European Maritime Safety Agency

Preliminary Market Consultation

RPAS Data Center Questionnaire

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Change log

2020-03-03	First version
2020-03-16	Submission period extended by 7 days

The RPAS Data Center (RPAS DC) service provides a web-based application to follow in real-time the flight of a Remotely Piloted Aircraft System (RPAS). The RPAS DC delivers to users, through the internet, the live streaming of video. The RPAS DC also shows on a map the RPAS position and other geo-located data, like radar and AIS detections collected by the RPAS during the flight. The RPAS DC archives and allows to replay past flights for analysis and investigation purposes. Typical application areas of the RPAS DC service are: maritime surveillance, Search&Rescue, law enforcement, monitoring of gas emissions and marine pollution.

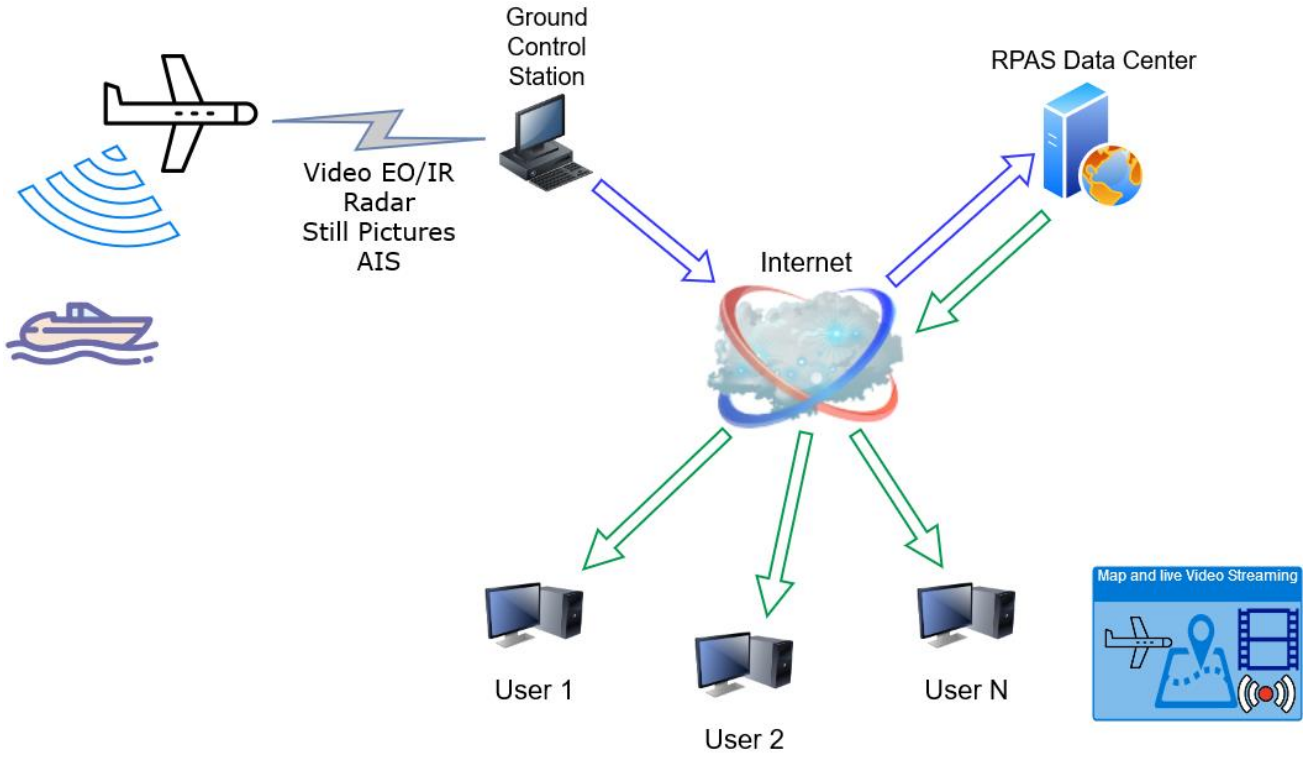

Figure 1 - RPAS DC Service Diagram

Service Level Requirements

The RPAS DC service has the availability requirement of 99% over 24 hours and a maximum acceptable latency of 5 seconds for video streaming and data visualization. The total number of concurrent RPAS DC users is in the order of 50 while the number of simultaneous RPAS flights may be up to 10. Each flight may last up to 24 hours.

RPAS DC Guiding Principles

The objective of this Questionnaire is to achieve in-depth knowledge of the market structure, its players and the technical and feasibility aspects related to the provision of the RPAS DC service, according to the following guiding principles.

Please note that this questionnaire is an informational enquiry only, with the view of planning **a future procurement procedure.** It does not commit EMSA to procure, award a contract or establish a short list on the basis of the results of the consultation. Responding to this questionnaire is entirely voluntary and will in no way affect the evaluation of any proposal submitted in response to a future procurement.

General principle

The RPAS DC provides access to and visualization of the video and the data collected during the flight via a common Web browser, without special plug-ins, as well as on mobile phones and tablets, through an App.

Principle#1 – Live Video Streaming

The RPAS DC shows to its users one or several live full-motion video streams received from an RPAS during a flight. The video is displayed through a **web-based user interface**. The RPAS DC should optimise the user experience in terms of video quality taking into consideration technical constraints like the internet bandwidth and the client computer performance.

Principle#2 – Multi-RPAS Support

The RPAS DC is used to follow flights of RPAS of different types and built by different vendors, from quad-copters to medium-altitude long-endurance aircrafts. The different types of data streams are: **RPAS video** (with frame footprint), **flight status** (position, speed, heading), other sensor data like **radar detection and gas measurements**. Data is streamed from the RPAS Ground Control Station to the RPAS DC through the Internet. The RPAS DC should provide a standard interface with data format and transmission protocols that can be easily implemented by any vendor. Alternatives to STANAG 4609 for video and metadata streaming may be considered.

Principle#3 – Service Availability

The RPAS DC is a **mission-critical system** and users of the RPAS DC require a reliable service with **high availability**. The RPAS DC should rely on a robust and well-tested operational technology and platform to match the service level agreement and reach the high-availability standards that its users demand.

Principle#4 – Live GIS

During a flight, the RPAS DC receives geo-located data (flight status, sensor detections) and shows it to the users in a **web-based Geographic Information System** (GIS), supporting also external data layers (e.g. winds and sea water temperature). The RPAS DC should optimise the user experience in terms of maritime situational awareness, taking into consideration technical constraints like the client computer performance and web-based GIS technology.

Principle#5 – Data Security

RPAS flight video and sensor data is confidential. The RPAS DC should ensure data security, taking into consideration that the link between the RPAS Ground Control Station to the RPAS DC and the user access to the RPAS DC is done through the internet.

Principle#6 – Data Processing

RPAS flight video and sensor data is processed with automatic algorithms, e.g. enhancement of image resolution, contrast and color, detection of floating objects, etc. The RPAS DC should implement low-latency state-of-the-art algorithms that add value to the service for its operational applications.

Information Requested

For each of the Guiding Principles please provide your understanding and potential solution from a technical and operational perspective. Highlight the advantages and shortcomings of the proposed solutions. If possible, provide access (e.g. temporary credentials) to a demonstrator or sample products to show the features of your solution.

Note that your response should not exceed 10 pages.
Response to the questionnaire shall be submitted no later than 21 calendar days from its publication.

To submit a response to this Preliminary Market Consultation and for any further inquiries, please send an e-mail to the following address:

pmc12020@emsa.europa.eu

Annex: Questionnaire (see next page)

European Maritime Safety Agency

Preliminary Market Consultation

RPAS Data Center Questionnaire

Company Name: _____

Company Website: _____

Contact Person Name, E-mail, Telephone Number:

_____

Guiding Principle	**What is your understanding of the requirements and technical approach?**	**What technical solution would you propose to deliver the service?** (existing products and platforms, standards, interfaces, data formats, integration, demo, etc.)
Principle#1 – Live Video Streaming		
Principle#2 – Multi-RPAS Support		
Principle#3 – Service Availability		
Principle#4 – Live GIS		
Principle#5 – Data Security		
Principle#6 – Data Processing		

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