Argos Ingegneria S.p.A.

Apron Control System

ACS

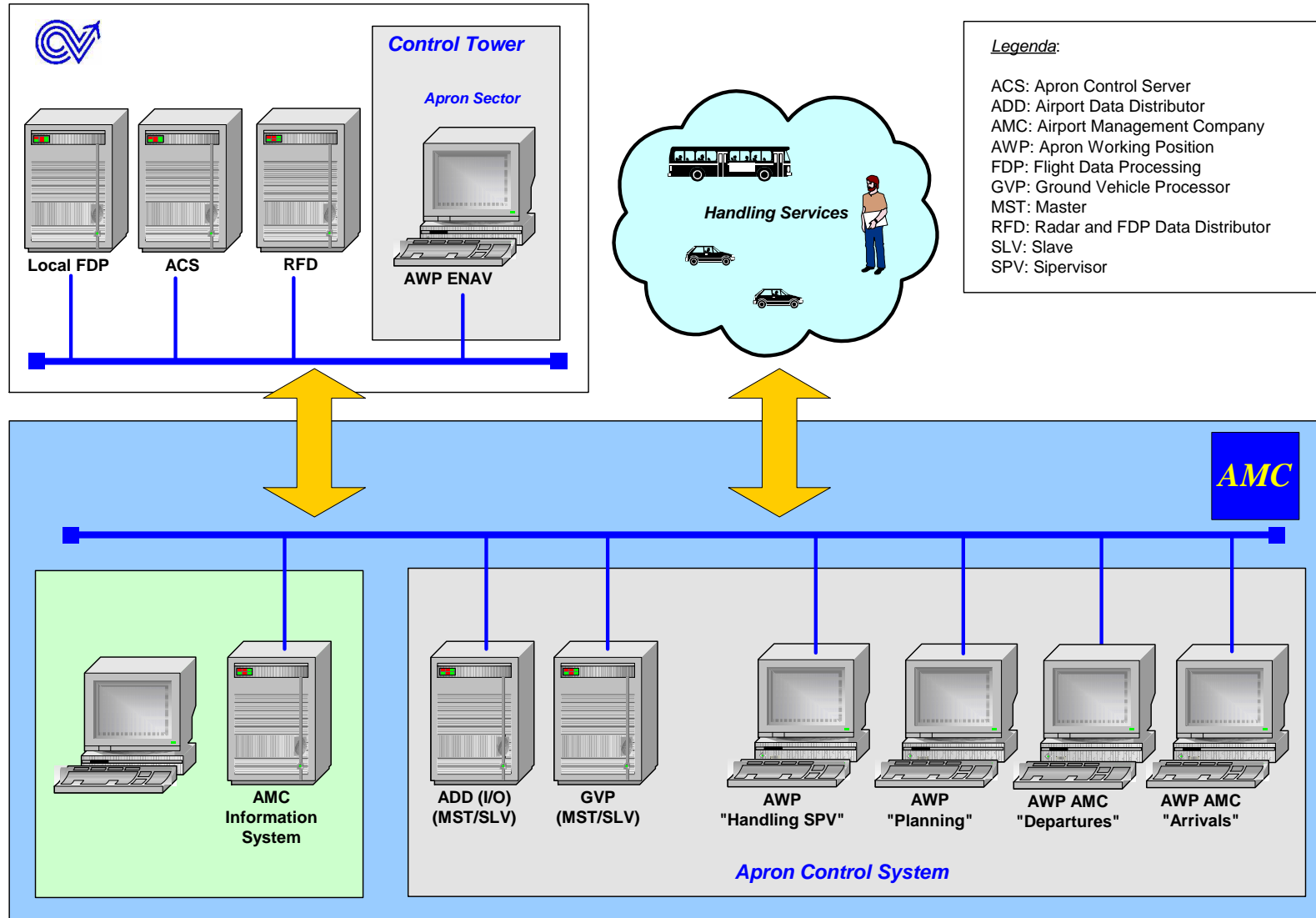# ACS
Apron Control System

Apron Control mission

Apron Control mission (ICAO, Annex 14) is to regulate aircrafts, vehicles and personnel activities and movements on the apron, preventing collisions and ensuring safe, expeditious and efficient movements, whatever the visibility conditions are.

ACS capabilities

Vehicles control on the aerodrome movement area.

- ➢ Co-operating Vehicles' data base management.

- ➢ Vehicles tracking over the aerodrome surface.

- ➢ Identification and localization of aerodrome failures (e.g., potholes, failured visual aids, etc.) to manage aerodrome configuration.

- ➢ Recording & Playback.

ACS
System Architecture

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Control Tower

Apron Sector

Local FDP   ACS   RFD

AWP ENAV

Handling Services

Legenda:

ACS: Apron Control Server
ADD: Airport Data Distributor
AMC: Airport Management Company
AWP: Apron Working Position
FDP: Flight Data Processing
GVP: Ground Vehicle Processor
MST: Master
RFD: Radar and FDP Data Distributor
SLV: Slave
SPV: Sipervisor

AMC

AMC
Information
System

ADD (I/O)
(MST/SLV)

GVP
(MST/SLV)

AWP
"Handling SPV"

AWP
"Planning"

AWP AMC
"Departures"

AWP AMC
"Arrivals"

Apron Control System

ACS
Human Machine Interface

ACS
System Benefits

➢ Information coming through Airport Management Company and ENAV are integrated onto one single AWP console;

➢ Through GVMS:

    o   vehicles' position information on the aerodrome surface – mainly on the movement area – is available to the Controller;

    o   Aerodrome configuration management function is available to the Supervisor;

➢ Common database where is stored all the relevant information needed to certify the service delivered by the Apron Management Service itself.

➢ Integration of ramp information ("ready-to-go" flight, i.e. "end of handling activities") with ATC information to optimise the pushback sequence;

➢ Shortening of departing queues;

➢ Arrivals sequences always up-to-date for stands/gates assignment thus obtaining shorter taxiing times;

➢ Through distribution of ATC flows information, co-ordination with handlers to manage corrective actions;

➢ Increase of airport capacity, in terms of available "virtual" flights;

➢ Meaningful perceived increase of quality of service: airport becomes more attractive to Users (airlines, travellers).

Airport Data Distributor

ADD

Airport Data Distributor (ADD)

ADD system represents the data interface and interchange front-end between ENAV and Aerodrome Management Company informative systems, and its aim is to increase the airport management global efficiency.

ATC (Air Traffic Control) and FDP (Flight Data Processing) information about landing and departing aircrafts, with weather forecast reports, are available to ENAV and other companies by RFD (Radar and FDP Distributor) system.

ADD, on its own, makes available all information about parking bay assignment/changing, airport category, and, in the case of GVMS (Ground Vehicles Management System) availability, information about vehicle position in the manoeuvring area.

From the operative point of view, ADD aim is to:

➢ acquire RFD data, in accordance to ENAV pre-defined format and timing;

➢ perform pre-processing requested to the database saving procedure, in order to allow a simple data management using several Airport Company Management client applications;

➢ send to ENAV all the information requested to allow aerodrome traffic management high efficiency;

➢ monitor the link between ENAV and Airport Management Company, solving the encountered problems.

ADD
Data Flow

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Legenda:

ACS: Apron Control Server
ADD: Apron Data Dispatcher
ARM: Airport Resource Management
AWP : Apron Working Position
FDP: Flight Data Processing
GVMS: Ground Vehicles Management System
RFD : Radar and FDP Distributor

Handling (Vehicles, Ramp Agent, Security,…)

ENAV

Local FDP

ACS

RFD

APRON CONTROL

ADD (I/O)

GVMS

AWP

SGA Information System

ARR-msg, DEP-msg, CANC-msg

PBAY-msg, ONBL-msg, RDY-msg, OFBL-msg

MET_AP-msg, MET_BOL-msg, SIGMET-msg

AP_MET_CTG-msg

VEH-msg

DEPSEQ-msg, ARRSEQ-msg

PBAY-msg