



Clean Sky 2

LPA Platform 3 WP3.6 ADVANCE*

AIRMES - Prognostic Demonstrator

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**) Advanced Value and Service driven Architectures for Maintenance*

- **ADVANCED Aircraft maintenance**

What is the Global Prognostic Demonstrator?

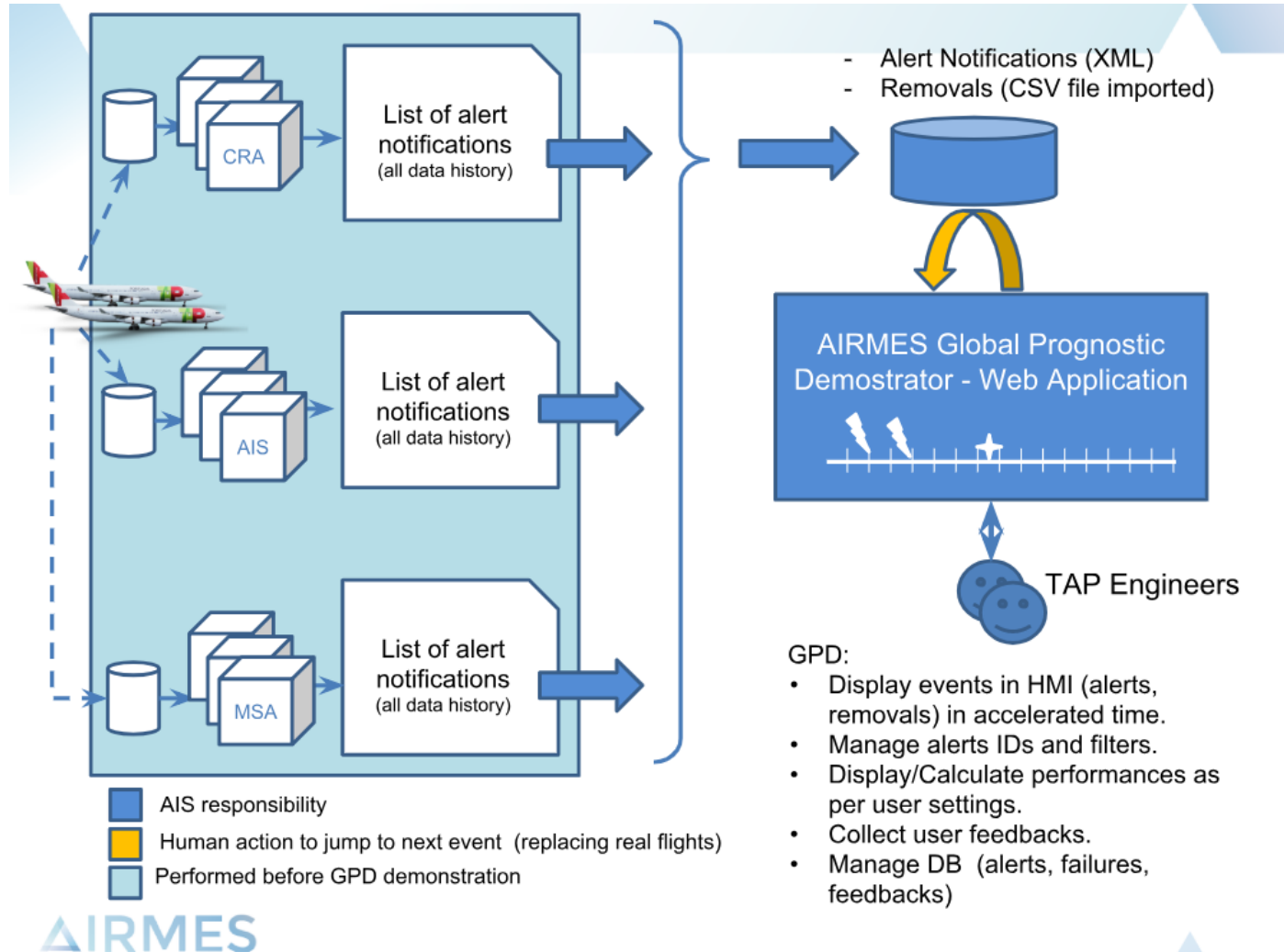
Project start

- Preparation phase
- Algorithms development
- **Technical evaluation by airline**
- Overall financial evaluation

Project end

The global prognostic demonstrator is **web-tool** used in AIRMES to emulate the display, support the interpretation and collect maintenance decisions from airline maintenance operator.

What is the Prognostic Demonstrator?





Gaps and challenges

- User interpretation of event-based prognostic is a challenge:
 - Predictive alerts can be issued from complex algorithms combining multiple events.
- Prognostic performances are traditionally evaluated from historical data without considering human behavior.
 - New Prognostic evaluation with a human in-the-loop.

<https://gpd-airmes.com/>



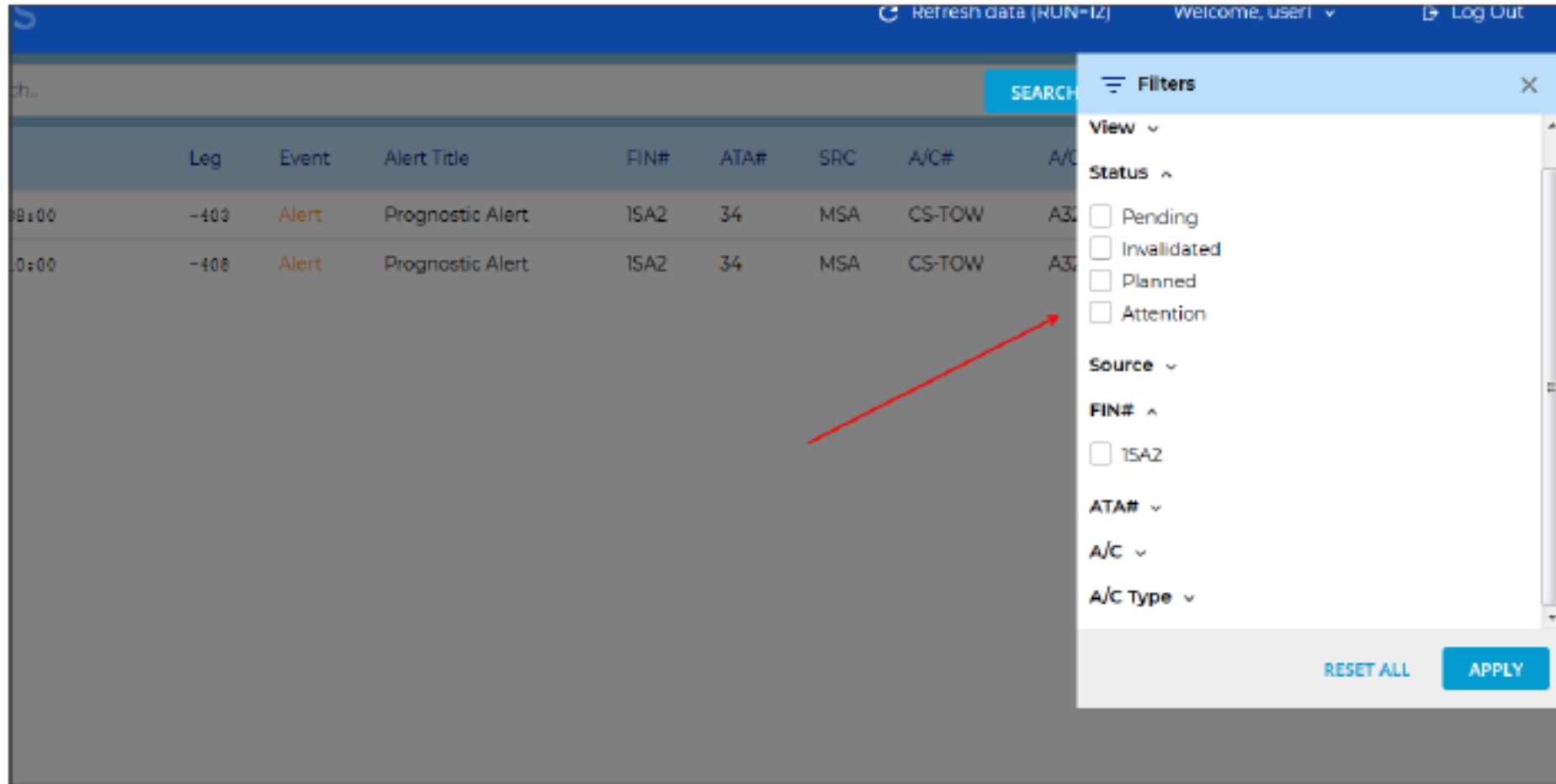
Main achievements

1. A common interface was defined to read prognostic results from different partners (XML format).
2. Predictive performances KPIs defined for user display.
3. A web-tool developed to emulate presentation of results in real context, calculate KPIs and register user actions.
4. Multiple runs done by TAP to evaluate results.
5. User actions exported for computation of economical benefits.

<https://gpd-airmes.com/>

GPD Screenshots

Setting Display of a New Run



The screenshot displays the GPD (Global Pollution Database) interface. At the top, there is a blue header bar with a 'Refresh data (RUN=12)' button, a 'Welcome, user1' dropdown, and a 'Log Out' button. Below the header is a search bar with a 'SEARCH' button. The main content area features a table with the following columns: Leg, Event, Alert Title, FIN#, ATA#, SRC, A/C#, and A/C. The table contains two rows of data, both labeled 'Alert' and 'Prognostic Alert'. A red arrow points from the table area to the 'Filters' sidebar on the right. The sidebar includes a 'View' dropdown, a 'Status' section with checkboxes for 'Pending', 'Invalidated', 'Planned', and 'Attention', a 'Source' dropdown, a 'FIN#' section with a checkbox for '15A2', an 'ATA#' dropdown, an 'A/C' dropdown, and an 'A/C Type' dropdown. At the bottom of the sidebar are 'RESET ALL' and 'APPLY' buttons.

Leg	Event	Alert Title	FIN#	ATA#	SRC	A/C#	A/C	
9:00	-403	Alert	Prognostic Alert	15A2	34	MSA	CS-TOW	A3
0:00	-408	Alert	Prognostic Alert	15A2	34	MSA	CS-TOW	A3



GPD Screenshots

Main Screen with Fleet Events

Total Number of Events: 1677 Refresh data (RUN=46)

Welcome, user1 Log Out

SEARCH

Statistics Dashboard ▾

Date & Time	Leg	Event	Alert Title	FIN#	ATA#	SRC	A/C#	A/C Type	Status	
2016-10-01 04:48:00	-1055	Alert	Predictive alert: component removal soon needed	4000HA	36	AIS	CS-TOE	LR	● Pending	ACTIONS ▾
2016-10-01 00:48:00	-401	Alert	Predictive alert: component removal soon needed	4000HA	36	AIS	CS-TOT	LR	● Pending	ACTIONS ▾

SEARCH

Statistics Dashboard ^

In the past **this failure** occurred after Alerts

Number of occurrences of this failure: 0

Total number of alerts before this failure: 0


Total number of alerts received for **this failure**: 3

Alerts before this failure (%) : 0.0%

View of latest 60 legs of CS-TOS

[illegible]

Date of last replacement in CS-TOS: null

Date & Time	Leg	Event	Alert Title	FIN#	ATA#	SRC	A/C#	A/C Type	Status	
2016-11-06 05:16:00	-581	Alert	Prognostic Alert	4000HA	36	MSA	CS-TOS	LR	● Pending	ACTIONS 
2016-10-31 00:00:00	-960	Alert	Prognostic Alert	4000HA	36	MSA	CS-TOE	LR	● Pending	ACTIONS 

Statistics about alerts and removals for same FIN# across the fleet.



Conclusion / Impacts

- The Prognostic Demonstrator lays the first stones for industrial use of event-based prognostic solutions issued from different sources.
- GPD is an integration platform that goes beyond usual state of the practice tools.

<https://gpd-airmes.com/>

Useful infos and acknowledgements

AIS

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