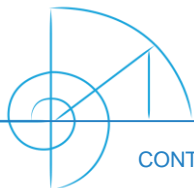# CLEARSY
Safety Solutions Designer

AIX
LYON
PARIS
STRASBOURG

WWW.CLEARSY.COM

DAME

Development and Maintenance Support tool

CONTACT@CLEARSY.COM

High-Performance Data Logger for real-time supervision

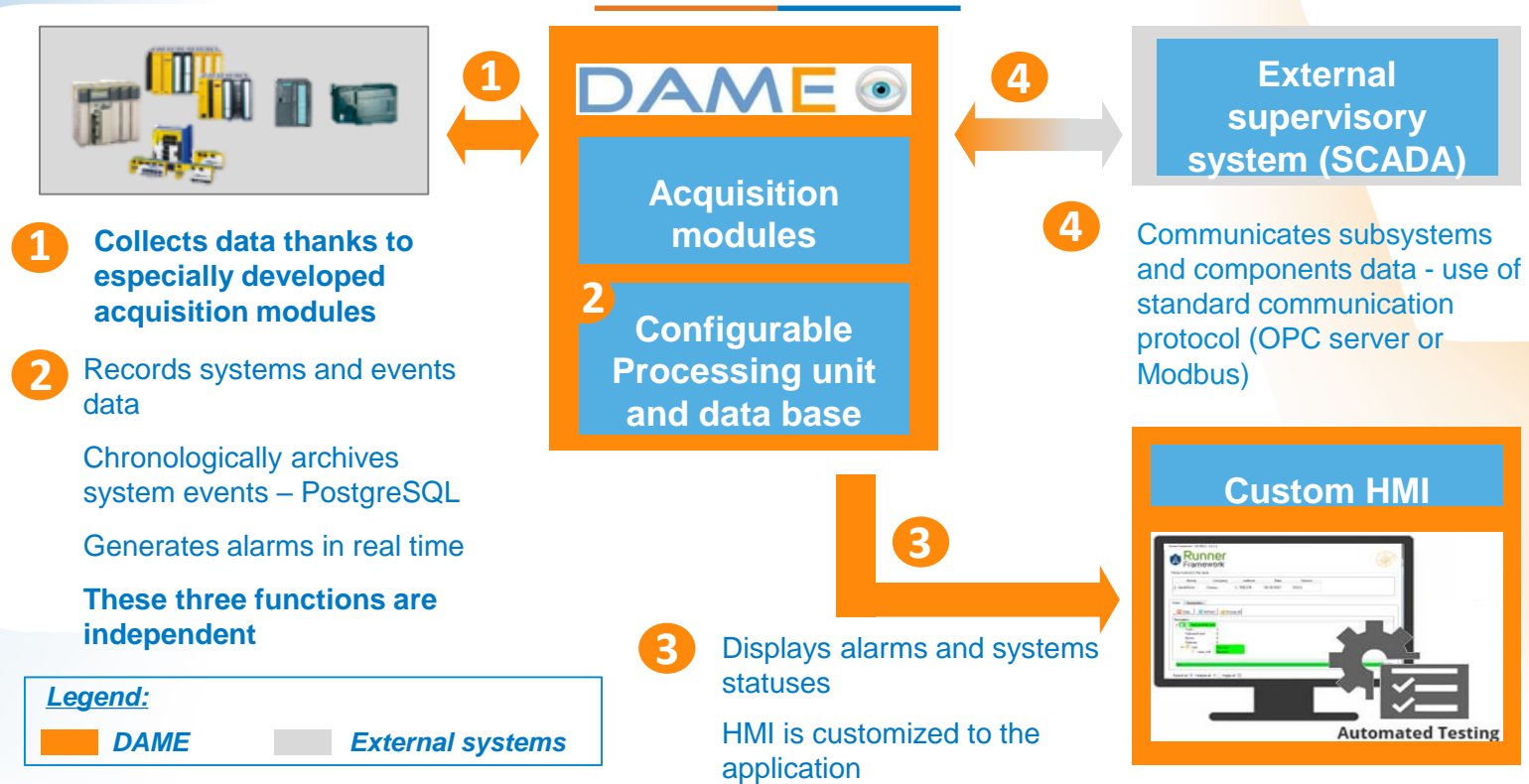► DAME is designed for every step of the life of a complex system:

During complex system development:

▷ Interface with the system and trace system execution

▷ Record system events and chronologically archive them

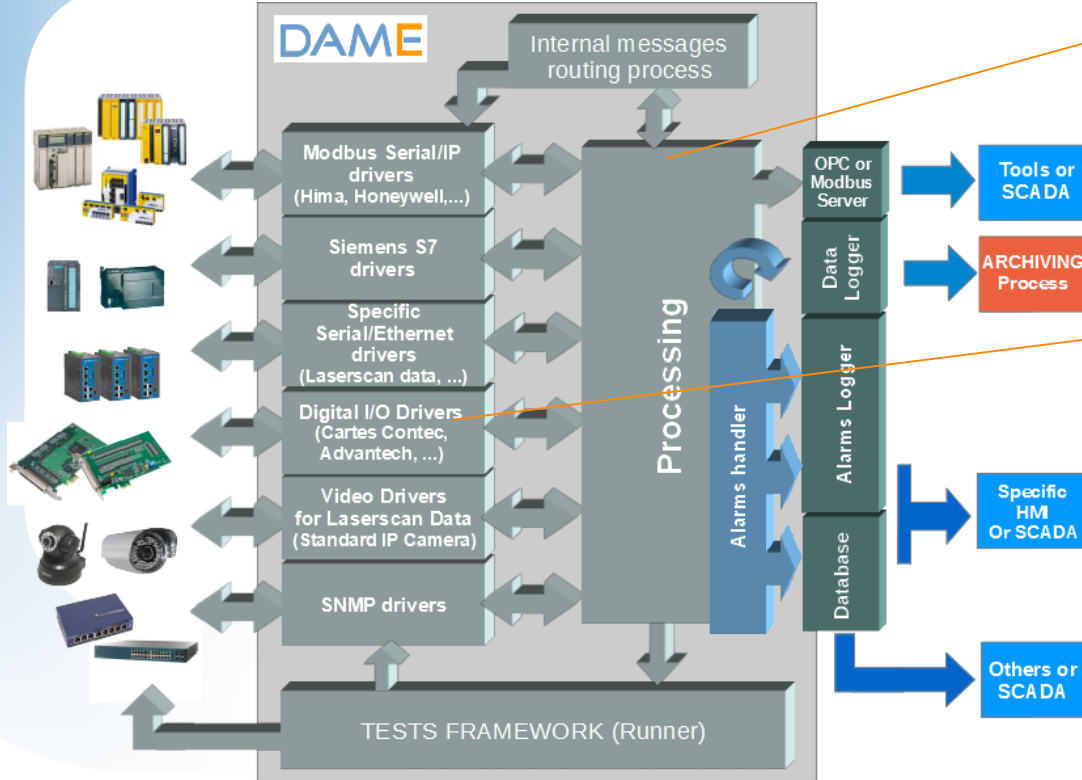▷ Automatically test the system to avoid functional regression

During complex system operation:

▷ Support maintenance and operational monitoring: It records and communicates system events and alarms

▷ Integrate new sub systems in a larger scale industrial system: as a middleware, it plays the role of intermediate by using standard communication protocol

Integration and functions

1 Collects data thanks to especially developed acquisition modules

2 Records systems and events data

Chronologically archives system events – PostgreSQL

Generates alarms in real time

These three functions are independent

Legend:
 DAME   *External systems*

DAME

Acquisition modules

2 Configurable Processing unit and data base

External supervisory system (SCADA)

4 Communicates subsystems and components data - use of standard communication protocol (OPC server or Modbus)

Custom HMI

3 Displays alarms and systems statuses

HMI is customized to the application

Modular architecture

Processing module:
Shared between all DAME systems.
It is configurable and programmable (logic functions)

Acquisition modules:
Each module or driver is specific to a component

Acquisition modules make the DAME compatible with any component or system.
Extendable on demand without modification of the processing module

Acquisition module: interfaces for supervised systems

Schematic of data acquisition from any component ▶
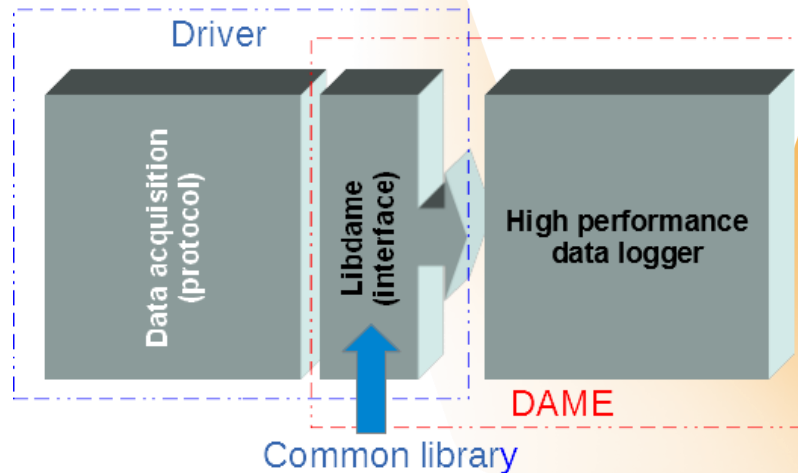
Acquisition modules, called **Drivers**:

▶ Collect data

▶ Translate and record statuses of components into variables in the database

▶ Contain and apply criteria to filter collected data: smooth data, manage delays and associate data with other variables

▶ Are software

In the driver architecture, **only the part "data acquisition" has to be modified to support new systems**

Drivers already available

Some Drivers have already been developed to interface with:

► Several PLC from different manufacturers: *Siemens S7 and other models, interfaced via Modbus, and input/output cards: VM110N Welleman, CONTEC, Advantech*

► SNMP devices to manage network

► IP Cameras and laser scanners (brands SICK and BEA) – recording and archiving

New specific drivers supporting RS422/485/232 et TCP/UDP IP might be easily added

Interfaces with external systems

DAME is designed to make available subsystems data to other systems, like a large scale SCADA. To reduce risk and cost, these data are available without any modification of these larger systems.

DAME uses standard communication protocols

▶ Integration into distant application of SCADA systems with a server OPC UA and/or Modbus

DAME uses standard communication protocols

▶ Thanks to a subscription mechanism, it makes easy to other systems to receive data from the DAME

CLEARSY | Development and Maintenance Support tool
Confidential and proprietary information I Property of CLEARSY
P. 7

Human-machine Interface

CLEARSY develops a custom interface for every application of DAME, when a display is requested.

2 kinds of interface are proposed:

► Web application: From any internet browser. User has only to connect to the DAME via any computer. A login mechanism can be added.

► Application: Installed on the user's computer. Without the app, it is impossible to access interface of the DAME.

Example of HMI: Supervision of a system to detect ingression into the track (from the platform)
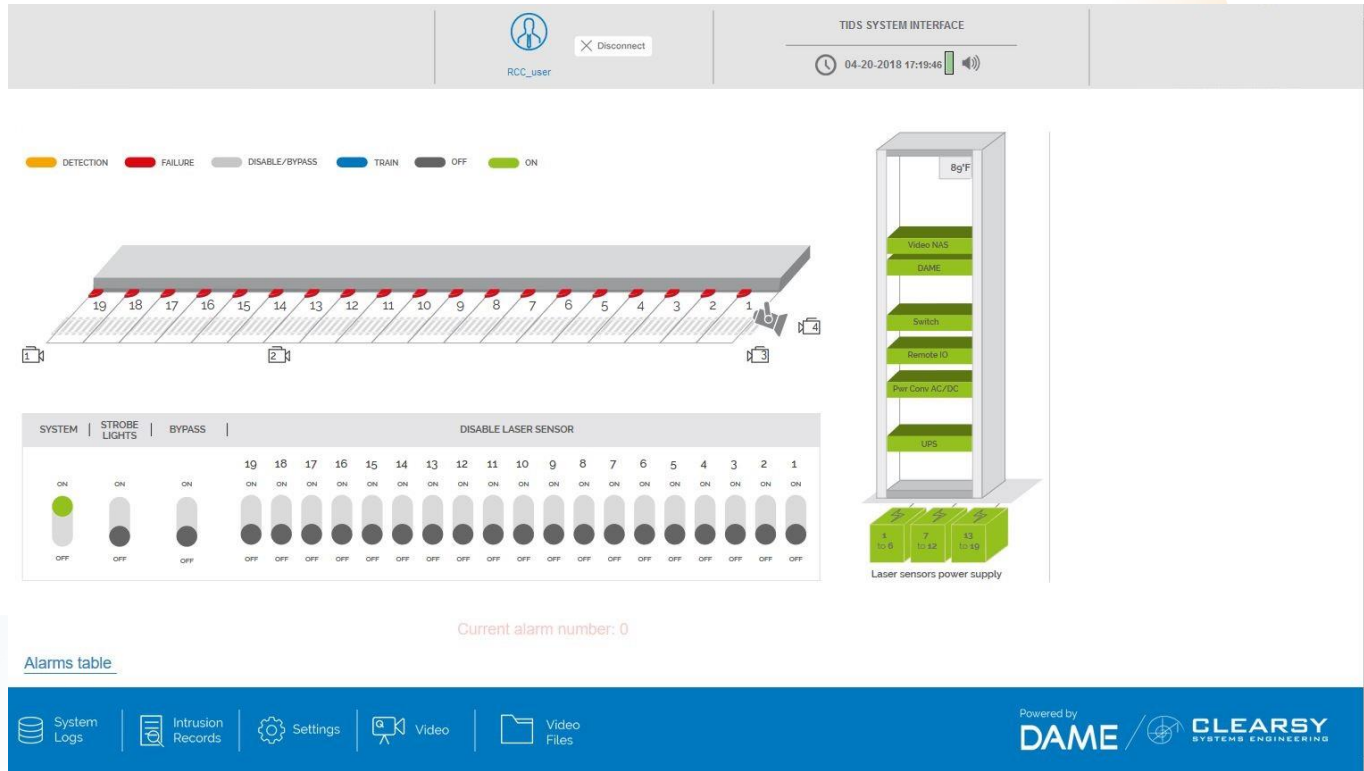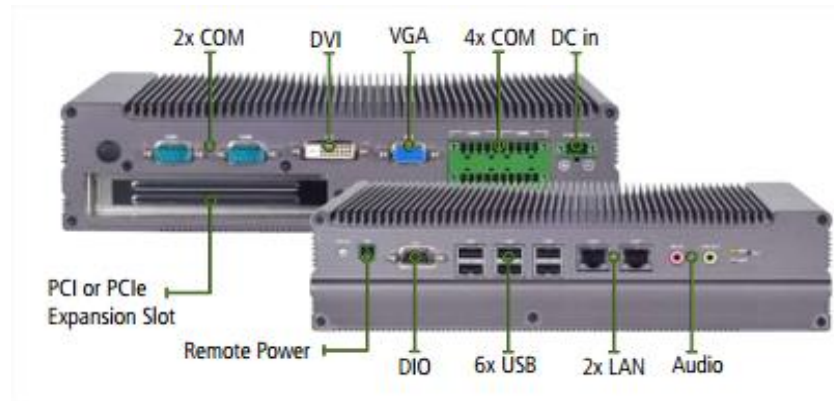
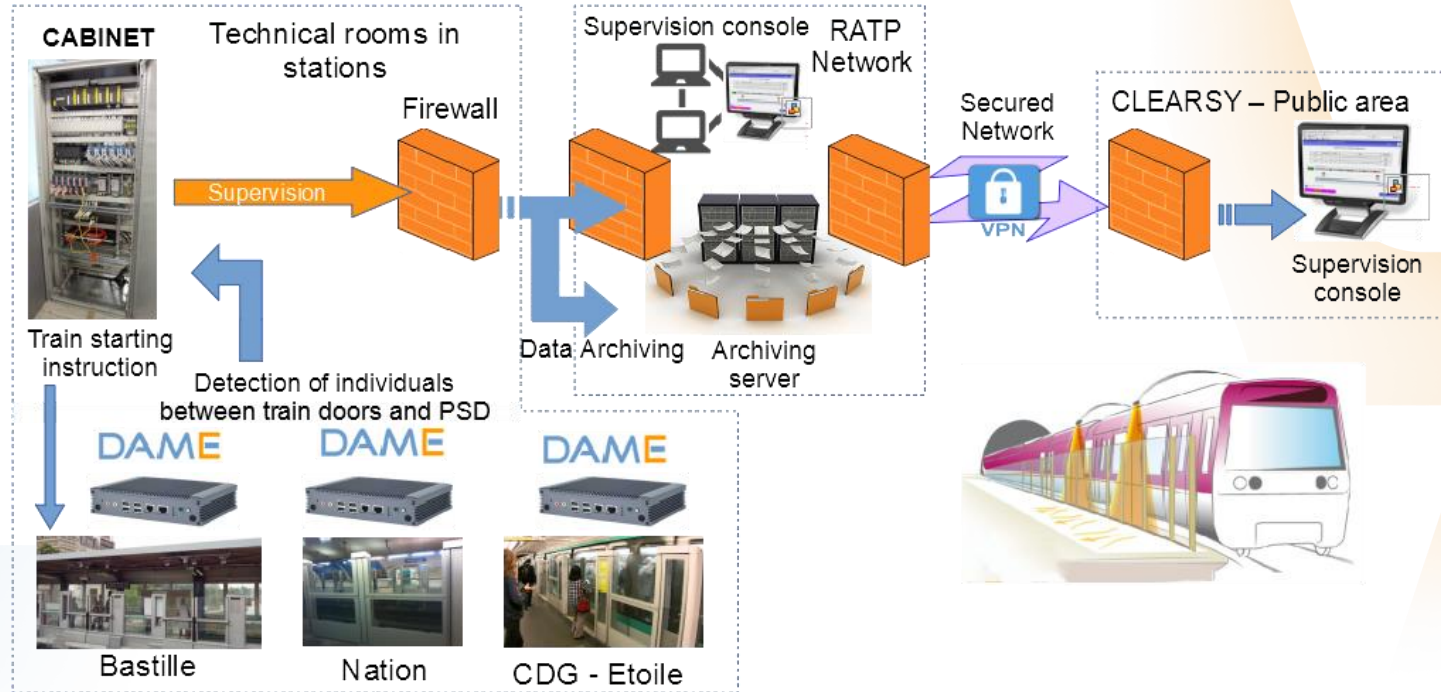# Example of HMI: Supervision of a system to control platform screen doors
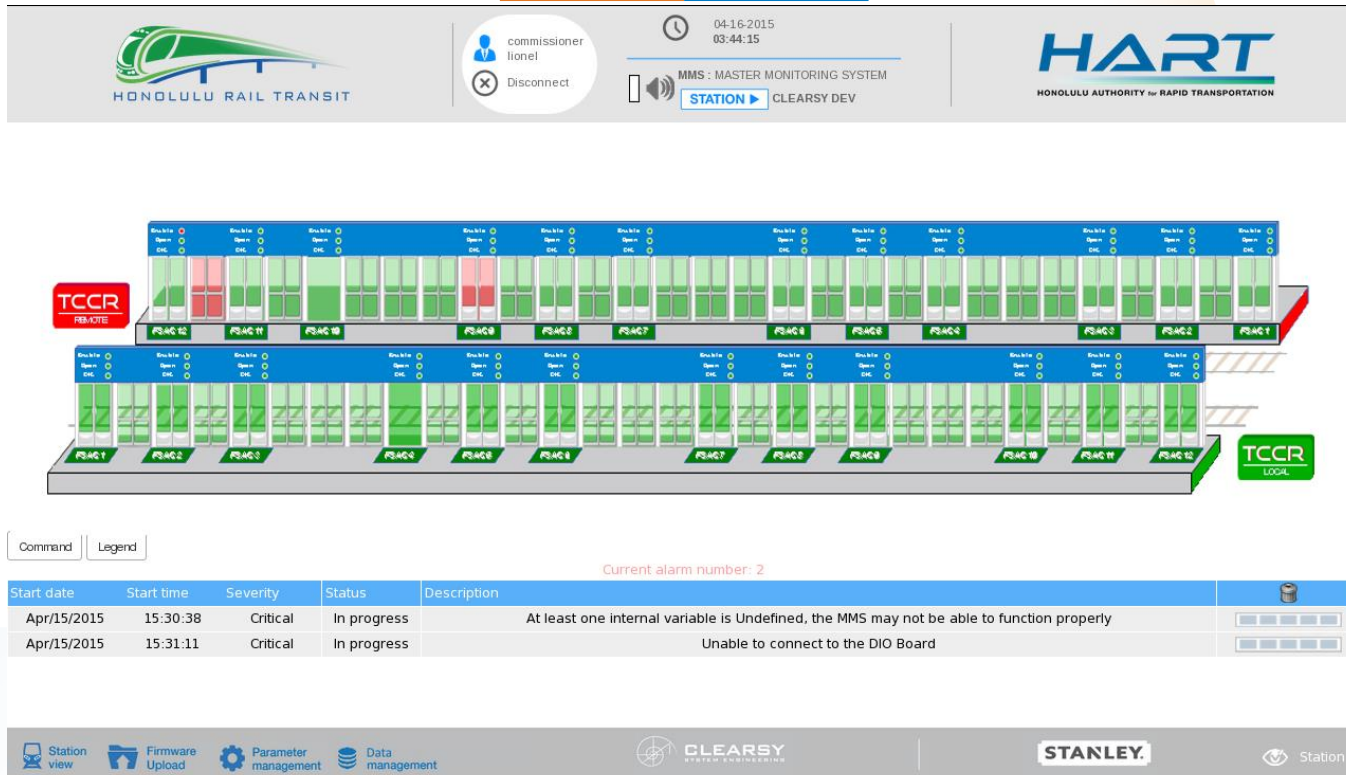
Equipment

► Low power equipment like industrial computer or nettop (mini-pc).
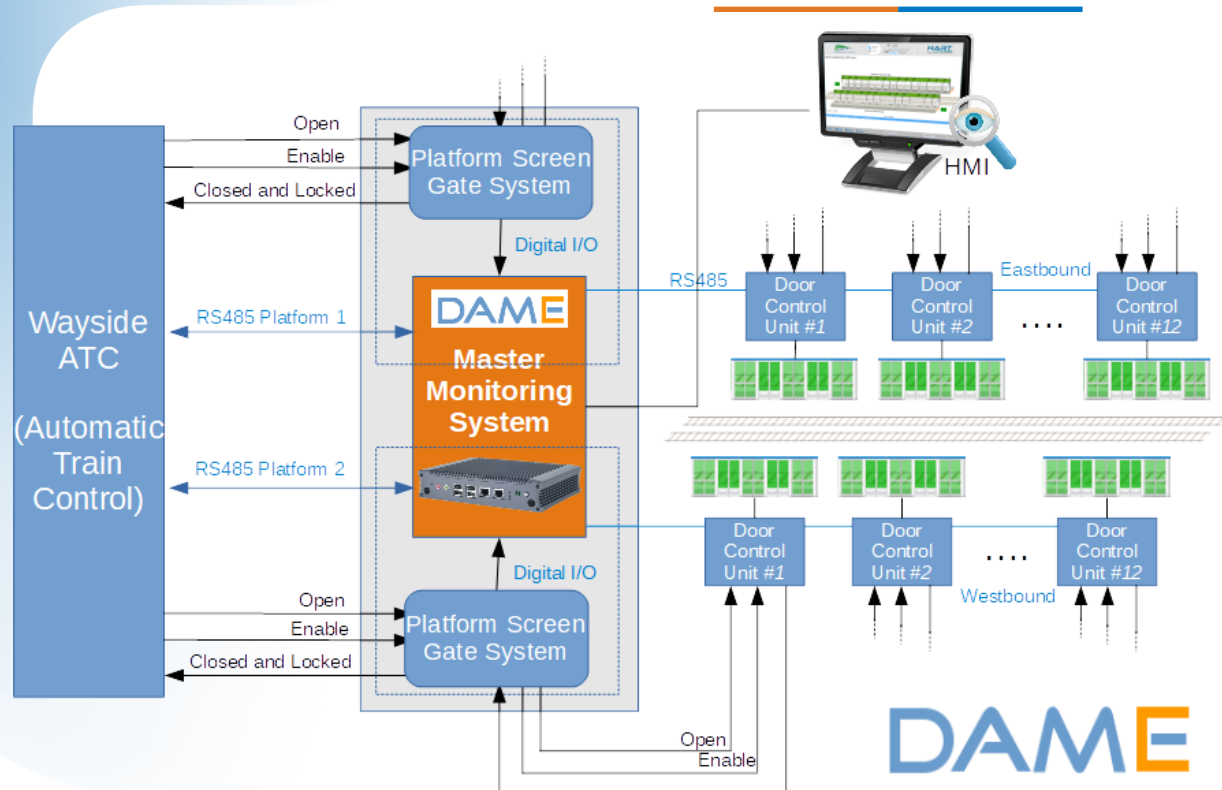

▲ *Example of computer used to run DAME system: Fanless computer with 2GB RAM and 500GB (SATA)*

Use case: Detection system, RATP, Paris

► Used to monitor the system during its development phase and is now used to support maintenance.

Use case: PSD control system in Caracas, Venezuela

► Was used as recorder during development phase of the system.
► Collects data of the PSD control system to transmit to the SCADA in place in Caracas metro.

Development and Maintenance Support tool
Confidential and proprietary information I Property of CLEARSY
P. 13

Use case: PSD control system in Honolulu, USA

► Used for maintenance and operational monitoring of the system

► Limited operational function: force statuses of sub systems of the PSD control system

Use case: platform screen door control system, Sao-Paulo, Brazil
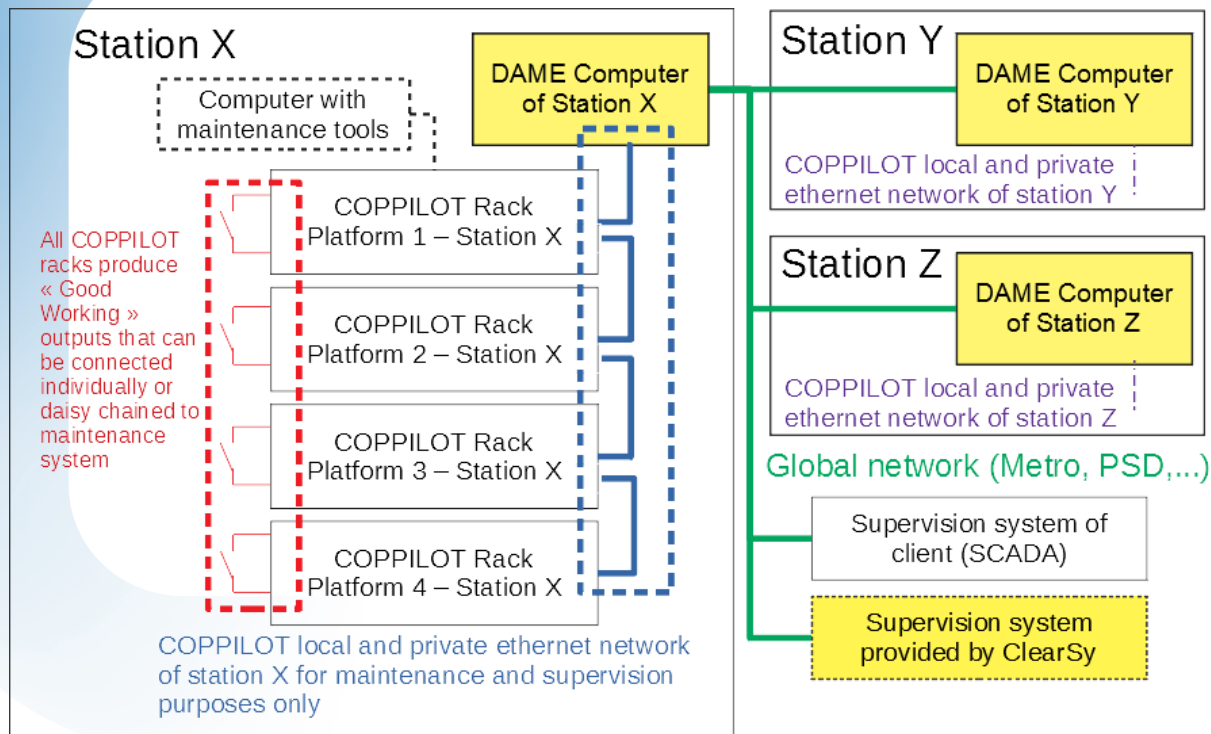
► Interfaced in the early phase of the project to support development and monitor the system

► Now collecting data of the platform door control system and transmitting them to the SCADA deployed in Sao Paulo Metro.

Use case: Track intrusion detection system

Anywhere

HMI

▶ Accessible from anywhere with a secured internet connection

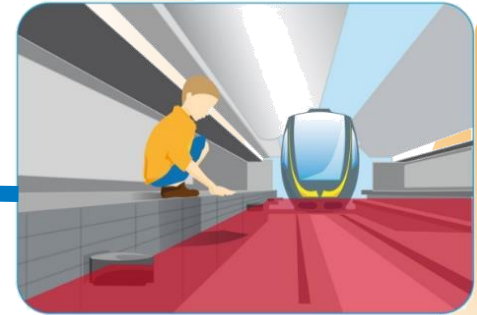## Equipment in technical local

▶ Monitors all equipment on track and in the technical room

▶ Processes data from laser scanners and cameras

▶ Triggers Alarms in case of intrusion into the track

Track Equipment

▶ Equipment connected by optical fibers and ethernet cable

Contact

www.clearsy.com

contact@clearsy.com

320 Av. Archimède
Les Pléïades III – Bat A
13100 Aix-en-Provence
FRANCE

Paris

Strasbourg

Lyon

Aix en Provence