIP (PRACK)
- 3263: SIP: Locating SIP Servers
- 3264: An Offer / Answer model with SDP
- 3265: SIP-Specific Event Notification
- 3311: The SIP UPDATE Method (session timer only)
- 3323: Privacy Mechanism for the Session Initiation Protocol (SIP)
- 3324: Short term requirements for network asserted identity
- 3325: Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks
- 3265: SIP-specific Event Notification
- 3515: The Session Initiation Protocol (SIP) refer method
- 3891/3892: The Session Initiation Protocol (SIP) 'Replaces' Header/ Referred-By Mechanism
- 3398: Integrated Services Digital Network (ISDN) User Part (ISUP) to SIP Mapping
- 3966: The telephone URI for telephone numbers (url tel not supported)
- 4497: Inter-working between SIP and QSIG

draft-ietf-sip-answermode-07: Requesting Answering Modes for the Session Initiation Protocol

MMUSIC (Multiparty Multimedia Session Control)

- 2327: SDP: Session Description Protocol

IP Telephony

- 2617: HTTP Authentication : Basic and Digest Access Authentication
- 1321: Authentication for Outgoing calls
- 2833/4733: DTMF Transparency. RFC 2833 replaced by RFC 4733
- 3842: A message Summary and Message Waiting Indication Event Package

- 4028: The session timers in the Session Initiation Protocol
- 3725: Best current practices for Third party Call Control (3 pcc) in SIP (scenario 1). Invite without SDP
- 3960: Early Media (partial)

AFT (Audio fax Transmission)

- 1889/1890: RTP: A transport protocol for Real-Time applications
- 2198: RTP Payload for Redundant Audio data
- 3550: RTP: A Transport Protocol for Real-Time application (audio only)
- 3551: RTP Profile for Audio and Video Conferences with Minimal Control (audio only)
- 3711: The Secure Real Time. Supported on A-LU IP Phone and Softphone
- 3362: T38 ITU-T Procedures for real time Group3 Fax Relay / communications over IP
- 2617: HTTP Authentication: Basic and Digest Access Authentication

SIP end-point features

- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Voice mailbox access
- Message waiting Indication
- Do not disturb
- Call admission control
- Accounting
- CoS/barring
- Speed dial
- DTMF
- Fax T.38
- Twinset
- Hunting group
- CSTA monitoring and Call Control Hospitality and Infocenter compatibility

SIP remote extension features

- RFC 2976 –DTMF info
- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Call park/unpark
- Call pickup/supervision
- Automatic call back on busy or no answer

- Click-to-dial (with softphone)
- Voice mailbox access
- Message deposit
- Message waiting indication (MWI)
- Do not disturb
- Speed dial
- Identity secrecy
- Call admission control
- Accounting
- CoS/barring
- CTI applications
- Hunting group
- Meet-me conference
- Intrusion
- Twinset/tandem
- Remote forwarding
- Business account code

SIP private trunking
- Call hold
- Consultation hold/toggle
- Transfer early attended
- Transfer attended
- Call forward, unconditionally
- Call forward on busy
- Call forward on no answer
- Third-party conference
- Message waiting indication
- Do not disturb
- Call admission control
- DTMF
- Fax T.38

SIP public trunking and next generation network connectivity
- Basic call out-going with number and name display
- Basic call in-coming with DDI with number display
- Calling line/name identification presentation (CLIP)
- Calling line identification restriction (CLIR)
- Connected line/name identification presentation (COLP)
- Connected line/name identification restriction (COLR)
- Call forwarding unconditional (CFU) and on busy/no answer (CFB/CFNR)
- Call hold
- Inquiry/broker/conference
- Attended transfer
- Early attended transfer
- DTMF over-dialing RFC 2833
- Fax T.38 support
- Same integration with user and system call handling features available for ISDN trunks
- Authentication for outgoing calls/incoming calls

- Dynamic or static registration of OmniPCX SIP gateway to carrier SIP proxy (with or without authentication)
- Alternate SIP proxy through ARS
- SIP "keep alive" to SIP proxy
- Several SIP trunks/providers
- Call admission control (CAC) on SIP

Security

The OmniPCX Enterprise products and solutions are part of the global Alcatel-Lucent User-Centric (formerly CrystalSec) security polices and best practices framework (security-by-default strategy).

Global security certification
- Common criteria EAL2+ (ongoing in 2008)

Authentication
- IPBX server management
  - ¬ Local authentication database (password policy enforcement)
  - ¬ Remote authentication (RADIUS)
- Client/device (IP Touch) network access
  - ¬ IEEE 802.1X MD5/TLS

Traffic filtering
- IPBX server
  - ¬ Trusted hosts file
  - ¬ TCP wrapper function
- Client/device (IP Touch)
  - ¬ ARP spoofing protection
  - ¬ PC port switch VLAN filtering

Encryption
- IPBX server configuration mode:
  - ¬ SSHv2 for secure sessions (Telnet, FTP, etc.)
  - ¬ SSLv2/v3 for secure HTTP session
  - ¬ SNMP v1/v2c/v3 for complete NMS integration
- Client/device confidentiality (signaling protocol and media):
  - ¬ IPSec and Secure RTP(AES 128 bits)

Integrity
- Media gateway and IP Touch binaries signatures
- System maintenance and access
  - ¬ Dual port (hot standby mode)
  - ¬ Local and remote logging (syslog)
  - ¬ Serial console port for local and remote (call back modem dialup) access
  - ¬ Network time protocol (NTP) server and client for network-wide time synchronization

User authorization to communication services
- Call monitoring feature with Alcatel-Lucent Lucent OmniVista™ 4760 Network Management System (NMS)

- Internal toll fraud protection by class of services
- Definition of PIN codes for business or personal call
- Restricted access for transfer/forwarding barring categories
- Secure access to Direct Inward System Access (DISA) function

Management
- Centralized or distributed management
- Client-server architecture:
  - ¬ Client: Windows 2000 Pro®/Windows XP®/Windows 2003®/Windows Vista® operating systems
  - ¬ Server: Windows XP Pro®/ Windows 2003 operating systems
- Web-based management for full access

Configuration
- Moves, adds and changes
- Unified graphical interface
- Profiles for creation/modification
- Import/export from text files

Network maintenance
- Automatic backup and software download (communication server and passive communication server)

Faults and alarms
- Alarm filtering, actions on alarms
- Alarm list with colors according to severity
- Alarm real-time notification
- Alarm statistics

Topology
- Topology maps updated in real time with the alarms
- Drill down from the network view to the faulty board

LDAP corporate directory
- Automatic update with OmniPCX Enterprise
- Import/export in LDIFF
- Access through standard LDAP v3 clients
- Web directory with search and click-to-call

Call accounting
- Organization map
- Time-based cost calculation
- Carrier cost simulation
- Call tracking
- Predefined/customizable graphical reports

Performance
- Traffic analysis per: trunk, bundle, attendant/attendant group, on-site wireless installation, DDI number, group of users

VoIP performance
- Reports by IP domains and OmniPCX IP equipment (IP phones, boards)
- Reports on volumes and quality of service

MIB in OmniPCX Enterprise
The Alcatel-Lucent MIB extension offers:
- Global system information:
  - ¬ CPU role
  - ¬ Phone status
  - ¬ SIP set registration
- Information per IP Domain (corresponding to remote geographical site):
  - ¬ conference circuits counters
  - ¬ DSP resources (compressors) counters
  - ¬ Call Admission Control counters

Common reporting services
- Multiple graphical report formats (CSV, HTML, PDF, XML)
- Hitlist, summary and detailed reports
- Reports distribution by e-mail

Appliance Servers or Blade Centers
- Standard IBM eServer xSeries
- Standard IBM eServer Blade Center
- Standard HP ProLiant Appliance Server
- HP BladeSystem Blade Center

Racks

Alcatel-Lucent OmniPCX Enterprise RM1 (19-in. rack)
- 3 modular slots (stackable up to 3 with RM3)
- Takes optimized hardware modules (or/and e-CS communication server)
- Depth: 15.75 in. (400 mm)
- Height: 2.60 in. (66 mm)
- Width: 17.40 in. (442 mm)
- Weight: 22 lb (10 kg)

Alcatel-Lucent OmniPCX Enterprise M2 (cabinet)
- 1 ACT 28 or 2 ACT 14
- Depth: 10.04 in. (255 mm)
- Height: 29.13 in. (740 mm)
- Width: 22.44 in. (570 mm)
- Weight: 154.32 lb (70 kg)

Alcatel-Lucent OmniPCX Enterprise AC 14-in data rack format (19-in. rack)
- 48 V power supply and battery backup
- 1 ACT 14
- Depth: 15.09 in. (383.4 mm)
- Height: 10.41 in. (264.4 mm)
- Width: 19.15 in. (486.3 mm)
- Weight: 66.14 lb (30 kg)

Alcatel-Lucent OmniPCX Enterprise RM3 (19-in. rack)

- 9 modular slots (stackable up to 3 with RM1)
- Takes optimized hardware modules (or/and e-CS communication server)
- Depth: 15.75 in. (400 mm)
- Height: 6.06 in. (154 mm)
- Width: 17.40 in. (442 mm)
- Weight: 38 lb (17 kg)

Alcatel-Lucent OmniPCX Enterprise M3 (cabinet)

- 2 ACT 28 or 2 ACT 14
- Depth: 20.31 in. (516 mm)
- Height: 59.05 in. (1500 mm)
- Width: 22.4 in. (570 mm)
- Weight: 242.5 lb (110 kg)

Alcatel-Lucent OmniPCX Enterprise ACT 28 in data rack format (19-in. rack)

- 48 V power supply and battery backup
- 1 ACT 28
- Depth: 15.09 in. (383.4 mm)
- Height: 20.87 in. (530 mm)
- Width: 19.15 in. (486.3 mm)
- Weight: 154.3 lb (70kg)

International Directives and Standards

- EC Directives
- 94/9/EC: ATEX
- 1999/5/EC: R&TTE
- 1999/519/EC: SAR
- 2002/95/EC: ROHS
- 2002/96/E: WEEE
- 2004/108/EC: EMC
- 2005/32/EC: Ecodesign
- 2006/95/EC: LVD

Safety

- IEC 60950-1
- UL1950-1

SAR

- Cenelec EN50360
- Cenelec EN50385
- FCC 2.1093 and IEEE 1528

EMC

- IEC-CISPR22 Class B
- Cenelec EN55022 Class B
- FCC Part 15B
- IEC-CISPR24
- Cenelec EN55024
- IEC-EN61000-3-2
- ETSI-EN 301 489-06: DECT
- ETSI-EN 301 489-17: Bluetooth and WLAN

Radio

- ETSI EN 300 328-2: 2.4 GHz
- ETSI EN 301 893: 5 GHz
- ETSI EN 301 406: DECT
- FCC Part 15 Subpart C and D

EX Environment

- Cenelec EN 50014
- Cenelec EN 50018
- Cenelec EN 50019
- Cenelec EN 50020

Miscellaneous environments

- Cenelec EN 50121-4: Railway applications
- IEC 60945: Maritime

Environmental conditions

- ETSI – ETS 300 019 Part 1-1: Storage
- ETSI – ETS 300 019 Part 1-2: Transportation
- ETSI – ETS 300 019 Part 1-3: In Use

Telecom

- ETSI EG 201 121
- ETSI TBR 021
- ETSI TBR 010
- ETSI TBR 022
- ETSI TBR 003
- ETSI TBR 033
- ETSI TBR 004

- ETSI TBR 034
- ETSI TBR 008
- ETSI TBR 038
- ITU-T H.323
- FCC Part 68
- Canada CS03

Over voltage and over currents

- ITU-T K.21
- ITU-T K.22

Application partner interfaces (AAPP program)

- XML Web Services
- CSTA
- TSAPI Premium Server
- TAPI Premium Server
- DR-Link
- Info Center
- RTI
- WMI
- Alcatel-Lucent Hospitality Link
- CDR
- VPS
- OmniVista 4760 Tickets Collector
- OmniVista 4760 VoIP Performance Tickets Collector
- SIP
- QSIG
- Paging Interface

CONCLUSION

Alcatel-Lucent is committed to helping large enterprises optimize their networks and services, generate new business, and further their competitive advantage.

Alcatel-Lucent is a global provider of corporate communication products and solutions. As such, our customers can choose to benefit from simplified one-stop shopping, rather than having to buy multiple products from various providers or vendors. Furthermore, we have prepared pre-bundled solutions that carefully correspond to enterprise business user profiles, so that large enterprises can quickly and easily select solutions that are relevant to their users. Finally, our solutions are specifically tailored for individual organizations. In this way, companies can remain at the cutting edge of technology with tools that evolve and grow to match their changing needs and business demands.

In addition to corporate solutions, Alcatel-Lucent has developed a whole range of services that are complemented by our business partners' offers. We are committed to helping large enterprises successfully implement new services, rapidly improve business processes, and achieve predictable and fast ROI.

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