Annex E of Tender documentation

Flight Information display system

Functional and Technical Specifications

CONTENTS

1. INTRODUCTION

The subject-matter of the contract is the replacement of the existing FIDS (Flight Information Display System) at Václav Havel Airport Prague. The operating IT environment is provided by the parent company Český Aeroholding, a. s. (hereinafter referred to as the "Contracting Authority"). FIDS means primarily the system displaying information from the Airport Operational Database (AODB) on approx. 1,000 monitors in compliance with editable rules and in editable design. The system for data exchange with the AODB must support Message Queue Interface. The system must support different fields in accordance with the AODB and enable their modifications/extension according to the operating requirements. The system also contains the functionalities specified below.

The system will be installed and operated in the Contracting Authority's internal environment, its operation and administrator support will be covered by the Contracting Authority's employees, the servicing of the System will be contractually agreed with the supplier.

2. ACCRONYMS AND TERMS

FIDS of the System – Flight Information Display System
AODB – Airport Operational Database
Contracting Authority – Český Aeroholding, a. s.
System – requested FIDS
Safe Mode – temporary state of the System enabling the use of selected functions in case of failure

STD – Scheduled Time of Departure
STA – Scheduled Time of Arrival
ATD – Actual Time Of Departure
ATA – Actual Time of Arrival

3. TECHNICAL REQUIREMENTS

3.1. INFRASTRUCTURE

The System must support the Windows Server 2016 operating system running within the VMWARE virtual platform. The technical standards of the Contracting Authority's infrastructure are contained in Annex 1.

The System must be operated within the operating, backup and testing environments.

3.2. DATABASE

The System must support at least one of the databases described in Annex 1.

If the System supports another database, provision of the particular database licenses, the installation of the database as well as its configuration and maintenance is provided by the Supplier.

3.3. INTERFACE

The System must support transmission of data from the Contracting Authority's existing AODB through XML messages using one of the following interfaces supported by the existing AODB:

- ActiveMQ
- IBM MQ
- Oracle Advanced Queuing

- Web Services

The installation (or license) of such interface is included in the contract.

3.4. DATA

The data to be displayed within the System which are available for transmission from the AODB are described in Annex 2. The System is able to receive and display all such data within all outputs (FIDS monitors, XML reports, HTML websites).

3.5. PRODUCTION ENVIRONMENT

The System must be primarily operated in the production environment which is optimized in terms of performance in order to utilize all the functions of the System.

3.6. BACKUP ENVIRONMENT

In addition to the production environment, the System must be operated in the backup environment which is fully compatible with the production environment in terms of its functions and which is completly separated from production environment.

In case of failure of the production environment, the System must make it possible for trained employees of the CONTRACTING AUTHORITY to switch the System over to the operation in the Backup Environment within 20 minutes max., and the System run in the Backup Environment must be able to operate f at least the functions described in 4.1.

3.7. TEST ENVIRONMENT

In addition to the production and backup environments, the System must be operated in the test environment which is, in terms of its functions, fully compatible with the production environment. The test environment contains its own interface for data transmission from the test AODB.

3.8. MONITORING

The System must ensure the monitoring of its basic functions and in case of their failure it sends notification messages to pre-defined receivers via email or other channels.

3.9. GRAPHICAL USER INTERFACE

The System must contain a graphical user interface for the System administration and configuration. The access to the graphical user interface must be subject to user authorization. The System must make it possible to set/restrict privileges for the administration and configuration in the graphical user environment for each of the users.

4. FUNCTIONAL REQUIREMENTS

4.1. FIDS SCREENS

The System must enable the operation of 1,500 FIDS screens with the option to extend the number further.

The System must enable the administration, monitoring, live preview and remote configuration of each screen, or graphic controller, if applicable.

Each screen may be configured separately, and each screen may display different information.

The System must enable at least in the 1280x768, 768x1280 display resolution (portrait orientation), and 1920x1080, 1080x1920 display resolution (landscape orientation).

Each display may use any relating data from the AODB described in Annex 2.

Any displayed information may be defined and changed depending on the data from the AODB (such as specific display for selected airlines etc.).

The number of defined displayed information is not limited.

4.1.1. DEPARTURES + ARRIVALS

In order to display the departure/arrival information, the System must enable filtering and sorting by any relating field (e.g. it must be capable of displaying only flights from T1 sorted by departure time etc.).

Display of each flight may be changed depending on the relating data from the AODB (e.g. differentiate a flight of XXX in the list of departures).

It is possible to set a time window for the flights for each displayed departure/arrival depending on the data from the AODB (e.g. X minutes before STD/STA to X minutes after ATD/ATA and/or X minutes after STD/STA).

4.1.2. CHECK-INS

A special type of information display defined on the basis of data about check-in desks. Information displayed for each flight/check-in desk may be changed depending on all the relating data from the AODB.

4.1.3. GATES

A special type of information display defined on the basis of data about gates. Information displayed for each flight/gate may be changed depending on all the relating data from the AODB.

The System must be able to process information about gate change with respect to a flight so that information about the original gate is displayed with the currently handled flight.

4.1.4. ARRIVAL BELTS

A special type of information display defined on the basis of data about arrival belts. Information displayed for each flight/belt may be changed depending on all the relating data from the AODB.

4.1.5. DEPARTURE BELTS

A special type of information display defined on the basis of data about departure belts. Information displayed for each flight/belt may be changed depending on all the relating data from the AODB

4.1.6. USER TEXTS

A web GUI is operated in the System which can be used by the users, once they login using their username and password, to enter user texts linked to a specific screen of the System. Such texts may be used in the System to display on such screens. The web GUI may be used to activate/deactivate already entered texts for display on screens, while using their value in the GUI. The GUI must support Firefox and Google Chrome browsers.

The web GUI may be used to manage (light up/switch off) screens in other desks, except for standard check-in desks and boarding desks, and to display user texts on them.

Using the web GUI, the System must enable to enter a running text on selected screens.

4.1.7. STAFF SCREENS

A special type of screens, or graphic controller, which enable to scroll within the display, and to switch between supported, pre-defined displays in the System using a connected numeric keypad. Privileges to different, pre-defined displays may be configured for each staff screen, thus determining/limiting which displays may be switched between each particular screen.

4.1.8. PRESENTATION MONITORS

The System must make it possible to define information to be displayed on screens without links to data from the AODB.

4.1.9. EXTERNAL SCREENS

The System makes it possible to operate screens, or graphic controller, if applicable, outside the premises of the LKPR airport, communicating online with part of the system V DMZ according to the description of technical standards in Annex 1.

4.1.10. OTHER FUNCTIONS

4.1.10.1. EMERGENCY

The System contains a module enabling to pre-define special information to be displayed on defined groups of screens in the event of emergency, and to launch/cancel such scenarios easily via the administration GUI.

4.1.10.2. TRANSLATIONS

The System must contain multilingual lists of codes of airlines, city destinations, operating notes. Such code lists in all language versions (incl. special characters) may be used for displaying.

4.1.10.3. FONTS

The System must make it possible to enter and use any True Type and Open Type Font. One display may use multiple fonts.

4.1.10.4. COLOURS

The System must support True Color.

4.1.10.5. DATA EDITING

The System must make it possible to manage (suspend, initiate) transmission of data from the CAODB and simple data editing directly in the System in order to ensure operational functioning in the event of failure of the AODB.

4.1.10.6. DISPLAY PAGES

The System must make it possible to display various number of departures/arrival list pages. The System must enable automatic change of information size on the basis of its number in the given display.

4.1.10.7. PLANNING

The System must make it possible to plan automatic change of displayed information on a particular screen/group of screens on the defined day and at the defined time.

4.1.10.8. HTML DISPLAY

The System must make it possible to display an external html page or RSS feed on the whole page or part of the page.

4.1.10.9. CODESHARES

The System must support the display of code-shared flights, both in the variant one flight per codeshare, and also in the variant of displaying only the core flights and animation of numbers of code-shared lines. The System must support at least 10 codes-hared flights.

4.1.10.10. IMAGES AND VIDEOS

The System must support the display of usual image formats, at least JPG, PNG. The System enables displaying different images using the data from the AODB, such as logotypes of airlines, handling companies etc.

The System must support the display of usual video formats, at least WMV, MP4, in FullHD. The System enables displaying different videos using the data from the AODB, such as videos by airlines, etc.

4.1.10.11. ANIMATION

The System must make it possible to animate texts, both pre-defined and amended texts, depending on the data from the AODB, as well as images, both pre-defined and amended images, depending on the data from the AODB, at least in the number of 50. Animation may be defined as rolling horizontally and vertically, instant gradient and blend.

4.1.10.12. SYNCHRONIZATION

All animations, as well as video playing, must be synchronized on screens.

4.1.10.13. HISTORY

The System must make it possible to track the history of changes of displayed data from the AODB in relation to a specific flight without any time restrictions.

4.1.10.14. CODE LISTS

The System contains its own multilingual code lists of city destinations, airlines, system notes and user texts. The code lists of city destinations, airlines, system notes and user texts, or their values in English language, will be automatically uploaded from the AODB via the interface.

4.1.10.15. WEATHER

The System must make it possible to display information about the weather in the city of destination or the city of origin in the form of temperature in degrees Celsius and infographics about the current weather conditions (clear, cloudy etc.). If the use of such information is licensed, the license fee must be included in the price of the System. Information about the weather must be included in the XML report defined in 4.3 and exported out of the System.

4.2. HTML PAGES

The System makes it possible to generate websites compatible with the Firefox and Google Chrome browsers, with the content definable in a similar way as in case of the FIDS screens, using any data from the AODB described in Annex 2. The System must make it possible to enter images in the websites in a similar way as in case of the FIDS screens. The websites are published in the web server within the System infrastructure, both within the internal network of the Contracting Authority and within DMZ for online access. For online access, the websites are secured with a username and password which are managed directly by the System and which are available via a HTTPS protocol.

4.3. XML REPORTS

The System must enable generic reports in the XML format with the content definable in a similar way as in the case of FIDS screens, using any data from the AODB described in Annex 2. The System must enable creating reports for arrivals and departures separately. The reports are published on the web server within the System infrastructure, both in the internal network of the Contracting Authority and within the DMZ for online access. With respect to online access, the reports are secured with a username and password which are managed directly by the System, and they are available through a HTTPS protocol. The required structure of XML report is described in Annex 3.

5. NON-FUNCTIONAL REQUIREMENTS

5.1. INSTALLATION

The installation of the System is ensured by the Supplier in cooperation with the employees of the Contracting Authority in accordance with the installation plan previously approved by the employees of the Contracting Authority.

5.2. TRAINING

The Supplier shall organize System administration training for 2 employees of the Contracting Authority.

6. GRAPHIC CONTROLLERS

6.1. SYSTEM OPERATION ON NEWLY SUPPLIED GRAPHIC CONTROLLERS

The target of the System is 1,100 pcs of graphic controllers, incl. licenses necessary for their operation within the System.

The graphic controllers will be supplied with pre-installed software necessary for their operation within the System.

The supply of the graphic controllers will include their certification for 24x7 operation from the manufacturer.

The supply of each graphic controller will include 1 power cable 1.5m, 1 power adapter (if applicable), 1x HDMI cable 1.5m, 1x Patch Cord UTP CAT5E 1m.

The graphic controllers contain the following inputs and outputs: HDMI, VGA, 3,5mm jack audio, 2x USB, 100MB/s LAN

The graphic controllers are fanless, with memory storage without mechanically moving parts.

Maximum dimensions of graphic controllers: 25 x 22 x 7cm.

The Supplier provides a 4-year warranty for the graphic controllers supplied.

6.2. SYSTEM OPERATION ON EXISTING GRAPHIC CONTROLLERS OF CONTRACTING AUTHORITY

If the System enables the operation on the existing graphic controllers of the Contracting Authority described in cl. 6.2.1 and 6.2.2., the Supplier shall be provided with 400 pcs of graphic controllers for their reinstallation, using the existing licenses on the Windows 7 Pos Ready possessed by the Contracting Authority. If another license is necessary for their operation, the same shall be provided by the Supplier. The re-installed graphic controllers will be used within the contract in accordance with cl. 6.1, except for the warranty for delivered graphic controllers. The graphic controllers are provided to the Supplier in a demonstrably functional condition. If they are damaged during the re-installation, the Supplier shall ensure their repairs, or replacement in accordance with cl. 6.1, if applicable. The Supplier shall provide a 6-month warranty for the existing reinstalled graphic controllers.

6.2.1. AMD G-T40E 1GHZ 2 CORES, 4GB RAM, 16GB HD, RADEON HD6250

340 pieces

6.2.2. INTEL CELERON J1900 1,99GHZ 4 CORES, 4GB RAM, 32GB HD, INTEL ATOM E3800

60 pieces

6.3. SYSTEM OPERATION ON OTHER GRAPHIC CONTROLLERS

The Supplier must enable the operation of the System on other graphic controllers of the Contracting Authority complying with the recommended HW configuration of the Supplier.

6.4. REQUIREMENTS FOR OPERATION OF GRAPHIC CONTROLLERS

- Graphic controllers support network authentication 802.1x - EAP-TLS and the System must support remote, mass distribution of certificates to graphic controllers. If the System does not provide this kind of support, the Supplier will provide a list of MAC addresses of all graphic controllers and each graphic controller will bear a label with the relevant MAC address.
- If graphic controller is run without any connection to the server, an image provided by the Contracting Authority is displayed.
- In the event of failure of communication between the graphic controller and server which lasts less than 10 minutes, the latest existing state is displayed.

- In the event of failure of communication between the graphic controller and server which lasts more than 10 minutes, an image provided by the Contracting Authority is displayed.
- Updates of the System on graphic controllers may be done in a remote and mass manner.
- graphic controllers must support 1280x768, 768x1280 resolution (portrait orientation), 1920x1080, 1080x1920 (landscape orientation).

7. ANNEXES

Annex 1 – Technical standards for ICT in the environment of CONTRACTING AUTHORITY

Annex 2 – Data from AODB to be displayed within the System

Annex 3 – Specifications of XML reports