ARINC EFB subcommittee

AIRBUS printing proposal Communication KIT

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On board printing

Status

➤ Various users:
- ❑ Avionics
- ❑ EFB
- ❑ Maintenance

➤ Various printers types:
- ❑ Connection: A429 – Ethernet
- ❑ Format: B5 – A4
- ❑ Data: Text – Semi graphics – Graphics
- ❑ Black and white – Color
- ❑ Standards: A740 – A744

➤ EFB applications/devices based on IT COTS

Objective

➤ Standardize EFB printing function

Challenges

➤ Simplify EFB applications development

➤ Support various printers types

➤ Be independent from the printer type

➤ Keep avionics printing function « as is »

➤ Same interface as for printing on ground

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On board printing needs

✓ Application users (sample)

Function	Data format
LTS	Text
Nav. Chart	Graphic
AOC message	Text
Weather report	Text Graphic
Procedure	Text Graphic
ATC long message	Text
Logbook	Text
PFR	Text

✓ Special advantages vs. display

Context	Detail
Turbulence	Paper could be brought close to the eyes
Under fatigue	Reading paper is less tiring than watching a screen
Share data	Data sharing between pilots when EFB is A/C attached and no cross view available
Crew annotation	Writing something on printed sheet is easier than on screen (flight plan, clearance, etc.)

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A429 / Ethernet printing overview

Avionics

Printer

Rx

Tx

A429

AID

Ethernet

Print request

EFB

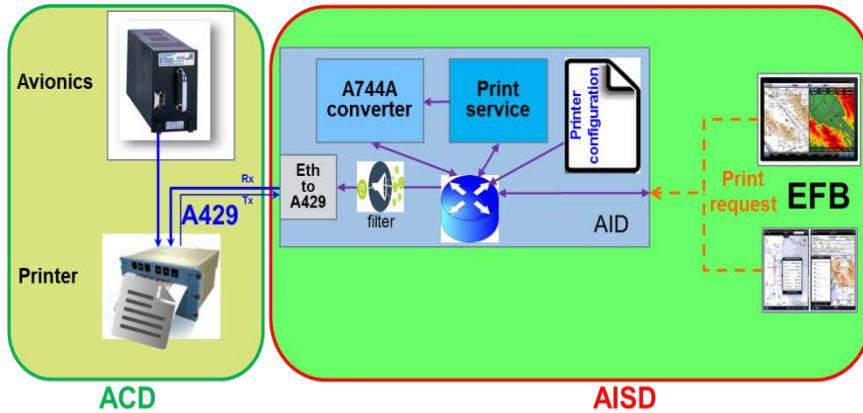**Printer**

ACD

AISD
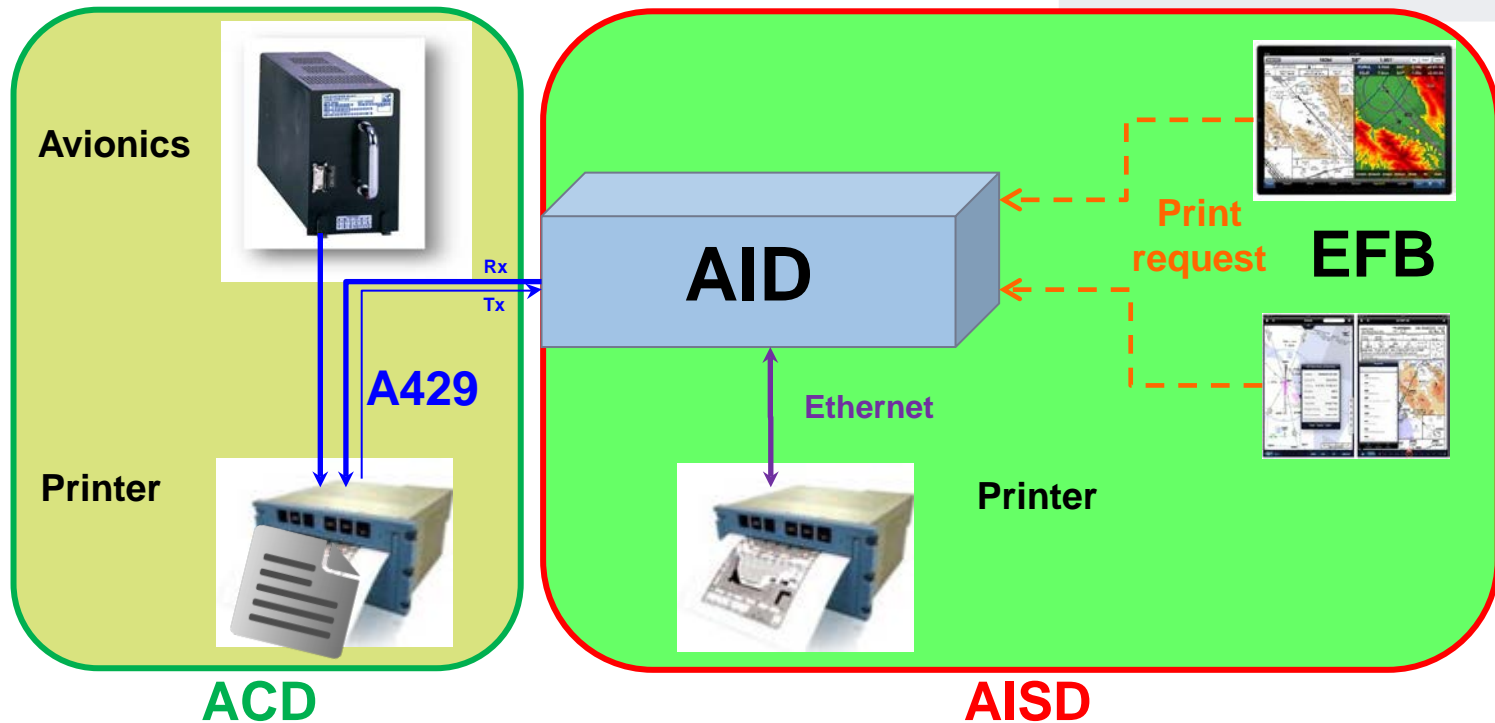
ASSUMPTIONS

➢ **Only one printer is installed (either the A429 one or the Ethernet one)**

➢ Printer shared between avionics applications (e.g.: on A429 computers) and EFB applications (i.e.: on IT devices)

➢ Printer can be either A429 or Ethernet (wireless possible)

➢ Printer is either A740 or A744A with various features

➢ Avionics applications shall continue to print "as is" (i.e.: no changed expected)

➢ EFB devices and applications are based on IT consumer market components (i.e.: COTS)

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Two cases: one solution

A429 printer in ACD

- ➤ AID hosts a FLS "printer configuration" (e.g.: B5, black and white, 300 DPI, text).

- ➤ A print service manages the EFB printing requests and provides the status of the printer.

- ➤ An A744A conversion module transforms the print request data to a format the printer understands.

- ➤ A secured filter ensures print data don't impair ACD systems (*considered outside the printing topic*).

- ➤ AID is identified by its System Address Label; the printer polls the system to know if there is a print job to process.

- ➤ Formatted print flow on Ethernet is converted to A429 and printed.

Ethernet printer in AISD
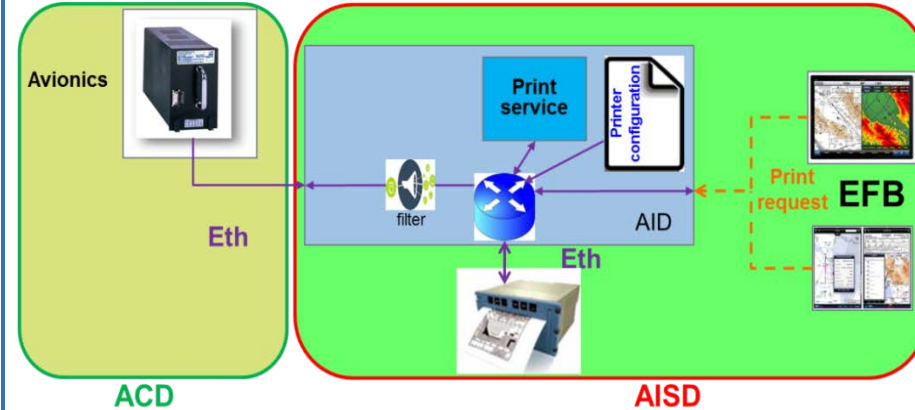
- ➤ AID hosts a FLS "printer configuration" (e.g.: Eth, A4, color, semi-graphic).

- ➤ A print service manages the EFB printing requests and provides the status of the printer.

- ➤ A secured filter ensures print data don't impair ACD systems (*considered outside the printing topic*).

- ➤ Formatted print flow on Ethernet is sent to the printer.

- ➜ A744A converter is not used for printing on Ethernet printer (i.e.: it is bypassed)

✓ **Print service is based on standard IT protocol: IPP (e.g.: with a CUPS server)**

✓ **EFB applications can print on-board and on-ground the same way**

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