TBE098 – OmniPCX Open Gateway

ALE | Where Everything Connects

Alcatel·Lucent Enterprise

History

Edition 01:   Creation from existing slide deck from APAC presales event (2019)

Alcatel·Lucent
Enterprise

Summary

Alcatel·Lucent
Enterprise

What is O2G ?

- **OmniPCX Open Gateway** (O2G) is a standalone application providing Open Web Services on top of OXE communication platforms. O2G is compliant with OmniPCX Enterprise from release R11.2.

- It provides a unique set of RESTful APIs covering Advanced Telephony, Management and Analytics domains.

- It is also an universal Openness server which can host your/ALE applications as containers (running business rules / micro-services) thanks to a built-in DOCKER engine.

- 100% software and secured (Secured-by-design, CPE deployment in less than 10', 1 single server for all your network of OXEs in network or not).

- Next generation of API platform, replacing ICS and OTMS.

SIMPLE for DEVELOPPERS

RESTful API, single server, User centric, OXEs network

Get your OPEN-DATA

An Analytics API to get PBX generated Datas (CDR, Alarms, Inventory, ...)

Multi-SERVICES hosting

A DOCKER engine to host custom containers and other ALE Applications

---

For AUTOMATION

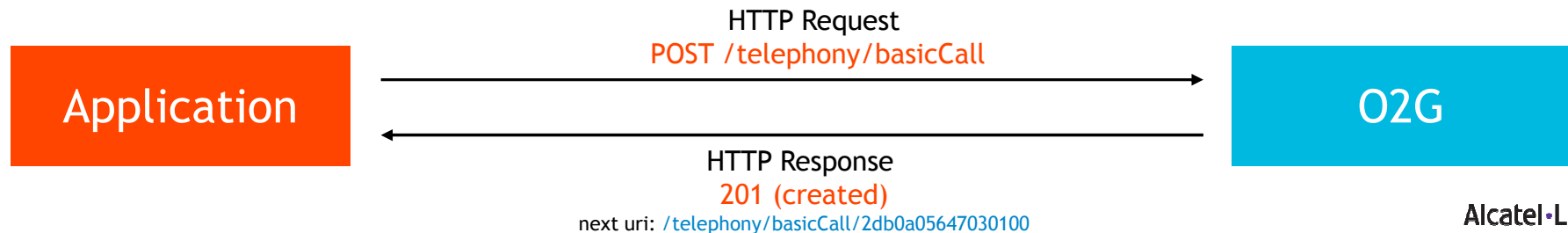*A MANAGEMENT API for user provisioning, self-service portal, system configuration*

Alcatel·Lucent
Enterprise

Services

Service	Description
Telephony	The Telephony service allows a user to initiate a call and to activate any kind of OXE telephony service.
Voice mail	The Voicemail service allows a user to connect to its 4645 voice mail box and manage its voice mails.
Routing Management	The Routing management service allows a user to manage routing on his devices, and configure forward or overflow.
Call Center Agent	The Call Center Agent service allows to invoke CCD agent services (logon/logoff, withdrawal, …)

Service	Description
Event Summary	The Event summary service allows a user to get its new message indicators (missed call, voice mails, callback requests).
Comm. Log	The Communication log service allows a user to retrieve its last communication history records. (1)
Directory Search	The Directory Search service provides access to OXE call server phone book to search for a contact.
XML PRS	The XML PRS service allows to provide XML based application on IP Touch devices.

Service	Description
Maintenance	The Maintenance service provides information on the connection between OXE nodes and O2G, and an access to O2G licenses status.
Phone Set Programming	The Phone Set Programming service allows a user to manage its device states: lock/camp-on/programmable keys.
PBX Management	The PBX Management service allows an administrator to manage the OXE by creating/modifying/deleting any object in the configuration
Analytics	The Analytics service allows an administrator to retrieve the OXE incident and accounting information. It also provides analytics on the O2G usage

1) The call history records are managed by O2G. They are not synchronized with the OXE call log and may provide slightly different results.

Alcatel·Lucent
Enterprise

WHAT IS A "RESTful" API and WHY DEVELOPERS LIKE IT !

A REST API defines a set of **resources** which developers can perform **requests** and receive **responses** via **HTTP** protocol.

- **REST** = **RE**presentational **S**tate **T**ransfer

- Use **HTTP** : requests, status, methods(verbs) (POST, GET, DELETE, PUT, OPTIONS, …)
  - Every tool that can handle web/HTTP can handle REST api like gateway, browsers, POSTMAN …)

- **Lightweight**, simple, elegant and easy to understand.

- **Resources** identified by **URIs** (aka end-points like /telephony/call /users / devices /voicemails)

- Data Content encoded in **JSON** (O2G) format = simpler to read / decode / Javascript friendly

- **Stateless** : no connection state/context stored on the server between API invocation = flexible and scalable servers, easy caching

HTTP Request
POST /telephony/basicCall

| Application | | O2G |

HTTP Response
201 (created)
next uri: /telephony/basicCall/2db0a05647030100

Alcatel·Lucent
Enterprise

REST – the Natural Evolution

REST is just the "de facto" standard for APIs as of 201x.

TSAPI

CSTA TAPI

SOAP /XML

REST

2000 – birth
2004/6 – FLICKR/TWITTER/AMAZON...
2012 to now – widespread adoption

2000 – v1.1
2003 – v1.2

1994 – P1/2
1998 – P3

1993 – v1.3
1997 – v2.1
1999 – v3

Alcatel·Lucent
Enterprise
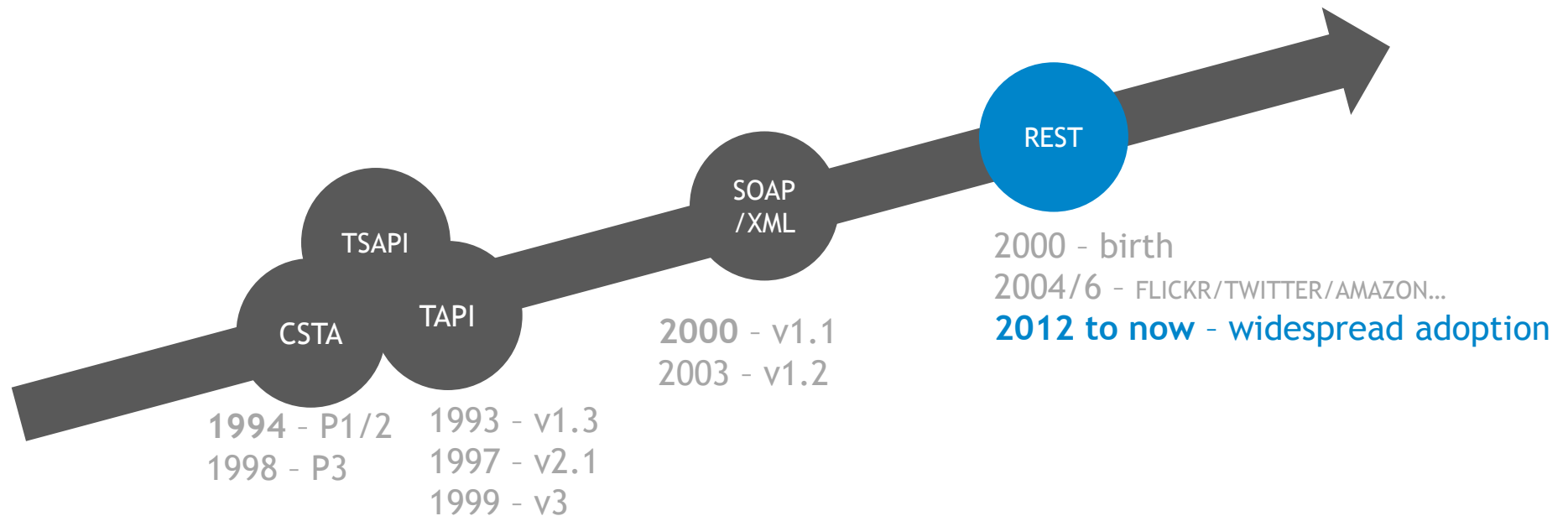
Docker on O2G
Why and for what?

- **For developers**, Container technology is currently the best known way to deploy applications.
- **For efficiency**, one single server for ALE and developers.
- **For security**, one server to secure
- **For openness**, **ALE specific applications** can be deployed on this server
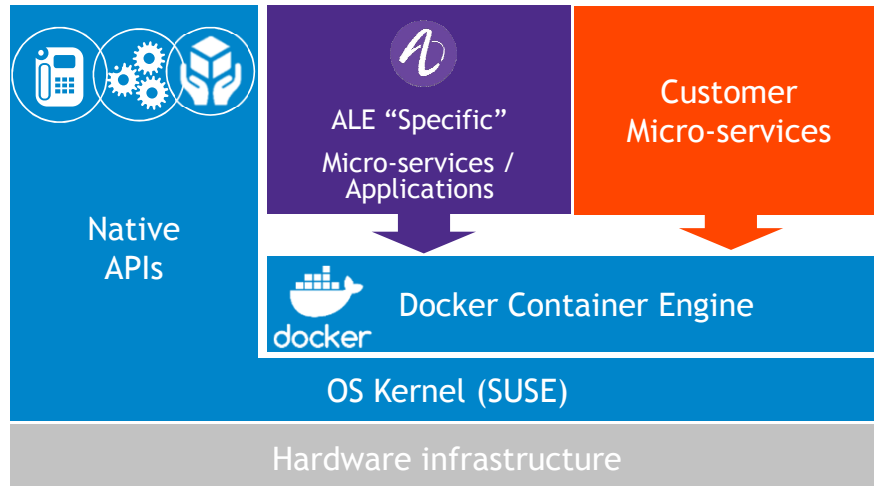
What a container is?

- A container image is a **lightweight**, stand-alone, executable **package** of a piece of software that includes everything needed to run it.
- Available for both Linux and Windows based apps, containerized software will always run the same, whatever the environment.
- Containers isolate software from its surroundings.
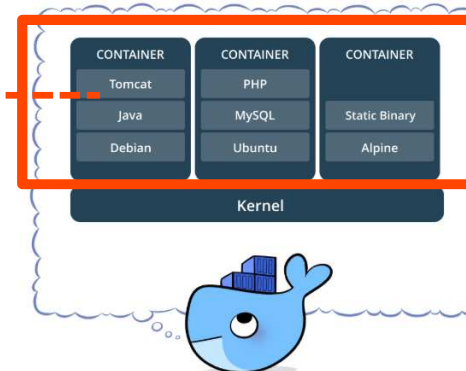
Please consult the docker documentation for further information

Alcatel·Lucent Enterprise

DOCKER on O2G
Example
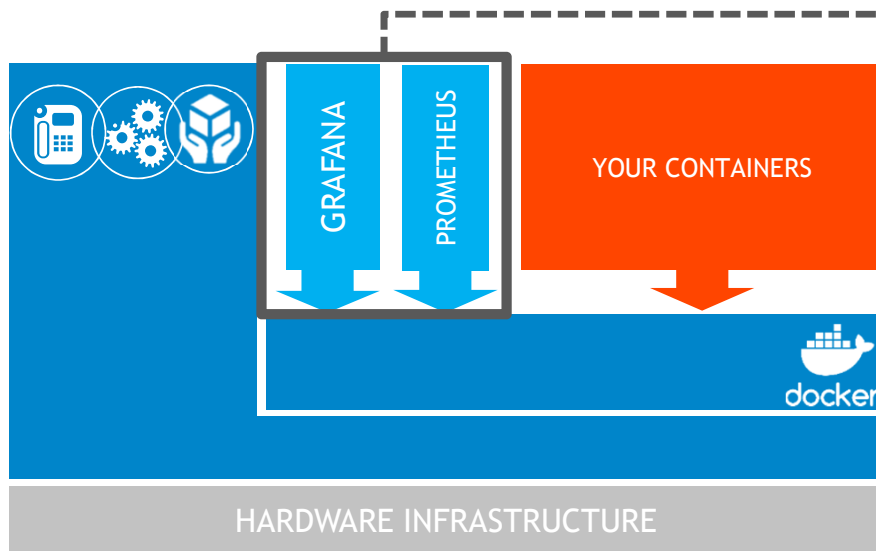
In this exemple, Grafana docker image can be installed in combination with Prometheus to collect data and alarm from the docker container engine (https://docs.docker.com/config/daemon/prometheus/).

Alcatel·Lucent
Enterprise

Examples of applications(1/2)

PERSONAL ROUTING

User API

Routing API

Device(s) State

John DOE
(main : 18100)

Routing
DND	Activated
Incoming	OFFICE
Forward:	none
Overflow:	none

DND ON

Forward Imm. VOICEMAIL
Forward Imm. NUMBER
Overflow to VOICEMAIL
Overflow to NUMBER

Device(s) : 1 device
Number	18100
Label	Main Dev
SubType	SIP_Extension
Type	SOFTPHONE
State	IN_SERVICE

SCREEN POP-ON INCOMING CALL

Make Call

Incoming call from JEANNY DOE

✓ ANSWER   ✗ DROP   ➔ VOICEMAIL

SUPERVISION + CALL API

SUPERVISION BOARD

SUPERVISION BOARD

Incoming call from Kathryn Bates pickup transfer

In call with Shirley Hughes drop hold transfer record

In call with David Reid drop hold transfer record

COM LOG / VOICE MAIL LOG

COM LOG 8 entries

unanswered   unacknowledged

➔ OXE18102 OXE18102 3 hours ago ⏱ 28
not ACK - recordId:524 -
comRef:7ad11f5b2b000100-CALLER-UN-
ANSWERED   🗑 delete

➔ oxe18103 oxe18103 3 hours ago ⏱ 82
not ACK - recordId:522 -
comRef:e4cf1f5b28000100-CALLER-UN-
ANSWERED   🗑 delete

➔ oxe18103 oxe18103 4 hours ago ⏱ 20
not ACK - recordId:520 -   🗑 delete

Events + Com Logs APIs

11

Alcatel·Lucent
Enterprise

Examples of applications (2/2)

INVENTORY DASHBOARD

USERS

PBX	Loginname	Main #	Devices
1	oxe18103	18103	1
1	oxe18102	18102	1
1	oxe18101	18101	1
1	oxe18100	18100	1

User + PBX Management APIs

INCIDENTS MANAGEMENT

INCIDENTS

Refresh

Date	Severity	Type	Value	Board	Equipment	Rack
a month ago	4	A4400 Version: R12.1-m2.300-18-e-fr-c0s1	2199	--	-	---
a month ago	2	Translator inconsistency, MCDU = DDBB68S st=1	2671	--	-	---
a month ago	2	002=A dynamic patch has been installed for TEL	2176	--	-	---
a month ago	4	GPA(2,27) virtual board commissioning of the associated board GD/GD3(2,0)	2491	27	-	002
a month ago	5	Initialisation CPU role MAIN	2009	--	-	---

Analytics API

USER PROVISIONNING

USER CREATION

Create now !   Cancel

PBX Name	Enter text
First Name	First name
Last Name	Last Name
Directory Number	Internal number Auto Free range
DDI Number	External number Auto Free range
Main device Type	Option 1
Profile	Option 1
Class of Service	Option 1
Cost-center	CC01223
Password	password
VIP	✓

PBX Management API

PHONE SET PROGRAMMING

PHONE SET PROG.

Refresh

Save   Cancel

KEY 1	Tandem on/off	shot-code=3002
KEY 2	Call mum	shot-code=3911
KEY 3	Forward VoiceMail	shot-code=3003
KEY 4	Call 1122334455	shot-code=3002

Phone Set Programming API

PHONE ENRICHMENT

Di 4 Aug 2009   09:57

Was haben Sie heute gegessen

☑ Gulasch
☐ Spagetthi Bolognese
☐ Rindersteak Madeira
☐ Gergillter Lachs   weiter

PRS-XML API

Alcatel·Lucent Enterprise

Commercial Offer
O2G Packaging

Software Package

ALE
O2G Delivery

O2G

SUSE

**Installation in a
virtualized environment**

**Installation on
Appliance server**

O2G

SUSE

hypervisor

O2G-V

✓**Hardware agnostic**
✓**Virtualized environment**
✓**Private Data Center**
✓**CPE - Cloud (OTEC)**

**Not delivered
by ALE**

O2G

SUSE

**O2G
(software)**

✓**Hardware agnostic**
✓**Dedicated server**
✓**CPE**

13

Alcatel·Lucent
Enterprise
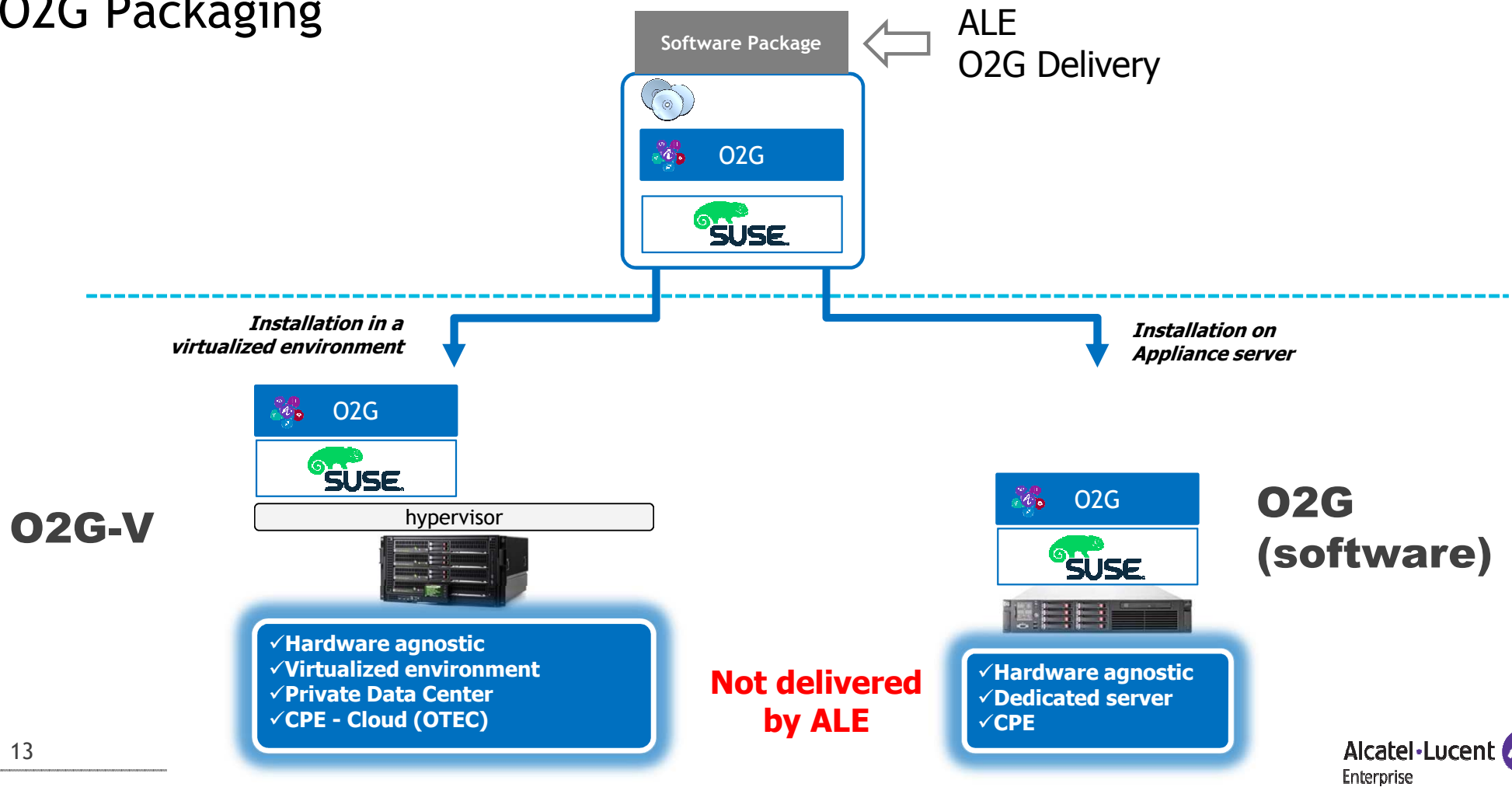
Deployment on Appliance server
Pre-requisite

- Sizing

Nb Users	0..1000	1001..15000	15001..100000
Processor	1 GHz / 1 core	2 GHz / 1 core	2 GHz / 4 cores
RAM	2 GB	2 GB	4 GB
Hard Disk Size	20 GB	30 GB	200 GB

Nota: These prerequisites are given for the O2G server only. In case additional applications would be deployed as docker containers, these prerequisites must be adapted. See docker documentation at https://docs.docker.com/

Alcatel·Lucent
Enterprise

Deployment on virtual environment
Pre-requisite

- Compatibility with virtualized environment

	VMware ESXi	Microsoft Hyper-V (Generation 1 VM)	Microsoft Hyper-V (Generation 2 VM)	KVM
O2G-V	**7.0**, 6.7, 6.5, 6.0	**2016, 2019**	Not supported	Not Supported

- Virtual machine sizing

Nb Users	0..1000	1001..5000	5001..15000	15001..50000	50001..100000
CPU usage GHz	1	1.5	2	2	2
vCPU	1	1	2	3	4
vRAM	2 GB	2 GB	3 GB	4 GB	4 GB
vHard Disk	20 GB	20 GB	30 GB	100 GB	200 GB

Nota: These prerequisites are given for the O2G server only. In case additional applications would be deployed as docker containers, these prerequisites must be adapted. See docker documentation at https://docs.docker.com/

Alcatel·Lucent
Enterprise

Licensing
Models

O2G supports 2 licensing models

- **CAPEX**
  License is paid once – model proposed though ALE standard Offer – License management is based on a FlexLM license server. The license file is delivered from ALE licensing portal.

- **Per vendor agreement**
  In this mode, the licensing control is no longer performed at O2G server level but a token-based authentication is put in place for the applications that want to use O2G APIs.
  This licensing is dedicated to temporary try and buy.

  The token is generated by ALE and provided to the business partner or the customer.
  Please contact your ALE sale representative for a "Per vendor agreement" licensing.

Alcatel·Lucent
Enterprise

Summary

Alcatel·Lucent 🅐
Enterprise

Architecture
Overview

O2G WSS Agent allows to establish a outgoing connection to the application on a web socket, it's an optional O2G module.
In this case the REST API and Notifications are encapsulated.

REST Requests/Answers   REST Notifications   REST Over Web Socket

https/443   https/8016

O2G WSS Agent

APACHE

O2G

REST published API   HTTP Notifier

TOMCAT

FLEXlm

license.lic

Core Services

Postgres Database

PostgreSQL

27000/tcp   2000/udp (*)

SSH

CSTA   CMIP   IMAPS   PRS Link

2555/tcp   2535/tcp   943/tcp   2570/udp (*)   22/tcp

cstamono   cmisd   4645 voicemail   Call Handling

OXE Call Server

Alcatel·Lucent
Enterprise

Architecture
Deployment and constraints

■ **Design rules**
- Centralized O2G server
- Up to 100 OXE nodes
- Up to 100 kUsers

■ **Other constraints**
- Messaging service can access voice mail of a user only if the 4645 is located on the OXE node the user is configured on.

■ **OXE constraints**
- 20000 CSTA monitoring requests maximum per OXE
- 30 simultaneous CSTA links maximum
- Numbering plan must be homogeneous on an OXE ABC-F network

Node 1

User1 mailbox

Node 2

User1

O2G

O2G Messaging service can't access User1 Voice mail

Alcatel·Lucent
Enterprise
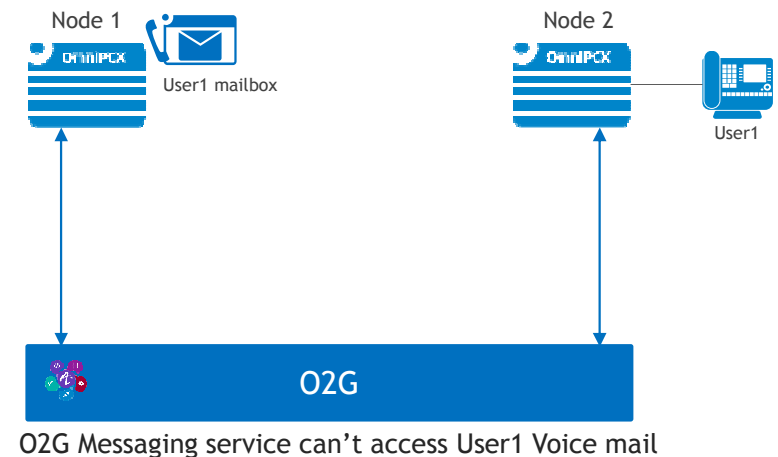
Support OXE redundancy

- O2G support local and geographical OXE redundancy

OXE Main   OXE Standby

O2G

Application

OXE Main — Switch over → OXE Main

Failure

O2G

Application
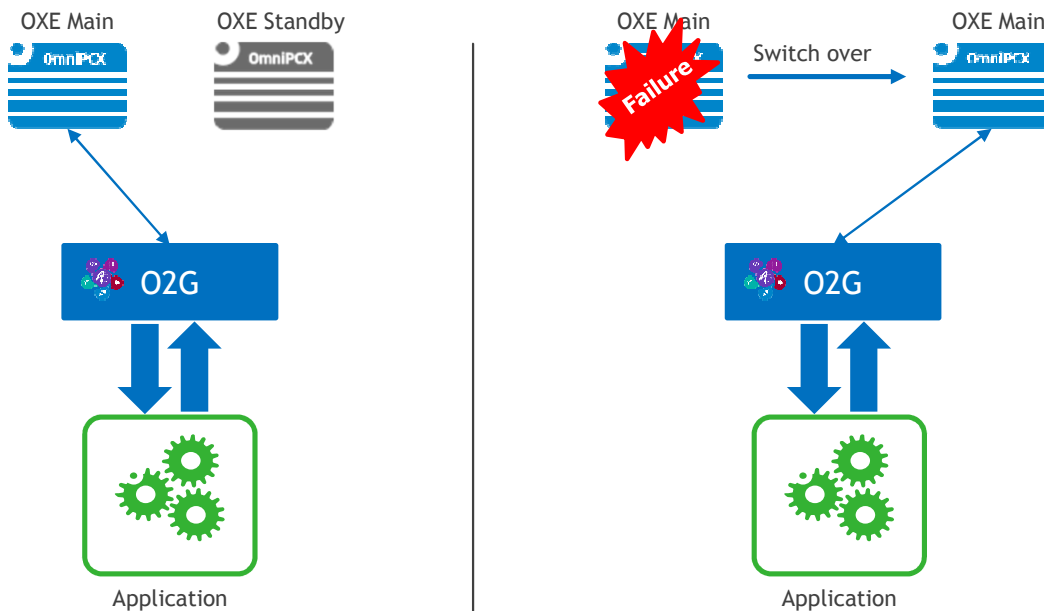
Following actions are performed on switch over
- CSTA link is established with the new OXE main call server
- CMIP link is established with the new OXE main call server
- IMAP link is established with the new OXE main call server
- PRS link is established with the new OXE main call server
- O2G starts the CSTA monitoring

On a Call server switch over, application are notified thanks to the Maintenance service with a *OnCtiLinkDown* event followed by a *OnCtiLinkUp* when the connections between O2G and the new OXE call server main have been established.

Alcatel·Lucent
Enterprise

O2G High Availability

- O2G can be configured to work in Active/Passive mode. O2G services are reachable through a unique virtual address.

- At startup, the first started O2G takes the active role and establishes links to the OXE call servers. State of each O2G is controlled by the Solution controller component. This component acquires and locks the O2G virtual address

- In case of active O2G server failure, the passive server switch over to the active role. It establishes links to the OXE call servers

OXE Call server

DR:BD Postgres replication with drbd

Core Services
Solution controller
Postgres Database
Acquire & lock

O2G Virtual address

Postgres Database
Core Services
Solution controller
Wait until available

Application

OXE Call server

Core Services
Solution controller

Failure

Postgres Database

O2G Virtual address

Postgres Database
Core Services
Solution controller
Acquire & lock

Application

The solution controller check the virtual address availability every 30 seconds, doing the failure detection and the switchover will be done in a maximum of 30 seconds

Alcatel·Lucent Enterprise

Remote access
Using a border element

O2G provides 2 topologies to allow an application to remotely access O2G services, hosted on company premises

Application access O2G services through a Reverse Proxy. In this case, the O2G has a public address reachable from internet
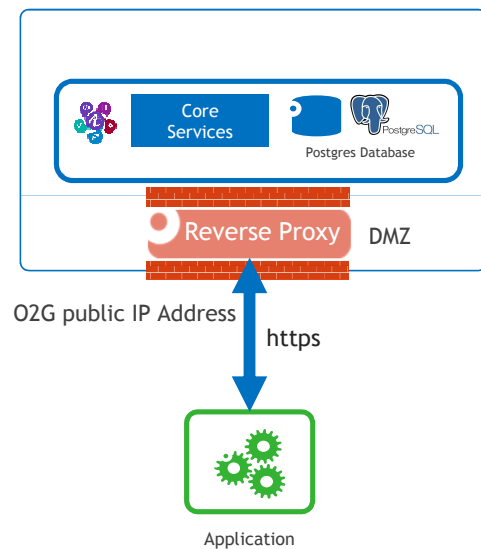
Application access O2G services through a VPN tunnel.

Core Services

Postgres Database

Reverse Proxy   DMZ

O2G public IP Address

https

Application

Core Services

Postgres Database

VPN Gateway   DMZ

O2G private IP Address

https requests
In VPN tunnel

Application

Alcatel·Lucent
Enterprise
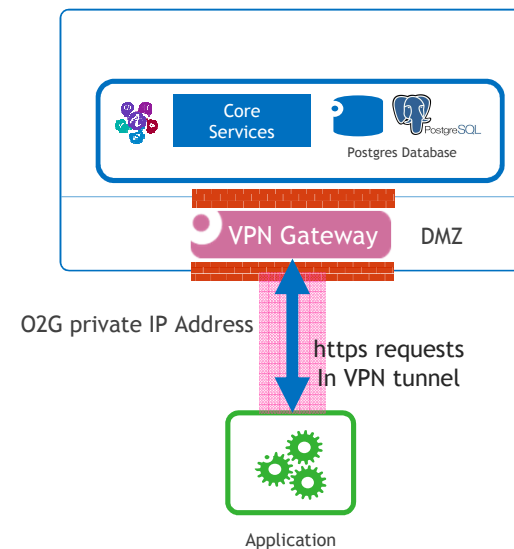
Remote access
From an outgoing websocket connection

With this topology, O2G establishes an outgoing connection using a secured WebScoket

Application

WebSocket Server
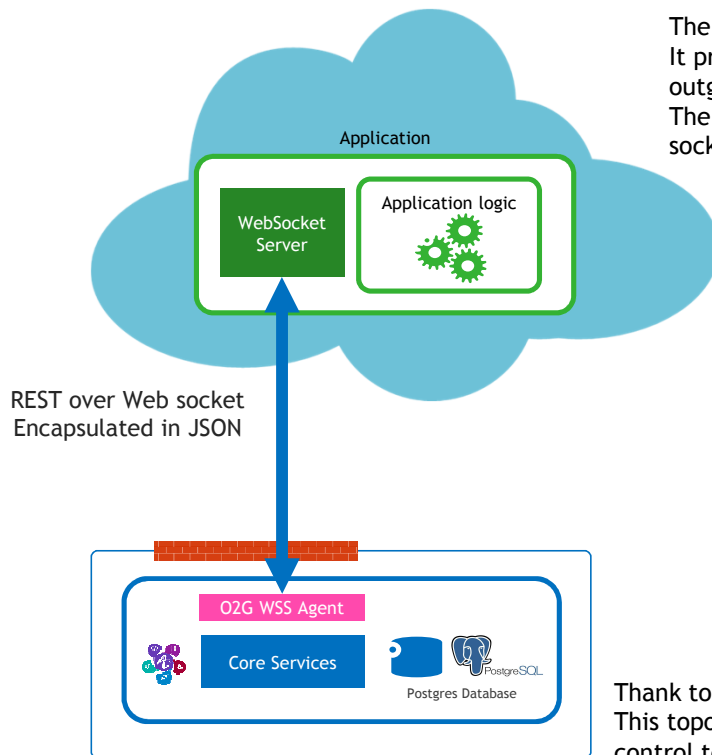
Application logic

The application doesn't use REST over https.
It provides a Web Server Socket to allow O2G to establish the outgoing connection to the application.
The application invokes REST services over a secured web socket connection. Messages are encapsulated in JSON.

REST over Web socket Encapsulated in JSON

- O2G can establish only one outgoing secured web socket connection (require the Cloud Connectivity license)

- This topology has an impact on the application design
  – It must provide a public secured web socket server
  – The application must be authenticate by a JSON Web Token (RFC 7519), signed by a Certification Authority.
  – The JWT and CA certificate must be trusted by O2G

O2G WSS Agent

Core Services

PostgreSQL
Postgres Database

Thank to the O2G WSS Agent, O2G always establish an outgoing
This topology is particularly suitable for a cloud application who need to invoke OXE call control telephony services without any border elements.

Alcatel·Lucent
Enterprise

Licensing
With OXE Hardware platform (CPU, Appliance Server, GAS)

Deployment cases with an OXE on hardware platform

OXE AS/GAS or CPU:
Connected on Cloud Connect
License controlled by CC/RTR

O2G on appliance server:
License controlled by ALU-ID

OXE AS/GAS or CPU:
Connected on Cloud Connect
License controlled by CC/RTR

Virtualized O2G (O2G-V):
License controlled by MAC@

OXE AS/GAS or CPU:
Not Connected on Cloud Connect
License controlled is based on ALU-ID or CPU-ID (AS or CPU)

O2G on appliance server:
License controlled by ALU-ID

OXE AS/GAS or CPU:
Not Connected on Cloud Connect
License controlled is based on ALU-ID or CPU-ID (AS or CPU)

Virtualized O2G (O2G-V):
License controlled by MAC@

Alcatel·Lucent
Enterprise

Licensing
With Virtualized OXE

Deployment cases with a virtualized OXE

ALE Cloud Connect

OXE — software.mao
O2G — FLEX*lm* — license.lic
Linux — SUSE
VM — VM — MAC@
Hypervisor

Virtualized OXE (OXE-V):
Connected on Cloud Connect
License controlled by CC/RTR

Virtualized O2G (O2G-V):
License controlled by MAC@

ALU-ID

OXE — software.mao
O2G — FLEX*lm* — license.lic
Linux — SUSE
VM — VM
Hypervisor

USB dongle

Virtualized OXE (OXE-V):
Not Connected on Cloud Connect
License controlled is based on USB Dongle

Virtualized O2G (O2G-V):
License controlled by USB Dongle

The configuration with a virtualized OXE (OXE-V) and an O2G deployed on an appliance server is not possible.

Microsoft Hyper-V doesn't support the control by a USB dongle.

In case of deployment on Hyper-V, OXE **must be connected on Cloud connect and use RTR to control the license.**

Please refer to TBE043 - OpenTouch Suite for MLE Virtualization design guide for further information
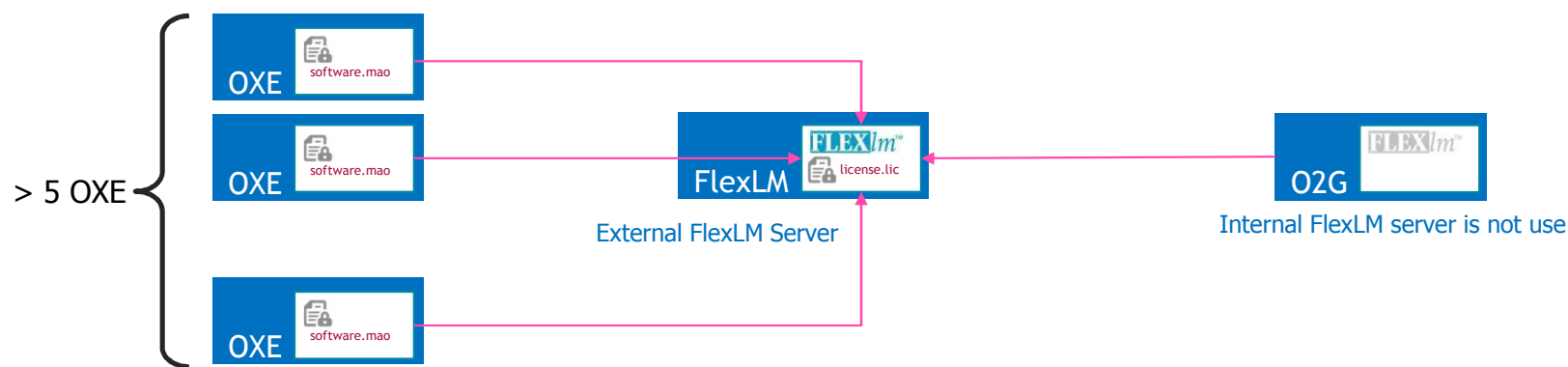
Alcatel·Lucent
Enterprise

Licensing
External FlexLM server

The O2G FlexLM server can be use to control the OXE licenses. It's possible to control up to 5 OXE with the embedded FlexLM Server.

Above this limit, it is necessary to deploy an external FlexLM server.

O2G can be configure to use the external FlexLM server.

It's possible to configure only one external FlexLM server in O2G. In case the external FlexLM server is duplicated, an role based IP address must be considered.

Please refer to TBE043 - OpenTouch Suite for MLE Virtualization design guide for further information

Alcatel·Lucent
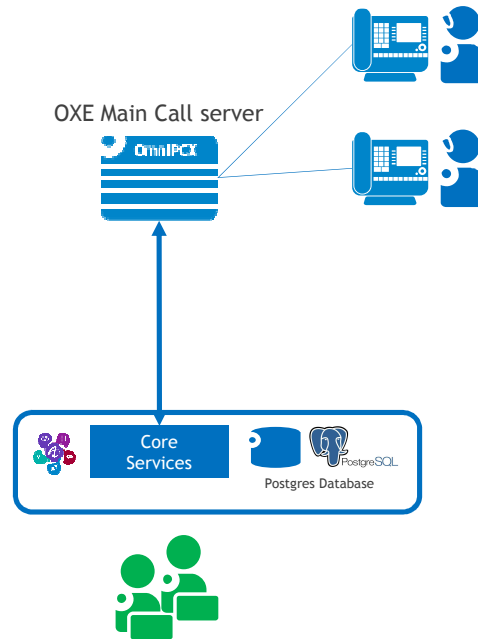Enterprise

Summary

Alcatel·Lucent *Ⓐ*
Enterprise

Security
O2G accounts and role

OXE Main Call server

OXE Users:
An O2G session can be opened for an OXE user. It allows to invoke services for this OXE user, for example Telephony service or Voice Mail service.

Core Services

Postgres Database

O2G Database account:
This is the Postgres database account. It is created during O2G installation and can be modified by the O2G system administrator.

O2G system administrator:
O2G system administrator is the Suse Linux root account. It is created during the O2G installation process.

O2G Administrators:
O2G administrators can invoke any O2G services. An administrator session is mandatory for some services like PBX Management service or Analytics service.
An administrator is created by the O2G system administrator.
There is no limit on the number of O2G administrators.
O2G administrator can access Logs and maintenance tools.

Alcatel·Lucent
Enterprise

Security
Authentication

- O2G Session
  - Before accessing a REST service provided by O2G, a user or administrator session must be opened.
  - Authentication is performed with https basic authentication
  - User authentication: the login is based on the user directory number and OXE password. If the number is 0123456, the login to use is "oxe0123456" and the password is the OXE password.
  - Administrator authentication: Administrator password must respect the following constraints:
    - at least 9 characters
    - at least one lowercase
    - at least one uppercase
    - at least one digit
    - at least one non-alphanumeric character.

- Connection on OXE
  - O2G uses SSH to retrieve OXE incidents or accounting tickets. SSH must be activated on OXE.
  - By default the OXE account "adfexc" is used, but it can be modified by O2G system administrator.

Alcatel·Lucent
Enterprise

Security
Encryption

- By default O2G is secured
  - O2G is deployed with a default self-signed certificate
  - Ports 443 and 8016 are used by a secured O2G
    - Port 443 is used to invoke services
    - Port 8016 is used for https notification

- It is strongly recommended to deploy a customer certificate
  - O2G support X509v3 certificates in a PKCS#12 format
  - PKI can be managed with OmniVista 8770. Please see TBE025 OpenTouch Suite for MLE Security Design Guide for detail
  - In case of outgoing connection over websocket, the application JSON Web Token and the Certification Authority X509v3 certificate must be imported in the O2G truststore.
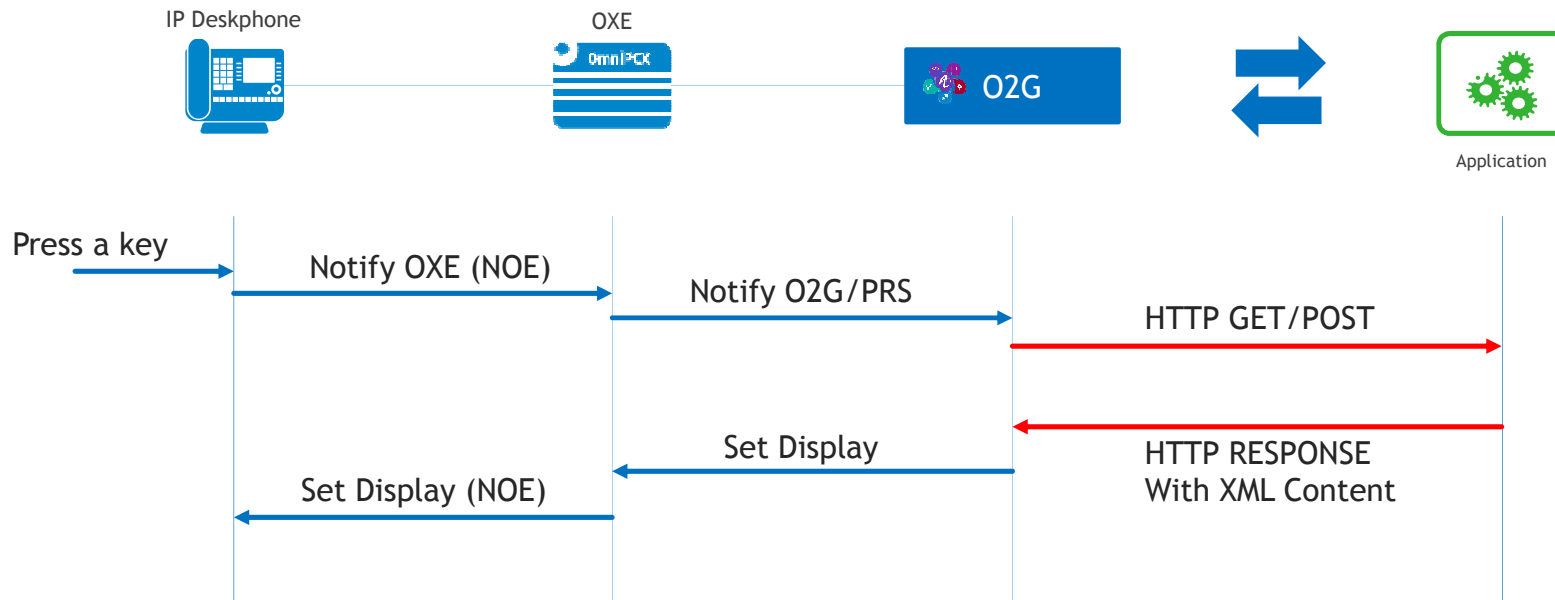
Alcatel·Lucent
Enterprise

Summary

Alcatel·Lucent
Enterprise

XML PRS Service
Principle

XML PRS service allows to provide application on a IP Deskphone. It's not a REST service.

The application communicates with O2G/PRS service through HTTPs. The application plays the role of an HTTP server.

IP Deskphone	OXE	O2G		Application

Press a key →

Notify OXE (NOE) →

Notify O2G/PRS →

HTTP GET/POST →

← HTTP RESPONSE With XML Content

← Set Display

← Set Display (NOE)

Alcatel·Lucent
Enterprise

Communication Log Service

Communication log is build by O2G based on CSTA monitoring and stored in the Postgres SQL database.

The communication log has a depth of 100 calls per user. After 100 calls, the oldest are automatically removed.

Warning: the communication log is different from the OXE call log, for example, acknowledging a missed call using the O2G Communication Log service will not change acknowledge the missed call the OXE call log level.

Alcatel·Lucent
Enterprise

Performances

- Monitoring and snapshot
  - When an O2G application starts, it monitors users and get their current state. The following table gives the necessary time to make the snapshot. (Test done on VM 2Ghz /4 vCPU / 4 GB vRAM)

Number of users	1000	3000	5000	15000	30000	50000	100000
Snapshot time (s)	9	11	13	23	30	43	75

- API Request performance
  - The following table gives the time to perform 10000 Set and 10000 Get operations using the Set Programming Service, depending on the number of threads running in the application (Test done on VM 2Ghz /4 vCPU / 4 GB vRAM)
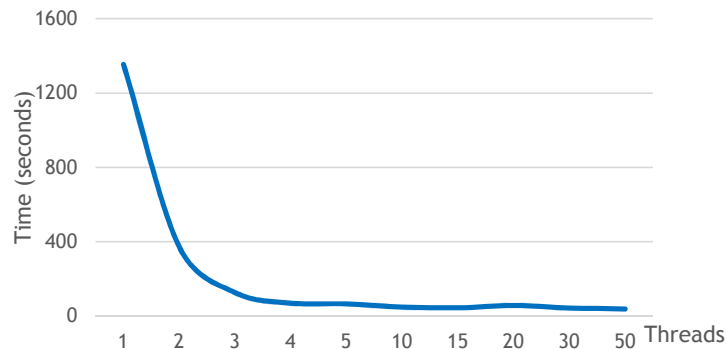
Multi-threading brings improvement as soon as the client application uses 3 or 4 threads (no need to get above to get better results).
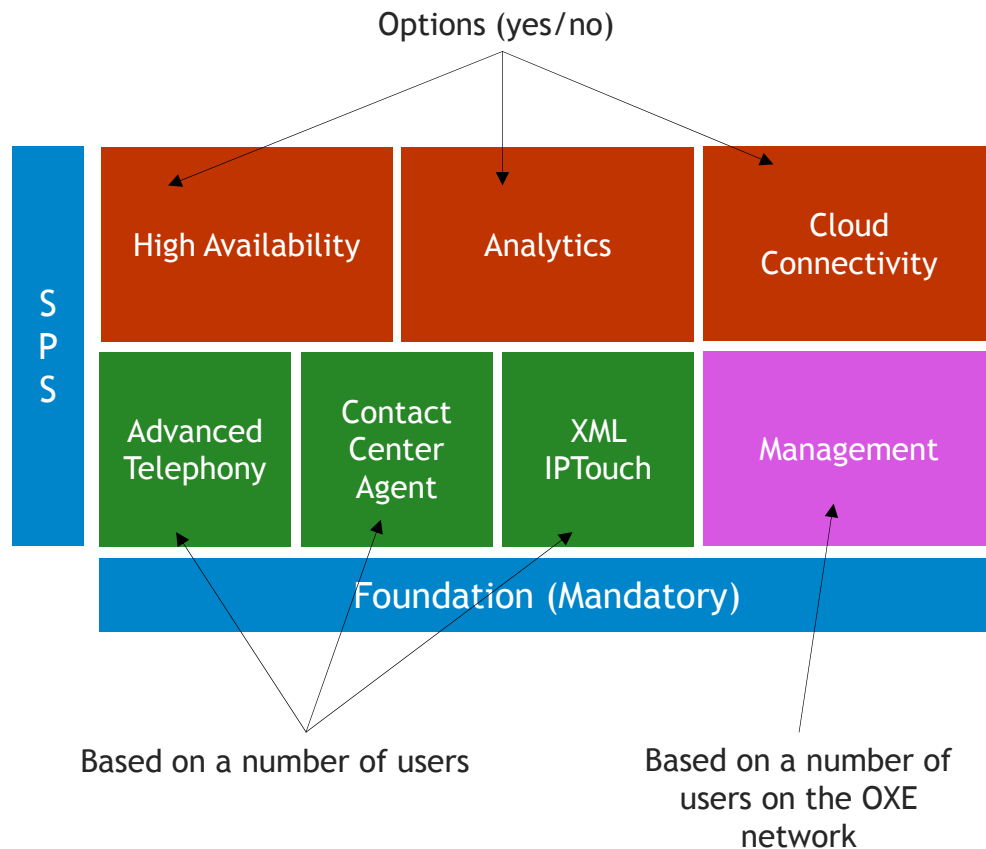
34

Alcatel·Lucent
Enterprise

Summary

Alcatel·Lucent
Enterprise

Pricing model
Licenses overview

Options (yes/no)

High Availability	Analytics	Cloud Connectivity
Advanced Telephony	Contact Center Agent	XML IPTouch	Management

S P S

Foundation (Mandatory)

Based on a number of users

Based on a number of users on the OXE network

License	Description
Foundation	Foundation pack. Mandatory package, include basic call control service.
Advanced Telephony	Provide access to advanced OXE telephony call control. Pricing is based on the number of users the application wants to control.
Contact Center Agent	Provide access to Contact Center Agent features. The pricing is based on the number of Call center agents.
XML IP Touch	Provide access to XML application on IP Touch devices. Pricing is based on the number of users who have the XML application on their deskphone.
Management	Provide access to OXE management. Pricing is based on the total number of users on the OXE network the O2G is deployed on.
High Availability	Provide High availability option, possibility to deploy a second O2G server.
Analytics	Option to provide access to OXE incident and accounting tickets.
Cloud Connectivity	Option allowing to establish a remote connection using the O2G Web Socket Secured connector.

Alcatel·Lucent
Enterprise

Pricing model
Mapping between licenses and REST services

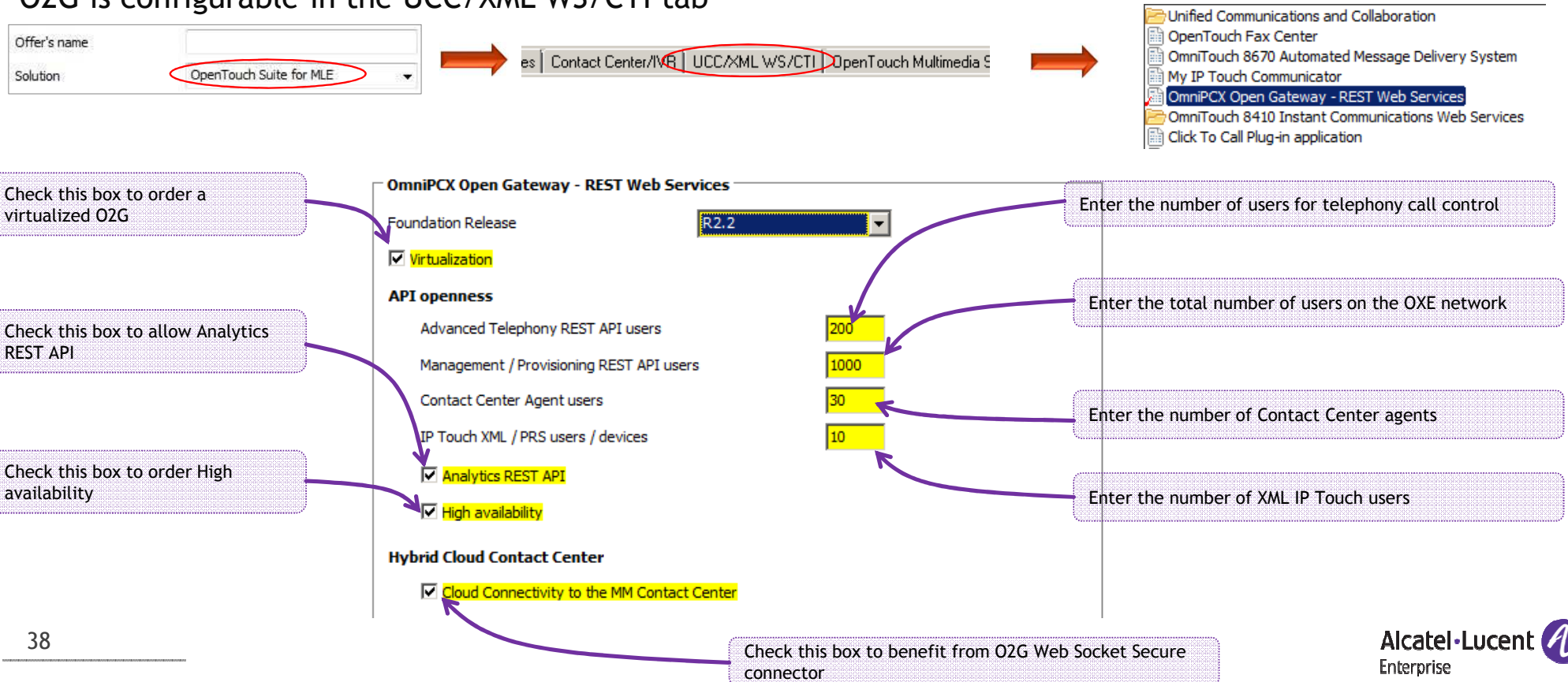|	Telephony Service		Voice Mail Service	Routing Management Service	Event Summary Service	Comm. Log Service	Directory Search Service	Call center Agent Service	PBX Management Service	Phone Set Programming	Analytics	Maintenance
	Basic (1)	Advanced										
Foundation	X											X
Advanced Telephony		X	X	X	X	X	X					
Contact Center Agent								X				
Management									X	X		
Analytics											X	

1) Basic telephony is a subset of Telephony service available with the Foundation pack. It allows the following services
- basicCall: Initiates a call to another user
- Answer: Responds to the incoming ringing call.
- dropMe: Exits from the call

Alcatel·Lucent
Enterprise

ACTIS
Overview

O2G is configured in an OpenTouch suite for MLE solution configuration, in addition to the OXE product.
O2G is configurable in the UCC/XML WS/CTI tab

Offer's name	
Solution	OpenTouch Suite for MLE ▼

➡ ...es | Contact Center/IVR | UCC/XML WS/CTI | OpenTouch Multimedia S ➡

📁 Unified Communications and Collaboration
📄 OpenTouch Fax Center
📄 OmniTouch 8670 Automated Message Delivery System
📄 My IP Touch Communicator
📄 OmniPCX Open Gateway - REST Web Services
📁 OmniTouch 8410 Instant Communications Web Services
📄 Click To Call Plug-in application

OmniPCX Open Gateway – REST Web Services

Foundation Release   R2.2 ▼

Check this box to order a virtualized O2G →
☑ Virtualization

API openness

Check this box to allow Analytics REST API →

Advanced Telephony REST API users   200   ← Enter the number of users for telephony call control

Management / Provisioning REST API users   1000   ← Enter the total number of users on the OXE network

Contact Center Agent users   30   ← Enter the number of Contact Center agents

IP Touch XML / PRS users / devices   10

☑ Analytics REST API

Check this box to order High availability →
☑ High availability   ← Enter the number of XML IP Touch users

Hybrid Cloud Contact Center

☑ Cloud Connectivity to the MM Contact Center

Check this box to benefit from O2G Web Socket Secure connector

38

Alcatel·Lucent Enterprise

ACTIS
Commercial items

License	Description		
Foundation	3BA09094KA	1	O2G RELEASE R2.2
	3BA09978JA	1	O2G BASE
	3BA09811JA	1	SUSE LINUX ENTERPRISE SUPPORT
Virtualization	3BA09003KA	1	O2G VIRTUALIZATION
Advanced Telephony	3BA09979JA	N	O2G ADVANCED TELEPHONY - 1 USER
Contact Center Agent	3BA09044KA	N	O2G CONTACT CENTER AGENT - 1 USER
XML IP Touch	3BA09981JA	N	O2G IP TOUCH XML - 1 USER
Management	3BA09980JA	N	O2G MANAGEMENT - 1 USER
High Availability	3BA09983JA	1	O2G HIGH AVAILABILITY BASE
Analytics	3BA09982JA	1	O2G ANALYTICS
Cloud Connectivity	3BA09096KA	1	O2G CLOUD CONNECTIVITY

N : number of configured users

Alcatel·Lucent
Enterprise

License control

For all the services, a license is consumed

- Check-in of a license:
  - The license is taken during the first REST request per loginName
  - If the same user opens several sessions, the licenses is taken only for the first session. For the other session opened by the same user, no further license is taken.
- Check-out of a license:
  - The user licenses are freed during a logout or a timeout of its last session (the default value for session timeout is 1800 seconds/30 minutes).
- Notice that for an O2G administrator who makes an action for 1000 different users, O2G will check-in 1000 licenses (one per user). All the licenses will be freed during a logout or a timeout of its last session.
- The Cloud Connectivity license is checked every 24 hours .

Specific case of PBX Management service

- The license is based on the total number of subscribers (user) of all connected OXE systems. This value is measured once a day.
  - If the number of users is inferior to the PBX Management license value then all methods are permitted
  - If the number of users is greater by 110% (10% grace quantity is provided) then only GET methods are accepted. This means that all elements are in Read only mode.

Alcatel·Lucent
Enterprise

OXE licenses

On OXE release below R12.0

- O2G needs CSTA BYPASS (lock #158) and 4980 (locks #166, #116 et #117)

- This locks are configured by ACTIS and free of charge:
  - CSTA BYPASS (lock #158) is configured at 500 + 2 * number of OXE users, with a maximum of 6000.
  - 4980 (locks #166, #116 et #117) are configured to 5000

- In case the O2G configuration requires more than 5 000 monitored devices, an eSR must be submitted asking to increase the number of CSTA BYPASS and 4980 locks (free of charge)

On OXE release greater of equal to R12.0

- The CSTA BYPASS and the 4980 locks are no longer checked.

Alcatel·Lucent
Enterprise

Start developing

Deploy your own O2G

- Software can be downloaded from https://businessportal.al-enterprise.com/o2g-software

- **Without a license file installed, O2G provides access to**
  - 5 users for Basic Telephony Service
  - 1 user for Advanced Telephony Service
  - 1 user for XML PRS Service

Use the DSPP VLAB Infrastructure

- DSPP provide a sandbox containing an OXE and an O2G server to developers (free of charge during 30 days). Access is available on demand via email at dspp@al-enterprise.com.

- Please find additional information at http://vlab-wiki.dspp.al-enterprise.com/

Alcatel·Lucent
Enterprise

Summary

Alcatel·Lucent
Enterprise

Onboarding Resources

- **Product site**
  - https://www.al-enterprise.com/en/products/platforms/omnipcx-open-gateway
- **DSPP site**
  - https://api.dspp.al-enterprise.com/omnipcx-open-gateway-02g/
- **Sample source codes (github)**
  - https://github.com/ale-openness
- **API explorer**
  - https://api.dspp.al-enterprise.com/o2g/
- **Business portal resources**
  - https://businessportal.al-enterprise.com/search?global_search_fulltext=O2G

Alcatel·Lucent
Enterprise

Conclusion – Key takeaways

- **Very simple to deploy** → (11') No OXE upgrade impacts

- **REST, online doc, online sandbox, forum** → Very easy for developers to onboard

- **Interchangeability of code** → @99% between OT(REST) and O2G, very few porting/rework

- **Full management API** → New personalized application (portals, automation) can be imagined

- **User centric API model** → Multi-devices vision on OXE

- **Docker Engine inside** → plug-in any third-party Containers very easily

Alcatel·Lucent
Enterprise

enterprise.alcatel-lucent.com

facebook.com/ALUEnterprise

linkedin.com/company/alcatellucententerprise

twitter.com/ALUEnterprise

youtube.com/user/enterpriseALU

Alcatel·Lucent
Enterprise