

PSI Graphical Interface Definitions



PSI-GID

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1 Document Meta Information

1.1 Document Signature Table

	Name	Function	Company
Author	Bela Lars Müller	PSI Project Team	CGI
Author	Hendrik Oppenberg	Technical Officer	CGI
Author	Christine Gläßer	Liasion Manager	CGI
Approval	Victoria McCarthy	Project Manager	SES
Approval	Wolfgang Robben	Project Manager	CGI
Checked	Pepijn Witte	Quality Assurance Manager	CGI

Table 1.1: Signature Table.

1.1.1 Document Change Record

1.1.1.1 Changes

Date	Version	author	message
2024-01-25	MS7	Bela Lars Müller	Initial version
2024-09-11	MS8 [1.2.0]	Hendrik Oppenberg	Public release adjustments.
2024-12-12	MS9 [1.2.1]	Bela Mueller	Updates to mission definition and mission templating.
2025-02-03	MS10 [1.2.2]	Bela Mueller	Added sub-level mission planning.
2025-04-23	MS11 [1.3.0]	Bela Mueller	ODA mission planning component added.

Table 1.2: DCR Table.

1.1.1.2 Source Control

Changes to this document are tracked electronically. No signature is required by the authors. The following information can prove the integrity of the document and reveal any change.

Repo	Date	Author	Branch	Hash

Table 1.3: GIT Changelog Table.



Figure 1.1: DCR QR-Code.

1.2 Documents

1.2.1 Reference Documents

Acronym	Reference	Title	Version
PSI-DL	PSI-DL	PSI CGI Document List	current MS (doc version)
PSI-TAD	PSI-TAD	PSI Terms, Abbreviations and Definitions	see before

Table 1.4: Reference Documents.

2 Introduction

The Pooling & Sharing Interfaces Definitions (PSID) project is an ESA co-funded effort to define a common standard for the interfaces of Pooling & Sharing Systems (PSS) for Satellite Communication (SatCom) services. A PSS is a digital platform for matchmaking (Gov)SatCom users' demands (both commercial and institutional) with (Gov)SatCom providers' offers. Bringing together multiple (Gov)SatCom providers in one platform makes the market transparent, thus allowing users to get an overview of the market and to compare different offers efficiently. Additionally, a PSS assists users with little knowledge about the (Gov)SatCom domain defining their requirements on the (Gov)SatCom services. Those two aspects combined allow for fast access to the services and an efficient usage of the available capacities. To accomplish this, a PSS steps in between the usual processes of finding a provider/supplier, requesting an offer, and ordering the desired products or services, either as a service broker or by pooling products and services from different providers and offering them as an intermediary or distributor. Subsequently, the PSS can be used to monitor the services and manage multiple missions in a single application.

Eventually, a PSS can also be used as (or manage) a community hub, i.e., a number of end users or customers with similar interest that *share* their common resources and utilize a commonly obtained *pool* of (Gov)SatCom capacities. This strategy increases the efficient usage of scarce resources further.

There are already different approaches on PSSs, that might lead to an unnecessary fragmentation of the market. Therefore, a common standard for the interfaces of a PSS is required to allow the interaction between those different PSSs and reduce the effort of (Gov)SatCom providers to offer their product and services via multiple PSSs to maximize their reach.

Such a standard needs to take care of the different interfaces involved in the aforementioned processes, i.e.,

The goal of this project is to mainly define aspect 1 and to develop a software mock-up as needed to validate the various interfaces being developed.

The PSI standard derives from the existing industry-standard “Open Digital Framework” of **TM Forum** alliance¹. The “Open Digital Framework” is a reference framework for delivering online Information, Communications and Entertainment services to the telecom world. It empowers market participants to compete and cooperate. One of PSI’s goals is to make this existing standard fit for the world of satellite communication.

The consortium for this project consists of the service & technology providers SES Techcom and CGI, as well as of the (Gov)SatCom operators SES, Hellas Sat, Hispasat, Hisdesat, and LuxGovSat, and Inmarsat being both a service & technology provider and a (Gov)SatCom operator.

¹See <https://www.tmforum.org/resources/reference/gb991-tm-forums-core-concepts-and-principles-v22-0-0/>

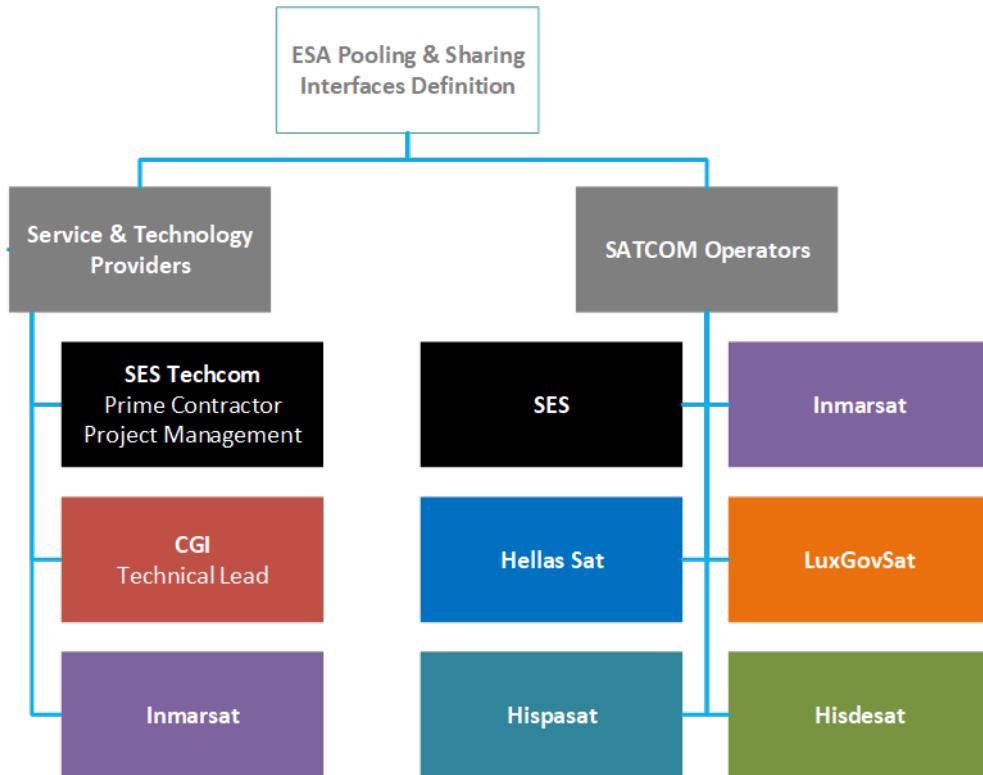


Figure 2.1: The PSI consortium.

2.1 Document Scope

This document contains the description the Graphical Interface of the Pooling & Sharing (PSI), how data **could** be presented and interaction between user and system **could** be implemented in a web frontend. The document is not aiming to be a strict set of requirements for the frontend, but a guide to get a better understanding of the processes that can be implemented with the APIs. Thus, the GID is to be understood as a guideline or inspiration for a frontend developer and as a supplement to understand the processes for a backend designer. Many more roles can take benefit from this kind of presentation, thus, this list of people who may benefit from this visual display of the processes goes on.

The following sections heavily refer to terms, abbreviations and definitions defined in the [PSI-TAD].

2.1.1 Compiled Document

NOTE: THIS IS A COMPILED DOCUMENT²

This document has been compiled/generated from external sources and is not being written as-is. Therefore, any changes made within this compiled version of the document will be lost upon recompilation!

To make (permanent) changes, edit the respective sources directly or contact the PSID team.

²Document compiled on 2025-04-23 12:38.

2.1.2 Signature

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2.1.3 Development State

Current document version is 1.3.0.

2.1.4 Release Notes

[[TOC]]

2.1.5 PSI Release Notes

2.1.5.1 Introduction

Welcome to the latest release of the Pooling and Sharing Interface (PSI) API!

This document outlines the new features, improvements, and important updates included in this version.

2.1.5.2 Key Highlights

The central focus of this release is the implementation of the **Mission Management ODA Blueprint**.

This component complements the mission-related APIs by providing a *reference implementation of graphical user interfaces* that help users specify their product and service requirements.

Designed with users in mind, this component uses templates to simplify mission creation and introduces a governance layer to facilitate and control the requirements collection process.

It's built as a standalone micro-frontend and can be easily integrated into existing OSS/BSS/PSS systems.

The interface includes multiple visualization modes:

Another major update in this release is the migration to **TM Forum APIs Version 5 (TMF5)**.

All APIs have been ported to the current TMF baseline.

However, TMF5 introduced some gaps in the Component Test Kit (CTK), resulting in partial test coverage for certain APIs. This limitation will be addressed once TM Forum updates the CTK.

Additionally, this release introduces **MEF-compatible APIs**, marking the beginning of convergence between MEF and TMF frameworks within PSI.

Our goal moving forward is to support both API standards in their respective areas.

2.1.5.3 What's New

2.1.5.3.1 Newly Added APIs

2.1.5.3.2 Updated APIs

2.1.5.3.3 Added Requirements

2.1.5.4 Known Limitations

2.1.5.5 Feedback and Contributions

We appreciate your input!

If you experience any issues or have suggestions, please don't hesitate to contact us.

We also encourage community contributions to help enhance PSI further.

3 Provider Journey

To interact with the system, the provider needs a graphical interface. The GUI provides a dashboard to get an initial overview and to get a quick-start for some action. Further views are catalog, inventory and customer interactions. The character of these views are described below.

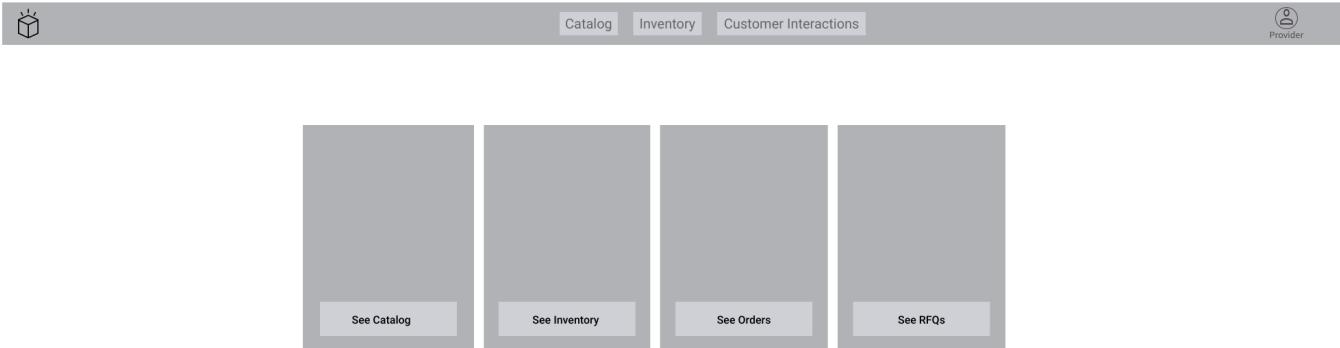


Figure 3.1: Provider Dashboard

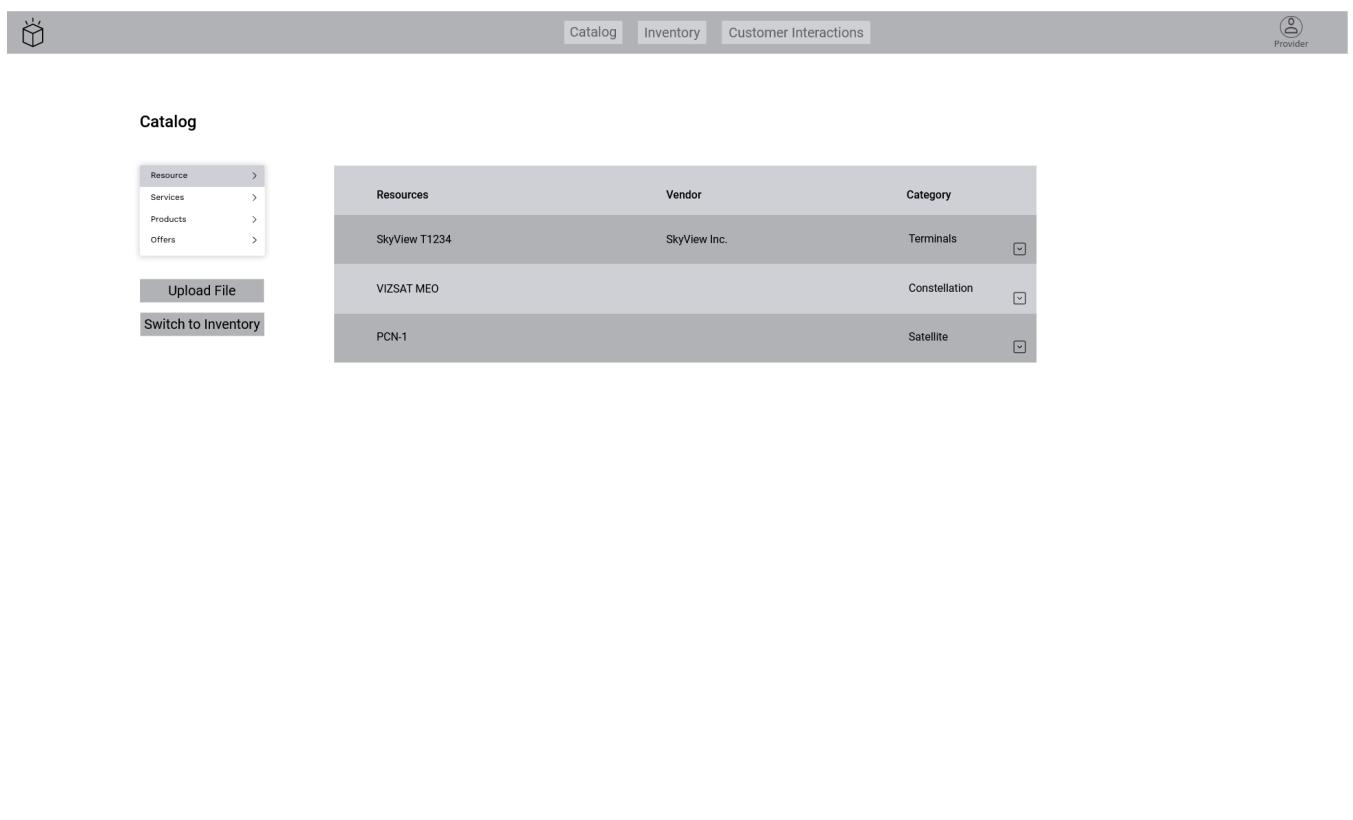
The dashboard is the entry-point for all possible views and actions. It can scale alongside the application and might potentially also show metrics and statistics about certain topics. For now, it foresees quick actions, for example to see incoming RFQs directly.

3.1 Catalogs

3.1.1 Resource Catalog

Actor	Consumed API(s)
Provider	PSID634 Resource Catalog

Table 3.1: Parameters of all Catalog Resources Views.



Resources	Vendor	Category
SkyView T1234	SkyView Inc.	Terminals <input checked="" type="checkbox"/>
VIZSAT MEO	Constellation	Constellation <input checked="" type="checkbox"/>
PCN-1	Satellite	Satellite <input checked="" type="checkbox"/>

Figure 3.2: Catalog: Resources

The catalog view provides the catalogs for resources, services, products and offerings. The different catalogs can be accessed by the side-navigation on the left. The buttons below provide a file upload for files in a specific format (e.g., JSON or another structured file format that can be mapped to the M2M interface) and a direct switch to the inventory view. The figure above shows the catalog example for resources.



Resource Specification							
Name:	SkyView T1234	Start TX Frequency	Value: 13.75 GHz	Start RX Frequency	Value: 10.7 GHz	TX Gain	Value: 43.5 GHz
Description:	This resource specification defines the SkyView T1234 as a Customer Terminal.	Value Type:	double	Value Type:	double	Value Type:	double
Category:	Terminals	End TX Frequency		End RX Frequency		RX Gain	
Frequency		Value:	14.5 GHz	Value:	12.75 GHz	Value:	42.0 GHz
Band:	KU	Value Type:	double	Value Type:	double	Value Type:	double

Figure 3.3: Catalog: Resources Details

When clicking on the row, the panel for details opens below the row and displays the resource specifications, as shown in the figure above. The details can be closed by clicking on the row a second time.

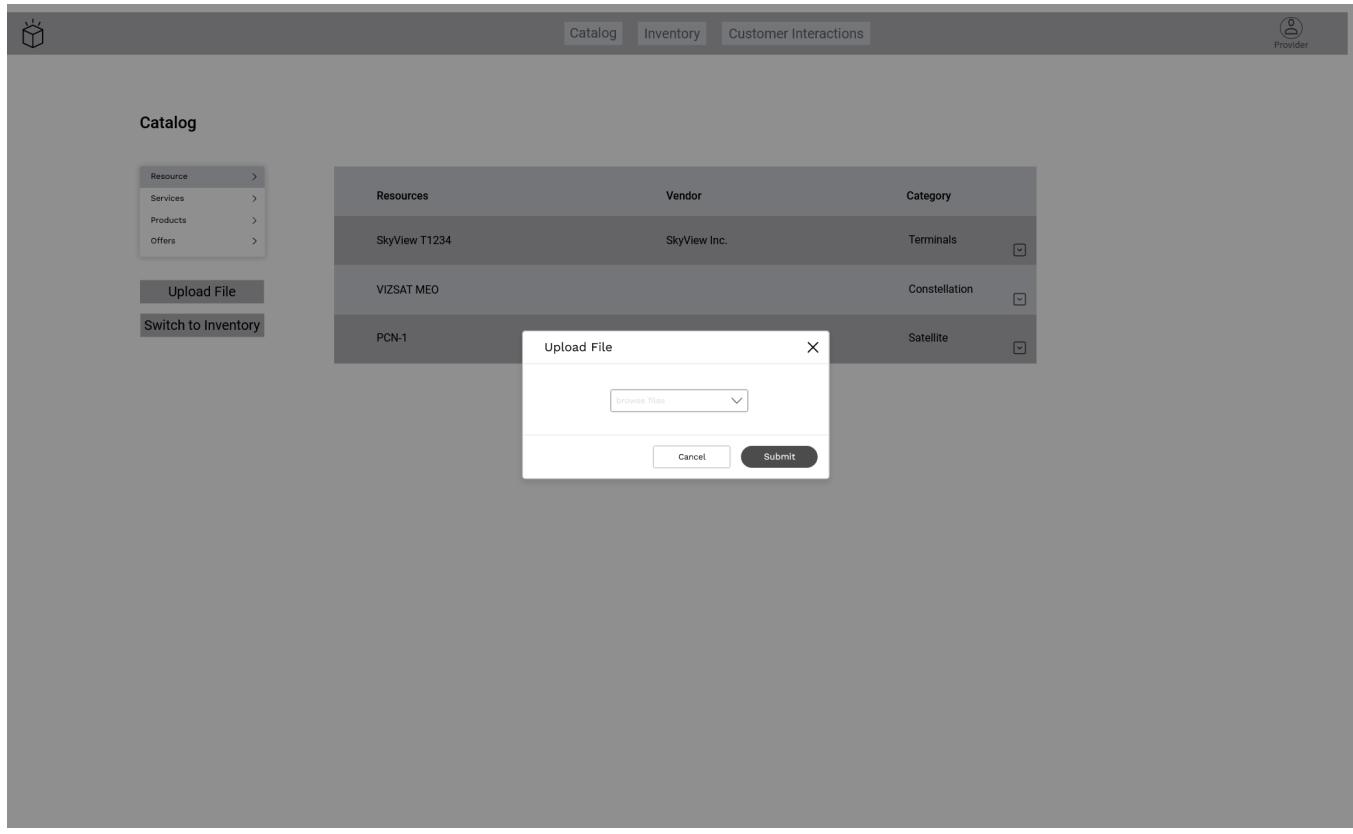


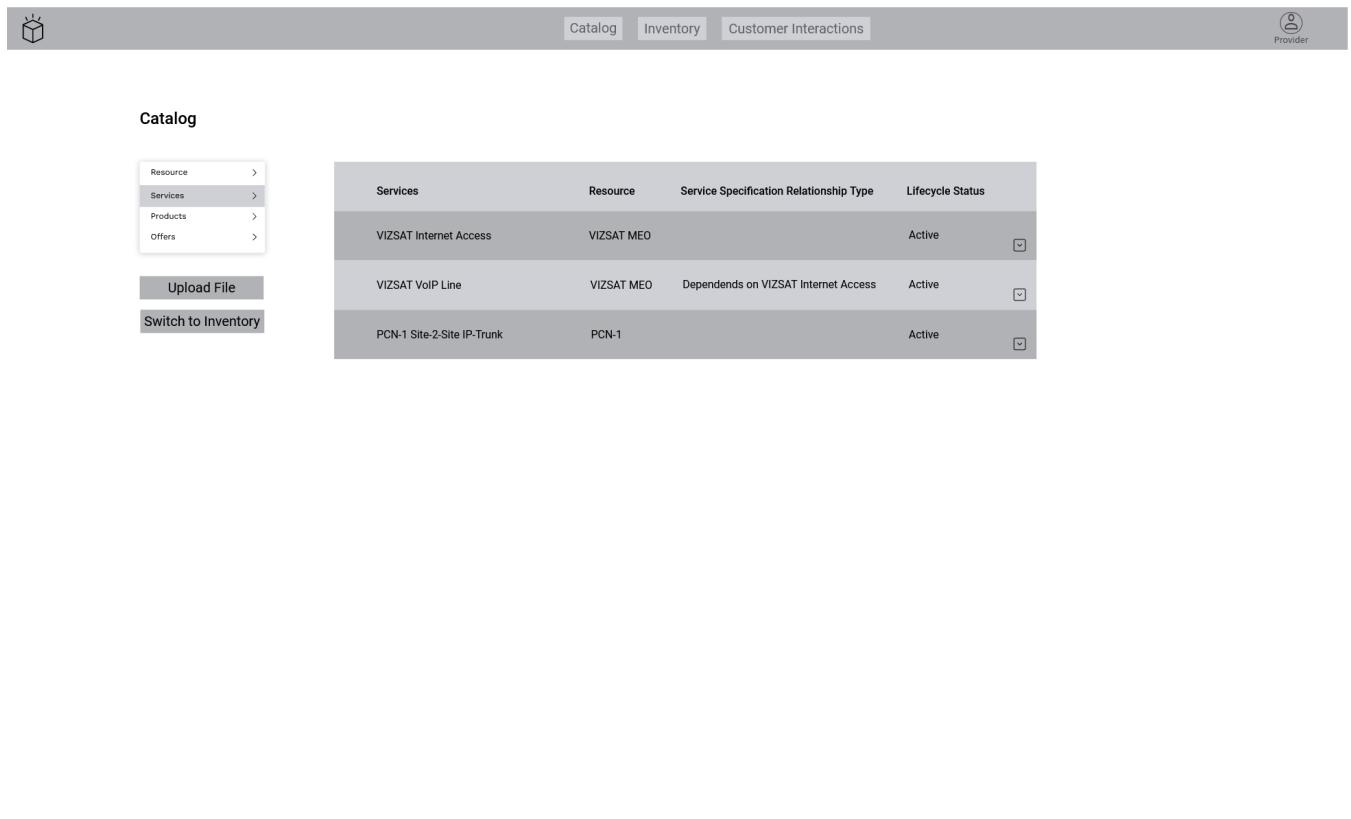
Figure 3.4: Catalog: File Upload

Though the catalog and the inventory data is provided by a database, which is maintained by the provider, it is foreseen to provide an option to upload files via the GUI as an alternative to the direct M2M interface. The image above shows the confirmation dialogue. This process is the same for all categories within catalog and inventory and their consumed APIs.

3.1.2 Service Catalog

Actor	Consumed API(s)
Provider	PSID633 Service Catalog

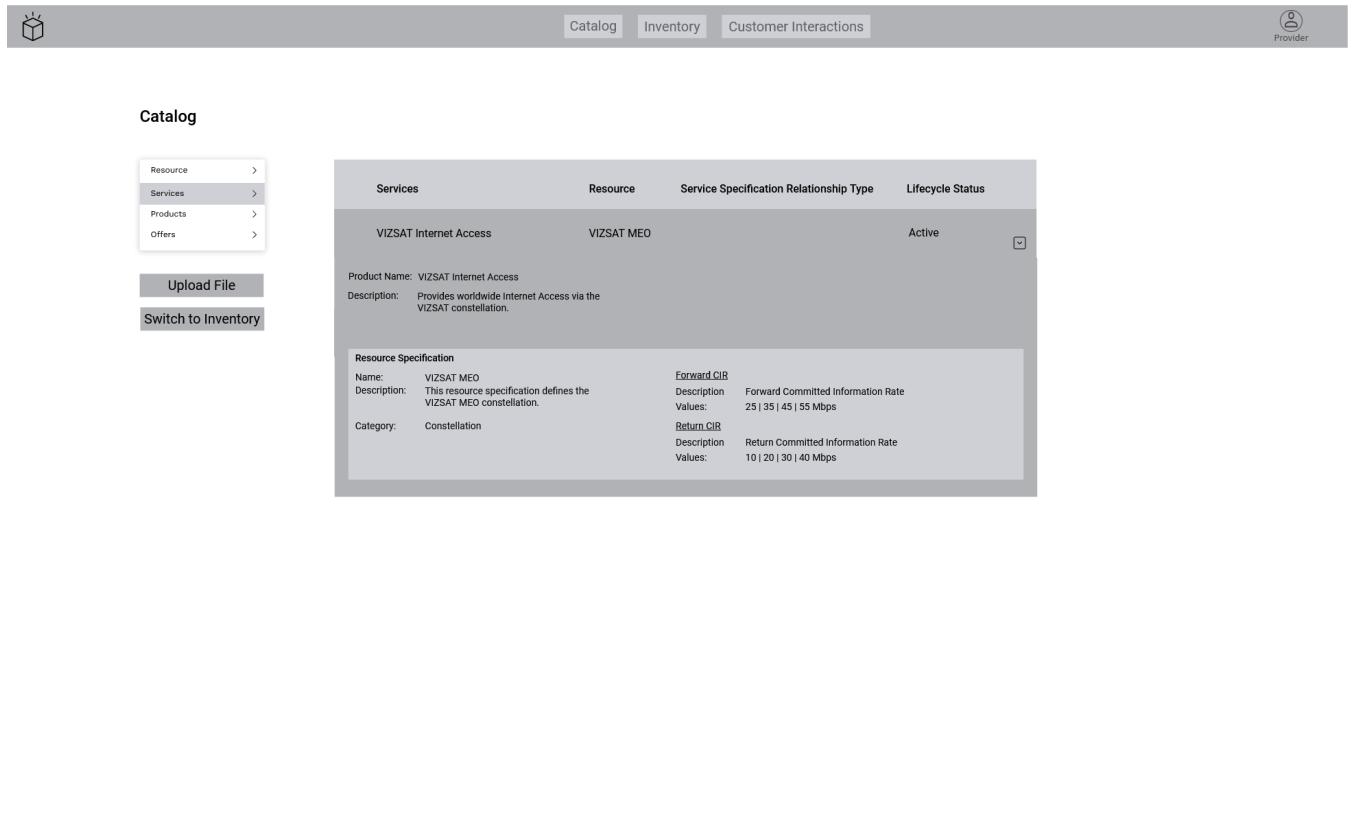
Table 3.2: Parameters of all Catalog Services Views.



Services	Resource	Service Specification Relationship Type	Lifecycle Status
VIZSAT Internet Access	VIZSAT MEO		Active
VIZSAT VoIP Line	VIZSAT MEO	Depends on VIZSAT Internet Access	Active
PCN-1 Site-2-Site IP-Trunk	PCN-1		Active

Figure 3.5: Catalog: Services

This view shows the list of all services that are part of the catalog.



The screenshot shows the PSI Graphical Interface Definitions interface. At the top, there is a navigation bar with tabs: Catalog, Inventory, and Customer Interactions. On the far right of the navigation bar is a user icon labeled "Provider". Below the navigation bar, there is a sidebar on the left with a tree view menu:

- Resource >
- Services** > (This item is selected, indicated by a grey background)
- Products >
- Offers >

Below the sidebar, there are two buttons: "Upload File" and "Switch to Inventory". The main content area displays a table with the following columns:

Services	Resource	Service Specification Relationship Type	Lifecycle Status
VIZSAT Internet Access	VIZSAT MEO		Active

Below the table, there is a detailed description of the service:

Product Name: VIZSAT Internet Access
Description: Provides worldwide Internet Access via the VIZSAT constellation.

Under the heading "Resource Specification", there are two sections:

- Name:** VIZSAT MEO
- Description:** This resource specification defines the VIZSAT MEO constellation.
- Category:** Constellation
- Forward CIR:** Forward Committed Information Rate
Description: Values: 25 | 35 | 45 | 55 Mbps
- Return CIR:** Return Committed Information Rate
Description: Values: 10 | 20 | 30 | 40 Mbps

Figure 3.6: Catalog: Services Details

Similar to the resource details, the details of a specific service can be opened or closed by clicking on the row, as shown in the image above.

3.1.3 Product Catalog

Actor	Consumed API(s)
Provider	PSID620 Product Catalog

Table 3.3: Parameters of all Catalog Products and Offerings Views.

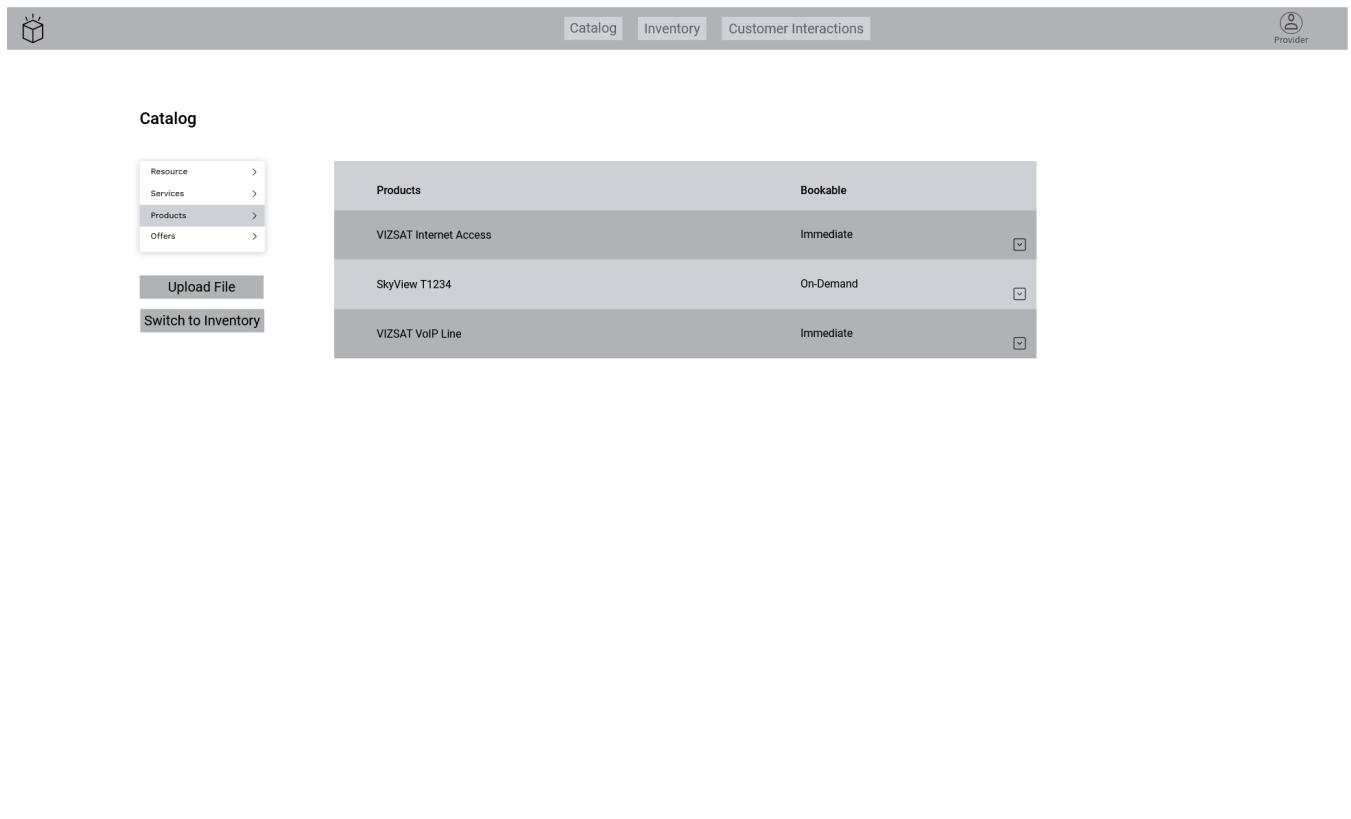
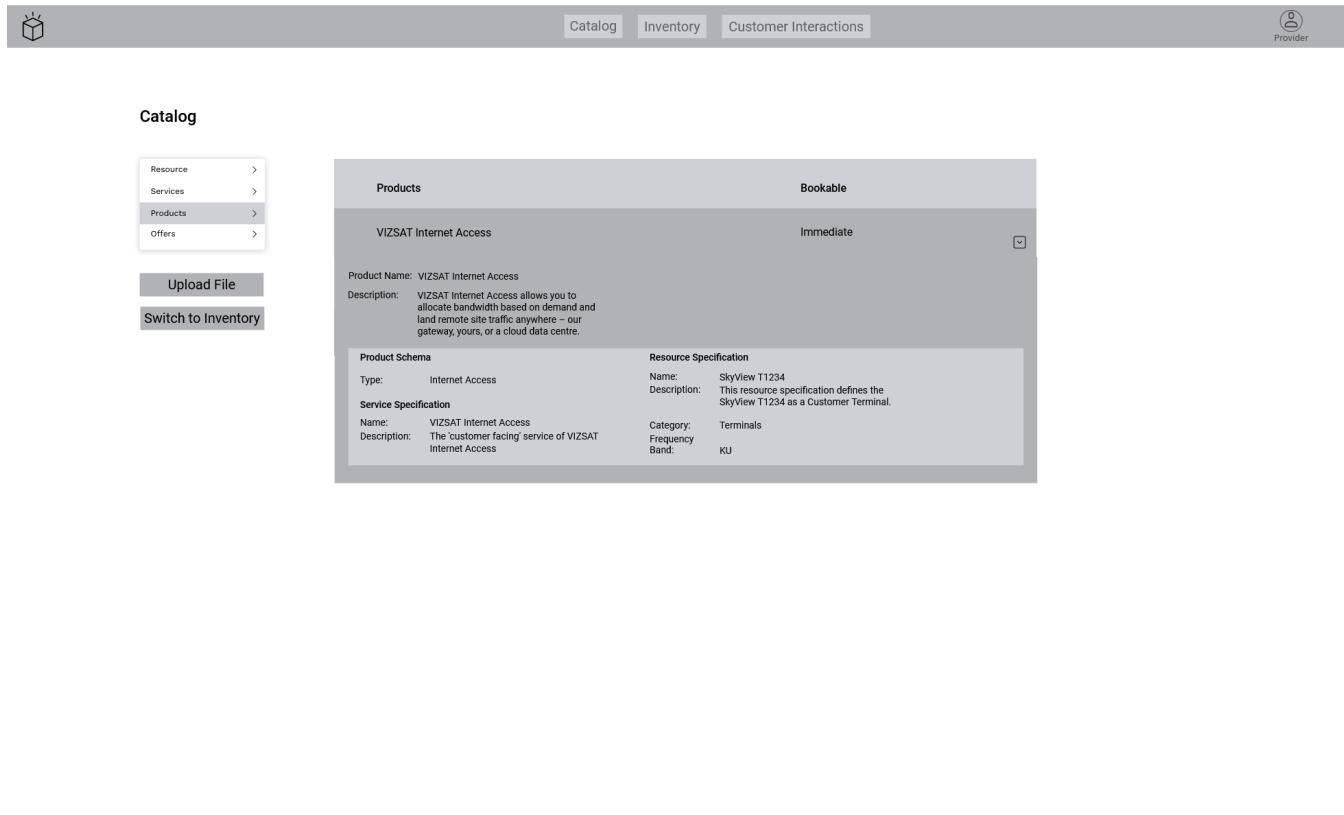


Figure 3.7: Catalog: Products

This view shows the list of all products that are part of the catalog.



Catalog

Products **Bookable**

VIZSAT Internet Access Immediate

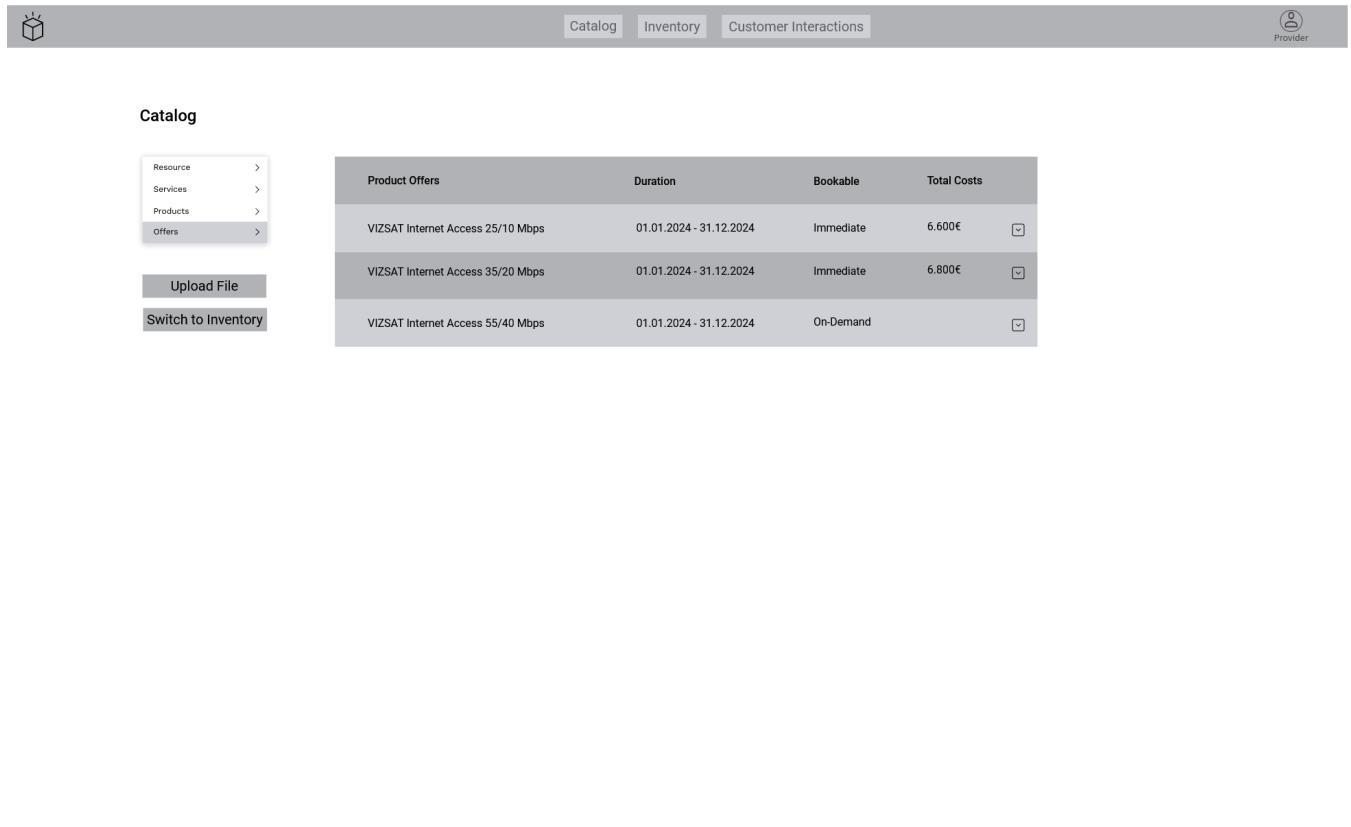
Product Name: VIZSAT Internet Access

Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and land remote site traffic anywhere – our gateway, yours, or a cloud data centre.

Product Schema	Resource Specification
Type: Internet Access	Name: SkyView T1234
Service Specification	
Name: VIZSAT Internet Access	Description: This resource specification defines the SkyView T1234 as a Customer Terminal.
Description: The customer facing service of VIZSAT Internet Access	Category: Terminals
	Frequency Band: KU

Figure 3.8: Catalog: Products Details

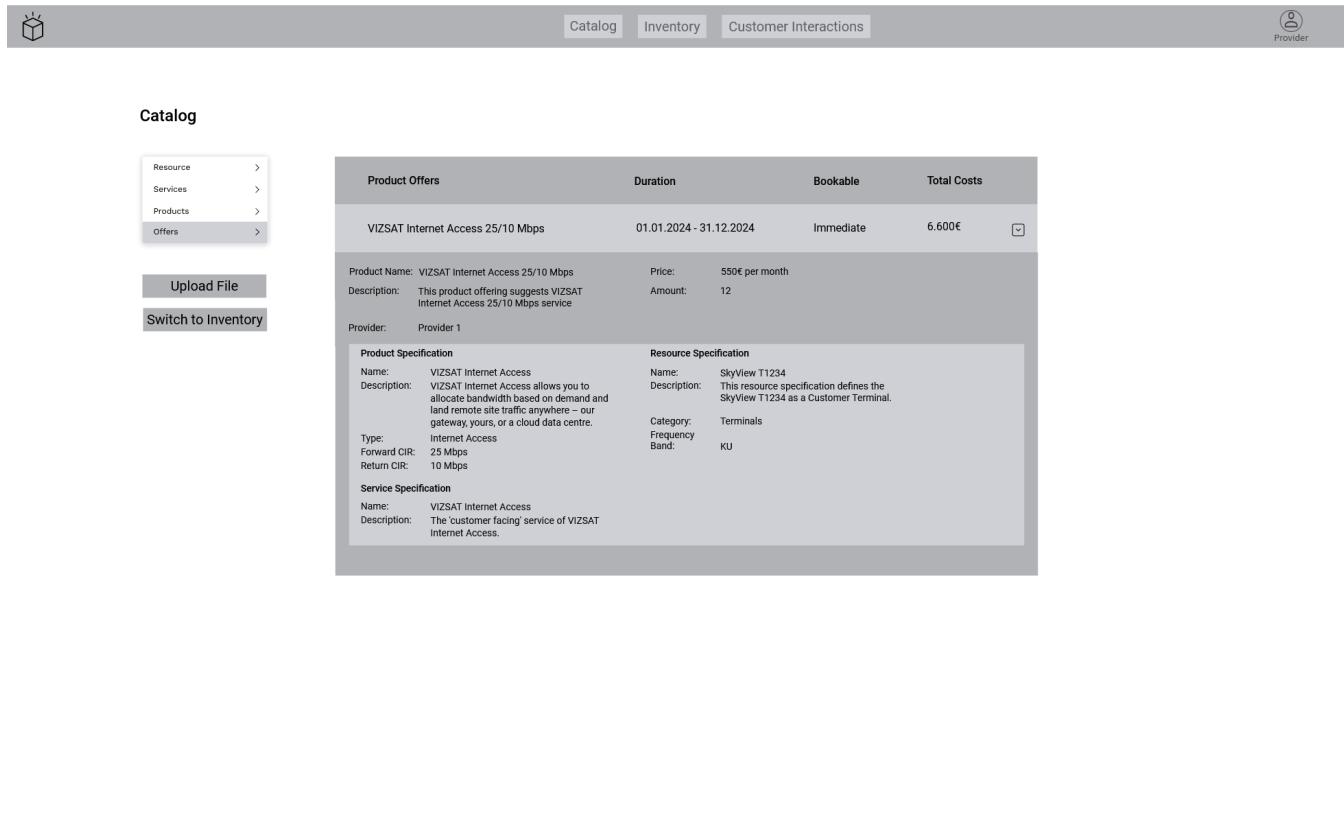
Similar to the resource and services details, the details of a specific product can be opened or closed by clicking on the row, as shown in the image above.



Product Offers	Duration	Bookable	Total Costs
VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Immediate	6.600€ <input type="checkbox"/>
VIZSAT Internet Access 35/20 Mbps	01.01.2024 - 31.12.2024	Immediate	6.800€ <input type="checkbox"/>
VIZSAT Internet Access 55/40 Mbps	01.01.2024 - 31.12.2024	On-Demand	<input type="checkbox"/>

Figure 3.9: Catalog: Offerings

This view shows the list of all offerings that are part of the catalog.



Product Offers	Duration	Bookable	Total Costs
VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Immediate	6.600€

Product Specification

Name: VIZSAT Internet Access
 Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and send remote site traffic anywhere – our gateway, yours, or a cloud data centre.
 Type: Internet Access
 Forward CIR: 25 Mbps
 Return CIR: 10 Mbps

Resource Specification

Name: SkyView T1234
 Description: This resource specification defines the SkyView T1234 as a Customer Terminal.
 Category: Terminals
 Frequency: KU

Service Specification

Name: VIZSAT Internet Access
 Description: The customer-facing service of VIZSAT Internet Access.

Figure 3.10: Catalog: Offerings Details

Additionally, the details of a specific offering can be opened or closed by clicking on the row, as shown in the image above.

3.2 Inventories

3.2.1 Resource Inventory

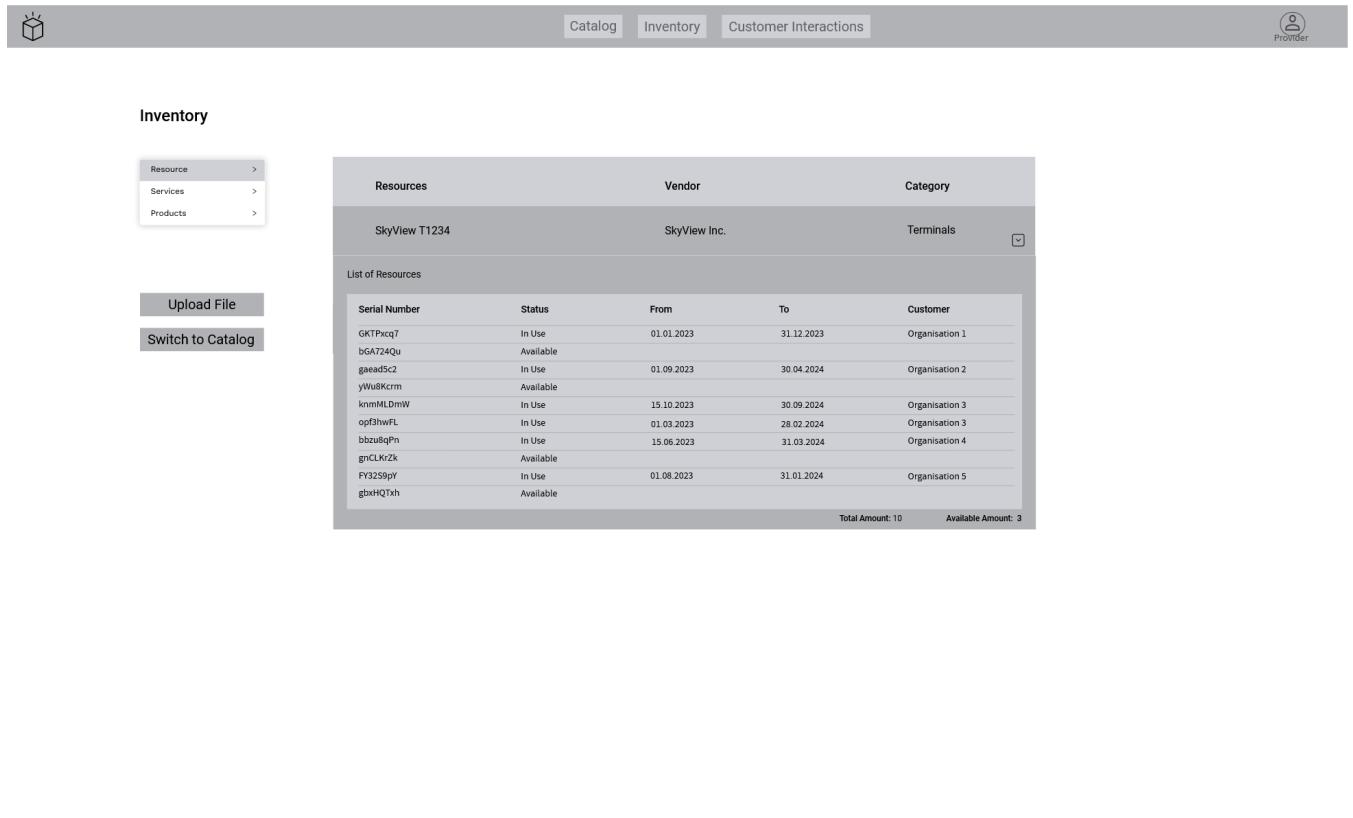
Actor	Consumed API(s)
Provider	PSID639 Resource Inventory

Table 3.4: Parameters of all Inventory Products and Offerings Views.

Resources	Vendor	Category
SkyView T1234	SkyView Inc.	Terminals
VIZSAT MEO	VIZSAT	Constellation
PCN-1	PCN	Satellite

Figure 3.11: Inventory: Resources

The inventory view provides the inventory for resources, services, products, and offerings. The different categories can be accessed by the side-navigation on the left. The buttons below provide a file upload similar to the catalogs and a direct switch to the catalog view. The figure above shows the inventory example for resources.



Serial Number	Status	From	To	Customer
GKTPccq7	In Use	01.01.2023	31.12.2023	Organisation 1
bGA724Qu	Available			
gaaed5c2	In Use	01.09.2023	30.04.2024	Organisation 2
yWu8Kcrm	Available			
knmMLDmW	In Use	15.10.2023	30.09.2024	Organisation 3
opf3hwFL	In Use	01.03.2023	28.02.2024	Organisation 3
bzueqPn	In Use	15.06.2023	31.03.2024	Organisation 4
gnCLKrZk	Available			
FY3259pY	In Use	01.08.2023	31.01.2024	Organisation 5
gbxHQTxh	Available			

Total Amount: 10 Available Amount: 3

Figure 3.12: Inventory: Resources Details

When clicking on the row, the panel for details will open below the row and shows the list of resources, that are owned by the provider, as shown in the figure above. The details can be closed by clicking on the row a second time.

3.2.2 Service Inventory

Actor	Consumed API(s)
Provider	PSID638 Service Inventory

Table 3.5: Parameters of all Inventory Services Views.

The screenshot shows the 'Inventory' view of the PSI-GID graphical interface. At the top, there is a navigation bar with tabs for 'Catalog', 'Inventory', and 'Customer Interactions'. On the far right of the header, there is a user icon labeled 'Provider'. Below the header, the word 'Inventory' is displayed in bold. To the left, there is a sidebar with a tree structure under the 'Resource' heading, with 'Services' selected. Below the sidebar, there are two buttons: 'Upload File' and 'Switch to Catalog'. The main content area displays a table with three columns: 'Services', 'Resource', and 'Lifecycle Status'. The table contains three rows of data:

Services	Resource	Lifecycle Status
VIZSAT Internet Access	VIZSAT MEO	Active
VIZSAT VoIP Line	VIZSAT MEO	Active
PCN-1 Site-2-Site IP-Trunk	PCN-1	Active

Figure 3.13: Inventory: Services

This view shows the list of all services that are part of the inventory. Note that only services being part of booked products can be part of the inventory.



Services	Resource	Lifecycle Status
VIZSAT Internet Access	VIZSAT MEO	Active

Customer	Mission	From	To
Organisation 1	New Mission XYZ	01.01.2023	31.12.2023
Organisation 2	New Mission 123	01.09.2023	30.04.2024
Organisation 3	New Mission 456	15.10.2023	30.09.2024
Organisation 3	New Mission 789	01.03.2023	28.02.2024

Total Amount: 4

Figure 3.14: Inventory: Service Details

Similar to the resource details, the details of a specific service can be opened or closed by clicking on the row, as shown in the image above. It shows a list of organisations that are using the specific service on their mission(s).

3.2.3 Product Inventory

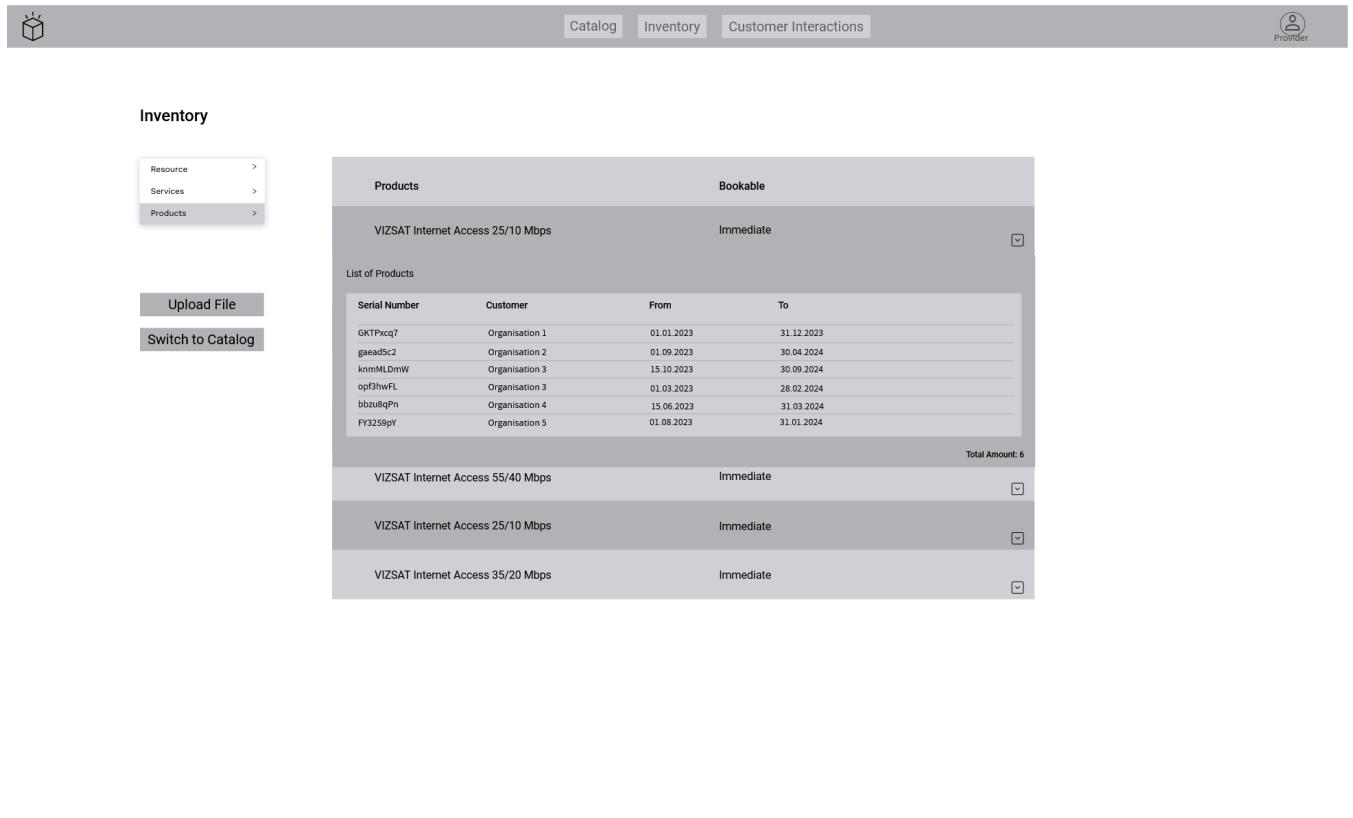
Actor	Consumed API(s)
Provider	PSID637 Product Inventory

Table 3.6: Parameters of all Inventory Products and Offerings Views.

Products	Bookable
VIZSAT Internet Access 25/10 Mbps	Immediate
VIZSAT Internet Access 35/20 Mbps	On-Demand
VIZSAT Internet Access 55/40 Mbps	On-Demand
VIZSAT Internet Access 25/10 Mbps	Immediate
VIZSAT Internet Access 35/20 Mbps	Immediate
VIZSAT Internet Access 55/40 Mbps	Immediate
VIZSAT Internet Access 25/10 Mbps	Immediate
VIZSAT Internet Access 35/20 Mbps	Immediate

Figure 3.15: Inventory: Products

This view shows the list of all products that are part of the inventory. As with services, products can only be part of the inventory if they have been booked.



Serial Number	Customer	From	To
GKTPccq7	Organisation 1	01.01.2023	31.12.2023
gaaed5c2	Organisation 2	01.09.2023	30.04.2024
kmnMLDmW	Organisation 3	15.10.2023	30.09.2024
opf3hwFL	Organisation 3	01.03.2023	28.02.2024
bbzu8qPn	Organisation 4	15.06.2023	31.03.2024
FY32S9rY	Organisation 5	01.08.2023	31.01.2024

Figure 3.16: Inventory: Product Details

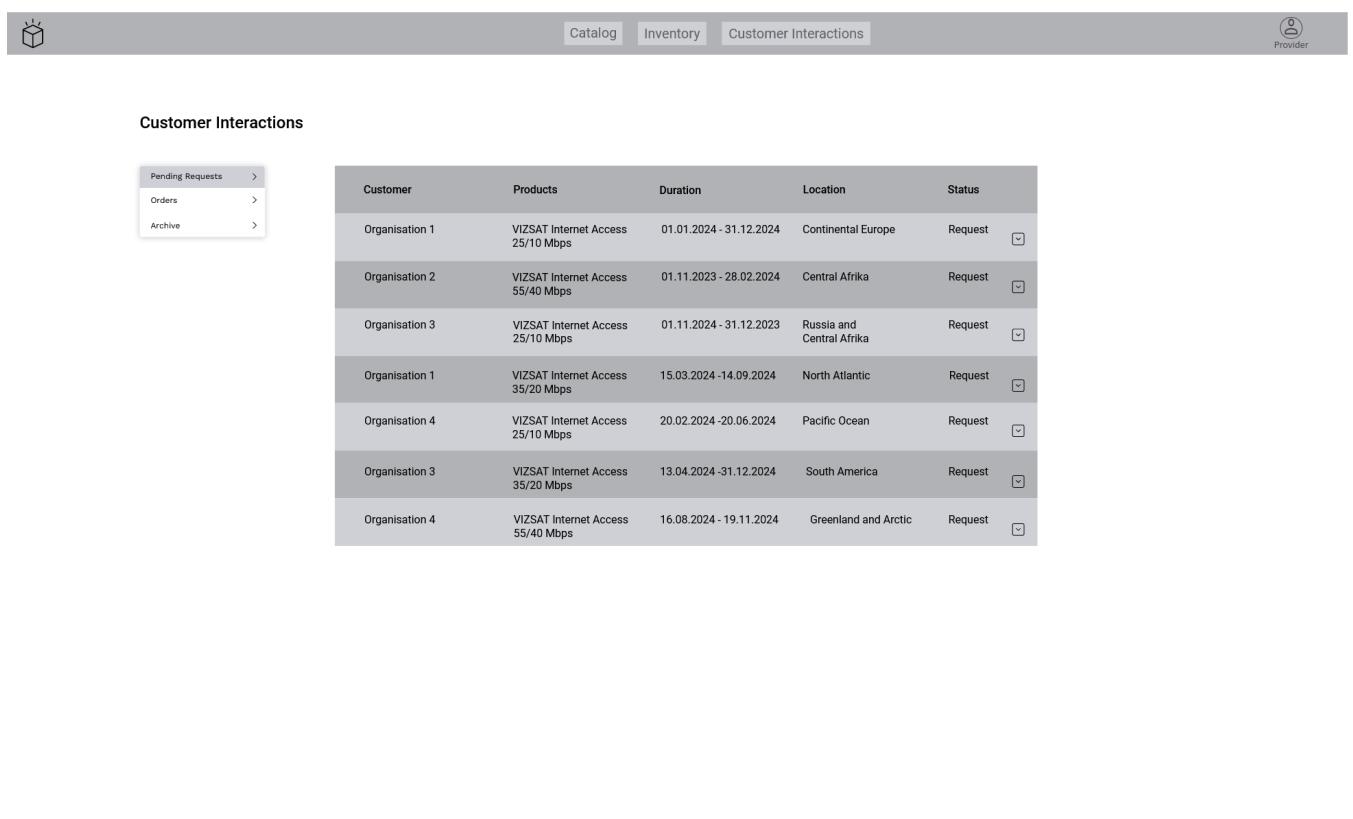
The opened detail panel shows the amount of booked products, the duration, and the booking organisation.

3.3 Customer Interactions

3.3.1 Incoming Customer Inquiries

Actor	Consumed API(s)
Provider	PSID001 Customer Inquiry

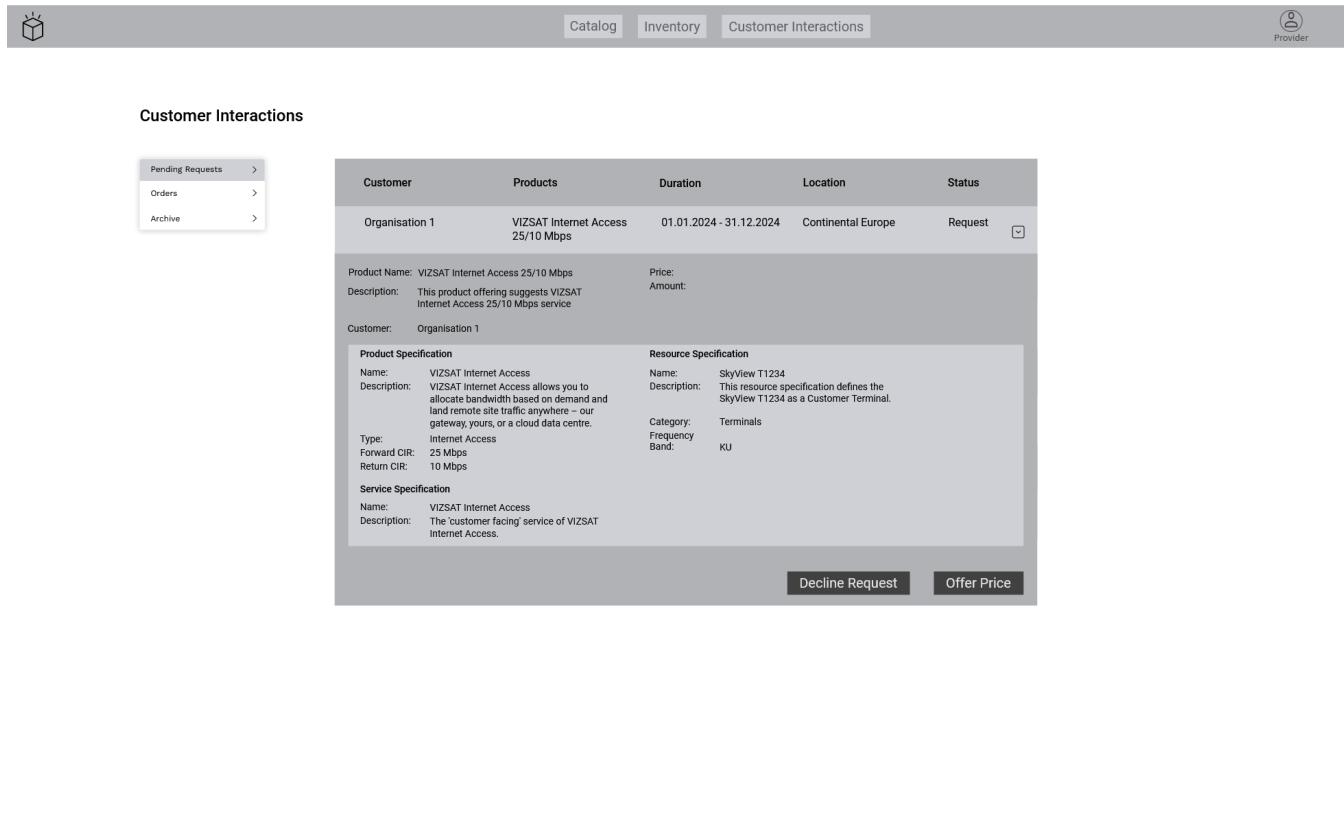
Table 3.7: Parameters of all RFQ Views.



Customer	Products	Duration	Location	Status
Organisation 1	VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Continental Europe	Request
Organisation 2	VIZSAT Internet Access 55/40 Mbps	01.11.2023 - 28.02.2024	Central Afrika	Request
Organisation 3	VIZSAT Internet Access 25/10 Mbps	01.11.2024 - 31.12.2023	Russia and Central Afrika	Request
Organisation 1	VIZSAT Internet Access 35/20 Mbps	15.03.2024 - 14.09.2024	North Atlantic	Request
Organisation 4	VIZSAT Internet Access 25/10 Mbps	20.02.2024 - 20.06.2024	Pacific Ocean	Request
Organisation 3	VIZSAT Internet Access 35/20 Mbps	13.04.2024 - 31.12.2024	South America	Request
Organisation 4	VIZSAT Internet Access 55/40 Mbps	16.08.2024 - 19.11.2024	Greenland and Arctic	Request

Figure 3.17: Customer Interactions: Pending Requests

The customer interactions view provides the pending requests, the orders, and the archive. If required, an archive function can be added here. This might change in the future. The different categories can be accessed by the side-navigation on the left. The figure above shows the example for pending requests. This is indicated by the 'Status' column, where all entries are marked as 'Request'.



Customer Interactions

Pending Requests >	Customer	Products	Duration	Location	Status
Orders >	Organisation 1	VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Continental Europe	Request <input type="button" value="Close"/>
Archive >	Product Name: VIZSAT Internet Access 25/10 Mbps Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service. Customer: Organisation 1				
Product Specification Name: VIZSAT Internet Access Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and send remote site traffic anywhere - our gateway, yours, or a cloud data centre. Type: Internet Access Forward CIR: 25 Mbps Return CIR: 10 Mbps			Resource Specification Name: SkyView T1234 Description: This resource specification defines the SkyView T1234 as a Customer Terminal. Category: Terminals Frequency: KU		
Service Specification Name: VIZSAT Internet Access Description: The customer facing service of VIZSAT Internet Access.					

Figure 3.18: Customer Interactions: Pending Requests Details

When clicking on the row, the panel for details will open below the row and show the details of the request, shown in the figure above. The two options to proceed with the request are represented by the buttons at the bottom right. In case no offering can be made, for example because one or more resources are not available, the 'Decline Request' button can be clicked. The customer should get a notification about the denial. In case the provider wants to make an offering, they click the 'Offering Price' button. This leads to a dialogue that is described in the next figure. The details can be closed by clicking on the row a second time.

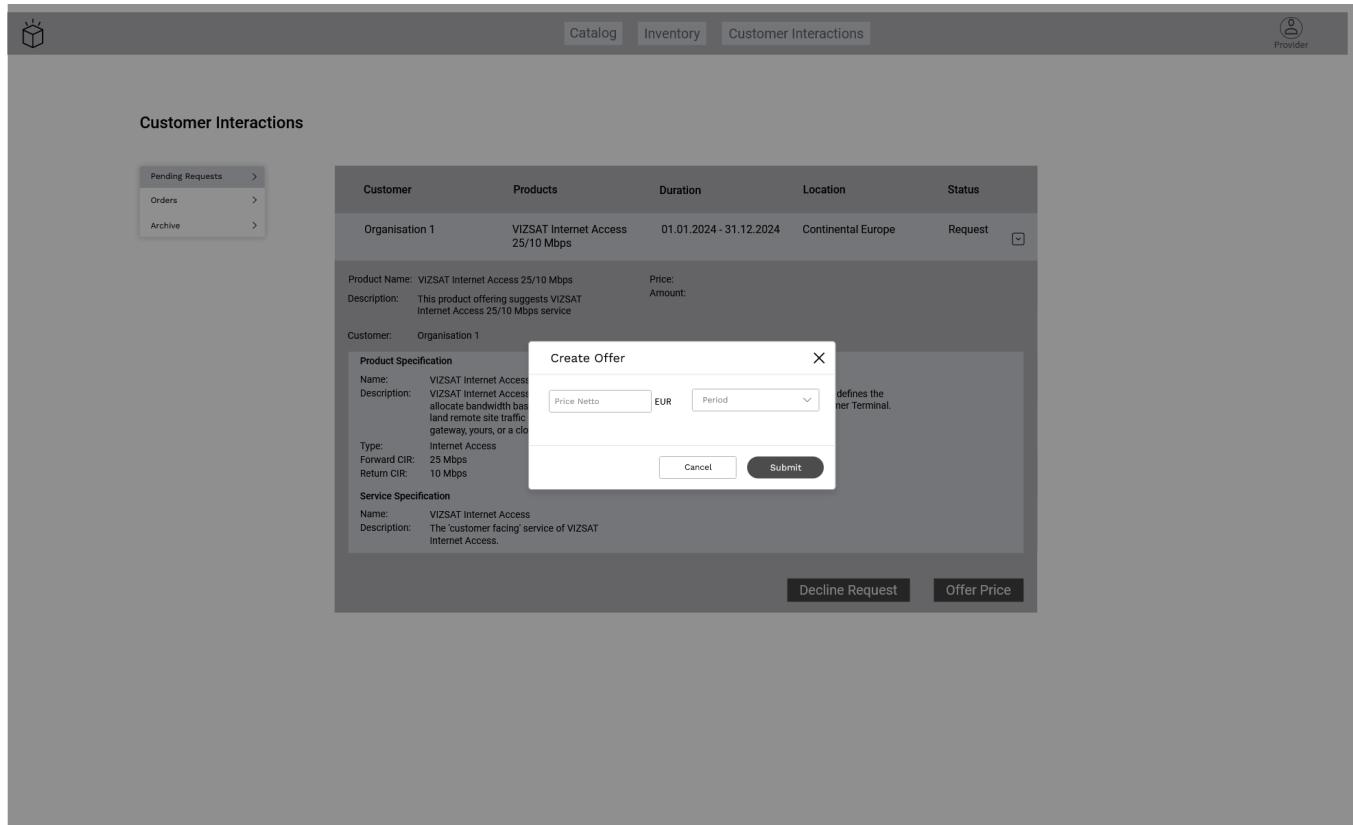


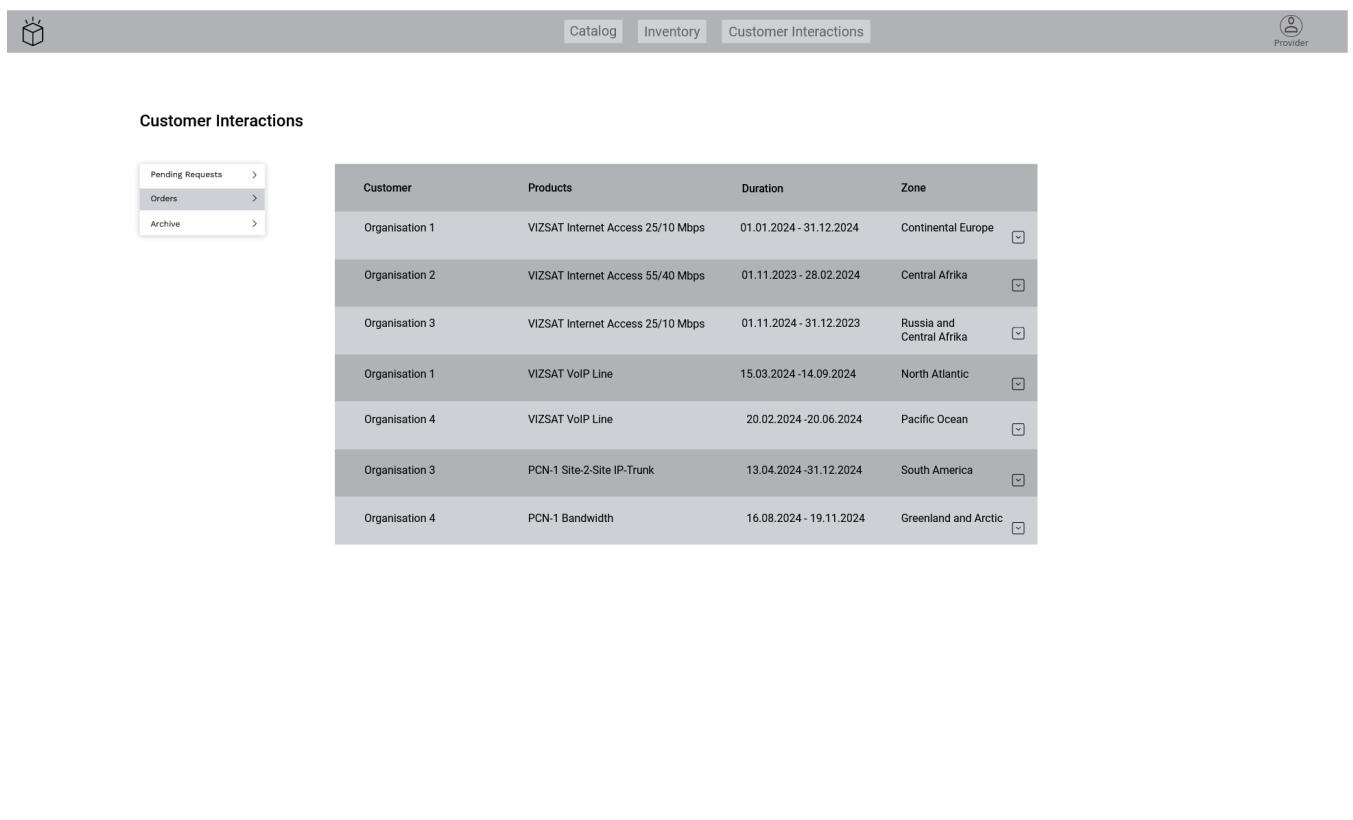
Figure 3.19: Customer Interactions: Pending Request - Create Offering

To create an offering, a price has to be entered and a period - like monthly - can be selected. After submitting, the offering is sent to the customer.

3.3.2 Incoming Product Orders

Actor	Consumed API(s)
Provider	PSID622 Product Ordering

Table 3.8: Parameters of all Customer Interaction Views.



Customer	Products	Duration	Zone
Organisation 1	VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Continental Europe
Organisation 2	VIZSAT Internet Access 55/40 Mbps	01.11.2023 - 28.02.2024	Central Afrika
Organisation 3	VIZSAT Internet Access 25/10 Mbps	01.11.2024 - 31.12.2023	Russia and Central Afrika
Organisation 1	VIZSAT VoIP Line	15.03.2024-14.09.2024	North Atlantic
Organisation 4	VIZSAT VoIP Line	20.02.2024-20.06.2024	Pacific Ocean
Organisation 3	PCN-1 Site-2-Site IP-Trunk	13.04.2024-31.12.2024	South America
Organisation 4	PCN-1 Bandwidth	16.08.2024- 19.11.2024	Greenland and Arctic

Figure 3.20: Customer Interactions: Orders

This view shows the list of all placed orders.

Customer Interactions

Pending Requests >
Orders >
Archive >

Customer	Products	Duration	Zone
Organisation 1	VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	Continental Europe
Product Name: VIZSAT Internet Access 25/10 Mbps Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service. Provider: Provider 1			
Product Specification Name: VIZSAT Internet Access Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and send remote site traffic anywhere - our gateway, yours, or a cloud data centre. Type: Internet Access Forward CIR: 25 Mbps Return CIR: 10 Mbps		Resource Specification Name: SkyView T1234 Description: This resource specification defines the SkyView T1234 as a Customer Terminal. Category: Terminals Frequency Band: KU	
Service Specification Name: VIZSAT Internet Access Description: The customer-facing service of VIZSAT Internet Access.			

Figure 3.21: Customer Interactions: Orders Details

The details are displayed below the corresponding row and contain the necessary information to give a comprehensive overview of the order.

4 User Journey

4.1 Mission Creation

Actor	Consumed API(s)
User	PSID002 Mission API

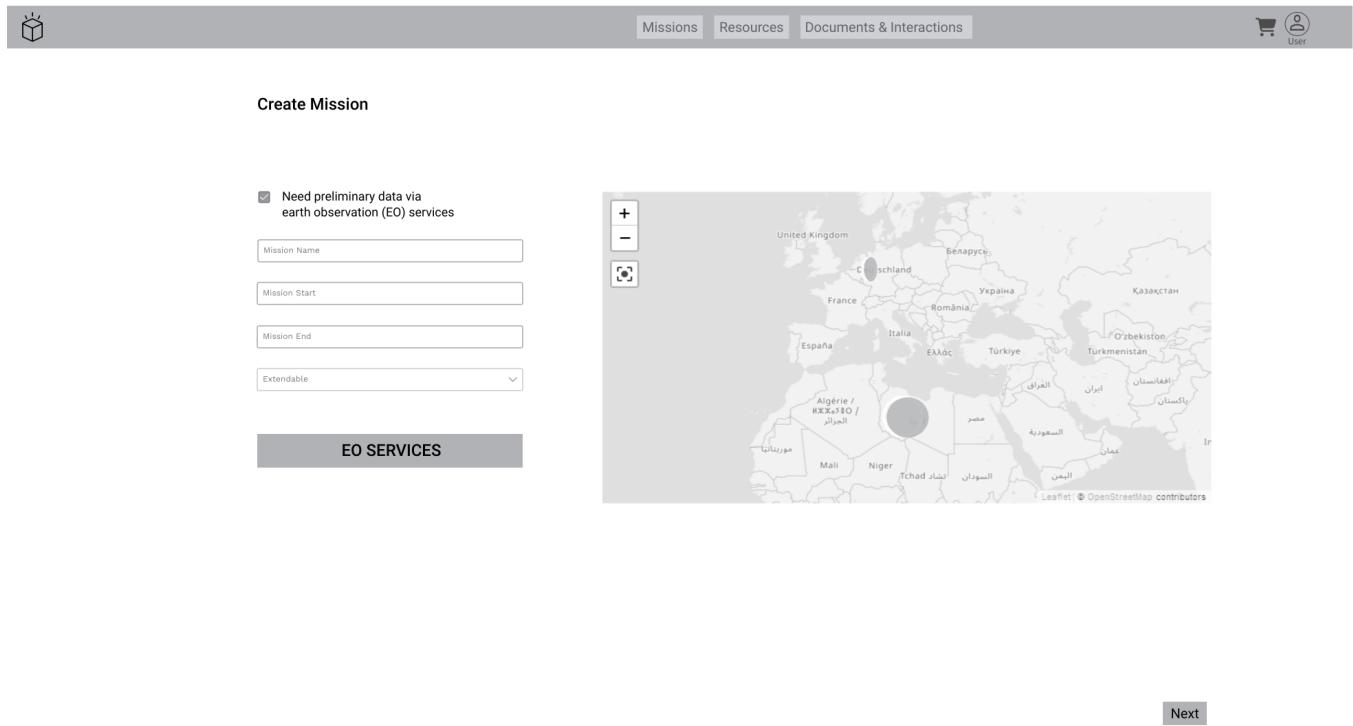
Table 4.1: Parameters of all Mission Creation Views - User.

Figure 4.1: Mission Creation

The user starts the creation of a mission by entering rudimental data such as

In the following chapters, we draw a scenario for crisis response situations in which the crisis responder

4.1.1 Mission Creation - Gather Intelligence



Missions Resources Documents & Interactions

Create Mission

Need preliminary data via earth observation (EO) services

Mission Name:

Mission Start:

Mission End:

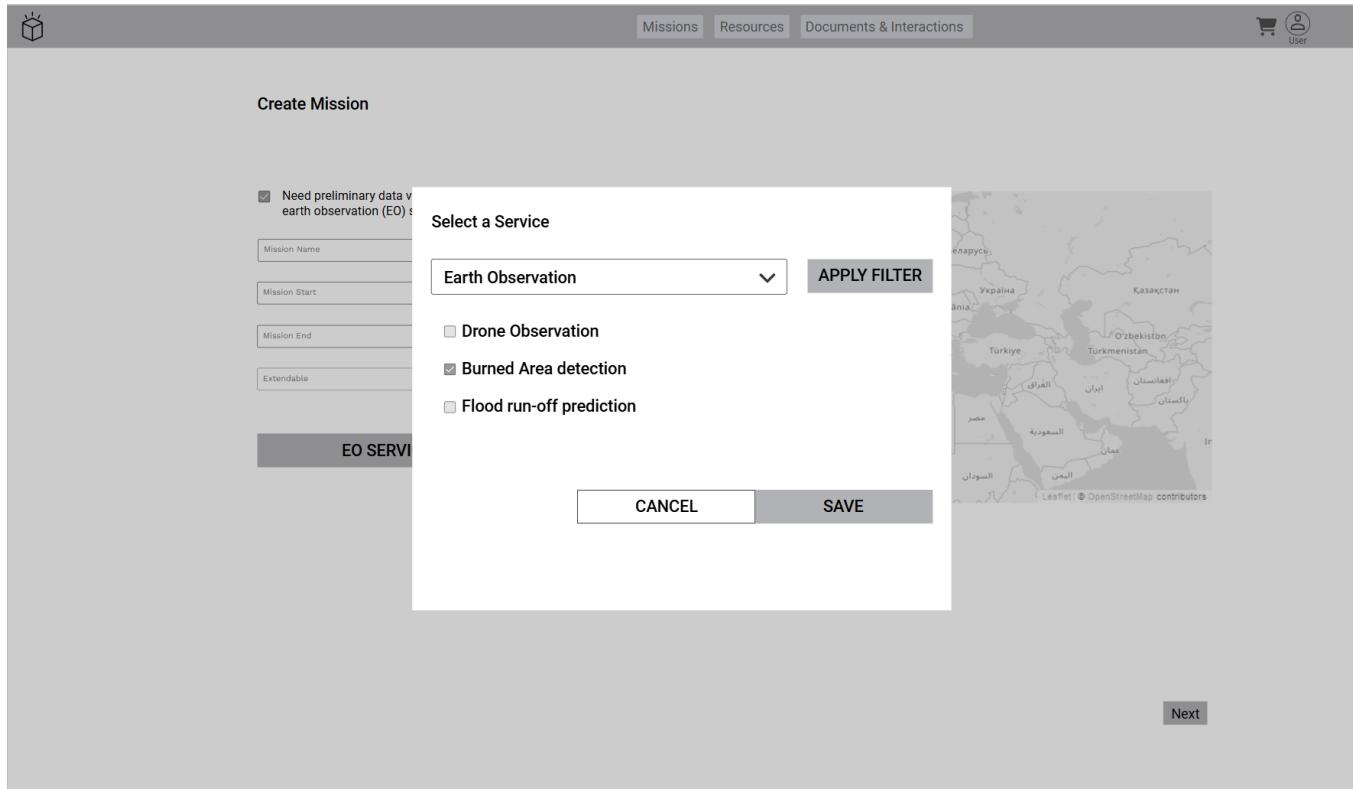
Extendable:

EO SERVICES

Next

Figure 4.2: Mission Creation - Gather Intelligence

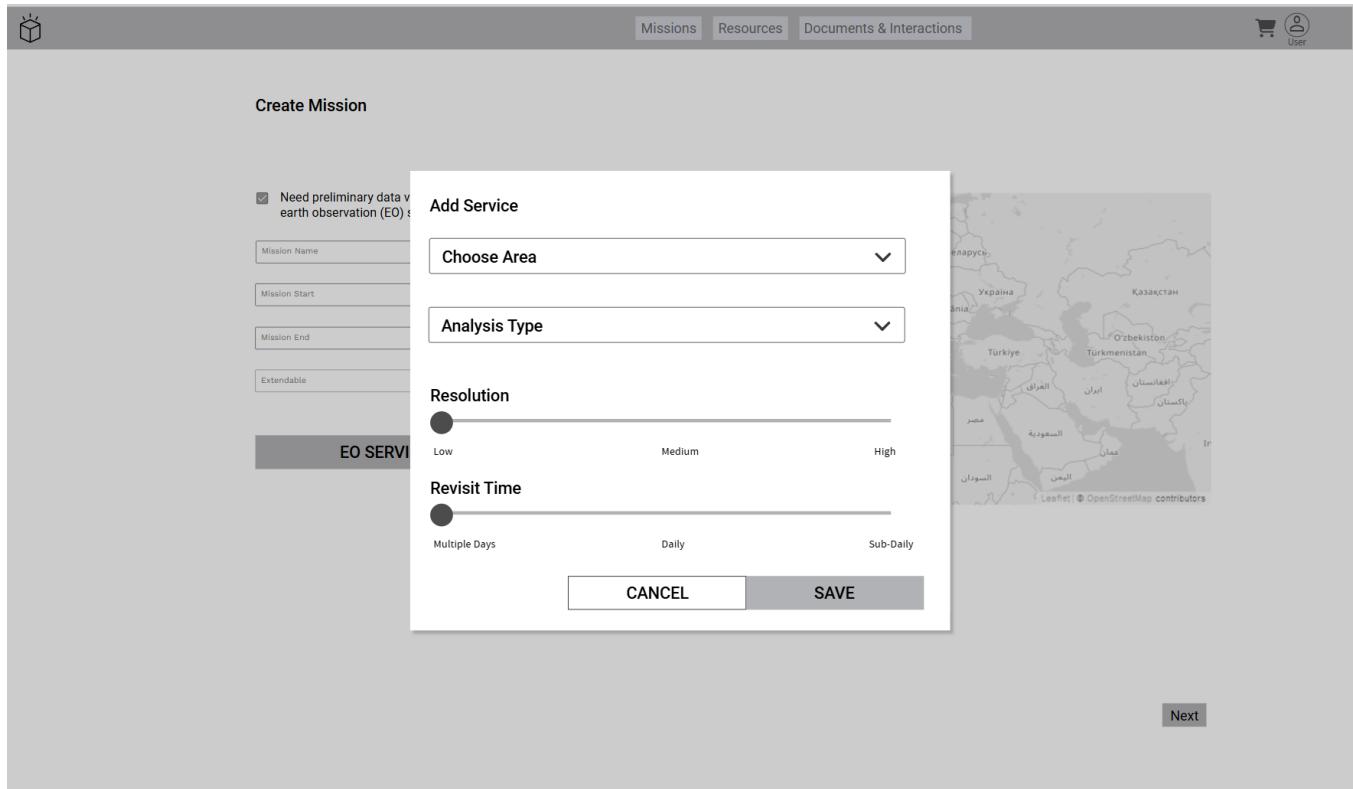
To gather intelligence in threatening situations while facing a crisis event, it is crucial to have access to e.g. earth observation products as a tool to get a better understanding of the crisis. Therefore, this example provides a shortcut to fast-booking earth observation products. By checking the checkbox “Need preliminary data via earth observation (EO) services”, the button “EO Services” appears below the input field.



The screenshot shows the 'Create Mission' interface. On the left, there's a sidebar with a cube icon, navigation tabs for 'Missions', 'Resources', and 'Documents & Interactions', and user icons for shopping cart, profile, and user. The main area has a title 'Create Mission'. On the right, there's a map of Central Asia and the Middle East. In the center, a modal dialog is open with the title 'Select a Service'. It shows a dropdown menu set to 'Earth Observation' with an 'APPLY FILTER' button. Below the dropdown are three service options: 'Drone Observation' (unchecked), 'Burned Area detection' (checked), and 'Flood run-off prediction' (unchecked). At the bottom of the dialog are 'CANCEL' and 'SAVE' buttons.

Figure 4.3: Mission Creation - Add Service

The button “EO Services” opens the service dialog with a preselected filter “Earth Observation”. A list of services is shown, and the user can select e.g. “Burned Area Detection”.



The screenshot shows the 'Create Mission' interface. At the top, there are tabs for 'Missions', 'Resources', and 'Documents & Interactions'. On the right, there are icons for a shopping cart, user profile, and notifications. Below the tabs, the main area is titled 'Create Mission'. A modal window titled 'Add Service' is open. It contains several input fields and sliders. The 'Choose Area' field has a dropdown arrow. The 'Analysis Type' field also has a dropdown arrow. Below these are two sliders: 'Resolution' (ranging from 'Low' to 'High') and 'Revisit Time' (ranging from 'Multiple Days' to 'Sub-Daily'). At the bottom of the modal are 'CANCEL' and 'SAVE' buttons. In the background, there is a map of Eurasia with country names in multiple languages. A button labeled 'Next' is visible in the bottom right corner of the main interface.

Figure 4.4: Mission Creation - Specify Service

After applying the selection, the user can further specify the service according to their needs and save the configuration.

 Missions Resources Documents & Interactions  

Create Mission

Need preliminary data via earth observation (EO) services

Mission Name

Mission Start

Mission End

Extendable

EO SERVICES

Burned Area detection   



Leaflet © OpenStreetMap contributors

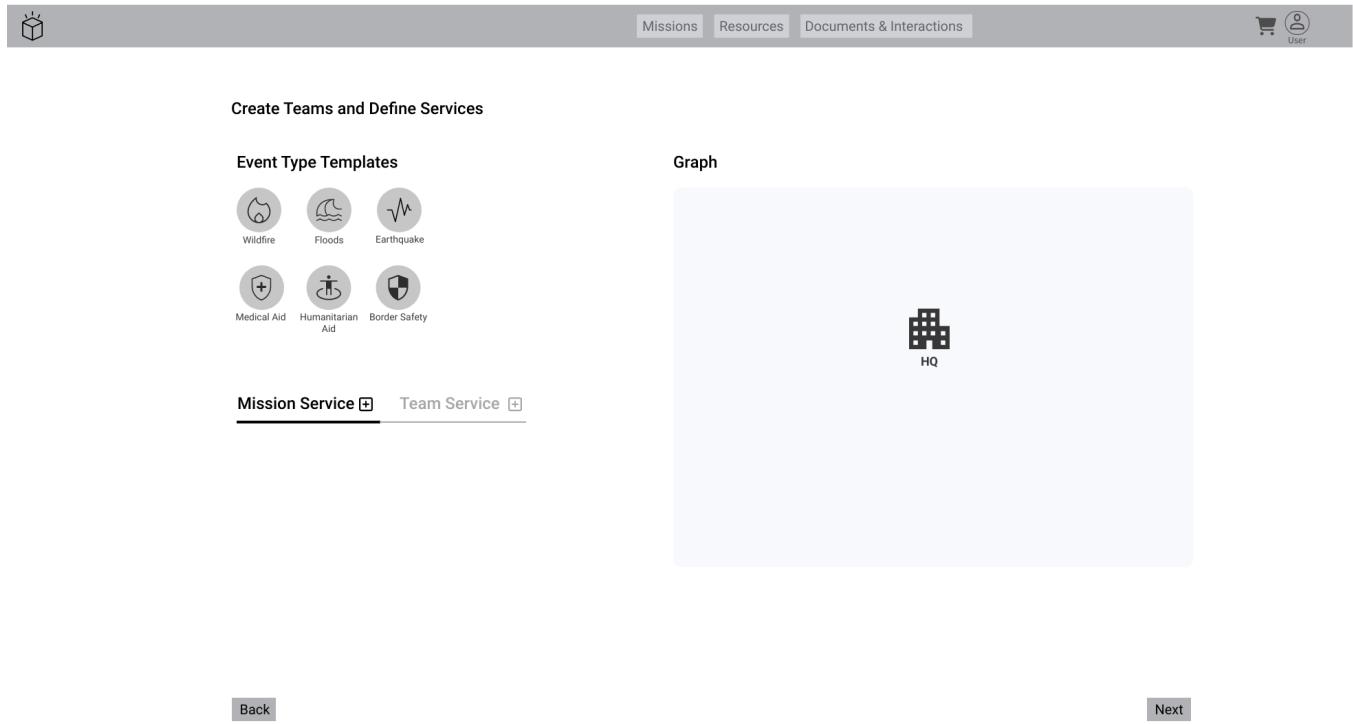
Show Results

Figure 4.5: Mission Creation - Service Added

The chosen service is shown in a list below the mission input fields.

4.1.2 Mission Creation - Extend Mission

With the last step from previous section, the Mission Creation, everything is in place to proceed by hitting the “next” button and performing the service definition.



Create Teams and Define Services

Event Type Templates

Missions Resources Documents & Interactions

Wildfire Floods Earthquake

Medical Aid Humanitarian Aid Border Safety

Graph

HQ

Mission Service Team Service

Back Next

Figure 4.6: Mission Creation - Define Services

The user can either choose a template, which offers pre-defined services, or add services to mission, team or both directly. For the next step, we choose a wildfire template to automatically put some services to the list.

Create Teams and Define Services

Event Type Templates

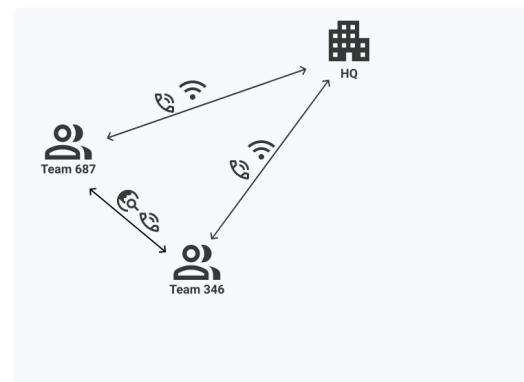
Wildfire	Floods	Earthquake

Medical Aid	Humanitarian Aid	Border Safety

Mission Service **Team Service**

- VSAT Landbased mobile M
- VSAT Landbased fixed S
- Drone Observation

Graph



```

graph TD
    HQ[HQ] <--> Team687[Team 687]
    HQ <--> Team346[Team 346]
    Team687 <--> Team346
    
```

Back Next

Figure 4.7: Mission Creation - Template Wildfire

Three services related to wildfire are put to the mission services list. This means, they are directly attached to the mission and not to a team. Any service could be moved to any team, that is part of the mission.

Create Teams and Define Services

Event Type Templates

- Wildfire
- Floods
- Earthquake
- Medical Aid
- Humanitarian Aid
- Border Safety

Mission Service +

Team Service +

Team 687 +

Team 346 +

Graph

```

graph TD
    HQ[HQ] --> Team687[Team 687]
    HQ --> Team346[Team 346]
    Team687 --> Team346
  
```

Back Next

Figure 4.8: Mission Creation - Teams

By toggling the tab list, it is easy to change between mission services and team services. Also, the teams in the list are pre-selected through the template. The graph shows the teams and their services and how these services connect them. By clicking the “plus” icon-button beneath “team Services”, teams can be added to the mission.

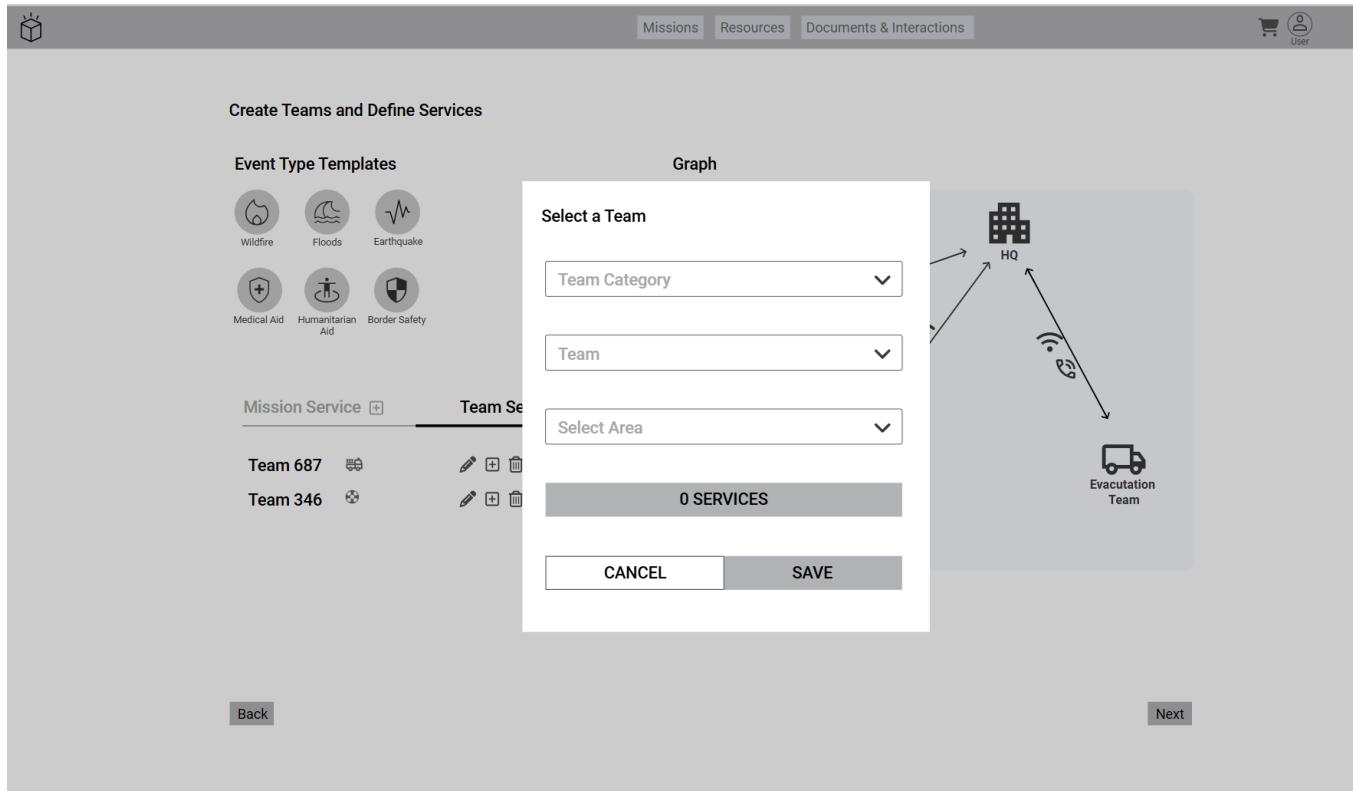


Figure 4.9: Mission Creation - Add new Team

A dialog provides the option to select a team. Teams in general are created by the governance or other stakeholders and could e.g. be uploaded as json file or it could be possible to integrate a “teams editor” to the system. This is currently not part of the PSID project but may be in the future.

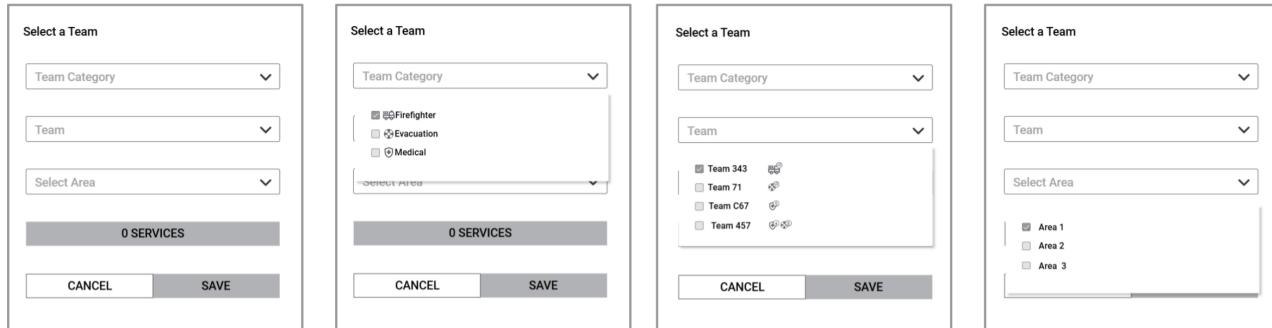


Figure 4.10: Mission Creation - Team Configuration

The image above shows the “Select a Team” component in detail. The user chooses the category, the team and the area.

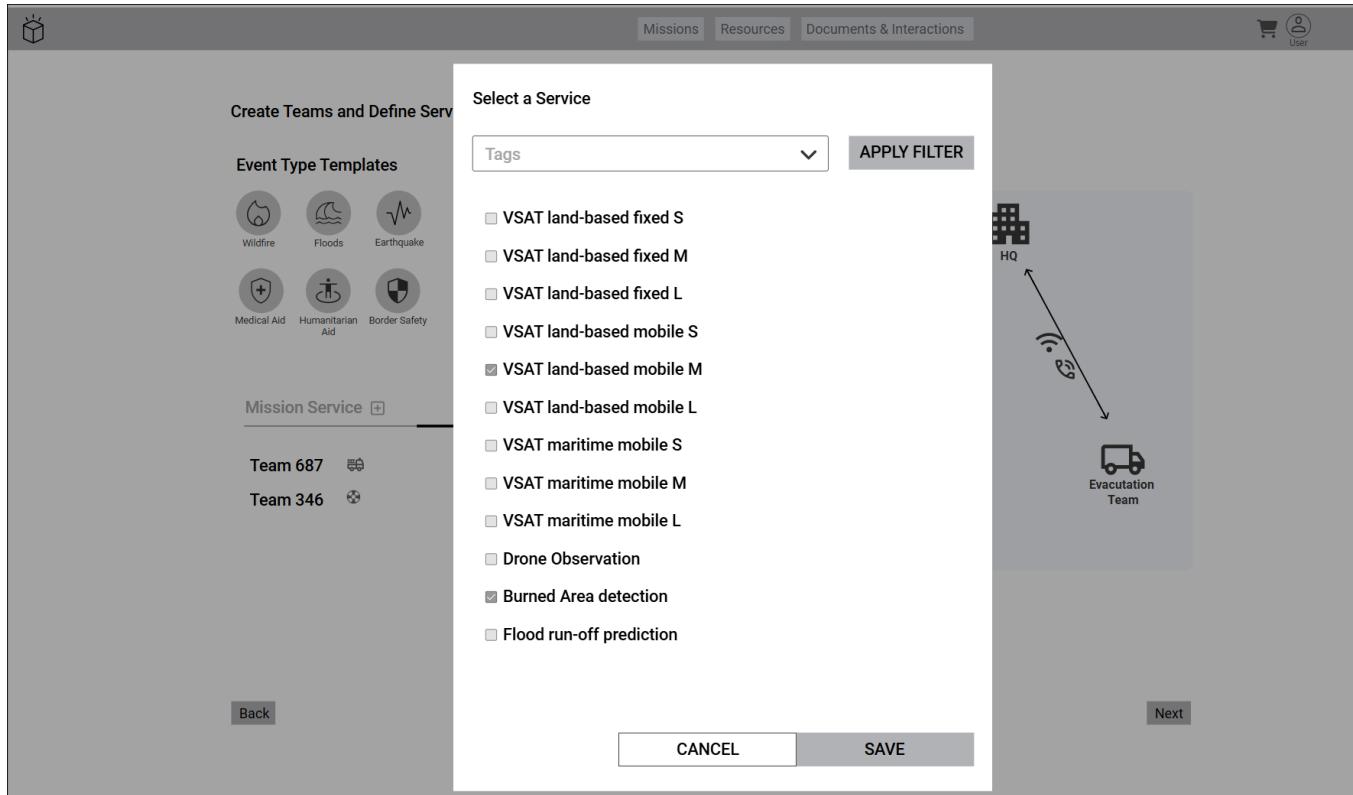


Figure 4.11: Mission Creation - Add Service to Team

Also, services can be attached to the team directly. When clicking the “SERVICES” button, a list of services is shown. This list can be filtered according to previously assigned tags.

Create Teams and Define Services

Event Type Templates

- Wildfire
- Floods
- Earthquake
- Medical Aid
- Humanitarian Aid
- Border Safety

Mission Service [+]

Team 687

Team 346

Add Service

Choose Area [+]

Analysis Type

- Raw Image
- Burned area detection
- Flooding
- Earthquake

Resolution [+]

Low High

Revisit Time

Multiple Days Daily Sub-Daily

CANCEL SAVE

Back Next

Figure 4.12: Mission Creation - Configure Service

The service can then be configured according to the user's needs.

Create Teams and Define Services

Event Type Templates

- Wildfire
- Floods
- Earthquake
- Medical Aid
- Humanitarian Aid
- Border Safety

Mission Service [+] Team Service [+]

Team 343

VSAT land-based mobile M

Burned Area detection

Team 687

Team 346

Graph

Back Next

Figure 4.13: Mission Creation - Team with Service

Then, the team is created and the teams' services are shown underneath the team. By clicking on “SAVE” the team is created. The assigned services are shown underneath the team. Once everything is ready, the user can continue with the summary of the mission by clicking on the “Next” button.

Team Name	Service Name	Type	Zone	Status	Monitoring	Actions
<input type="checkbox"/> Team 1	Burned Area detection 1	Burned Area detection	AOO	DRAFT	-	
<input type="checkbox"/> Team 2	My Internet Access 2	Internet Access	HQ	DRAFT	-	

Figure 4.14: Mission Creation - Mission Summary

The mission summary view gives a good overview over all defined items. Below ‘Services’, all user-specified services are listed. By clicking on a row, a details’ panel shows further details about the service. The user can still go back to make any changes or trigger the matchmaking process from here, by clicking on “Request Service Options for Mission”.

4.2 Distributed Matchmaking

Actor	Consumed API(s)
User	PSID001 Customer Inquiry

Table 4.2: Parameters of all Distributed Matchmaking Views - User.

The basis for the wireframes is the UCSM study.

Mission Summary for Mission 2024/03

Properties

Start Date
02/29/2024

End Date
03/31/2024

Extendable

Service Grades

Availability
Standard

Security Level
Restricted

Anti-Jamming
Yes

Services

Name	Type	Zone	Status	Monitoring	Actions
<input type="checkbox"/> My Internet Access 1	Internet Access	AOO	DRAFT	-	
<input type="checkbox"/> My Internet Access 2	Internet Access	HQ	DRAFT	-	

Figure 4.15: User Defined Mission

For the user journey, the wireframes for PSID start just after the process of defining a mission. This image shows an example of how a user could have defined a mission to specify the communication needs. This includes at least Below 'Services', all user-specified services are listed. By clicking on a row, a details' panel shows further details about the service.

Missions Resources Documents & Interactions  User

Mission Summary for Mission 2024/03

Properties

Start Date
02/29/2024

End Date
03/31/2024

Extendable

Service Grades

Availability
Standard

Security Level
Restricted

Anti-Jamming
Yes

Services

Name	Type	Zone	Status	Monitoring	Actions
My Internet Access 1	Internet Access	A00	DRAFT	-	  
Duration: 02/29/2024 - 03/01/2024 Frequency Band: KU Minimum Availability: Standard Forward/Return CIR: 25/10 Mbps					



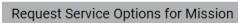
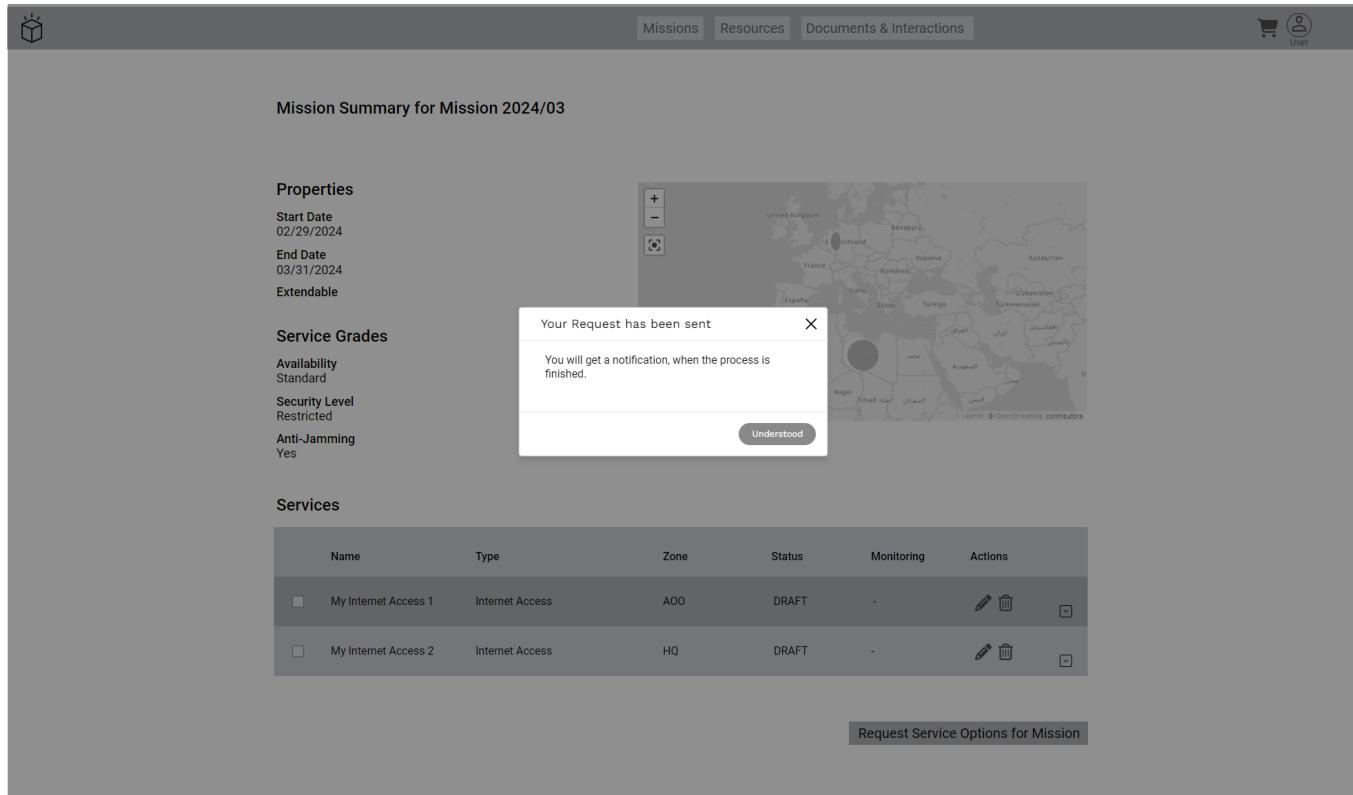


Figure 4.16: User Defined Mission - Service Details

In this case, the matchmaking process is performed by a third party (CGA), which could also act in a governmental role. When the user clicks the button ‘Request Service Option for Mission’, the request is sent to a third party which checks the request and, if the check passes, triggers the matchmaking.



Missions **Resources** **Documents & Interactions**

User

Mission Summary for Mission 2024/03

Properties

- Start Date: 02/29/2024
- End Date: 03/31/2024
- Extendable

Service Grades

- Availability: Standard
- Security Level: Restricted
- Anti-Jamming: Yes

Services

Name	Type	Zone	Status	Monitoring	Actions
<input type="checkbox"/> My Internet Access 1	Internet Access	A00	DRAFT	-	
<input type="checkbox"/> My Internet Access 2	Internet Access	HQ	DRAFT	-	

Request Service Options for Mission

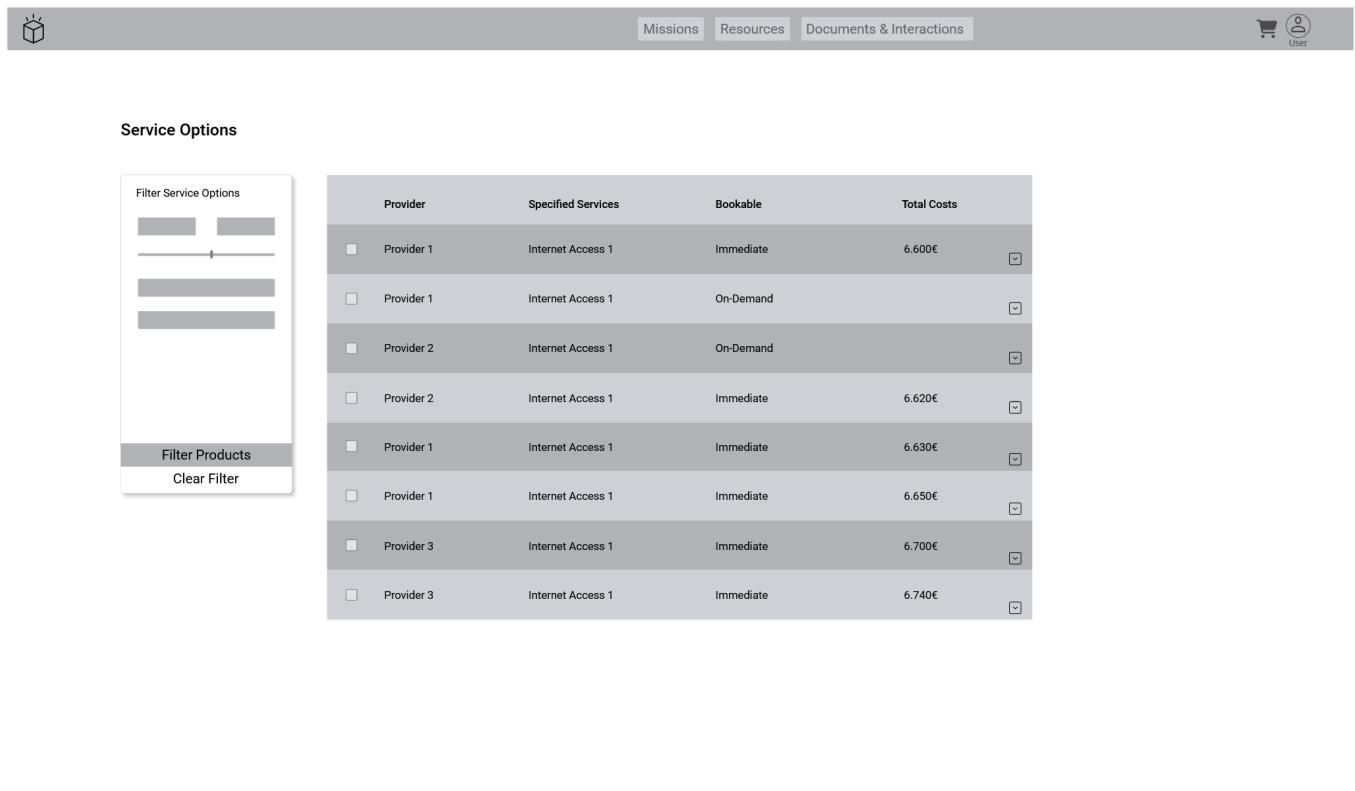
Figure 4.17: User Defined Mission - Dialog

The dialogue informs the user that the request successfully has been sent. Subsequently, the user is notified upon completion of the third-party process.

4.3 Offered Products

Actor	Consumed API(s)
User	PSID001 Customer Inquiry

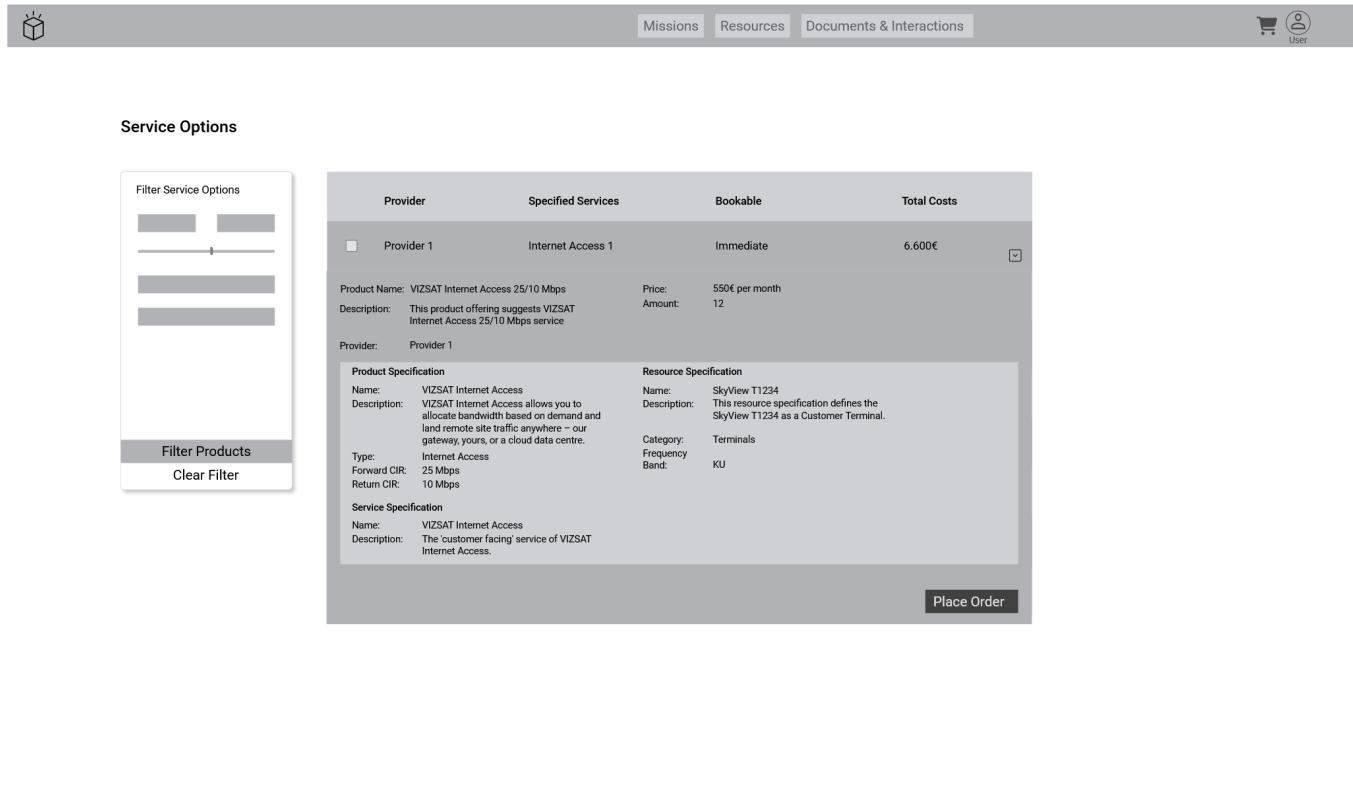
Table 4.3: Parameters of all Offered Products Views.



Provider	Specified Services	Bookable	Total Costs
Provider 1	Internet Access 1	Immediate	6.600€
Provider 1	Internet Access 1	On-Demand	
Provider 2	Internet Access 1	On-Demand	
Provider 2	Internet Access 1	Immediate	6.620€
Provider 1	Internet Access 1	Immediate	6.630€
Provider 1	Internet Access 1	Immediate	6.650€
Provider 3	Internet Access 1	Immediate	6.700€
Provider 3	Internet Access 1	Immediate	6.740€

Figure 4.18: Offered Products: User's Service Options

Once the third party described above has validated the mission specified by the user and triggered the matchmaking, the results are sent to the user. Shown above is the list of found service options.



Service Options

Provider	Specified Services	Bookable	Total Costs
Provider 1	Internet Access 1	Immediate	6.600€

Product Name: VIZSAT Internet Access 25/10 Mbps
 Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service
 Provider: Provider 1

Product Specification

Name:	VIZSAT Internet Access	Name:	SkyView T1234
Description:	VIZSAT Internet Access allows you to allocate bandwidth based on demand and send remote site traffic anywhere – our gateway, yours, or a cloud data centre.	Description:	This resource specification defines the SkyView T1234 as a Customer Terminal.
Type:	Internet Access	Category:	Terminals
Forward CIR:	25 Mbps	Frequency Band:	KU
Return CIR:	10 Mbps		

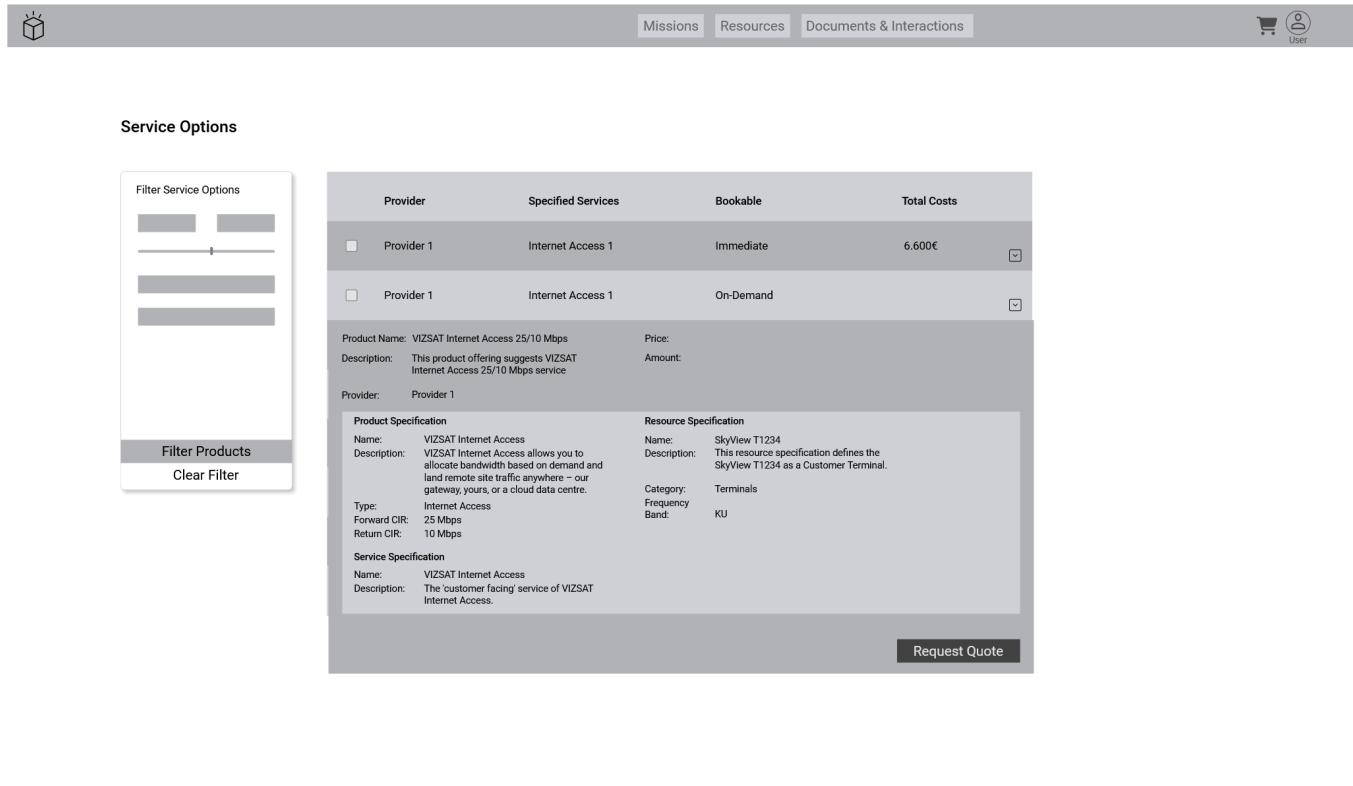
Resource Specification

Service Specification

Place Order

Figure 4.19: Offered Products: User's Service Options Details - Immediate

By clicking on the row, the detail panel opens below the row. The offering is immediately bookable. If the user decides to book it, they can click on the button in the lower right corner *Place Order*.



Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.600€
<input type="checkbox"/> Provider 1	Internet Access 1	On-Demand	

Product Name: VIZSAT Internet Access 25/10 Mbps
Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service
Provider: Provider 1

Product Specification

Name: VIZSAT Internet Access	Name: SkyView T1234
Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and land remote site traffic anywhere – our gateway, yours, or a cloud data centre.	Description: This resource specification defines the SkyView T1234 as a Customer Terminal.
Type: Internet Access	Category: Terminals
Forward CIR: 25 Mbps	Frequency Band: KU
Return CIR: 10 Mbps	

Service Specification

Name: VIZSAT Internet Access	Name: SkyView T1234
Description: The 'customer facing' service of VIZSAT Internet Access.	Description: This resource specification defines the SkyView T1234 as a Customer Terminal.

Figure 4.20: Offered Products: User's Options Details - On-Demand

The image above shows the details of an on-demand service option. The user can trigger a *Request for Quote* (RFQ) to get an offering from the provider.

Service Options

Provider	Specified Services	Bookable	Total Costs
Provider 1	Internet Access 1	Immediate	6.600€
Provider 1	Internet Access 1	On-Demand	

Product Name: VIZSAT Internet Access 25/10 Mbps
Description: This product offering suggests Internet Access 25/10 Mbps.
Provider: Provider 1

Product Specification

Name: VIZSAT Internet Access	Category: Terminals
Description: VIZSAT Internet Access allocates bandwidth between land remote site traffic anywhere – our gateway, yours, or a cloud data centre.	Frequency Band: KU
Type: Internet Access	
Forward CIR: 25 Mbps	
Return CIR: 10 Mbps	

Service Specification

Name: VIZSAT Internet Access	Category: Terminals
Description: The 'customer facing' service of VIZSAT Internet Access.	Frequency Band: KU

Request for Quote

By submitting, a request for quote will be sent to the provider. The result of your query will be stored automatically under "Documents & Interactions".

Submit **Cancel**

Request Quote

Figure 4.21: Offered Products: RFQ Modal

The RFQ must be confirmed by clicking the submit button to send the request to the provider.

Service Options

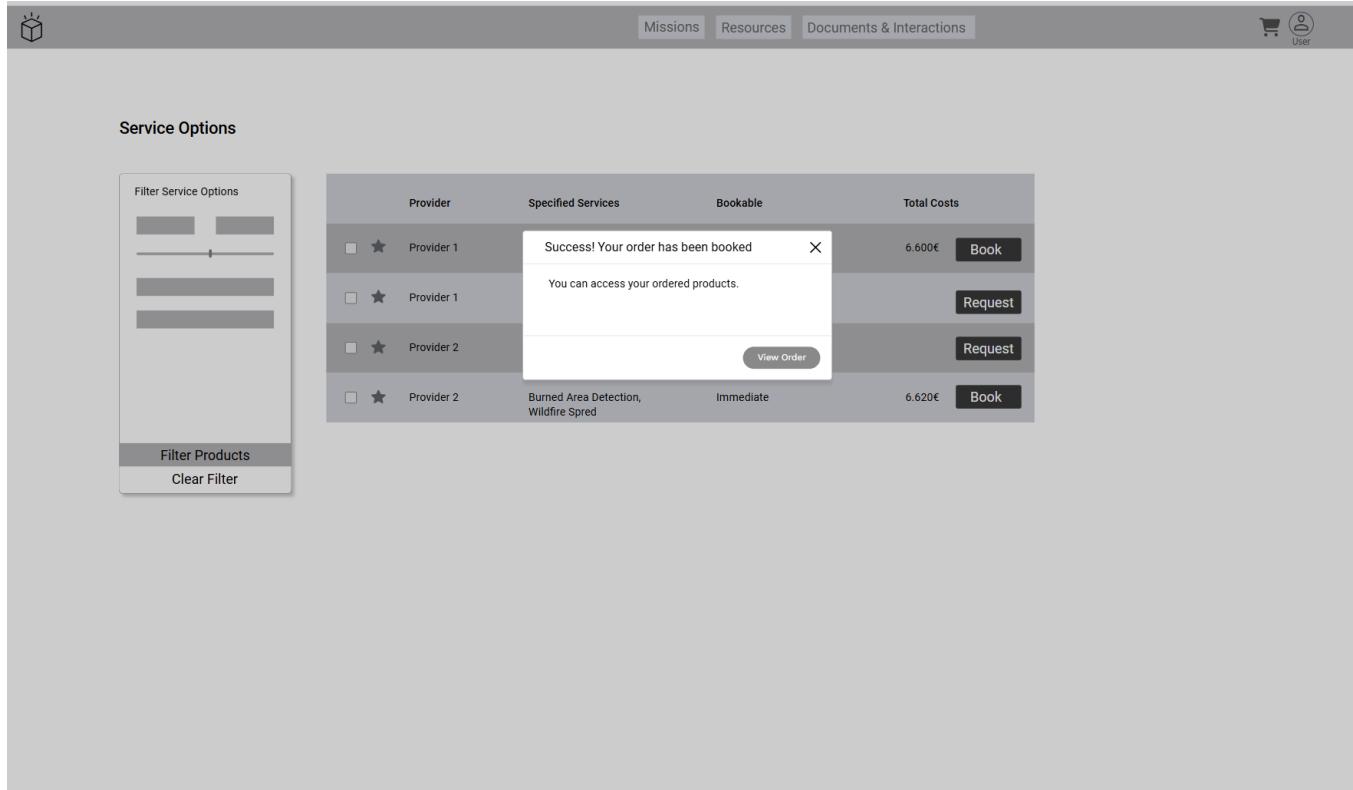
Provider	Specified Services	Bookable	Total Costs	
Provider 1 ★	Burned Area Detection, Wildfire Spred	Immediate	6.600€	Book
Provider 1 ★	Burned Area Detection, Wildfire Spred	On-Demand		Request
Provider 2 ★	Burned Area Detection, Wildfire Spred	On-Demand		Request
Provider 2 ★	Burned Area Detection, Wildfire Spred	Immediate	6.620€	Book

Filter Service Options

Filter Products **Clear Filter**

Figure 4.22: Offered Products - Earth Observation

The product offers are not limited to SatCom products, only. By using the appropriate API, if available, any product can be integrated. The view above shows a list of offers for earth observation products. The system can also bundle products of different categories into a single offer.



Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/> ★ Provider 1	Success! Your order has been booked	X	6.600€
<input type="checkbox"/> ★ Provider 1		Request	
<input type="checkbox"/> ★ Provider 2		Request	
<input type="checkbox"/> ★ Provider 2	Burned Area Detection, Wildfire Spred	Immediate	6.620€

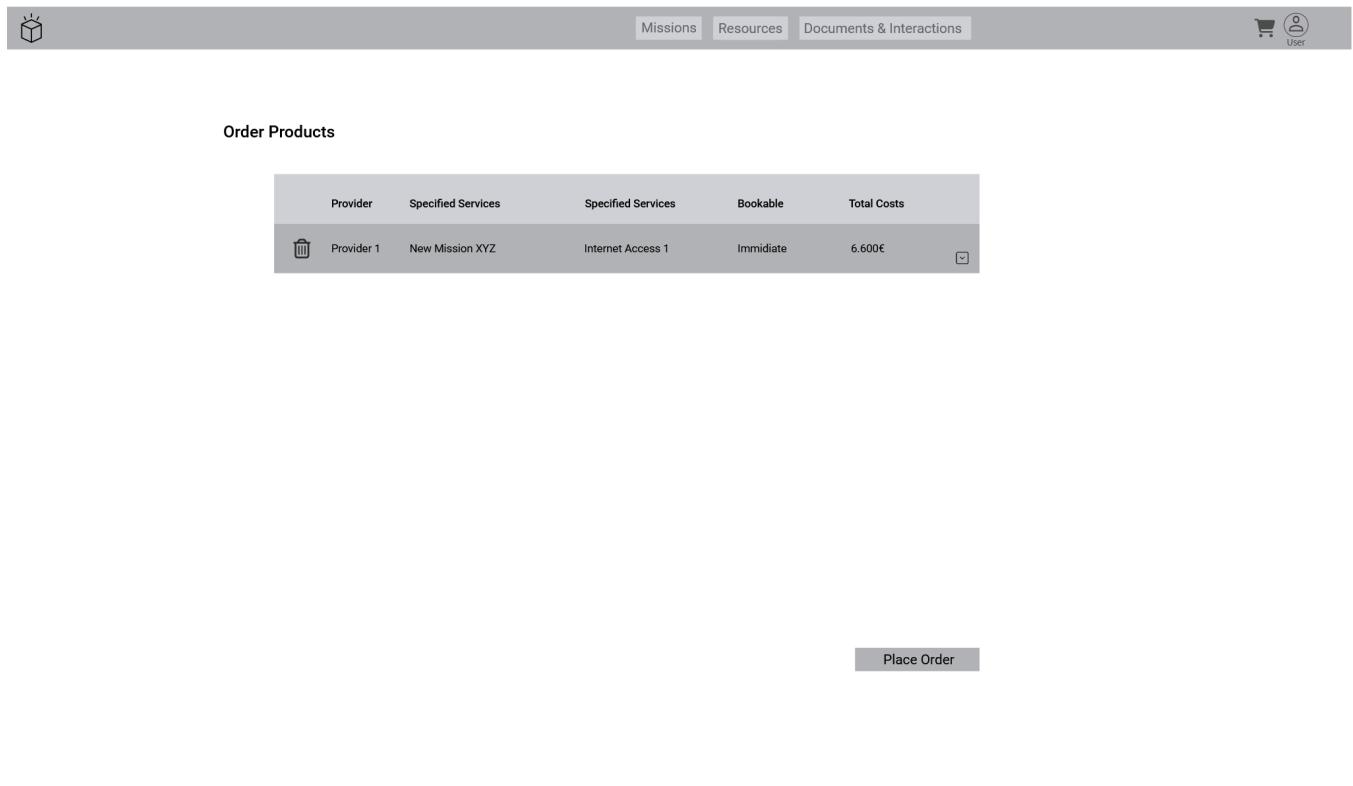
Figure 4.23: Offered Products - Booking

When the user decides to book an offer by clicking the “book” button, a dialog informs about the success of the booking - as shown above.

4.4 Shopping Cart

Actor	Consumed API(s)
User	PSID663 Shopping Cart

Table 4.4: Parameters of the Shopping Cart View.



Provider	Specified Services	Specified Services	Bookable	Total Costs
Provider 1	New Mission XYZ	Internet Access 1	Immidiate	6.600€

Figure 4.24: Shopping Cart

The shopping cart stores all order items, ready to be ordered. For example, when the user selects a service option, which is immediately bookable, the order item will be stored in the shopping cart. They can store several order items there and checkout all at once.

4.5 Documents & Interactions

4.5.1 Outgoing Customer Inquiries

Actor	Consumed API(s)
User	PSID001 Customer Inquiry

Table 4.5: Parameters of all RFQ Views.

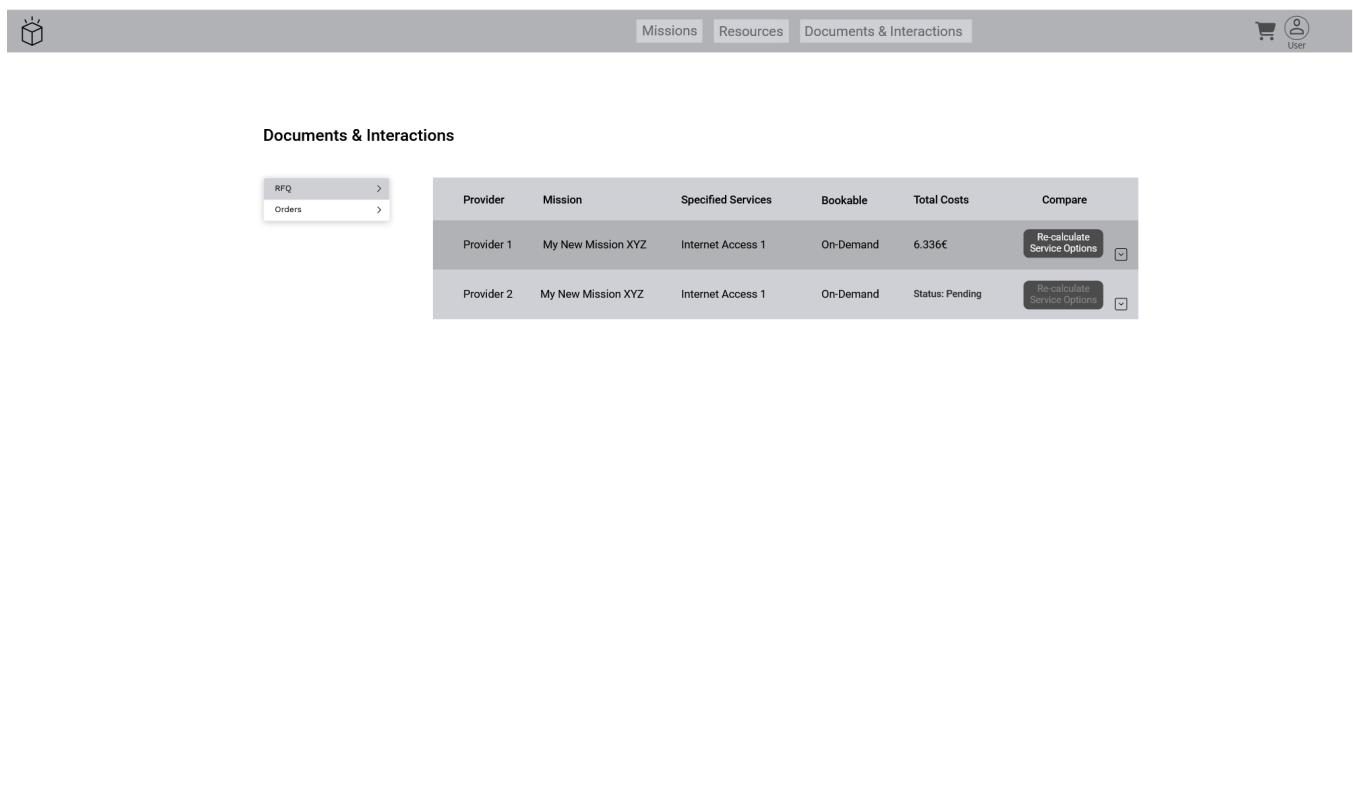
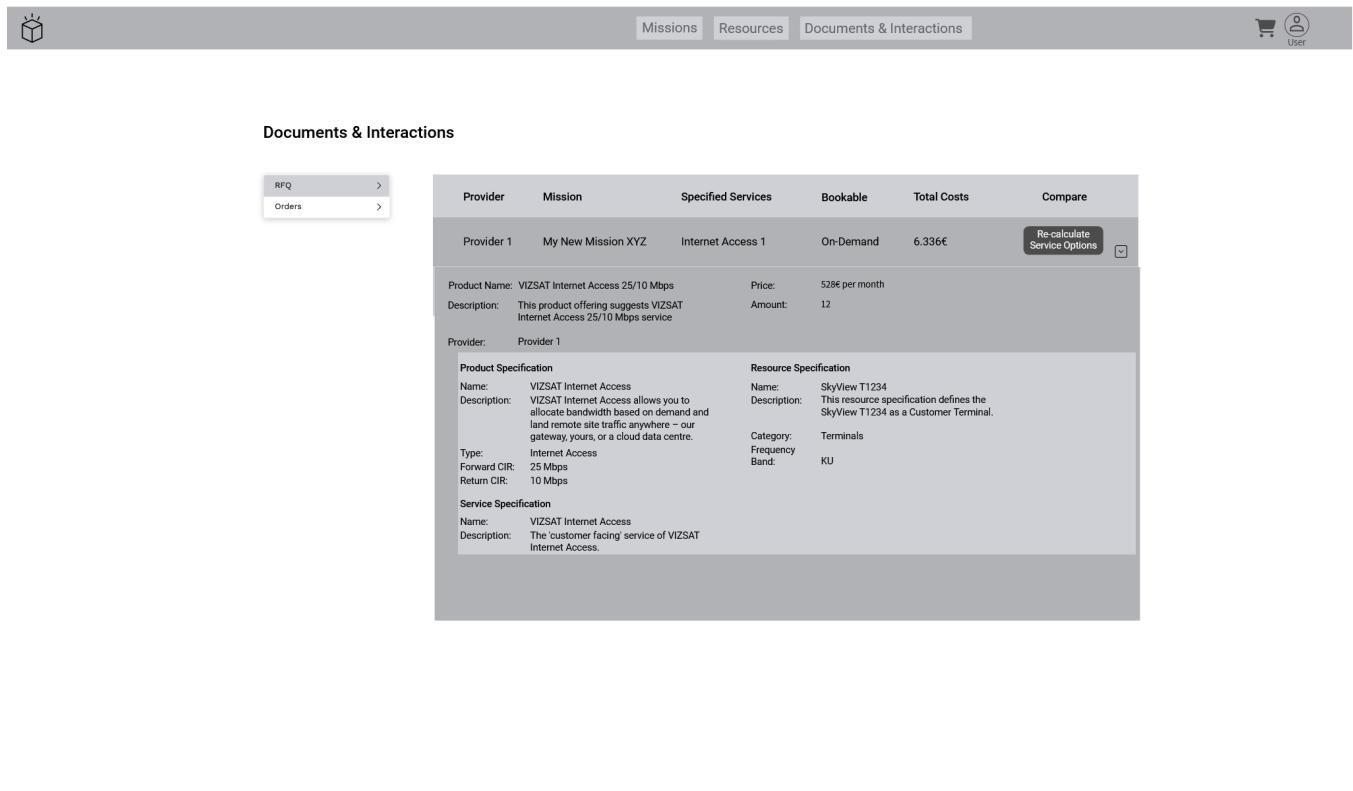


Figure 4.25: Documents & Interactions: Request for Quote

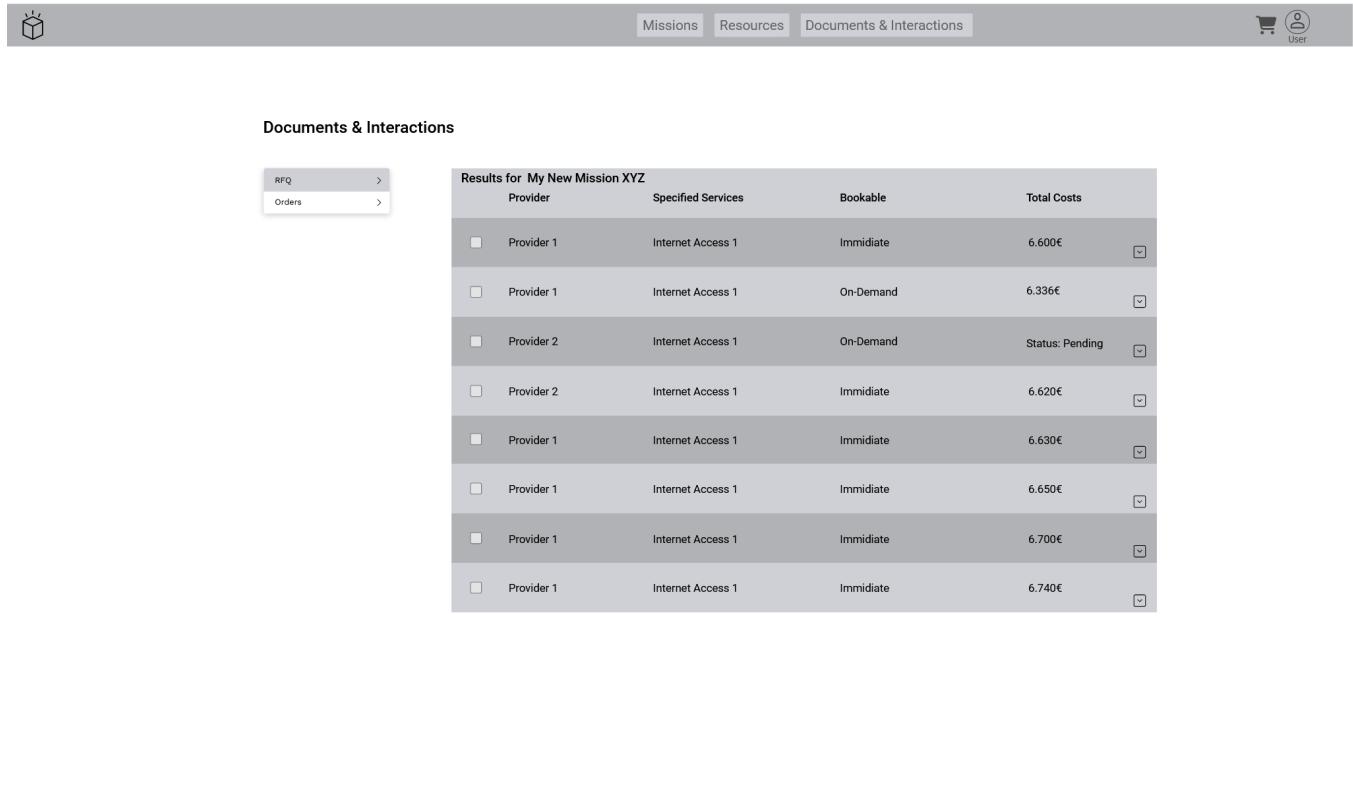
The ‘Documents & Interactions’ area provides all views concerning RFQs and orders. This can be navigated by the side navigation on the left. The image above shows the requested quotes. In the ‘Total Costs’ column, the initial value should be ‘status: pending’ because the provider did not answer the request yet. As soon as the provider makes an offering, it shall show the offered price and the button ‘Re-calculate Service Options’ is enabled. This gives the opportunity to trigger the matchmaking process again with the same parameters entered for the first calculation.



Provider	Mission	Specified Services	Bookable	Total Costs	Compare																																		
Provider 1	My New Mission XYZ	Internet Access 1	On-Demand	6.336€	<button>Re-calculate Service Options</button>																																		
Product Name: VIZSAT Internet Access 25/10 Mbps		Price:	528€ per month																																				
Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service		Amount:	12																																				
<p>Provider: Provider 1</p> <table border="1"> <thead> <tr> <th colspan="2">Product Specification</th> <th colspan="2">Resource Specification</th> </tr> </thead> <tbody> <tr> <td>Name:</td> <td>VIZSAT Internet Access</td> <td>Name:</td> <td>SkyView T1234</td> </tr> <tr> <td>Description:</td> <td>VIZSAT Internet Access allows you to allocate bandwidth based on demand and land remote site traffic anywhere – our gateway, yours, or a cloud data centre.</td> <td>Description:</td> <td>This resource specification defines the SkyView T1234 as a Customer Terminal.</td> </tr> <tr> <td>Type:</td> <td>Internet Access</td> <td>Category:</td> <td>Terminals</td> </tr> <tr> <td>Forward CIR:</td> <td>25 Mbps</td> <td>Frequency Band:</td> <td>KU</td> </tr> <tr> <td>Return CIR:</td> <td>10 Mbps</td> <td colspan="2"></td> </tr> <tr> <td colspan="4"> <p>Service Specification</p> <table border="1"> <thead> <tr> <th colspan="2">Service Specification</th> </tr> </thead> <tbody> <tr> <td>Name:</td> <td>VIZSAT Internet Access</td> </tr> <tr> <td>Description:</td> <td>The 'customer facing' service of VIZSAT Internet Access.</td> </tr> </tbody> </table> </td> </tr> </tbody> </table>						Product Specification		Resource Specification		Name:	VIZSAT Internet Access	Name:	SkyView T1234	Description:	VIZSAT Internet Access allows you to allocate bandwidth based on demand and land remote site traffic anywhere – our gateway, yours, or a cloud data centre.	Description:	This resource specification defines the SkyView T1234 as a Customer Terminal.	Type:	Internet Access	Category:	Terminals	Forward CIR:	25 Mbps	Frequency Band:	KU	Return CIR:	10 Mbps			<p>Service Specification</p> <table border="1"> <thead> <tr> <th colspan="2">Service Specification</th> </tr> </thead> <tbody> <tr> <td>Name:</td> <td>VIZSAT Internet Access</td> </tr> <tr> <td>Description:</td> <td>The 'customer facing' service of VIZSAT Internet Access.</td> </tr> </tbody> </table>				Service Specification		Name:	VIZSAT Internet Access	Description:	The 'customer facing' service of VIZSAT Internet Access.
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Name:	VIZSAT Internet Access																																						
Description:	The 'customer facing' service of VIZSAT Internet Access.																																						

Figure 4.26: Documents & Interactions: Request for Quote - Details

By clicking on the row, the 'details' panel of the service option is shown below the overview row.



Results for My New Mission XYZ				
	Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/>	Provider 1	Internet Access 1	Immidiate	6.600€
<input type="checkbox"/>	Provider 1	Internet Access 1	On-Demand	6.336€
<input type="checkbox"/>	Provider 2	Internet Access 1	On-Demand	Status: Pending
<input type="checkbox"/>	Provider 2	Internet Access 1	Immidiate	6.620€
<input type="checkbox"/>	Provider 1	Internet Access 1	Immidiate	6.630€
<input type="checkbox"/>	Provider 1	Internet Access 1	Immidiate	6.650€
<input type="checkbox"/>	Provider 1	Internet Access 1	Immidiate	6.700€
<input type="checkbox"/>	Provider 1	Internet Access 1	Immidiate	6.740€

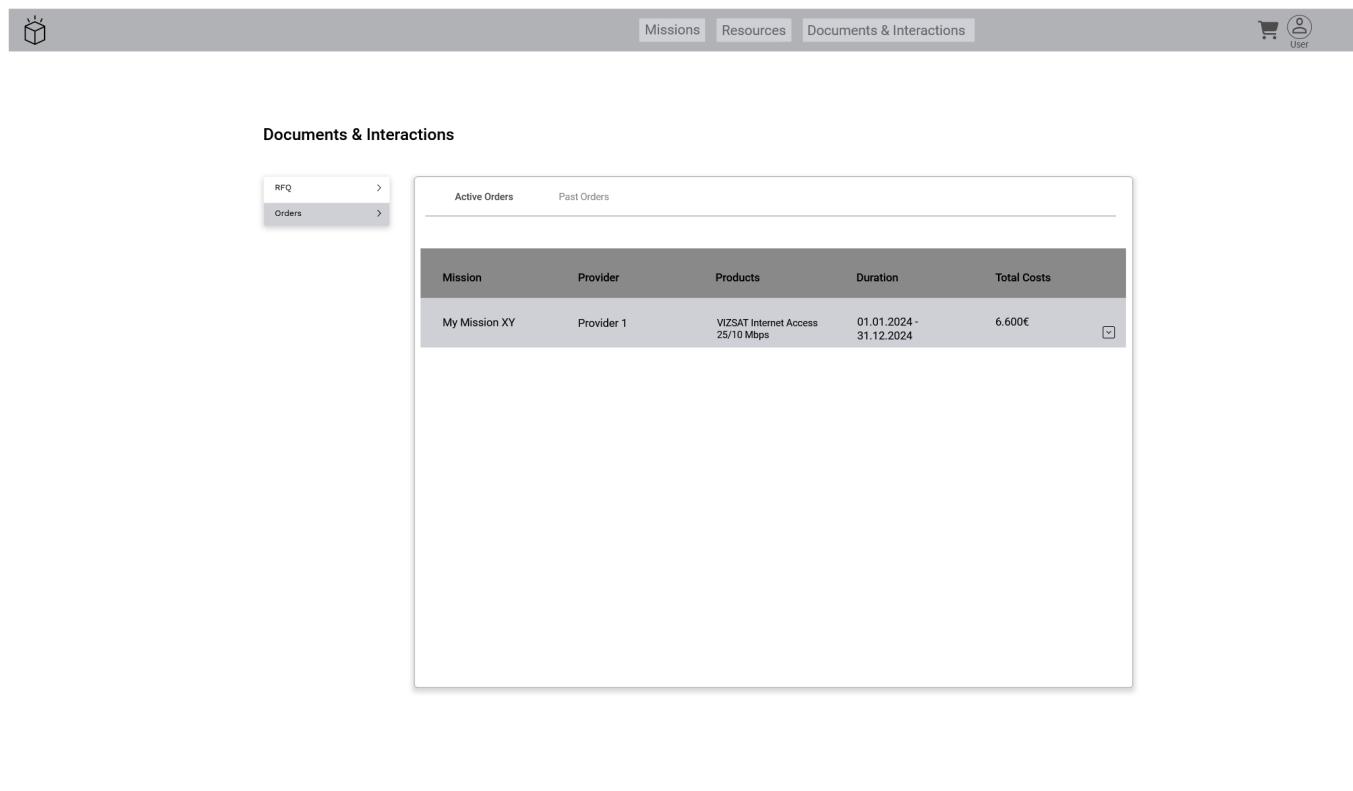
Figure 4.27: Documents & Interactions: Results after Re-calculation

The image above shows the list of service options including the requested service option.

4.5.2 Outgoing Product Orders

Actor	Consumed API(s)
User	PSID622 Product Ordering

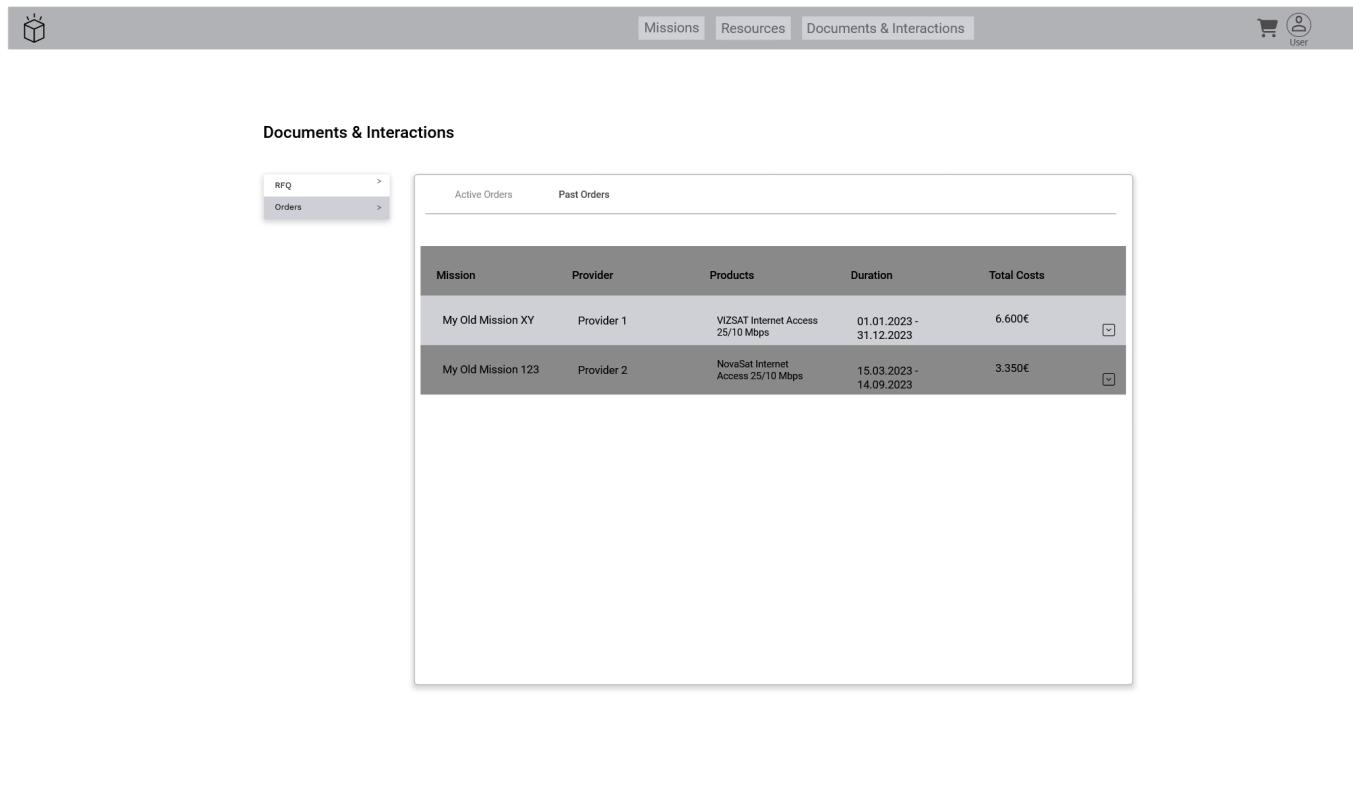
Table 4.6: Parameters of all Ordered Products Views.



Mission	Provider	Products	Duration	Total Costs
My Mission XY	Provider 1	VIZSAT Internet Access 25/10 Mbps	01.01.2024 - 31.12.2024	6.600€

Figure 4.28: Documents & Interactions: Active Orders

The view for orders shows a component, where the user can easily switch between active and past orders. The image above shows the active orders.



Mission	Provider	Products	Duration	Total Costs
My Old Mission XY	Provider 1	VIZSAT Internet Access 25/10 Mbps	01.01.2023 - 31.12.2023	6.600€ <input checked="" type="checkbox"/>
My Old Mission 123	Provider 2	NovaSat Internet Access 25/10 Mbps	15.03.2023 - 14.09.2023	3.350€ <input checked="" type="checkbox"/>

Figure 4.29: Documents & Interactions: Past Orders

The image above shows the past orders.

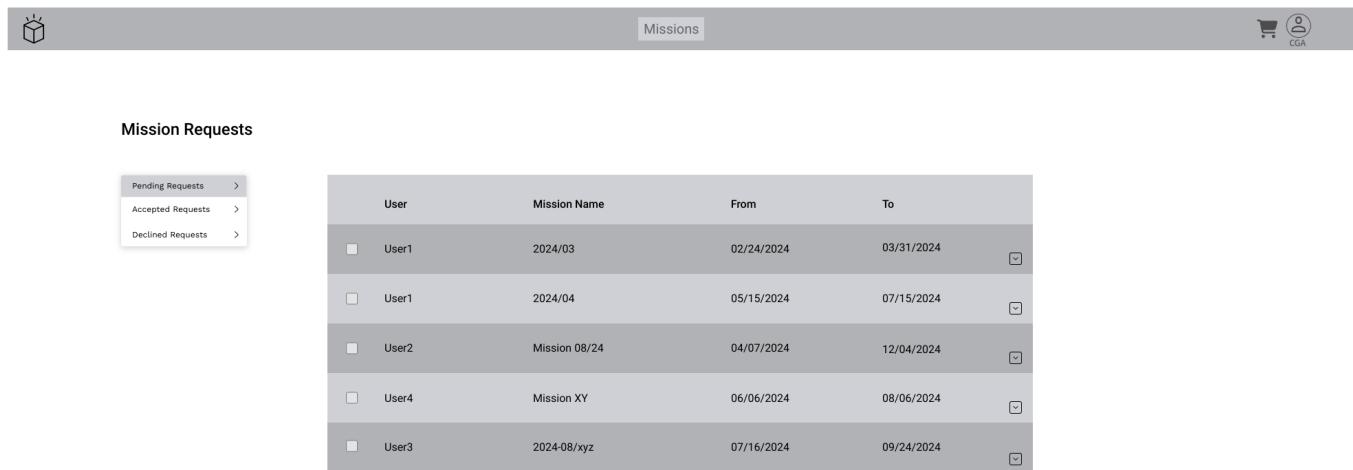
5 CGA

5.1 Distributed Matchmaking

5.1.1 Mission Requests

Actor	Consumed API(s)
CGA	PSID001 Customer Inquiry

Table 5.1: Parameters of all Distributed Matchmaking Views - CGA.



User	Mission Name	From	To
User1	2024/03	02/24/2024	03/31/2024
User1	2024/04	05/15/2024	07/15/2024
User2	Mission 08/24	04/07/2024	12/04/2024
User4	Mission XY	06/06/2024	08/06/2024
User3	2024-08/xyz	07/16/2024	09/24/2024

Figure 5.1: Mission Request

The CGA receives mission requests from the users, which are listed in the view above. These missions must be reviewed and the CGA can accept or decline them.

Mission Requests

User	Mission Name	From	To
User1	2024/03	02/24/2024	03/31/2024

Service Grades

Availability: Standard
Security Level: Restricted
Anti-Jamming: Yes

Services

Name: My Internet Access 1
Type: Internet Access
Zone: AOO
Duration: 01/29/2024 - 02/28/2024
Frequency Band: KA
Minimum Download/Upload: 2048/1024

Name: My Internet Access 2
Type: Internet Access
Zone: HQ
Duration: 01/29/2024 - 02/28/2024
Frequency Band: KA
Minimum Download/Upload: 2048/1024

Buttons:

- Pending Requests >
- Accepted Requests >
- Declined Requests >
- Decline Request
- Calculate Options

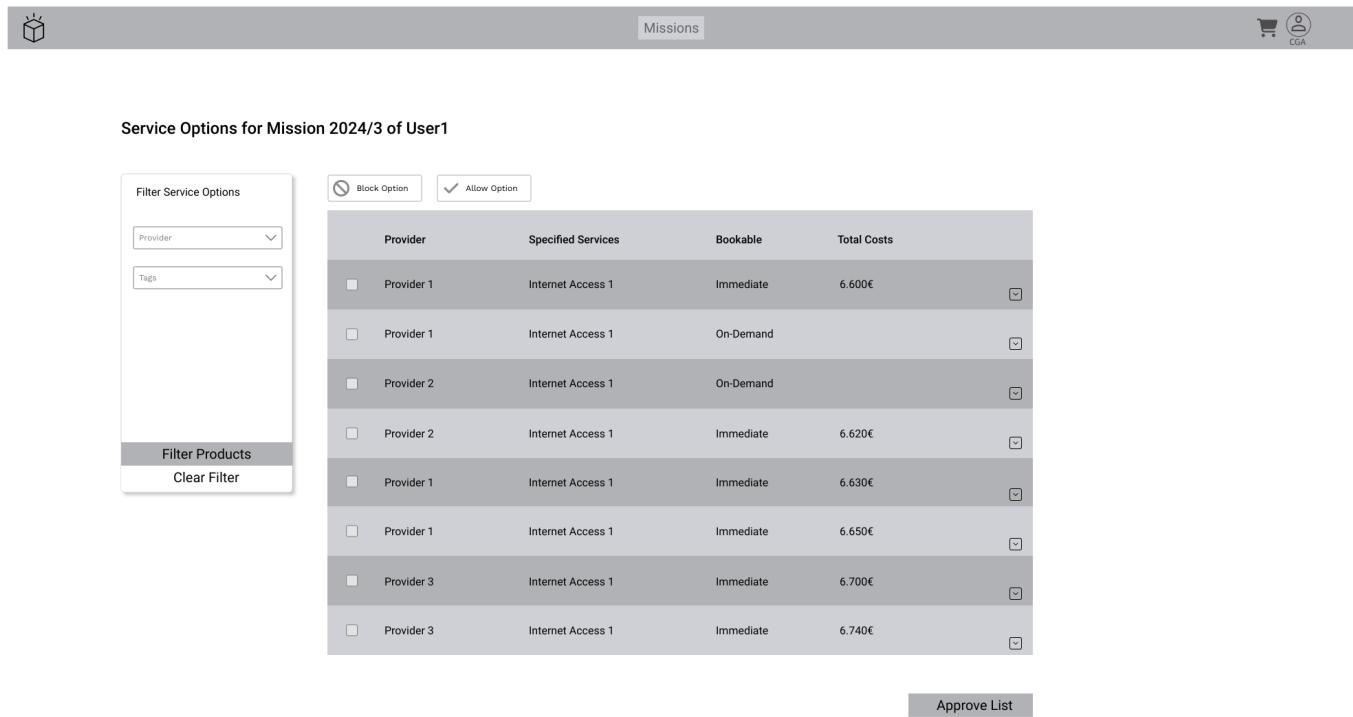
Figure 5.2: Mission Request - Details

By clicking on a row, the details' panel opens underneath. The CGA can review all data to which it has access and then decides either to decline the request or trigger the matchmaking process by clicking on the 'Calculate Options' button. Some information might be restricted and are not shown to the CGA. This is pre-filtered in the backend.

5.1.2 Offered Products

Actor	Consumed API(s)
CGA	PSID620 Product Catalog
CGA	PSID001 Customer Inquiry

Table 5.2: Parameters of all Offered Products Views.



Provider	Specified Services	Bookable	Total Costs
Provider 1	Internet Access 1	Immediate	6.600€
Provider 1	Internet Access 1	On-Demand	
Provider 2	Internet Access 1	On-Demand	
Provider 2	Internet Access 1	Immediate	6.620€
Provider 1	Internet Access 1	Immediate	6.630€
Provider 1	Internet Access 1	Immediate	6.650€
Provider 3	Internet Access 1	Immediate	6.700€
Provider 3	Internet Access 1	Immediate	6.740€

Figure 5.3: Offered Products

After triggering the matchmaking, the results are shown in a list. The checkbox on the left side in the row can be checked, which enables the 'Block Option' and 'Allow Option' buttons above.

Service Options for Mission 2024/3 of User1

Filter Service Options
 Block Option Allow Option

Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.600€
Product Name: VIZSAT Internet Access 25/10 Mbps Description: This product offering suggests VIZSAT Internet Access 25/10 Mbps service Provider: Provider 1			
Product Specification Name: VIZSAT Internet Access Description: VIZSAT Internet Access allows you to allocate bandwidth based on demand and land remote site traffic anywhere – our gateway, yours, or a cloud data centre. Type: Internet Access Forward CIR: 25 Mbps Return CIR: 10 Mbps		Resource Specification Name: SkyView T1234 Description: This resource specification defines the SkyView T1234 as a Customer Terminal. Category: Terminals Frequency: KU	
Service Specification Name: VIZSAT Internet Access Description: The 'customer facing' service of VIZSAT Internet Access			

Figure 5.4: Offered Products - Details

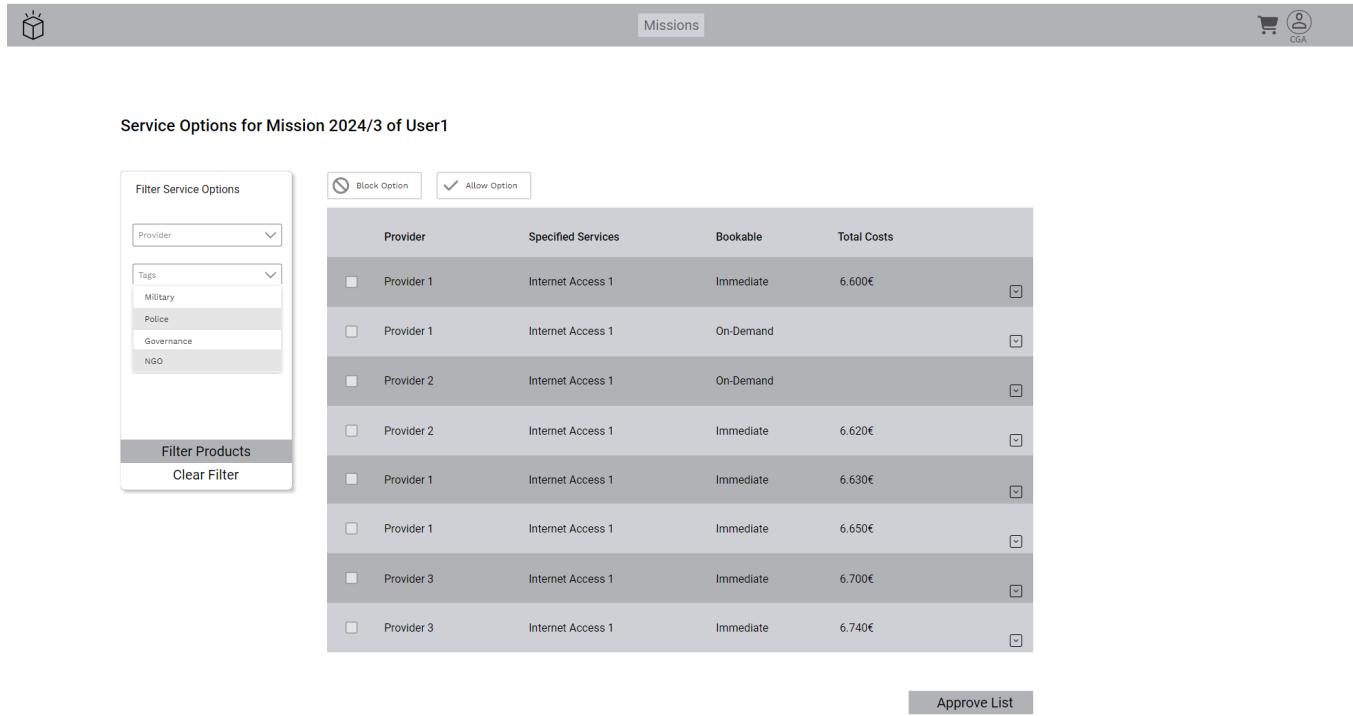
Clicking a row opens the details' panel below.

Service Options for Mission 2024/3 of User1

Filter Service Options
 Block Option Allow Option

Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.600€
<input type="checkbox"/> Provider 1	Internet Access 1	On-Demand	
<input type="checkbox"/> Provider 2	Internet Access 1	On-Demand	
<input type="checkbox"/> Provider 2	Internet Access 1	Immediate	6.620€
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.630€
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.650€
<input type="checkbox"/> Provider 3	Internet Access 1	Immediate	6.700€
<input type="checkbox"/> Provider 3	Internet Access 1	Immediate	6.740€

Figure 5.5: Offered Products - Filter Results 1



Provider	Specified Services	Bookable	Total Costs
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.600€
<input type="checkbox"/> Provider 1	Internet Access 1	On-Demand	
<input type="checkbox"/> Provider 2	Internet Access 1	On-Demand	
<input type="checkbox"/> Provider 2	Internet Access 1	Immediate	6.620€
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.630€
<input type="checkbox"/> Provider 1	Internet Access 1	Immediate	6.650€
<input type="checkbox"/> Provider 3	Internet Access 1	Immediate	6.700€
<input type="checkbox"/> Provider 3	Internet Access 1	Immediate	6.740€

Figure 5.6: Offered Products - Filter Results 2

The list can be filtered using the component on the left. In this example, it can be filtered by provider and by tags, as can be seen in the two images above. Then, the CGA can use the checkmarks in the rows to enable the buttons to block or allow product offers. As soon as the CGA has marked at least one option as allowed, the list can be approved with the button underneath the list: 'Approve List'. Finally, all allowed option are visible to the user after the CGA has completed this process.

6 Mission Management ODA Component

The development of a mission management ODA component, which we are aiming to publish on GitHub, is an important target for PSI. One part of it is the frontend design to give a better understanding of how this component is used by different actors. As already described in the user journey mission creation, we draw a crisis scenario, where the different actors have specific roles and use the system in different ways. For now, we describe the top level mission planning, where the actor has a governmental role, and a more specific sub-mission planning, where the actor will plan around a specific area and with certain teams. Until the end of the project, the UI-layout can still be extended and improved.

A proof-of-concept implementation will also follow.

6.1 Top Level Mission Planning

Actor	Consumed API(s)
User	PSID002 Mission API
User	PSID632 Party API

Table 6.1: Parameters of Top Level Mission Planning Views.

The top level mission planner defines the frame for all sub-missions. This can be done by:



Figure 6.1: Open

The starting point in the GUI is shown in the image above. The main navigation, including as navigation items, is placed on the left. In this case, the user presses the “Open” button. Then, a sub-navigation

opens to the right of the main navigation, showing various possible items to open, sorted by category. The operator wants to open a blank file and presses “Open Blank”.

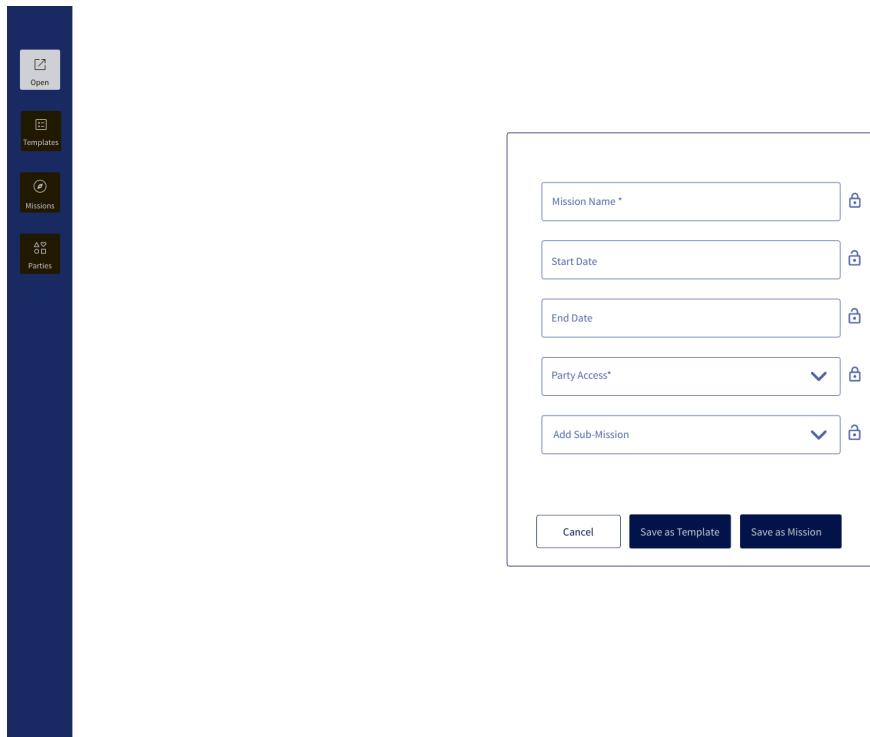


Figure 6.2: Open Blank

After that, a blank form is displayed and the sub-navigation closed. It can be reopened when the user clicks on the “Open” button of the main navigation, again.

After the user filled in the form, at least the required fields, it can be saved either as template or as mission. A mission needs a start date and an end date, in addition to a name and a Party Access selection. This can be communicated to the user by only enabling the “Save as Mission” button, when all required fields are populated. The lock icons indicate whether or not the parameters are editable within a sub-mission. The “Access Parties” defines, which parties have access rights to the mission or template and who can create sub-missions. Existing missions can be added as sub-missions, but the values must follow the main mission frame. The detailed information of a sub-mission, like individual members of the teams attached, are not accessible from the main mission. The need-to-know principle is applied.

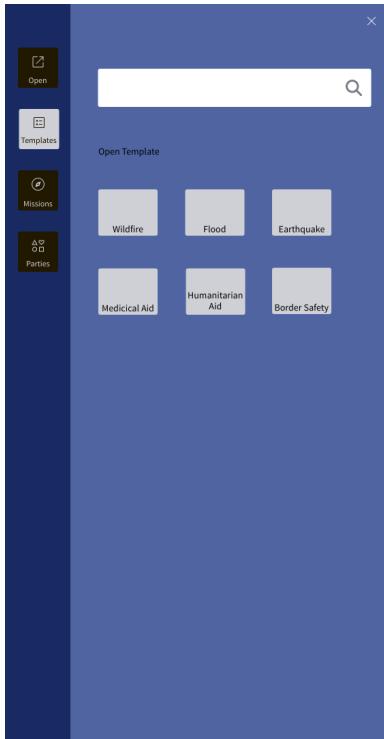


Figure 6.3: Open Template

The image above shows the sub-navigation for the template management. All existing templates are listed, and a search bar is provided to search for a specific template. Here, only a few templates exist, but this number will grow with time. The operator chooses the template for wildfire.

Template	Wildfire	🔒
Start Date		🔒
End Date		🔒
Party Access	Organisation Alpha	Organisation Beta
Add Sub-Templates	▼	
<input type="button" value="Cancel"/> <input type="button" value="Save as Template"/> <input type="button" value="Save as Mission"/>		

Figure 6.4: Open template Wildfire

The template for wildfire was created earlier. The operator can change any value or enter dates before saving the template as a mission.

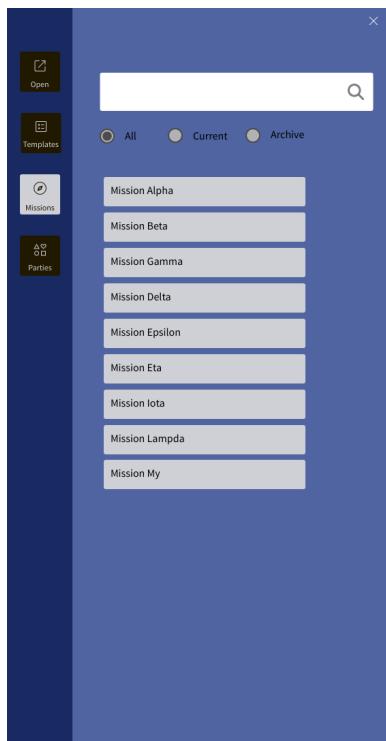


Figure 6.5: Open Mission

The image above shows the sub-navigation for the mission management. All existing missions are listed, and a search bar is provided to search for a specific template. Here, only a few missions exist, but this number will grow with time. The list can show all missions, only the current missions or the missions in the archive. The operator chooses to open “Mission Alpha”.

Figure 6.6: Open Mission Wildfire

The operator can further fill the mission form. The category can be set, party access can be managed and submissions can be added. The operator can enable the area definition. This can be seen in the next image.

Figure 6.7: Enable Area Definition

The mission data display shifts to the left in order to give the map component the required space. The sub-menu indicates the view on the mission, which will be further described in the chapter Sub-Mission Planning.

Figure 6.8: Open Party

The image above shows the sub-navigation for the party management. All existing parties are listed, and a search bar is provided to search for a specific party. Here, only a few parties exist, but this number will grow with time.

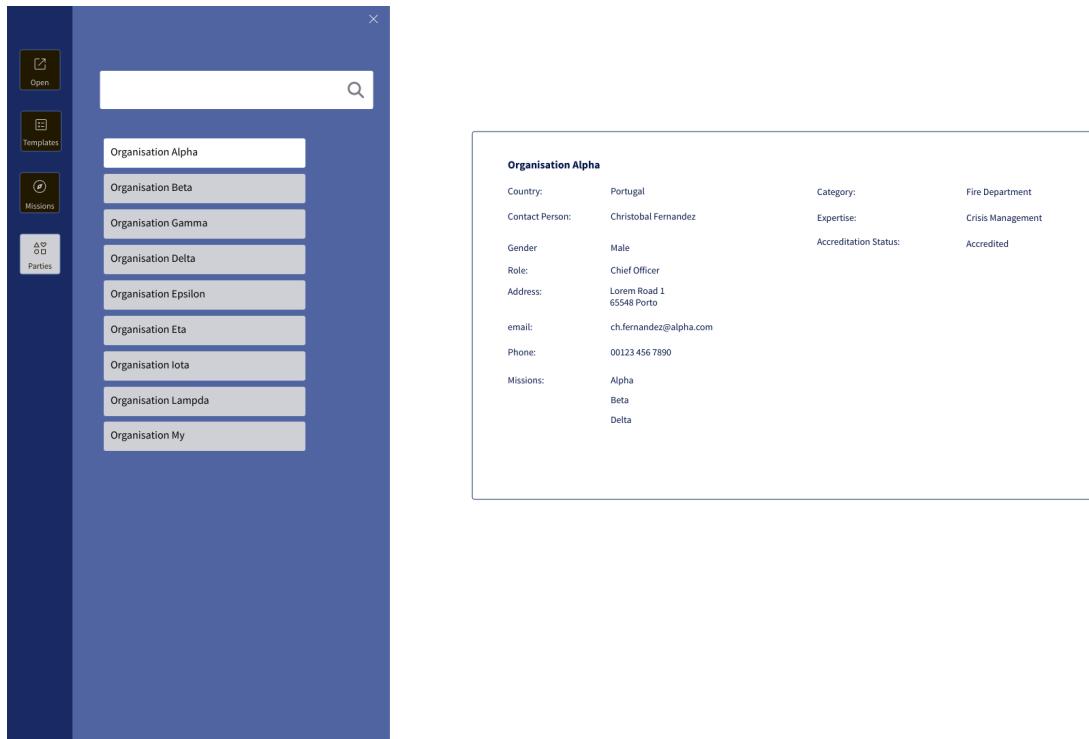


Figure 6.9: Open Party Organisation A

Selecting a party from the list opens a card, which displays all detailed information. This view is read only, since the party management is out of scope of the mission management component.

6.2 Sub-Mission Planning

Actor	Consumed API(s)
User	PSID002 Mission API
User	PSID001 Customer Inquiry

Table 6.2: Parameters of Sub-Missions Planning Views.

Sub-missions are part of a main mission, which builds the frame of all sub-missions. Some values may be locked by the main mission and cannot be changed within the sub-mission, such as "category". The start and end of a sub-mission must be between the start and end of the main mission. A sub-mission can include other sub-missions.

The creation of a sub-mission follows the same procedure already described in the previous section [Top Level Mission Planning](#).

Figure 6.10: Open Mission ABC

The image above shows a view on the sub-mission “Mission ABC”. Mission data are displayed on the left and can also be adjusted from here. To specify services, the operator goes to “Service needs” and presses the pencil icon.

Figure 6.11: Add Service

A dialogue pops up, which offers a list of services. The operator can select the required services and save the selection.

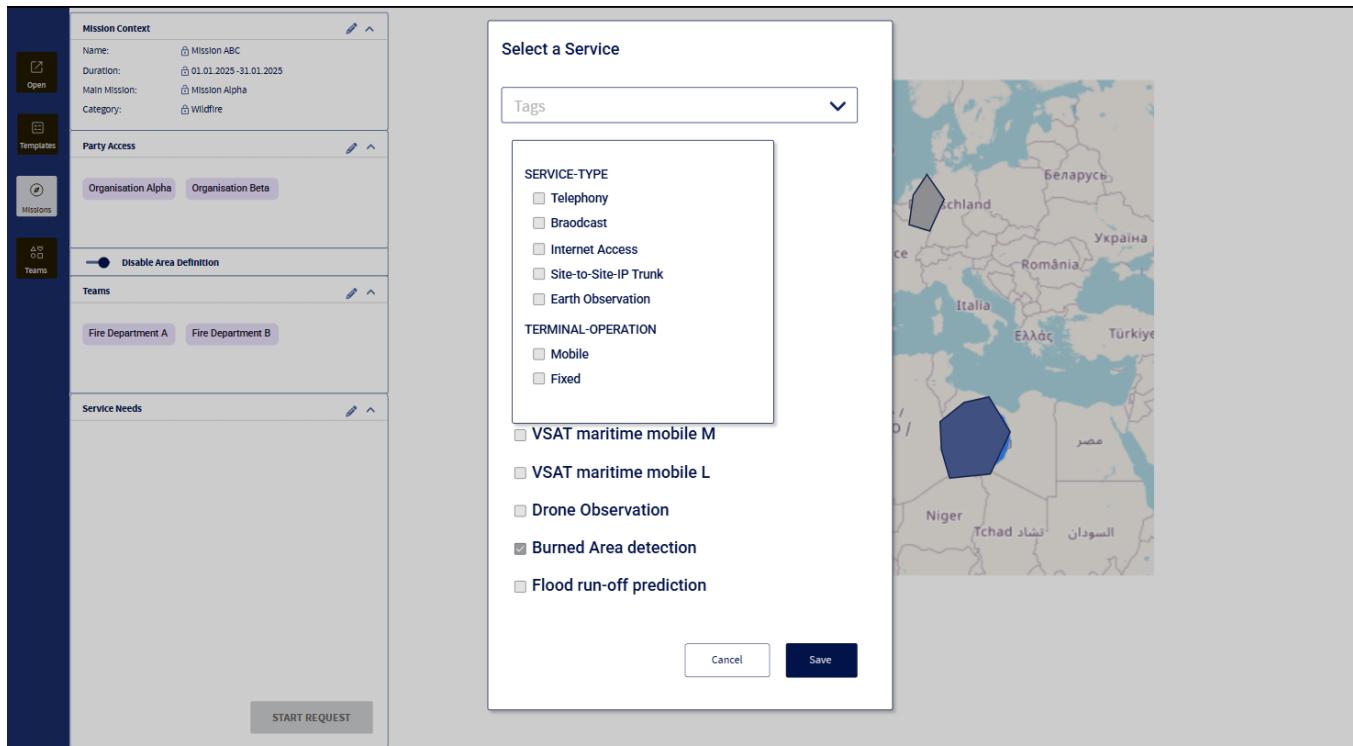


Figure 6.12: Service Filter

The list can be filtered by tags. When clicking on the “Tags” field, a list of filter tags appears in the drop-down. The filtered results will be shown and after selecting services and saving the selection, the dialogue will be closed.

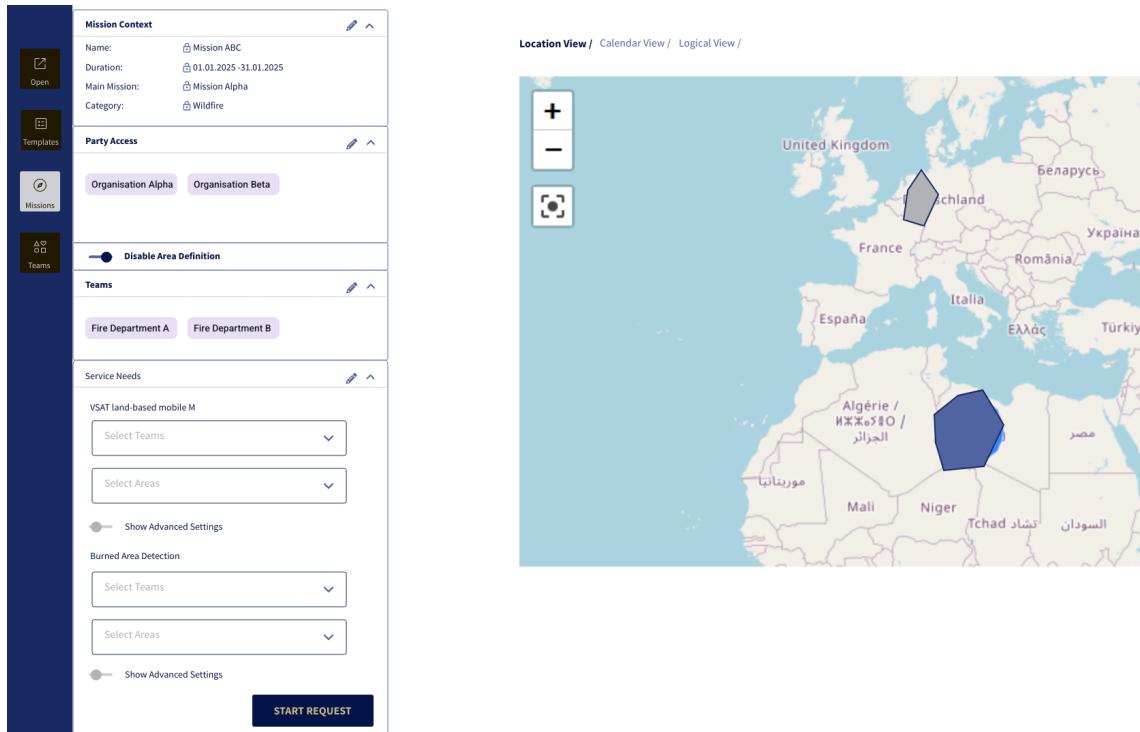


Figure 6.13: Mission Services

After adding the services, they are displayed underneath “Service Needs” on the left. Below each service, input fields enable the operator to assign the service to teams and areas. While the areas are required, teams are

optional. The button “Start Request” will send the request to the inquiry API.

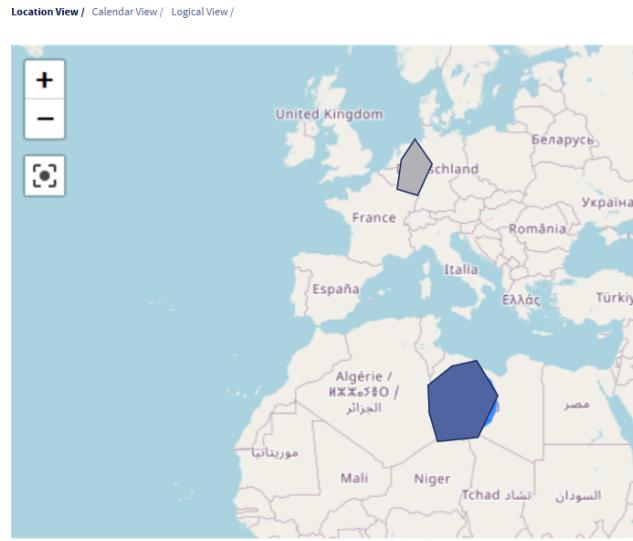


Figure 6.14: Assign Service to Team

When clicking on the drop-down “Select Teams” the operator can select teams from a list.

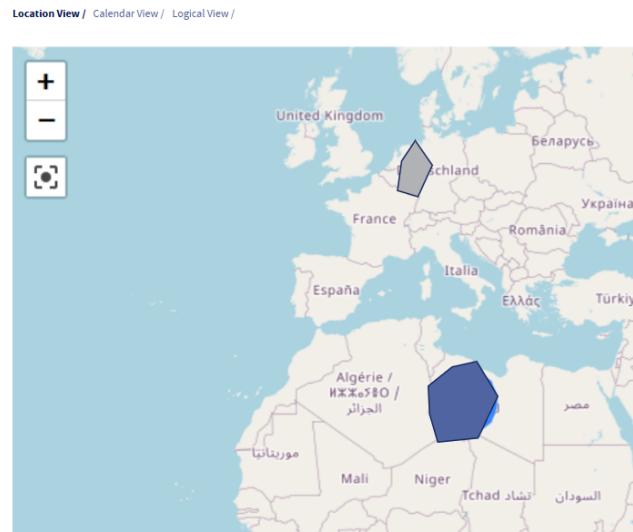


Figure 6.15: Assign Service to Area

When clicking on the drop-down “Select Area” the operator can select the area from a list.

Mission Context

- Name: Mission ABC
- Duration: 01.01.2025 - 31.01.2025
- Main Mission: Mission Alpha
- Category: Wildfire

Party Access

- Organisation Alpha
- Organisation Beta

Teams

- Fire Department A
- Fire Department B

Service Needs

VSAT land-based mobile M

- Select Teams
- Select Areas

Burned Area Detection

- Select Teams
- Select Areas

Location View / Calendar View / Logical View /

Figure 6.16: Advanced Service Settings

The operator can enable the configuration of advanced service attributes. After the operator toggled the switch “Show Advanced Settings” underneath the input for area selection, more fields are displayed to the user. That allows the operator to manipulate the template-based value of e.g. data rates. The advanced settings shown here are just an example and can be different for other service types.

Mission Context

- Name: Mission ABC
- Duration: 01.01.2025 - 31.01.2025
- Main Mission: Mission Alpha
- Category: Wildfire

Party Access

- Organisation Alpha
- Organisation Beta

Teams

- Fire Department A
- Fire Department B

Service Needs

VSAT land-based mobile M

- Select Teams
- Select Areas

Burned Area Detection

- Select Teams
- Select Areas

Show Advanced Settings

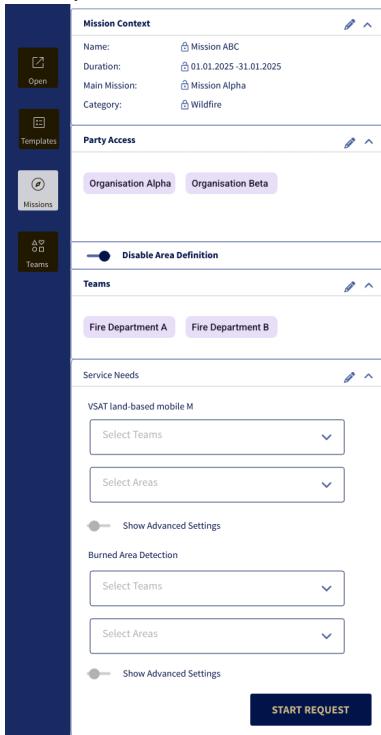
START REQUEST

Location View / Calendar View / Logical View /

Figure 6.17: Mission View - Location

A mission can be looked at from different viewpoints:

The operator can switch views by using the sub-navigation above the map. See the image above.



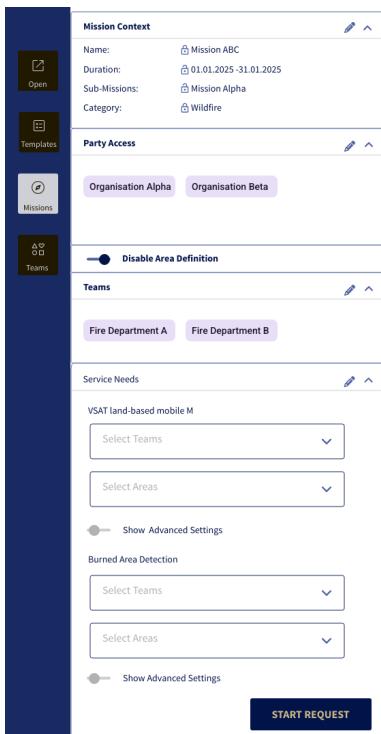
This screenshot shows the 'Mission View' interface. On the left is a vertical sidebar with icons for 'Open', 'Templates', 'Missions' (selected), and 'Teams'. The main area is divided into several sections: 'Mission Context' (Name: Mission ABC, Duration: 01.01.2025 - 31.01.2025, Main Mission: Mission Alpha, Category: Wildfire), 'Party Access' (Organisation Alpha, Organisation Beta), 'Disable Area Definition' (Teams: Fire Department A, Fire Department B), 'Service Needs' (VSAT land-based mobile M, Select Teams, Select Areas, Show Advanced Settings), and 'Burned Area Detection' (Select Teams, Select Areas, Show Advanced Settings). At the bottom is a 'START REQUEST' button.

Location View / [Calendar View](#) / [Logical View](#) /



Figure 6.18: Mission View - Calendar

The image above shows the calendar view, which will be realised by a Gantt chart. Here, the operator can get an overview of the start and end dates of sub-missions or team assignments.



This screenshot shows the 'Mission View' interface, identical to the one in Figure 6.18, with the 'Missions' icon selected in the sidebar. The main sections include 'Mission Context', 'Party Access', 'Disable Area Definition', 'Service Needs', and 'Burned Area Detection', along with a 'START REQUEST' button at the bottom.

Location View / [Calendar View](#) / [Logical View](#) /

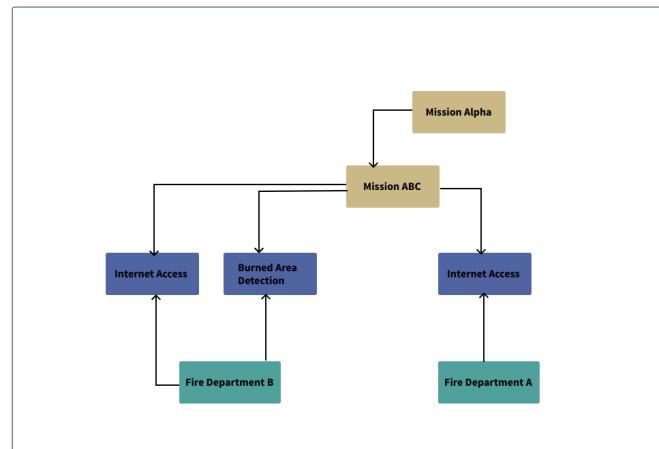


Figure 6.19: Mission View - Logical

The image above shows the logical view. It shows the relations between missions, services, teams etc. in a node diagram.

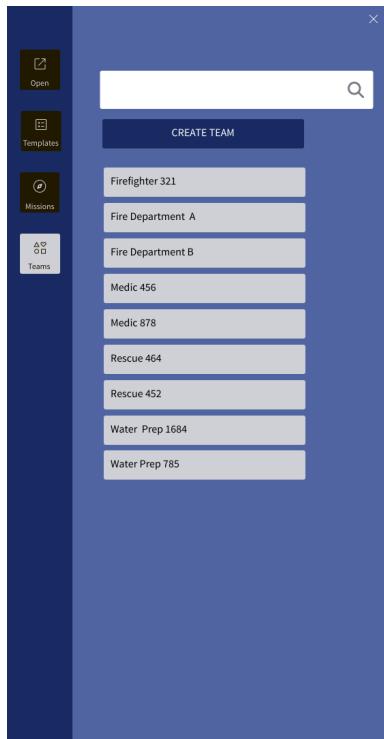


Figure 6.20: Teams

The image above shows the sub-navigation for the team management. All existing teams are listed, and a search bar is provided to search for a specific team.

Firefighter 321			
Country:	Portugal	Category:	Fire Department
Contact Person:	Christina Luna	Expertise:	Crisis Management
Gender:	Female	Accreditation Status:	Accredited
Role:	Chief Officer		
Address:	Lorem Road 1 65548 Porto		
email:	ch.luna@fire.com		
Phone:	00123 456 7890		
Mission:	ABC		
Team Size:	9		
Resources:	Resource A, ResourceB		

Figure 6.21: Open Team

Selecting a team from the list opens a card, which displays detailed information. Teams are seen and treated as resources. This view is read only, since the team management is out of scope of the mission management component.

Last Page of Document