FEATURE LIST

OmniPCX RECORD Release 2.4

Legal notice

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Contents

1 Document History

Edition	Date	Changes / Comments / Details
1-12	19 July 2013	Initial document Produced for Release 2.2
13	03 Oct 2013	New edition that includes new 2.3 features & functionality
14	15 Nov 2013	Added statement specifying solution supports a maximum of 3 parties in any one conference call
15	25 Nov 2013	Updated Storage device details to include NAS Added new section on restraints and recommendations
16	10 Dec 2013	Corrected Warm Standby Synchronization period
17	04 Feb 2014	- Removed statement saying Screen Capture calls will be blank when call is put on hold, as this is no longer the case. Held Screen Capture Calls are now recorded - Amended Recording Features to expand on Alert email - Added fact that call recording can now be instigated during Silent Monitoring - Amended Quality Monitor to state that Encrypted calls are now played using the configurations from OPCXR - Added new Warm Standby failover scenario
18	11 Feb 2014	Renamed MSM Supplement - Thales Encryption Added note specifying maximum number of channels that can be recorded in an encrypted environment
19	11 Mar 2014	Added statement to IP & TDM Recording supplements explaining that calls can be split into two separate files
20	28 Mar 2014	Updated storage settings to state that shared folder locations are supported Amended Recorder Warm Standby Scenario 3, so that is no longer includes manual reset of backup server
21	7th April 2014	Added new Document Reference to footer Added new Warm Standby Scenario
22	8th Oct 2014	Added details on number of supported satellite sites.
23	24th Oct 2014	Updated details relating to Packetizer selection process Updated Example 4 of OPXR Warm Standby
24	26th Nov 2014	Added new Watchdog Feature
25	15th Dec 2014	Added new Warm Standby example scenario
26	16th Jan 2015	Added supplement to Call Recording Features, to include breakdown of files generated for Held & Conference calls. Added section on 'System Traces'

27	19th Feb 2015	**Section 6.1.3** Included statement for Support using HTTPS **Section 6.1.12** Renamed Watchdog to Activity Monitor. **Section 6.2.7** Added ICS and OTMS Support for PRS **Section 6.2.8** Added ICS and OTMS Support for PRS **Section 6.2.9** Updated to include OXE tone used for beep during recording. **Section 6.3.7** Correction NTCS → NTFS **Section 6.3.7** Added note specifying that a low disk space email alert will be sent when disk **Section 6.3.11** New Section – Pre-License Generator **Section 7.5** Updated the Attendant Recording diagram to include Secondary Server and added an example failover scenario for the Console Recording Agent **Section 7.6** Replaced 'Calls will be lost' with 'Recordings will be lost' **Section 7.14** Included new addendum item stating that calls cannot be recovered if the password used for encryption is lost. Added bullet point stating that the Activity Monitor can be run on an External PC space gets low **Section 7.19** Added statement on using Microsoft Media Player with Firefox. **Section 7.21** New Section - Supplement for Silent Monitoring
28	16th Mar 2015	**Section 6.1.5** Included statement explaining that recordings can be played if they are still present in the archive location. **Section 6.2.4** Added maximum IP Attendant Restriction (25) **Sections 6.3.1, 6.3.8, 7.11** Replaced OmniPCX Coach with Quality Monitor **Section 6.4.2** Added statement explaining that encryption can be switched on/off and that this will not affect existing recordings. **Section 6.5.1** Included a note stating that Screen Capture does not support Remote Desktop or Terminal Services **Section 7.5** Added Record on Demand restriction for IP Attendant Recording

29	26th May 2015	**Section N/A** General Grammar Corrections **Section 6.2.4** Included encryption support for IP Attendant Recording. **Section 6.2.10** New Section covering Multi-Line Recording **Section 6.5.1** Added statement explaining that Screen Capture captures the screen approximately every 1 second. **Section 7.6** Replaced example 4 with example 5. **Section 7.11** New Supplement Section for Multi-Line Recording **Section 7.20** Added note with explanation of a new background call graph service which has been added to handle complex high performance solutions.

30	24th August 2015	**Section N/A** Updated Legal notice **Section N/A** Updated footer copyright **Section N/A** Updated header logo **Section N/A** Last page URL changed **Section 6.1.1** Added a note stating that Client PC supports windows 8.x for screen capture & Quality monitor **Section 6.1.5** Added a note explaining that OmniPCX Record will only archive 5000 calls **Section 6.1.8** Updated the entire section to reflect all the reports **Section 6.1.11** Added a new point stating that in multi-node environment maximum of 8 OmniPCX RECORD can be declared in an OXE **Section 6.1.13** Updated Traces section to describe the new functionality **Section 6.2.1** Added a note stating that only 1 file will be created **Section 6.3.8** Added support for SQL server 2014 **Section 6.3.9** Added support for Hyper-V & EXSI **Section 6.4.3** Updated title with Call purge/export facility (Manual & Automatic) and added new points Added a note stating that performing export will only copy the files to the desired location **Section 7.6** Updated RWS diagram New point added explaining the replication process Added new example 3 **Section 7.8** Example number have been made consistent Added a new points to list PCS recorder Added a note referring Admin guide for configuring PCS recorder Added a note stating that PCS recorder licenses are operated like recorder warm standby mode Limitations added for PCS recorder **Section 7.9** Added support for SQL server 2014 **Section 7.11** Removed note stating that maximum of 8 OmniPCX RECORD can be declared in an OXE Summarized the entire section
31	09/10/2015	**Section 6.1.11** Added a note that in multi-node environment OmniPCX RECORD can support a declaration of 8 OXE connections **Section 6.3.3** Added a new point stating that G722 codec is not supported **Section 7.11** Removed a note that in multi-node environment OmniPCX RECORD can support a declaration of 8 OXE connections **Section 7.20** Added a note with explanation that OMNIPCXRecordMixing service is used to mix the recorded media streams

32	26/10/2015	**Section 5** Updated screenshot **Section 6.3.8** Added note describing the average activity usage for SQL **Section 7.5** Removed a note stating that ROD is not supported will IP attendant Added a note that the number of available records will depend on the number of times the attendant puts the call on hold. **Section 7.6** Example 6 validated **Section 7.14** Updated screenshot **Section 7.18** Updated screenshot **Section 7.19** Updated screenshot **Section 7.21** Added additional search criteria
33	20/01/2016	**Section 6.1.9** Updated to add Ignore on demand function for API **Section 7.6** Example 6 validated **Section 7.18** Updated screenshot & description
34	07/03/2016	**Section 6.1.11** Validated a point that OmniPCX RECORD supports up to 8 OXE connections. **Section 6.3.8** Removed a note and replaced licenses with recorded extensions **Section 6.3.9** Updated EXSI version **Section 6.6** Updated Feature availability matrix **Section 7.8** Renamed Limitations for Passive Call server recorder to Limitations for Satellite recorder Added two limitations that Passive Call Server does not support warm standby and multi-node environment Added a point that two types of OmniPCX RECORD satellites are recorded by OmniPCX RECORD; OXE node satellite and Passive Call Server satellite.

35	1/07/2016	**Section 6.1.9** Updated API functions list **Section 6.1.14** New section for Credential Management Assistant (CMA) **Section 6.1.15** New section for Database Management Utility **Section 6.1.16** New section for RADIUS Server Authentication **Section 6.1.17** New section for Active Directory Authentication **Section 6.2.6** Updated list of options for recording filters **Section 6.2.7** Added information regarding pause & resume feature for ROD **Section 6.4.1** Added information regarding new password expiry option Added information regarding default OmniPCX RECORD admin password and password related options can now be amended **Section 6.5.3** Added a note regarding secondary server restart **Section 6.6** Replaced IIS Updator Tool with Credential Management Assistant (CMA) **Section 7.20** Added information regarding hold/retrieve feature along with the screenshot. **Section 7.17** Updated screenshot for recording policies. **Section 7.21** Updated list of search criteria options **Section 7.23** New section for Credential Management Assistant (CMA) **Section 7.24** New section for Database Management Utility (CMA) **Section 7.25** New section for RADIUS Server Authentication **Section 7.26** New section for Active Directory Authentication

36	25-09-16	**Section 6.1.1** Windows 10.x has been added in the note. **Section 6.1.6** Heading has been changed to Search Calls as this section describes search call facility only. **Section 6.1.10** Heading has been renamed to SNMP Traps & Server Incidents. Details have been amended under this section and in the related technical supplement. **Section 6.1.11** IP-DSP has been added. **Section 6.1.18** New section added for multi tenancy. **Section 6.1.19** New section added for enhanced email templates. **Section 6.1.20** New section added for records audit. **Section 6.1.21** New section added for RTP collection during OXE switchover. **Section 6.1.22** New section added for in-progress calls status. **Section 6.1.23** New section added for console recording agent without port mirroring. **Section 6.1.24** New section added for new table for archived calls. **Section 6.1.25** New section added for archived CDR transfer utility. **Section 6.2.9** Comment about various emails has been replaced with the new SNMP Traps & Server Incident feature **Section 6.6** Feature availability matrix has been updated. **Section 7.1** Heading has been renamed to SNMP Traps & Server Incidents. Details have been amended. A note has been added about traps and incidents. **Section 7.5.1** New section for IP Attendant with port mirroring with updated screenshot. **Section 7.5.2** New section for IP Attendant without port mirroring with updated screenshot. **Section 7.6** Example 1 and Example 3 have been updated. **Section 7.9** Information about databases has been updated. **Section 7.20** Screenshots have been updated. **Section 7.27** New section for technical supplement for multi-tenancy Section 7.28 New section for technical supplement for email templates
37	17-01-2017	**Section 6.2.1** Details have been added about how attendant recording works with both with and without port mirroring. **Section 7.2** Details have been added about how attendant recording works with both with and without port mirroring. **Section 7.5.2** Details have been amended.

38	15-02-2017	**Section 7.1.9** Two new functions have been added in the SOAP API features list. Detail about REST API and features has been added. **Section 7.1.17** A new bullet point has been added about active directory container support. **Section 7.1.24** Details have been updated for REST API as well. **Section 7.1.26** New section for new call on pause feature. **Section 7.2.1** A new bullet point has been added about SIP recording. **Section 7.2.6** Criteria list has been updated. **Section 7.2.11** New section for SIP recording. **Section 7.3.10** Removed Mikogo and added GotoMeeting in the recommended remote access software list. **Section 7.4.1** A correction has been made for number of failed login attempts. The account will be disabled after 7th failed login attempt. **Section 7.4.4** REST API is also mentioned along with the SOAP API. **Section 7.4.5** REST API is also mentioned along with the SOAP API. **Section 7.6** New features have been added to the feature availability matrix. Console recording agent without port mirroring has been renamed as console recording agent without port mirroring (IP-DSP). API Connectivity has been replaced with SOAP API Connectivity. **Section 8.10** Description has been amended. **Section 8.12** Unit information for SIP audio, SIP video and REST API. **Section 8.17** Detail about system level filters and user level filters has been added. **Section 8.26** Information has been added regarding active directory containers. **Section 8.27** An important note has been added for user friendly urls. An important note has been added about the REST API. **Section 8.29** New section for SIP not on DR-Link recording. **Section 8.30** New section for REST API information.
39	15-06-2017	**Section 7.1.9** Note has been updated that SOAP API will remain supported till 2022 but only for bug fixing. **Section 7.1.10** Details about incidents have been amended. **Section 7.1.26** A comment has been added that new call on pause is not supported for screen capture calls. **Section 7.2.4** Added information that ip attendant can be recorded by using port mirroring and RTP redirection methods simultaneously. Added a comment that it supports virtual environment and thales encryption but only with RTP redirection. **Section 7.2.11** Details about SIP have been amended along with SIP server HA behavior.

		Added that it doesn't support screen capture. **Section 7.3.1** Details about adding a regular OmniPCXRecord to the same OXE have been added. **Section 7.3.3** Information about codecs, MP3 stereo and other mono formats have been added. **Section 7.3.11** New section for trial license. **Section 7.4.2** Added a point that encryption is not supported for MP3 format. **Section 7.5.3** An important note has been added that OS must be identical on both primary and secondary servers for warm standby. **Section 8.2** Added information that ip attendant can be recorded by using port mirroring and RTP redirection methods simultaneously. **Section 8.8** Passive Call Server mode supports IPDR, DR, screen capture, silent monitor, encryption and multi-tenancy and REST API. **Section 8.15** Details have been added that if a file is tempered then a warning message will be displayed during call playback. **Section 8.27** A note has been added that SOAP API will remain supported till 2022 but only for bug fixing.
40	15-09-2017	**Section 7.1.10** Details have been added for select/unlselect incidents per category for email and SNMP Trap. **Section 7.1.27** New section for wrap-up time. **Section 7.1.28** New section for custom field for historical calls. **Section 7.2.11** Details have been updated that SIP not on DR-Link now supports silent monitor. Details have been update that SIP not on DR-Link does not support VM. A note has been added about SIP device & SIP extension. **Section 7.3.4** The heading is changed to screen capture image file size so that it is not mistaken for the actual screen capture video file size. **Section 7.3.8** SQL Server 2016 has been added to the list. **Section 7.3.13** New section for video file sizes recorded by SIP server. **Section 7.4.2** Added that encryption is not supported for SIP not on DR-Link. **Section 7.5.1** Details have been amended that screen capture server now supports terminal services. **Section 7.6** Update custom fields for historical calls has been added. **Section 8.13** Details have been added for ESXi 6.5. **Section 8.14** Screenshot has been updated. A note has been added that this screen refreshes in 5 seconds. **Section 8.18** Screenshot has been update. **Section 8.19** Screenshot has been update.

		Section 8.21 Details have been amended for search call options. Screen capture calls is replaced by video calls and a new option recording interface has been added. **Section 8.31** New supplement section for screen capture. **Section 8.32** New supplement section for wrap-up time.
41	15-12-2017	**Section 7.2.12** New section for Trunk Side Recording. **Section 7.3.3** An important note has been added that VAD is supported with G711. **Section 7.4.5** Details have been updated that online recording actions feature only works with IPDR calls. **Section 7.5.1** Details have been updated. Information has been added screen capture now supports terminal services. **Section 7.6** Added Trunk Side Recording in the feature availability matrix. **Section 8.12** Unit information for Trunk E1 and Trunk T1 has been added. **Section 8.13** There was a typo. Now vRAM Requirement has been replaced with vRAM Reservation. **Section 8.19** An important note has been added that recording action screen will only appear if a user has enable recording action permission. **Section 8.31** Detailed information has been added with various examples about screen capture calls. **Section 8.32** As section 8.31 has been updated that covers possible scenarios for screen capture so previous examples in this section have been removed. **Section 8.33** New section for trunk side recording feature set.
42	15-03-2018	**Section 7.1.9** List of SOAP API methods has been updated. **Section 7.1.29** New section for four-eyes principle. **Section 7.1.30** New section for multiple OmniPCX RECORD databases on the same SQL Server. **Section 7.1.31** New section for multi DR-Link support **Section 7.2.11** SIP recording with port mirroring now supports virtual environment. SIP recording with port mirroring does not support encryption. **Section 7.6** Feature availability matrix has been updated. **Section 8.1** New incidents/snmp traps for trunk recorder have been added. **Section 8.29** SIP messages and tags have been updated. **Section 8.33** Feature set for trunk recorder has been updated. **Section 8.34** New supplement section for four-eyes principle. **Section 8.35** New supplement section for Supported Codec's & Sample Recording Sizes

43	15-06-2018	Legal notice has been updated. Page footer has been updated with the latest logo information. SIP recording has been replaced with SIP Extension Recording and Trunk Side Recording has been replaced with ISDN Trunk Recording throughout the document. **Section 7.1.7** Repeat option for OmniPCX RECORD player has been added. **Section 7.1.32** New section for associated SIP tag. **Section 7.2.1** New recording interfaces have been added. **Section 7.2.4** IP Attendant now supports VM with both port mirroring and rtp redirection IP Attendant does not support Thales encryption. **Section 7.2.13** New section for Branch Office. **Section 7.2.14** New section for SIP Trunk. **Section 7.3.1** New recorders have been added. **Section 7.6** Feature availability matrix has been updated. **Section 8.2** SQL server 2016 has been added. **Section 8.5** Detail about VM and NICs have been added. **Section 8.2** SQL server 2016 has been added. **Section 8.12** SIP Trunk unit cost has been updated. System capacity for 20 units has been added. **Section 8.20** Screenshot has been updated. **Section 8.29** Detail about VM and NICs have been added. **Section 8.33** Feature set matrix has been updated. Future release column has been removed. **Section 8.35** Matrix for stereo recording has been updated. New matrix for SIP Trunk has been added. **Section 8.36** New supplement section for branch office. **Section 8.37** New supplement section for SIP trunk
44	15-09-2018	**Section 7.1.32** Added that both SIP extension and SIP trunk are supported for SIP tag association. **Section 7.2.4** Added details that IP attendant doesn't support native encryption and it support thales encryption but only with RTP redirection **Section 7.2.9** Random recording has been removed as it's now available in purging utility. **Section 7.2.14** Added that IP Attendant supports ROD, IOD, SLF and ULF. **Section 7.2.15** New section for branch office warm standby. **Section 7.2.16** New section for branch logger license.

		Section 7.6 Feature availablity matrix has been updated. **Section 8.38** New supplement section for speech analytics
45	15-12-2018	**Section 7.2.4** Added that screen capture is supported for IP Attendant for RTP redirection and port mirroring. Admin guide reference has been replaced with hardware software specification guide. **Section 7.2.18** New section for custom error page. **Section 7.2.19** New section for recording beep alert in silent monitored calls. **Section 7.2.20** New section for trunk groups, boards and equipment. **Section 7.3.3** Detail about WAV and MP3 has been changed. **Section 7.6** Feature availablity matrix has been updated. **Section 8.35** Detail about WAV and MP3 has been changed. Matrix for stereo recordings has been updated.
46	15-03-2019	**Section 7.1.9** Get SIP Trunk Server Status has been added to the SOAP API list. REST API feature list has been updated. **Section 7.1.10** MIB file path has been updated. **Section 7.2.9** An important note has been added about beep. **Section 7.2.11** An important note has been added about the number of calls that will be recorded when a call is made between SIP Extension (Not on DR-Link) to SIP Extension (On DR-Link). **Section 7.2.16** Detail about branch logger license has been updated. **Section 7.2.21** New section for search restuls grouping. **Section 7.2.22** New section for limited user management. **Section 7.2.23** New section for email notification for a recorded call. **Section 7.2.24** New section for virtual device. **Section 7.6** Feature availablity matrix has been updated. **Section 8.1** Traps and server incidents list has been updated. **Section 8.12** Unit specification has been updated. **Section 8.17** Details about user level filter has been updated. **Section 8.21** Recording rule option has been added.
47	15-06-2019	**Section 7.1.33** Virtual device sub section been moved to general feature section. **Section 7.1.34** New section about audit log search utility. **Section 7.1.35** New section about email snooze.

		Section 7.2.9 An important note has been added about beep generation. **Section 7.2.19** Details have been updated for recording notification type option. **Section 7.2.23** Detailas have been updated regarding the email notification for a recorded call option as recorded call will be sent via email as attachment. **Section 7.2.24** New section for updating multiple agents. **Section 7.2.25** New section for default landing page. **Section 7.2.26** New section for speech analytics attributes against each call in search results. **Section 7.2.27** New section for incident settings. **Section 7.3.3** File sizes have been updated. **Section 7.6** Feature availability matrix has been updated. **Section 8** Incident and traps table has been removed. Please see Admin guide for more information.

2 Disclaimer

Call recording is subject to local rules and regulations. Any individual or organization considering call recording, should seek legal advice about its use in their country or state.

3 Glossary of Terms

CSTA	➤	Computer Supported Telephonic Application (CTI)
IIS	➤	Internet Information Server
OXE	➤	OmniPCX Enterprise (PBX)
PBX	➤	Private Branch Exchange
PRS	➤	Presentation Server
RWS	➤	Recorder Warm Standby
SMTP	➤	Simple Mail Transfer Protocol
SNMP	➤	Simple Network Management Protocol
TCP	➤	Transfer Control Protocol
TDM	➤	Time Division Multiplexing (Digital and Analogue)
UC	➤	Unified Communications
UDP	➤	User Datagram Protocol
VoIP	➤	Voice over Internet Protocol

4 Introduction

OmniPCX RECORD is a comprehensive Call Recording solution that is specifically designed to operate alongside the Alcatel-Lucent OmniPCX Enterprise telephony PBX.

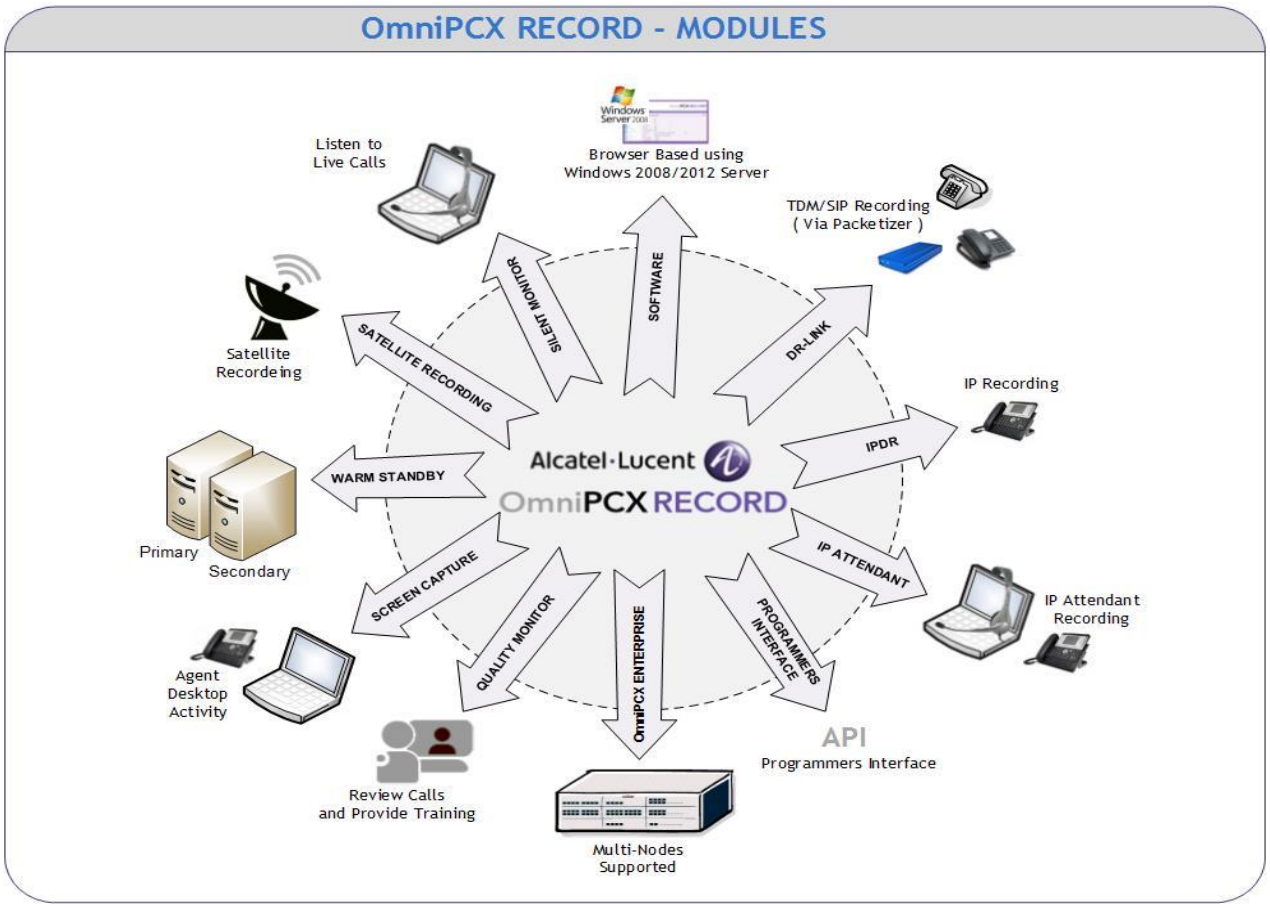
The product includes all of the features you would expect from a call recorder. However, due to seamless integration with the OmniPCX Enterprise, it also incorporates additional features that specifically enhance the Alcatel-Lucent proposition.

This document aims at providing:

- A list of the features available within OmniPCX RECORD, that will greatly assist in providing pre-sales information when communicating with customers or producing a tender.
- A detailed description of how the various components interact together within their environment.

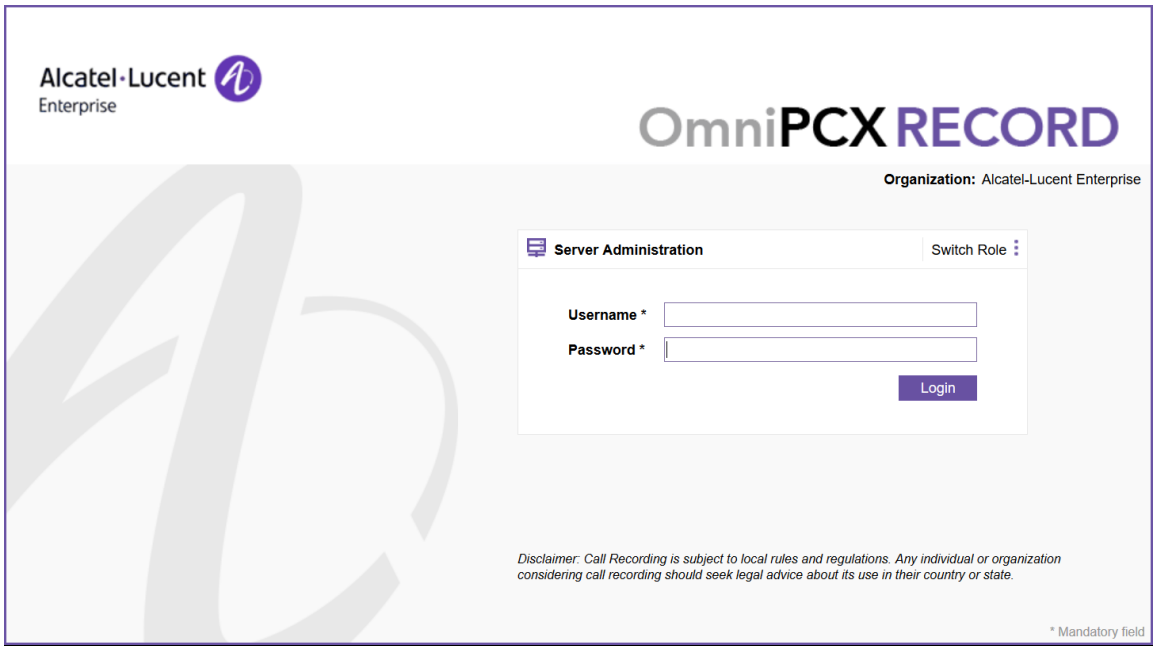
5 Product Overview

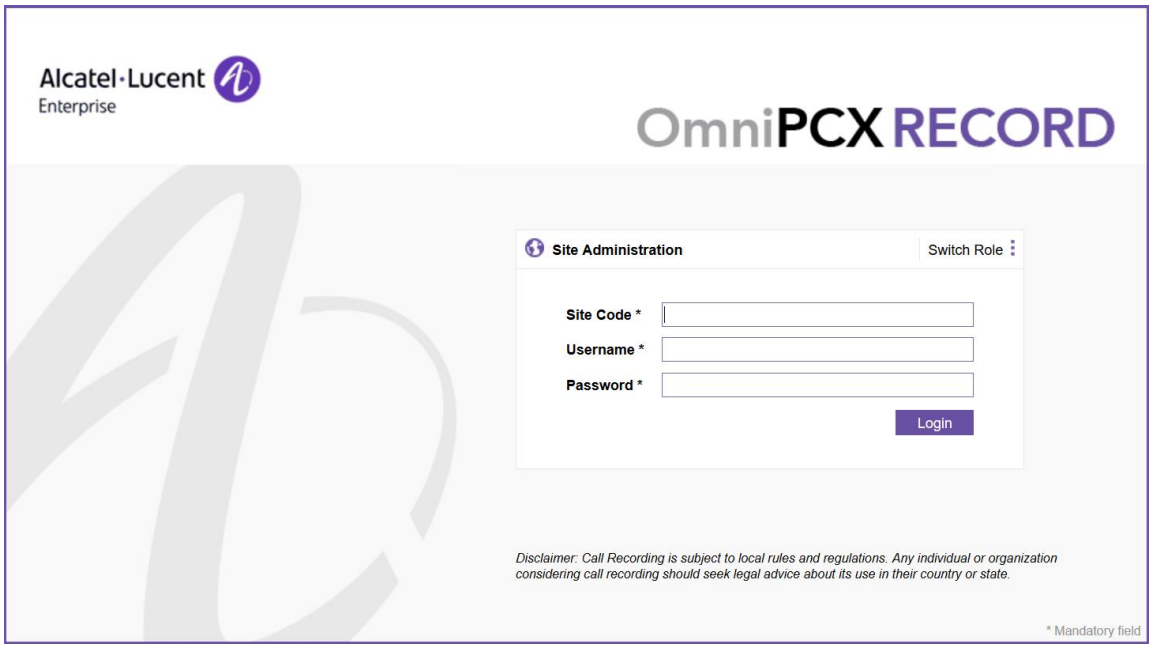
The OmniPCX RECORD suite is a modular product. In addition to the base recording methods, the product includes many additional modules, such silent monitor module; Screen Capture; Quality Monitoring; Scoring and coaching.



6 Product Interface

To provide ease of access, OmniPCX RECORD has been developed as a Browser Interface. This ensures that the software & its features can be accessed from any PC both locally and remotely. With the introduction of multi-tenancy, the web interface is divided into two portions. Server administration and site administration.





7 Product Features

7.1 *General Features*

7.1.1 Windows Based Application

- Windows Server (Required for the OmniPCX RECORD Server)
- Windows Client (Required for the OmniPCX RECORD Screen capture client)

OPCXR has been built to run in a Windows Environment, however, the Administration & User interfaces are browser based and can therefore be accessed from any client PC.

Note: Client PC supports Windows 8.x and Windows 10.x 32Bit & 64Bit for Screen capture & Quality Monitor

7.1.2 Modular based application

- Recorder
- Screen Capture
- Silent Intrude/Monitor
- Quality Monitor
- Encryption
- IP Attendant Recording

OPCXR has been built in modules to accommodate a single office to a sophisticated call centre, including screen capture, scoring and coaching of agents. A silent monitor feature allows supervisors to monitor on live calls in real time.

7.1.3 Browser-Based Interface

- Central Administration
- Configuration Management
- Supervisor Access
- Agent Access
- Silent Monitoring
- Record On Demand
- Pause & Resume Recording
- Call Searching & Playback
- Supports access using HTTPS

OmniPCX RECORD is a browser based application. This enables the majority of its features to be accessed from any PC, both locally or remotely if required.

7.1.4 Teams and Agents

- Create Teams
- Create Agents
  - Import and Export Agents
- Apply access rights to agents
- Assign agents and supervisors to multiple teams
- Supervisors can access calls for their agents

Within OmniPCX RECORD you can create a hierarchy of teams, agents and supervisors. Each agents or supervisors can be assigned to one or more teams and supervisors can access calls made by agents assigned to their team.

7.1.5 Archiving

- Move calls to an archive location ready for back-up
- Call Data remains in the database, for easy identification
- Create jobs to identify which calls to archive
- Job scheduler for archive utility
- Archived calls can still be accessed providing the physical recording is present in the archive folder.

Archiving, not to be confused with back up, is the ability to move and group the call files to a another location ready for back up. The call identifier or header is still visible in the database for easy retrieval.

7.1.6 Utility Search Calls - view supplement

- Comprehensive Search Facility
- Search using multiple fields
- Build & Saved Search Criteria

OPCXR offers comprehensive searching criteria, allowing users to locate calls quickly. The

Search Criteria are built dynamically using a wide range of available data and can be saved so that they are on hand for future use.

7.1.7 OmniPCX Record Player - View Supplement

- Play
- Play all
- Play selected
- Download CDR
- Download File
- Email File
- Notes
- Do not archive
- Decrypts encrypted files
- Play list
- Visual voice graph
- Bookmarks
- Fast Forward X2, X4
- Forward
- Rewind
- Jump to next call
- Jump to previous call
- Audio controls
- Multiple visual modes
- Call slider to jump back and forth within the call
- Repeat (on/off) – To play the selected call(s) repeatedly.

OPCXR uses an embedded media player to play back video & audio calls via the user's PC speakers or headset. The media player has been adapted so that it is automatically present as part of the user's browser application and has been enhanced with several OPCXR specific features.

7.1.8 System Reporting

- System Usage reports
- Archiving reports
- On-Demand Recording report
- Retroactive On Demand Recording report
- From Now Calls Report
- Total Recording report
- Recording
- Monthly Usage Report
- Call analysis Report
- License exceeding Limits

- Total Recording Report By Extension
- Call Status
- Call Detail Status

OPCXR includes several reports that provide a wide range of statistics. Each report can be viewed based on a date & time period, each report can be configured prior to running the report and can also be assigned a company logo. Additionally, some reports also include a graphical representation of the statistics being viewed.

7.1.9 API Connectivity – View Supplement

OmniPCX RECORD offers two types of Application Programmer's Interfaces as follows:

- SOAP API

- REST API

The OPCXR Application Programmer's Interface allows third party applications to communicate with the recorder suite. These are easily available through Web Services.

The features available via the OmniPCX RECORD SOAP API are currently as follows:

- Get Call Comments
- Get Call Flags
- Get Call ID Information
- Get Correlator ID Information
- Pause Recording
- Pause Audio Recording
- Pause Video Recording
- Record Entire Call (Record On Demand)
- Record From Now (Record On Demand)
- Resume Recording
- Resume Audio Recording
- Resume Video Recording
- Search Calls
- Update Search Field Value
- Get Server Status
- Update Call Information by CSTA Call Id
- Ignore Call (Ignore On Demand)
- Get Call Ports
- Record Both Parties
- Record External Party Only
- Record Internal Party Only
- Get File URL

- Is Recording Started
- Silent Monitor Recording
- Get Nodes Information
- Get Packetizer Information
- Get Temporary File URL
- Get Call Playback URL
- Get All Flags
- Update Search Field by Id
- Get SIP Server Status
- Get Trunk Server Status
- Get SIP Trunk Server Status

Note: Please refer the OmniPCX RECORD SOAP API Guide for detailed information.

The features available via OmniPCX RECORD REST API are currently as follows:

- Packetizer Configuration
- System Settings
- Server Permission
- Server User Configuration
- Traces Configuration
- Site Settings
- Device Configuration
- Team Configuration
- Site Permission
- Site Agent Configuration
- Call Flags Configuration
- System Level Filters
- User Level Filters
- Live Actions
- Live Calls
- Live Calls Operations
- Calls
- Search Recorded calls
- Add Notes
- Get Notes
- Assign Call Flags
- Remove Call Flags
- Get Call Flags
- Update Call Details Field
- PBX Configuration
- Trunk Group
- Board
- Equipment
- SIP Trunk
- Server Status

- Speech Analytics
- Archive Schedule
- Archive Job
- Default Recording Actions
- System Level Rule Configuration
- Custom Fields
- Branch
- Send Branch Email
- Recording Transfer Settings
- Storage Settings
- PRS Settings
- Recorder Settings
- Authentication Settings
- SNMP Settings
- SMTP Settings
- Email Template
- Tenant Configuration
- Site Configuration
- Server Incidents
- Event
- Module
- Change Password
- Recording Status for Live Calls
- Call ports for live calls
- Calls Count
- CDR Fields
- Recorded File URL
- Recorded File Playback URL
- Search Recorded Calls By Global Call ID
- Search Recorded Calls By Call ID
- Search Related Calls

Example: If your agent's day to day activities are based on a sales order solution, the API could be used to implement a pause recording button on the payment screen so that recording can be paused when credit card details are being taken. As the API works in conjunction with the system settings, should the agent forget to resume recording, recording will automatically resume after a predetermined period.

IMPORTANT: Please note that there is a license associated with the new REST API. Also, SOAP API will remain supported until 2022 but only for bug fixing (no enhancements).

7.1.10 SNMP Traps & Server Incidents

- Enables Monitoring of the system health & status

The OPCXR SNMP feature enables the system administrator to trap health, status & general messages that are broadcast by OmniPCX PCX RECORD. SNMP Traps feature was introduced in early releases of OmniPCXRecord.

In a typical SNMP set up, one or more of the administrative computers have the task of monitoring or managing a group of hosts or devices on a computer network. Each managed system (also called a Slave) executes, at all times, a software component called an agent (see below) which reports information via SNMP messages to the managing systems (also called Masters).

Essentially, SNMP agents expose management data on the managed systems (Slaves) as variables (such as "free memory", "system name", "number of running processes", "default route"). But the protocol also permits active management tasks, such as modifying and applying a new configuration.

The agent (which is on the Slave) will send data without being asked, using TRAP protocol operations to the managing system (Master). The monitoring operations are usually performed on a regular basis.

The variables accessible via SNMP are organized into hierarchies. These hierarchies, and other metadata (such as type and description of the variable), are described by Management Information Bases (MIBs). If you have installed this application in C: drive, then you can load the MIB file from the following location:

…\OmniPCXRecord Suite\Server\SNMP MIBS

The SNMP protocol operates in the Application Layer of the Internet Protocol Suite (Layer 7 of the OSI model). Typically, SNMP uses UDP ports 161 for the agent and 162 for the manager. The manager may send requests from any available source port, to port 161 in the agent (destination port). The agent response will be returned to the source port. The manager typically receives notifications (TRAPs and INFORMs) on port 162. The agent may generate notifications from any available port.

Previously, OmniPCXRecord used to send notifications via email and system related error messages via SNMP traps. The restriction was that email alerts were only available for the following scenarios:

- Low disk space
- Agent desktop inaccessible in screen capture
- License limit reached

All other critical information was only available via SNMP Traps.

All notifications & error messages are available in the form of incidents. The incidents are categorised in the following categories:

- Critical Error

- Error

- Information

- Warning

The system will display a counter of unread incidents in the left hand panel in front of the Server Incident link.

The system now provides the facility to the server administrator to subscribe to any incident for email or SNMP trap or both. There are two ways to subscribe to incident(s). First is to subscribe to an incident before it occurs which means to configure the system to send notifications in case of any incident happens. The other method is to subscribe to an incident after it happens. Both methods are useful depending on the requirements of a site. When an incident is subscribed then the system will send a notification via email or SNMP trap or both (depending on your selection at the time of subscription) as soon as that incident occurs. All incidents for a particular category can be subscribed via select/unselect all checkboxes with Email and SNMP Trap columns.

In the same way, the subscription can be disabled by unsubscribing a particular incident.

The incidents subscribed on primary server will be replicated on secondary server. However, like any other replicated settings, there will be no option to edit the incidents on secondary server.

Note: Please note that all SNMP traps are now available as incidents but there are few incidents which are not available as SNMP traps.

7.1.11 System Restraints & Recommendations

General

- Customers can install windows *security* updates anytime, without prior Alcatel-Lucent validation.
- For any optional patch, .Net Framework and SQL patches, customer shall previously ask for Alcatel Lucent validation (through e-SR), Alcatel-Lucent will give its recommendation with a 3 weeks delay.
- In a multi-node environment, 1 OmniPCX RECORD supports up to 8 OXE connections. Maximum number of PCS-recorder is defined by the maximum number of Satellite recorders, as PCS-recorders must be declared as Satellite recorders.

Conference Recording

- OmniPCX RECORD currently only supports a maximum of 3 parties in any conference call

IP Attendant Recording

IP Attendant Recording will only work with the following handsets:

- 4059EE IP Attendant with a physical 4068, 4038, 4028, 4018, 8068, 8038, 8028 & 8018 phone
- 4059EE IP Attendant with an embedded soft phone

7.1.12 Activity Monitor

- Monitoring of the system recording location for new recording activity
- Can be run on the OmniPCX RECORD server or a separate client PC

The Activity Monitor connects to OmniPCX RECORD and monitors recording activity. If no new recorded calls appear within a pre-configured set period, the Activity Monitor will generate a pre-configured email alert to a designated email address which is also configurable.

7.1.13 System Traces

- Traces all activities performed by the OmniPCX RECORD Server on a second by second basis. The trace files produced provide highly detailed information in order to assist when trying to identify a wide range of faults or external problems that may be affecting the recorder.
- System traces has two modes, i. Restricted mode, ii. Unrestricted mode
- Restricted mode offers restricted log growth by configuring the maximum file size and the number of files option.
- Unrestricted mode offers traces generation on hourly basis. (1 file log per hour for each OPXR Service). In addition traces are backed up automatically on a daily basis to a user specified location.
- When experiencing issues, a snapshot of the traces can be taken at any point during the day with the simply click of a button.
- When experiencing issues, the system administrator can insert a marker into the trace file at the click of a button, making it easy when reviewing the traces to identify the moment an issue occurred.
- The trace details can be increased/reduced according to requirement.
- Can be configured to automatically delete traces older than ‘x’ days.

Even the most comprehensive software solutions have the occasional problem. Software issues with OmniPCX RECORD can happen for numerous reasons. Many of these are nothing to do with the product itself but instead caused by external 3rd party factors. However, in the unlikely event that OmniPCX RECORD experiences an issue, the System traces can help quickly identify and resolve issues efficiently.

7.1.14 Credential Management Assistant – View Supplement

- Updates credentials for account associated with OmniPCX RECORD web application in the required areas in IIS
- Updates account credentials associated with all OmiPCX RECORD related services

Credential Management Assistant has replaced the previous IIS updator tool. This tool can be used to update account credentials associated with both IIS and windows services for OmniPCX RECORD.

7.1.15 Database Management Utility – View Supplement

- Upgrades the database when OmniPCX RECORD release upgrade is performed
- Provides the ability to rebuild indexes
- Provides the ability to perform database backup and restore procedure
- Provides the ability to run SQL statements
- Record audit

Database Management Utility is a tool specifically designed to support OmniPCX RECORD release upgrade and notify the user in case of anything is missed during database upgrade process. This tool also helps in rebuilding the indexes, database backup & restore and execute SQL statement directly on the database. Another important feature of this tool is record audit.

7.1.16 RADIUS Server Authentication – View Supplement

- RADIUS server support
- One login for both RADIUS server and OmniPCX RECORD authentication

OmniPCX RECORD supports RADIUS server authentication. With this option, the users will only be authenticated with RADIUS server to login to OmniPCX RECORD. The usernames

MUST be identical for both RADIUS server and OmniPCX RECORD and this is not a restriction for passwords.

7.1.17 Active Directory Authentication - View Supplement

- Active Directory support
- Users can login to OmniPCX RECORD using Active Directory authentication only
- Users can login to OmniPCX RECORD using Active Directory authentication or OmniPCX RECORD authentication in mixed mode
- Supports containers in Active Directory

OmniPCX RECORD supports Active Directory authentication. With this option, the users can login to OmniPCX RECORD via Active Directory authentication. There is also an option for mixed mode authentication that lets the users login to OmniPCX RECORD using either Active Directory or OmniPCX RECORD authentication. OmniPCXRecord also supports MS Active Directory authentication with LDAP over SSL.

7.1.18 Multi-Tenancy - View Supplement

- Multi-tenancy support
- Separate interface for server and site administrators

OmniPCX RECORD now supports Multi-Tenancy. With this option, now OmniPCX RECORD licenses can be distributed among multiple sites and are fully controllable by server administrator. Now, there are separate logins and interfaces for server and site administrators. Only server administrator can create tenants and sites within these tenants. Site licenses can be granted or revoked by the server administrators. All the system settings will automatically be applied to all sites.

7.1.19 Email Templates Enhanced - View Supplement

- Default templates for OmniPCXRecord and Quality Monitor
- No new email template can be added
- Default templates cannot be deleted
- Can be subscribed for server incidents

Email templates were introduced in 2.3.0.16. In 2.3.0.19, major enhancements have been done in the email templates section. Now, there are four default email templates for OmniPCXRecord as follows:

- Critical Error Incident
- Error Incident
- Warning Incident
- Information Incident

Also, if Quality Monitor is installed then the following additional default email templates for Quality Monitor will be available:

- New scorecard assignment
- Scorecard update
- Tutorial assignment
- Tutorial reviewed

The server administrator can edit these templates as and when required. As these templates cover all possible situations so a new email template cannot be added nor the default templates can be deleted.

7.1.20 Record Audit

- Available in the Database Management Utility
- Compares records in the database with recording files on the hard disk
- Compares digital signature as well for added verification

This feature in the Database Management Utility compares the number of record in the database vs recorded files on the hard disk. This feature ensures the consistency of records and also verifies the digital signatures. Please see Database Management Utility document for more details.

7.1.21 RTP Collection During OXE Switchover

- OmniPCXRecord keeps recording the calls as long as the RTP is received
- Works only for IPDR calls
- Calls will be saved with a “Bascul Hangup” note

Previously, in case of a Bascul, OmniPCXRecord used to close all the on-going calls. This behaviour is now amended and OmniPCXRecord now keeps recording the IPDR calls (in a Bascul environment) as long as the RTP is received. These calls will be saved with a note “Bascul Hangup”. This feature can only be enabled by an L3 ALE tech support engineer. It is important to note that In this case, System Level Filters/User Level Filters/ROD etc.

will not be applied to these calls. Screen capturing will be stopped so the voice and video might mismatch in the screen capture calls.

7.1.22 In-Progress Calls Status

- Displays status of calls in progress
- Available along with server status
- Helps in preventing system shutdown/restart

This feature on the Server page displays new statuses as follows:

- Calls waiting for mixing

- Calls in progress

- Mixing Server Status

- Last updated

The purpose this status is to show the number of calls currently under progress and to prevent somebody to shut down the server while it is still working. The above statuses don't get refreshed automatically and can only be fetched by pressing the Update button every time.

7.1.23 Console Recording Agent Without Port Mirroring

- Recording mode for IP Attendant to be recorded without port mirroring
- Console Server runs in both modes i.e. Port mirroring and RTP re-direction modes

A recording mode RTP re-direction has been introduced in Console Server and CRA. WinPCAP is a pre-req for this feature and must be installed on CRA machine. The purpose of this feature is to eliminate port mirroring and hub requirement for IP Attendant recording. Console Server runs in both modes at the same time i.e. Port mirroring and RTP re-direction mode.

7.1.24 Table For Archived Calls

- A table to store archived call records
- Improves database performance
- Search has been enhanced to execute criteria for archived calls only

Previously, a single table was holding both current and archived call records. As the database grows, the database performance declines. A separate table has been introduced for archived call records so that in case of a huge database the system performance doesn't get affected. Search has also been enhanced to search in archived calls only. REST API supports this evolution natively. Following SOAP API methods had to be updated for this table:

- GetCallIdInformation
- GetCorrelatorIdInformation
- GetFileURL
- UpdateCallinformationbyCSTACallID
- UpdateSearchFieldValue
- GetCallComments
- GetCallFlags

7.1.25 OmniPCX RECORD Archived CDR Transfer Tool

- A tool added in utilities to transfer archived records from calls table to the table for archived calls only
- Only L3 tech support engineer is authorized to use this tool

This is a tool to transfer archived data from CallDetails table to the table for storing archived calls. This utility is only available for an L3 ALE tech support engineer.

7.1.26 New Call on Pause

- Supports IPDR, TDM and IP Attendant calls.
- Does not support screen capture calls.
- When enabled, it will create a new call whenever a call is paused during conversation.
- Supported at site level as well.

This feature is available on web interface. When enabled, it will create a new file whenever a call is paused during conversation. It will save the conversation into a file till the pause button is pressed and will start recording in a new file. The status of the call can be in pause or resume modes. By default, the call will remain in the paused state until the user clicks resume. This setting is configurable in the server configuration file.

7.1.27 Wrap-Up Time - View Supplement

- Configured in OmniPCX Enterprise (OXE)
- OmniPCX RECORD supports wrap-up for screen capture calls

There is an option that enables OmniPCX RECORD to accommodate wrap-up time for a screen capture call which means that OmniPCX RECORD will continue to record agent's desktop activity after a call is finished till the wrap-up is completed.

7.1.28 Custom Fields for Historical Calls

- A feature in call options to update custom fields for historical calls
- Updates single call record only
- Works with OmniPCX RECORD 2.3.0.23 onwards

Previously, the only way to update custom fields for a call record was through SOAP/REST API and during silent monitoring. Now this option is also available for both site admin and agent in call search web interface and on recording action screen.

7.1.29 Four-Eyes Principle - View Supplement

- A feature to control web interface login activity of agents
- New set of permissions have been added

It is a controlling mechanism where an OmniPCX RECORD agent requires a supervisor to authorize the login by entering his/her own credentials on the OmniPCX RECORD login screen.

7.1.30 Multiple OmniPCX RECORD databases on the same SQL Server

- A feature that allows creation of multiple OmniPCX RECORD databases on the same SQL Server.
- OmniPCX RECORD database name is now configurable at the time of installation.
- Fixed prefix OPCXR_Config will be part of the new database name.
- OmniPCX RECORD databases for both primary and secondary servers may reside on the same SQL Server.

A feature has been introduced that allows and supports multiple OmniPCX RECORD databases on the same SQL Server. This means that a single database server can be used to host databases for both primary and secondary servers. The database name is

configurable at the time of OmniPCX RECORD installation. However, a fixed prefix OPCXR_Config will be part of the new database name. The format of the database name is as follows:

Configuration Database

OPCXR_Config_<Custom Database Name>

e.g. OPCXR_Config_ALE

Tenant Database(s)

OPCXR_Tenant_010001_<Custom Database Name>

e.g. OCXR_Config_010001_ALE

7.1.31 Multiple DR-Link Support

- A feature that allows more than one OmniPCX RECORD recorders to connect with a single OXE.
- Only OXE release 12.1 and above supports this feature.
- In case of warm standby, only a primary or a secondary server will be able to connect with the OXE but not both simultaneously.
- Same extension numbers will not be monitored by different recorders as it's an OXE limit.

OXE has introduced a feature in release 12.1 onwards that allows more than one OmniPCX RECORD recorders can connect with a single OXE. The correct loc value has been updated in the hardware software specification guide.

7.1.32 Associate SIP Tag

- Custom Fields Page now allows SIP tags to be associated with custom fields
- Supports both SIP extension and SIP trunk

A feature has been added on custom fields page that allows SIP extension service and SIP Trunk service to extract additional SIP tags from INVITE/BYE packet. Once these tags are found in the INVITE/BYE packet, server will extract those tags on the basis of the configuration setup in custom fields and will save the values of those tags against a specific custom field in the database. An example could be a scenario where SBC or media gateway is directed to add an additional tag of locale information for the incoming caller in INVITE packet.

7.1.33 Virtual Device

- An extension type that will be associated to a virtual PBX
- A license is required

Virtual devices have been introduced to let third party recorders to save call data into OmniPCX RECORD database using OmniPCX RECORD REST API. A license is required to use virtual device extension.

7.1.34 Audit Log Search Utility

- Provides the ability to search encrypted audit logs with multiple criteria for specific actions performed by a user on the system
- Search results can be saved in a file

OmniPCX RECORD has a mechanism to store every action performed by the users into encrypted audit logs. Although, audit logs can be decrypted using OmniPCX RECORD web interface but user is not able to perform a search if he is looking for a specific action performed in the past.

This utility facilitates the user to search audit logs based on a number of criteria.

7.1.35 Email Snooze

- Server administrator can use the snooze option for incoming emails for any server incidents for a specific time interval.
- A URL in the incident email to snooze email

OmniPCX RECORD sends email for every subscribed incident after a set interval. However, to control the influx of the emails, the server administrator can use the snooze option to stop receiving emails for a particular incident for a configurable time period in minutes. A URL will be available in the incident email which will take an administrator to a specific page to select the time period for email snooze.

Note: If OmniPCX RECORD is running over HTTPS protocol then a configuration setting is required for email snooze to work so please contact ALE. After updating the setting, all OmniPCX RECORD related services need to be restarted.

7.2 *Recording Features*

7.2.1 OmniPCX Recording Interfaces - View Supplement

- DR-Link (TDM Recording Interface) – Requires OmniPCX RECORD Packetizer
- IPDR link (IP Recording Interface)
- Port Mirroring & RTP Redirection (IP Attendant Recording Interface)
- SIP Extension Recording (With Port Mirroring)
- SIP Trunk Recording
- ISDN Trunk Recording (E1/T1)

OPCXR, unlike many multi-platform recorders, works in a unique way by being integrated into the Omni PCX Enterprise PBX via a DR-Link/IPDR-Link. The DR-LINK is the output of a duplicate voice stream created by the OXE. The IPDR link is the output of a duplicate voice stream created by most Alcatel-Lucent IP phone sets (please refer to the Hardware & Software specification document for an exhaustive list of supported phone sets and their associated recording interfaces). The DR-LINK (In conjunction with an OmniPCX RECORD Packetizer) can be used for recording both TDM & IP phone sets; however, IPDR is the preferred interface for recording IP extensions.

Unlike TDM&IP, IP Attendant recording is achieved using the following configurations:

With Port Mirroring (4059ee Attendant PC with an IP phone set)

In order for this functionality to operate correctly, the OmniPCX RECORD Server must have 2 LAN ports. Assuming that the OmniPCX RECORD Server has 2 LAN ports, a managed switch must be available / configured to mirror the switch port where the Attendant Phone is connected, and to send its traffic directly the switch port connected to LAN 2 of the OmniPCX RECORD Server.

Without Port Mirroring (4059ee Attendant PC with IPDSP installed on PC)

In this configuration, the OmniPCX Console Client utility is connected with the 4059ee application via the Alcatel-Lucent Notifier and relays the call state information to the OPXR. Unlike IP & TDM Recording, Attendant VoIP Traffic is mirrored at the IPDSP pc and sent directly to OPXR Server.

SIP recording is for SIP sets that are not DR-Link compatible. It records voice and video as long as they are sip compliant and requires port mirroring.

Note: No matter if you do voice recording and screen recording, only 1 file is generated.

7.2.2 IP Recording - View Supplement

- Provides recording for Alcatel-Lucent IP Touch Phone sets
- Performed using the OXE IPDR-LINK Interface
- Can record alongside the DR-LINK allowing IP & TDM Extensions to be recorded simultaneously.

IP traffic sent to and from the IP phone set is replicated and sent to OmniPCX RECORD so that it can be captured and stored.

7.2.3 TDM recording - View Supplement

- Provides recording for Alcatel-Lucent Digital, Analogue and SIP Phone sets
- Performed using the OXE DR-LINK Interface
- Can record alongside the IPDR-LINK allowing TDM & IP Extensions to be recorded simultaneously.

Using a Packetizer to interface with the OXE PCMII board, TDM extensions are recorded in the same manner as IP extensions.

7.2.4 IP Attendant Recording – View Supplement

- Attendant calls can be recorded for the 4059EE
- Calls are recorded using port mirroring
- Port mirroring supports both IPDSP and IP phones
- If RTP redirection is used then it only works with IPDSP
- Supports both port mirroring and RTP redirection simultaneously
- Some restrictions apply (See OmniPCX RECORD Hardware Software Specification Guide)
- OPXR Supports a maximum of 25 IP Attendants for any system specification
- Supports encryption via the OmniPCX RECORD encryption module
- Supports virtual environment for both Port Mirroring and RTP redirection modes
- Does not support native encryption
- Supports Thales encryption but only with RTP redirection
- Supports Record On Demand, Ignore on Demand, System Level Filter and User Level Filter
- Screen capture is supported for both RTP redirection and port mirroring

Calls connected with the IP Attendant can now be recorded. Unlike other extensions, OmniPCX RECORD uses port mirroring or RTP redirection to record the IP Attendant calls. Also, both port mirroring and RTP redirection can work simultaneously. There are

some restrictions that apply for Attendant recording and these can be found in the product hardware software specification guide.

7.2.5 IPDR Link is 50% more efficient

- IPDR link, IP phone has a 1 point overhead
- DR-Link, IP phone or TDM phone has a 1.5 overhead

OPCXR could record all calls using the DR Link on the OXE. Including the recording of IP phone sets but the overhead on the system is an additional 50% compared to the IPDR link, used exclusively for VoIP recording, which means that using the DR-Link less calls can be recorded for the same processing power.

7.2.6 Recording Filters - View Supplement

- Specify which calls should be recorded and which calls should be ignored.
- Identify when the filters should be active (Day, Time)
- Apply filter on direction. Inbound/Outbound or Both
- Specify to record Both Parties, the local party, or the external party.
- Specify a default action if no filters are matched
- Combine multiple filters
- Apply filters based number, extension or correlator data using an exhaustive list of options including:

- Number is exactly
- Number begins with
- Number ends with
- Number contains
- Number Length is Exactly
- Number Length is less than
- Number Length is Greater than
- Called by is exactly
- Called by begins with
- Called by ends with
- Called by contains
- Called by Length is Exactly
- Called by Length is less than
- Called by Length is Greater than
- Called to is exactly
- Called to begins with
- Called to ends with
- Called to contains

- Called to Length is Exactly
- Called to Length is less than
- Called to is Greater than
- Extension is exactly
- Extension begins with
- Extension ends with
- Extension contains
- Extension Length is Exactly
- Extension Length is less than
- Extension Length is Greater than
- Correlator Data is exactly
- Correlator Data begins with
- Correlator Data ends with
- Correlator Data contains
- All Calls

Note: The number can be DDI or CLI.

Recording filters provide the administrator with a simple yet powerful way of specifying which calls should be recorded and which calls should be ignored.

Note: When a recording filter is matched and recording is activated, the recorder dynamically allocates a license. However, OmniPCX RECORD includes a Static License option that enables you to specify that an extension must always be licensed. This means that a license will be reserved for this extension and thus it will **always** be recorded.

7.2.7 Record on Demand - View Supplement

- Instigate recording directly from users IP Touch phone set
- Instigate recording via the OmniPCX RECORD user interface
- Instigate recording via a 3rd party application using the OmniPCX RECORD API
- Offers two recording methods
    - From this point onwards (Records from when ROD is instigated)
    - Entire call (Records the entire call, even if instigated during the call)
- A configuration has been introduced to enable pause and resume feature on top of ROD options (Please see OmniPCX RECORD Admin Guide)

Note: Accessing Record on Demand from an IP Touch phone set requires OPCXR to be connected to a presentation server (PRS). This is NOT the case when using the ROD feature via the web browser.

Note: The PRS Server is currently supported using the Instant Communication Suite or the Open Touch Multi Media Server. For more details on the supported software releases for these applications, please review the Hardware & Software Specification.

Using an Alcatel-Lucent IP phone, like the 4068, which has been enabled with Record On Demand, will allow you to record a call on the fly.

7.2.8 Ignore on Demand

- Cancel recording directly from users IP Touch phone set
- Cancel recording via a 3rd party application using the OmniPCX RECORD API

Note: Accessing Ignore on Demand from an IP Touch phone set requires OPCXR to be connected to a presentation server (PRS). This is NOT the case when using the ROD feature via the web browser.

Note: The PRS Server is currently supported using the Instant Communication Suite or the Open Touch Multi Media Server. For more details on the supported software releases for these applications, please review the Hardware & Software Specification.

In a similar manner to Record On Demand, using an Alcatel-Lucent IP phone, like the 4068, which has been enabled with Ignore On Demand users can cancel recording on the fly.

7.2.9 Call Recording features - View Supplement

- Internal and external calls recorded
- All call legs recorded, hold and transfer supported
- Recording filters
- Record On Demand
  - From this point onwards or Entire call
- Call Flags (7 customizable flags)
- Silent Monitor
- Search calls
- CCD Agents recorded
- SNMP Traps and Server Incidents
- Reporting
- Beep alert during call recording (configurable on/off)
- 3 hours soft limit to a call recording
- OmniPCX Record Player for playing back calls with pause and resume recording as well as pause play and resume play
- 3 Way Conferencing.

  Note: OmniPCX RECORD currently only supports a maximum of 3 parties in any conference call

OPCXR offers a wide range of features & functionality that are designed to assist users in accessing, monitoring and managing recorded calls. Features are accessed based on individual user rights. This Provides flexible control over data access and specific tasks.

Important!! When beep generation is managed, a beep is played every time a call is started, retrieved, transferred (consult/blind) and conferenced. Whereas a voice guide will only be played once at the start of a call.

7.2.10 Multi-Line Recording - View Supplement

- (Multi-key Feature) - Supports recording of multiple lines assigned to a single extension on a handset.
- Supports Recording of multiple Extension numbers assigned to a single handset

Both Multi-Line recording features above supported automatically by OmniPCX RECORD. For more information on how Multi-Line recording works, please review the supplement.

7.2.11 SIP Extension Recording (With Port Mirroring) - View Supplement

- A recording server to record SIP based extensions which are not recordable using DR-Link
- Calls are recorded using port mirroring
- Can record two video codecs H263 and H264 at the same time
- It can record any SIP compliant phones including Soft SIP phones and Alcatel 8088 smart desktop phones
- Supports G711ALAW, G711ULAW and G729 audio codecs
- ROD is supported
- SIP video license is dependent on SIP audio license
- Video capture for SIP physical phone set is 3 frames per second
- Video capture for SIP soft phone (e.g. MicroSip) is 8 frames per second
- The HA behaviour of SIP server is independent of primary and secondary servers. It is possible that the SIP server remains active on a primary server which is in standby state or vice versa.
- Does not support screen capture
- Supports silent monitor
- Supports virtual environment
- Does not support encryption

It requires port mirroring just like console recorder. The SIP Recorder receives all the call events, audio RTP and video RTP from the network card of the machine as it has no direct connection with the OXE/Node.

Important:

When an outgoing call is made from SIP Extension (Not on DR-Link) to SIP Extension (On DR-Link) then 2 calls gets recorded.

Important:
This mode applies to any SIP sets that are not associated to an OXE or for OXE sets declared as "SIP device". For OXE sets declared as "SIP extension", DR-Link recording is the supported way. Please note that the recording of OXE SIP extension with port mirroring is not a supported way as it may generate double records.

7.2.12 ISDN Trunk Recording – View Supplement

- A recording server to record ISDN trunk lines (E1 or T1)
- Each trunk line requires a dedicated packetizer
- Separate packetizer for E1 and T1

ISDN Trunk recording records the lines from your phone provider. The recorder is placed between the outside telephone lines and your PBX. Essentially, this kind of system records all inbound and outbound calls. In simplified terms, if a customer speaks first to a receptionist and then gets transferred between multiple agents, that will all be saved in a continuous recording. It will even record the customer's line while on hold. No internal calls (extension to extension) are recorded under this type of configuration.

7.2.13 Branch Office – View Supplement

- A feature that supports branch office architecture
- Business logic will be handled at main office
- Voice and media will be handled at branch offices

The architecture outlines a functional flow where call recordings for phones located at remote locations (branch offices) can be controlled through a central server. It also provides a provision that services running at branch can also work as a standalone model for cases where connectivity is lost between head office and branch office.

7.2.14 SIP Trunk (With Port Mirroring) – View Supplement

- A feature for SIP Trunk recording
- SIP Trunk agents will be similar to Trunk agents.
- All SIP trunk agents will get all SIP trunk calls
- Supports virtual environment

SIP trunking is a voice over Internet Protocol (VoIP) technology and streaming media service based on the Session Initiation Protocol (SIP) by which Internet telephony service providers (ITSPs) deliver telephone services and unified communications to customers equipped with SIP-based private branch exchange (IP-PBX) and unified communications

facilities. SIP trunking is provided by SIP providers, which are similar to traditional phone companies, except SIP providers give access to phone lines over the internet.

7.2.15 Branch Office Warm Standby – View Supplement

- Primary/Secondary servers for a branch for failover
- Secondary server acts as a backup/no data loss
- Identical configuration for both servers
- No replication between primary and secondary branch servers
- Both primary and secondary branch servers will sync with main office separately at a scheduled time
- Supports virtual environment

Branch office now supports warm standby. System page has been modified to configure warm standby for branch servers. There will be no replication between primary and secondary branch servers. Calls will be uploaded directly from the primary or secondary server (whichever is active) to the main server. Similarly, data from main server will be downloaded separately by primary and secondary servers.

7.2.16 Branch Logger License

- Can work on trial mode with limitations
- Can be activated/deactivated from main server

A branch logger license has been introduced. Every main server needs a branch logger license. This license provides the facility to the main server to activate/deactivate it's branch(es). Please note that branch can work on trial mode as long as the main server is on trial mode and the branches will be disabled automatically as soon as the main server is licensed.

7.2.17 Speech Analytics – View Supplement

- Can work on trial mode
- Requires graph service

OmniPCX RECORD supports speech analytics that helps in analysing the calls for silence, low voice, loudness etc. in the recorded conversations.

7.2.18 Custom Error Page

- A custom page instead of standard IIS error page

Custom error page has been is implemented for OmniPCX RECORD. In case of any errors such as 404, 403, 401, 400, 500 etc in the OmniPCX RECORD web application, a custom error page will be displayed instead of standard IIS error page.

7.2.19 Recording Beep Alert in Silent Monitored Calls

- A recording beep will alert an agent during a call if that call is being silently monitored by a supervisor
- Beep interval is configurable

A recording beep will be played only when a call is being silently monitored and it will alert the agent that their calls are being silently monitored by their supervisor. Beep interval is configurable for this beep alert. Please note that if you set Recording Notification Type as Beep at interval then it will override the Recording Beep in Silent Monitored Calls option and it will be disabled.

7.2.20 Trunk Groups, Time Slot, Boards & Equipment

- Trunk group identification with time slot, board and equipment

Trunk group identification options have been implemented. Trunk groups can be defined along with boards and equipments. Records can now be searchable using trunk and time slot (channel) information on the search page.

7.2.21 Search Result Grouping

- Search results can be grouped based on the following options:
  1- Global Call ID
  2- Correlator ID
  3- Channel
- Limited options applicable on grouped records

Search results can be grouped by Global Call ID, Correlator ID or Channel. However, there are limited call options available for these child records.

7.2.22 Limited User Management

- New set of permissions
- Disabled by default
- Allows a custom security group to change password and activate/deactivate agent accounts

In bigger organisations, a helpdesk member is able to activate/deactivate an agent and reset agent password. In OmniPCX RECORD, these permissions were accessible only to a profile with admin account privileges. Therefore, a new set of permissions have been introduced to provide access limited to agent activation/deactivation and reset password only. Profiles with limited user management permissions will not be able to create agents or edit security groups.

7.2.23 Email Notification For A Recorded Call

- Notifies an agent via email when a call is recorded on his extension
- Only works for IPDR, DR-Link, IP Attendant and SIP (Not on DR-Link)

If this option is enabled then the system sends an email notification along with the call as an attachment to the agent whenever a call is recorded on his extension. This email has call detail information and recorded call as attachment.

7.2.24 Update Multiple Agents

- Ability to edit and update more than one agent
- Only common properties of agents/users can be edited and updated

OmniPCX RECORD provides the facility to edit and update more than one agent by using the Update Selected option. However, only common properties can be edited and updated. These properties are as follows:

- Password never expires
- Check password at login
- Time zone selection
- Enable/disable account
- Default page setting
- Team
- Security group

7.2.25 Default Page

- Setting a different starting page instead of default search page when an agent/user logs in.

When an OmniPCX RECORD user logs in to the system, the default landing page is search calls page. This landing page can be configured while adding an agent/user. However, respective default page is associated with the permissions of the security group an agent/user belongs to. Setting a page other than permitted for a specific security group will still display the default search calls page.

7.2.26 Speech Analytics Attributes in Call Search

- Speech Analytics is available under Available column

• Display speech characteristics icons against each calls
OmniPCX RECORD provides the ability not only to search the calls with speech analytics criteria but also display the speech characteristics icons of each call to provide information that stands out visually.

7.2.27 Incident Settings
• Provides the ability to discard older traps and emails. • A time in hours is configurable
OmniPCX RECORD sends traps and email for every subscribed incident after a set interval. In a scenario where SNMP and SMTP settings are configured later will result in administrator receiving a flood of older traps and incident emails. To resolve this problem, an administrator can set a value in hours and the system will ignore all the traps messages and incident emails older than the configured hours.

7.3 *System Features*

7.3.1 System capacity - View Supplement

- 400 concurrent IP recording
- IP and TDM recording
- IP Attendant (Port Mirroring & Port Redirection)
- SIP extension recording (with port mirroring)
- ISDN Trunk recording
- SIP Trunk recording

** **Note:** Solutions that include Record Warm Standby or Remote Database Deployment will require additional servers

The marketing position for OmniPCX RECORD PCXR is a solution where one IP recording or Quality Monitor user consumes one unit and the system supports 400 units. This includes TDM at 1.5 units, screen capture at 3 units and silent monitor at 5 units. The OmniPCX RECORD roadmap includes increasing capacity of the system and there is a plan to add a "regular" OmniPCX RECORD to the same OXE.

7.3.2 Audio and Video files supported

- GSM 610 Audio
- WAV Audio
- MP3 Audio (32,64 and 128 bit)
- AVI video
- GSM video

OPCXR deals with GSM 610, WAV MP3 audio files as well as AVI and GSM video. Each is a balance between quality and file size. For storage figures see section 2.12.

7.3.3 Supported Codec's & Sample Recording Sizes - View Supplement

OXE Codec's

- IPDR (G711) is a 64K overhead
- IPDR (G729) is an 8K overhead
- ALU G723 is not supported
- G722 is not supported

Sample Recording Sizes

- GSM 128 bit audio @ 1 minute is 97KB

Codec = Microsoft GSM Audio (agsm), Channels = Mono (default), Sample Rate = 8000 Hz, Bits Per Sample = 16

- WAV 256 bit audio @ 1minute is 1894KB
  Codec = PCM S16 LE (araw), Channels = Mono (default), Sample Rate = 8000 Hz, Bits Per Sample = 16
- MP3 128 bit audio @ 1minute is 474KB
  Codec = MPEG Audio (Layer 3), Channels = Mono (default), Sample Rate = 44100 Hz, Kbps = 192
- XVid Video @ 1minute is 1967KB
- Recorded Call in database: Data Footprint 1.5K
- SIP Video @ 1minute is 3.5MB
  Codec = H.264, Channels = Stereo, Sample Rate = 90000 Hz

There are two supported Codec's in OPCXR. The first is G711 with a 64K overhead. The second is G729 which has only an 8K overhead. G723 which is a proprietary Alcatel-Lucent codec is currently not supported.

OPCXR can use GSM; WAV and MP3 audio file formats to generate recordings, although GSM is recommended as it is the best quality/disk space medium. A 1 minute call saved in a GSM, MP3 or WAV format have file sizes of 97KB, 474KB and 1894KB respectively. In addition and XVid video file format of one minute is estimated at 1967KB and a databases footprint of 1.5K is the estimate for each call saved.

MP3 and WAV support stereo recording which means that if stereo recording is activated then during listening to a MP3 or WAV call, caller and callee will be separated per channel (one on left and the other on right). However, GSM610 is recorded in mono format which means both caller and callee are mixed together and available on both channels.

Important: Please note that the codec G711 is also supported if VAD is enabled in OXE.

7.3.4 Screen Capture Image File Sizes

- 1024 x 768 ..... 177KB
- 1280 x 600 ..... 191KB
- 1280 x 720 ..... 200KB
- 1280 x 768 ..... 220KB
- 1360 x 768 ..... 230KB
- 1366 x 768 ..... 270KB

Screen Capture image file sizes depend upon the resolution of your PC monitor screen.

Note: Please note that screen capture client sends screenshots (1 frame per second) of the agent's desktop to a temporary folder on the server machine for screen capture server to process them later. For a site with heavy call load, this temporary folder must have ample space to store screenshots. The size of actual video file (audio+video) created by screen capture server varies as it also depends on the audio file format. For more information please check hardware software specification guide.

7.3.5 Supported Devices - View Supplement

- TDM Phone sets
- IP Phone sets
- Mobiles
- Non ALU (Ascom) Phone sets

A list of the supported phone sets can be obtained from the OmniPCX RECORD Hardware & Software Guide.

7.3.6 Supported Browsers

- Internet Explorer
- Firefox

OPCXR Supports the browsers listed above. These browsers have been chosen because they support the controls, features and embedded media players required to present the software and play back recorded calls.

7.3.7 Supported Storage Methods (Live & Archive Locations)

- NTFS – Local Hard Drive
- SAN – Storage Area Network
- NAS – Network Attached Storage
- Shared Network folders

OPCXR Supports the storage methods listed above and allows the storage location for both the active and completed recordings to be specified separately.

If the storage space used for recording gets to below 10% of the entire disk space, an alert email will be sent to an email address which can be specified under system settings.

7.3.8 Databases Supported - View Supplement

- SQL Express 2008 R2(*Free*) but 10GB limit
- SQL Standard Edition 2008 (*Paid for*) refer to product documentation for upper limit

- SQL Express 2012 (*Free*) but 10GB limit
- SQL Standard Edition 2012 (*Paid for*) refer to product documentation for upper limits
- SQL Express 2014 (*Free*) but 10GB limit
- SQL Standard Edition 2014 (*Paid for*) refer to product documentation for upper limits
- SQL Express 2016 (*Free*) but 10GB limit
  SQL Standard Edition 2016 (*Paid for*) refer to product documentation for upper limits

SQL Server Express edition is suitable for organizations typically using up to 100 recorded extensions, with average activity and where regular archiving/purging is performed.
It is free and can be downloaded from the Microsoft web site but should be used in accordance with the manufacturer's recommendations.

SQL Server Standard edition is recommended for sites with more than 100 recorded extensions, using additional modules such as Quality Monitor or intending to keep records for a longer period of time. The Standard edition software license requires a license that must be purchased prior to installation.

Note: Average activity means, 100 licenses working into 10-15 hours shift in a contact center environment with 2-3 users using OmniPCX RECORD web interface to listen the recorded calls.

7.3.9 Virtual Server support - View Supplement

- EMC VM Ware – latest version
- Hyper-V 6.1.760 version
- EXSI 6.5 version

OPCXR can be installed on a virtual server for up to 200 concurrent conversations. Please check the hardware and software guide for specifications and limitations.

7.3.10 Remote Access recommended software

- Windows Remote Desktop
- Team Viewer (Commercial version) – www.teamviewer.com v5.0+
- Logmein (business version) – www.logmein.com v4.0
- GotMeeting (business version)

We can accommodate remote access via Windows Remote Desktop, and three commercial packages, TeamViewer, Logmein and GotoMeeting.

7.3.11 Trial License

- 45 days trial license
- Encryption and Multi-Tenancy modules are not included

OmniPCX RECORD installed with a 45 days trial license that includes all the modules except encryption and multi-tenancy. As multi node is included so If you are recording using more than one PBX node and the multi-node trial license expires, OmniPCX RECORD will then only record the calls for the first PBX node that you have configured.

7.3.12 Pre-License Generator

- Generate OmniPCX RECORD licenses before installation.

Generate license keys before installing OmniPCX RECORD so that the licenses can be applied at the time of installation. For more information please refer to the OmniPCX RECORD Installation Guide.

7.3.13 Video Calls (.avi format) Sizes Recorded By SIP Server

- 1 minute … 3.5 MB
- 3 minutes … 10.7 MB
- 5 minutes … 17.5 MB
- 7 minutes … 24.5 MB
- 9 minutes … 31.2 MB

The above figures are estimated. Video capture for SIP physical phone set is 3 frames per second whereas video capture for SIP soft phone (e.g. MicroSip) is 8 frames per second.

7.4 *Security & PCI Compliance Features*

7.4.1 Application Security & PCI Compliance

- Pause and Resume Recording when taken credit details - click here for more
- Encrypted files & Digitally Signed Recordings - click here for more
- Restricted access to features using Security Permissions
- Customizable Security Permissions
- User Configurable Prohibited Passwords
- Users passwords expire after 90 days (Configurable)
- User Password Restrictions (Must be Alpha Numeric and specific length)
- User Accounts disabled after seventh failed login attempts
- Disabled accounts must be re-enabled by the system Administrator
- Users passwords can be configured not to expire ever
- Default OmniPCX RECORD admin password and password expiry option can be configured by a user who belongs to Super Admin security group.

The OPCXR PCI compliance features are important as they help any organization taking to comply with the security, sensitivity and confidentiality of sensitive information such as credit card payment details.

7.4.2 Encryption and Digital signing - View Supplement

- 128-bit system wide option
- Algorithm is Rijndael
- Algorithm type = symmetric
- 128 bit is being used for authentication purposes.
- Audio file digital signing is SHA-1
- Digital signing is also symmetric
- Recording (stored data) is 128 bit length and symmetric
- Audit log (administration data) is 128 bit length and symmetric
- Password created by web admin and is part of the encryption algorithm
- Encryption can be turned on/off as and when required, irrespective of existing recordings which will remain encrypted and safe
- Downloaded calls are decrypted automatically so that they can be played via 3rd party applications.
- Restrictions
  - SIP not on DR-Link is not supported
  - MP3 format is not supported
  - Screen Capture cannot be encrypted
  - Combined audio and video files cannot be encrypted
  - Not sold in certain countries, where license does not exist
  - Calls created with old password cannot be decrypted using a new password

Information within OPCXR is encrypted and the audio files are further secured by using a

digital signature. The algorithm is Rijndael 128-bit symmetric and the Digital signature is also 128-bit using SHA-1.

7.4.3 Call Purge/Export (Manual & Automatic) Facility

- Separate utility
- Allows calls & data to be deleted/exported
- Frees up space on the hard drive
- Export facility can be used manually and automatically as well
- Calls can be exported manually through search calls feature
- Automatic export can be done using windows scheduler

Purging calls from the OPCXR database is done via a separate utility (Supplied with OmniPCX RECORD). This will free up space on the hard drive.

Note: Performing export will just copy the records to the desired location, the original records and physical files remain intact.

7.4.4 Pause & Resume Recording - View Supplement

- Pause During Recording
- Resume Recording Manually
- Resume Recoding Automatically after pre-determined period in case Agent forgets
- Pause & Resume both Audio & Video Recording
- SOAP API and REST API Integration - click here for more
- Complies with PCI Compliance rules- click here for more

Agents can be configured so that when making or receiving a call they have the ability to pause & resume recording. This is particularly useful when taking credit card details or other personal data. However, as a failsafe mechanism, OmniPCX RECORD can be configured to 'Automatically' resume recording after a predefined period so that the remainder of the call is not missed.

Note: The Pause and Record feature is also available from the OPCXR API, allowing the functionality to be utilized via 3rd party applications.

7.4.5 Online Recording Actions - View Supplement

- Record Both Parties
- Record Local Party
- Record External Party
- SOAP API and REST API Integration - click here for more
- Complies with PCI Compliance rules- click here for more
- Only works with IPDR calls

Agents can be configured so that when making or receiving a call they have the ability to choose which parties are recorded. This is particularly important as it complies with regulations that need to be adhered to in some geographical locations.

Note: The Online Recording Action feature is also available via the OPCXR API, allowing the functionality to be utilized via 3rd party applications.

7.5 *Product Modules*

7.5.1 Screen Capture - View Supplement

- Screen recording
- Synchronized with audio conversation
- Can be controlled independently from voice
- Separate module, separate license, separate cost
- Supports Wrap-Up time
- Supports Terminal Services (OmniPCX RECORD 2.3.0.23 onwards)

When an agent is making a call, activities on his or her desktop can be recorded concurrently, so that the audio and video match the call. In a CCD environment, the same PC can be used by multiple users at different times of the day (i.e. Hot desking).

For information on the supported screen resolutions, please refer to the Hardware & Software specification.

Note: Screen Capture replicates video recording by capturing the screen display approximately every 1 second.

Note: Screen capture will work with terminal services only if the screen capture client 2.3.0.23 or higher is installed.

7.5.2 Quality Monitor

- OPCXR scoring and coaching module
- Separate module, separate license, separate cost
- Requires setting up in OPCXR so fully integrated
- Encrypted calls played using configurations set in OPCXR
- Teams, Supervisors, Agents
- Questionnaire creation
- Multiple question types
  - Yes/No/NA
  - 5 point scale
  - Auto fail
- Questions can be assigned marks
- OPCXR calls can be reviewed
- Instant tutorials
- Reports
  - Over time
  - By Agent
  - By team
  - By league table

OPCXR Quality Monitor is a fully integrated module of OPCXR for the evaluation and

training of call centre agents. Since the calls are recorded and stored in the OPCXR database, Quality Monitor allows you to access them and score them against pre-defined questionnaires that have been created in the application. Yes/No questions and sliding scale question types can be used and scores can be assigned to questions. Reports will show how the agents have performed over time, how they performed within their teams and also how teams have performed in a team league table. In addition, there is an Auto fail mechanism that fails the Question set or Questionnaire when a grave mistake has been made.

7.5.3 Recorder Warm Standby - View Supplement

- Primary/Secondary servers for failover
- Secondary server acts as a backup/no data loss
- Identical configuration for both servers
- Auto synchronization after every 15 minutes
- Minimized downtime

Recorder Warm Standby also known as (RWS) offers the ability to implement failure management so that calls are always being recorded, even in the event of a sever failure. RWS is implemented by installing OmniPCX RECORD on both a Primary & Secondary server rather than a Single PC. If for any reason the Primary Server fails, the Secondary server will register the monitored extensions with the OXE and start recording, taking over the role of Primary recording server. Later, when the "Original" Primary Server is ready to come back on-line, it does so as the secondary / backup server.

If Secondary Server is active and Primary Server is stopped but connected and replication service is running then any changes made on Primary Server will be reflected on Secondary Server but it will require a Secondary Server restart for those changes to take effect.

Important: The operating system must be the same on both primary and secondary servers. Please check hardware software specification guide for supported OS.

7.5.4 Silent monitor - View Supplement

- Listen in to calls without either party knowing
- Manually Instigate Recording while listening to a live call
- Requires third party VLC player to be installed

Silent monitor has been specially developed for supervisors to be able to listen into calls without either party knowing. OPCXR limits the sessions to 5 concurrent ones to ensure that the live recordings are not adversely affected due to lack of processing power.

7.5.5 OXE - Multi Node Recording

- Multi OXE nodes can be recorded
- Multi OXE node license needs to be purchased

OPCXR can record calls from multiple OXE nodes. The central recording server is given the IP addresses of all of the different OXE nodes and the node specific extensions are added in the central recorder administration. When recording is in progress, the call is streamed to the central server. An OXE multi node one-off license is required for this feature.

7.5.6 Satellite Recording Servers - View Supplement

- Multiple Satellite OmniPCX RECORD
- Single Centralized Master OmniPCX RECORD
- Satellite Synchronization to Master OmniPCX RECORD
- All calls accessible from central server

OmniPCX RECORD can be installed in multiple locations as Satellite recorders and the calls from each satellite can be streamed back to a single master server so that all calls are available from a central location.

7.6 *Feature Availability Matrix*

Product Feature	Appeared In	
	Release	Version
Windows Based Application	1.0	0.1
Browser Based Application	1.0	0.1
Supported Browsers	2.2	0.1
OMNI PCX Record Player	2.1	0.10
Modular Based Application	2.0	0.1
Database Support	1.0	0.1
Virtual Server Support	2.2	0.1
Supported Devices	2.2	0.1
System Capacity	1.0	0.1
Team and Agents	1.0	0.1
Search Calls	1.0	0.1
System Reporting	2.2	0.1
IP Recording	1.0	0.1
TDM Recording	1.0	0.1
IP Attendant Recording	2.0	0.1
Multi-Node Recording	2.2	0.16
Online Recording Actions	2.3	0.5
Record On Demand	1.0	0.1
Ignore On Demand	2.0	0.10
Recording Filters	1.0	0.1
Silent Monitoring	2.2	0.1
Watchdog Monitor	2.3	0.9
Screen Capture	1.0	0.1
Audio/Video Files Supported	1.0	0.1
Encryption	2.0	0.1
Digital Signing	2.0	0.1
Master/Satellite Recorder	2.3	0.5
Archiving	1.0	0.1
Call Purge Facility	2.1	0.5
Quality Monitor	2.3	0.5
Recorder Warm Standby	1.0	0.1
SAN Storage Support	2.3	0.5
Advanced Security Permissions	2.3	0.9
Advanced System Logging	2.3	0.10
PCI Compliance for Credit Card	1.0	0.1
SOAP API Connectivity	2.0	0.1
License Based Application	2.3	0.9
RADIUS Server Authentication	2.0	0.1
Compression Codec's	2.0	0.1
Email Templates	2.3	0.16
Credential Management Assistant	2.3	0.18
Database Management Utility	2.3	0.16
Active Directory Authentication	2.3	0.17
Multi Tenancy	2.3	0.19
Record Audit	2.3	0.19

SNMP Traps & Server Incidents	2.3	0.19
Email Templates Enhanced	2.3	0.19
RTP Collection during OXE switchover	2.3	0.19
In-Progress Calls Status	2.3	0.19
Console Recording Agent without Port Mirroring (IP-DSP)	2.3	0.19
OmniPCXRecord Archived CDR Transfer Tool	2.3	0.19
New Call on Pause	2.3	0.21
SIP Recording Server	2.3	0.21
REST API	2.3	0.21
Active Directory Containers	2.3	0.21
Update Custom Fields for historical calls	2.3	0.23
ISDN Trunk Recording	2.3	0.24
Four-Eyes Principle	2.3	0.25
Multiple OmniPCX RECORD Databases on the same SQL Server	2.3	0.25
Multiple DR-Link Support	2.3	0.25
Branch Office	2.4	0.1
SIP Trunk	2.4	0.1
Associate SIP Tag	2.4	0.1
Branch Office Warm Standby	2.4	0.2
Branch Logger License	2.4	0.2
TLS 1.2 Support	2.4	0.2
Speech Analytics	2.4	0.2
Custom Error Page	2.4	0.3
Recording Beep Alert in Silent Monitored Calls	2.4	0.3
Redesigned Recording Action page	2.4	0.3
Trunk Group, Time Slot, Board & Equipment	2.4	0.3
Channel Offset	2.4	0.3
Search Result Grouping by Global Call ID, Correlator ID or Channel	2.4	0.4
Limited User Management	2.4	0.4
Trunk Group & Board Association	2.4	0.4
Email Notification For A Recorded Call	2.4	0.4
Beep Tone Configuration	2.4	0.4
Date & Time association With User Level Filter	2.4	0.4
Virtual Device	2.4	0.4
Audit Log Search Utility	2.4	0.5
Update Multiple Agents	2.4	0.5
Default Page	2.4	0.5
Speech Analytics Attributes in Call Search	2.4	0.5
Email Snooze	2.4	0.5
Incident Settings	2.4	0.5

8 Technical Supplement

Where deemed necessary, the product features above have been linked to a corresponding technical supplement below. Each supplement provides a more in-depth summary of the corresponding feature and offers a more technical breakdown of how feature works.

8.1 *Supplement - Recording interfaces*

Installed on a Windows 2008/2012/2016 Server, OmniPCX RECORD is a LAN/WAN based solution that sits alongside the OmniPCX Enterprise. The solution offers 6 primary recording methods, these being VoIP, TDM, SIP extension (with port mirroring), ISDN Trunk, SIP Trunk & proprietary recording of the Alcatel-Lucent IP Attendant.

VoIP Recording requires no additional hardware and is used for recording IP Touch phone sets. TDM recording is primarily used for recording Digital, Analogue & SIP phone sets. TDM recording requires additional hardware called a Packetizer which is connected to a PCM II card on the OXE. See the TDM Recording supplement below for more information on the Alcatel-Lucent Packetizer.

Unlike some recording solutions, the recording methods mentioned above can also be configured to work in unison. This means if an organization has both mixed TDM & IP phone sets, OmniPCX RECORD can be configured to record TDM phone sets using the DR-LINK in conjunction with a Packetizer, and IP phone sets using the IPDR Interface directly.

By default, recording is performed as mentioned above and IP phones sets are recorded using the OXE's IPDR Interface, and TDM extensions are recorded using the OXE's DR-LINK. However, if required the solution can be configured to record both IP & TDM phone sets via the DR-LINK only. This can be done by setting the OXE property (DR-Link on IP Supported) to "YES" and means that IP phone sets will then be recorded via the Packetizer & DR-LINK

----- [ADDENDUM] ------

- It is only possible to record IP phone sets using 'either' IPDR or the DR-LINK. It is NOT possible to distribute recording of IP phone sets across both interfaces.

  In addition to recording TDM & IP, the solution also provides the ability to record IP Attendant phone sets and this is achieved using the following configurations:

  With Port Mirroring (4059ee Attendant PC with an IP phone set)

  In order for this functionality to operate correctly, the OmniPCX RECORD Server must have 2 LAN ports. Assuming that the OmniPCX RECORD Server has 2 LAN ports, a managed switch must be available / configured to mirror the switch port where the Attendant Phone is connected, and to send its traffic directly the switch port connected to LAN 2 of the OmniPCX RECORD Server.

  Without Port Mirroring (4059ee Attendant PC with IPDSP installed on PC)

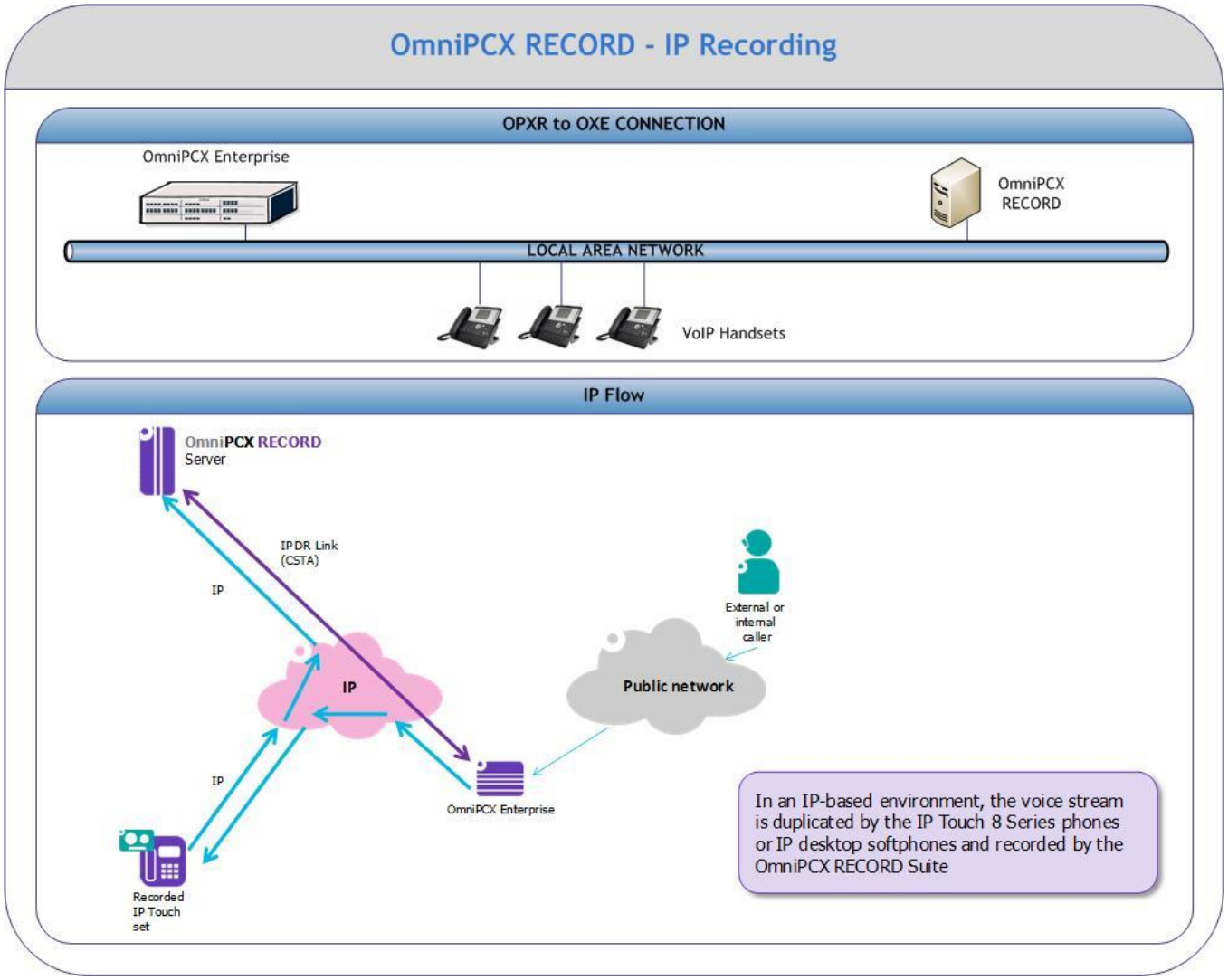
In this configuration, the OmniPCX Console Client utility is connected with the 4059ee application via the Alcatel-Lucent Notifier and relays the call state information to the OPXR. Unlike IP & TDM Recording, Attendant VoIP Traffic is mirrored at the IPDSP pc and sent directly to OPXR Server.

- A managed data switch will be required to mirror the Attendant voice traffic so that is can be captured and recorded by OPCXR

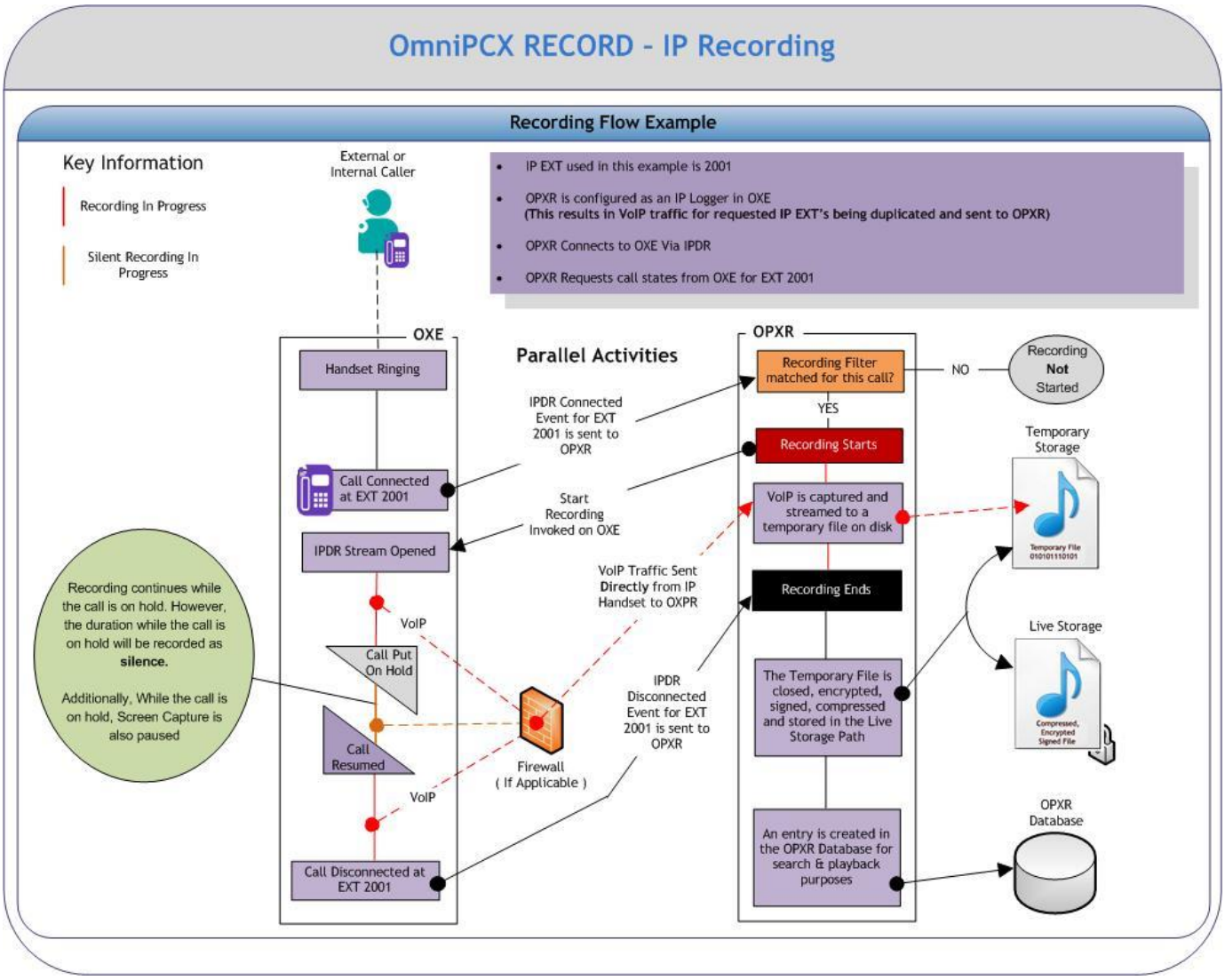
Note: Please note that the both of the configurations can work simultaneously.

8.2 *Supplement – IP Recording*

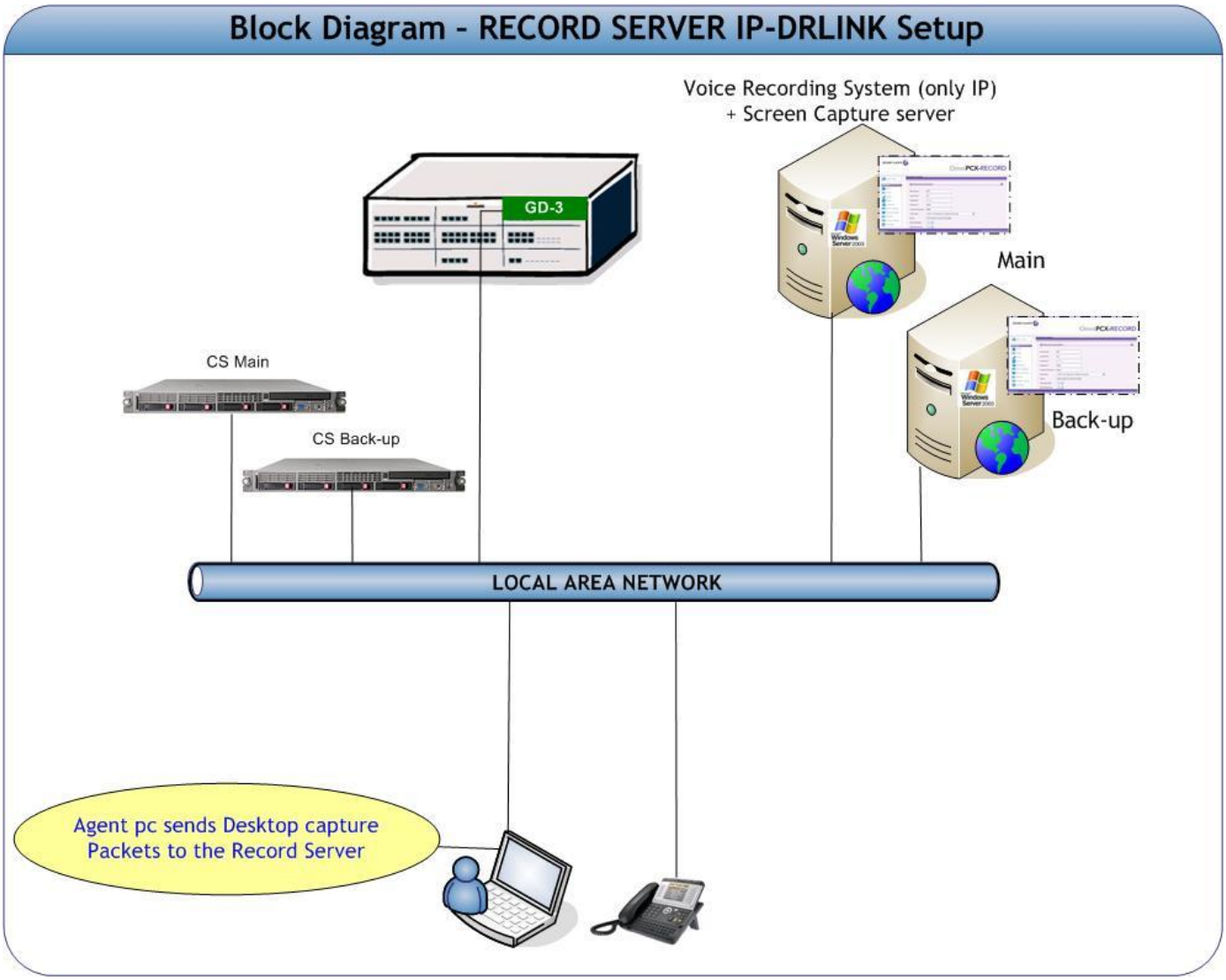
IP Recording is achieved using an IPDR connection from OPXR to the OXE in order to receive call events and VoIP Traffic. The image below shows the connectivity method and illustrates the IP Flow for a call that is recorded via an IP Touch phone set.



The Image below provides a detailed illustration of the parallel activities that take place between the OXE and OPXR when an IP call is present in the PBX.



The Image below provides a technical illustration of how the IPDR solution is implemented



----- [ADDENDUM] ------

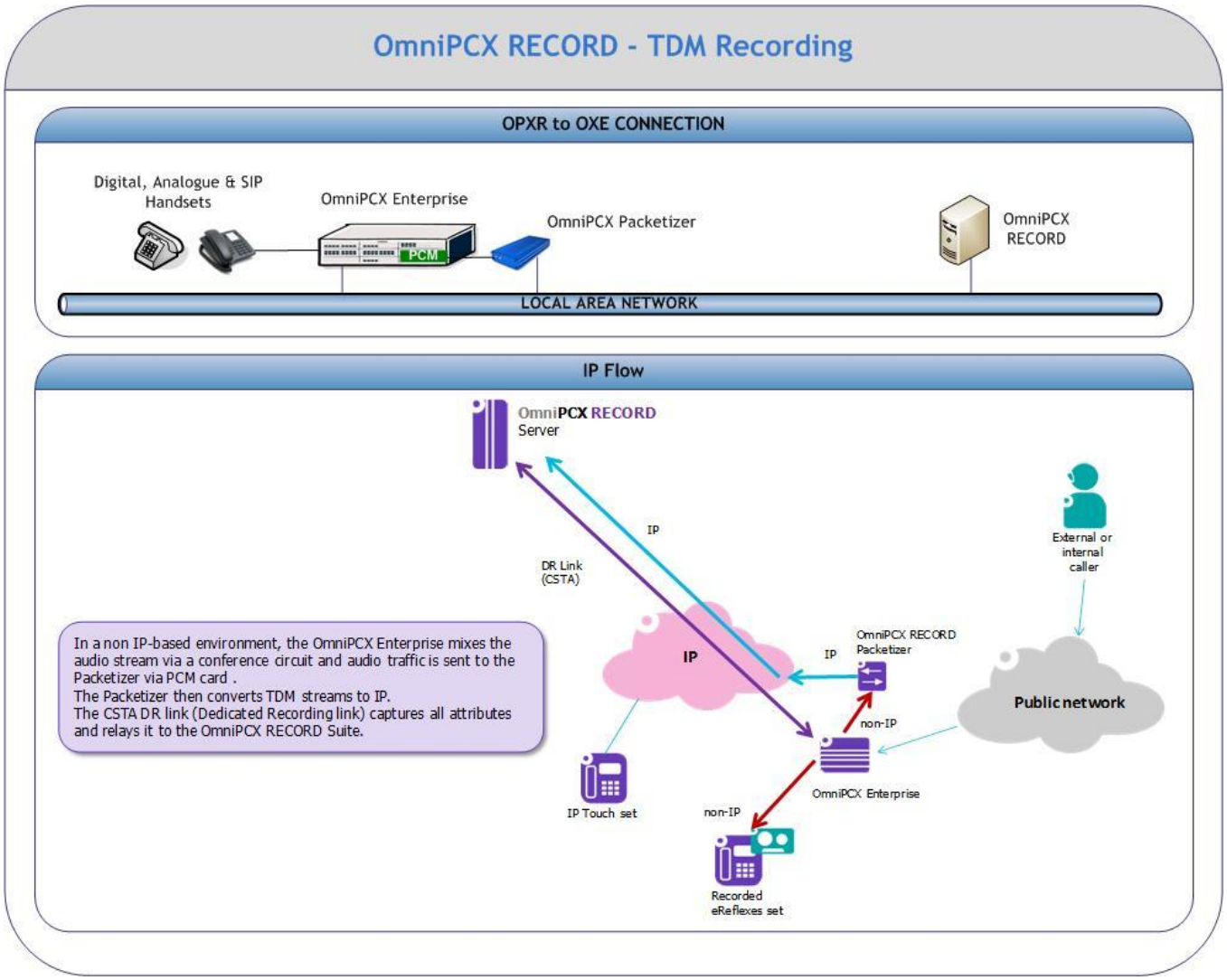
- When VoIP calls are placed on hold, the entire held duration will be recorded as silence. This is achieved by inserting blank RTP packets in to the call.

- It is possible to configure OmniPCX RECORD so that recorded calls are separated into two files. The first file will contain the external caller and the second will contain the agent. However, if you require this feature please contact Alcatel-Lucent Professional Services who will assist in configuring the software to work in this manner.

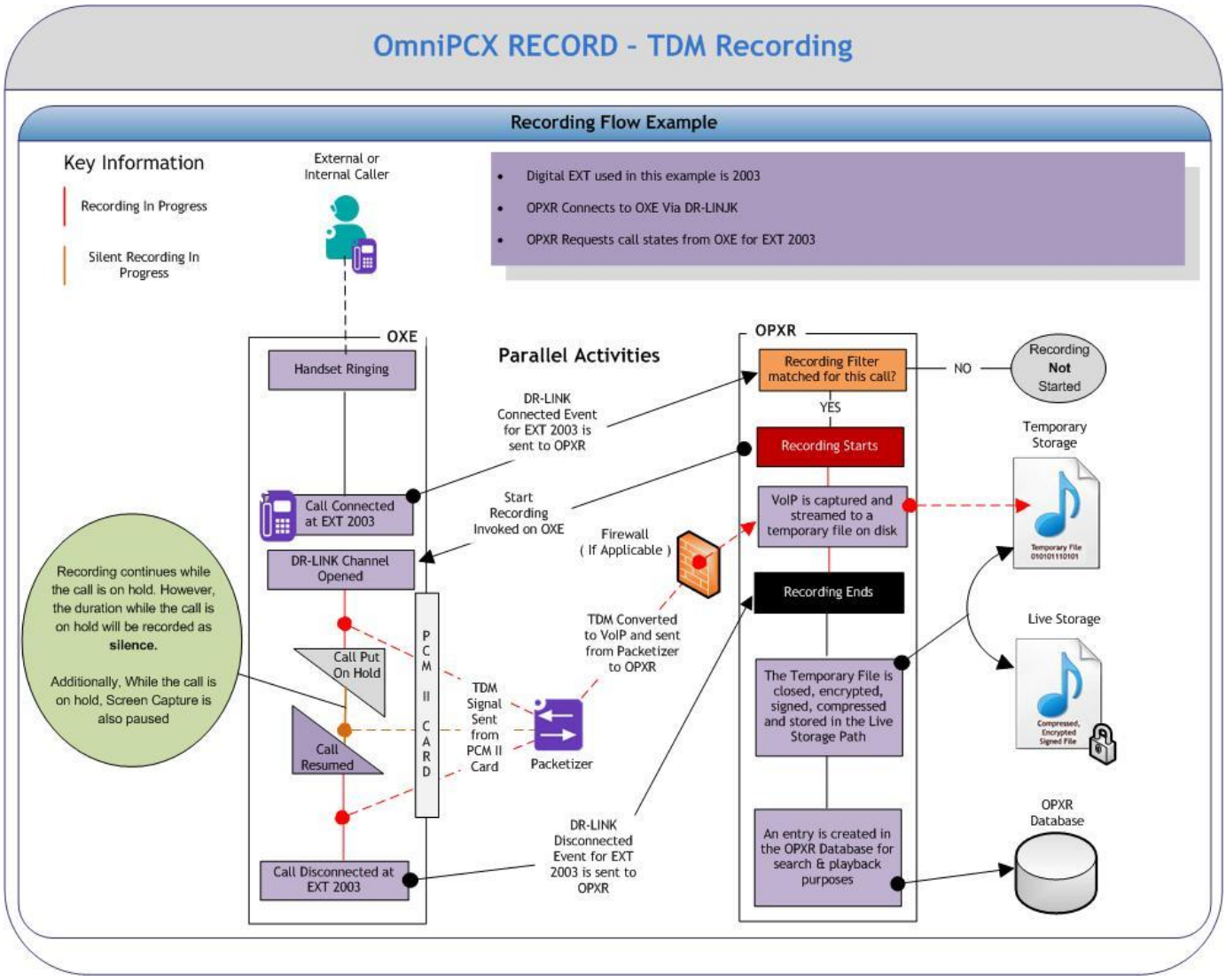
8.3 *Supplement – TDM Recording*

TDM Recording is achieved using a DR-LINK connection from OPXR to the OXE in order to receive call events and TDM Traffic. Unlike IP Recording, TDM requires additional hardware called a Packetizer.

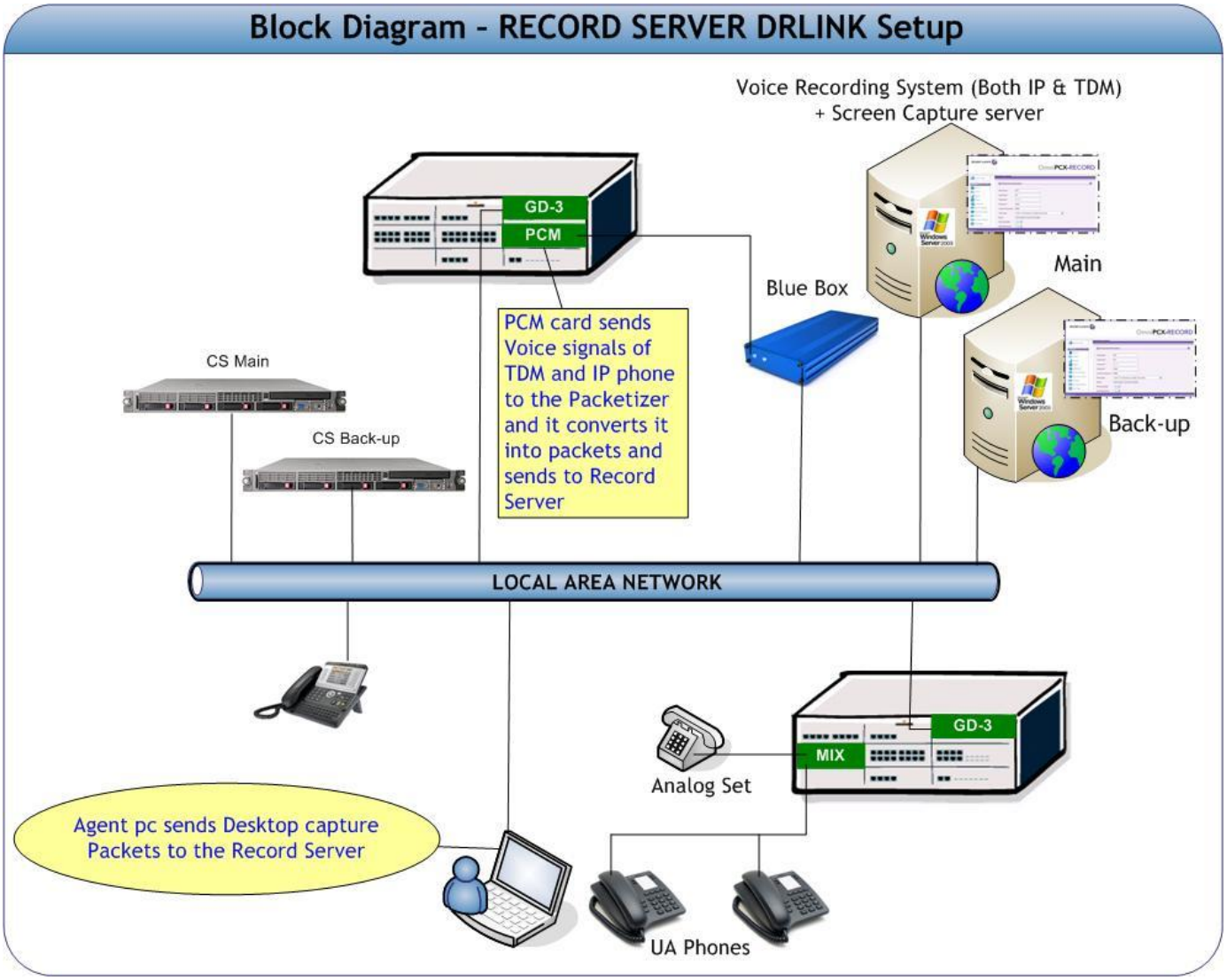
Packetizers are connected to the OXE via a dedicated PCM board. They offer Embedded DSPs for D-Channel decoding; voice processing and IP Packet streaming which is a secure encrypted IP stream of both sides of a conversion. When recording TDM extensions at least one Packetizer is mandatory. Each Packetizer is connected to the OXE using a PCM II card and can handle up to a maximum of 30 simultaneous channel recordings. Therefore the number of Packetizers required for an OPCXR solution is determined by the estimated number of calls that may be in progress at any one time.



The Image below provides a detailed illustration of the parallel activities that take place between the OXE and OPXR when a TDM call is present in the PBX.



The Image below provides a technical illustration of how the DR-LINK solution is implemented



----- [ADDENDUM] ------

- If required, Packetizers can be connected to a remote node and then shared as a resource. For more information of configuring Packetizers, please refer to the OPCXR Installation Guide.

- If required, it is possible to assign a new Gateway and Subnet Mask to the Packetizer. However, the Packetizer does not currently offer VLAN support. For more information on assigning a new gateway or subnet mask, please refer to the OPCXR Installation Guide

- When TDM calls are placed on hold, the entire held duration will be recorded as silence. This is achieved by inserting blank RTP packets in to the call.

- It is possible to configure OmniPCX RECORD so that recorded calls are separated into two files. The first file will contain the external caller and the second will contain the agent. However, if you require this feature please contact Alcatel-Lucent Professional Services who will assist in configuring the software to work in this manner.

- In order for the Packetizer to operate correctly, specific configurations need to be applied to the OXE. This includes modifying the following:

    - Modifying Specific CSTA parameters
    - Adding & configuring the appropriate number of PCM II Boards
    - Creating the required virtual recording channels
    - Specifying the appropriate shared resource settings
    - Applying the correct Software Locks

- For more information on adding and configuring Packetizers, please refer to the OmniPCX RECORD Installation guide

- It is possible for a solution to include 1 or more Packetizers. When multiple Packetizers are in use, OmniPCX RECORD chooses a recording channel using a circular selection process. See example below:

    This example is based on '3' Packetizers being used for a single OPXR Solution.

    - Call 1 Arrives – (Packetizer 1/ Channel 1) is selected
    - Call 2 Arrives – (Packetizer 2/ Channel 1) is selected
    - Call 3 Arrives – (Packetizer 3/ Channel 1) is selected
    - Call 4 Arrives – (Packetizer 1/ Channel 2) is selected
    - And so on….

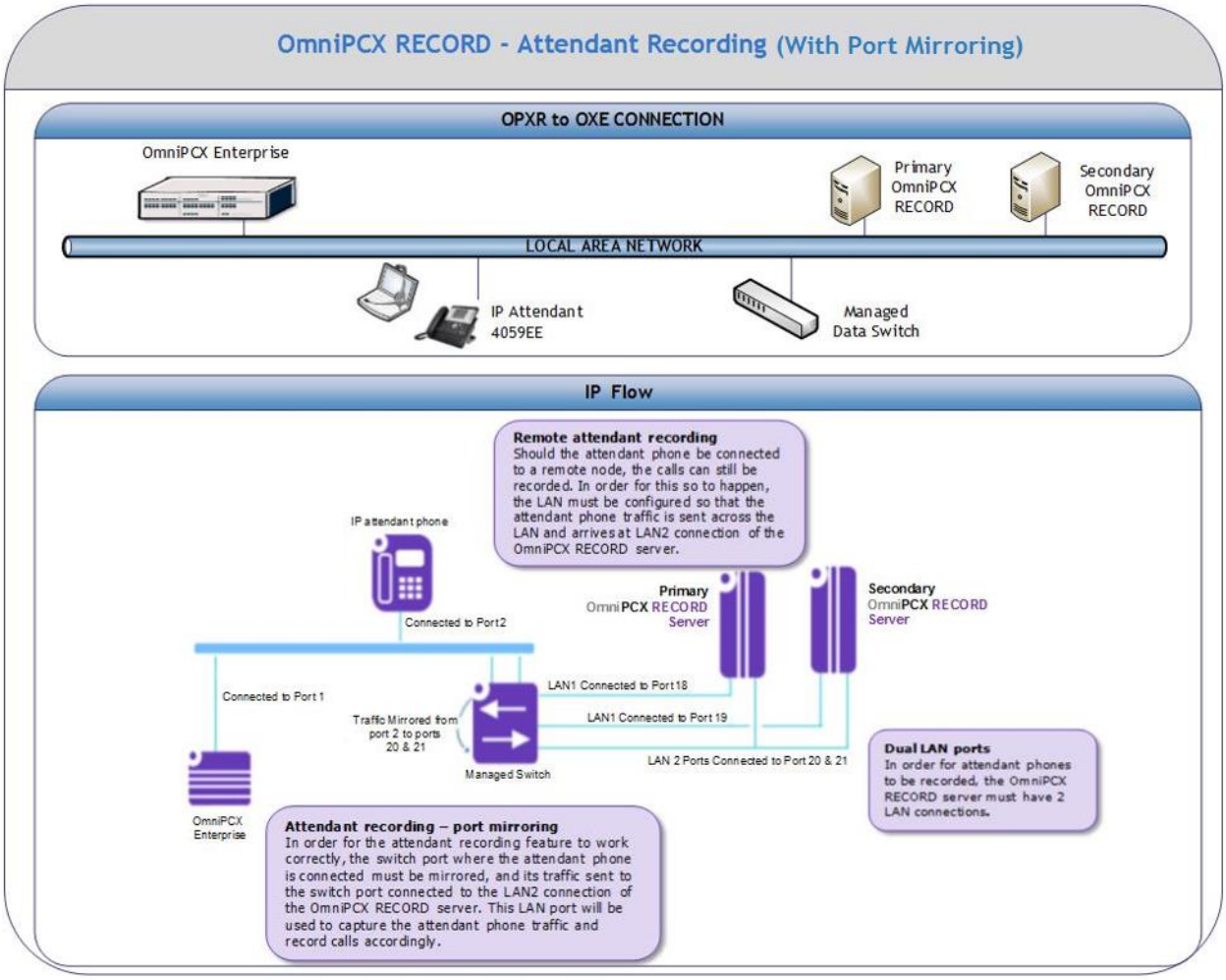
    If a call is disconnected, that channel will become free and is available for selection when the next call arrives. Following on from the example above, assume call 3 has been disconnected, the following will happen:

    - Call 5 Arrives – (Packetizer 3/ Channel 1) is selected

8.4 *Supplement – IP Attendant Recording*

8.4.1 With *Port* Mirroring

Attendant Recording is achieved using a client utility that is installed on the Attendants PC. The Client utility connects to the OXE via the Alcatel-Lucent Notifier and relays the call state information to the OPXR. Unlike IP & TDM Recording, VoIP traffic from the Attendant phone set is mirrored using a managed switch and sent directly to a separate LAN card of the OPXR Server. The image below shows the connectivity method and illustrates the IP Flow for a call that is recorded via an Attendant phone set.



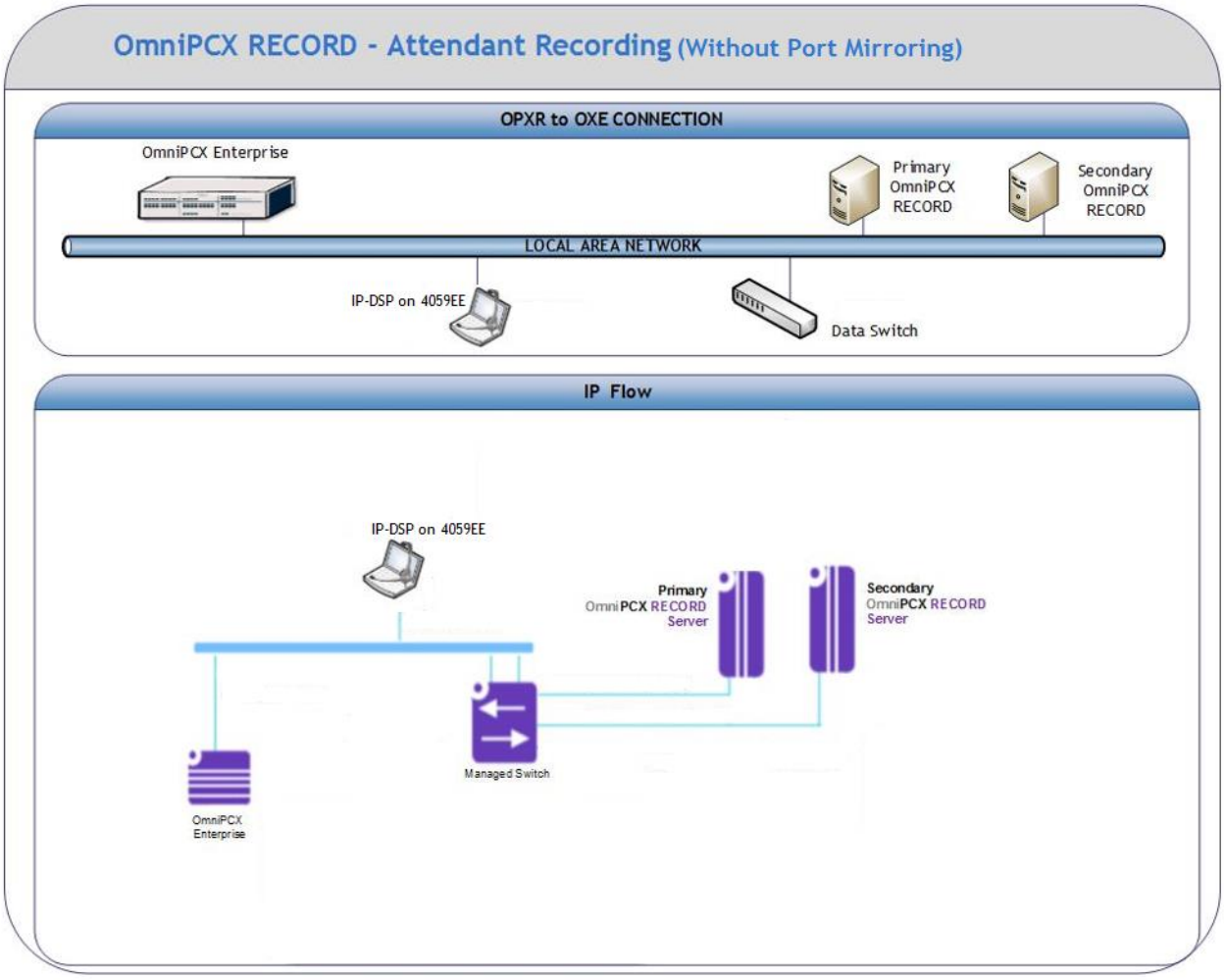
If IP Attendant (with port mirroring) is running on a VM Host then it requires two network interface cards. One for RTP traffic and the other for connectivity. OmniPCX RECORD VM needs to follow the same principle and requires two virtual network interface cards as well. Physical network interface card on host server where RTP traffic is coming, needs to be mirrored on one of the virtual network interface card of the OmniPCX RECORD server.

8.4.2 Without Port Mirroring

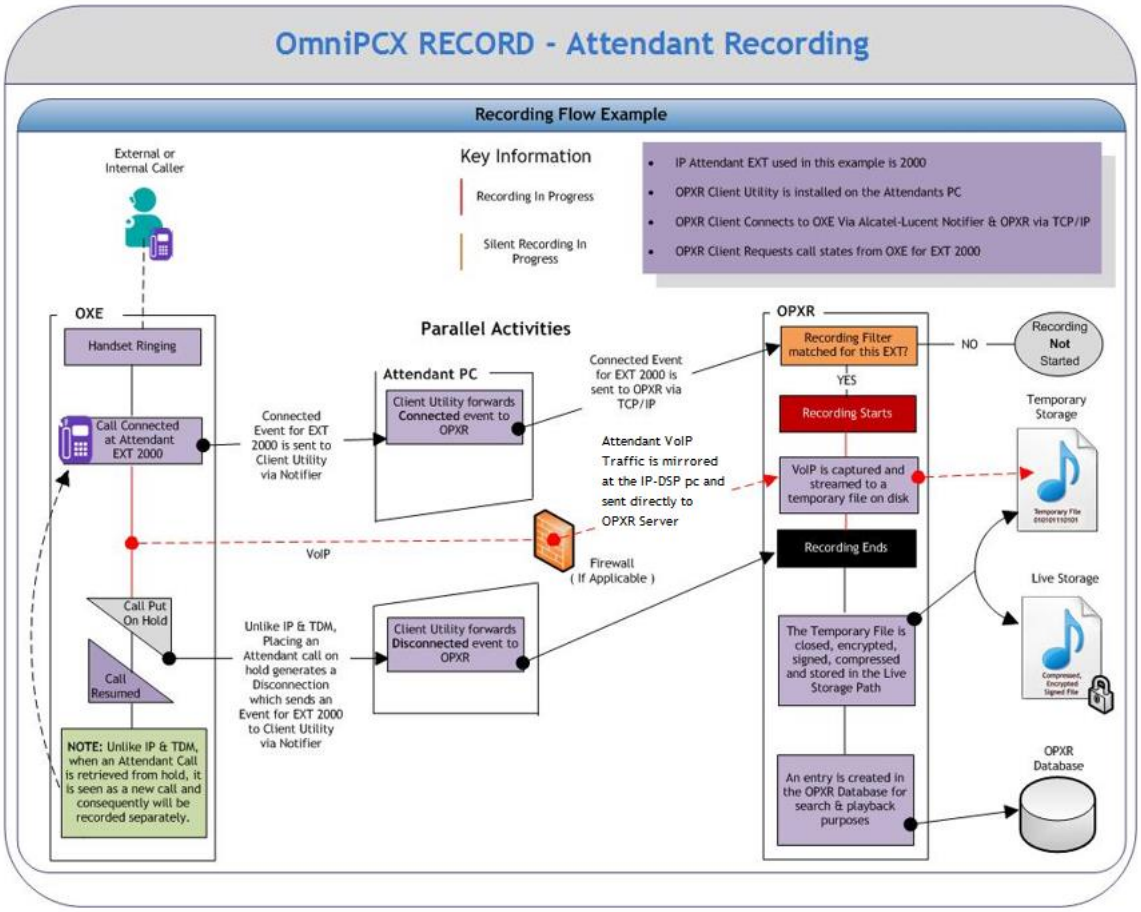
Attendant Recording is achieved using a client utility that is installed on the Attendants PC. The OmniPCX Console Client utility is connected with the 4059ee application via the Alcatel-Lucent Notifier and relays the call state information to the OPXR. Unlike IP & TDM Recording, Attendant VoIP Traffic is mirrored at the IP-DSP pc and sent directly to OPXR Server.

Note: The IP Attendant Recording without port mirroring concerns only the recording for the attendant associated to an IPDSP.

The image below shows the connectivity method and illustrates the IP Flow for a call that is recorded via IP-DSP pc.



The Image below provides a detailed illustration of the parallel activities that take place between the OXE, Attendant Client Utility and OPXR when an Attendant call is present in the PBX. The images are both with and without port mirroring scenarios.



----- [ADDENDUM] ------

- In case of IP attendant recording, the number of available records will depend on the number of times the attendant puts the call on hold.

- When using the IP Attendant Recording Feature in a Warm Standby environment, the Console Recording agent which installed on the Client PC will continually check the status of the Primary & Secondary OmniPCX RECORD Servers. Should the Primary OmniPCX RECORD Server fail for any reason, the Console Recording Agent will automatically switch to the Secondary OmniPCX RECORD Server to record IP Attendant Calls. A failover example for this can be seen below:

Example 1 - Primary OmniPCX RECORD Failure

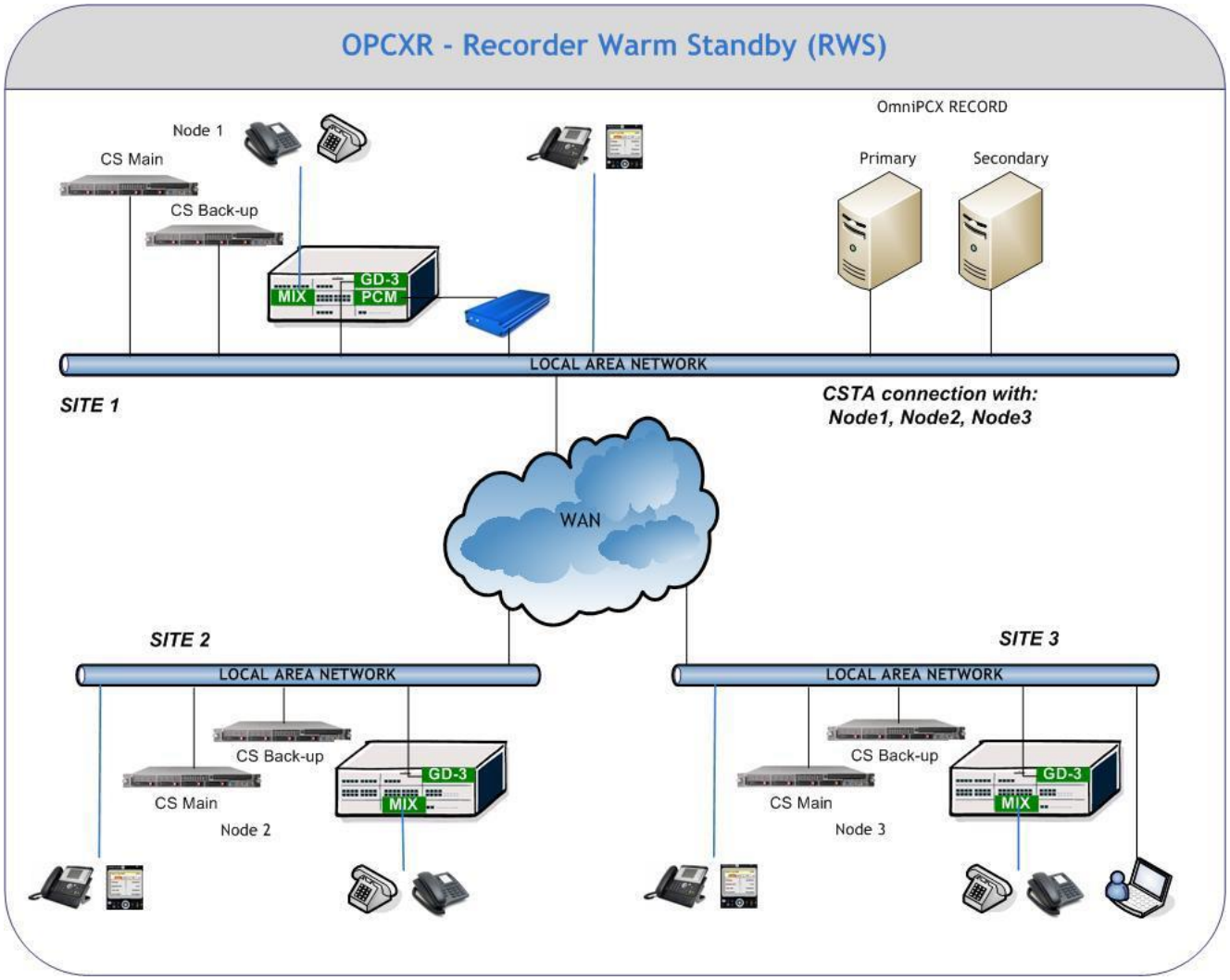
Example Reasons: Primary OmniPCX RECORD Server is no longer responding

- The Console Recording Agent instructs the OmniPCX RECORD Primary Server to record calls connected at the IP Attendant Phone, by first checking that the Server is active and then sending the request to record the call.
- Should the Primary Server not respond/become inactive, the Console Recording Agent will automatically switch to Secondary OmniPCX RECORD Server where it will perform the same actions.
- If the Secondary OmniPCX RECORD Server responds, the Console Recording Agent will instruct the Secondary Server to record the call.
- If the Secondary OmniPCX RECORD Server does not respond, the Console Recording Agent will switch back to the Primary OmniPCX RECORD Server and send a final instruction to record the call. At this stage, if there is no response from the Primary Server, the process will halt and the call will not be recorded.

Note: Even if the Console Recording Agent switches to the Secondary OmniPCX RECORD server to record a call, it will revert back to the Primary OmniPCX RECORD server for the next call and the process outlined above will be repeated.

8.5 *Supplement – Recorder Warm Standby*

Implemented using dual recording servers (Primary & Secondary), recorder warm standby offers reduced downtime recording in the event of a system failure.



Operational Overview

- RWS operates using two servers known as Primary & Secondary
- The primary and secondary servers are configured as IP loggers in the OXE so that the active server will receive duplicate IP traffic for calls that are in progress.
- The Primary & Secondary servers hold hands by using a virtual heartbeat which is set to approximately 5 seconds. This allows each server to know when the other is active or has failed
- Both the Primary & Secondary servers have identical configuration portals, however, all configuration can only be made on the Primary server
- When configuration changes are made to the Primary server, 'ALL' changes are automatically synchronized to the Secondary Server.
- When the Primary server is active, the secondary server will be on standby, but all calls recorded on the Primary server will be synchronized to the Secondary server so that they are still available in the event of a Primary Server failure.
- When the Primary Server becomes active, it will inform the OXE so that all CSTA traffic is sent to the appropriate IP logger, which will be set to the IP address of the Primary Server.
- If the Primary Server fails, the Secondary server becomes active and remains active until it is stopped and the Primary recording server is restarted. In order for the primary server to become active it must be restarted manually.
- When the Secondary Server becomes active, it will inform the OXE so that all CSTA traffic is sent to the appropriate IP logger, which will be set to the IP address of the Secondary Server.
- During a failover from Primary to Secondary, the currently active recordings will be lost, however, more details on this can be found below in the failure examples provided.
- As mentioned with the Primary server, any calls recorded on the Secondary server will be synchronized to the Primary Server when it becomes available. This ensures calls are always available from the current active server.
- Primary & Secondary server synchronizations occur approximately every 15 minutes.

- Replication process copies a call record along with the physical call file from primary to secondary or vice versa. This process flags the call record in the database when it is synced. This flag can be reset with the help of a SQL script and the replication service will replicate all the records again on secondary but the most important thing is the size of the data to replicate. If the size of the data to be replicated is huge, the number of records needs to be configured in replication service configuration file. Please contact, Alcatel-Lucent technical support team, to handle SQL scripting and replication service file changes.

OXE Failover Examples

Example 1 - CTI link Failure between OXE and OPXR

Example Reasons: Network Failure, LAN Cable Unplugged, OXE shutdown

- The call is recorded as long as OPXR receives the RTP packets.
  Note: It can take up to 1 minute to detect a failure.
- All calls are saved properly and can be retrieved using the standard OPXR search interface
- CTI link may take up to 10 minutes to be re-established
- If calls are established while the CTI link is initializing, only calls made after the CTI is fully established will be recorded (Calls in progress must be placed on hook first, after which all new calls will be recorded)

Example 2 - OXE CPU Switch Over

Example Reasons: OXE System Failure, Bascul, OXE Power Failure

- The call is recorded as long as OPXR receives the RTP packets.
  Note: It can take up to 1 minute to detect a failure.
- All calls are saved properly and can be retrieved using the standard OPXR search interface.
- CTI link is now restored with the new OXE CPU.
- CTI link may take up to 5 minutes to be re-established with the new OXE CPU
- If calls are established while the CTI link is initializing, only calls made after the CTI is fully established will be recorded (Calls in progress must be placed on hook first, after which all new calls will be recorded)

Example 3 – OPXR Recorder DB Connection Lost

Example Reasons: Network Failure between OPXR Server and DB server

- Recorder will keep on recording the calls and tries to reconnect with the DB in the background.
- Recorder will process the calls but insert the records in the DB when the connection with the DB is restored.
- If calls are established while the CTI link is initializing, only calls made after the CTI link is fully established will be recorded (Calls in progress must be placed on hook first, after which all new calls will be recorded)

Example 4 - OPXR Recorder Switch Over

Example Reasons: OPXR Manually Stopped, Network Failure

- Calls are recorded until the recorder switch over occurs.
- It may take up to 10 minutes for the inactive recorder to be operational
- Recordings in progress are lost and cannot be retrieved using the standard OPXR search interface
- Even if a call is still established after the Recorder has switched over, the voice recording will not resume
- If calls are established while the CTI link is initializing, only calls made after the CTI is fully established will be recorded (Calls in progress must be placed on hook first, after which all new calls will be recorded)

Example 5 - OPXR Recorder Failure

Example Reasons: Power Failure, Hardware Failure

- Calls are recorded until the recorder failure.
- Recordings in progress are lost and cannot be retrieved using the standard OPXR search interface

Example 6 – Site1 & Site2 Connection Lost

Example Reasons: Network Failure between Site1 & Site2

- **Sample Environment :**
  - Site 1: OXE CPUA Main, Main recorder
  - Site 2 : OXE CPUB Standby, Back-up recorder
  - Main recorder is connected to CPUA
- **Site 1 and 2 are Disconnected:**
  - Main recorder keeps recording all calls managed by CPUA
  - Backup recorder becomes new-Main; CPUB becomes Main; new-Main recorder starts recording (after CSTA initialization) calls managed by CPUB
- **Site 1 and 2 are Reconnected:**
  - CPUA remains Main and CPUB resets (based on OXE management)
  - Main recorder remains recording all calls managed by CPUA
  - new-Main recorder gets disconnected from CPUB and cannot connect to CPUA as Main Recorder is already connected with CPUA
  - new-Main will check Main recorder as part of reconnect process and see that Main recorder is available and will go to standby
  - Once the Back-up recorder returns to its back-up state, the 2 recorders Main and Back-up are synchronized. This includes all calls and any configuration changes that were made while the servers were disconnected

Example 7 – Site1 & Site2 Connection Lost in multi-node environment

Example Reasons: Network Failure between Site1 & Site2

- **Sample Environment :**
  - Site 1: OXE1 CPUA1 Main, OXE2 CPUA2 Standby, Main recorder
  - Site 2: OXE1 CPUB1 Standby, OXE2 CPUB2 Main, Back-up recorder
  - Main recorder is connected to both CPUA1 & CPUB2
- **Site 1 and 2 are Disconnected:**
  - CPUA2 moves from Standby to Main
  - CPUB1 moves from Standby to Main
  - Main recorder keeps recording all calls managed by CPUA1
  - Main recorder records now all calls managed by CPUA2
  - Backup recorder becomes new-Main; new-Main recorder starts recording (after CSTA initialization) calls managed by CPUB2
  - Backup recorder records now all calls managed by CPUB1
- **Site 1 and 2 are Reconnected:**
  - CPUA2 resets and moves from Main to Standby
  - CPUB1 resets and moves from Main to Standby
  - Main recorder remains connected to CPUA1 only and continues recording all calls managed by CPUA1
  - new-Main recorder remains active and connected to CPUB2 only. New-Main also continues recording all calls managed by CPUB2 - This is normal behavior as OmniPCX RECORD will not disconnect automatically when a Primary connection is re-established. In order to revert new-Main to its original state, it is the responsibility of the administrator to reset the new-Main recorder to standby mode

8.6 *Supplement – Supported Devices*

OmniPCX RECORD can record a variety of phone set types. For more information on the phone sets supported by OmniPCX RECORD, please refer to the Hardware & Software Specification.

8.7 *Supplement – Satellite Recording Servers*

OPCXR can be installed in multiple locations as Satellite recorders and the calls from each satellite can be streamed back to a single master server so that all calls are available from a central location. Calls are uploaded from the satellite servers via an upload utility that is installed on every Satellite 'Primary Server'. The calls and their corresponding data are then imported by the Primary OmniPCX RECORD Master.

Operational Overview

- As mentioned Satellite Recording operates using two server types known as Master & Satellite.
- Any one solution can consist of one Master Server and Multiple Satellite Servers.
- Each Satellite Server is configured with the appropriate FTP or Network Folder details via 'System Settings' in the Admin Portal. These details specify where recordings should be uploaded to.
- The Master Server is configured with the appropriate FTP or Network Folder details via 'System Settings' in the Admin Portal. These details specify from where the Satellite recordings can be downloaded & imported.
- Each satellite Server includes an upload utility that is run via the Windows Scheduler service. The upload utility uses the configured FTP or Network Folder details to upload the call recordings and their associated data which are contained in an XML File.
- The Master Server downloads the Satellite recordings & associated data using a download service which is started & stopped under the 'Server' section of the Admin Portal. As with the Satellite server upload utility, the download service uses the FTP or Network Folder details to access the calls & their associated data.
- Passive Call Servers can be recorded. This can be achieved by associating a dedicated recorder to each satellite server. Each of these recorders must be configured as a satellite server.

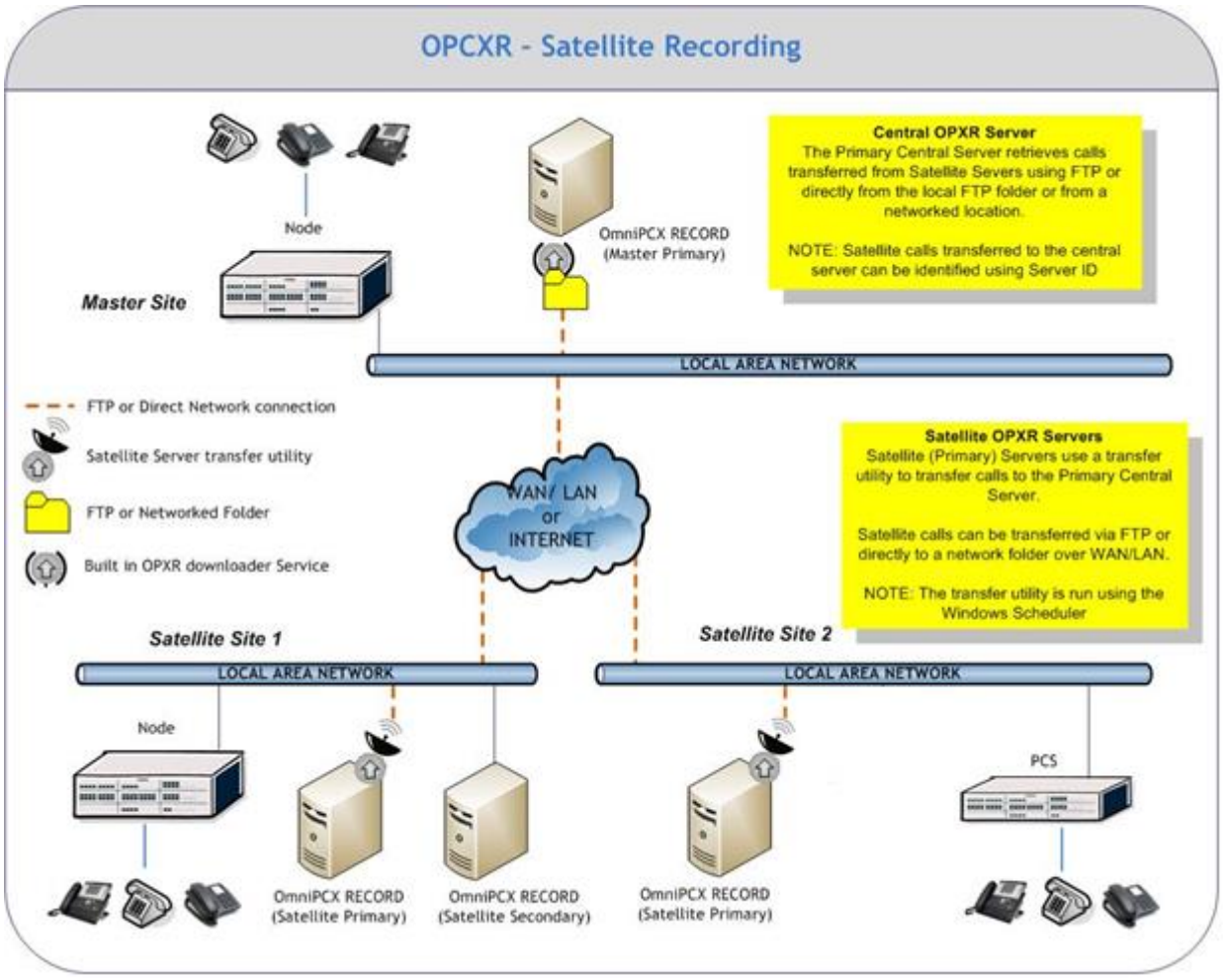
Note: For information regarding configuring Passive Call Server recorder, please refer to Administration guide.

Note: Passive Call Server recorder licenses can be operated same like recorder warm standby mode licenses.

Note: OmniPCX RECORD can support up to 5 Satellite Recording Servers if the Master Recording Database is hosted locally. However, if the Master Recording Database is hosted externally, OmniPCX RECORD will support up to 15 Satellite Recording Servers.

Limitations for satellite recorder:

- Flags and Notes are not being transferred.
- Satellite Archived Calls are not being transferred.
- Satellite extension will not have any Node associated on Master Server.
- Satellite's data cannot be edited on Master server, if it is edited it will revert back on next transfer activity.
- Passive Call Server recorder should always have same time format else, transferred calls will not be searchable on Master.
- Passive Call Server recorder can only have "Passive Call Server" added as a standalone Node.
- Passive Call Server mode supports IPDR, DR, screen capture, silent monitor, encryption and multi-tenancy and REST API.
- Passive Call Sever recorder encryption should have same password as on Master.
- It is recommended not to have Quality Monitor on PCS Recorder because assessments are not transferred to Master Recorder.
- Passive Call Server does not support recorder warm standby environment.
- Passive Call Server does not support multi-node environment.



1. Only Satellite ‘Primary’ servers perform synchronization with the Master. Should the secondary Server be active, satellite synchronization will not take place until the local Satellite Primary server becomes active.

2. Satellite Recordings uploaded to the Master Server can be identified using a 'Server ID' which depicts where the call was recorded.

3. If required, streaming from Satellite servers to the master server can be performed using FTP or Secure FTP which will require a username and password to perform the necessary tasks. However, if a LAN or WAN is available, a network transfer option is also available which requires no security credentials.

4. During the Satellite/Master transfer process, temporary folders are created under “…\OmniPCXRecord Audio\Processing” on both the Master and Satellite servers.

5. Satellite Recordings uploaded to the Master Server are tagged on the Satellite Server so that only new recordings are uploaded the next time the upload utility is activated.
6. To prevent bandwidth issues, a scheduled interval value can be set on the Master that determines the period of time used by the Master server to download calls & data that have been uploaded by satellite servers. By default this value is set to 60 minutes.

7. For the Satellite transfer process to operate via FTP, an FTP server is required. If required, the OmniPCX RECORD server can be configured and used as the FTP server.

8. The downloader service is automatically stopped on OmniPCX RECORD servers configured as ‘Satellite Servers’.

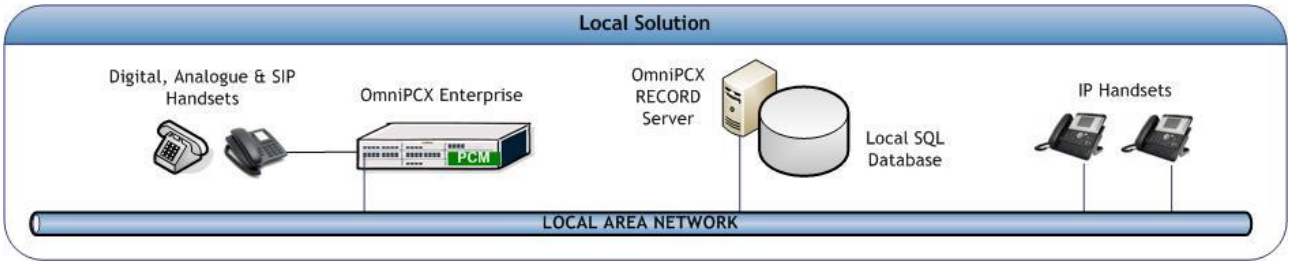
9. Two types of OmniPCX RECORD satellites are recorded by OmniPCX RECORD; OXE node satellite and Passive Call Server satellite.

8.8 *Supplement – Databases*

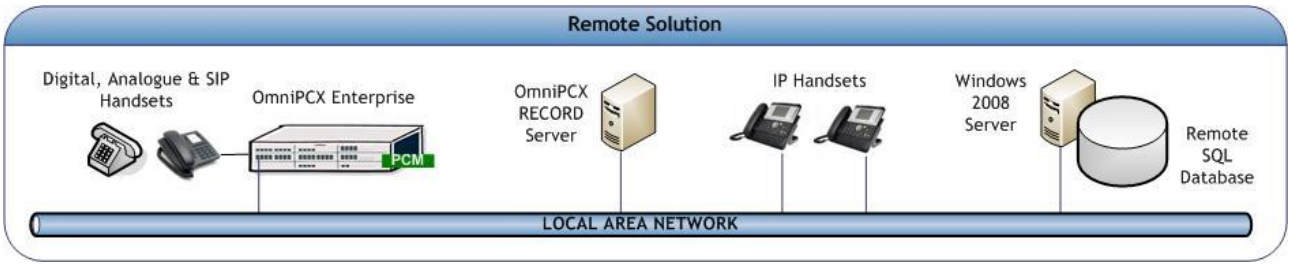
OmniPCX RECORD supports both the Express & Standard 2008/2012/2014/2016 versions of SQL. However, it is important to choose the appropriate version. To determine this it is important to consider the number of calls that will be recorded and the data that will be stored. The Express versions of SQL only support a maximum of 10 GB but are Free of Charge. However, organizations that record a large number of calls daily should consider purchasing a Standard version of SQL which allows for unlimited storage.

By default OmniPCX RECORD will expect SQL to be installed locally onto the server with OPXR. However, if required, the OPXR databases can be installed remotely. The two options are displayed below:

Local (Single Server Required)



Remote (Dual Servers Required)



----- [ADDENDUM] ------

- For more information of hosting the OPXR database remotely, please see the OPXR Installation & Administration guide.

- The instance name ‘SQL Express’ is NOT mandatory
- With the introduction of multi-tenancy, now OmniPCX RECORD install creates two databases 1) OPCXR_Config 2) OPCXR_Tenant_010001
- Database name is editable during installation and upgrade.
- For more details, please see 7.27 Supplement – Multi-Tenancy

8.9 *Supplement – Call Recording Features*

OmniPCX RECORD offers a comprehensive recording engine that in conjunction with the system level and user level recording filters, will record calls according to your requirements. Below you can find additional information that will assist you in understanding how the recording engine operates.

Held Calls

Held Calls can generate different outcomes depending on the call state. Below are several examples of the recordings that will be generated for held calls:

Held Example 1

Premise:

A single extension is monitored. (337)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368, [1 file will be generated against EXT 337]
- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [1 file will be generated against EXT 337]
- Leg3 - When the call between EXT 337 & EXT 373 is finished, EXT 373 hangs up and
  EXT 337 resumes the call with EXT 368

  Note: The file for the first call between EXT 337 & EXT 368, which was already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '2'

Held Example 2

Premise:

Two extensions are monitored. (337 & 368)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 368]
- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [1 file will be generated against EXT 337]
- Leg3 - When the call between EXT 337 & EXT 373 is finished, EXT 373 hangs up and
  EXT 337 resumes the call with EXT 368

  Note: The two files for the calls in Leg 1 between EXT 337 & EXT 368, which were already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '3'

Held Example 3

Premise:

Three extensions are monitored. (337, 368 & 373)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 368]
- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 373]
- Leg3 - When the call between EXT 337 & EXT 373 is finished, EXT 373 hangs up and
  EXT 337 resumes the call with EXT 368

  Note: The two files for the calls in Leg 1 between EXT 337 & EXT 368, which were already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '4'

Conference Calls

Calls recorded in a Conference situation can generate different outcomes depending on the call state. Below are several examples of the recordings that will be generated for conference calls.

Conference Example 1

Premise:

A single extension is monitored. (337)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368
  [1 file will be generated against EXT 337]
- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [1 file will be generated against EXT 337]
- Leg3 - EXT 337 conferences EXT 368 into the call with EXT 373
  [1 file will be generated against EXT 337]

  Note: The file for the first call in Leg 1 between EXT 337 & EXT 368, which was already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '3'

Conference Example 2

Premise:

Two extensions are monitored. (337 & 368)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 368]
- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [1 file will be generated against EXT 337]
- Leg3 - EXT 337 conferences EXT 368 into the call with EXT 373
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 368]

  Note: The two files for the calls in Leg 1 between EXT 337 & EXT 368, which were already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '5'

Conference Example 3

Premise:

Three extensions are monitored. (337, 368 & 373)

Scenario:

- Leg1 - EXT 337 is in a call with EXT 368
  [2 files will be generated. 1 against EXT 337 & 1 against EXT 368]

- Leg2 - EXT 337 receives a second call from EXT 373.
  EXT 337 puts the first call with EXT 368 on hold and answers the call from EXT 373
  [2 files will be generated. 1 against EXT 337 and 1 against EXT 373]

- Leg3 - EXT 337 conferences EXT 368 into the call with EXT 373
  [3 files will be generated. 1 against EXT 337, 1 against EXT 368 & 1 against EXT 373]

  Note: The two files for the calls in Leg 1 between EXT 337 & EXT 368, which were already being recorded, will now also include the hold time.

Total Number Recorded Files Generated = '7'

8.10 *Supplement - Multi-Line Recording*

A multiline set is a business set with several lines:

- Lines which have the same number as the set number
- Lines which haven't the same number as the set number

Summary of the behaviour of records with multiline sets:

Inbound calls: The "Device" is the physical set and the "Called to" is the multi-line number.

Outbound calls: The "Device" is the physical set (and not the multi-line extension)

----- [ADDENDUM] ------

Limitation: OmniPCX RECORD cannot differentiate between single and multiple lines on Attendant Extensions. Therefore, currently ALL calls made from the Attendants extension will be recorded without any consideration for multiple lines.

8.11 *Supplement – System Capacity*

The capacity of the product is determined by the number of simultaneous recordings and the modules that are being actively used. As each organization has different requirements, OmniPCX RECORD manages this by offering a tiered approach using units to identify the system capacity.

User Type	Unit Cost
IP Extension	1 Unit
TDM	1.5 Units
E1 Trunk	45 Units
T1 Trunk	36 Units
IP Attendant	3 Units (Maximum 25 IP Attendants for any system specification)
Screen Capture User	3 Units
Silent Monitor	5 Units (Maximum 5 users for any system specification)
Quality Monitor User	1 Unit
SIP Extension/SIP Trunk	1 Unit
SIP Video	3 Units
REST API	1 Unit

Units	Maximum Extensions
20	**Maximum 80 Monitored Extensions****
70	**Maximum 280 Monitored Extensions**
150	**Maximum 600 Monitored Extensions**
400	**Maximum 1600 Monitored Extensions**
Virtual Sever - 70	**Maximum 280 Monitored Extensions**
Virtual Server – 200	**Maximum 800 Monitored Extensions**

** IPDR calls only. No additional options such as screen capture, quality monitor etc. are supported.

For detailed information on the Hardware & Software requirements & Limitations, please refer to the product Hardware & Software specification document.

----- [ADDENDUM] ------

- The maximum number of channels that can be recorded simultaneously is currently 400

8.12 *Supplement – Virtualization*

OmniPCX RECORD can operate in a virtualized environment. However, the physical server must meet the required specification to support the Virtual PC. The specification of the Physical Server must be obtained from the supplier of your Virtual Solution.

OmniPCXRecord now supports ESXi 6.5. However, it has been validated with the following options:

- Hyperthreading
- vCPU Reservation
- vCPU Overprovisioning
- vRAM Reservation
- vRAM Overprovisioning

The values for the above parameter can be set to Yes or No and any combination of the above parameters can be used.

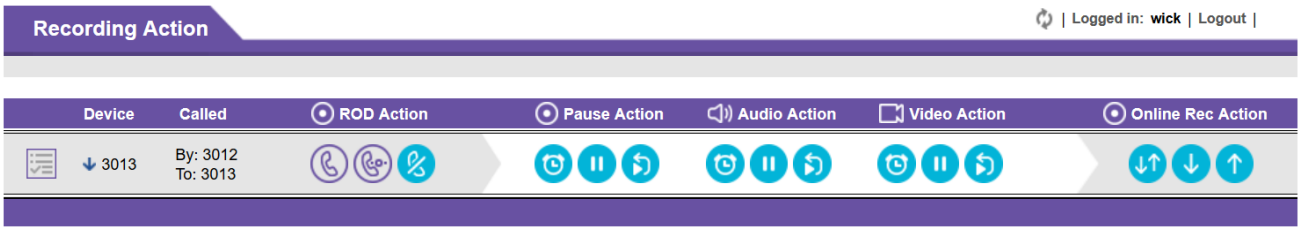
Additionally, there are some limitations when operating OmniPCX RECORD in a virtualized environment. For more information on this please refer to the hardware & software specification.

8.13 *Supplement - Pause & Resume Recording*

During a call, Agents can access their desktop interface and pause the current recording. This is particularly important when taking sensitive credit card information over the phone. Once the sensitive details have been collected, the Agent can also resume recording manually. However, as this relies on human intervention it is not deemed best practice and therefore OPCXR also provides the ability to resume recording automatically after a pre-determined period which is set by the Administrator.

Finally, it may not be appropriate for Agents to Access the OPCXR interface and therefore the Pause & Resume features have also been made available from the API, allowing the features to be implemented into 3rd party applications that the agents use on a regular basis (Such as a sales order system)

An example Screenshot can be seen below:



Important! This screen refreshes after every 5 seconds.

8.14 *Supplement – Encryption & Digital Signing*

To prevent unwanted access to recorded calls, recordings can be encrypted using a passphrase that is also required to decrypt the physical audio file. By implementing encryption the call can only be played back via the OmniPCX RECORD interface and not via any other 3rd party media players.

OmniPCX RECORD generates encryption using a 128 bit Rijndael Algorithm in conjunction with a SHA-1 digital signature, which if needed can demonstrate that a file has not been manipulated or tampered with in anyway. If a file is tempered in anyway then playing this file via OmniPCXRecord player will generate a warning message. This is particularly important if a recording is required for legal purposes

----- [ADDENDUM] ------

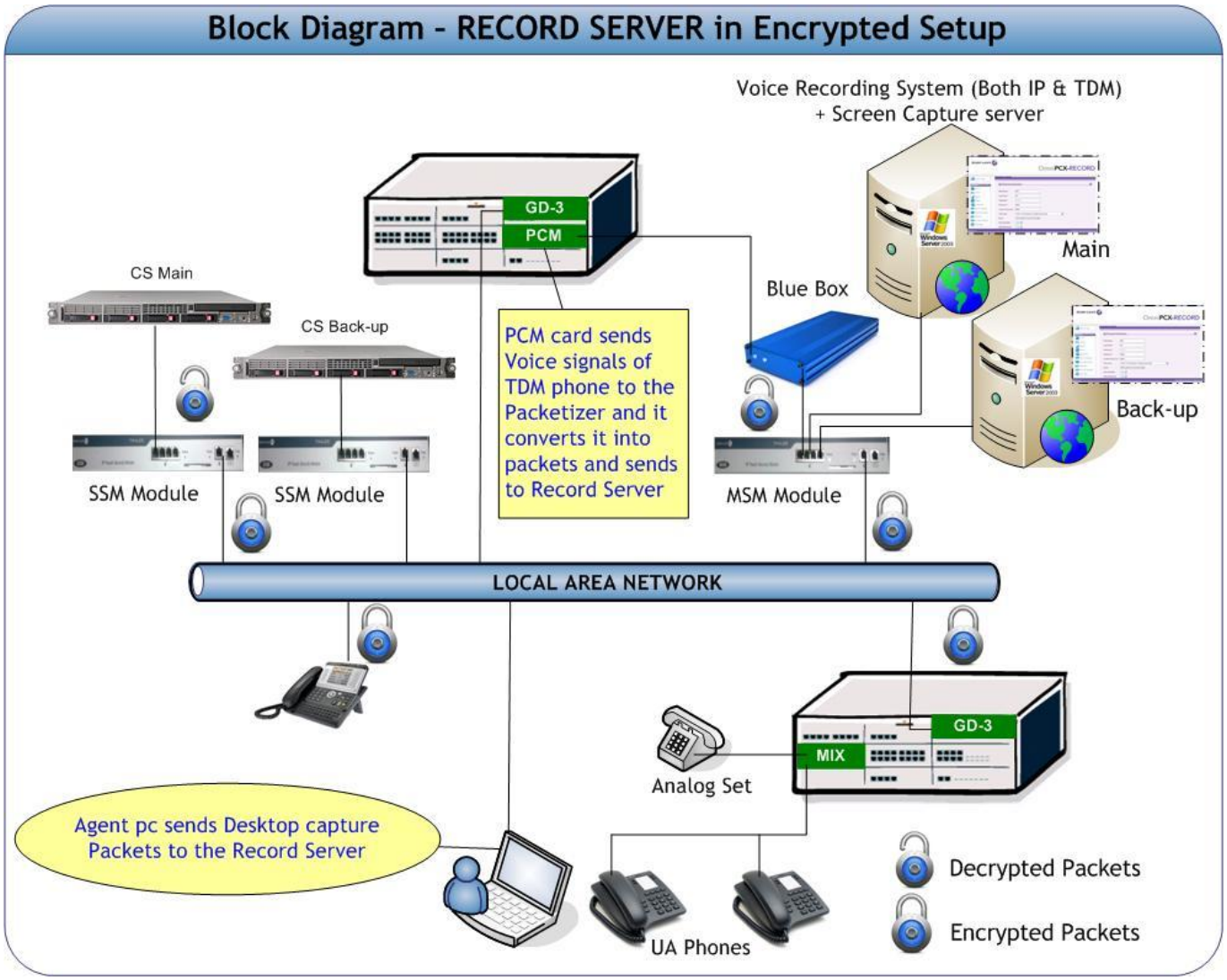
- Calls recorded using Encryption can only be played back using the OmniPCX RECORD embedded media player that is included with the product. This prevents direct unauthorized access to the recorded files and adds additional security for PCI compliance purposes. However, if users with the appropriate access download a call using the OmniPCX RECORD download feature, the call is automatically decrypted so that it can be reviewed using any 3rd party media player.

- For more information on PCI Compliance, please see the OmniPCX RECORD PCI Client Strategic White Paper.

- **WARNING:** To encrypt recordings using OmniPCX RECORD, the software administrator has to supply a secure password. This password is then used/required to decrypt the calls when they are played back. It is important to note that if the password used to encrypt the calls is lost or forgotten, there is no way to recover the recorded files.

8.15 *Supplement – Thales Encryption*

For additional security, OmniPCX RECORD can also be used in conjunction with an MSM module.



Note: A maximum of 250 channels can be used in an Encrypted recording environment.

8.16 *Supplement – Recording Policies*

OmniPCX RECORD offers the ability to record ALL calls, whether they be inbound, outbound, external or from one extension to another. However, OmniPCX RECORD also offers the added benefit of filtering the calls to be recorded.

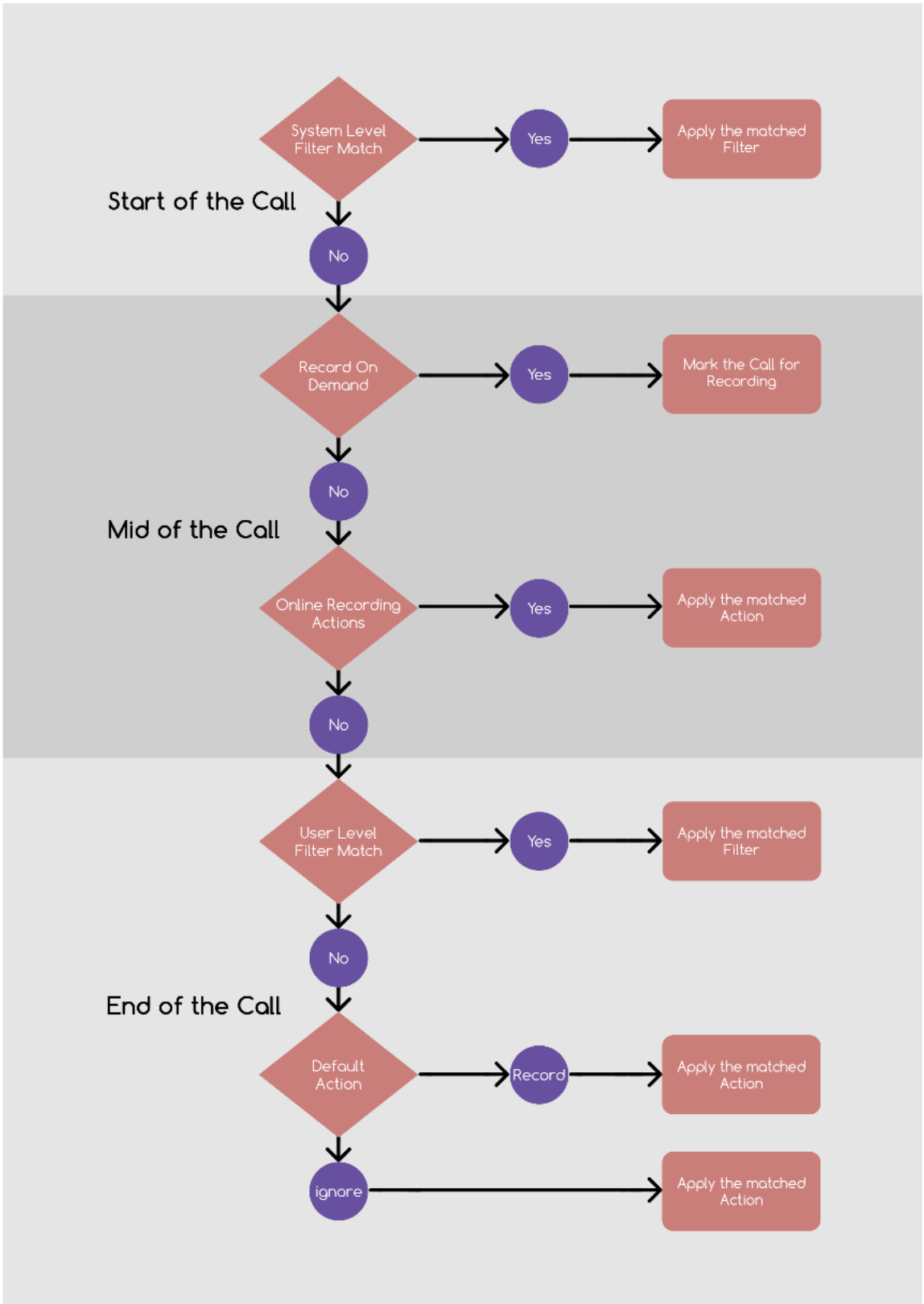
There are two types of filters as follows:

System Level Filters (Recording Filters)
These filters are applicable on all calls for a site and can only be added/enabled by the site administrator to specify which calls should be recorded by adding a series of rules. Each rule instructs OmniPCX RECORD what to do when a call is matched by a recording filter. There can be multiple rules in one system level filter.

System level filters always take priority over user level filters and Record on Demand. This means that if a system filter is matched, user level filters or record on demand will NOT be instigated. This is to avoid users overriding filters and preventing calls being recorded.

User Level Filters (Recording Rules)
These filters can be added/enabled by a site administrator or the agent himself. A user level filter, as the name suggests, is a filter applied on calls for a specific user. Unlike system level filters where several rules can be part of one filter, user level filters are added individually. Day/time can also be configured for user level filters.

The flow chart provided below explains how OmniPCX RECORD will perform when a call arrives.


Start of the Call
System Level Filter Match
Yes
Apply the matched Filter
No
Mid of the Call
Record On Demand
Yes
Mark the Call for Recording
No
Online Recording Actions
Yes
Apply the matched Action
No
End of the Call
User Level Filter Match
Yes
Apply the matched Filter
No
Default Action
Record
Apply the matched Action
ignore
Apply the matched Action

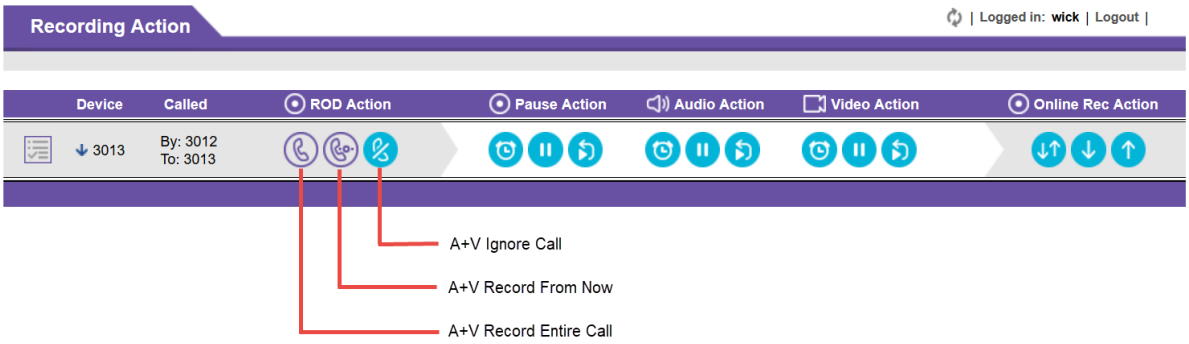
8.17 *Supplement – Record on Demand*

Record on Demand (ROD) provides the ability for Agents to instigate recording directly from their OmniPCX RECORD portal, from their Phone set and even from a 3rd part application by using the OmniPCX RECORD API.

ROD operates by detecting when a call is connected and then providing two recording options via the user interfaces mentioned above. These options are as follows:

- Record Entire Call - if this option is instigated during a call, OmniPCX RECORD will record the call from the very beginning.
- Record Call From Now – if this option is instigated during a call, OmniPCX RECORD will record the call starting at the point when the option was chosen. The content of the call prior to this will NOT be recorded.
- Ignore Call – if this option is instigated during a call, OmniPCX RECORD will not record the call at all.

The Image below shows a sample screenshot of the ROD options that are available from the users portal when a call is active.



----- [ADDENDUM] ------

- OmniPCX RECORD Requires a Presentation Server (PRS) to be installed and configured for Record on Demand to be instigated from the user's phone set.
- In order to make Record on Demand accessible to an Agent, it must first be enabled on the Agents Extension via the administration portal. Choosing the appropriate ROD option should be carefully considered due to the following reasons:

  1. When the 'Record Entire Call' option is granted to an agent, the Agent will also have the ability to 'Record from Now'.
  2. Because 'Record Entire Call' captures the call from the very beginning, calls taken by the agent will immediately consume a recording license when a call is connected.

3. When the ‘Record from now’ option is granted to an agent, the agent will NOT have the ability to ‘Record Entire Call’.

4. Because ‘Record from Now’ begins to capture a call only when requested, calls taken by the agent will only consume a recording license after the Record from Now option is selected.

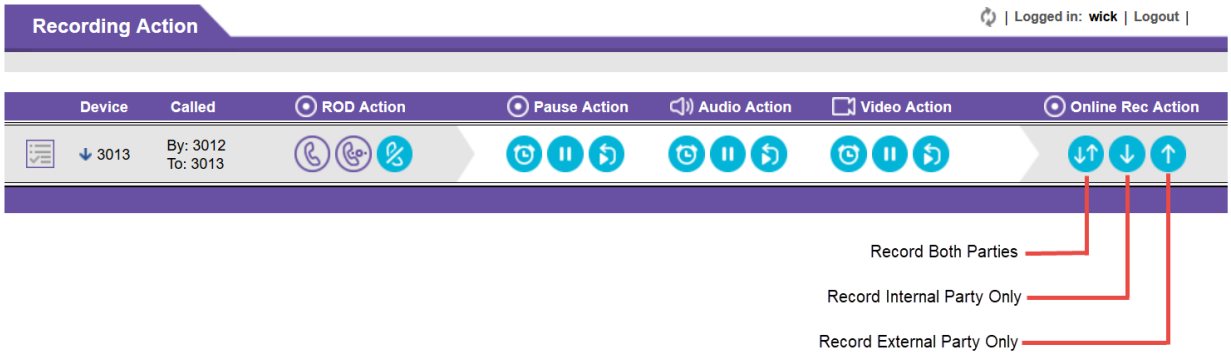
8.18 *Supplement - Online Recording Actions*

Online Recording Actions provide the ability for Agents to choose which call parties are recorded. This is particularly important as it complies with regulations that need to be adhered to in some geographical locations.

The online recording action operates by detecting when a call is connected and then providing three recording options via the users interface or if required via the OmniPCX RECORD API Interface. These options are as follows:

- Record Both Parties - if this option is instigated during a call, OmniPCX RECORD will record both call parties.
- Record Local Party – if this option is instigated during a call, OmniPCX RECORD will only record the Agents side of the call and the External party will be omitted.
- Record External Party – if this option is instigated during a call, OmniPCX RECORD will only record the External side of the call and the Agent party will be omitted

The Image below shows a sample screenshot of the online recording actions that are available from the user's portal when a call is active.

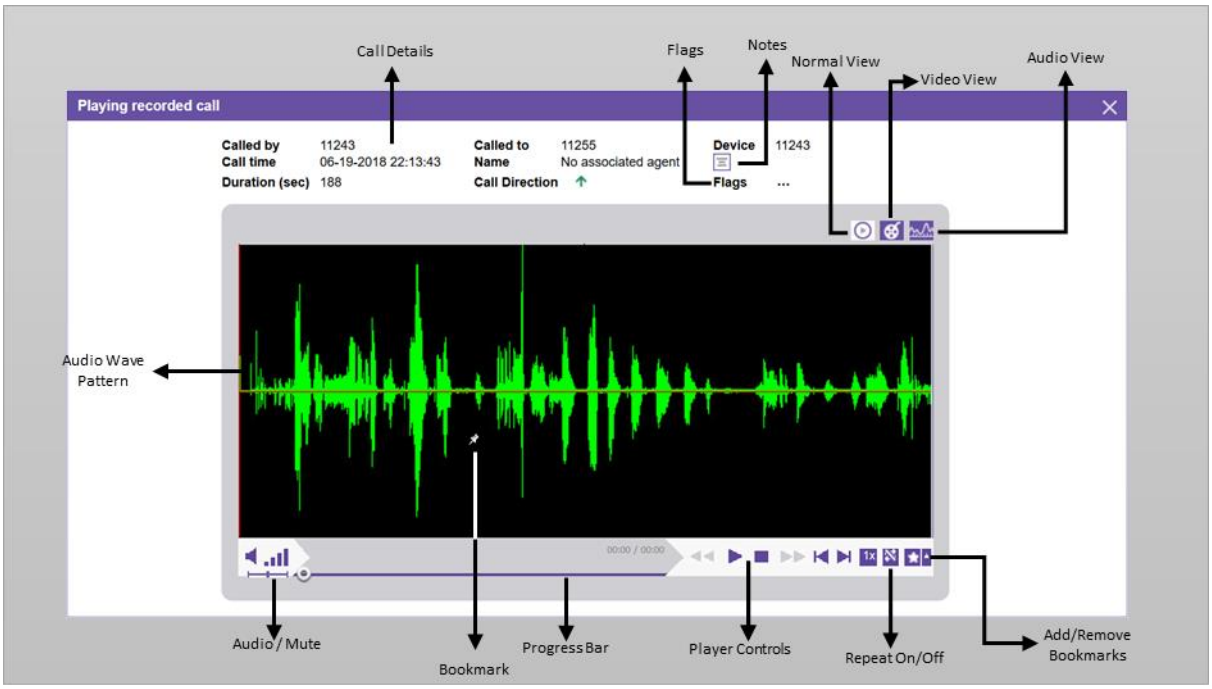


Important! This screen refreshes after every 5 seconds.

Important! This screen will appear only if the user has enable recording action permission.

8.19 *Supplement – OmniPCX RECORD Player*

OmniPCX RECORD offers an embedded player that supports both audio and video calls. Unlike standard media players, the embedded player includes the ability to decrypt calls that have been encrypted using the OmniPCX RECORD encryption algorithm.

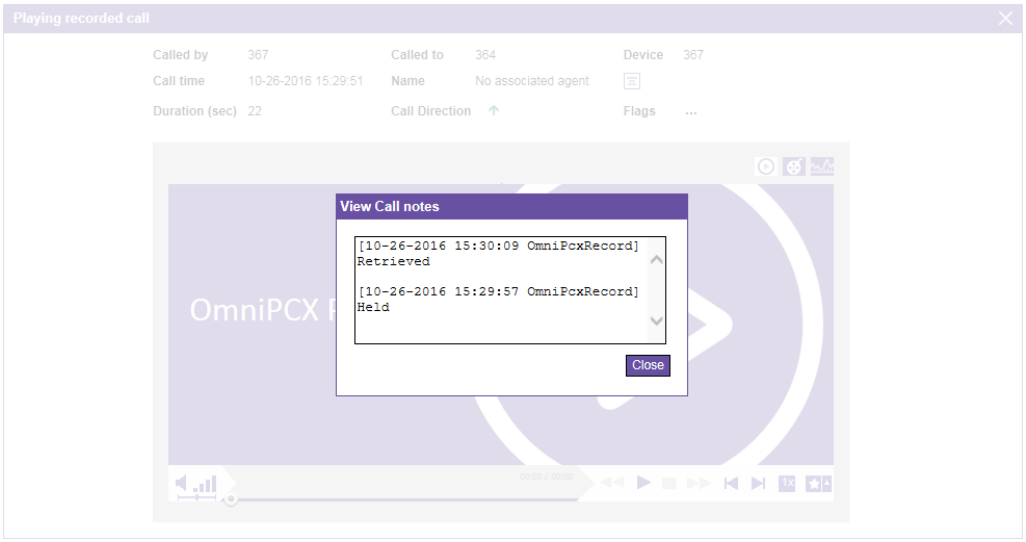


Note: The OmniPCX RECORD Player, plays calls using the Microsoft Media Player. If you intend to use Firefox for playing calls, unlike internet Explorer, the Microsoft Media Player plugin must be installed prior to using the application. Please refer to the Hardware & Software Specification for more information.

Note: In order to ensure the recorders performance is as high as possible, a separate background call graph service has been introduced. For most solutions the service is not required and is therefore deactivated by default. The service can only be activated by the Alcatel-Lucent technical support team for large scale or complex topologies which require additional computing power.

Note: In order to mix the recorded media streams, OmniPCX RECORD uses a background service named 'OMNIPCXRecordMixing'. This service can only be activated by the Alcatel-Lucent technical support team for large scale sites which require additional computing power.

During playback, a user can also check how many times a call was put on hold and when it was retrieved. To check this information, please click on the Notes icon and it will display the information as follows:



8.20 *Supplement – Search Calls*

OPCXR includes a comprehensive search feature that enables you to locate the desired recording quickly and accurately. When searching for calls, the administrator, Supervisors and Agents (If specified) have access to the search facility. Search options available are as follows:

Search Features

- Real time search results via personalized dashboard
- Advanced Query builder (Allows Search Criteria to be saved)
- Search count (Refine the number of recordings to be returned before executing the criteria)

Search By

- Team
- Agent First Name
- Agent Last Name
- Time Zone
- Date & Time
  - Today
  - Yesterday
  - Past 1 Hour
  - Past 4 Hours
  - Past 7 Days
  - Past 30 Days
  - Past 'N' Days (User Specified)
  - From & To Date (User Specified)
- Archived calls
- Device hangup
- Video Calls
- No associated agent
- Global Call ID
- Server ID
- Server Role
- Correlator ID
- Device
- Call Direction
- Called By
- Called To

  Note: The 'Called To' field contains the OXE translated 'Called Number'. Please refer to the relevant OXE programming guide for more detail on number translation."

- Duration
- Flag
- Notes
- Call Status
- Call Type
- Call Scored
- Primary Node IP
- Secondary Node IP

- Recording Interface
- Recording Rules

Sort by (Ascending or Descending)

- Call Date
- Device
- Call ID
- Called by
- Called to

  Note: The 'Called To' field contains the OXE translated 'Called Number'. Please refer to the relevant OXE programming guide for more detail on number translation."

- Call Duration
- Agent Name
- Server
- Correlator ID
- Server ID
- Call Scored

Order by (Ascending or Descending)

- Column header

8.21 *Supplement - Silent Monitor*

The silent monitor feature streams live calls directly back to the browser using VLC player. When using Silent monitor with Firefox there are some constraints that should be considered. For more information on the supported VLC player versions & Firefox constraints, please refer to the Hardware & Software Specification.

8.22 *Supplement – Credential Management Assistant*

IIS Updator has been replaced with a another tool Credential Management Assistant (CMA). This tool can be used anytime in the event of a change of password for the account associated with OmniPCX RECORD and its related services. This tool updates the new password automatically in all the required areas in IIS and for OmniPCX RECORD services. For more details please see OmniPCX RECORD Admin Guide.

8.23 *Supplement – Database Management Utility*

Database management utility is specifically designed to support OmniPCX RECORD upgrading process. This utility provides the database upgrade stats and tools to eliminate any errors occurred while upgrading. It can also be used for regular database maintenance tasks such as database index rebuilding, information about databases, database backup & restore and executing SQL statement directly on the OmniPCXRECORD databases. A feature has been introduced in this utility for record audit that scan the OmniPCXRecord databases and confirm if the recording is genuine or tempered. For more information, please see Database Management Utility R2.3.

8.24 *Supplement - RADIUS Server Authentication*

Remote Authentication Dial-In User Service (RADIUS) is a client/server protocol and software that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. RADIUS allows a company to maintain user profiles in a central database that all remote servers can share. It provides better security, allowing a company to set up a policy that can be applied at a single administered network point.

OmniPCX RECORD has both the ability to store usernames and passwords as a stand-alone application or for enterprises that already use a Radius server to authenticate users; it can send all requests off for authentication.

8.25 *Supplement - Active Directory (AD) Authentication*

Active Directory (AD) is a directory service that Microsoft developed for Windows domain networks. It is included in most Windows Server operating systems as a set of processes and services. Active Directory Services consist of multiple directory services. The best known is Active Directory Domain Services that stores information about members of the domain, including devices and users, verifies their credentials and defines their access rights.

A feature has been implemented to access containers in Active Directory. Settings are added on system page for server administration. There are three type of settings for Active Directory:

- Default (Parent level users only)
- Include all containers
- Specific containers

8.26 *Supplement - Multi-Tenancy*

The term "software multitenancy" refers to a software architecture in which a single instance of software runs on a server and serves multiple tenants. A tenant is a group of users who share a common access with specific privileges to the software instance. With a multitenant architecture, a software application is designed to provide every tenant a dedicated share of the instance - including its data, configuration, user management, tenant individual functionality and non-functional properties.

IMPORTANT: By default, multi-tenancy will be disabled and it will not work while OmniPCXRecord is running in trial mode. A valid **Multi Tenant Foundation Pack** license is required.

There will be separate two separate web interfaces for server and site administration. The file names for site login is **Default.aspx** and for server administration, it is **TenantAdmin.aspx**.

In OmniPCXRECORD, a tenant is the top entity in hierarchy and single or multiple sites can be created underneath each tenant. The OmniPCXRECORD licenses are shared among tenants which are then associated with sites under those tenants.

In case of a fresh install, the OmniPCXRECORD install always creates two databases by default. OPCXR_Config that keeps all the configuration data and OPCXR_Tenant_01001 that has all the details of the default tenant with a site 010001 created by default.

In case of an upgrade from an old release to 2.3.0.19, the OmniPCXRecord will bifurcate the existing database into OPCXR_Config and OPCXR_Tenant_010001.

Whenever a new site is created, the system creates a separate database for that site. The database name is constructed by combining the tenant and site code. For e.g. If you create a new site in the default tenant then the database name will be as follows:

OPCXR_Tenant_010002

- Database name prefix
- Tenant code
- Site number

The above database name tells you that there is a second site created for the default tenant. Similarly, if a new tenant is created along with two new sites within that tenant then the following databases will be created:

OPCXR_Tenant_020001
OPCXR_Tenant_020002

Although, the database name of the default tenant is OPXR_Tenant_01001 but the name of the mdf and ldf files for the default tenant remains OmniPCXRecord.mdf and OmniPCXRecord_log.ldf. All other tenants have the same mdf and ldf file names as their database names.

A site code is a combination of tenant code + site number. The default site code is 010001. This site code is also visible in the database name that the system creates for each site.

The status of a tenant and site can be as follows:

Active
If the status of a tenant or site is active then this means that both recording and web access are enabled for all sites under that tenant.

Suspended
If the status of a tenant is suspended then this means recording of all the sites under that tenant is stopped but web access is available so that the users of the sites can still have access to the data. Similarly, if a site is suspended then this means recording of that particular site is stopped but web access is available for its user to access data. Site licenses will remain intact.

Disabled
If the status of a tenant is disabled then this means both recording and web access are disabled for all the site under that tenant. Similarly, if a site is disabled then both recording and web access will not be available to its users. Licenses associated with the sites will be revoked.

A different prefix can be assigned to the same node while creating a site but one prefix cannot be assigned to more than one site. This prefix will be concatenated with the extension number created for a site and it will be stored in the database as a fully qualified number.

Example:

Site Code:	010001
PBX Node:	192.20.0.25
Prefix:	3
Extension:	501
Fully Qualified Number:	3501

Site Code:	010001
PBX Node:	192.20.0.25
Prefix:	4
Extension:	501
Fully Qualified Number:	4501

IMPORTANT: A parameter “SiteCode” has been introduced in the OmniPCXRecord SOAP API methods. If the value of the “SiteCode” is not provided then the default value “010001” will be used.

IMPORTANT: OmniPCXRecord supports user friendly urls which are dedicated urls for sites. For details please check the relevant OmniPCXRecord install guide for more details.

GetNodesInformation, GetPacketizersInformation, GetServerStatus, IsRecordingStarted SOAP API methods will be authenticated by the server administrator user and rest of the methods will be authenticated by site administrator user.

IMPORTANT: A REST based API has been introduced that supports this evolution natively and will be replacing the SOAP API by the end of 2018. However, SOAP API will remain supported until 2022 but only for bug fixing (no further enhancements).

8.27 *Supplement – Email Templates Enhanced*

Each email template uses variables and the detail about the variables available in the email templates is as follows:

Source - [MODULENAME]
It will display the module name where the incident has occurred. For example Recording Service, Screen Capture etc.

Server role - [SERVERROLE]
It will display the server role i.e. Primary or Secondary.

Log level - [INCIDENTTYPE]
It will display if the incident type is critical error, warning, error or information.

Description - [DESCRIPTION]
It will display the description of the incident.

Incident - [INCIDENTTITLE]
It will display title of the incident.

Event ID - [EVENTID]
It will display the ID of an incident. Please note that this ID is different than windows event ID.

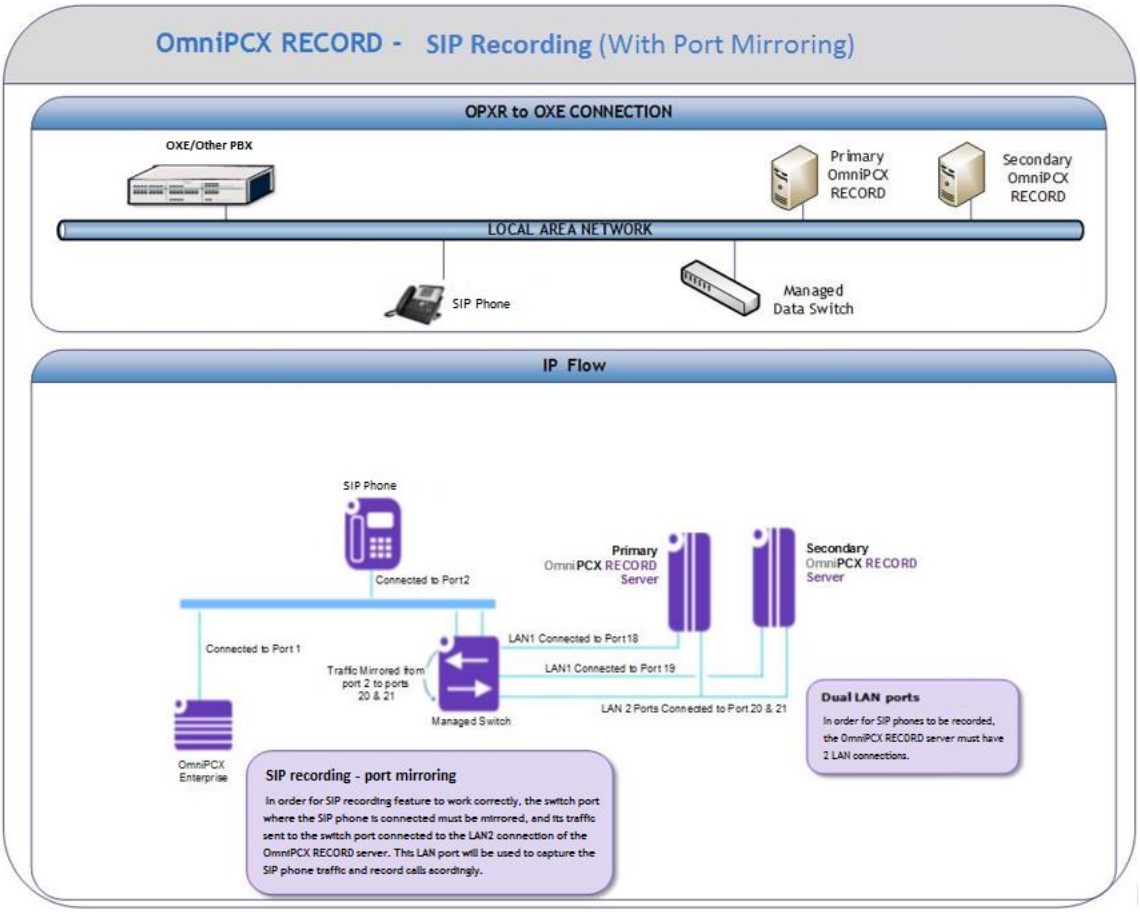
Date and Time - [EVENTDATETIME]
It will display the date and time of the incident. Please note that this event date and time is different than windows event date and time.

Alert conditions detected - [X]

It will display a count for number of times an incident has occurred.

8.28 *Supplement - SIP Extension Recording (With Port Mirroring)*

The SIP Recorder receives all the call events, audio RTP and video RTP from the network card of the machine as it has no direct connection with the OXE/Node. Unlike IP & TDM Recording, the traffic from the SIP phone set not on DR-Link, is mirrored using a managed switch and sent directly to a separate LAN card of the OPXR Server. The image below shows the connectivity method and illustrates the IP Flow for a call that is recorded via a SIP phone set not recordable on DR-Link.



If SIP Recording Server (with port mirroring) is running on a VM Host then it requires two network interface cards. One for RTP traffic and the other for connectivity. OmniPCX RECORD VM needs to follow the same principle and requires two virtual network interface cards as well. Physical network interface card on host server where RTP traffic is coming, needs to be mirrored on one of the virtual network interface card of the OmniPCX RECORD server.

Following is a table related to **SIP messages** and **tags (compliant to RFC 3261)** that **OmniPCX SIP server** is currently using.

Message Identifier	Tags
INVITE	• call-id • from • to
STATUS200	• call-id • from • to • recvonly • sendonly • inactive • sendrecv
CANCEL	• call-id • from • to
ACK	• call-id • from • to
BYE	• call-id • from • to
STATUS481	• call-id • from • to
STATUS408	• call-id • from • to
STATUS407	• call-id • from

	• to
STATUS486	• call-id • from • to
STATUS400	• call-id • from • to
STATUS302	• call-id • from • to • contact
STATUS429	• call-id • from • to
STATUS603	• call-id • from • to

8.29 *Supplement – REST API*

REST based API has been introduced that will replace the existing SOAP API in near future. This REST API offers comprehensive methods to system configurations, actions to be performed over live calls and call search functionality. A license is associated with this API which is a concurrent license. Please note that this API is NOT a replacement for the OmniPCXRecord configuration web interface. Please refer to the REST API document for the available options.

A token is required to access the REST API methods. The REST API works with both primary and secondary servers. However, there are limitations associated while working with secondary server. Please review the admin guide for more information about the API token and secondary server limitations.

8.30 *Supplement – Screen Capture*

There are two components required for a video call. Screen Capture Server which is installed on the server machine along with OmniPCX RECORD and Screen Capture Client which is installed on a client machine that captures the activity of an agent during the call. When an agent receives a call, screen capture client becomes active and starts sending screenshots (images) to the Screen Capture Server after every second. These screenshots are saved in a temporary folder and when the call ends, the Screen Capture Server combines these screenshots to create a video file. The system deletes these screenshots automatically once the video call is created. This auto deletion mechanism is configurable. There is also a process that deletes any remaining screenshots after 24 hours. For a site with heavy call load, the temporary folder for screenshots requires ample space.

Following are examples that cover scenarios for screen capture calls.

Scenario 1 - Basic Screen Capture Call (No Wrap-Up Time)

Call Flow

- External incoming call to an agent.
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client on the agent's machine to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots to create a video file without voice and then merge the video & audio to create a video file with voice.

Result

A call record with a video icon is displayed on the web interface.

Number of record(s): 1
Call duration: 1 minute

Scenario 2 - Screen Capture Call with Wrap-Up Time

Environment

- Call to a CCD pilot
- Wrap-up time = 5 seconds
- Pause 0 seconds
- Eternal wrap-up set

Call Flow

- External incoming call to an agent through CCD pilot.
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client on the agent's machine to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OXE notifies OmniPCX RECORD that wrap-up time is started.
- OmniPCX RECORD notifies Screen Capture Server to keep recording agent's desktop for wrap-up duration.
- OXE notifies OmniPCX RECORD that wrap-up time is finished.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots to create a video file without voice and then merge the video & audio to create a video file with voice.

Result

A call record with a video icon is displayed on the web interface.

Number of record(s): 1
Call duration: 1 minute 5 seconds

Scenario 3 - Screen Capture Call – New Call Finished During Wrap-Up Time

Environment

- Call to a CCD pilot
- Wrap-up time = 5 seconds
- Pause 0 seconds
- Eternal wrap-up set

Call Flow

- External incoming call to an agent through CCD pilot.
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client on the agent's machine to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OXE notifies OmniPCX RECORD that wrap-up time is started.
- OmniPCX RECORD notifies Screen Capture Server to keep recording agent's desktop for wrap-up duration.
- Agent dials a call during the wrap-up time.
- Other party picks the phone and the call is established
- OmniPCX RECORD sends a request to OXE and start recording the audio packets for the second call.
- Agent hangs up the call after 4 seconds before the wrap-up time for the first call is finished.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets for the second call.
- Screen Capture Server will process the screenshots for the second call to create a video file without voice and then merge the video & audio to create a video file with voice.
- OXE notifies OmniPCX RECORD that wrap-up time is finished.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots for the first call to create a video file without voice and then merge the video & audio to create a video file with voice.

Result
Two call records with video icons are displayed on the web interface.

Number of record(s): 2

Call #1: Between external caller & agent
Call duration: 1 minute 5 seconds

Call #2: Between agent & other party
Call duration: 4 seconds

Scenario 4 - Screen Capture Call – New Call Finished After Wrap-Up Time

Environment

- Call to a CCD pilot
- Wrap-up time = 5 seconds
- Pause 0 seconds
- Eternal wrap-up set

Call Flow

- External incoming call to an agent through CCD pilot.
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OXE notifies OmniPCX RECORD that wrap-up time is started.
- OmniPCX RECORD notifies Screen Capture Server to keep recording agent's desktop for wrap-up duration.
- Agent dials a call during the wrap-up time.
- Other party picks the phone and the call is established
- OmniPCX RECORD sends a request to OXE and start recording the audio packets for the second call.
- OXE notifies OmniPCX RECORD that wrap-up time is finished.
- Screen Capture Server will process the screenshots for the first call to create a video file without voice and then merge the video & audio to create a video file with voice.
- Agent hangs up the second call after 10 seconds.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets for the second call.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots for the second call to create a video file without voice and then merge the video & audio to create a video file with voice.

Result

Two call records with video icons are displayed on the web interface.

Number of record(s): 2

Call #1: Between external caller & agent
Call duration: 1 minute 5 seconds

Call #2: Between agent & other party
Call duration: 10 seconds

Scenario 5 - Screen Capture Call – Agent Withdrawal During Wrap-Up Time

Environment

- Call to a CCD pilot
- Wrap-up time = 5 seconds
- Pause 0 seconds
- Eternal wrap-up set

Call Flow

- External incoming call to an agent
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client on the agent's machine to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OXE notifies OmniPCX RECORD that wrap-up time is started.
- OmniPCX RECORD notifies Screen Capture Server to keep recording agent's desktop for wrap-up duration.
- Agent withdraws after 2 seconds.
- OXE notifies OmniPCX RECORD that agent is in withdrawal state.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots for the call to create a video file without voice and then merge the video & audio to create a video file with voice.

Result

A call record with a video icon is displayed on the web interface.

Number of record(s): 1
Call duration: 1 minute 2 seconds

Scenario 6 - Screen Capture Call – Agent Logs Off During Wrap-Up Time

Environment

- Call to a CCD pilot
- Wrap-up time = 5 seconds
- Pause 0 seconds
- Eternal wrap-up set

Call Flow

- External incoming call to an agent
- Agent picks the phone and the call is established.
- OmniPCX RECORD sends a request to OXE and start recording the audio packets.
- OmniPCX RECORD sends a message to Screen Capture Server to start recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client on the agent's machine to start sending the screenshots.
- These screenshots will be saved in a folder on Screen Capture Server machine.
- Call is disconnected after 1 minute.
- OmniPCX RECORD sends a request to OXE to stop sending audio packets.
- OXE notifies OmniPCX RECORD that wrap-up time is started.
- OmniPCX RECORD notifies Screen Capture Server to keep recording agent's desktop for wrap-up duration.
- Agent logs off after 2 seconds.
- OXE notifies OmniPCX RECORD that agent has logged off.
- OmniPCX RECORD sends a request to Screen Capture Server to stop recording the agent's desktop.
- Screen Capture Server sends a request to Screen Capture Client to stop sending the screenshots.
- Screen Capture Server will process the screenshots for the call to create a video file without voice and then merge the video & audio to create a video file with voice.

Result

A call record with a video icon is displayed on the web interface.

Number of record(s): 1
Call duration: 1 minute 2 seconds

8.31 *Supplement – Wrap-up Time*

Wrap-up time is the time required by a call centre agent after a conversation is ended, to complete work that is directly associated with the calls just completed. This time can be configured in OmniPCX Enterprise (OXE) and there is an option in OmniPCX RECORD to implement wrap-up time for screen capture calls.

This option is useful for screen capture calls. Once enabled, OmniPCX RECORD continues to record agent's activity on his/her computer even after the call is finished and screen capture client utility on agent's machine remains active till the wrap-up is completed.

8.32 *Supplement - ISDN Trunk Recording (Feature Set)*

ISDN trunk recording service has been introduced. The current and planned feature set for ISDN trunk recorder is as follows:

Configuration	Current Release
Nodes	N/A
Extensions	Yes (2.3.0.25 onwards)
Packetizer	Yes
Teams	Yes (2.3.0.25 onwards)
Security Groups	Yes (with limited options)
Rights & Permissions	Yes (with limited options)
Default Recording Actions	Yes
Recording Filters (Server Level)	Yes (with limited criteria)
Recording Filters (User Level)	N/A
Incidents	Yes
SNMP Traps	Yes (2.3.0.25 onwards)
Online Configurations	Yes (2.3.0.25 onwards)

Calls Search & Play	Current Release
CDR Display	
Call Timestamp	Yes
Called By	Yes
Called To	Yes
Call Direction	Yes
Channel	Yes
CSTA Call ID	N/A
Correlator ID	No
Global Call ID	N/A
Hang-up Party	Yes (2.3.0.25 onwards)
Call Flags	Yes
Custom Fields	Yes
Call Play & Download	Yes
Call Notes	Yes
UUS Data	Yes (2.4.0.1 onwards)

Live Calls	Current Release
Custom Fields	Yes (Group Admin level only - 2.3.0.25 onwards)
ROD Record From Now Record Entire Call Ignore Call	Yes (Group Admin level only - 2.3.0.25 onwards)
Pause, Resume	Yes (Group Admin level only - 2.3.0.25 onwards)
Silent Monitoring	Yes (Group Admin level only - 2.3.0.25 onwards)

External Services	Current Release
External Mixing	Yes (2.3.0.25 onwards)
Encryption	Yes
Watchdog	Yes
Master-Satellite	Yes (2.3.0.25 onwards)
Warm Standby	Yes

Utilities	Current Release
Purging	Yes
Transfer Utility	Yes (2.3.0.25 onwards)

8.33 *Supplement – Four-Eyes Principle*

The four-eyes principle means that a certain activity such as a decision, transaction, etc., must be approved by at least two people. This controlling mechanism is used to facilitate delegation of authority and increase transparency.

A set of permissions has been added in OmniPCX RECORD. By default, these permissions are not assigned to any of the default OmniPCX RECORD permission groups so a customised permission group needs to be created to enable these permissions. There are two permissions as follows:

Four-Eyes Controller

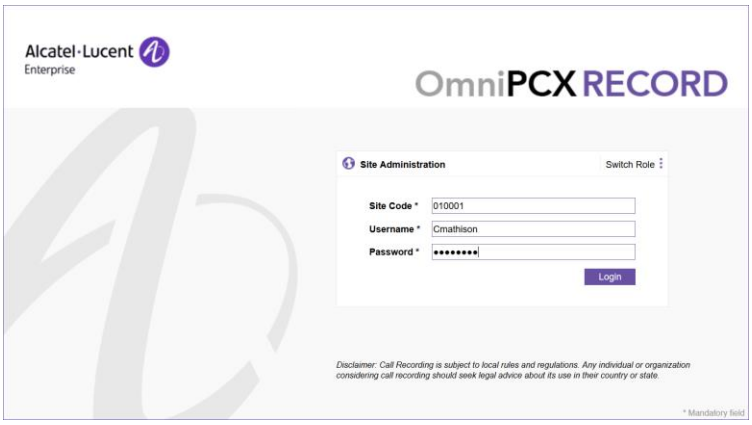
If this permission is enabled then all the agents in that group will become four-eyes controllers who can authorise web logins for other users by entering their own username and password at the time of agent login.

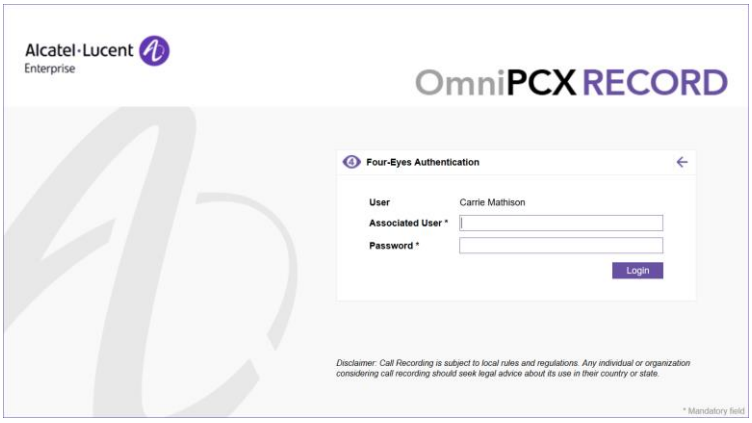
Four-Eyes Required

If this permission is enabled then all the agents in that group will not be able to login to the OmniPCX RECORD web interface until a four-eyes controller authorises them.

Important!! If both permissions are enabled then agents in that group will become four-eyes controllers as well as they will need another four-eyes controller to authorise their web logins.

When the agent tries to log in to OmniPCX RECORD web interface, another login screen will be presented for the four-eyes controller to authorise the login. Please see the screenshots below:





8.34 *Supplement – Supported Codecs & Sample Recording Sizes*

Mono and Stereo type recordings are supported for WAV and MP3 format in combination with codecs G711 (a/u law) and G729. As a default, calls are recorded in mono type; however stereo type recording can be enabled by changing values in application configuration file. This configuration can only be activated by a level 3 ALE tech support engineer. It is important to note that graphs are not available with stereo recording.

Please see the matrix below for more information:

Stereo recordings										
Recording Interface	OXE Codec : G729					OXE Codec : G711				
	Recording type					Recording type				
	WAV	MP3			GSM610	WAV	MP3			GSM610
		Recording quality					Recording quality			
		High	Medium	Low			High	Medium	Low	
IPDR	Supported	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported
DR-Link	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
IP Attendant	Supported	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported
SIP Extension (not on DR-Link)	Supported	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported
ISDN Trunk	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported
SIP Trunk	Supported	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported

8.35 *Supplement – Branch Office*

The proposed architecture is composed of multiple backend windows services, RESTful API etc. communicating with each other over different industry standard protocols.

The solution suggests that the business logic server at head office is a controlling entity and communicates with other services at central office and also at branch offices. For such cases, where telephony system at head office is up and running, business logic server will be handling signaling information from telephony system and will be instructing voice logger services on branch offices to handle voice traffic/media. The voice logger services at branch offices will be receiving and storing the media locally. The services will use branch local database and local physical storage to store call recordings. The advantage of using this approach to is to avoid transmitting huge amount of real time voice traffic which could result in network congestion and missing data.

Resources like PABX, domain controller, database server are located at central office and are being used by branch offices. The configurations (extensions, users, roles etc.) are managed at the central office and are passed to branches using FTP, FTPs, SFTP medium. The data and physical recording storage at branch office will be available for the duration that is set by the administrator at the branch level configuration and will be transferred to head office by a separately running transfer service. The data transfer will always be executed using a secure channel and data integrity checks will be in place to ensure that data transfer transaction should be atomic. The data transfer service will be running in dual mode in a way that at head office, it will act as a download service to download CDR and recordings for all the connected branches while at branch office, it will be responsible to upload data for that specific branch. The transfer service at central/head office uploads configuration data and downloads physical recorded files. The interval for this operation is set to 5 minutes as default but it is configurable via application configuration file. A watchdog service monitors the state of health for services running at central and branch office.

The transfer service at branch downloads configuration data and uploads physical recorded files at interval configured by user through web administration. The possible values for the interval are:

a) Immediate
b) After every ‘x’ minutes
c) Daily at specific time

The branch will have a media gateway along with a passive call server (PCS) in this scenario as considering the factor of network disconnection, services at branch office are designed in a way that if head office server is unavailable, they will immediately connect to their local telephony system and will be operational to do call recordings and to manage CDR. As soon as the services at head office are accessible, the services at branch office will disconnect their local binding and will re-connect to services at head office.

Branch offices will be maintaining CDR & recording s data and eventually it will be moved to a centralized database location at head office. The head office will be providing a unified data view to all branches and thus providing a single information source.

To activate branch office recording, a license is required.

The key components are as follows:

Business Logic Server
It will be a backend windows service that will primarily act as a decision engine and will provide an interface to different system components. It will communicate with RESTful API over HTTP/HTTPs for data retrieval, updation and storage.
Telephony Server
It will be a backend windows service that will communicate with the OXE. Its primary job will be to receive signaling information for calls and agent states.

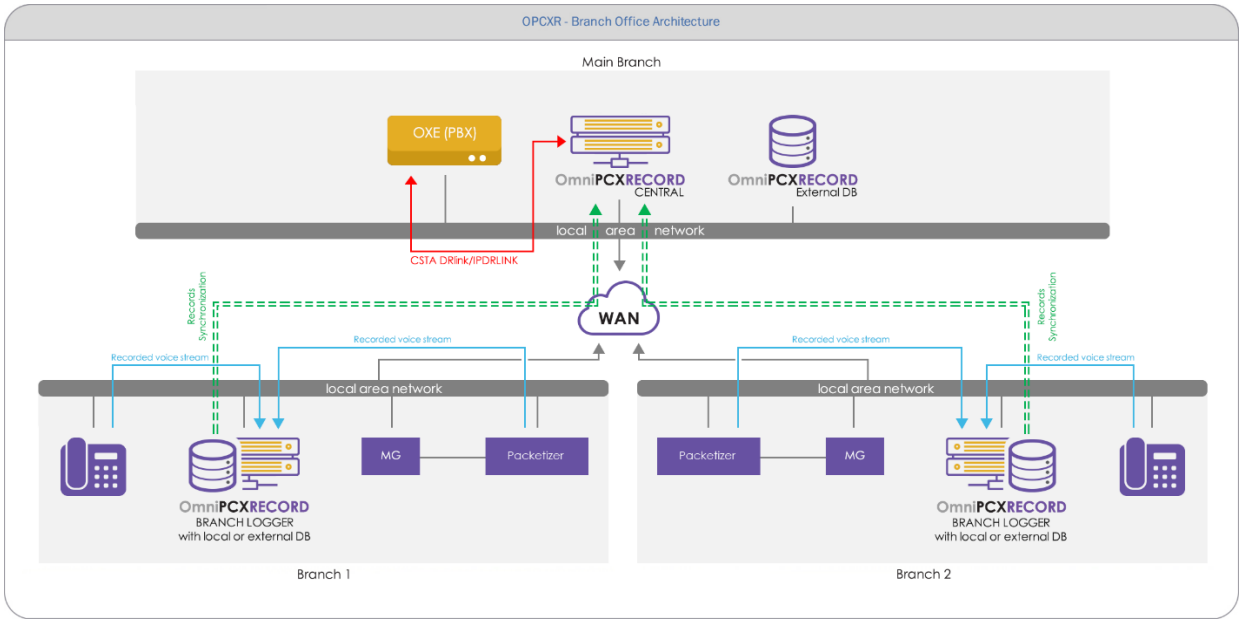
The service will also be responsible to establish a state-full connection with business logic server as a client. It will transmit telephony information to business logic server. It will also receive instructions from business logic server to perform tasks including start and stop recording for extensions. The telephony server will automatically resume its connection should a disconnection occur due to a network lag/disconnection or a service crash.

Voice Logger Server
It will be a backend windows service responsible to manage voice traffic, silent monitoring, CDR storage and configuration data.
The voice logger service will automatically resume its connection should a disconnection occur due to a network lag/cut-off or a service crash.

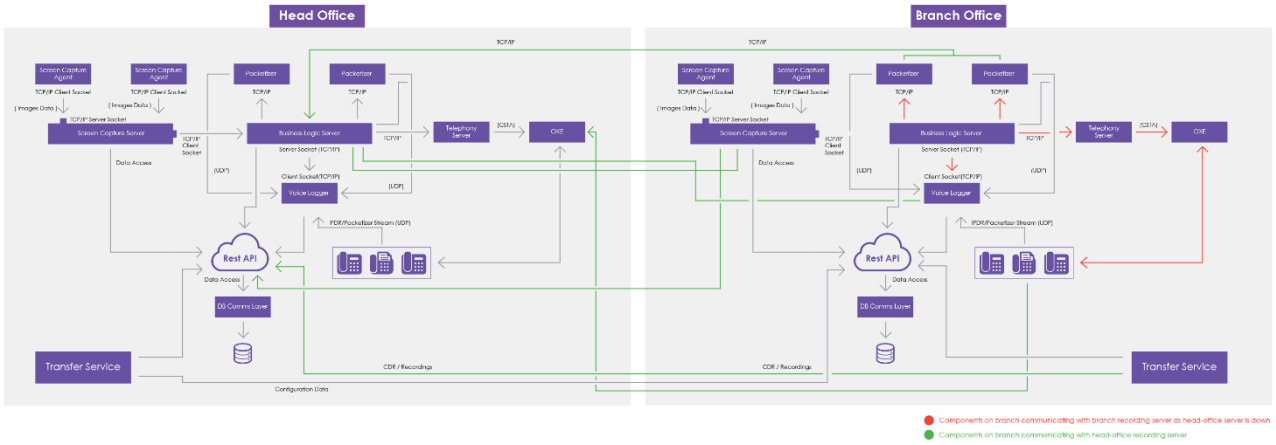
In the current implementation, BLS and TS (telephony server) are combined into one single server. Following is the list of servers:

a) Recorder service (BLS + TS)
b) RTP Logger service
c) Transfer service
d) Watchdog service

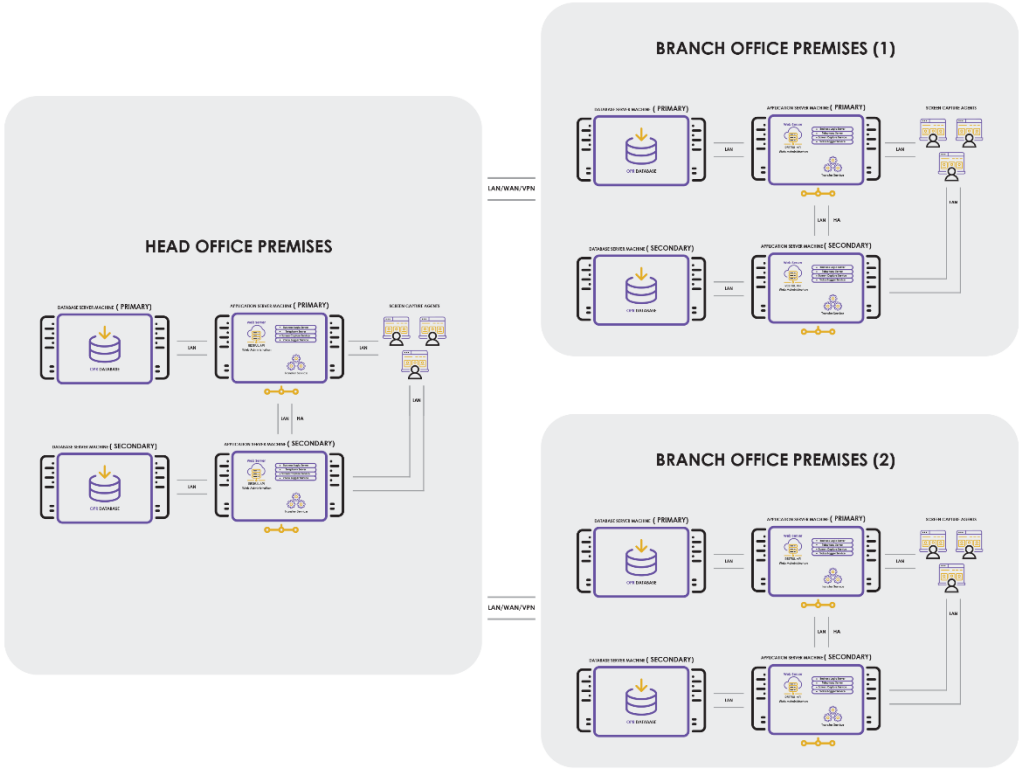
Banking system is a typical example for Branch office architecture. All the configuration are made by the Head office administration and Branches use those configurations for their operations. The branch offices transfer their data (CDR & physical recorded files) periodically to head office.



OPCXR - Branch Office Architecture



OPCXR - Branch Office Deployment Diagram



8.36 *Supplement – SIP Trunk Recording (With Port Mirroring)*

SIP Trunking combines SIP or Session Initiation Protocol with Trunking which is a term that refers to telephone systems to describe a large number of users sharing a much smaller number of communication paths.

SIP Trunking requires three primary components in order to utilize the various advantages.

IP PBX: An IP PBX communicates with all end points over an IP network. In addition to this, it also switches calls between VoIP users (on local lines) and also allows users to share numerous phone lines. Along with this switching, IP PBX typically switches calls between a VoIP user and traditional phone user.

ITSP: The Internet Telephone Service Provider ensures the connection to PSTN from an IP network for both mobile and stationary devices. It also carries IP communications across a private IP network or public Internet.

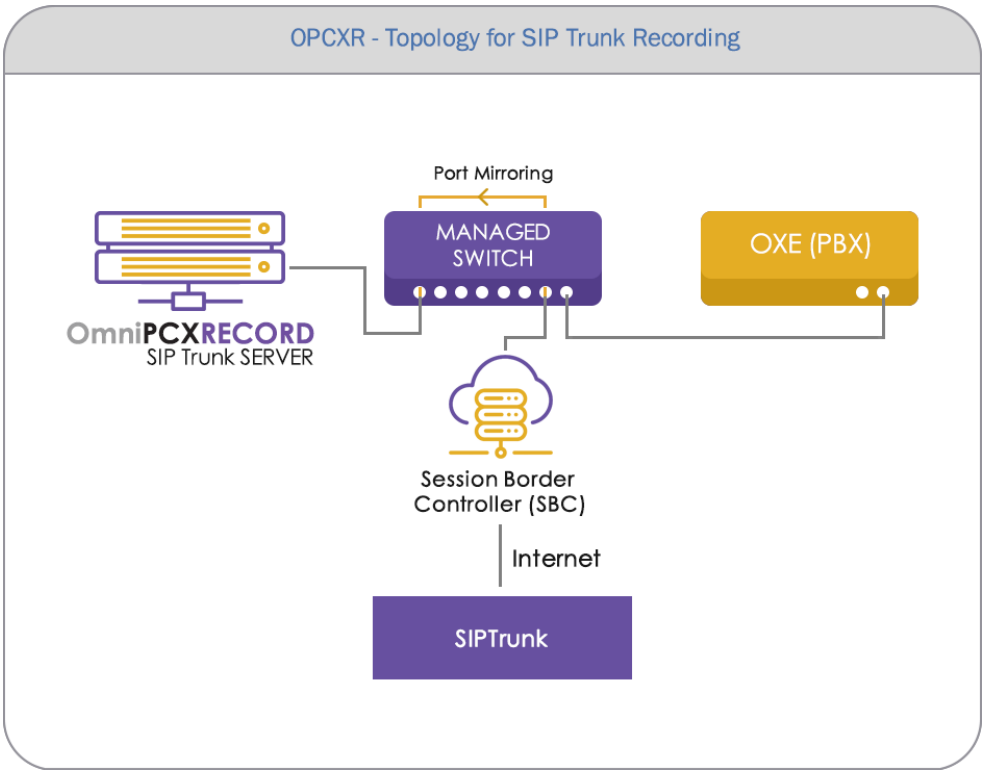
Border Element: This facilitates connection between a business's IP network, the PSTN, and an external IP carrier network. This element can be anything from a SIP-capable firewall to a switch that transfers calls both in and out of the PSTN.

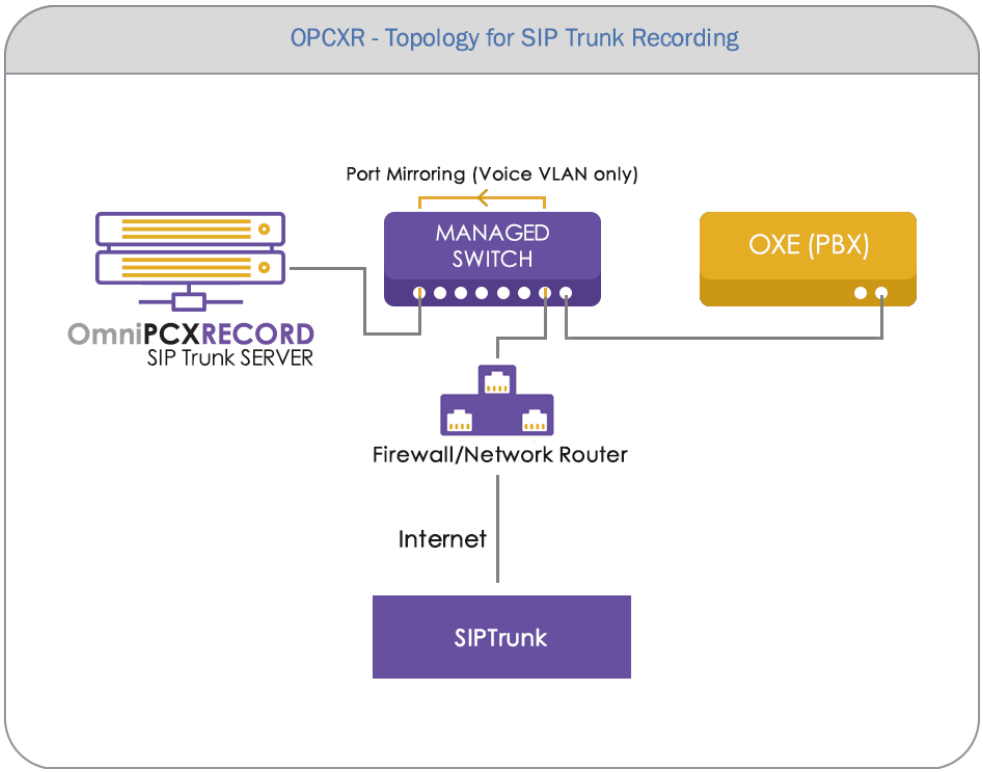
Note: Border elements are usually managed by the service provider.

Once these components have all been accounted for, the SIP Trunking device can allow the data network to carry voice traffic.

OmniPCX RECORD SIP Trunk server is a passive recording server and uses port mirroring/spanning to record VOIP calls. In this recording scenario, OPR SIP Trunk server captures SIP signalling and audio streams along PBX, media gateways, SBCs VoIP paths using mirroring (SPAN) capabilities of the local area network switches.

If SIP Trunk Server (with port mirroring) is running on a VM Host then it requires two network interface cards. One for RTP traffic and the other for connectivity. OmniPCX RECORD VM needs to follow the same principle and requires two virtual network interface cards as well. Physical network interface card on host server where RTP traffic is coming, needs to be mirrored on one of the virtual network interface card of the OmniPCX RECORD server.





8.37 *Supplement – Speech Analytics*

Call recording data is a gold mine for a contact center to discover information such as products, customer satisfaction , operational issues, campaign effectiveness and agent performance to name a few. However, it could be a next to impossible task for a contact center to review and analyse the sheer volume of calls manually.

Speech analytics is one of the leading contact center technologies that provides rich insight and valuable information from the customer calls. It is a process of analysing recorded phone conversation between a company and it's customers.

OmniPCX RECORD has been enhanced to support speech analytics. The options will help in understanding the nature of the calls, speech versus non speech during conversations and emotional character of the speech. In the first phase, we are providing the following options for calls to be analysed:

Silence:
During a telephonic conversation, there can be silent moments where neither the agent nor the caller talks. These silent breaks in the call can be normal or an action point depending on how a call center treats silence in the calls. OmniPCX RECORD provides the ability to filter the calls using the decibel range along with the options where silence is more than a specific percentage of total call duration or where there is continuous silence for a specific percentage of call duration. The default decibel range is given but it is configurable.

Conversation with low voice:
There are occasions when either the agent or the caller talks in a low volume that can also be considered as whispering. It could be natural or deliberate but these types of calls can only be assessed if there is a way to find them. OmniPCX RECORD provides the ability filter the calls using the decibel range along with the options where low voice is more than a specific percentage of total call duration or where there is continuous conversation with low voice for a specific percentage of call duration. The default decibel range is given but it is configurable.

Standard conversation:
A standard conversation is a normal conversation between a call center agent and the customer but as people talk in different dialects, accents and tones, the definition of a standard conversation might differ from one call center to another. This option filters the conversations where both the agent and the caller are talking in a normal tone using the decibel range along with the options where standard conversation is more than a specific percentage of total call duration or where there is continuous standard conversation for a specific percentage of call duration.

Louder conversation:
Generally, it is believed that people talk loudly when they are upset about something or having a heated argument. It is not entirely true for people who naturally talk in loud voice. However, it is highly important for a call center to find such calls where an agent or a customer talks loudly to assess if it's normal or actually a dispute. A default decibel range is given but is configurable along with the options where louder conversation is more than a specific percentage of total call duration or where there is continuous louder conversation for a specific percentage of call duration.

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