



## **Product Description**

Fusion for Broadworks 3.2.2

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## 1 About this document

This document describes the Fusion for BroadWorks (F4B) solution and all its components.

This document does not contain a full list of the different features. They are included in the “F4B\_ Feature List” document because they depend on the version of the solution.

Roadmap items are listed in an “F4B\_ Roadmap” overview.

These documents can be provided upon request.

## 2 Basic terminology notions

Before describing the solution and its components, and more specifically the UC Control Hub - the customer portal from the Fusion for BroadWorks solution - it is important to have correct notions about the terminology used in this document. Understanding these basics allows you to better understand how the UC Control Hub solution is built and how it works.

### 2.1 Platform terminology and hierarchy

This section gives an explanation how terms like tenant, users, licenses,... are defined in our solution and in the Broadworks solution.

### 2.1.1 What is a tenant?

The Broadworks platform is a multi-tenant platform, which means that multiple enterprises can use the same underlying infrastructure without interfering with each other. When you sign up to our service, a tenant by the name of your enterprise will be created on the Broadworks platform and on our Fusion for BroadWorks solution, and resources will be assigned (phone numbers and licenses) to it. So, your tenant represents the virtual phone system instance of your enterprise.

When logged in as a tenant administrator on the UC Control Hub, you will be immediately transferred to a dashboard that shows key information on the status and resources of your tenant.

### 2.1.2 What are users?

“End-users” refer to hosted PBX extensions. These typically refer to real people using the Broadworks platform to communicate. A user can be compared to an “extension” on an on-prem PBX, but now hosted on a “hosted communication platform” instead of created on the on-prem PBX. In some cases, these “end-users” might not refer to real people but to shared desks or meeting rooms.

An end-user:

- (can have) has 1, or more, phone number(s) through which they can be called
- has 1 or more devices (for example: IP desk phone, a soft phone, a DECT...)
- (can have) has 1, or more, linked mobile device(s) (cell phones).

### 2.1.3 What are call flows?

If you are already familiar with an on-prem or other cloud PBX/Phone systems, concepts like Auto Attendants, IVRs, hunt groups, ring groups, call queues, etc. should sound familiar. These are actual virtual users that trigger some specific behaviour on the phone system. Typically, you would combine them to route calls to the correct people in your organisation. An extension and/or phone number can be assigned to these virtual users.

In the UC Control Hub, you find the following “call flows”:

- **Auto Attendants** (also known as IVR): the Auto Attendant automatically answers calls and provides the caller an interactive voice menu (for example: press 1 for sales, press 2 for support)
- **Hunt group** (also known as multi line hunt group or ring group): distributes incoming calls over multiple phone system users. This system will try to contact them either simultaneously or sequentially

- **Call queue** (basic call center): callers will be put in a queue and hear a waiting music until one of the call queue agents is available to handle the call. A typical use case is a reception of a company or hotel.
- **Call center** (standard call center): like a call queue but agents act it comes with more advanced call distribution algorithms. For example, agents have a status they can change, there can be supervisors, ...
- **Premium call center**: like a normal call center but more advanced options are available like skill-based routing, you can have opening hours and closing days, ...

#### **2.1.4 What are sites (or groups)?**

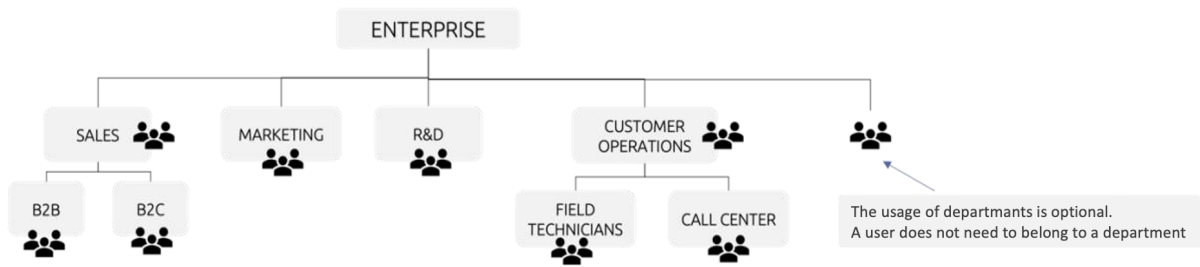
Sites (also known as groups) typically refer to a geographical location (building or a campus) where a user is located. Both users and call flows must be assigned to a specific site. This means you will need at least 1 site/group in your tenant. It is impossible to create users and call flows without assigning them to a site. When moving them (users and/or call flow) from one site to another, they must be deleted and re-created again.

SIP trunking is another service that is defined on site/group level. When using the SIP trunking service to provide PSTN connectivity, SIP trunks need to be created on site/group level. Only then, you can decide to route certain numbers to them.

#### **2.1.5 What are Departments?**

Departments are an administrative layer in the platform. You can use them to bring some structure to your phone system. A department can be considered as a “team” in your organisation. Unlike sites/groups, users can but don’t have to be assigned to a department. You can at any time assign a user to a department or re-assign them to another.

The usage of departments is optional: you don’t need to define departments if you don’t see any advantage. For small organisations, departments might quickly feel like an overhead. For larger setups, departments allow you to bring additional structure in your phone system.

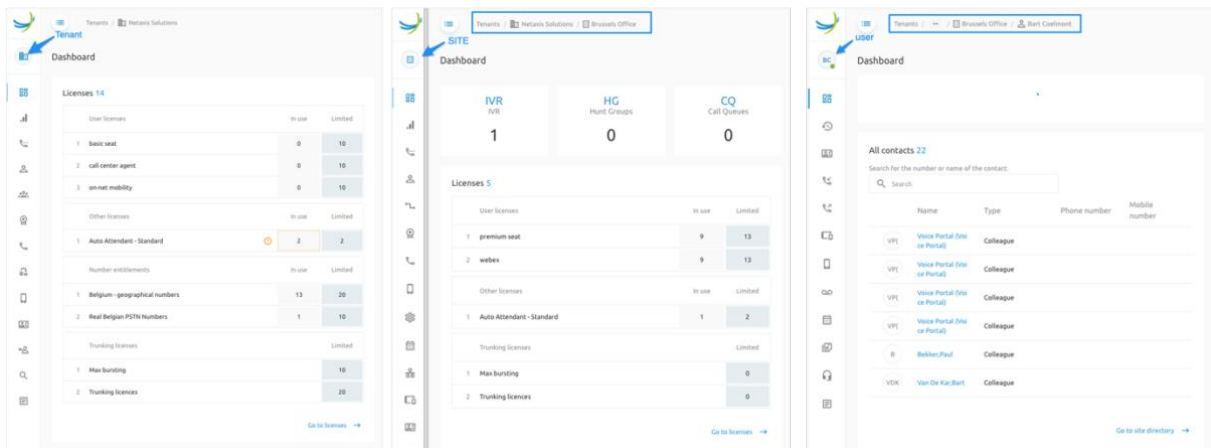


**Figure 1:** Departments can be used to group users into teams

### 2.1.6 How to see where you are in the hierarchy?

When browsing through the portal - UC Control Hub - the hierarchy might be confusing. Always remember your tenant will have 1 or more sites/groups, and users are provisioned *under* those sites/groups.

In the UC Control Hub, it is possible to navigate from the top of the hierarchy to the bottom using the breadcrumbs, at the top of the page. While moving up or down the hierarchy, the left-hand menu bar, including the avatar and service icons, will change.



**Figure 2:** Hierarchy

### 2.1.7 What is a License?

Based on the order, a certain number of licenses are granted to a tenant. These licenses can then be assigned to users, virtual users (like IVRs) and SIP trunks. Licenses limit the number of resources you can use on our platform. If you have licenses available, you can set up users and call flows without any intervention. It allows you to fully self-manage your service.

In the UC Control Hub solution, we have defined different types of licenses. We distinguish:

- End-user licenses
- Call flow licenses
- Call flow add-on licenses
- Trunking licenses
- Number entitlement licenses

These licenses are described more in detail in the [licensing](#) section.

### **2.1.8 What is a Service Pack?**

A Service Pack is a group of features that are put together to create specific profiles. For example, in the service pack “Basic Seat”, all the features are put together which a basic user needs. The “Premium Seat” service pack will contain other features. With these service packs, the IT administrator doesn’t need to think every time about which individual feature he has to give to which. The service packs group the features together.

### **2.1.9 What is a Fusion for BroadWorks “Package”?**

A package is a group of commercially bundled services, like for example the call analytics service, Number Inventory Management System (NIMS), Number Portability (NPACT), MS Teams integration service, LDAP/Active Directory integration service, etc., which makes it easier for the customer to have view on which services are included in the solutions.

Further explanation of the Modules can be found in the commercial or offer description (offer) of the solution.

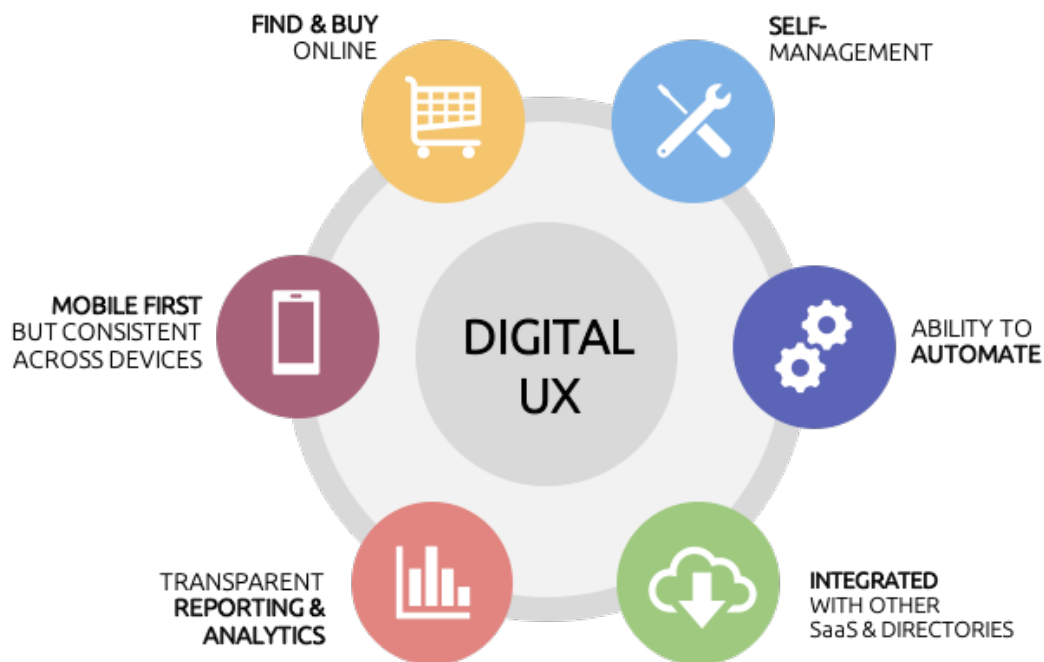
## **3 Introduction**

The “Fusion for BroadWorks” or “F4B” solution is developed with the main objective of helping Service Providers (SPs) to automate and operate their deployments while enabling them to build a truly digital experience for their customers.

The solution is made to integrate and to be integrated within the ecosystem-applications of the Service Providers. By maximally empowering the customer with services, the F4B keeps integration and business processes for the Service Providers simple and efficient.

The F4B solution helps them to simplify, automate and accelerate.





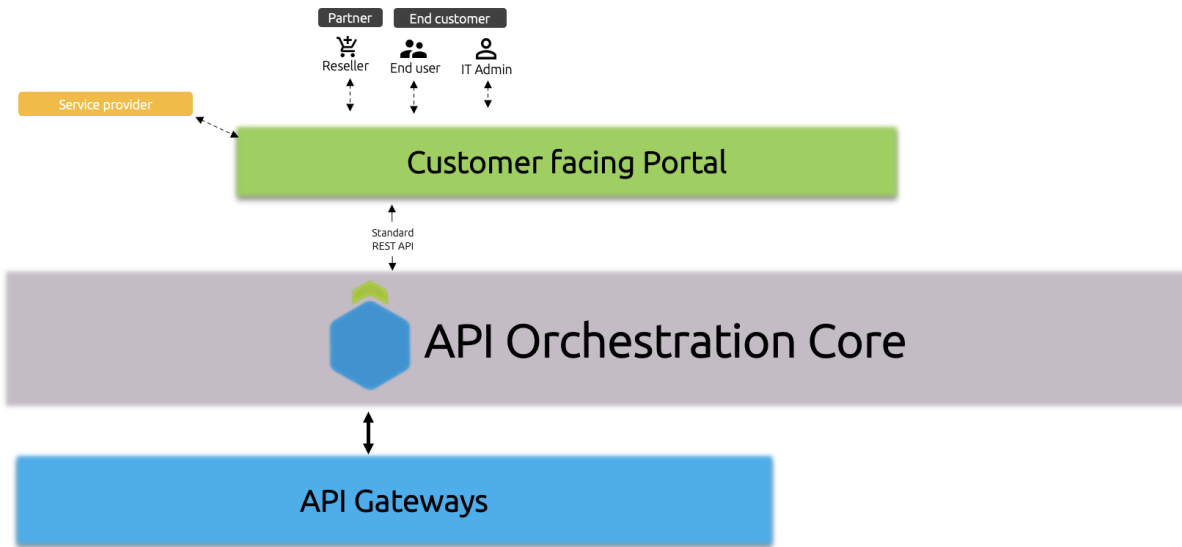
**Figure 3:** F4B solution

Initially, the F4B solution was tailored for Cisco Broadworks solutions, but to address our customers' needs the solution is constantly evolving with new integration capabilities. Regularly new modules and new connectors are added to easily integrate new types of network elements and platforms. Netaxis continuously designs and implements integrations on top of these connectors to unlock new features and business capabilities so they can be brought to the market in a matter of days instead of months.

### 3.1 F4B - the high-level architecture

The Fusion for BroadWorks solution consists out of 3 main areas:

- The API gateways to hook up different applications
- The API Orchestration Core
- The customer facing (self-care) portal



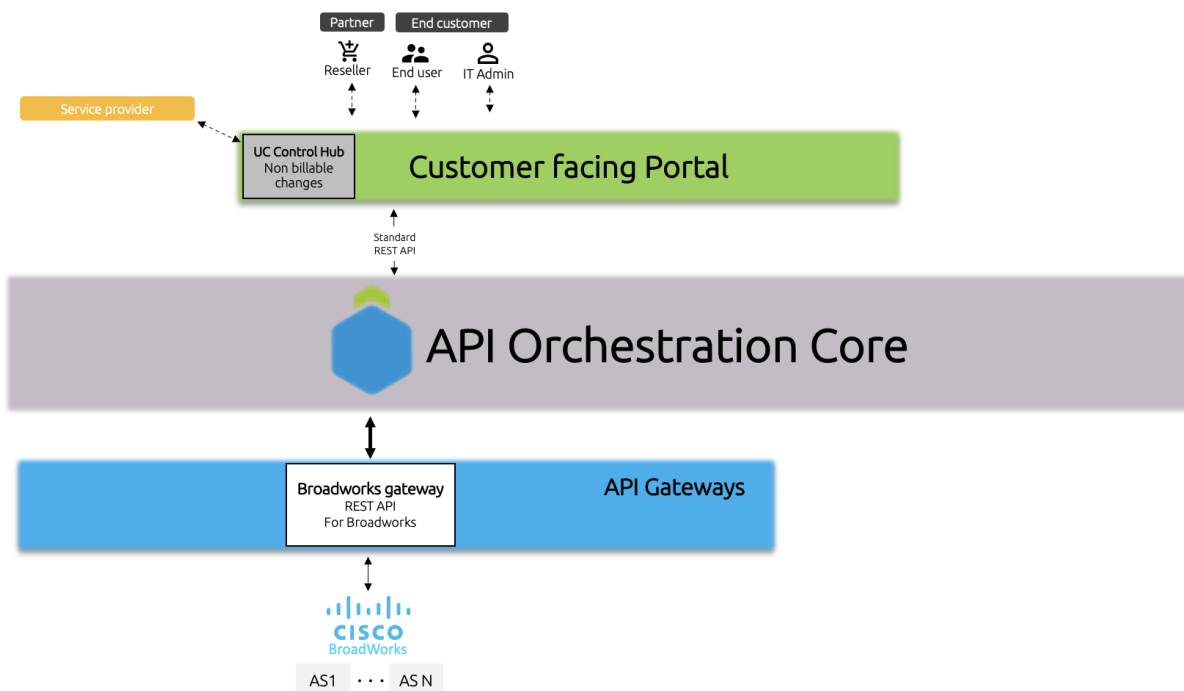
**Figure 4:** Architecture

### 3.1.1 The Base solution

When setting up an F4B solution, a ‘base solution’ is per default installed. This base solution is tailored to Cisco Broadworks and covers most of the elements required by customers to complete their Broadworks implementation and potentially out-phase legacy platforms, like for example the LOKI application.

The base solution includes the following modules in the 3 main areas:

- A *Broadworks gateway* to connect to the underlying Broadworks platform through REST API’s.
- The *APIO core* to facilitate the support for customised business logics and integrations, and to offer easy-to-integrate order fulfilment APIs.
- A *customer facing portal* containing the UC Control Hub, which delivers the self-care service for the customers.



**Figure 5:** Base architecture

### 3.1.2 Optional gateways/connectors

Depending on the customers' needs, optional gateways and/or connectors can be added to achieve the desired integration. The following gateways/connectors are available from the shelf:

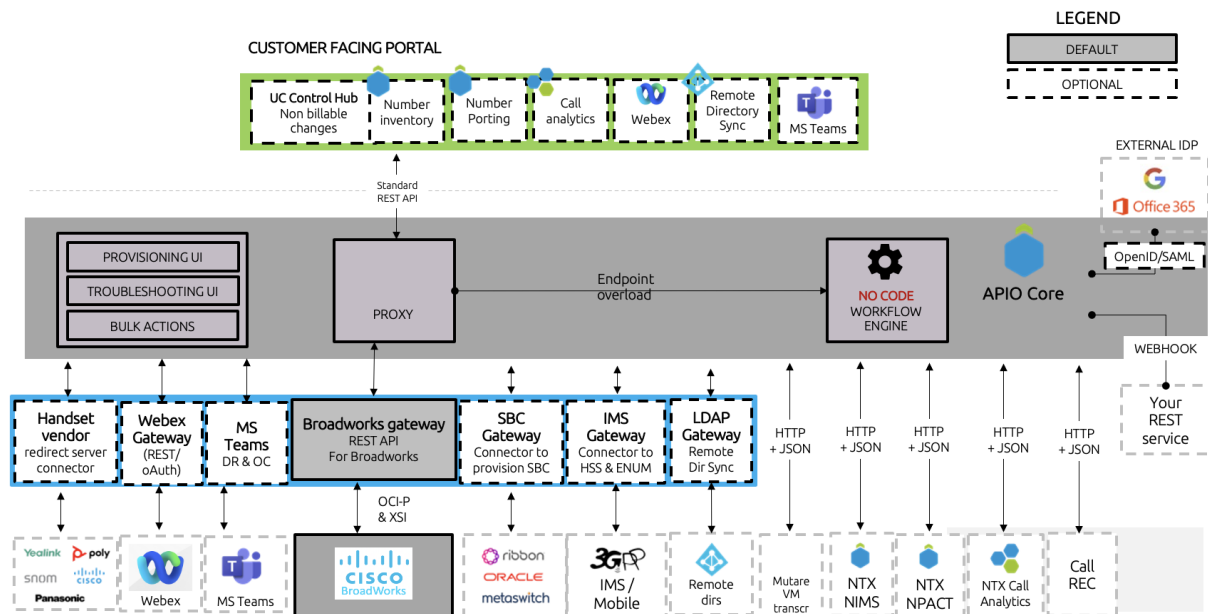
- Handset vendor connector
- Webex for Broadworks connector
- Microsoft Teams connector
- SBC Gateway connector
- IMS gateway connector
- LDAP/AD Gateway connector
- Mutare VoiceMail connector
- Single-Sign on through OpenID Connect or SAML module

Some services, delivered through other existing Netaxis solutions, can also be offered as part of the F4B solution. The services are:

- Number Inventory Management System (NIMS)
- Number Portability (NPACT)
- Call analytics service which is based on the Netaxis NeMo solution.

After investigation, any other REST API service can be connected and integrated with the APIO core.

This means that the Fusion for BroadWorks solutions' landscape looks like this:



**Figure 6:** Fusion for BroadWorks landscape

The next chapters will go in more detail into the Fusion for BroadWorks solution, and will describe the function of each of the different gateways/connectors and services.

## 4 Solution overview

The image below depicts the complete Fusion for BroadWorks platform and its current ecosystem.

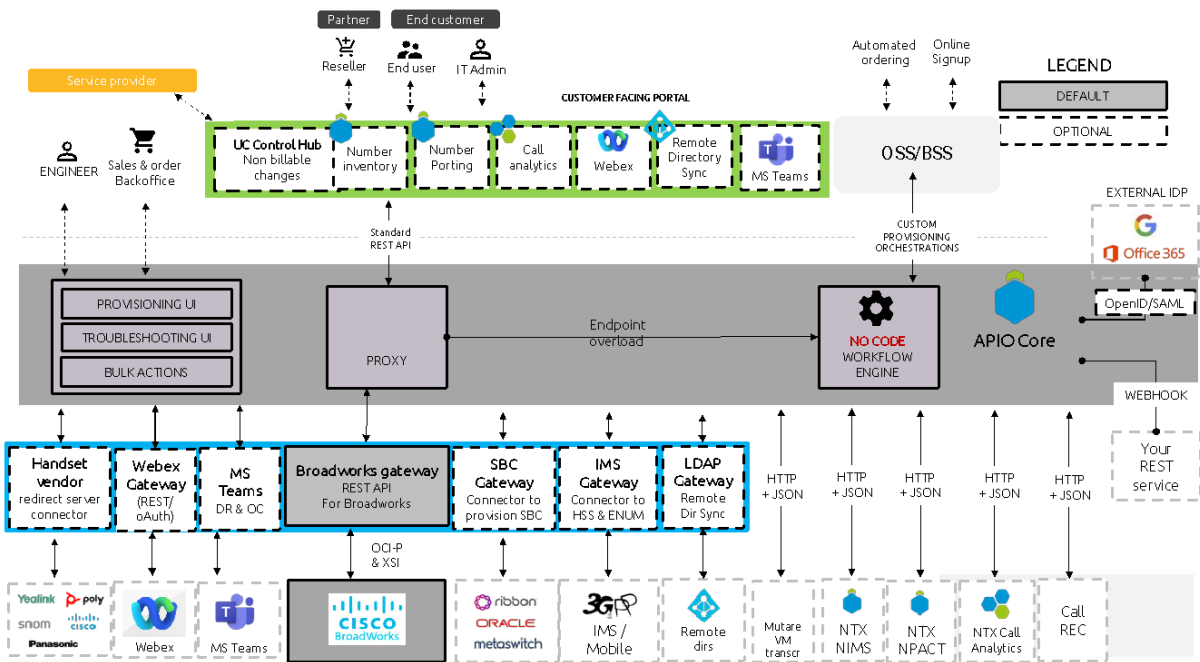


Figure 7: Solution overview

**The Netaxis Fusion for BroadWorks (F4B)** - our API integration platform with native support for Broadworks, other UC platforms and network elements - will act as a unified provisioning orchestration layer and ensure the overall integration from a provisioning perspective.

On top of this, the **UC Control hub** provides a modern self-care experience for both end-users as well as enterprise administrators. Support agents or system admins can also use this portal. The portal is enhanced **with call analytics capabilities**, thanks to the corresponding platform module. This module analyses CDRs generated by the BroadWorks platform and converts them into useful insight for the customer (CDR retrieval & call analytics & user analytics).

The **WebEx integration** offers the customer insights in the provisioning status of his WebEx 4 Broad-works account. The integration covers the provisioning and deprovisioning of the WebEx platform as well as packages. As part of the F4B roadmap, the self-care portal will be gradually enhanced with more WebEx capabilities.

To provide customers a zero-touch-provisioning experience, the F4B platform foresees out-of-the-box the **Zero-Touch-Provisioning (ZTP)** services of the most common handset vendors. This includes Cisco, Polycom, SNOM and Yalink. To mitigate security concerns related to these ZTP services, it could be possible to leverage the Netaxis redirect server (see further).

## 5 Solution details

### 5.1 Fusion for BroadWorks Gateways

#### 5.1.1 Broadworks gateway & integration

The Netaxis Broadworks gateway provides its clients with a simple HTTPS + JSON interface to integrate to Broadworks instead of the native OCI-PI and XSI interfaces. This format/protocol is the predominant format consumed by modern JavaScript frontend frameworks.

The Broadworks gateway delivers the following functionalities:

- **URL navigation through the Broadworks hierarchy**, which makes the API usage and navigation very straightforward.
- **API stability**, meaning that the API is guaranteed to interwork with the Broadworks native interfaces.
- **Low level orchestration**, where the Broadworks API gateway tries to hide as much as possible the complexity of the underlying Broadworks platform.
- **Templating**. Templates can be defined in the Gateway's administration interface. They enable provisioning standardisation and further simplify northbound integration. Templates are defined as JSON files, support actions and default values, and they are always associated with a certain category (e.g., Tenant, Group, Hunt Group, Trunking, user, ...)
- **Device management**, as out of the box support for automatic configuration of the phone/handset vendors redirect servers, enables a fully automated zero-touch-provisioning experience initiated through the API. Besides this, the Broadworks gateway also provides support for (visual) device management of IP Phone features (for example: phone buttons, message waiting indicator, etc.).

The API also adds functionality to the native Broadworks capabilities such as:

- Automatic generation of system-wide unique tenant IDs, group IDs, user IDs etc.
- Automatic generation of line ports based on configurable rules. - Definition of public holidays, with easy import tools into schedules. - Announcements (with the possibility of adhoc uploads or retrieving from a catalogue)
- Improved way of handling customer suspension scenario's (like bad payers).

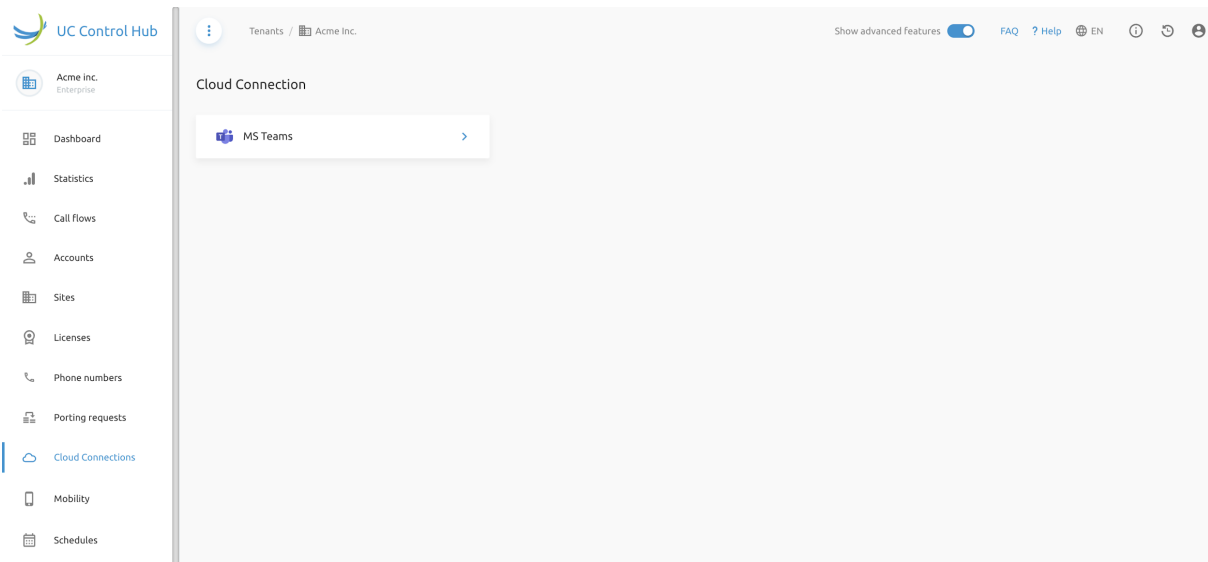
#### 5.1.2 Microsoft Teams Module

As the mission from the Fusion for BroadWorks solution is to help service providers to remain relevant and take their share of the cloud opportunities, we have foreseen a Cloud Connection service on our

self-care portal.

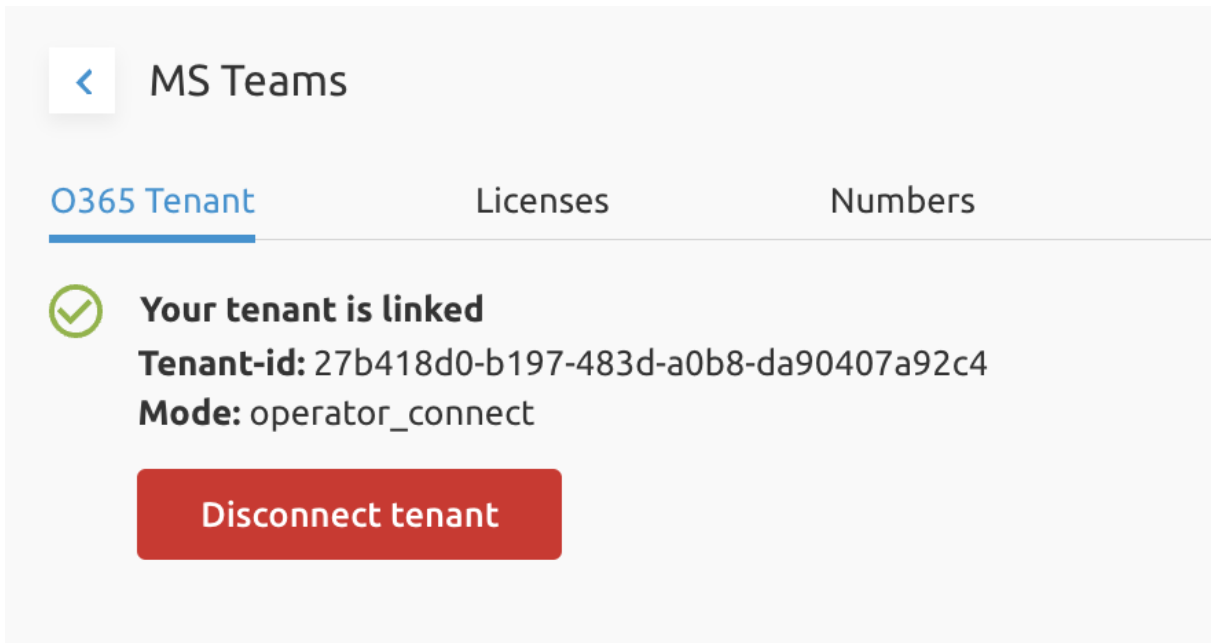
Today it is foreseen to make a link to a Microsoft environment, but in the future the goal is to foresee other cloud connections on this service.

The screenshot below shows how the Cloud Connection service looks like on the self-care portal.



**Figure 8:** MS Teams moddule

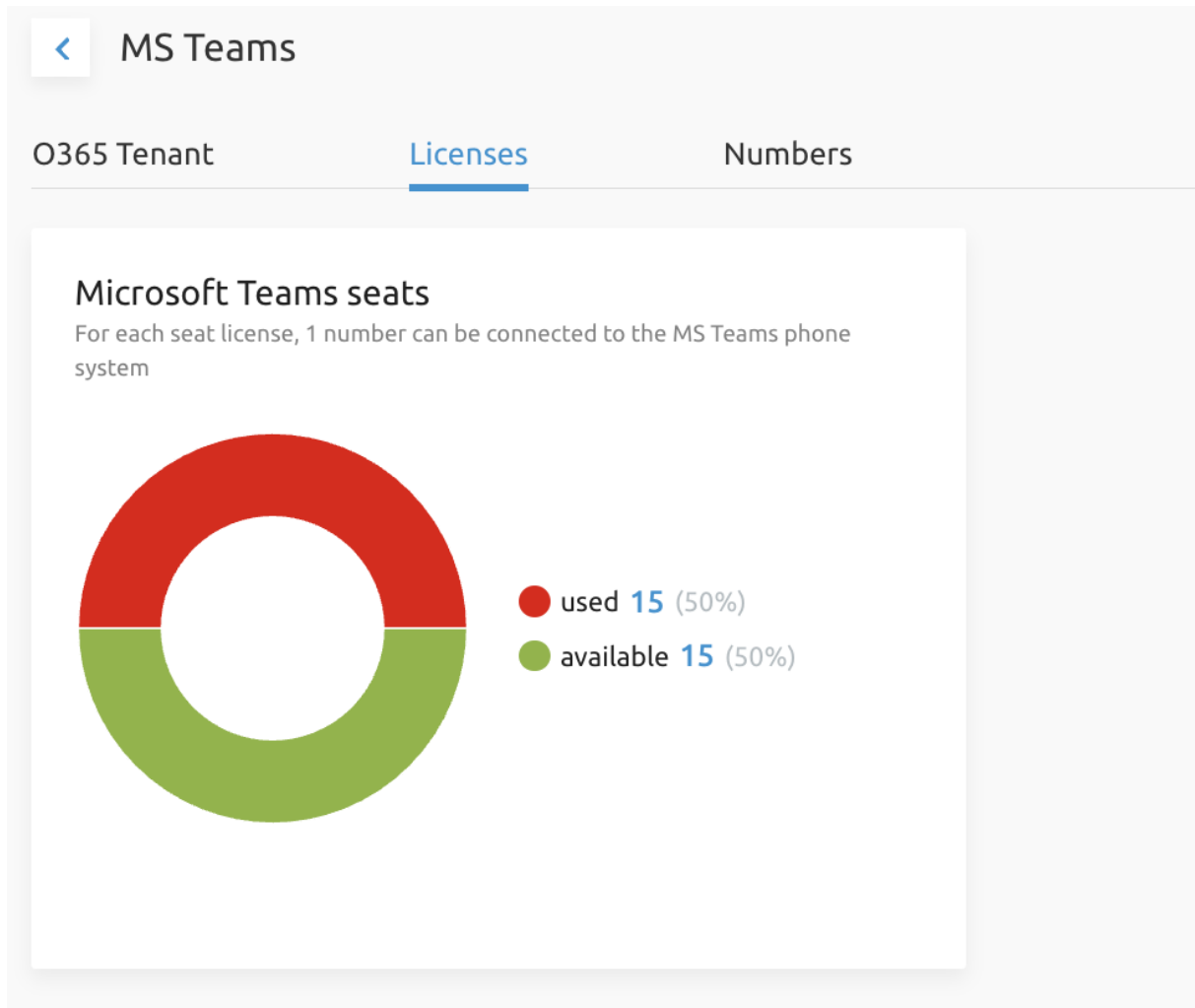
When selecting the MS Teams cloud module on the Cloud Connection service, it displays the Broad-Works tenant (Enterprise or Service Provider) is linked with the MS Teams tenant, it shows the MS Teams tenant ID and in which mode the link has been done (Operator Connect or Direct Routing).



**Figure 9:** MS Teams tenant

The self-care portal shows you how many licenses are being used, and which numbers are provisioned. The 2 screenshots below show these next tabs.





**Figure 10:** MS Teams seats

MS Teams

O365 Tenant Licenses **Numbers**

The table below gives an overview of all numbers that we uploaded to Microsoft teams. Normally you should find them also in your Microsoft Teams admin center under Phone Numbers.

Search Delete Add

<input type="checkbox"/>	Country <sup>1</sup>	Number <sup>1</sup>	Usage <sup>1</sup>	Uploaded on <sup>1</sup>	Provisioned <sup>1</sup>	
<input type="checkbox"/>	ZA	+27121230127	User assignment	2023-01-31T19:36:26.3319478(GMT)	Yes	<input type="checkbox"/>
<input type="checkbox"/>	ZA	+27121230128	User assignment	2023-01-31T19:36:26.3319478(GMT)	Yes	<input type="checkbox"/>
<input type="checkbox"/>	ZA	+27121230129	User assignment	2023-01-31T19:36:26.3319478(GMT)	Yes	<input type="checkbox"/>
<input type="checkbox"/>	ZA	+27121230135	User assignment	2023-02-01T10:38:37.3932058(GMT)	Yes	<input type="checkbox"/>

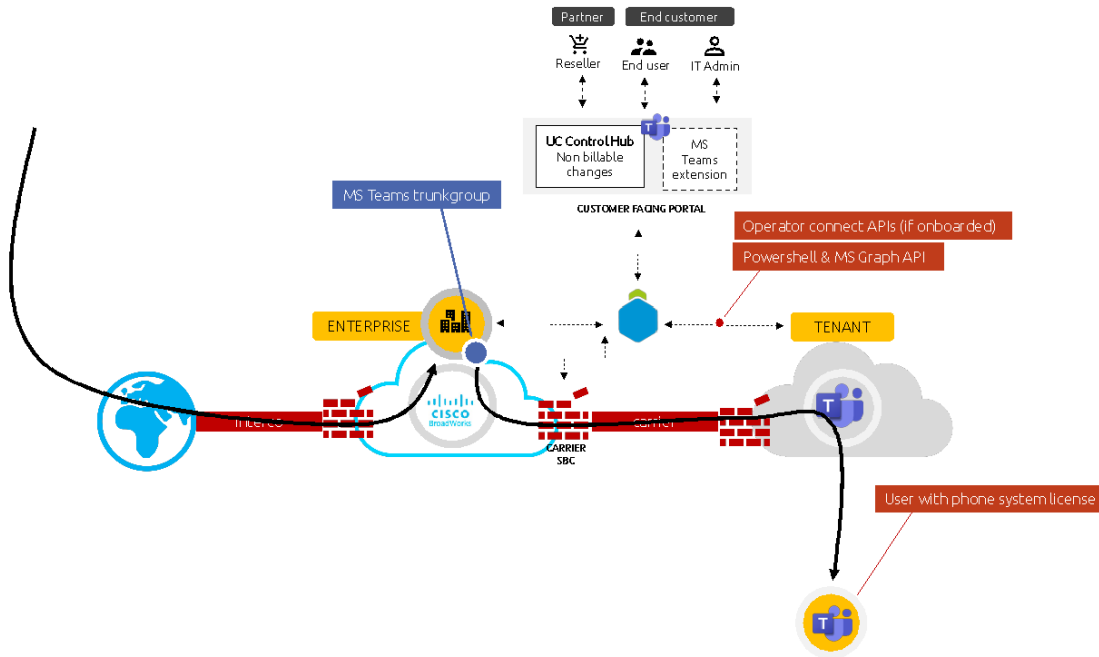
**Figure 11:** MS Teams phone numbers

With this integration, Broadworks is used to deliver PSTN connectivity to the Microsoft Teams users. Through the self-care portal of the F4B solution, it will be possible for administrators to decide and configure which of their numbers will be routed into Microsoft Teams and which ones they attach to Hosted PBX users or to on-premises PBXs using (normal) SIP trunks.

The figures below illustrate these 2 principles.

**1. Teams Dial tone**

In this use case, the traffic is routed through BroadWorks to MS Teams. The MS Teams tenant acts as a PBX, BroadWorks provides the “Trunking service” and of course BroadWorks could provide extra value add services (e.g. mobility, calling plans, ...).

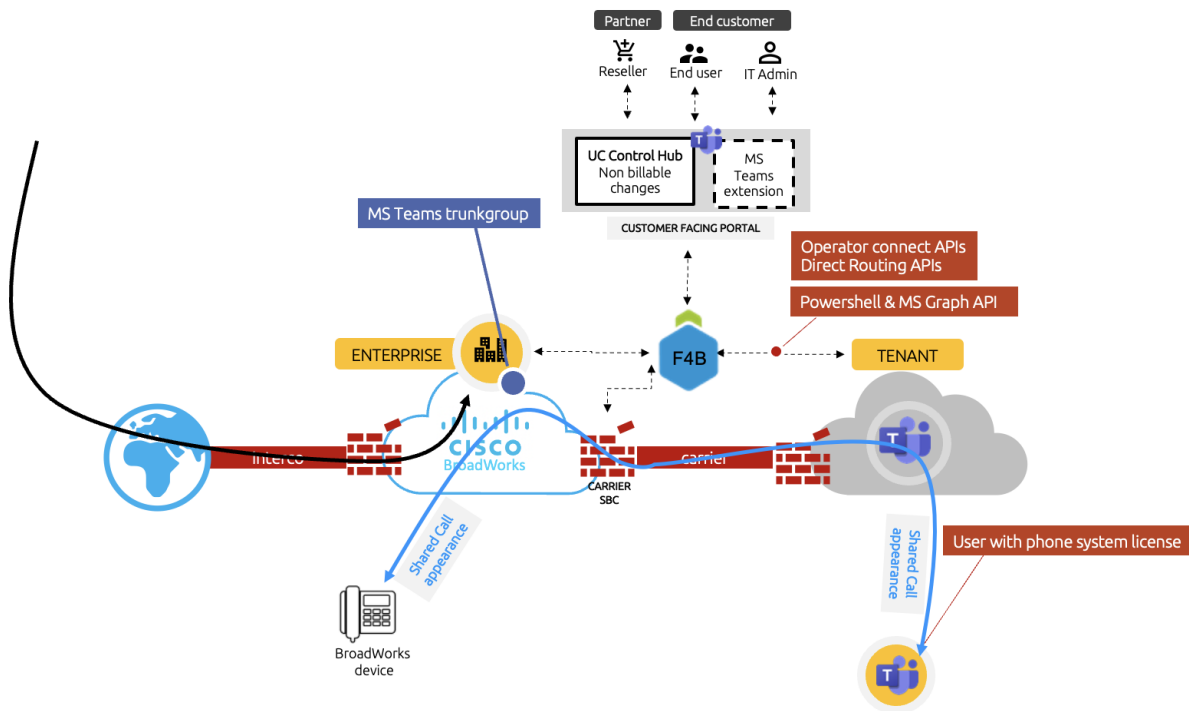


**Figure 12:** MS Teams dial tone

## 2. Hosted PBX Overlay (HPBX Overlay)

In this case, a shared call appearance call is set up by the BroadWorks solution, which gives the following results:

- MS Teams client will act as a (softphone) to the BroadWorks solution
- Multiple devices of the user will ring when the user receives a call
- BroadWorks value add services remain (e.g. Hunt groups, Call Center, call forward, mobility, calling plans, ...)



**Figure 13:** MS Teams PBX overlay

*What about MS Teams provisioning?*

The Microsoft Teams module (a combination of the gateway, core configuration and an element in the portal) automates the MS Teams provisioning through PowerShell and Graph API.

Linking the BroadWorks tenant with a MS Teams tenant can be done on the Fusion for BroadWorks solution in a Direct Routing or Operator Connect mode.

### 5.1.3 SBC module

The SBC gateway is designed to connect to the most common SBC brands, like for example Oracle SBCs and Ribbon SBCs. The module allows automating the provisioning of border elements when provisioning enterprises and groups on the BroadWorks solution.

The SBC gateway on the Fusion for BroadWorks solution hides the particularities of the APIs exposed by the different vendors. In the context of, for example SIP trunking, this integration results in saving tedious manual work.

#### **5.1.4 IMS Module**

The IMS module (again a combination of gateway, core configuration and an element in the self-care portal) will orchestrate the IMS subscription management that is required for IMS-based Broadworks deployments.

The IMS gateway on F4B allows the Broadworks platform to connect through REST API to the IMS network elements of the Service Provider. Mainly the network elements HSS and ENUM are connected as they hold the relevant customer data. The integration keeps in sync the HSS profile with the Broadworks users and the ENUM with the number activation status.

Predefined orchestrations and connectors are available but are subject to customised development, as the solution needs to fit each specific situation.

#### **5.1.5 Number Inventory Management System (NIMS)**

The NIMS solution is a comprehensive number inventory solution, developed by Netaxis, to manage number blocks while maintaining correct number lifecycle management.

The solution is a fully featured system that can be deployed as a standalone platform (without other elements of the solution) or as an extension to the F4B solution. In this last setup, the NIMS capabilities are integrated into the Broadworks API and the UC Control Hub, which means that through this integration customers can be enabled to select their own numbers.

Offering this removes the need to manage and select numbers in the pre-provisioning process (for example the APIO Core UI) and gives customers the ability to select the numbers of their choice through the user-friendly GUI of the self-care portal. The system is designed to make sure that no customer can block entire number ranges. Support for number reservation is included.

#### **5.1.6 Number Portability (NPACT)**

The NPACT solution, another number management service developed by Netaxis, is used by Service Providers to manage number portability. The NPACT solution delivers the following capabilities:

- The NPACT solution is an API based platform that allows interfacing with number portability clearinghouses that are established in most countries.
- The solution exposes a GUI, as well as easy to consume API interfaces for the internal BSS systems to integrate with the central clearinghouse. The possibility to maintain network routing tables is also foreseen.
- The solution can work as a stand-alone solution if the Service Provider only requests that added value in its network applications, or it can be ordered as an extension to the APIO solution.

- When ordered as an extension to the Fusion for BroadWorks solution, the NPACT solution will be integrated into the Broadworks API and UC Control Hub. This enables customers to:
  - Launch porting requests through the easy-to-use self-care portal
  - List all pending and closed requests
  - Activate accepted porting requests after which numbers become immediately available for assignment.

To support this NPACT solution integration, the compatibility with the Number Portability Clearhousing (NPC) of the desired country needs to be validated.

Integrations with customer internal systems can be done via Netaxis professional services.

### **5.1.7 Call analytics service**

The call analytics service is a separate micro service that runs on dedicated virtual machines. The call analytics service is actually an integration of the Fusion for BroadWorks solution with the Netaxis NEMO (Network Monitoring) solution. The solution ingests Broadworks CDRs and calculates statistics per user, per service user, per group and per enterprise.

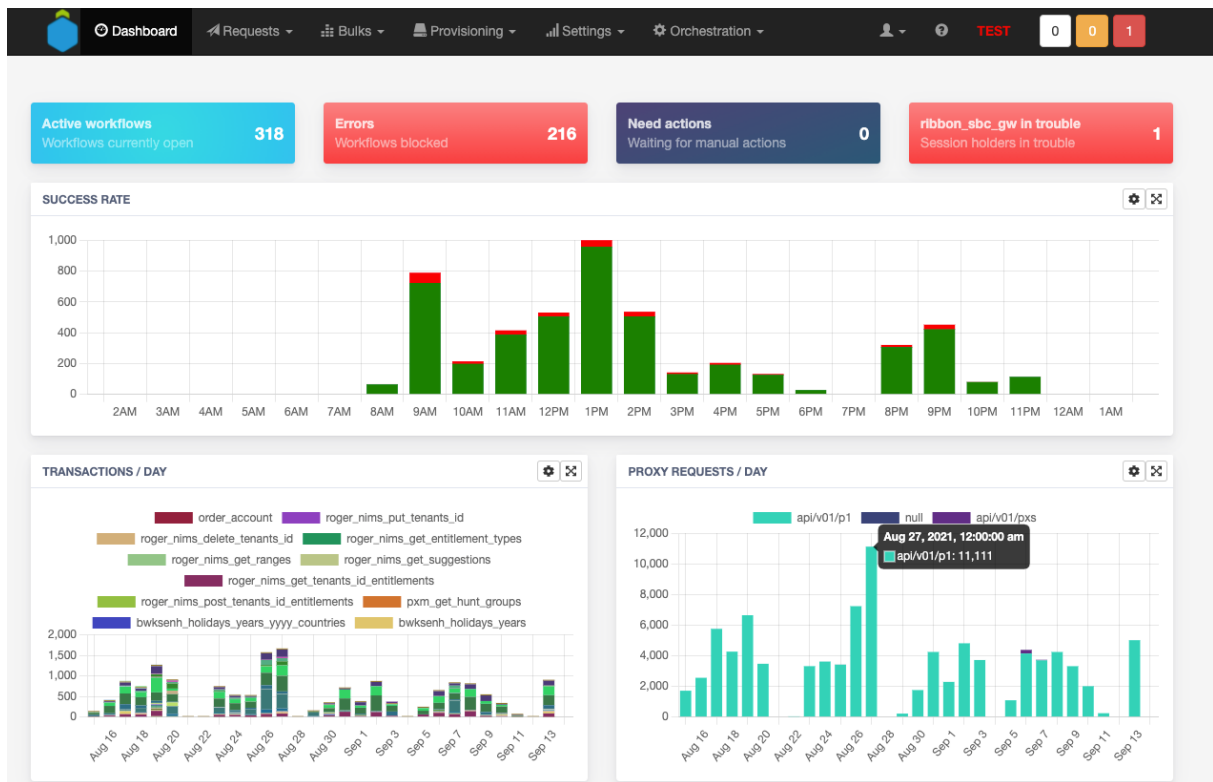
## **5.2 APIO Core**

The **APIO Core** is an API aggregation and middleware layer that acts as the single point of integration for the entire solution. It comes with an API orchestrator that allows building complex and customised integration business logic. The APIO Core exposes REST API (http+json) to its clients and uses the same to communicate with external systems. In case these systems expose no REST API, the solution is extended with gateways. The APIO core adds flexibility and integration capabilities to the F4B solution. It comes with an operational user interface which serves as a dashboard for the core layer.

### **5.2.1 The APIO Dashboard**

The APIO core comes with an operational user interface providing valuable information to operate and troubleshoot the system in an easy way. In a glimpse of an eye, you can see the operational status of your platform. Application-level anomalies are reported through the alarming centre.

The dashboard also gives insights on the usage of the platform. You can search for any API call that passed through the system. Engineers can track down when and by who a given API request was made. The User Interface (UI) will show you the input, the response as well as all API calls sent down to southbound systems.



**Figure 14:** APIO dashboard

In case of complex API orchestrations, the UI will give you a graphical insight in how the API call was orchestrated across the different southbound platforms.



**Figure 15:** APIO messages

### 5.2.2 How to integrate with other platforms?

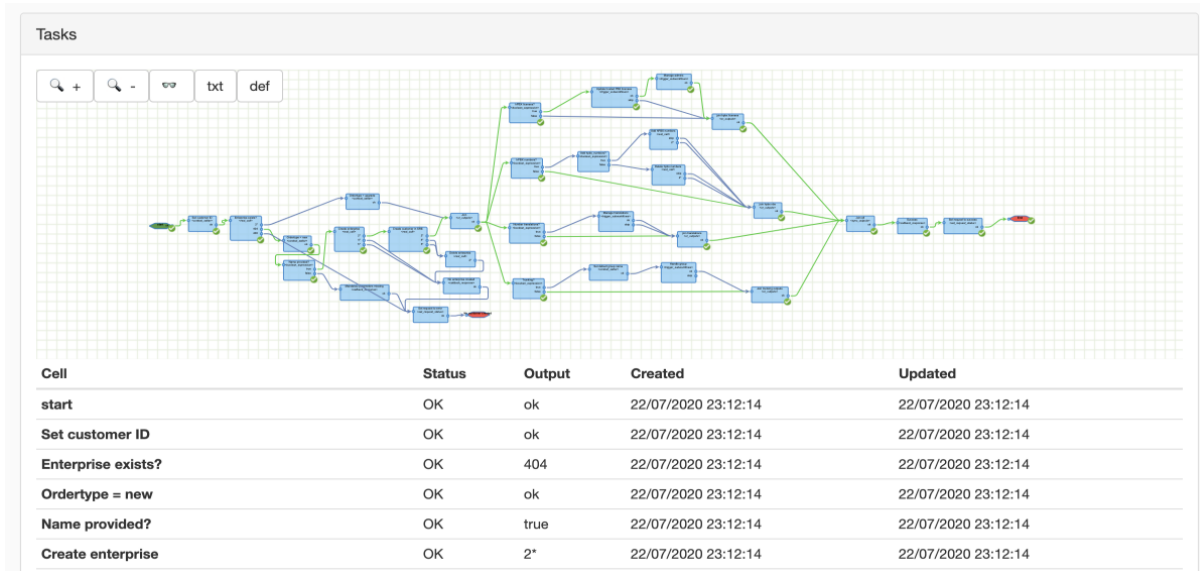
The Fusion for BroadWorks solution is built to go beyond Broadworks and to integrate your platform with third party network elements and web services like MS Teams, IMS and others. The proposed integrations are elaborated in the next sections.

For third party integrations, F4B offers two different integration strategies:

- **Webhooks:** allows you to inform a third-party application about any change that happens through the F4B solution, which works perfectly for loose coupling of both environments. Webhooks are “user-defined HTTP call-backs”. They are usually triggered by events, in this case Broadworks events like “userwas created” or “number was assigned”.
- **The workflow engine** allows you to define new API endpoints and overwrite existing endpoints through our APIO core UI. The business logic can be created through our service creation environment. This solution is perfect when you need to do, for example proper rollback management. Our dragand drop User Interface is very powerful and dramatically reducesdevelopment time of new features and functionalities. All integrations proposed as part of this solution rely on the workflow engine.



The below picture shows an example of a workflow, defining an outcome for a certain action by creating a specific “work-flow”. The business logic is created by connecting building blocks (drag&drop) to each other.



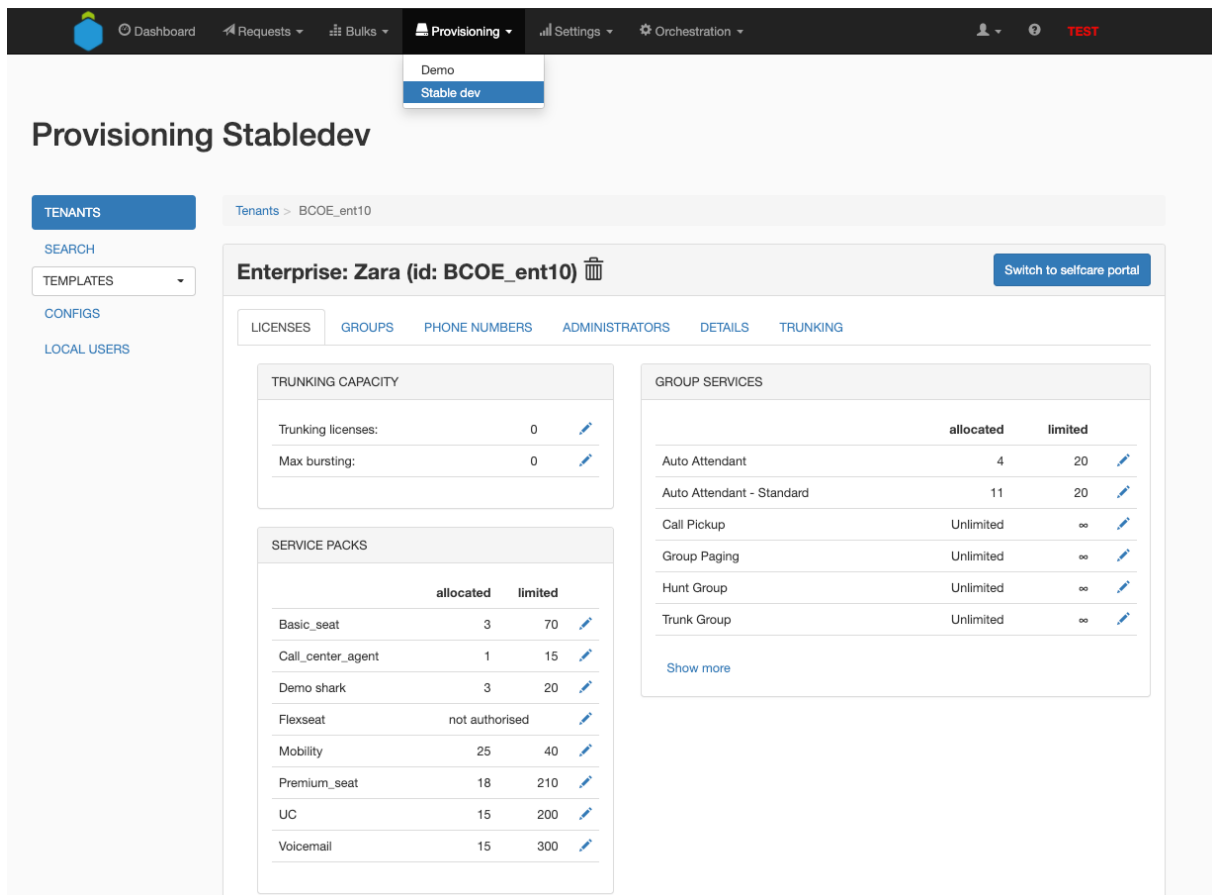
**Figure 16:** APIO workflow engine

### 5.2.3 Provisioning UI for Broadworks

The APIO core also comes with an easy-to-use provisioning user interface (UI) for Broadworks.

The UI provides a comprehensive and simplified view on the most important provisioning related objects (like enterprises, groups, numbers, licenses, trunking capacity, etc). It allows service provider administrators to quickly set up an enterprise with numbers and licenses. Features like templating are baked into the UI. Service configuration (for example: setting up call forwards) is not supported in this UI. For that, the UC Control hub must be used (see further).

An SSO mechanism is available to easily switch from the Provisioning UI on the APIO Core to the self-care portal (UC Control Hub).



**Figure 17:** APIO provisioning

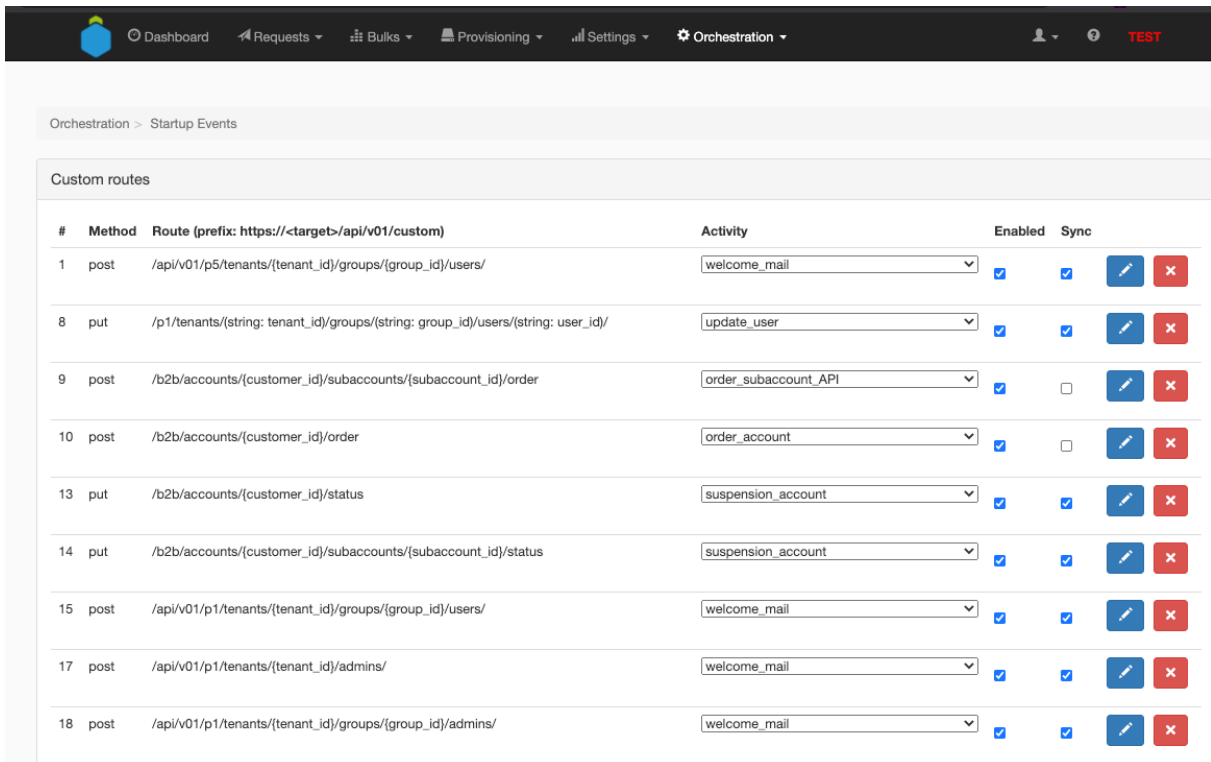
### 5.2.4 Asynchronous API management

When defining an API endpoint, linked to an orchestration, it is possible to indicate whether the reply should be sent synchronously or asynchronously.

The workflow engine is built to handle asynchronous tasks. In this case, the APIO core will only provide a task ID and the reporting about the task status is done through a call-back. Each APIO user can configure their own call-back endpoints.

On top of this, the APIO core can interact with external asynchronous web services as well. It is possible to register remote tasks IDs and continue task processing upon receipt of a call-back sent by the remote platform.

The screenshot below shows how the different routes (activities or jobs) are set up in the orchestration tab on the APIO core dashboard. This tab allows further configuration of the different activities (tasks).



#	Method	Route (prefix: https://<target>/api/v01/custom)	Activity	Enabled	Sync		
1	post	/api/v01/p5/tenants/{tenant_id}/groups/{group_id}/users/	welcome_mail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
8	put	/p1/tenants(string: tenant_id)/groups(string: group_id)/users(string: user_id)/	update_user	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
9	post	/b2b/accounts/{customer_id}/subaccounts/{subaccount_id}/order	order_subaccount_API	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
10	post	/b2b/accounts/{customer_id}/order	order_account	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
13	put	/b2b/accounts/{customer_id}/status	suspension_account	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
14	put	/b2b/accounts/{customer_id}/subaccounts/{subaccount_id}/status	suspension_account	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
15	post	/api/v01/p1/tenants/{tenant_id}/groups/{group_id}/users/	welcome_mail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
17	post	/api/v01/p1/tenants/{tenant_id}/admins/	welcome_mail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
18	post	/api/v01/p1/tenants/{tenant_id}/groups/{group_id}/admins/	welcome_mail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

**Figure 18:** APIO routes management

## 5.2.5 Simplified order APIs

The APIO core platform comes with simplified order APIs to implement the 2-step provisioning principle. These order APIs fully abstract the complexity of the Broadworks platform for the CRM system of the customer, as the API only expects a list of billable items, their quantity and (optionally) phone numbers. All the required provisioning from enterprises, service packs, trunk groups, etc... are handled by the orchestrated workflow. In case of errors, the task will fall in manual exception handling so that the error can be verified and solved.

The API supports accounts and subaccounts as well as initial creations, upgrades and downgrades.

### 5.2.5.1 2-step provisioning

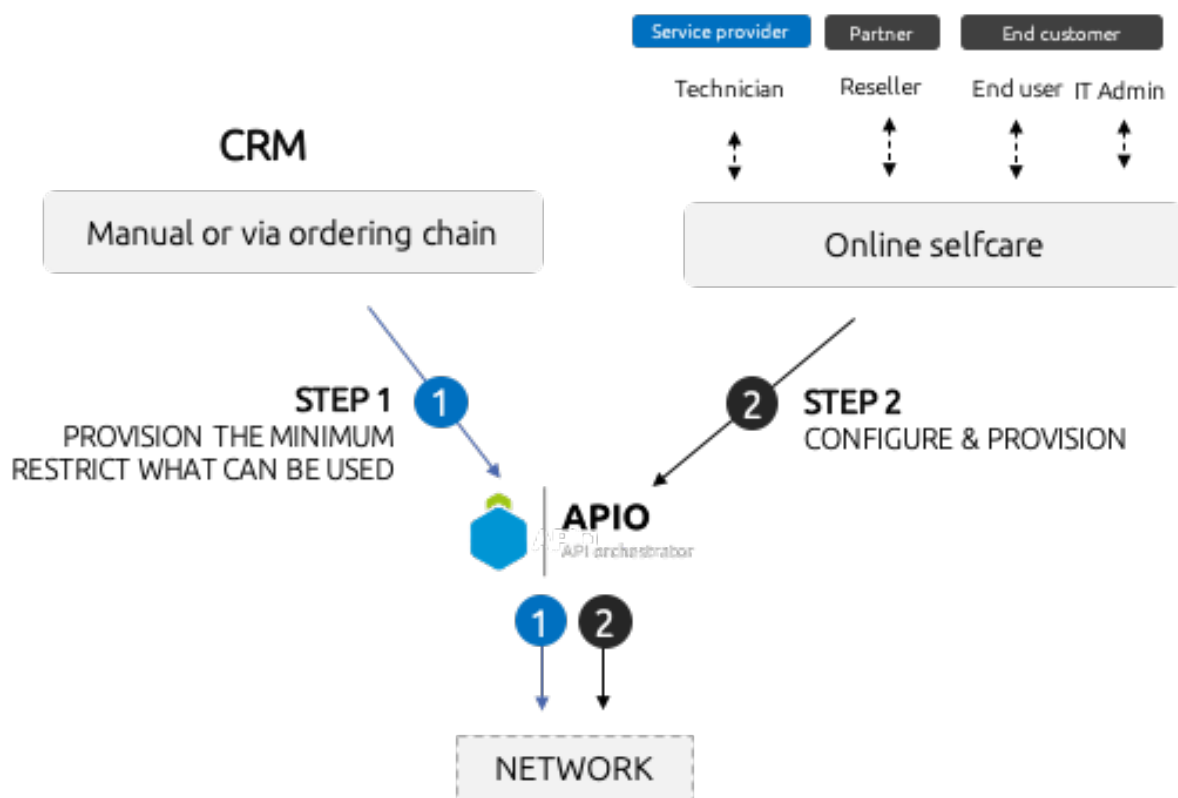
*“Empower your customers maximally while limiting the level of IT integration”* ... This is the main paradigm on which Fusion for Broadworks solution is built.

The F4B solution has been developed in a way that provisioning and integration with northbound systems is limited to what is strictly necessary to bill (for example: amount of users, amount of licenses consumed by users, phone numbers, ...).

Service Providers leveraging the platform typically implement a 2-step provisioning approach as a preferred way of working:

- In **step 1**, the initial setup of the enterprise and/or group (site) is done. This setup is limited to the creation of the basic skeleton and to the allocation of resources that the customer can use like group services, numbers, and end-user service licenses/packs. The provisioning can be done:
  - either via the APIO Core provisioning (G)UI or via commPilot
  - or by integrating with the APIs of APIO (for example: online signup, CRM integration, etc.)
- In **step 2**, all detailed configuration like group creation, user creation, service pack assignment, feature configuration, etc... are handled through the self-care portal.

Administrators and end-users will receive a welcome mail once their profile has been created, inviting them to access the portal. The portal is also accessible for Service Provider technician and/or reseller profiles. These profiles have the same view as the other profiles (users and customer administrators), except that they can search and have access to more than 1 customer.



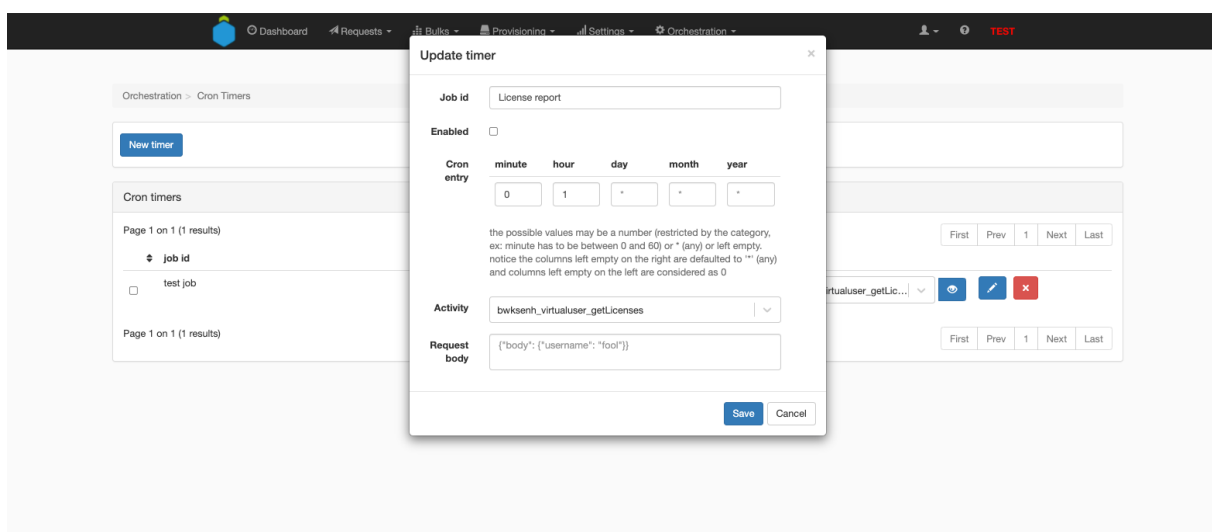
**Figure 19:** APIO ordering

### 5.2.6 Scheduled routines

Sometimes it is needed to run some scripts at regular time intervals to retrieve specific pieces of information from the solution. Examples could be: running some license reports or extracting some data for reconciliation purposes.

The APIO Core allows to define and easily set up these scheduled jobs. The task is executed periodically and can be linked to any of the orchestrations you set up on the platform.

The screenshot below shows a task (job/activity) being set up for an hourly execution via the “Cron entry”.



**Figure 20:** APIO scheduler

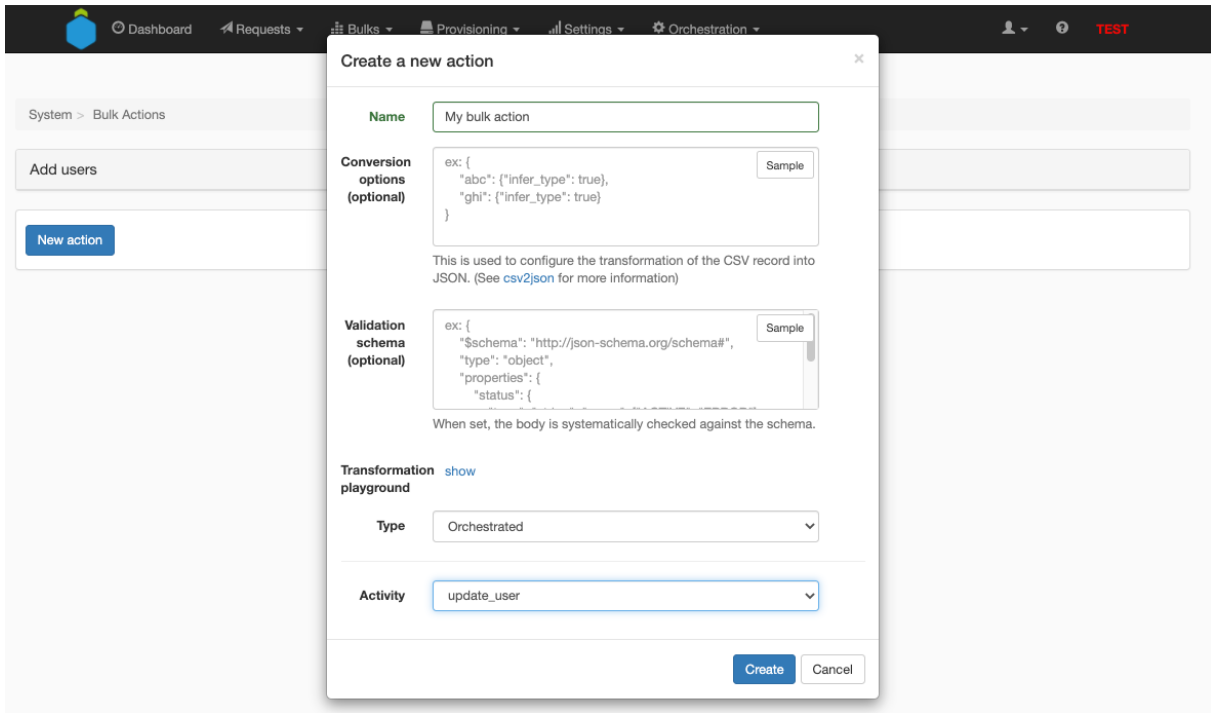
### 5.2.7 Bulk tool

The APIO core has a built-in ‘bulk module’ which allows the engineer or administrator to trigger an API or orchestrated workflow in bulk, by uploading a CSV file.

The system doesn’t come with pre-defined bulk actions - this is a roadmap item -instead, fully in line with the philosophy of the platform, the engineer or administrator can define their own bulk actions. The solution even gives the possibility to define proper workflows that implement specific business logic, and then trigger them in bulk by uploading a CSV file. The APIO Core handles the job in the background, while the UI provides reports on the status of the different bulk jobs.

Typical use cases of this feature are bulk provisioning of users as well as bulk updates of enterprises, groups and users.

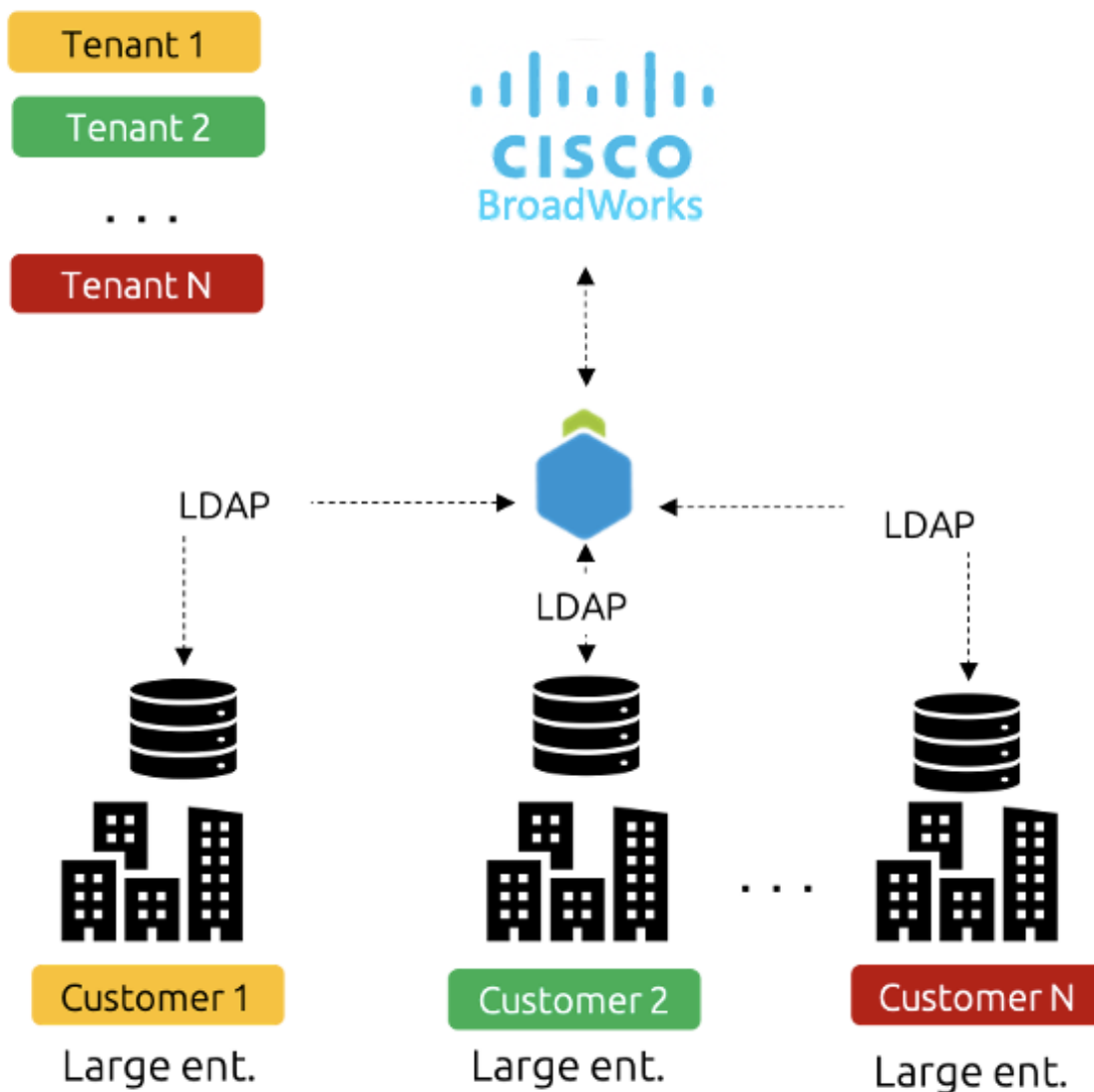
The screenshot below shows the creation screen of a new bulk action via the APIO core dashboard.



**Figure 21:** APIO bulk tool

### 5.2.8 LDAP/AD synchronisation

This service allows enterprises to sync their (on-premises) LDAP/AD user database with a cloud solution, like for example the Broadworks solution, so that when an employee onboarding or leaves the company, an account is automatically created or deleted in Broadworks.



**Figure 22:** LDAP synchronization

The LDAP connector is an extension to the Fusion for BroadWorks solution and does not require the installation of an on-premises software instance. The only requirement is that the remote directory can be queried through either LDAP or (multiple) LDAPs.

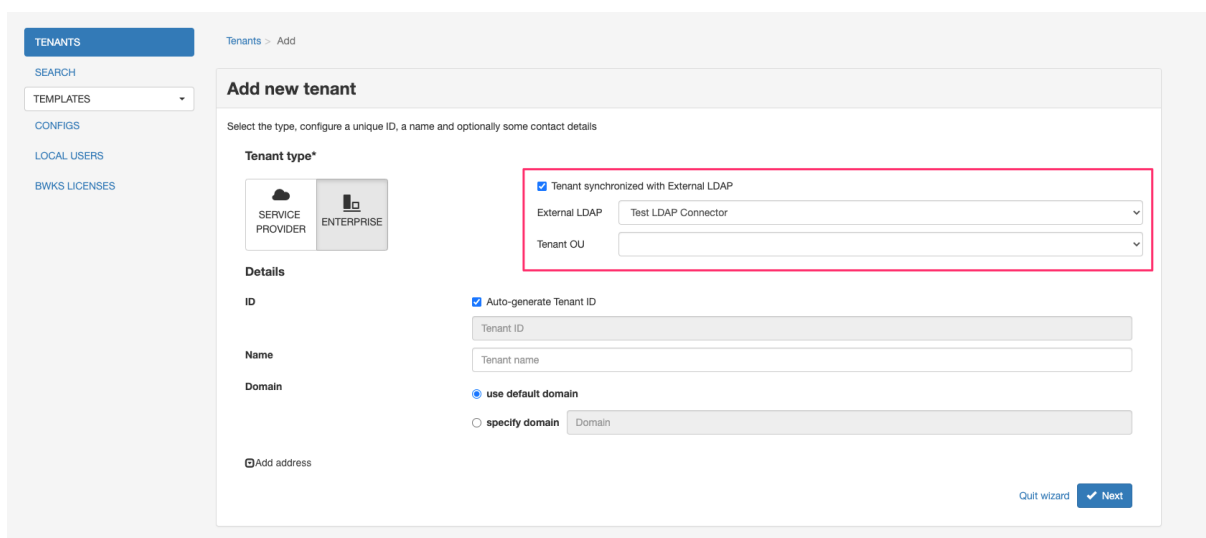
The connector can support multiple remote directories. Per tenant requesting synchronisation, a one-time configuration is required and will include:

- the contact details of the remote directory
- the base DN, where objects have to be searched

- a mapping setup that will define how a LDAP object maps to Groups and/or Users. The mapping between attributes in LDAP and properties on the Broadworks platform can be tailored.

Upon creation of the Broadworks enterprise, it is possible to link the configured remote directory to the tenant.

The screenshot below shows where the LDAP configuration is done when setting up a Tenant. This configuration is done through the UI of the APIO core.



The screenshot shows the 'Add new tenant' interface. On the left is a navigation menu with 'TENANTS' selected. The main area is titled 'Add new tenant' and includes a 'Tenant type\*' section with 'SERVICE PROVIDER' and 'ENTERPRISE' options. The 'ENTERPRISE' option is selected. Below this, there are 'Details' fields: 'ID' (with 'Auto-generate Tenant ID' checked), 'Name', 'Domain' (with 'use default domain' selected), and 'Add address'. A red box highlights the 'Tenant synchronized with External LDAP' checkbox (checked), the 'External LDAP' dropdown (set to 'Test LDAP Connector'), and the 'Tenant OU' dropdown.

**Figure 23:** LDAP configuration

When a tenant is linked to a remote directory, scheduled routines will compare differences in the local directory with the Broadworks platform and update Broadworks accordingly:

- the LDAP change log is verified to check for added or updated users
- a delta is made to detect locally deleted users.

A more detailed description about this LDAP/AD synchronisation is available in a separate document and can be shared upon request.

### 5.2.9 Single Sign On

To avoid that enterprise admins and resellers have to logon to 2 different portals, a Single Sign On (SSO) service can be foreseen by means of OpenID connect or SAML, through the following steps:

- The Service Provider will expose a link to the UC Control Hub for those customers that enjoy the customers' UC Service.



- When the customer clicks on this link, he/she is redirected to the UC Control hub.
- The customer on the control hub immediately arrives in the right organisation. He/she will not have access to any resource he/she doesn't manage.

For resellers, a similar mechanism will be set up. However, they land on a page listing all tenants to which they have access.

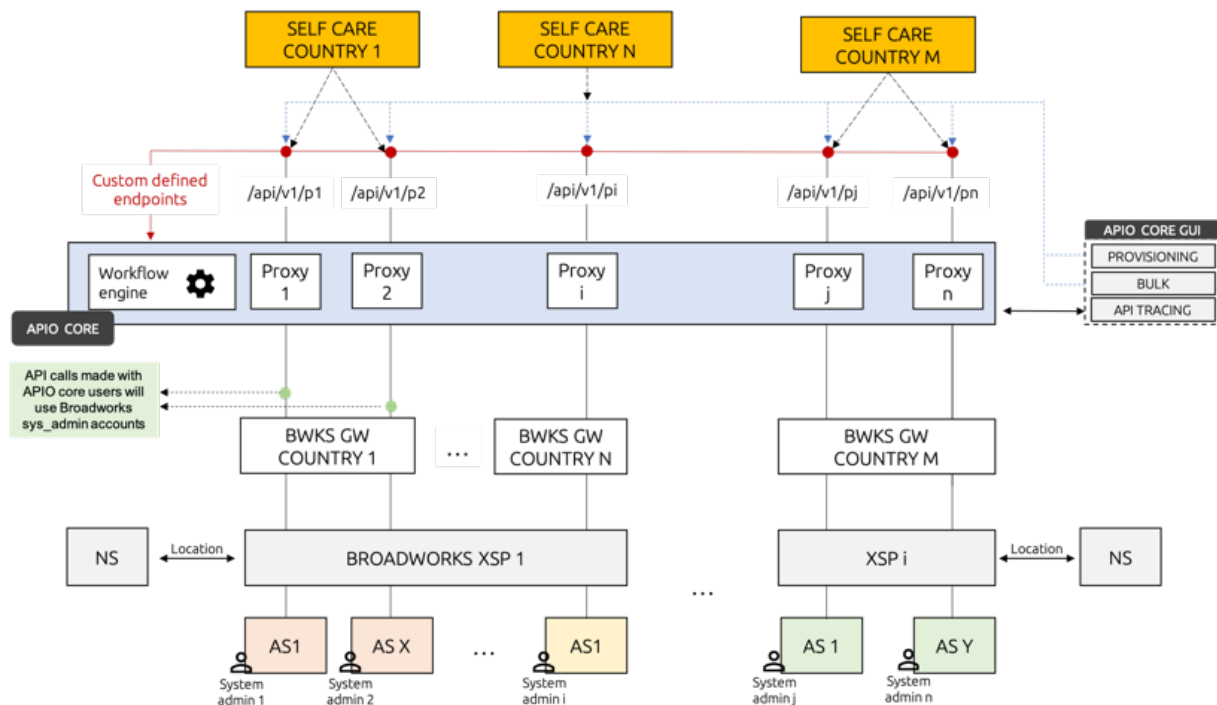
A direct login to the portal is always available for those users/admins who don't want to use the SSO login.

More details on the Single Sign On service is available in a separate document and can be shared upon request.

### 5.2.10 Multi-Broadworks support

The APIO core provides proxy functionality which allows easy connection, through a common access, into multiple Broadworks application server clusters (behind the same or different XSPs).

By addressing the correct proxy endpoint, provisioning can be directed to the application server of choice. End-users, group and tenant administrators do not necessarily need to address the correct proxy.



**Figure 24:** Multi Broadworks support

### 5.3 UC Control hub: self-care portal

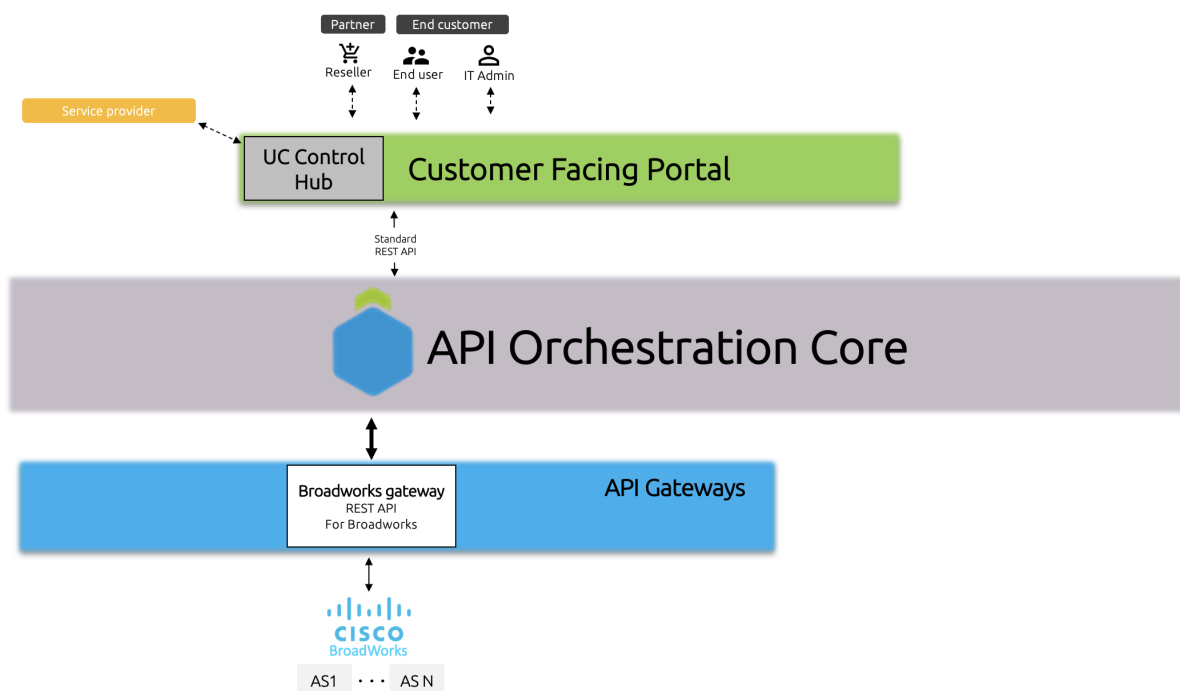
The UC Control Hub is the product name of the user-facing self-care portal for Broadworks based UCaaS platforms that can be deployed on top of the Fusion for BroadWorks platform.

Further details on the UC Control Hub can be found in this product description.

## 6 UC Control Hub - UCCH

The UC Control Hub (UCCH) is part of the F4B design, leveraging the customer-facing portal of the solution.

It is a web portal that providers of UCaaS and SIP trunking solutions, on Cisco Broadworks platforms, can use to enable their customers to self-manage their hosted UC and SIP trunking services.



**Figure 25:** UC Control Hub

The portal is a Single Page Application (SPA), which is a web application or web site that interacts with the user by dynamically rewriting the current page rather than loading entire new pages from a server. This approach avoids interruption of the user experience between successive pages and makes the application behave as fluently as a desktop application. The web application is built using React.js, a JavaScript frontend framework.

For the development of the UCCH, a ‘Mobile First-principle’ is applied, and the design can be customised to meet the branding and the value proposition of the customer.

## **6.1 Role-based log in**

The Fusion for BroadWorks solution, as well as the Broadworks solution itself, has a hierarchical structure where end-users belong to sites (or groups) and sites (or groups) belong to enterprises. This hierarchy is reflected in the portal.

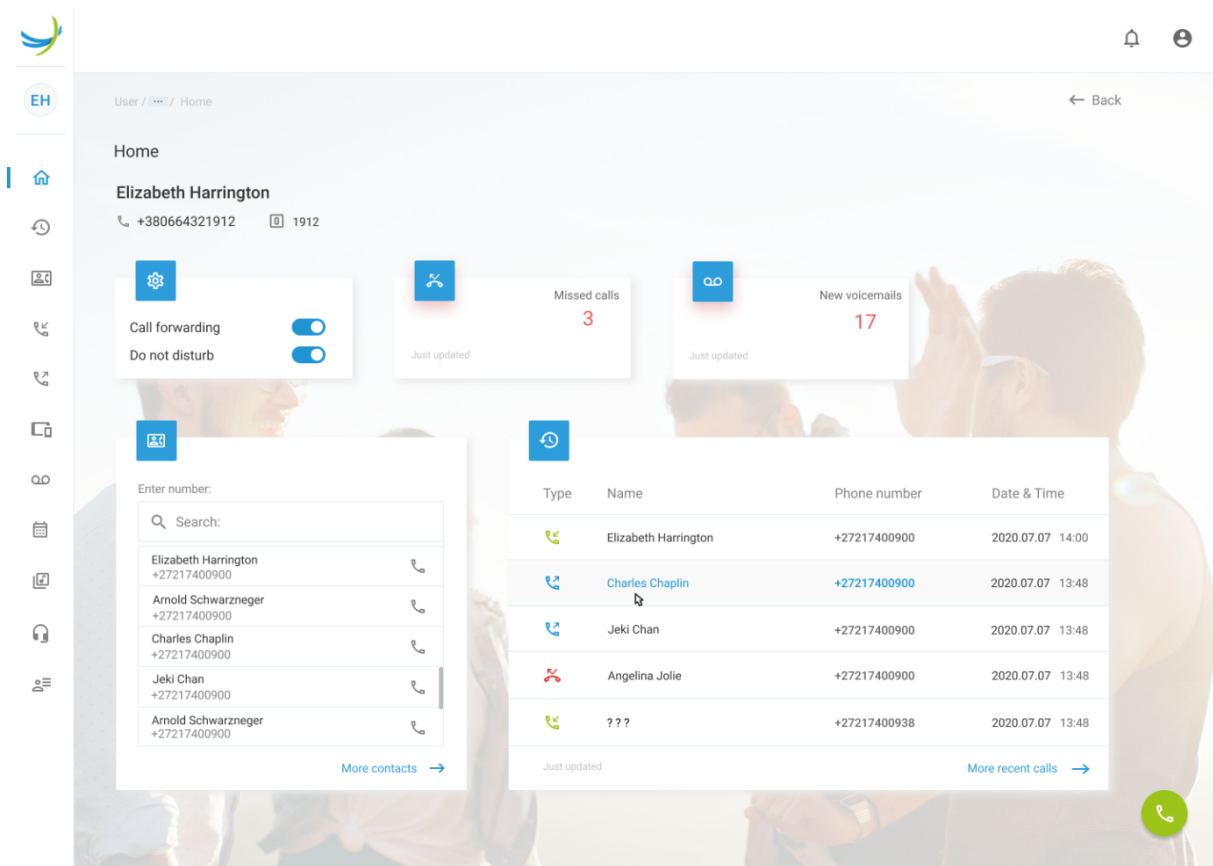
Depending on the authorization level of your account, you will be directed to the correct location in this hierarchy:

- a tenant admin has access to all resources of the tenant and will arrive on the Tenant’s dashboard.
- A site - or a group admin is only able to access the settings of the site/group to which he/she is assigned. Upon login, the user will be directed to the sites’/group’s dashboard.
- An end-user can only consult and manage settings related to their own user profile.

### **6.1.1 End-Users**

Upon login, the end-user is directed to a dashboard summarising the settings of their user profile.

This screen immediately gives an overview of how the account has been set up (which applications are active for the account, for example Webex, which features are activated, the user’s contact/phonebook, how many registered devices he/she has, etc.).

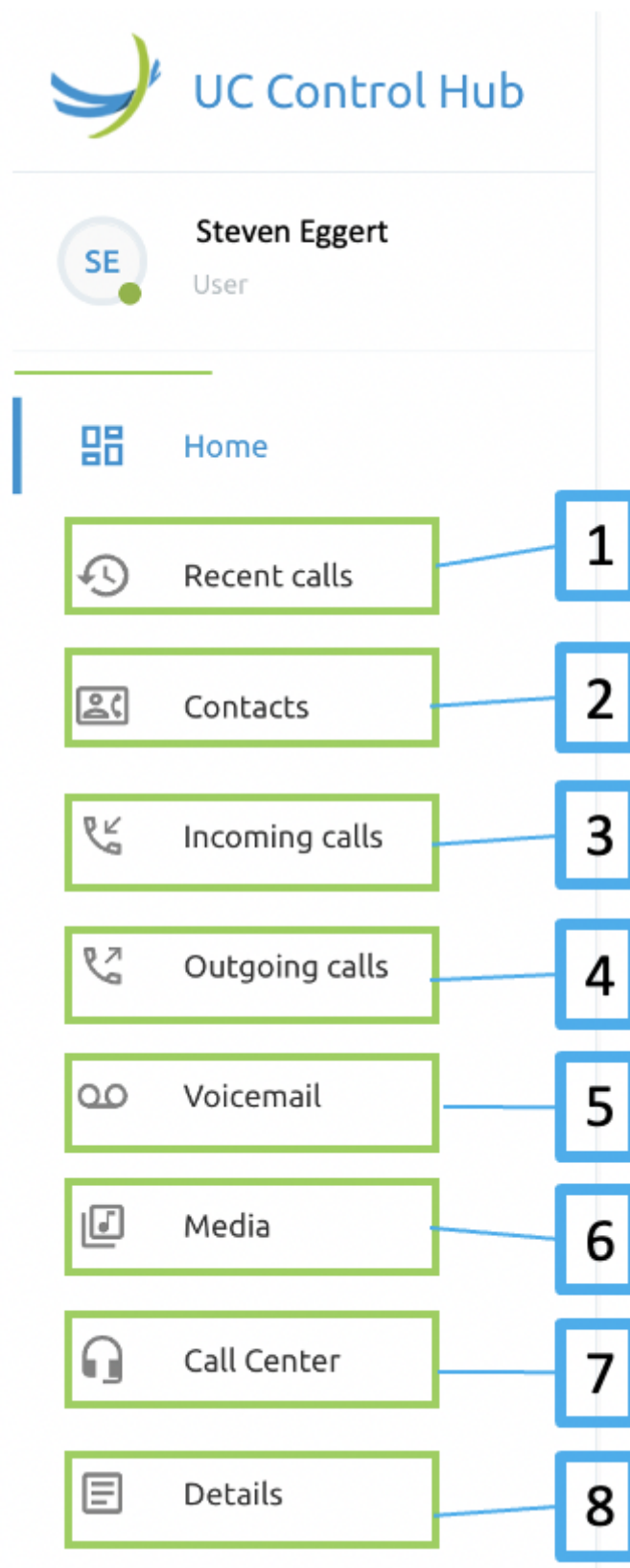


**Figure 26:** End user screen

When you log in as an End-user, the portal gives you the ability to:

- set up your communication devices, which can be a fix phone or your Webex softphone application.
- Consult and manage your personal details.
- Consult and tweak call settings for incoming and outgoing calls like call forwarding, number hiding, call blocking, single number reach, ...
- Listen to voicemails and configure voicemail preferences.
- Access the phone directory and initiate calls (click to dial).
- ...

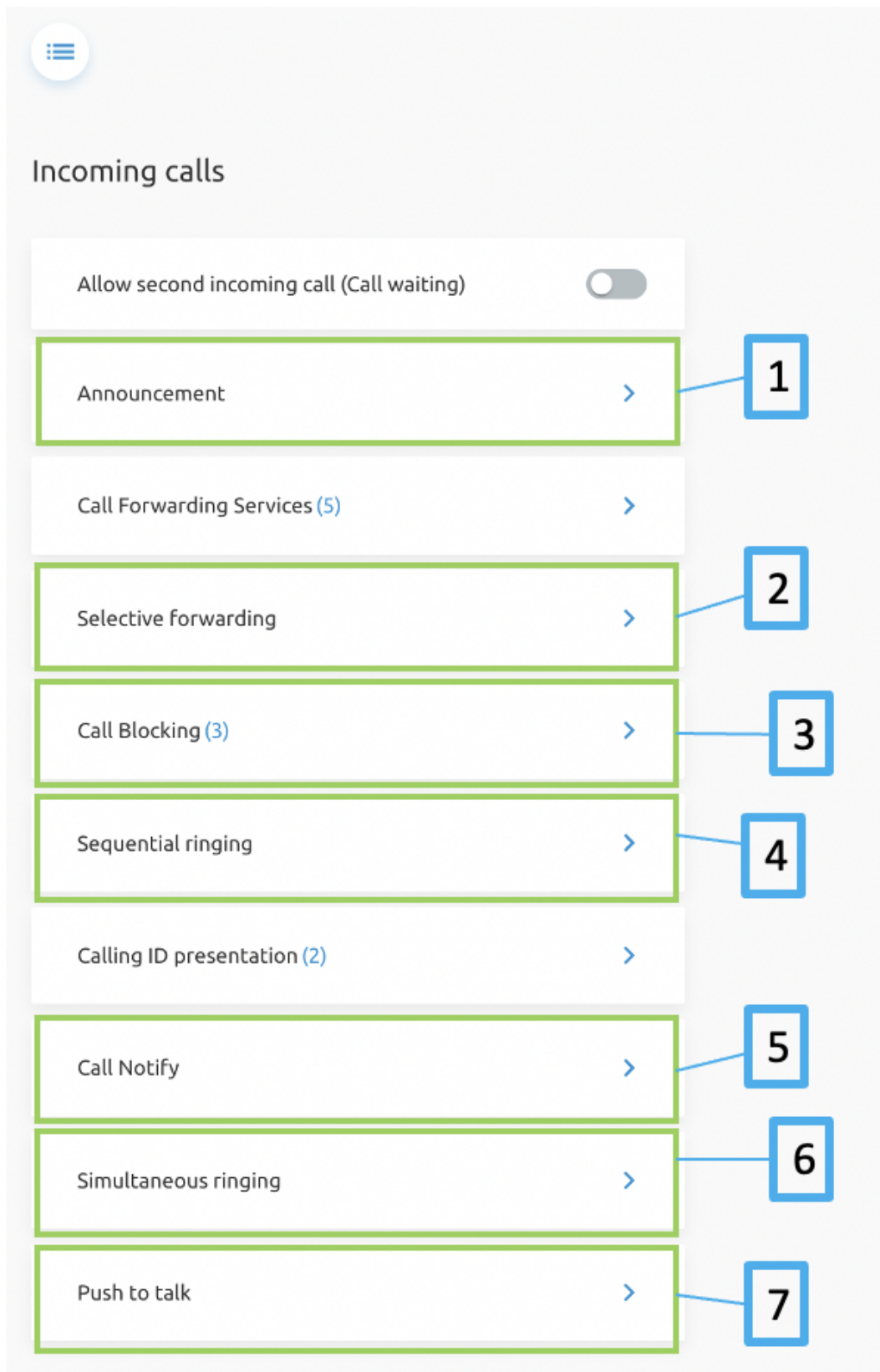
Services, as shown below, are directly accessible to the end-user:



**Figure 27:** End user features

The portal has a *Show Advanced Features* option which makes more features visible for the End-users if needed. These features are hidden on some of the service pages because most of the end-users have enough with the default service features.

Advanced features for the incoming calls are for example:



**Figure 28:** Advanced features

### **6.1.2 Admin users**

The UC Control Hub supports the tiered data model of Broadworks solutions. In this model we find 4 levels in the hierarchy:

- System level
- Tenant level
- Group / site level
- End-user

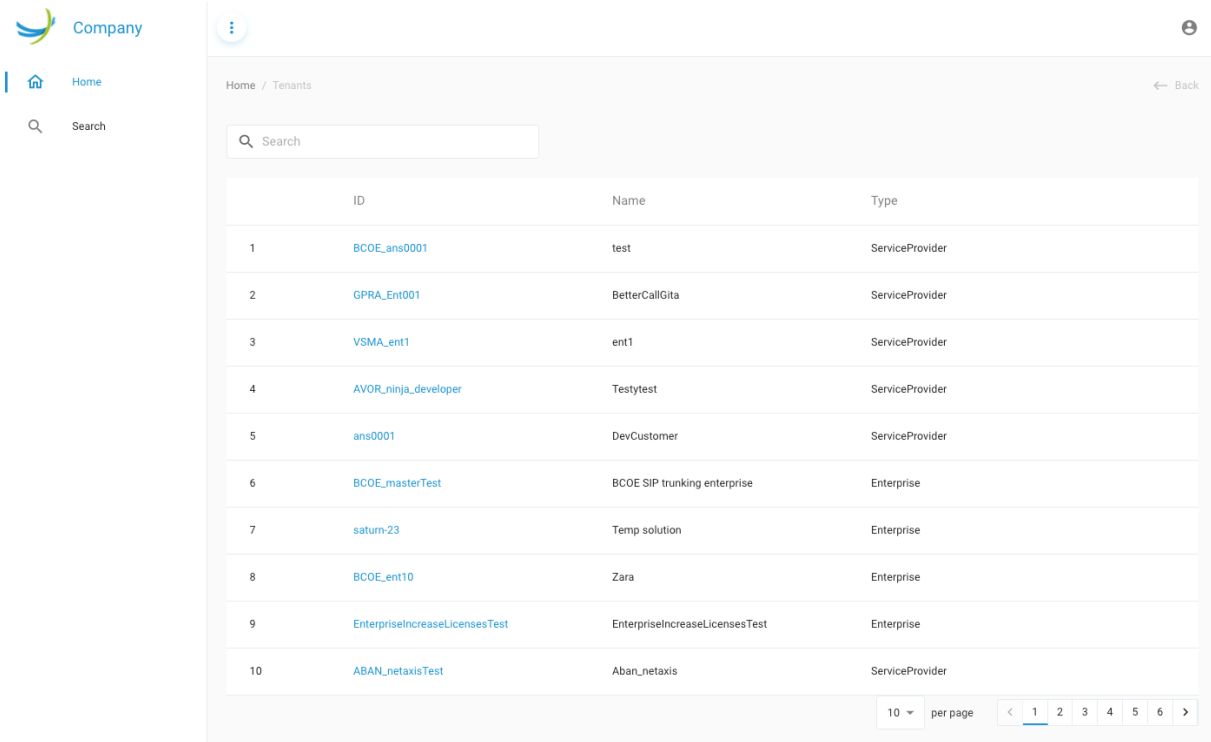
#### **6.1.2.1 System level**

For the highest level in the data model, a System Administrator can be created, mainly foreseen from the technical staff of a Service Provider, who will use the portal to assist their customers with their cloud solutions. The portal will look different for this type of users and will give access to other services and features as an End-user profile.

The System Admin can:

- search any company or subscriber across the different Tenants.
- drill down into a customer or user account and make changes on their behalf





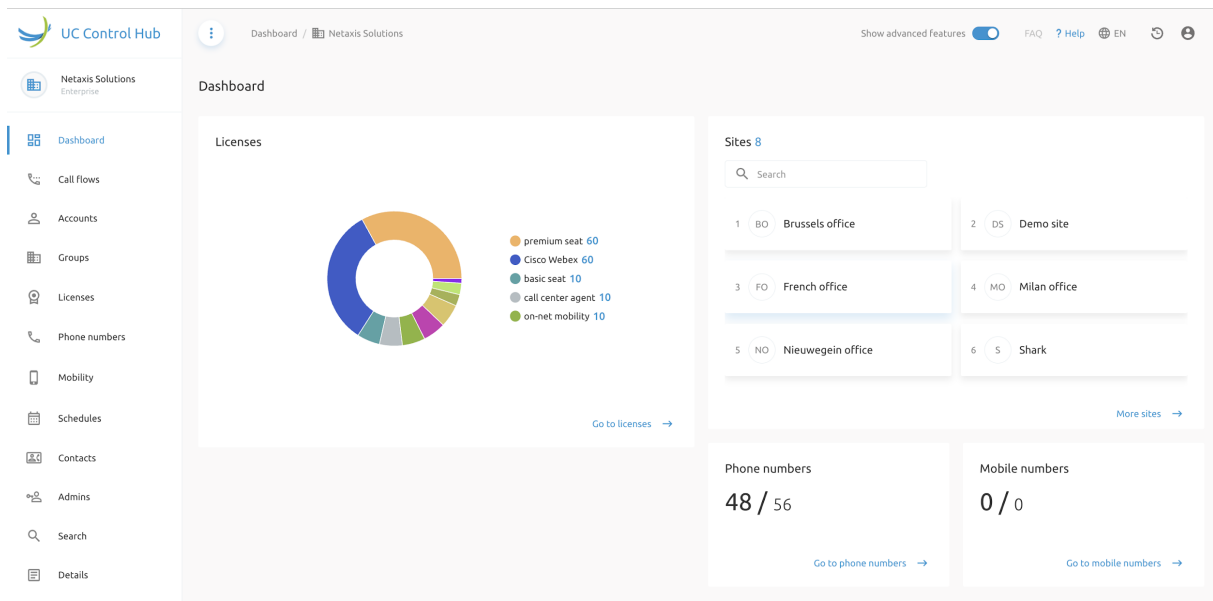
**Figure 29:** System admin view

### 6.1.2.1.1 Tenant level

The level below the System level is the Tenant level, which holds Enterprise Admins, if the customer was set up in Enterprise mode, and Service Provider Admins, if the customer was set up in Service provider mode.

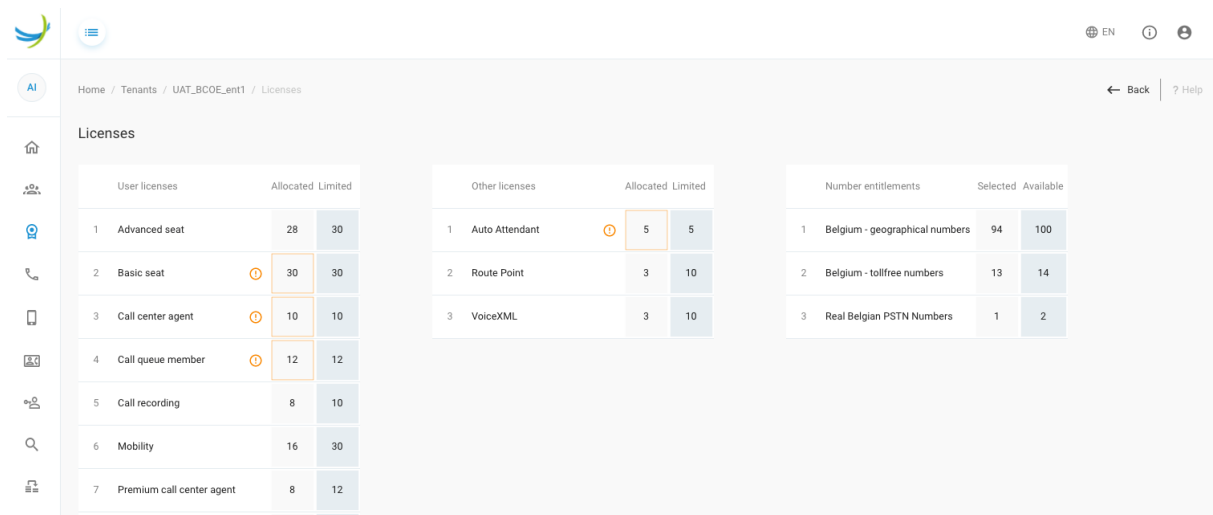
Their main tasks are (listed but limited to):

- manage numbers, groups and licenses
- create and update users one by one or in bulk
- setup and configure group services like auto attendants, hunt groups and call centers, all through an intuitive UI designed with wizards to ease the experience
- manage devices and flexible seating configurations
- record and manage company announcements
- configure opening hours, closing days
- and much more.



**Figure 30:** Tenant view

The screenshot below shows the allocation of different licenses and the mapping against the available (limited) number of licenses for that customer. A visual indication is shown when the limited number of licenses is reached. This is for example the view of a Site or Group administrator.



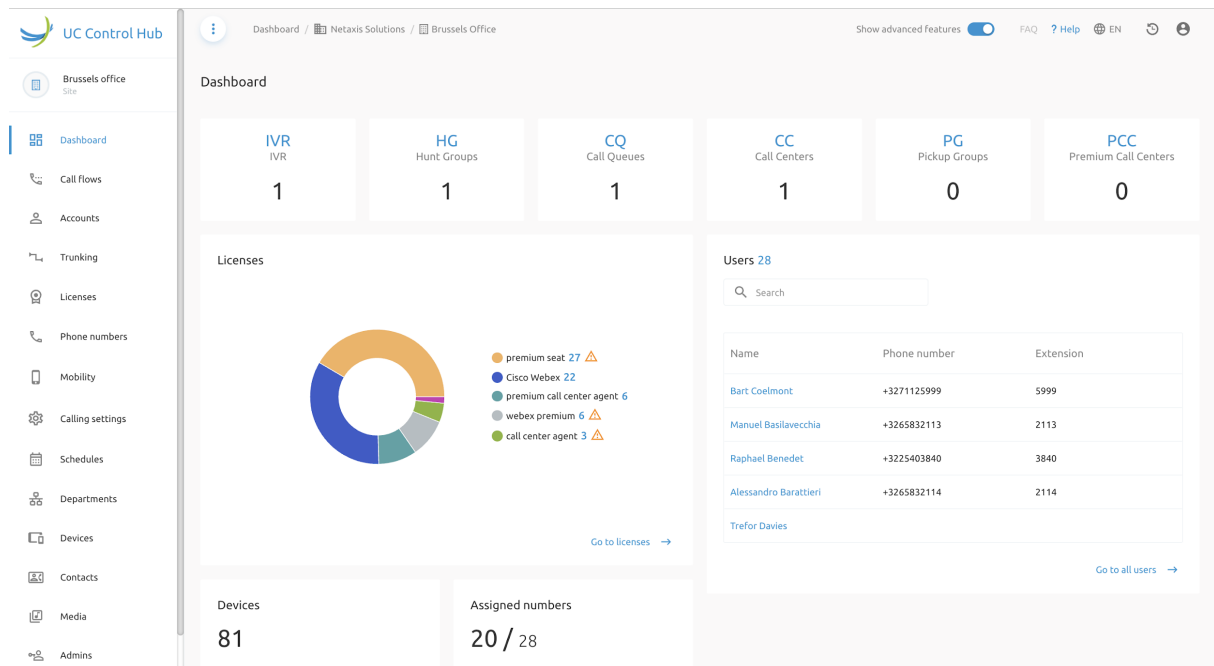
**Figure 31:** License view

### 6.1.2.2 Group/Site level

A level below, you can find the Group admins (or Site admins) who can only see, and adapt, the

parameters that are related to a certain group or certain site. The below screen will show you the dashboard view of the Group admin.

The Group/site admin can do the same things as the Tenant Admin can do, but only for the group / site for which he's responsible for.

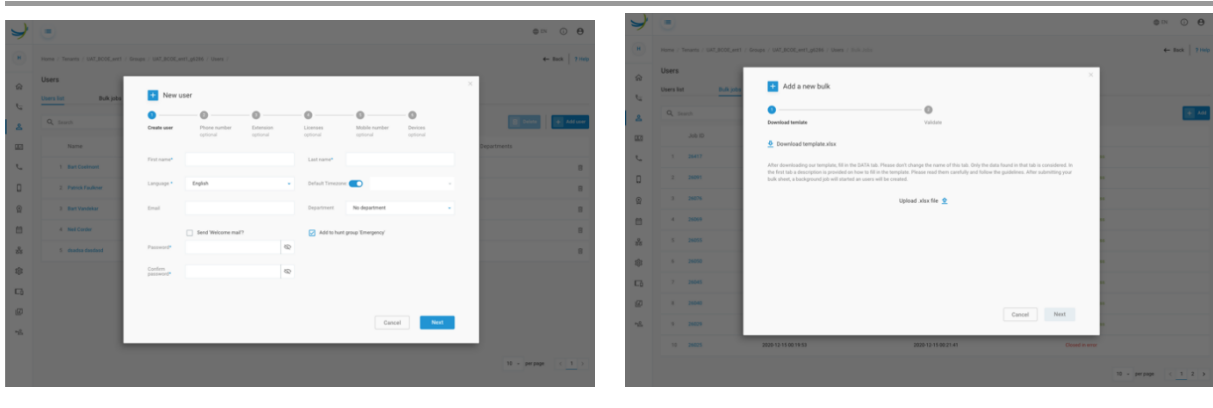


**Figure 32:** Group view

The portal is built to make things easier.

The figure below shows the use of wizards in the portal to enrich the user experience.

These wizards help the user to easily set up new features or functionalities by guiding him through the different configuration steps. The goal is to take away the complexity of the Broadworks solution and to make sure that everything is correctly administered when adding a new feature, a new user or a new functionality.



## 7 UC Control Hub Main Features Overview

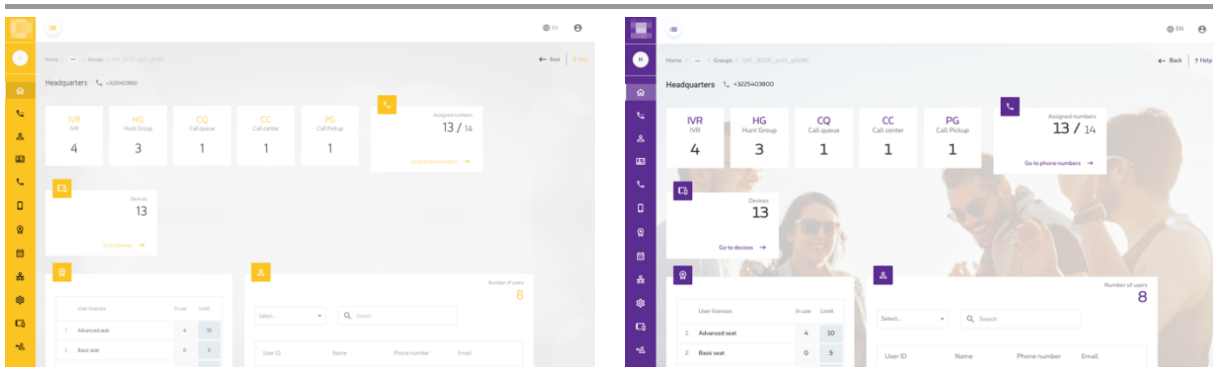
This chapter describes in more detail the main features supported by the UC Control Hub.

### 7.1 Branding

The portal can be branded to meet your brand identity: colours, background images, fonts, favicon, help texts and labels. A branded version for resellers can be set up in a matter of minutes, including branded welcome and reset password mails. There is no limit on the number of branded versions the platform can support, technically or from a commercial perspective.

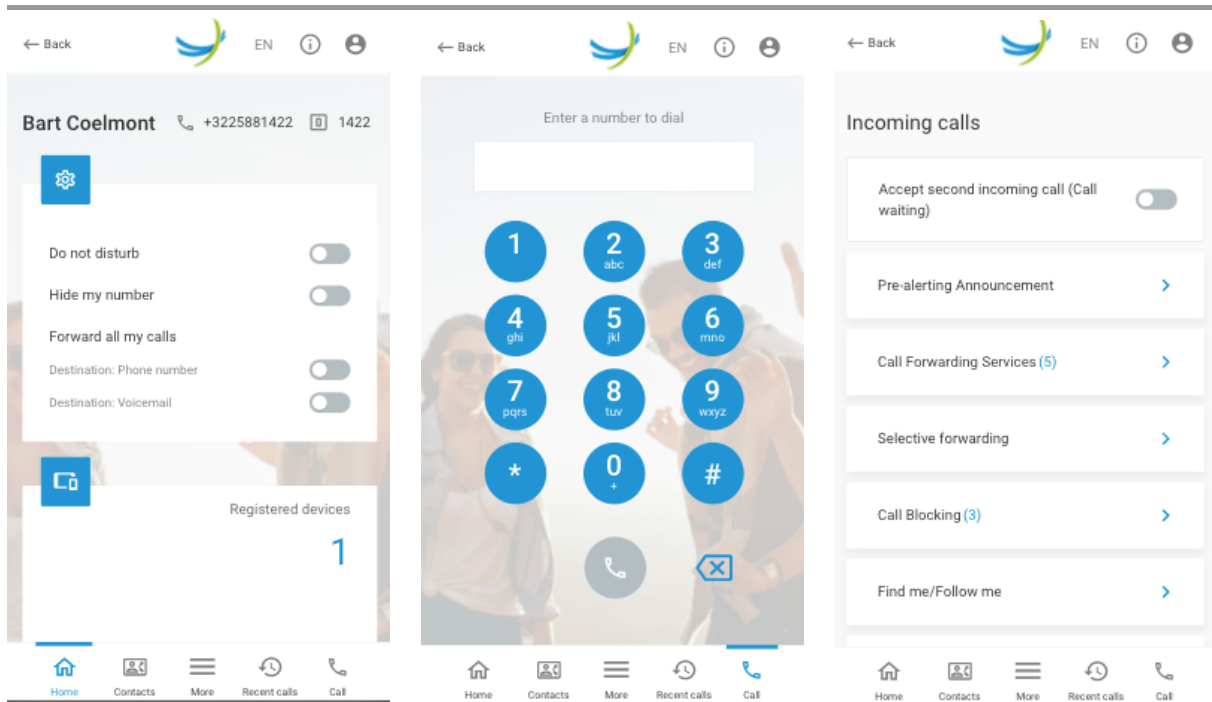
The following list mentions the most frequent branding changes that are requested:

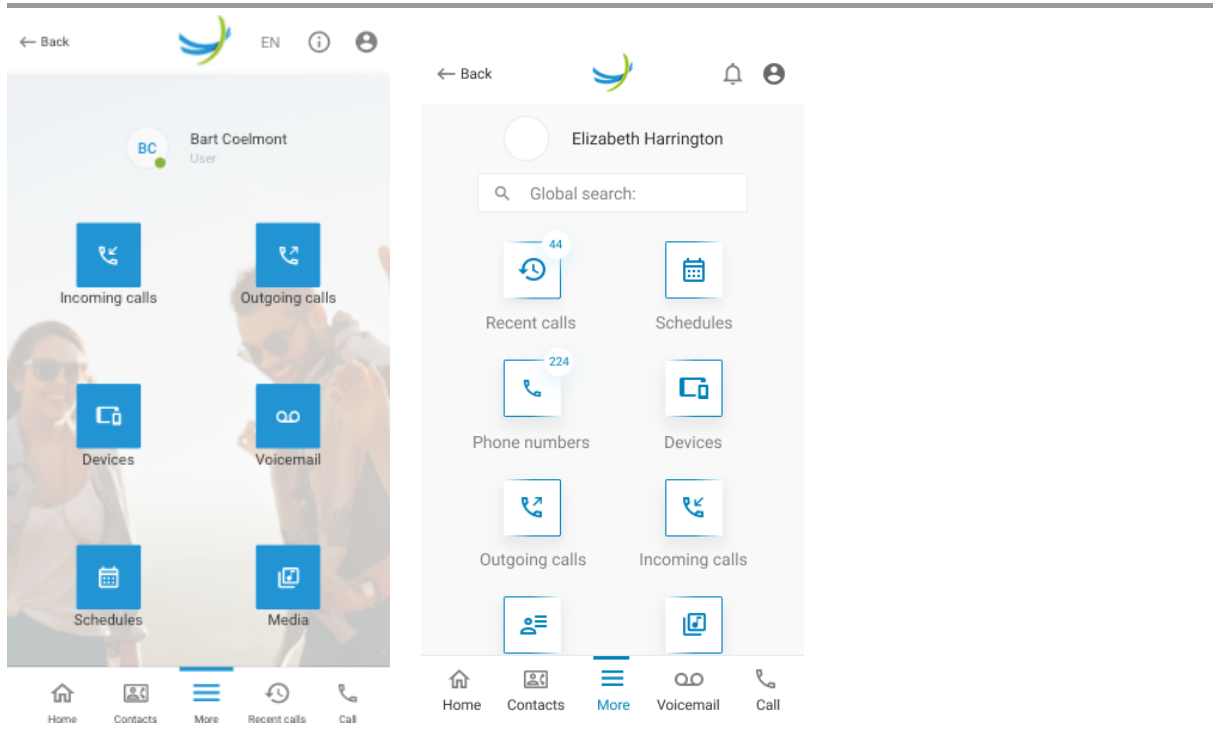
- colours, fonts and background images can be changed
- certain pages and functionality can be hidden or tweaked
- labels and help texts can be changed
- integrations and automations can be built on the backend to provide additional automation.



## 7.2 Mobile first design

A mobile first design principle was applied. This means that all relevant screens are designed for optimal rendering on mobile devices while making sure desktop users receive an equally optimal experience.





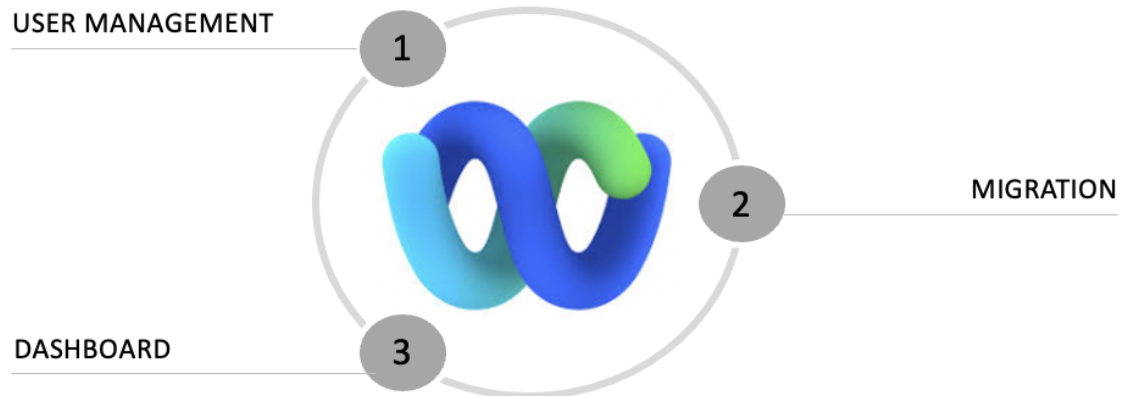
### 7.3 Browser support

All modern browsers like Chrome, Safari, Edge and Firefox are supported. We generate production-ready software builds that are expected to run in browsers with a version that has more than 0.2% of the officially reported market share.

### 7.4 WebEx

On the south-bound of the F4B solution, the Webex gateway allows an easy interconnection with the Webex API.

On the North-bound of the F4B solution, the “Webex module” comes with pre-built workflows and extensions to the UC Control Hub. These extensions focus on three key areas:

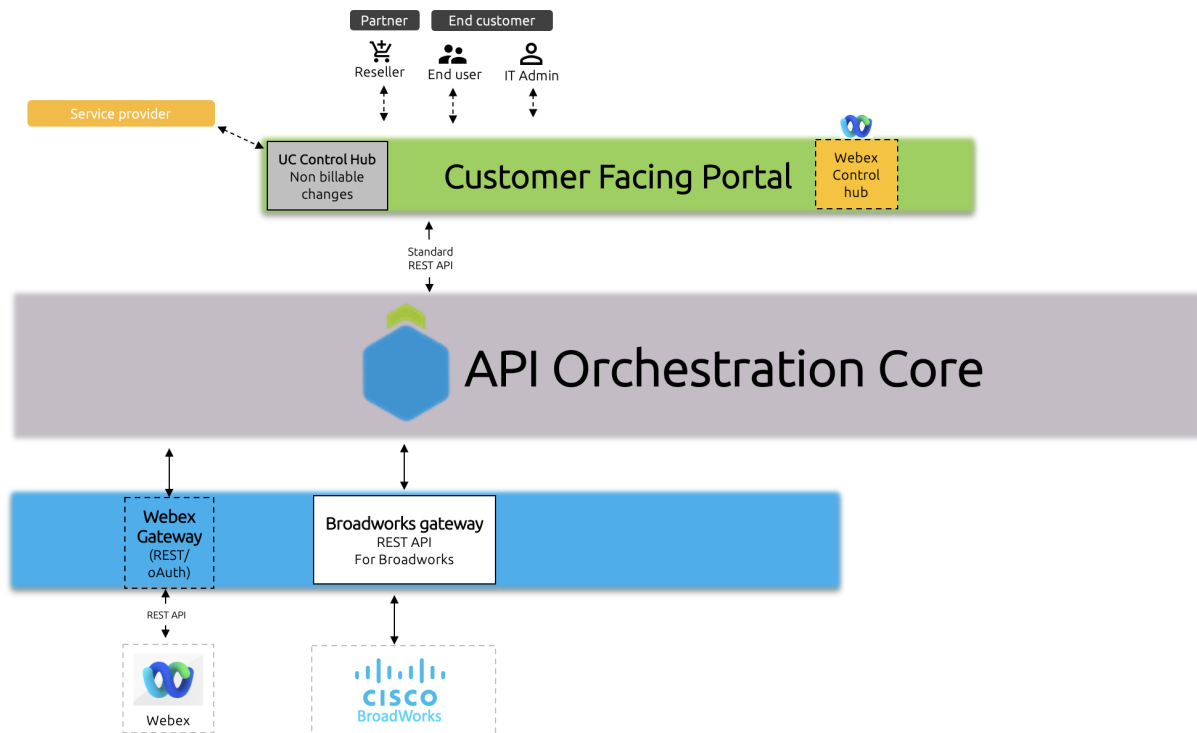


**Figure 33:** Webex

#### 7.4.1 Provisioning integration

Our WebEx gateway allows easy interconnection with the Restful WebEx API. The gateway acts on behalf of one of the admins in your WebEx partner org and keeps alive the connection with WebEx by regularly requesting updated tokens. Thanks to the gateway, you only have to set up the integration once, then call any API that you need at the WebEx side.

Next to this gateway, the « WebEx module » comes with pre-built workflows and extensions to the UC control hub.



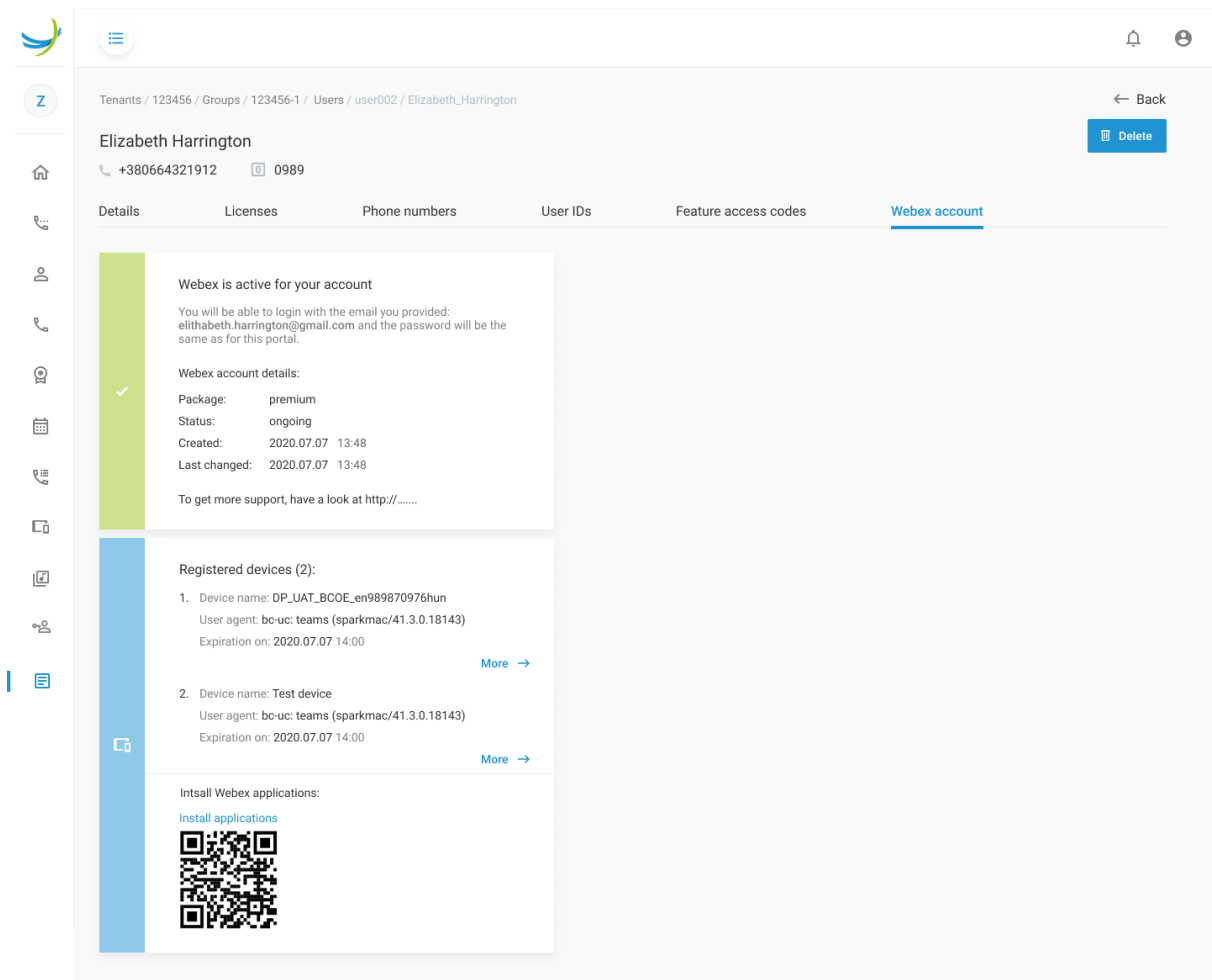
**Figure 34:** Webex gateway

### 7.4.2 Webex user management

When the administrator assigns a service pack containing the Webex license to an account, the Fusion for BroadWorks solution will:

- provision the users on the WebEx platform.
- update the WebEx license to the correct licensing level when the « license » level of a Broadworks user changes.
- create shared call appearances to support VoIP dialling with the WebEx client.
- send a mail to the user to inform him/her about their new capabilities.



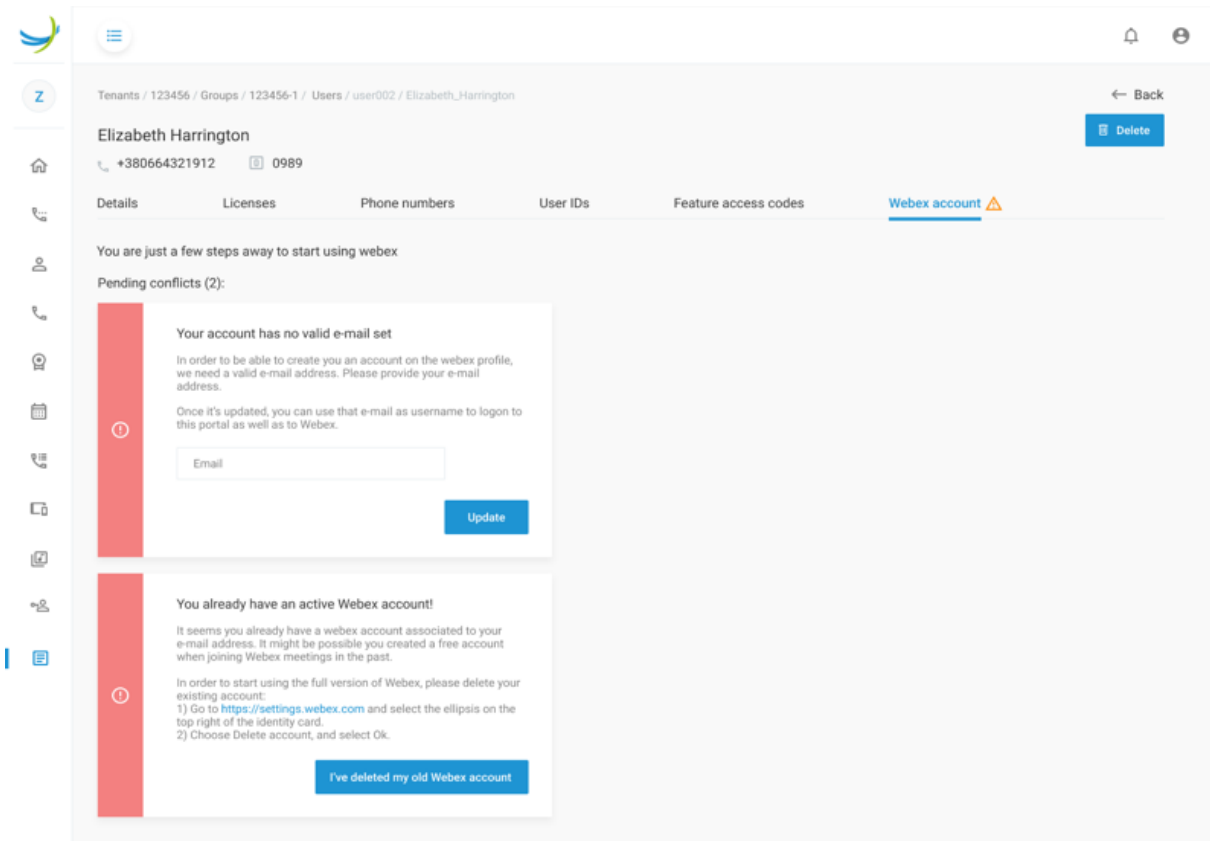


**Figure 35:** Webex user management

The platform supports all types of WebEx licenses as well as switching between them. In case of deletion of the user or the de-assignment of the license, the WebEx account is removed permanently.

### 7.4.3 Webex for Broadworks conflict management

Despite the tight integration of WebEx and Broadworks and the availability of the flowthrough provisioning, WebEx 4 Broadworks comes with a few pitfalls (for example, users with free WebEx accounts cannot be created as Broadworks subscribers). The WebEx module comes with support to resolve such cases through the portal.



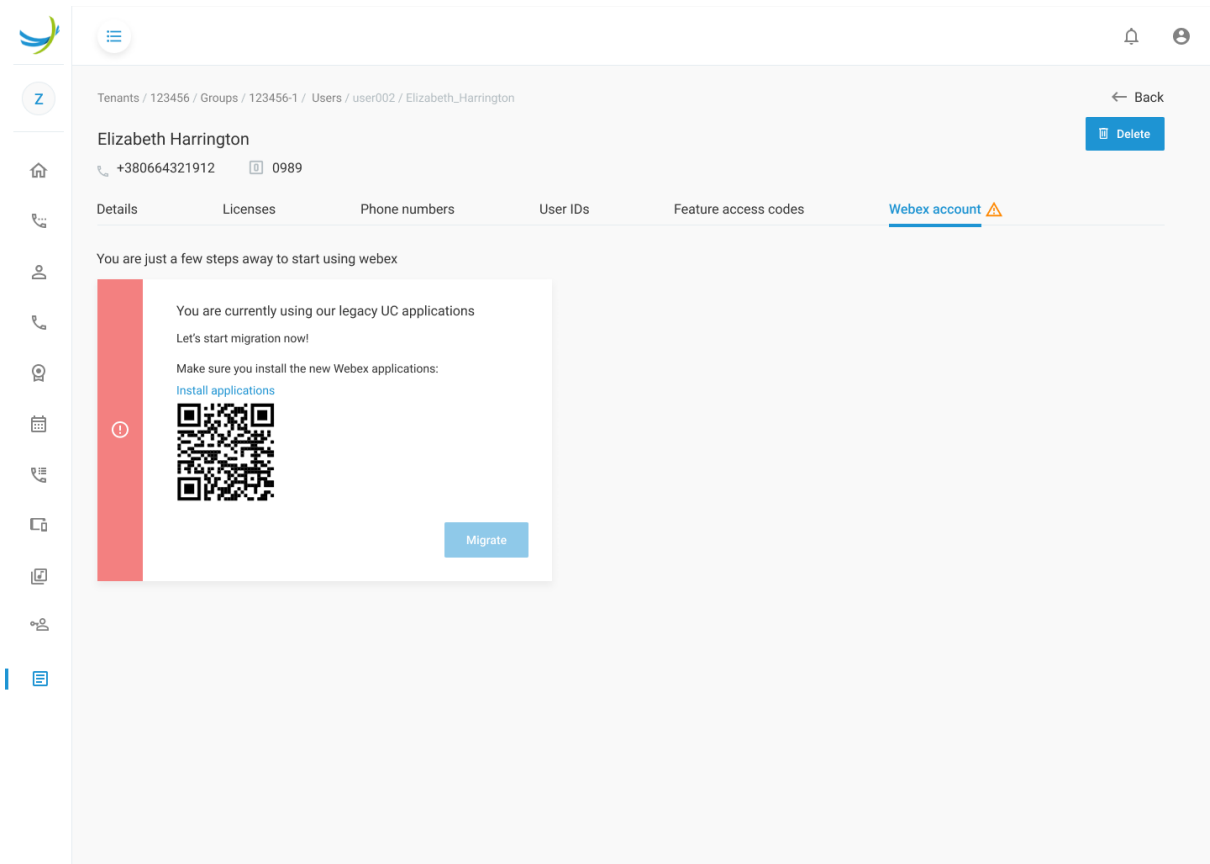
**Figure 36:** Webex conflict management

#### 7.4.4 Webex migration

When UC One or UC One SaaS is already used by a customer, it might be worth it to migrate them to Webex.

The Webex module on F4B comes with the right tools to support the migration from the old to the new technology.

The screenshot below shows that the end-user is already using an older UC application. The portal will guide the user to migrate to the new Webex solution.



**Figure 37:** Webex migration

### 7.4.5 Single pane of glass

As part of the Fusion for BroadWorks roadmap, other features of WebEx will be gradually made available in the UC Control Hub, so that this latter serves as a single dashboard for the entire UCaaS solution. The goal is to avoid that your customers have to use two different portals to manage their UCaaS service.

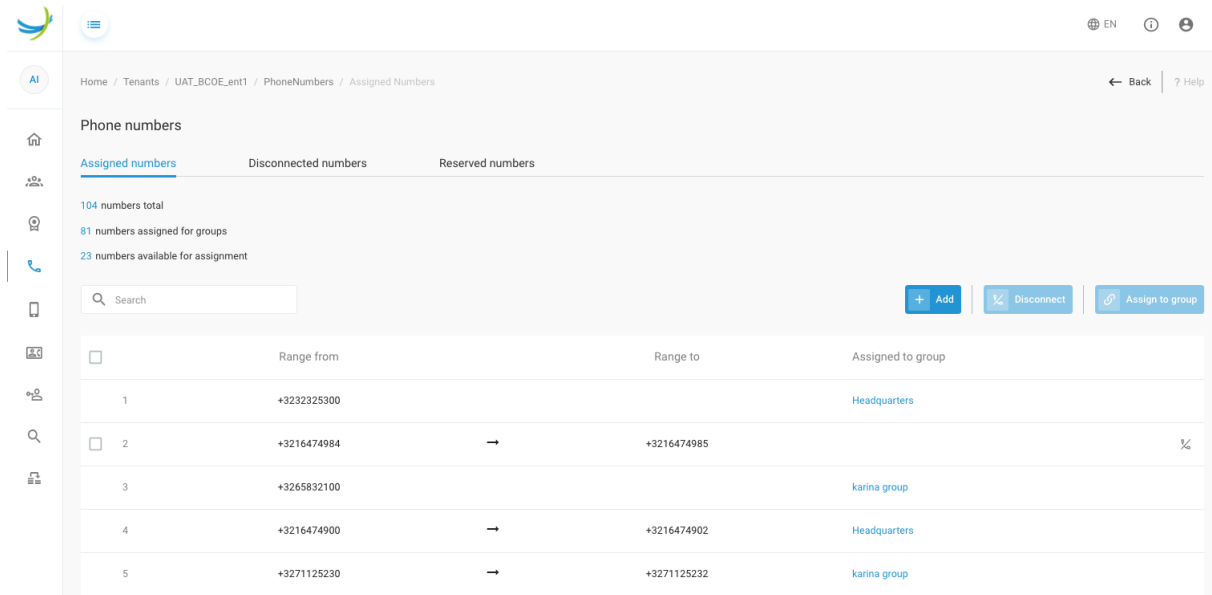
## 7.5 Number Inventory Management System (NIMS)

The NIMS capabilities are integrated into the Broadworks API and the UC Control Hub, which means that through this integration customers can be enabled to select their own numbers which are made available by the Service Provider. Customers can assign these numbers to their End-users, sides, departments, etc.

The UC Control Hub integration will give customers the ability to select the numbers of their choice through the easy GUI of the self-care portal. The system is designed to make sure that no customer can

block entire number ranges. Support for number reservation is included.

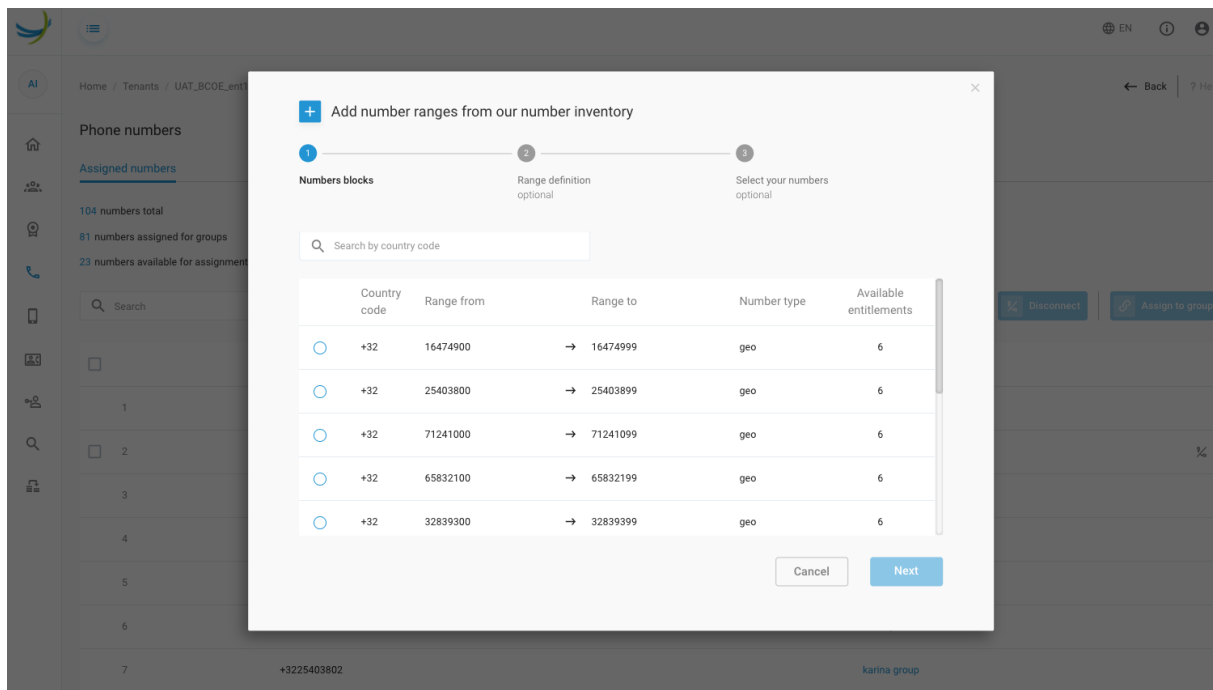
The screenshot below shows the phone number ranges assigned to this customer.



**Figure 38: NIMS**

The screenshot below shows the wizard (from the NIMS) to add additional number ranges.

The wizard will easily guide the administrator to the full process of adding new number ranges from the number inventory. It will make sure that it will all be well configured.



**Figure 39:** NIMS wizard

## 7.6 Number Portability (NPACT) module

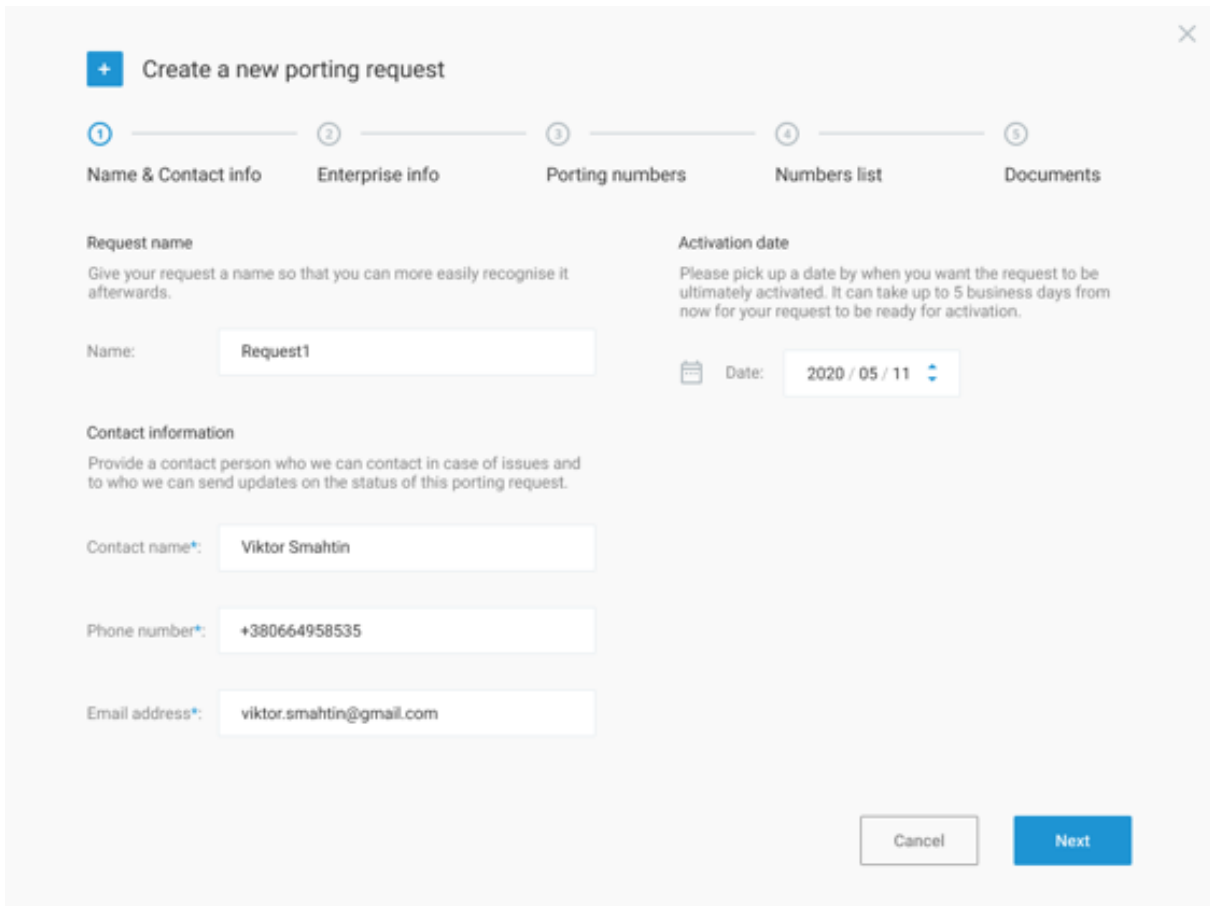
The NPACT module, another number management tool developed by Netaxis, is used by Service Providers to manage number portability.

The NPACT solution, as an extension to the F4B solution, is integrated into the Broadworks API and UC Control Hub. This enables customers to:

- Launch porting requests through the easy-to-use self-care portal
- List all pending and closed requests
- Activate accepted porting requests after which numbers become immediately available for assignment.

To support this NPACT module integration, the compatibility with the Number Portability Clearhousing (NPC) of the desired country needs to be validated.

The screenshots below show the wizard for creating a new number porting request.



**Create a new porting request**

1 Name & Contact info   2 Enterprise info   3 Porting numbers   4 Numbers list   5 Documents

**Request name**  
Give your request a name so that you can more easily recognise it afterwards.

Name:

**Activation date**  
Please pick up a date by when you want the request to be ultimately activated. It can take up to 5 business days from now for your request to be ready for activation.

Date:

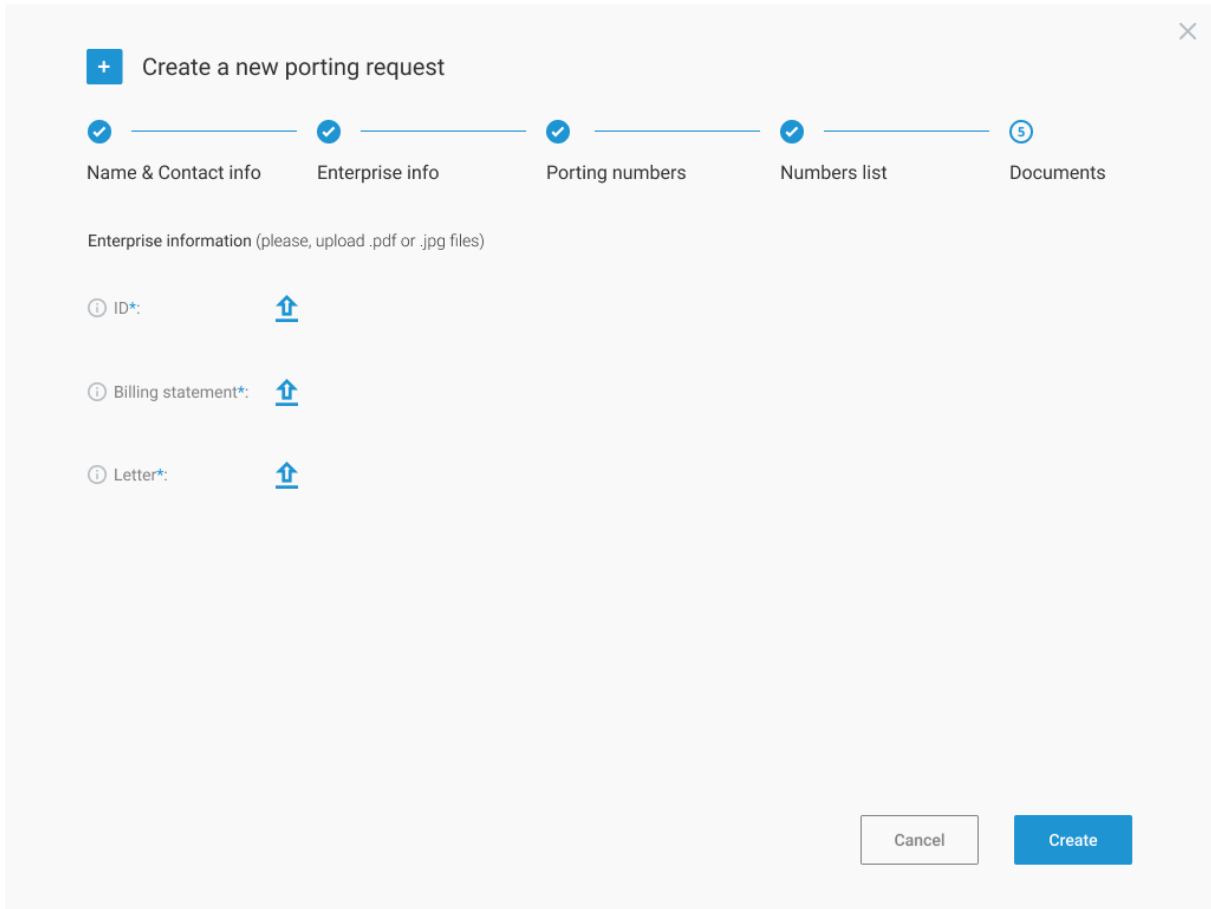
**Contact information**  
Provide a contact person who we can contact in case of issues and to who we can send updates on the status of this porting request.

Contact name\*:

Phone number\*:

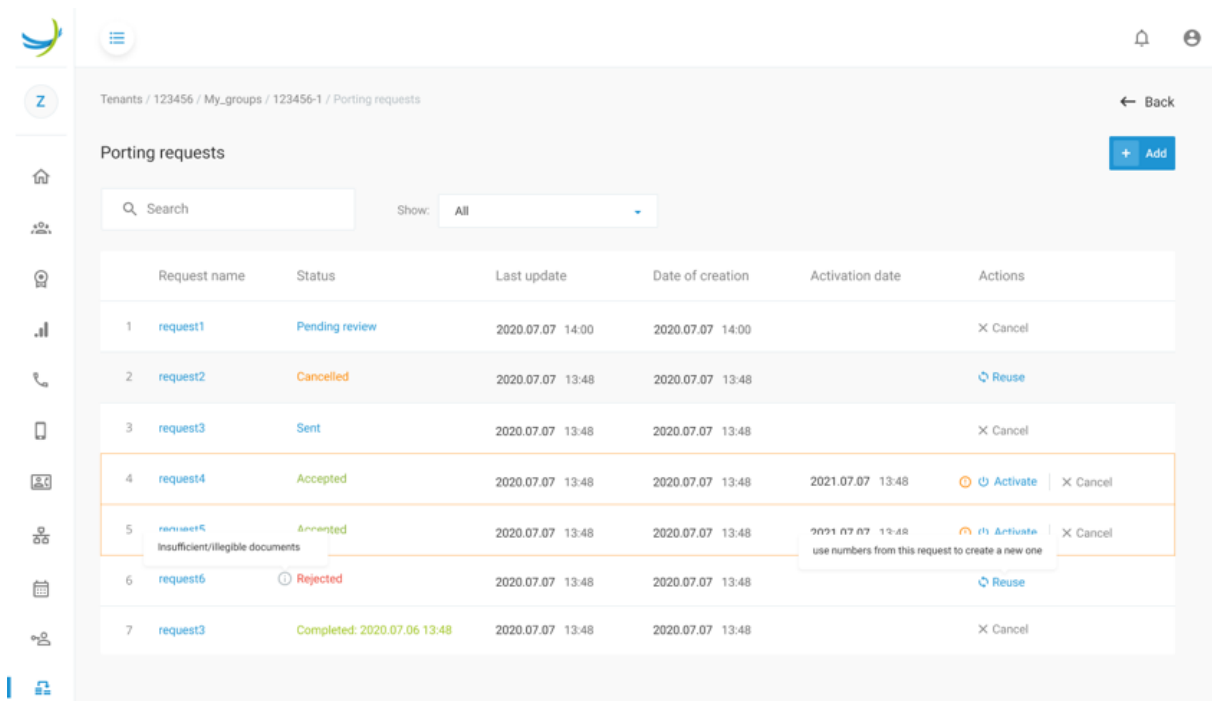
Email address\*:

**Figure 40:** NPACT wizard



**Figure 41:** NPACT wizard

The screenshot below shows the statuses of the porting requests for different number ranges.



Request name	Status	Last update	Date of creation	Activation date	Actions
1 request1	Pending review	2020.07.07 14:00	2020.07.07 14:00		× Cancel
2 request2	Cancelled	2020.07.07 13:48	2020.07.07 13:48		↺ Reuse
3 request3	Sent	2020.07.07 13:48	2020.07.07 13:48		× Cancel
4 request4	Accepted	2020.07.07 13:48	2020.07.07 13:48	2021.07.07 13:48	⏸ Activate   × Cancel
5 request5 Insufficient/illegible documents	Accepted	2020.07.07 13:48	2020.07.07 13:48	2021.07.07 13:48	⏸ Activate   × Cancel use numbers from this request to create a new one
6 request6	Rejected	2020.07.07 13:48	2020.07.07 13:48		↺ Reuse
7 request3	Completed: 2020.07.06 13:48	2020.07.07 13:48	2020.07.07 13:48		× Cancel

**Figure 42:** Porting requests status

## 7.7 Call analytics or statistics in the portal

The UC Control Hub consumes the APIs exposed by the call analytics module and converts them into customizable graphs for tenants and groups.

Charts & enterprise/site KPIs include:

- Evolution of max & average sim calls over time
- Call minutes per day in function of time
- National and international distribution of calling and called parties - Termination reason distribution
- Insights in the typical call durations and how it changes over time



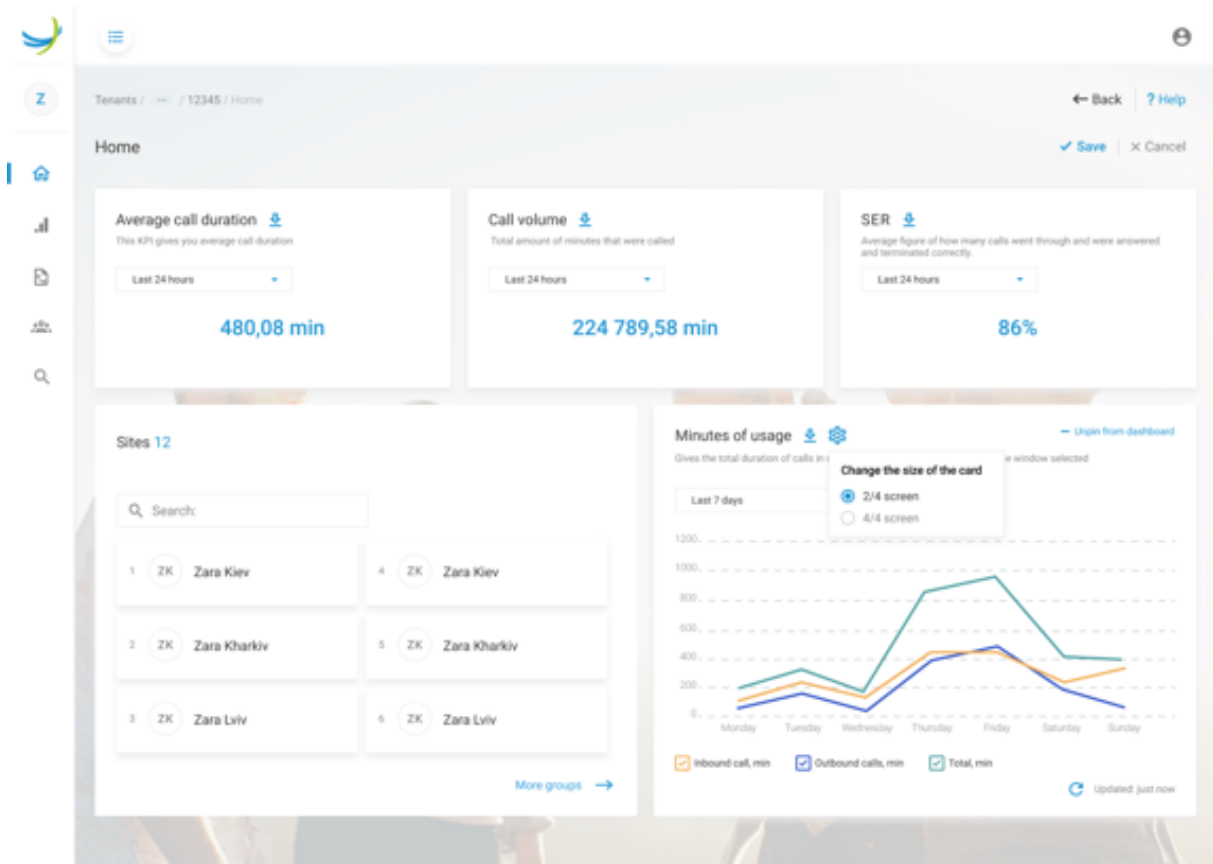
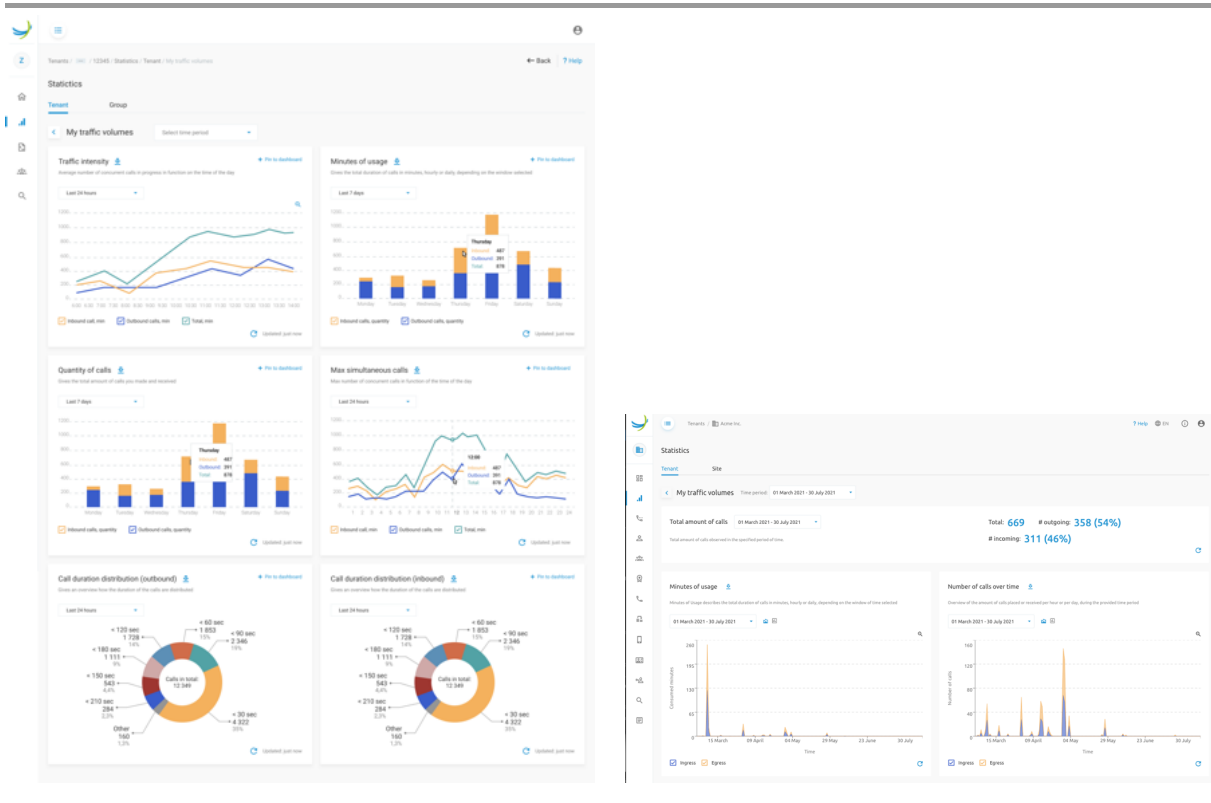
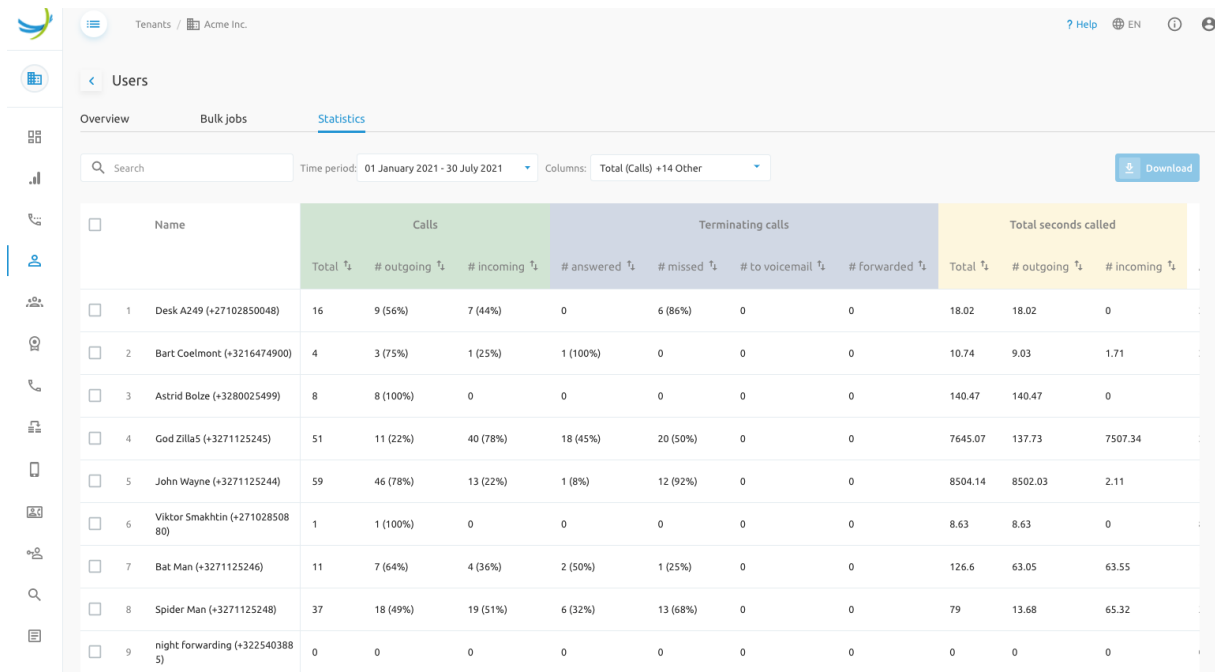


Figure 43: Call analytics



Group admins have access to similar data but restricted to the group they manage. Besides the charts and KPIs that concern entire groups and enterprises, the KPIs on the level of users, call centers, IVRs and hunt groups are also available in the users' statistics. The UC Control Hub solution gives you insights into KPIs such as number of calls received & placed, total inbound minutes, total outbound minutes, typical call duration, and much more.



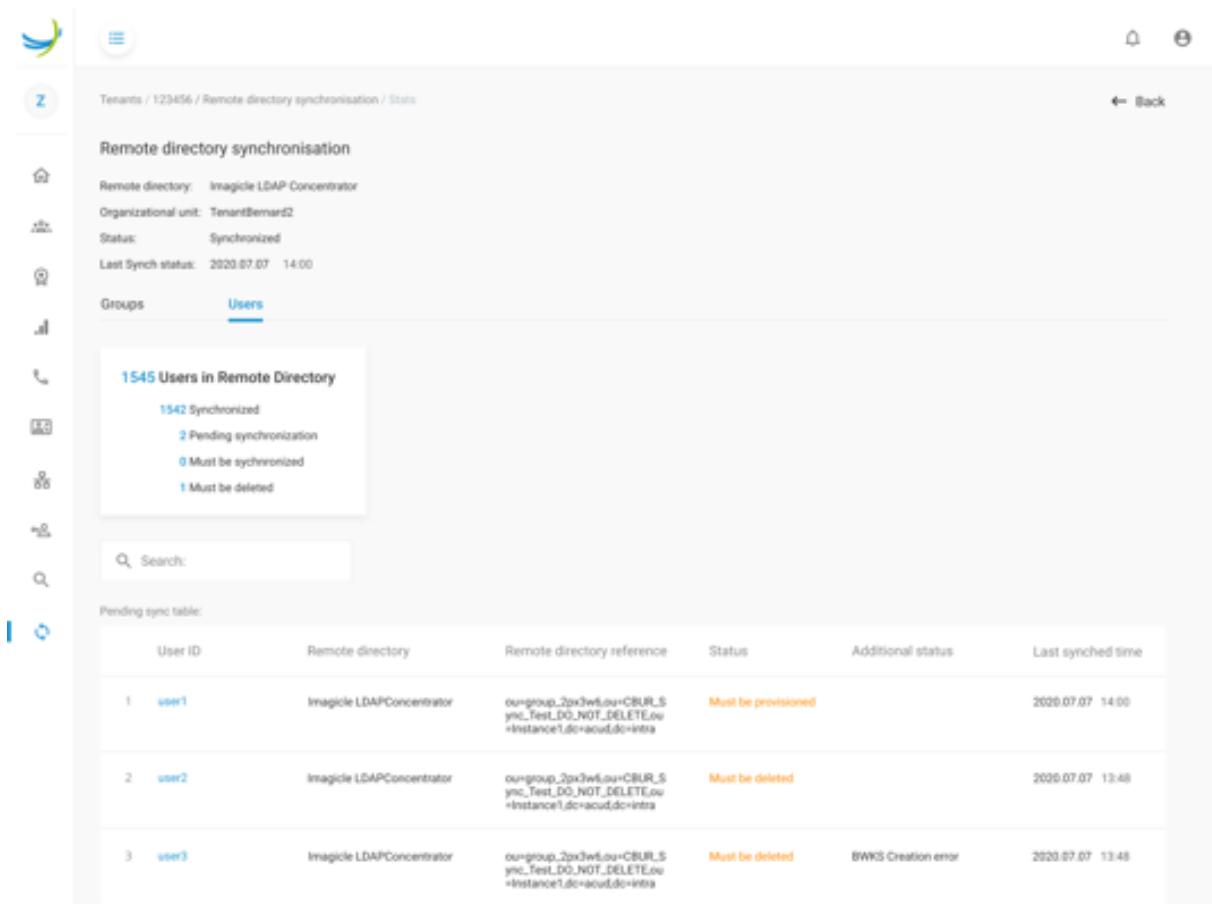
Name	Calls			Terminating calls				Total seconds called		
	Total	# outgoing	# incoming	# answered	# missed	# to voicemail	# forwarded	Total	# outgoing	# incoming
1 Desk A249 (+27102850048)	16	9 (56%)	7 (44%)	0	6 (86%)	0	0	18.02	18.02	0
2 Bart Coelmont (+3216474900)	4	3 (75%)	1 (25%)	1 (100%)	0	0	0	10.74	9.03	1.71
3 Astrid Bolze (+3280025499)	8	8 (100%)	0	0	0	0	0	140.47	140.47	0
4 God Zilla5 (+3271125245)	51	11 (22%)	40 (78%)	18 (45%)	20 (50%)	0	0	7645.07	137.73	7507.34
5 John Wayne (+3271125244)	59	46 (78%)	13 (22%)	1 (8%)	12 (92%)	0	0	8504.14	8502.03	2.11
6 Viktor Smakhtin (+27102850880)	1	1 (100%)	0	0	0	0	0	8.63	8.63	0
7 Bat Man (+3271125246)	11	7 (64%)	4 (36%)	2 (50%)	1 (25%)	0	0	126.6	63.05	63.55
8 Spider Man (+3271125248)	37	18 (49%)	19 (51%)	6 (32%)	13 (68%)	0	0	79	13.68	65.32
9 night forwarding (+3225403885)	0	0	0	0	0	0	0	0	0	0

**Figure 44:** Call analytics users view

## 7.8 LDAP/AD Synchronisation

The UC Control Hub is extended with features that give the tenant and system administrators useful insight in the synchronisation status of their enterprise(s).

The screenshots below illustrate these features.



Tenants / 123456 / Remote directory synchronisation / Stats

**Remote directory synchronisation**

Remote directory: Imagicle LDAP Concentrator  
 Organizational unit: TenantBernard2  
 Status: Synchronized  
 Last Synch status: 2020.07.07 14:00

Groups Users

**1545 Users in Remote Directory**

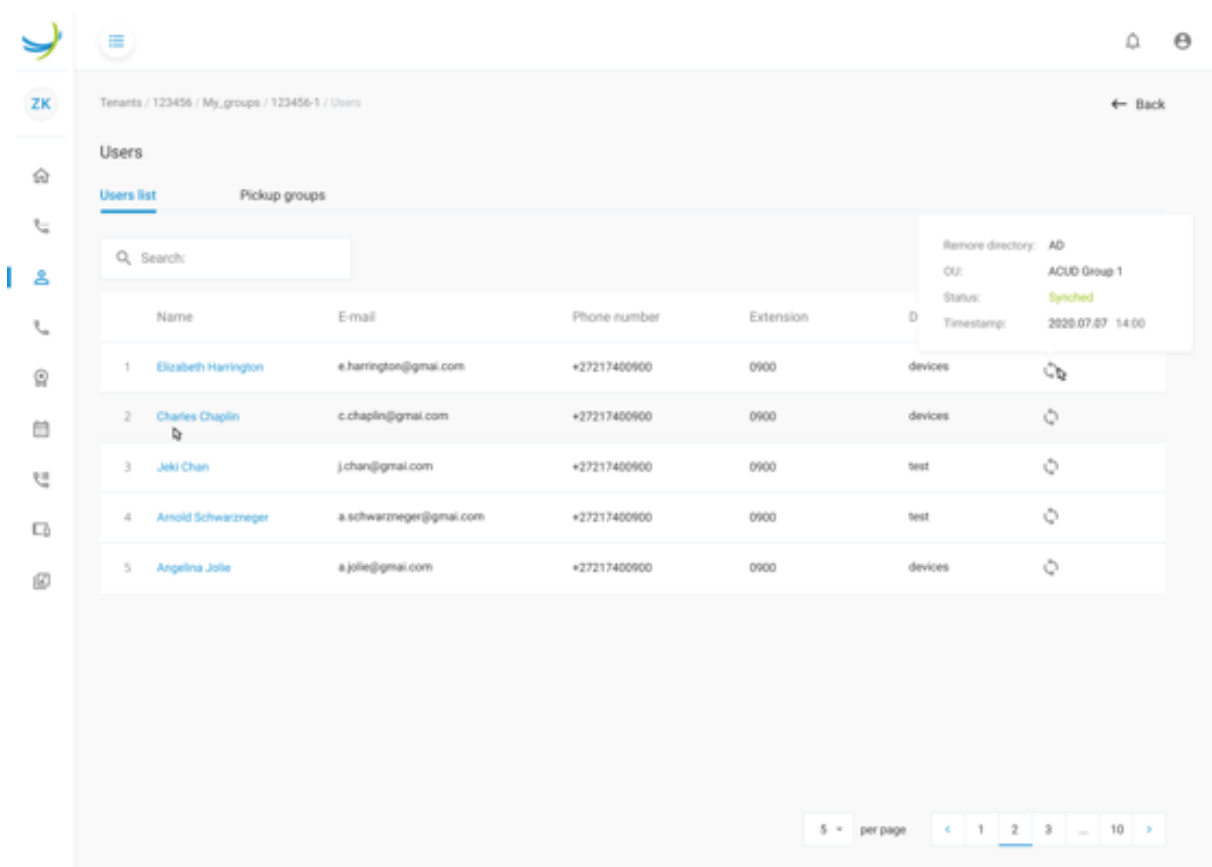
- 1542 Synchronized
- 2 Pending synchronization
- 0 Must be synchronized
- 1 Must be deleted

Search:

Pending sync table:

User ID	Remote directory	Remote directory reference	Status	Additional status	Last synched time
1 user1	Imagicle LDAPConcentrator	ou=group_2ax3w6,ou=CBURL_Sync_Test_DO_NOT_DELETE,ou=Instance1,dc=acud,dc=infra	Must be provisioned		2020.07.07 14:00
2 user2	Imagicle LDAPConcentrator	ou=group_2ax3w6,ou=CBURL_Sync_Test_DO_NOT_DELETE,ou=Instance1,dc=acud,dc=infra	Must be deleted		2020.07.07 13:48
3 user3	Imagicle LDAPConcentrator	ou=group_2ax3w6,ou=CBURL_Sync_Test_DO_NOT_DELETE,ou=Instance1,dc=acud,dc=infra	Must be deleted	BWKS Creation error	2020.07.07 13:48

**Figure 45:** LDAP synchronization



**Figure 46:** LDAP users view

The remote directory is considered as “the source”, which means that, when a tenant is synchronised, certain features like user deletion/creation are not enabled. This to avoid those records in the LDAP database to be deleted by the Fusion for BroadWorks solution, for example by false manipulations in the portal by a user.

#### Info

Currently only provisioning synchronisation is supported. Users will still have a dedicated password to access the UC platform.

## 7.9 Supported Languages

Languages that are supported for the moment are Dutch, English, French and Arabic. More languages will come over time.

When an end-user’s account was created, the administrator selected a language. When you log in, the portal normally automatically switches to this language.

## 7.10 Phone management

A telephone system without telephone numbers cannot work. Without a public phone number, it is hard to reach any of your employees or call centers.

When you use the portal for the first time, it is best to check whether numbers were already assigned to your account. If this is the case, you can start creating users straight away. If not, you can select numbers from our inventory or port in numbers to our platform.

Please refer to the section [Phone number management](#) (just below) for more information.

## 7.11 Phone number management

To obtain numbers, 2 options are offered:

1. Select numbers from our inventory.
2. Port in existing numbers.

To disconnect numbers, the following option are offered:

1. For native numbers, a disconnect will de-assign them from your account and put the numbers in quarantine for 90 days after which they become available again for somebody else.
2. For ported numbers, they are de-assigned as well. The numbers will go as well into quarantine. After 90 days the clearinghouse will inform the operator originally owning your numbers that they can be reassigned to another customer.

### 7.11.1 Selecting numbers from our inventory

#### 7.11.1.1 Adding new numbers

If entitlements are available, the right to use certain numbers set by the Service Provider, it is possible to select additional numbers from the inventory. Adding new numbers will be done on the tenant level, where it is shown which number ranges that are owned by the Tenant and how many numbers are still available in a specific range.

From the moment numbers are added to the Tenant, they become available for immediate assignment to groups and/or users.

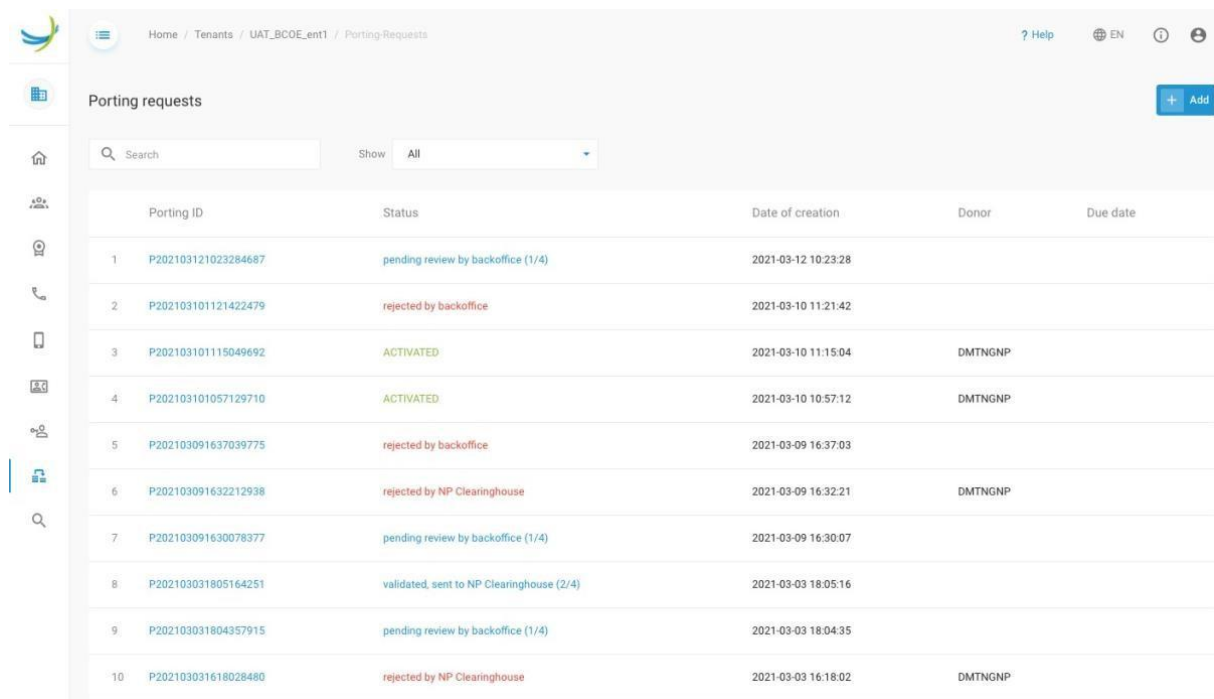
#### 7.11.1.2 Adding reserved numbers

When numbers are reserved for your account, you can add them as long as you have available entitlements. Number entitlements will show the amount of numbers in use - versus the maximum available

numbers. If the “in-use” value hasn’t reached the maximum value, then the reserved number can still be added to the account. If the account has reached the maximum, then some numbers will have to be disconnected OR more number entitlements must be ordered.

### 7.11.2 Porting in numbers

*Porting in numbers* is a feature that allows port-in numbers or number ranges from a service provider. This porting feature is mainly used when requesting geographical numbers in a given country.



Porting ID	Status	Date of creation	Donor	Due date
1 P202103121023284687	pending review by backoffice (1/4)	2021-03-12 10:23:28		
2 P202103101121422479	rejected by backoffice	2021-03-10 11:21:42		
3 P202103101115049692	ACTIVATED	2021-03-10 11:15:04	DMTNGNP	
4 P202103101057129710	ACTIVATED	2021-03-10 10:57:12	DMTNGNP	
5 P202103091637039775	rejected by backoffice	2021-03-09 16:37:03		
6 P202103091632212938	rejected by NP Clearinghouse	2021-03-09 16:32:21	DMTNGNP	
7 P202103091630078377	pending review by backoffice (1/4)	2021-03-09 16:30:07		
8 P202103031805164251	validated, sent to NP Clearinghouse (2/4)	2021-03-03 18:05:16		
9 P202103031804357915	pending review by backoffice (1/4)	2021-03-03 18:04:35		
10 P202103031618028480	rejected by NP Clearinghouse	2021-03-03 16:18:02	DMTNGNP	

**Figure 47:** Porting requests

Through the portal, a process is started to request the porting of certain numbers, to send it to a back-office team for review and then finally send the porting request to the porting authority of that specific country.

The feature is available on Tenant level. Creating a porting request will make use of a wizard to guide the tenant administrator through the porting process.

As soon as the porting request is accepted, it is possible to either cancel or activate the porting.

Activating the porting allows the tenant administrator to add those specific numbers to the platform: they become ready for usage, and the donor as well as the porting authority will be informed that the porting has been activated.

### **7.11.3 Disconnecting numbers**

In certain cases, numbers are released from the platform (disconnected numbers) because they are no longer needed or numbers from another geographic region are required.

This feature is available through the UC Control Hub.

Again, it is a feature on tenant level and it only goes with numbers that are not allocated to a group or user. If they are, you have to de-assign them first.

Disconnected numbers remain for 3 months in a *quarantine* status. This means they are still associated with the account and can be reclaimed at any time until the quarantine period expires.

Disconnected numbers no longer count in the number entitlement calculation, so you can select as many other numbers as you released.

## **7.12 Broadworks features.**

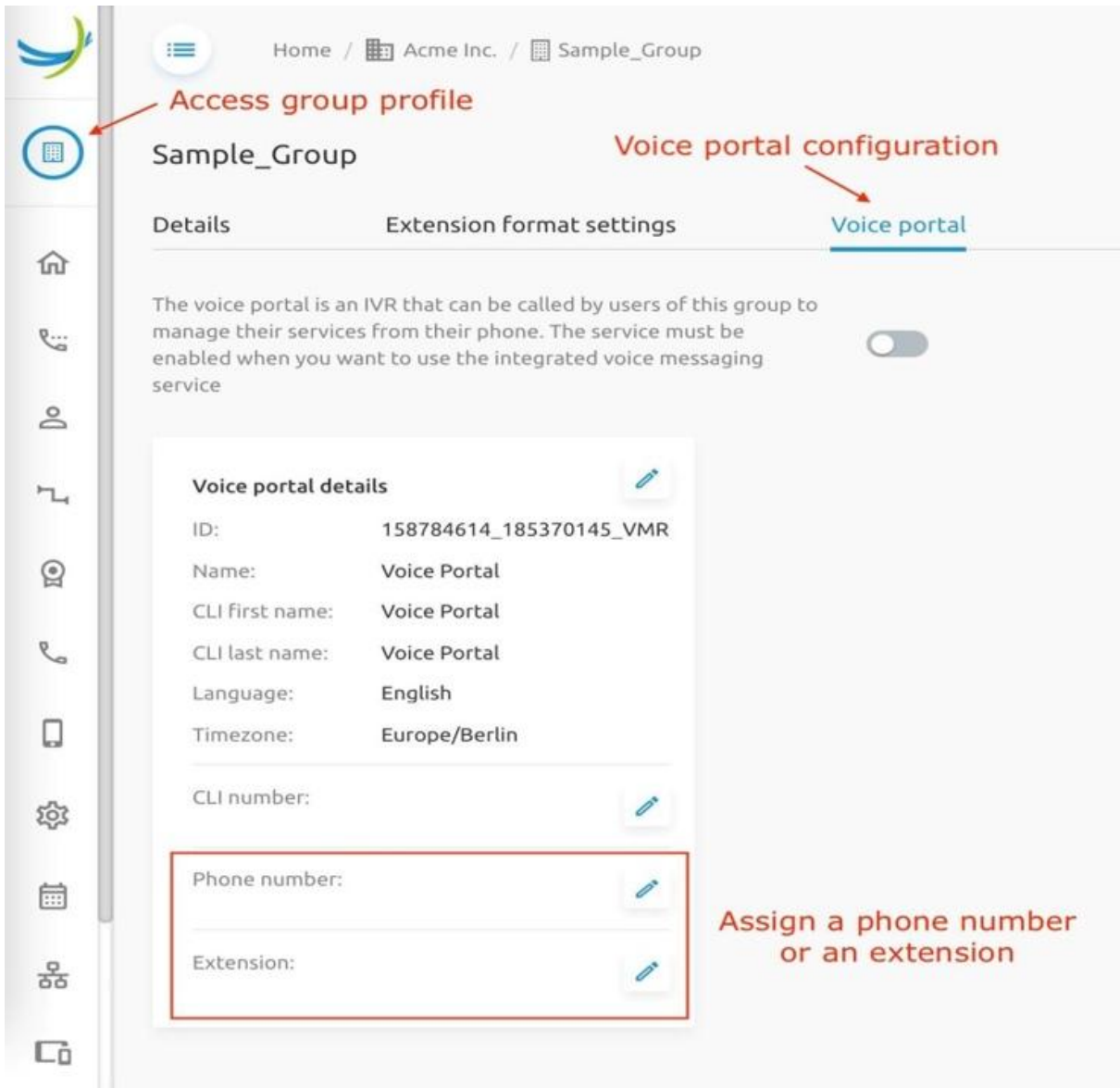
This section describes the main Broadworks features supported by the solution and integrated in the UC Control Hub functionality.

### **7.12.1 Voice Portal**

The Voice Portal provides an IVR interface that can be called by members of the group, using any phone in the group, to manage their services and voice mailbox or to change their passcode.

To have the built-in BroadWorks voicemail solution working correctly, one needs to assign an extension or phone number to the Voice Portal. Without extension or number assigned to the Voice Portal, a user's call forwarding to voicemail will fail.





**Figure 48:** Voicemail

The group Voice Portal configuration can be accessed on the group profile page (if the Voice Messaging Group service has been assigned to the group).

To have the service working, you need to assign either a phone number or extension to this Voice Portal.

### 7.12.2 IVRs / Auto Attendants

The Auto Attendant, also known as Interactive Voice Response or IVR, serves as an automated receptionist that answers the phone and provides a personalised message to callers, with options for connecting to an operator, dialling by name or extension, leaving a message, listening to an announcement, or connecting to configurable destinations (for example, 1 = Marketing, 2 = Sales, and so on).

IVRs are a billable service and not authorised with unlimited amounts. It is **only possible to create IVRs in groups to which BroadWorks Auto Attendant licenses are assigned.**

Auto Attendant is offered in two types allowing businesses to choose the solution that best suits their needs: Auto Attendant - Basic and Auto Attendant - Standard.

- Basic: single-level IVRs, with support for direct transfer to voicemail and listening to custom announcements, in addition to the automated receptionist capabilities described earlier.
- Standard: multi-level IVRs with support for sub-menus and schedules in addition to the capabilities of the Auto Attendant - Basic service.

The Basic, single-level Auto Attendant has only one menu level, for example: 1-English, 2-Dutch, 3-French.

The Standard, multi-level Auto Attendant can have two levels, for example:

Main Menu	Submenu 1
1 - English	1 - Marketing, 2 - Sales, 3 - Accounting
2 - French	1 - Marketing, 2 - Ventes, 3 - Comptabilité
3 - Dutch	1 - Marketing, 2 - Verkoop, 3 - Boekhouding

IVRs come along with greetings and/or announcements. They can be selected from either the attendant's repository or from the group's announcement repository. It is possible to upload or record announcements via the browser. Only announcements recorded beforehand appear in the list.

Announcements are managed through the *Media* menu item in the left-hand panel. Listed announcements can be played for control using the *Play* button in front of the file name.

Media files are expected to be .wav, .mp3, .wma files.

**Media**

Announcements      Music on hold

Search + Add

1	Test Fabio12	153 KB	
2	ADME.mp3	3716 KB	
3	TrtCBInvalidPin.wav	264 KB	
4	gmoh11oix-et-FightSong8-16k16b.wav 2019-11-21 15:38:26.557_001	562 KB	
5	file_example_MP3_700KB.mp3	849 KB	
6	Welcome - hold the line	160 KB	
7	Message when closed-1	227 KB	
8	Patrick Test file345	556 KB	
9	Test_ACUD	563 KB	
10	ringback-pcmu.wav	562 KB	

**Figure 49:** Media files

To manage the business hours and holidays schedules for this Auto Attendant, the Schedule service item in the left-hand menu is used.

**Schedules**

Time Schedules (33)      Time Schedules Advanced (33)      Holiday Schedules (27)

Search + Add

Business hours	KKP1	Group - advanced sch...	testPatrick
Test add	test_bart-strepeke	Created by group ad...	KIP
kkkkk			

**Figure 50:** Manage schedule

### 7.12.3 Hunt Groups

Hunt Groups allow to link a phone number to a group of users. Incoming calls to the Hunt Group's number are distributed amongst the members that are part of the Hunt Group. The distribution algorithm is configurable. The different algorithms are:

- Regular
- Circular
- Uniform
- Simultaneous
- Weighted

### 7.12.4 Call Centers

Call Centers automatically process incoming calls received by a single phone number by distributing them to a group of users or agents. Enhanced features such as agent log in and log out, call queuing, and overflow control are included.

Call Centers exist in three editions:

- A **Basic call center** is designed to support a simple call distribution and queuing scenario, such as a front-office receptionist or a small work group.
- A **Standard call center** is designed to support a normal call center environment where flexible routing options are needed and the agent's workflow dictates the need for ACD states such as Available, Unavailable, and Wrap-up.
- A **Premium call center** is designed to provide the most advanced set of routing and call management options to support a formal call center environment.

### 7.12.5 Assign extra features to group services.

It is possible to assign a feature pack or *power pack* to service users such as Hunt Group, IVR, Call Center, etc. The Service Provider chooses whether to propose one or several power packs and their content.

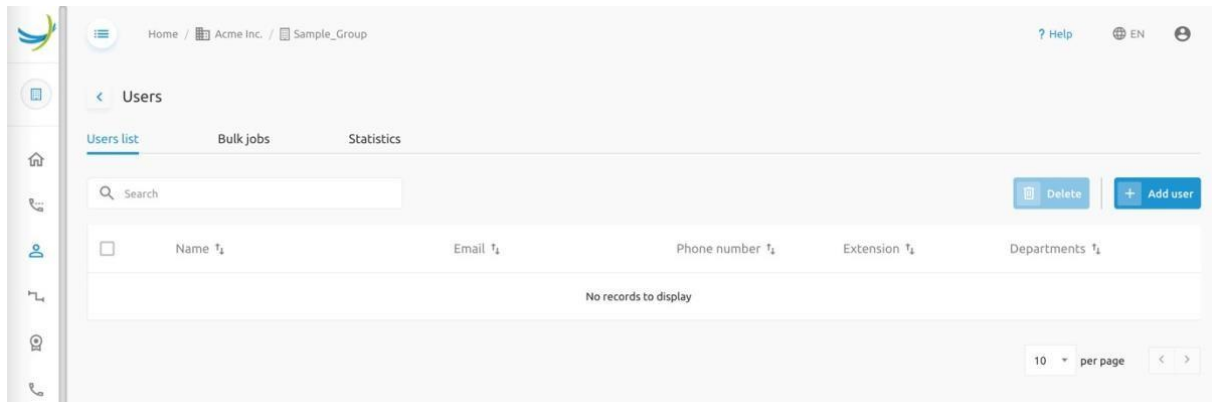
Power packs have a reference service that is used to control the number of packs that can be assigned to a given tenant and group.

### 7.12.6 User creation

#### 7.12.6.1 Add a new user

Use this option for day-to-day user creation (for example a new seat).

Users are added within a group. In order to add a new user, go to *Users* in the left-hand menu. Use the **Add user** button to launch the wizard.



**Figure 51:** Add user

Follow the wizard to create a user and perform basic configuration:

1. **Create user:** enter the user's first and last names, optionally their email address. For the user to manage their profile and services, they need to receive credentials in order to login to the self-care portal. Note that the same credentials are used to login to Unified Communications clients (such as UC-One or Webex Teams). There are two options:
  - a. Select *Send Welcome Mail*: in that case an email will be sent to the user with a one time link to set their password.
  - b. Enter a password: this password will have to be communicated to the user in order for them to be able to login. The method to communicate this password to the end-user is out of scope of this document.

### 7.12.6.2 Bulk user creation

It is also possible to create users in bulk in the same group by filling in and uploading an Excel template. This is particularly interesting when having to do the initial setup of the tenant or group.

## 8 Licensing

An overview of the licenses assigned to your tenant, and linked to your BroadWorks application, can be found in the license menu on tenant level. The licenses should correspond to what you configured

on your BroadWorks application. The license page on the self-care portal can also be accessed through the dashboard, where you find a license widget as well.

On the license view there is a “Limit” indication, giving the maximum number of resources that are allowed to use, and there is the “in use” indication, showing how many of these resources are already in use.

When a certain license is depleted, this will be indicated with an orange warning sign. It’s then time to contact our sales team and upgrade your account.

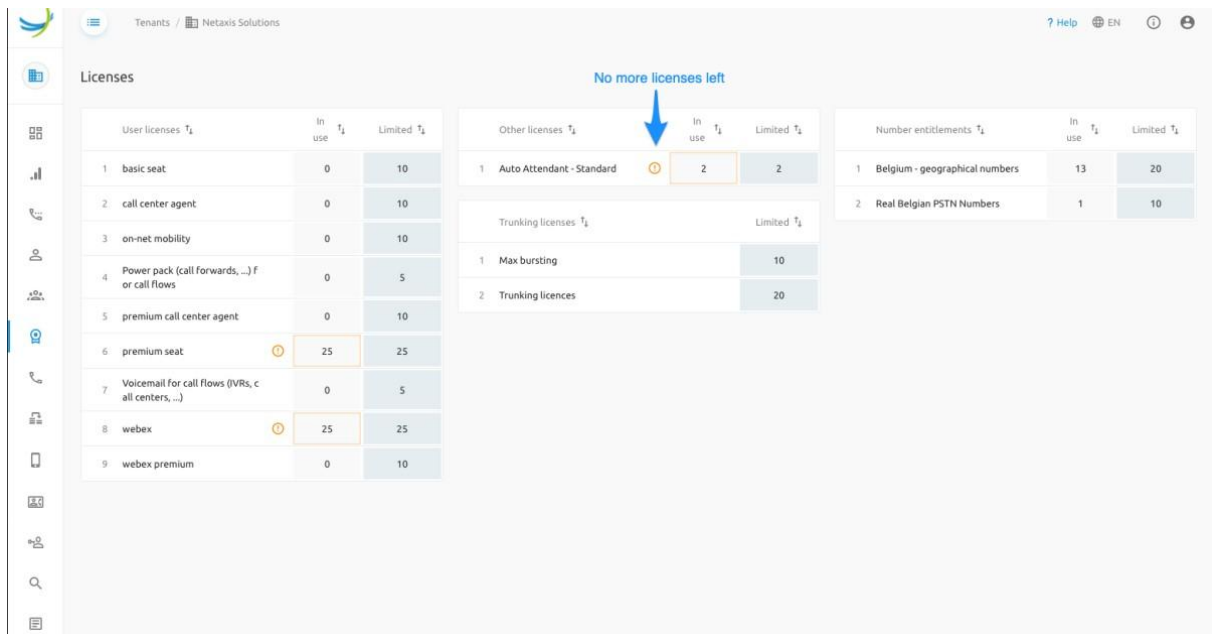
#### **Warning**

The “in use” counter does not indicate - unlike what it suggests - the number of licenses really assigned to users. Instead, it refers to the number of licenses allocated to groups. The portal allows to allocate more licenses to a group/site than the group/site strictly needs or uses. The group - or site administrator can use those ‘spare’ - not used - licenses to self-manage its group or site.

For example:

You might allocate 10 licenses to a group or site, but that group/site might only need 5 such licenses now. However, these 5 “spare licenses” are considered as **‘in use’** on tenant level.

This means that when licenses are shown as depleted in the overview, you still might have the possibility to create users. It is always possible to migrate licenses from one group/site to the other.



User licenses $T_1$			Other licenses $T_1$			Number entitlements $T_1$		
	In use $T_1$	Limited $T_1$		In use $T_1$	Limited $T_1$		In use $T_1$	Limited $T_1$
1 basic seat	0	10	1 Auto Attendant - Standard	2	2	1 Belgium - geographical numbers	13	20
2 call center agent	0	10	Trunking licenses $T_1$			2 Real Belgian PSTN Numbers	1	10
3 on-net mobility	0	10	1 Max bursting		10			
4 Power pack (call forwards, ...) F or call flows	0	5	2 Trunking licences		20			
5 premium call center agent	0	10						
6 premium seat	25	25						
7 Voicemail for call flows (VFRs, c all centers, ...)	0	5						
8 webex	25	25						
9 webex premium	0	10						

**Figure 52:** Licenses

## 8.1 End-user licenses

**End-user licenses** on the BroadWorks solution are sold per hosted seat and will be assigned to end-users.

- Some licenses are base licenses. Users will need such a license to use the phone system.
- Other licenses are optional. They will unlock additional capabilities like call center functionality or UC capabilities. Users don't need them to use the phone system.

End-user licenses assigned to a tenant are listed in the "User license" card. The following licenses are available:

Base licenses:

- Basic seat
- Premium seat

Optional licenses:

- On-net mobility
- Call center agent
- Premium call center agent
- Webex

- Webex premium

The specific features per seat is dependent on the release of the Cisco BroadWorks application and can be made available upon request or checked on the Cisco webpage.

## 8.2 Call flow license

As stated before, call flows are virtual PBX services to which you can assign a phone number and/or extension. When called, they will trigger some special behaviour on the PBX like a voice menu or a hunt group.

On our Fusion for BroadWorks solution, you can create as many queues, call centers and hunt groups as you require.

### Warning

“Auto attendants” (also known as IVR) are however not free of charge. You will need a BroadWorks license to set up a voice menu.

There are 2 types of Auto Attendant being offered, basic and standard. The differences are listed below.

Feature	AA - Basic	AA - standard
Max amount of menu levels	1	Unlimited
Default menu	Yes	Yes
After hours menu	Yes	Yes
Holiday menu	No	Yes

Auto Attendant licenses assigned to your tenant are listed in the “Other licenses” card.

### 8.2.1 Call flow add-on licenses

Call flows can be considered as virtual users on the platform. As such it is possible to assign certain value-added services to them, as you would assign to regular users.

They are bundled in two add-on licenses:

- Power pack for call flows



- Call forwarding always/busy/no reply
  - \* Selective forwarding (based on calling number and/or time schedule)
  - \* Pre-alerting announcement
  - \* Mail notification upon incoming call
  - \* Call blocking (blacklist/whitelist)
- Ability to assign 10 additional numbers to the virtual user
- Voicemail for call flows
  - Dedicated mailbox
  - Call forwarding to voicemail

### **8.3 Trunking licenses**

When you sign up for the SIP Trunking service of the Fusion for BroadWorks solution, you are granted a certain number of “Trunking licenses”.

1 trunk license gives you the right to make 1 trunk call. So, with 10 trunk licenses, your organisation can make up to 10 simultaneous “trunking calls”. As such, a trunking license can be considered as a channel.

Unlike the licenses for end-users, call flows etc. these license limits are not enforced at provisioning time but checked in real-time.

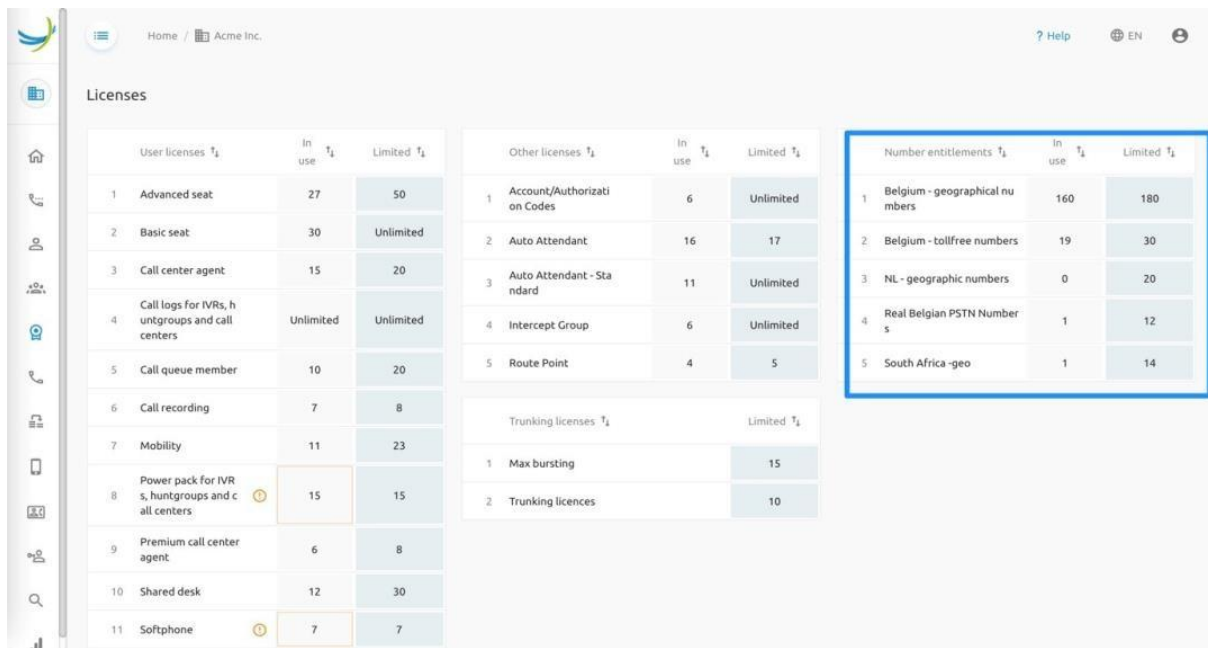
For example, when you have 10 basic seat licenses, you will not be able to create user 11 with such a license. On the other hand, if you have 10 trunking licenses, you will be able to set up 100 trunks with a capacity of 10 or lower. The trunking license is related to the number of simultaneous calls, so in our example the organization will not be able to set up more than 10 simultaneous trunking calls. Even if they have created 100 trunks.

To get some flexibility in these simultaneous calls, BroadWorks offers the possibility to add “bursting licenses”. When you have these assigned to your account, you can use them as spare capacity on your trunks. Bursts will be recorded and are only meant to cover sudden peaks in traffic.

### **8.4 Number entitlements**

Number entitlements can be considered as licenses for phone numbers. They give you the right to use a certain amount of numbers (the value of the license in this case) from the inventory of phone numbers. You can select numbers as long as you have entitlements. If you need more numbers, please contact the Netaxis help desk.

Number entitlements are visible in the *Licenses* menu. When you hover over the entitlement, a tooltip will appear that gives more information about the entitlement. An entitlement is linked to a country and number type. In case of geographic numbers, further restrictions might have been imposed (like geographical region).



User licenses			Other licenses			Number entitlements		
	In use	Limited		In use	Limited		In use	Limited
1 Advanced seat	27	50	1 Account/Authorization Codes	6	Unlimited	1 Belgium - geographical numbers	160	180
2 Basic seat	30	Unlimited	2 Auto Attendant	16	17	2 Belgium - tollfree numbers	19	30
3 Call center agent	15	20	3 Auto Attendant - Standard	11	Unlimited	3 NL - geographic numbers	0	20
4 Call logs for IVRs, huntgroups and call centers	Unlimited	Unlimited	4 Intercept Group	6	Unlimited	4 Real Belgian PSTN Numbers	1	12
5 Call queue member	10	20	5 Route Point	4	5	5 South Africa -geo	1	14
6 Call recording	7	8	Trunking licenses					
7 Mobility	11	23	1 Max bursting		15			
8 Power pack for IVRs, huntgroups and call centers	15	15	2 Trunking licenses		10			
9 Premium call center agent	6	8						
10 Shared desk	12	30						
11 Softphone	7	7						

**Figure 53:** Phone number entitlements

### License overview including entitlements

In the example above, the customer is still able to select 20 geographical numbers from Belgium geographic number ranges.

## 9 Release Management

This chapter describes the release management as part of the service transition process of the Fusion for BroadWorks solution. The primary objectives of the service transition process are to: - plan and manage the changes in service efficiently and effectively. - Manage the risks related to newly introduced, modified, or discontinued services. - Deploy the service releases into environments that support them adequately.

## 9.1 Release levels

On the F4B solution, three release levels are distinguished:

- A bugfix release made available (approximately) each month (end of the month) containing fixes for issues reported by customers as well as our internal QA team.
- A minor release every 3 months, bringing new features to the portal.
- A major release which comes out with an important new feature, or specific reason, or... (goal is to have this each 2 years).

It is not required for a customer to follow the Netaxis release cycle strictly. Nevertheless, it is important to keep in mind the support policy of the Fusion for BroadWorks solution (see below) and the fact that the 3 main areas, Portal/Core/Gateway, are aligned with each other. The activation of some features can require an upgrade or update of the complete Fusion for BroadWorks solution or parts of it.

## 10 Fusion for BroadWorks Software Support Policy

The F4B software support policy describes the technical support that will be provided to customers under the warranty period and during any paid maintenance support agreement.

For the F4B solution, the software support policy (SwSP) is defined as described below:

- Standard support is provided for release N and N-1 (where N is a major release version of the F4B solution).
- Release N-2 remains supported until 6 months after a new major release is issued.

To provide the best possible experience, it is advised to consider regular upgrades of the complete APIO solution.

### 10.1 Software upgrades and updates

Software updates are included in an active support agreement and aim to provide bug fixes to the solution.

Software upgrades are slightly different depending which pricing model has chosen.

#### 10.1.1 Capex Pricing model

Through an active support agreement, the customer is entitled for new software versions of the Fusion for BroadWorks solution.

On the other hand, when a customer wants to install a new software version, an offer and a project will be created at Netaxis for the Professional Services (PS) to implement this new software version in the customers' environment.

#### **10.1.2 OPEX pricing model**

An OPEX pricing model, price per user per month, automatically includes an active support agreement. The same rules are applied as for the CAPEX pricing model. The implementation project for the upgrade

#### **10.1.3 Cloud model (as a Service model)**

Our Cloud model, as a Service model, automatically includes an active support agreement and the implementation project for the upgrade of the software. Netaxis will inform the customer about the release of a new software version and its new features and will discuss with the customer what will be the most appropriate time to install or to upgrade the existing solution.