CX Contact for Outbound Voice

Reference Architecture

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GENESYS™

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Revision History

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1 Introduction

The purpose of this Blueprint is to document the architecture for Outbound Voice with CX Contact for Outbound Voice. This document identifies the components (both Genesys and 3rd party) that comprise the solution. It also provides guidance for-configuration and addresses several system concerns such as security, high availability and disaster recovery.

Note that this version of the Blueprint is limited in scope to the PureEngage Cloud CX Contact for Outbound Voice offering. Certain sections of the document that are pertinent to the forthcoming CX Contact for Outbound Voice premise offering will be added once details of that offering become available.

1.1 Document Overview

The document contains the following sections:

- 2: Definitions and Acronyms
- 3: Overall Architecture
- 4: Deployment View
- 5: Interaction View
- 6: Implementation View
- Appendix A: Related Documents

1.2 Intended Audience

Describing system and solution architectures can be difficult as there are multiple audiences each with different expectations. This document is intended for multiple audiences with various chapters being more interesting to some readers than others.

The Overall Architecture and Deployment View are likely meaningful to most audiences. However, the Interaction View and the Implementation View may be of more interest to those configuring the network and components.

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2 Definitions, Acronyms, and Document Standards

2.1 Definitions

This document uses various abbreviations and acronyms that are commonly used in Genesys product documentation and the telecommunications and contact center industries. The following table defines terms that will be referenced subsequently in this document.

2.2 Glossary

ALB	Application Load Balancer
AMI	Amazon Machine Image
API	Application Programming Interface
AWS	Amazon Web Services
CCID	Contact Center ID
CCS	Cloud Contact Service?
CME	Configuration Management Environment, another name for the Configuration Layer
CS	Config Server
CSP	Config Server Proxy
CSV	Comma-Separated Value
CTI	Computer-telephony integration, the adding of computer intelligence to monitoring and control of telephone calls
CX	Customer Experience
DAP	Database Access Point
DB	Database
DBID	Database ID
DBMS	Database Management System
DBO	Database Owner
DHCP	Dynamic Host Configuration Protocol
DIDR	Device Import Data Record
DN	Directory number
DNC	Do Not Call
DNS	Domain Name System
EFS	Elastic File System (AWS)
ELB	Elastic Load Balancer (AWS)
ES	Elasticsearch
FQDN	Fully-Qualified Domain Name
FTP	File Transfer Protocol

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GA	Genesys Administrator
GAX	Genesys Administrator Extension
GI2	Genesys Interactive Insights
GIM	Genesys InfoMart
GUI	Graphical User Interface
GVP	Genesys Voice Platform
GWS	Genesys Web Services
HA	High Availability
HTTP	Hypertext Transfer Protocol
ICON	Interaction Concentrator
IP	Internet Protocol
IVR	Interactive Voice Response
JSON	Javascript Object Notation
LB	Load Balancer
LTOW	
NFS	Network File System
OCS	Outbound Contact Server
RBAC	Role-Based Access Control
SFTP	Secure File Transfer Protocol
TA	
TTL	Time To Live
TZ	Time Zone
UI	User Interface
URI	Universal Resource Identifier
VM	Virtual Machine
WTOL	

2.3 Document Conventions

The following documentation and naming conventions are used throughout the document:

- `Code` and `configuration property names & values` will appear in console font.
- References to other documents are bracketed ([]).

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3 Overall Architecture

The CX Contact for Outbound Voice is a new Genesys platform for Outbound Campaigns. It is (currently) a cloud-only offering that provides a state-of-the-art user interface to manage all aspects of Outbound Campaigns lifecycle.

The CX Contact solution uses Outbound Contact Server (OCS), Genesys' proven predictive dialing engine, as a back-end dialer. CX Contact relies on existing OCS functionalities to pace outbound calls, handle call-backs, process agent's responses, apply treatments to unsuccessful call results and store processing results in the calling list tables. OCS uses down-stream Genesys tenant core servers, such as Configuration Server, SIP Server, Stat Server, ICON and GIM. CX Contact uses Genesys shared services such as Genesys Web Services (GWS) for authentication.

3.1 Solution Overview

This product consists of a browser user interface and API aggregator for campaign, list and compliance management, and backend services for:

- List management
- List building
- Job scheduling
- Campaign management
- Compliance management
- Management of campaign results

Customers will provide CX Contact with Contact and suppression lists, with associated mapping specifications, via a Secure FTP server on the Customer premises. Customers will use the CX Contact user interface to provide URL and credentials to CX Contact for access to the S/FTP server to allow CX Contact to ingest these files.

CX Contact makes use of existing Pure Engage Cloud services:

- Genesys Web Services (GWS), for authentication and tenant configuration
- Outbound Contact Server (OCS) and Tenant Voice Platform, for outbound dialing, IVR, routing and statistics
- Genesys Pulse for real-time Campaign analytics
- Genesys InfoMart (GIM) for reporting

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3.2 Logical Architecture Model

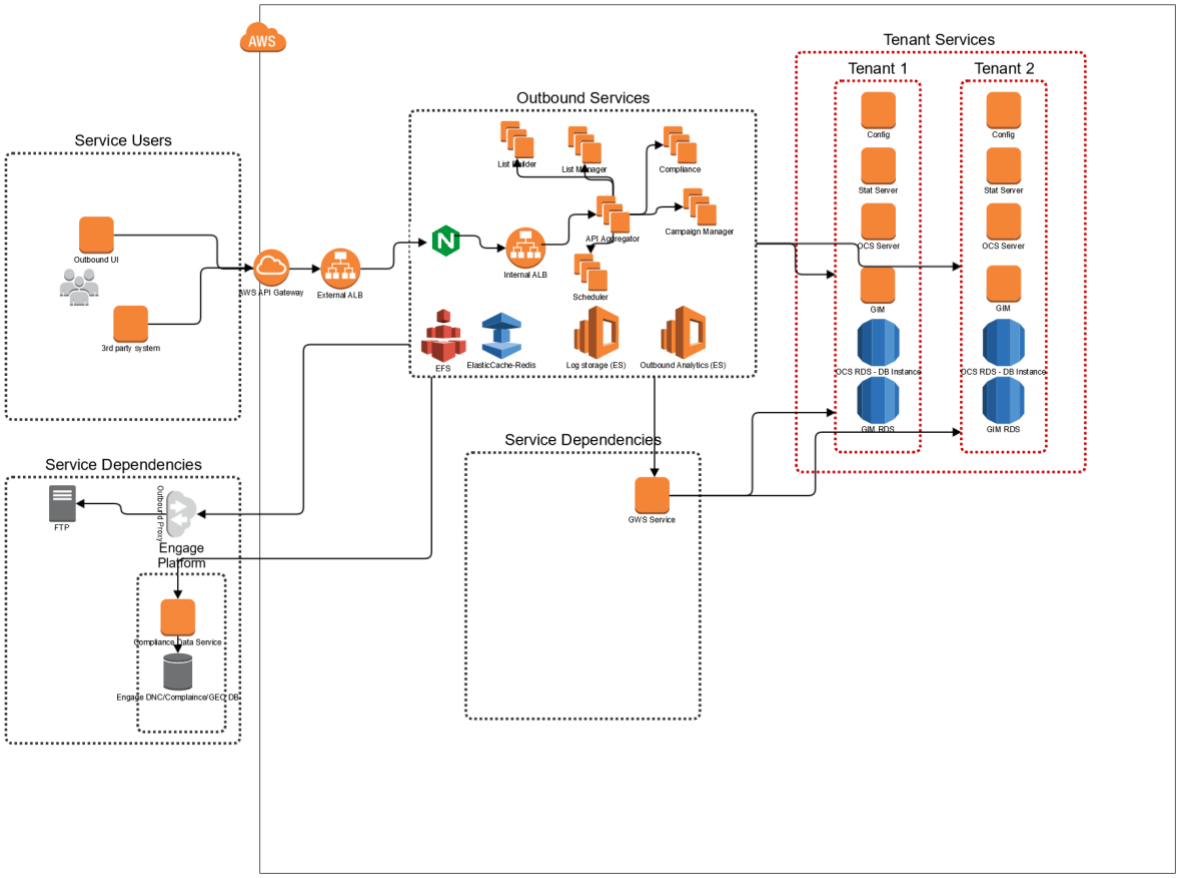

Figure 1 – Logical Model

Customers use the CX Contact UI application (delivered to browser from Nginx component "N" in above diagram) and/or custom scripts to request CX Contact services from the API Aggregator component, services including job scheduling, list management, campaign management and configuration. Customers place contact lists and suppression lists on their FTP server, which are then retrieved by CX Contact services for processing. CX Contact obtains geo compliance data from a common source on Engage Private Cloud. Internally, CX Contact makes use of existing Shared and Tenant Pure Engage Cloud services for authentication, configuration, outbound dialing, Info Mart for reports, etc. Customers use Genesys Pulse for real-time campaign metrics.

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3.3 Functional View

The following SMART Use Case is associated with the CX Contact for Outbound Voice solution:

- Genesys Outbound Dialer (CE39) for PureEngage

Areas of functionality within this solution are:

- List Builder
  - Builds validated contact lists from ingested data files
  - Reads list of validation rules that should be applied to lists
- List Manager
  - Manages the tenants contact lists
  - Supports importing from UI or API (Future)
  - Sets up the necessary configuration objects in configuration server to represent the contact list being imported
  - Responsible for orchestrating the creation of validated contact lists using the List Builder service
- Job Scheduler or Scheduler
  - Service schedules jobs to be executed such as
    - Contact List Building
    - Suppression List Building
    - Collection of compliance data
    - Purging of contact and suppression lists
- Campaign Manager
  - Create, Stop, Start, Change, Pause, Resume and List Statistics
  - Validates campaign for compliance
  - Manages treatments and dialing filters
  - Stores campaigns, treatments, and dialing filters in the CME DB
- Compliance Manager
  - Manages Pre-Dial Validation
  - Checks against contact dialing history
  - Checks against other compliance time, day, and location based
- API Aggregator
  - Service provides the API gateway for all outbound services which can be accessed from outside Genesys
  - Provides functionality such as Authentication and Authorization input validation and Global IDs
- User Interface
  - Service provides the User interface for CX Contact combining the above services into a single UI
- OCS – Outbound Contact Server
  - OCS is the dialing engine

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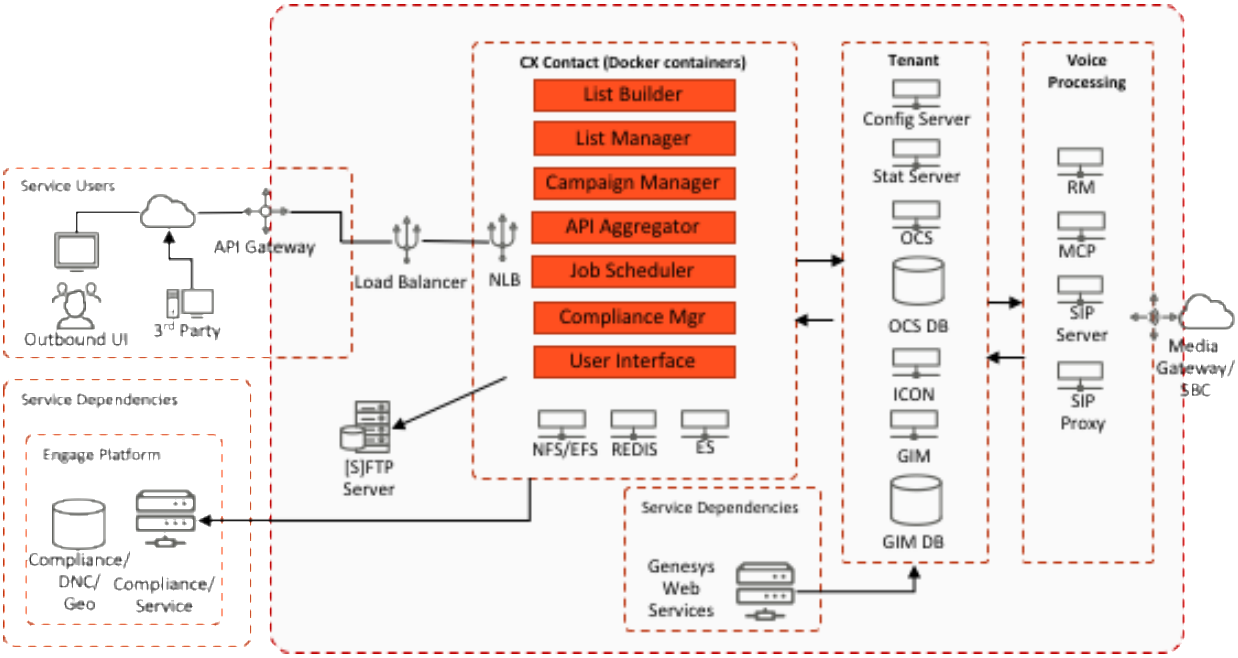
3.4 Component View

The Outbound Voice with CX Contact cloud solution employs Genesys Pure Engage Cloud components and Customer-supplied components.



3.4.1 Genesys Components

Key Genesys components for the CX Contact for Outbound Voice solution.

Category	Component	Version	Notes
CX Contact Shared Services	CX Contact UI		Static content and browser code delivered from NGINX
	API Aggregator		
	List Manager		
	Compliance Manager		
	List Builder		
	Campaign Manager		
	Job Scheduler		
	Compliance Data Provider		
Tenant Services	OCS		
	Config Server		
	Stats Server		
	InfoMart		
Real-time Analytics	Pulse		

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Category	Component	Version	Notes
Other Genesys Shared Services	GWS		

Table 1 - Genesys Component List

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3.4.2 Customer-supplied Components

For PureEngage Cloud CX Contact for Outbound Voice offering, this section lists the Customer-supplied components.

The following table lists the required Customer-premise components for this solution.

Component	Recommended	Version	Note
SFTP Server	Crush SFTP has been tested, but Genesys does not have a recommended SFTP vendor		
Firewall			Customers may have a firewall to control requests to their SFTP server
Browser	Chrome		

Table 2 - 3rd Party Components

...

3.5 Limits and Constraints

For solution limits and constraints, please refer to CX Contact documentation at:

https://docs.genesys.com/Documentation/CXC/Preview/CXCHelp/Welcome

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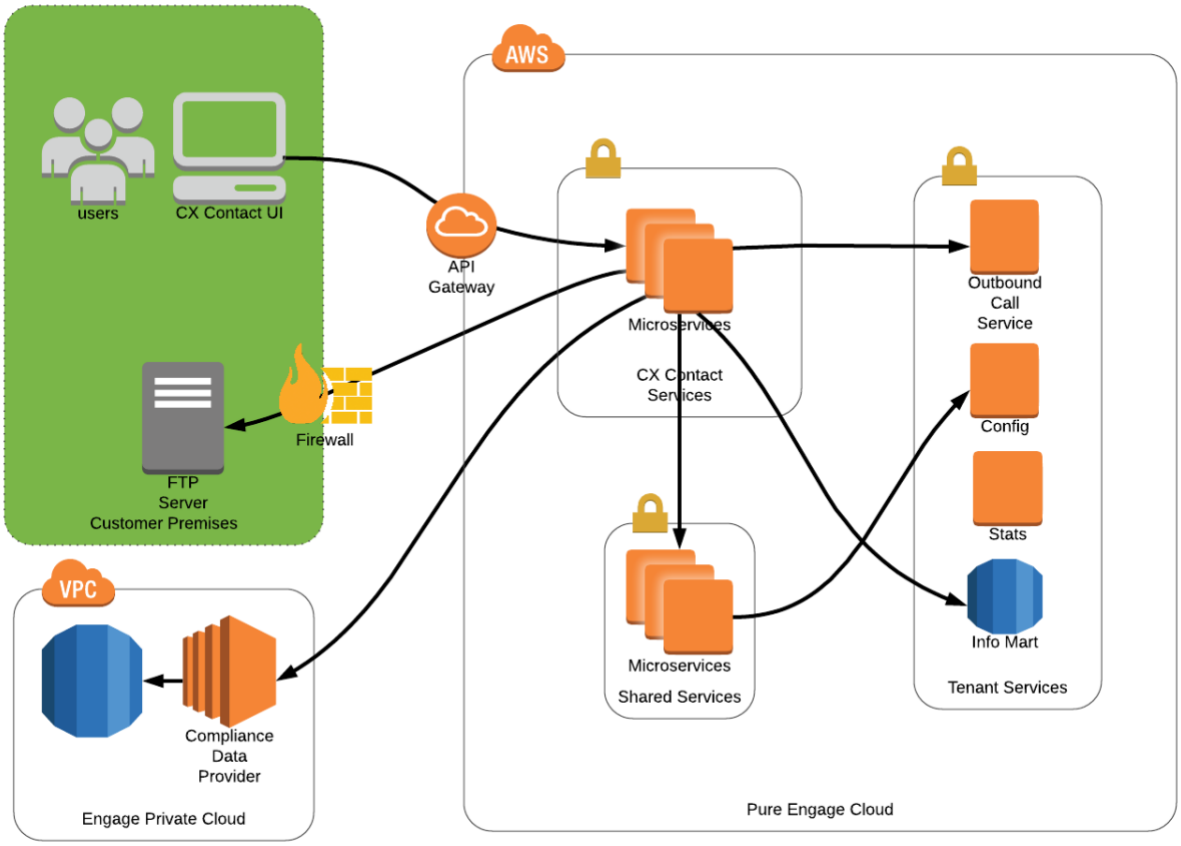
4 Deployment View

4.1 Genesys Deployment Options

This section identifies the deployment options for the solution, and description of the approach to high availability and disaster recovery for the solution in the Pure Engage Cloud.

4.1.1 Deployment Options

The following diagram shows a typical deployment, consisting of PureEngage Cloud services and Customer-supplied components including browsers for use of the CX Contact web application, FTP servers and Firewalls.



The Outbound Voice with CX Contact cloud solution is not yet available in all Genesys Pure Engage Cloud regions.

4.1.2 High Availability

CX Contact microservices (e.g. List Builder, Campaign Manager) use N+1 clustering in each region to achieve high availability. In addition, the nodes of each microservice are distributed

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across geographically separated availability zones (data centers) within each region to ensure business continuity in the event of the loss of an entire availability zone.

Customer-supplied components of the solution, including network connectivity, inbound Firewalls and FTP Servers should be configured for high availability, using redundant internet connections, clustered firewalls and clustered FTP Servers with shared access to high-availability file systems.

4.1.3 Disaster Recovery

Currently, the CX Contact for Outbound Voice does not have any automated processes for disaster recovery. For PureEngage Cloud, the solution will survive the loss of an AWS Availability zone, but not loss of an entire AWS region.

Customers should provide disaster recovery capabilities for Customer-supplied components of the solution, e.g. DR data centers for FTP servers and network connectivity.

4.2 Database

This section is not pertinent to the PureEngage Cloud CX Contact for Outbound Voice offering. This section will be completed for the CX Contact for Outbound Voice premise offering once details of that offering are available.

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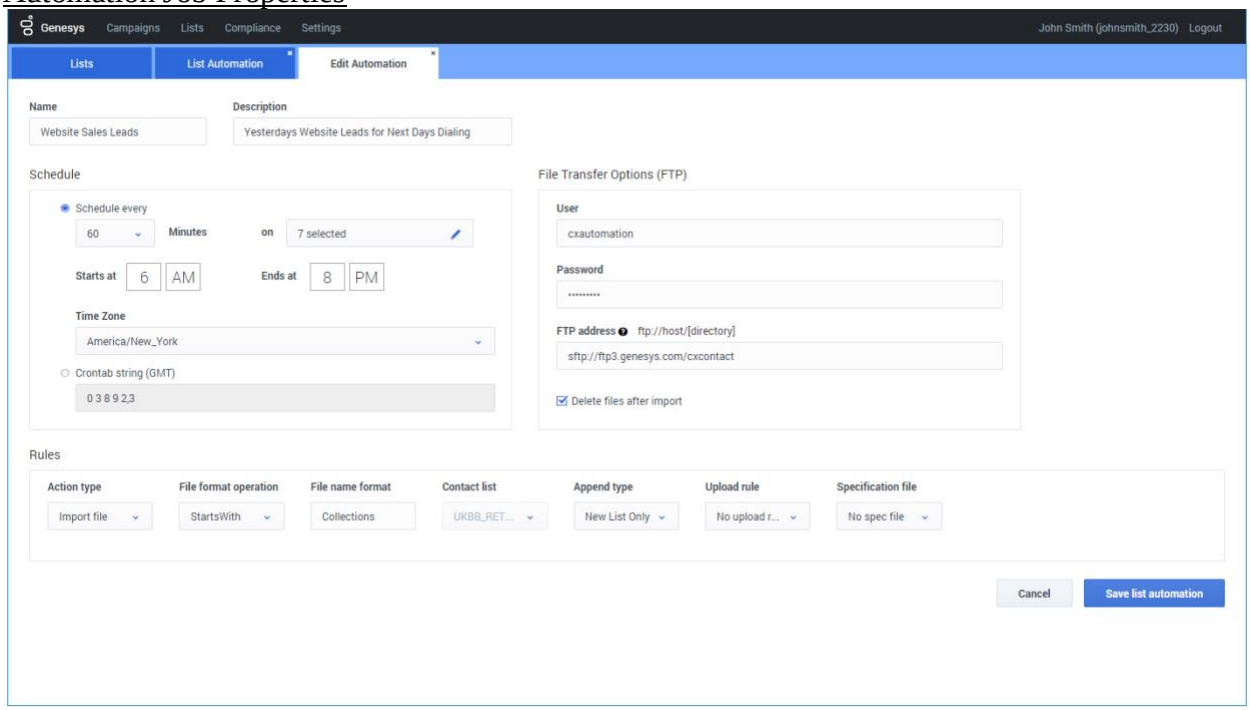
5 Interaction View

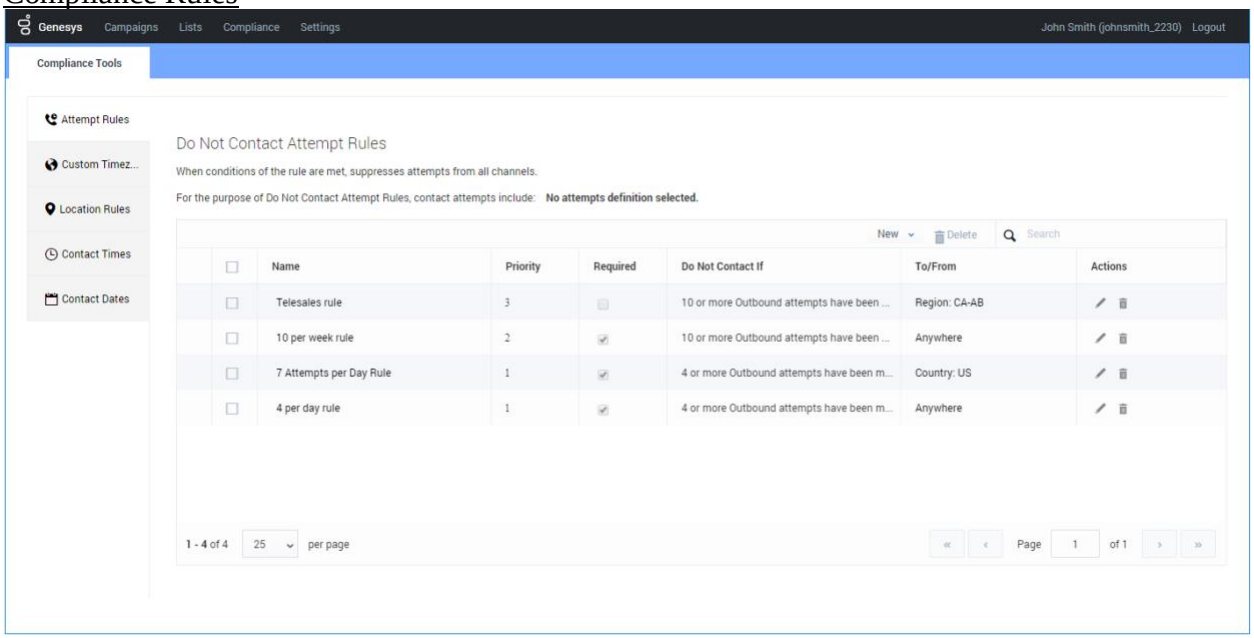
5.1 Admin User Experience

Following are samples of the CX Contact for Outbound Voice user Interface:

Automation Job Properties



Compliance Rules



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The CX Contact user interface supports the following processes:

- Campaigns
  - Create Campaign Template
  - Create Campaign Group
  - Monitor Campaign Group Status
  - Create a Dialing Profile
- Lists
  - Lists
    - Import a contact list
    - View import activity
    - Export a contact list
    - Edit a contact list
    - Delete a contact list
    - Add contacts to a contact list
    - Permanently remove contacts from a contact list
  - List Rules
    - Create an upload rule
    - Create a selection rule
    - Edit a list rule
    - Delete a list rule
    - Duplicate a list rule
  - List Automation
    - Create a List Automation job
    - Schedule a run
    - Create List Automation rules
    - View job details
  - Import specification files
  - Search for a contact
  - Create and Manage User-defined Field Labels
    - Create the labeling schema
    - Create or edit user fields
    - Apply a labeling schema to:
      - Contact list
      - Dialing profile, campaign template, or campaign group
      - List rules
- Compliance
  - Restrict contact attempts by using:
    - Attempt Rules
    - Custom Time Zones
- View or change application settings
    - Location Rules
    - Contact Times (by Region)

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        - Contact Dates
    - Create or manage suppression lists
        - View a suppression list
        - Import a suppression list
        - Export a suppression list
        - Append a suppression file
        - Add contacts to a suppression list
        - Edit a suppression list
        - Delete a suppression list
        - Delete contacts within a suppression list

A guide to the CX Contact user interface is located at:
https://docs.genesys.com/Documentation/CXC/Current/CXCHelp/Welcome

5.2 Call Flows

The following sequence diagram shows the data flow within the Outbound Voice with CX Contact solution. Note that the User Interface input and interactions between OCS and the telephony infrastructure are not depicted. The CX Contact user interface is used to configure the Campaign Management and List Builder processing, as well as the List Manager and Job Scheduler components (not shown on the sequence diagram)

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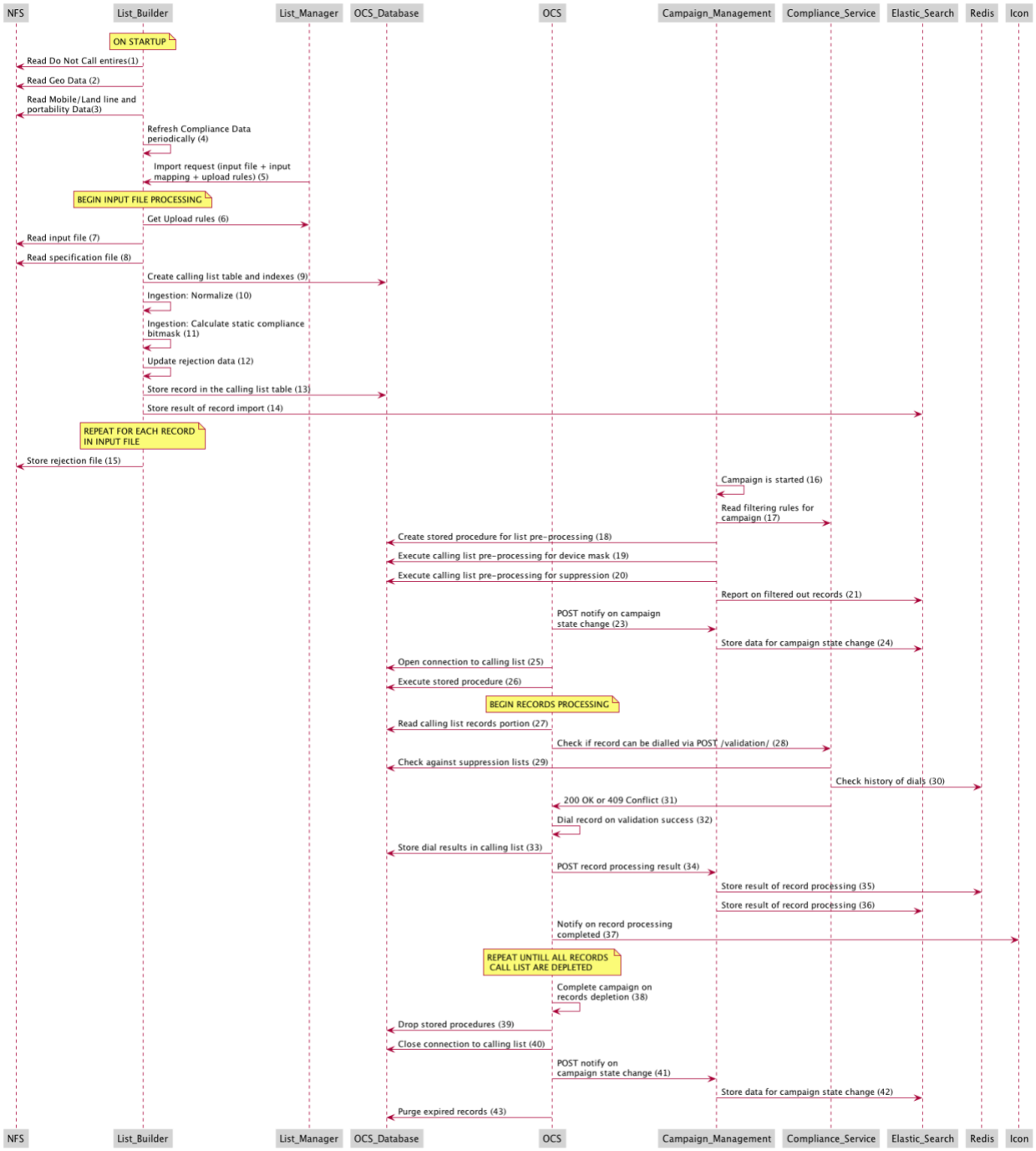

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5.3 External Interfaces

The Outbound Voice with CX Contact cloud solution includes the following external integration points:

Interface	Protocol	Solution Components	Integration Tasks	Description
Contact and Suppression List upload	SFTP	SFTP Server Firewall	Customer provides credentials for CX Contact job to upload files to CX Contact solution via SFTP. Customer must provide Genesys with access to designated FTP server(s) on the Customer's premises. This may require Customer firewall configuration.	This interface is used to handle ingress of Contact Lists, Suppression Lists and associated mapping specifications

Table 3 - External Interfaces

Contact List file format requirements are located at:
https://docs.genesys.com/Documentation/CXC/Current/CXCHelp/AboutLists

Suppression List file format requirements are located at:
https://docs.genesys.com/Documentation/CXC/Current/CXCHelp/Suppression

Mapping specifications documentation is located at:
https://docs.genesys.com/Documentation/CXC/Current/CXCHelp/ListsSpecFiles

5.4 Operational Management

For the CX Contact for Outbound Voice solution, Customers are responsible for operational management of customer-supplied components (Browser, SFTP Server and Firewall). Genesys CX Contact solution is managed as part of Pure Engage Cloud operations.

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6 Implementation View

6.1 Solution Sizing Guidelines

Genesys is responsible for correct OS hardening and sufficient sizing of Outbound Voice with CX Contact cloud solution services and data stores. Customers are responsible for provisioning sufficient Internet bandwidth from their premises.

6.2 Configuration Guidelines

CX Contact is a shared service, capable of working with one or more Voice Tenants (see above Architectural Diagram). Each Voice Tenant is represented by:

- Dedicated Configuration Server (in multi-tenant installation mode, having single tenant **Environment** provisioned only)
- A set of Genesys and third-party applications configured within this Dedicated Configuration Server
- A set of contact-center resources (Agent Groups, Switches, etc.) configured within this Dedicated Configuration Server

Campaign templates, dialling profiles, list automations and compliance rules may be configured by customers. The configurations for these and the remainder of the CX Contact UI are available at :
https://docs.genesys.com/Documentation/CXC

Additional configuration information for OCS can be found at:
https://docs.genesys.com/Documentation/GA/8.5.2/user/CMOutbound

6.3 Security

The user interfaces for the Outbound Voice for CX Contact solution are authenticated using Genesys GWS Authentication for CX Contact UI, and via Config Server authentication for Genesys Administrator Extensions (GAX).

Genesys recommends that Customers employ secure FTP (SFTP) servers to provide encryption of Contact Lists and Suppression Lists in transit.

Genesys Pure Engage Cloud creates audit logs of all significant user activity.

6.3.1 VM and OS hardening

This section is not pertinent to the PureEngage Cloud CX Contact for Outbound Voice offering. This section will be completed for the CX Contact for Outbound Voice premise offering once details of that offering are available.

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6.4 Localization and Internationalization

See https://docs.genesys.com/Documentation/CXC/Current/CXCHelp/TimeZones for help relating to time zone settings.

Currently, CX Contact user interface and dashboards are only provided in English.

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Appendix A Related Documents

Blueprints:

SIP Voice for Premise:
https://all.docs.genesys.com/images/Repo/SIP%20Voice%20Blueprint.pdf

SIP Cluster for Premise:
https://docs.genesys.com/Special:Repository/SIP_Cluster_on_Premise_Blueprint_v1.0.pdf?id=1648da74-8d58-4005-9d36-d6fd201139e0

Common Components:
https://all.docs.genesys.com/images/Repo/Common%20Components%20Blueprint.pdf

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