IEC/IEEE 60802

IA-station Model

V02 – November 2021

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IA-controllers and IA-devices in IA-stations

Motivation

- The term and concept of “IA-station” was newly introduced in D1.3 – and slightly changed during D1.3 comment resolution:

  IA-station
  material element or assembly of one or more end station components, and none, one or more bridge components

- The terms IA-controller and IA-device have been adopted in D1.3 from the IEC Electropedia:

  IA-controller
  functional unit, consisting of comparing element and controlling element, that performs a specified control function

  IA-device
  material element or assembly of such elements intended to perform a required function

- The relation between IA-stations and IA-controllers / IA-devices is not described in D1.3 – only a Note indicates:

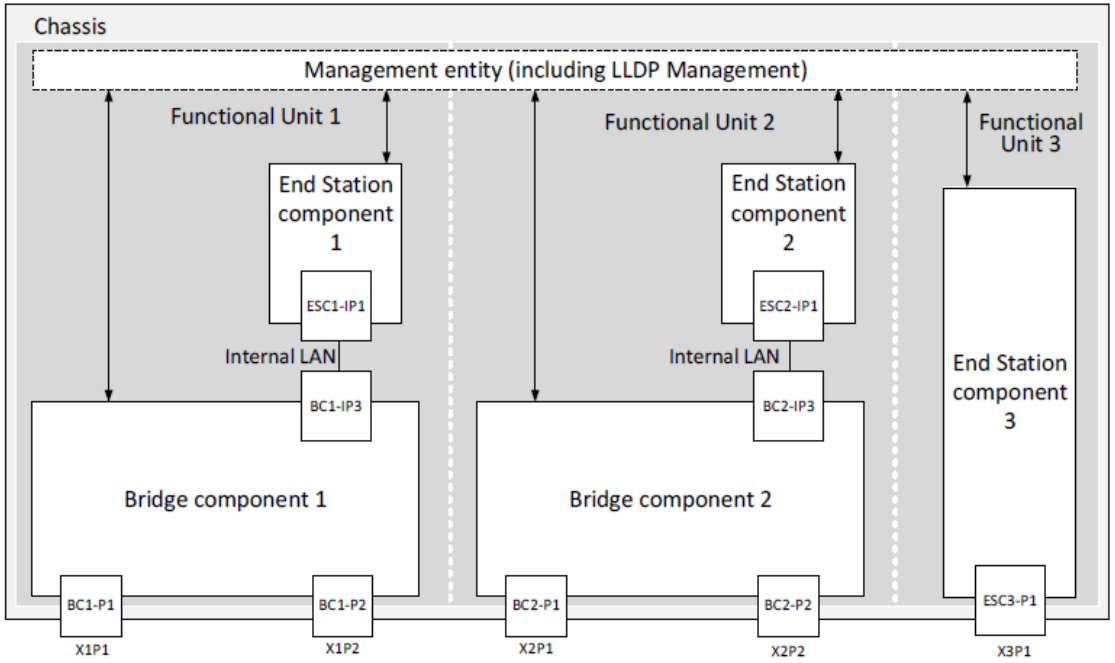
  Note 1 to entry: IA-controllers and IA-devices contain an IA-station

- The IA-station example in D1.3 (Figure 2) shows only a management view - without any IA-controller / IA-device instance.

→ This led to confusion and discussions!

60802 D1.3 IA-station model

Status quo (see Figure 2 – IA-station example): **Management view**



See D1.3 comments #127 and #140:

the relationship between **IA-stations** and **IA-controllers / IA-devices** should be described

IA-controllers and IA-devices in IA-stations

Rationale

- Talkers and Listeners are by definition located in end stations (see IEEE 802.1Q-2018).

> **end station:** A functional unit in an IEEE 802® network that acts as a source of, and/or destination for, link layer data traffic carried on the network.
>
> **Listener:** The end station that is the destination, receiver, or consumer of a stream.
>
> **Talker:** The end station that is the source or producer of a stream.

- IA-controllers and IA-devices implement Talkers and Listeners.
  → **IA-controllers and IA-devices are <u>end stations</u>.**

Management in IA-stations

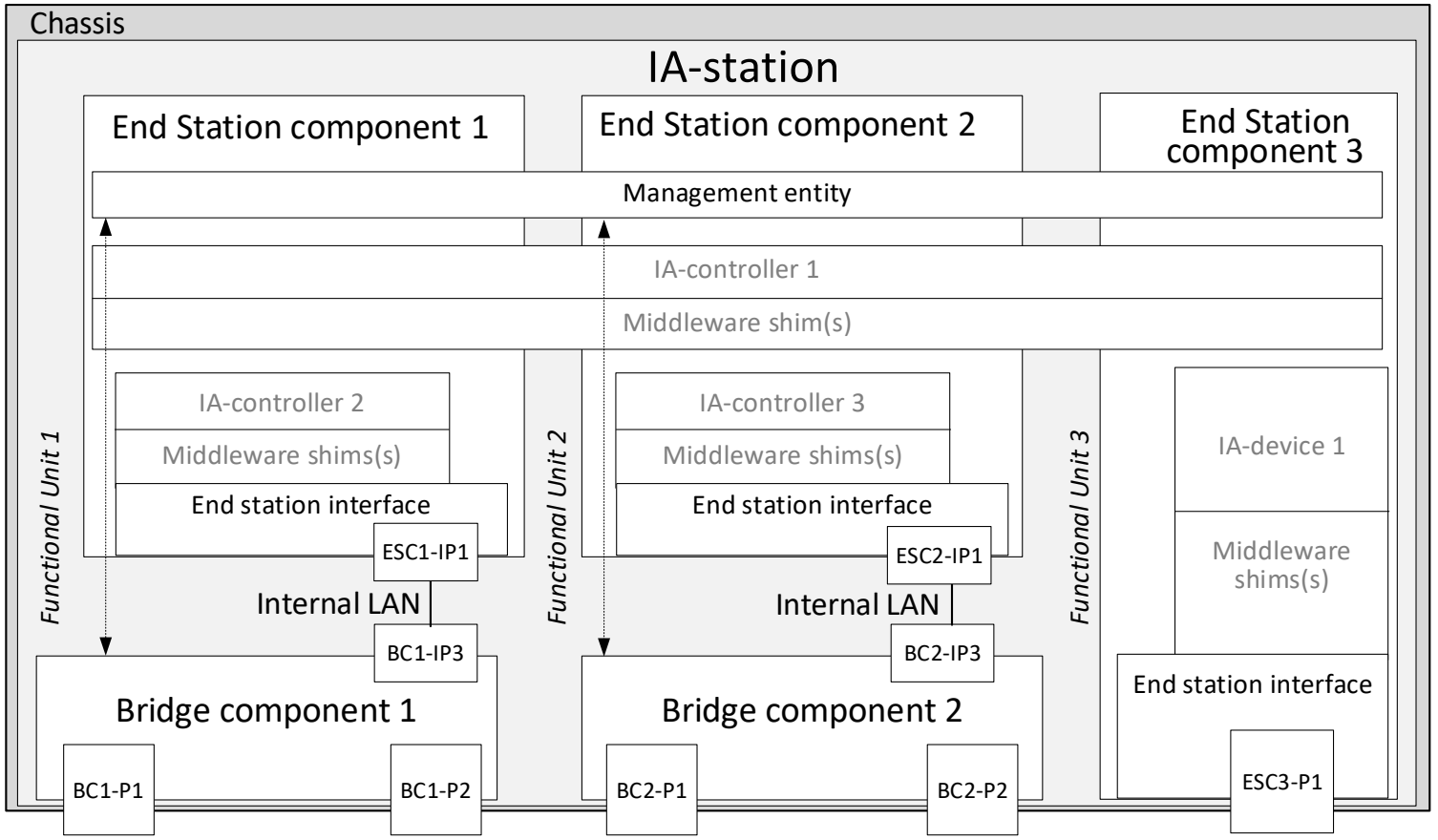
Rationale

end station: A functional unit in an IEEE 802® network that acts as a source of, and/or destination for, link layer data traffic carried on the network.

- Management entity acts as "*a source of, and/or destination for, link layer data traffic carried on the network*" (see IEEE 802-2014).
  - → **Management entity is an <u>end station</u>.**

Industrial Applications in IA-stations

Proposal for enhanced Figure 2 (aligned to Figure 3 – Industrial Application)



- IA-station applications can
  - be assigned to a single end station component, or
  - encompass multiple end station components.
- Management entity is an IA-station application encompassing all end station components.
- IA-controller/-device and middleware shim(s) are out-of-scope for IEC/IEEE 60802.

Industrial Applications in IA-stations

impact on Term Definitions: proposal (2)

1. Change **IA-controller** definition:

   ~~functional unit~~ industrial automation function, consisting of comparing element and controlling element, that performs a specified control function

2. Change **IA-device** definition:

   ~~material element or assembly of such elements intended to~~ ~~performs a required function~~
   industrial automation function, using sensor and/or actuator elements to read and/or write process data

3. Change **IA-station** definition:

   material element or assembly of one or more end station components, and none, one or more bridge components

   Note 1 to entry: IA-controller and IA-device ~~contain an IA-station~~ are industrial automation functions of IA-stations.

   Note 2 to entry: IA-stations are often colloquially called “IA-controller” or “IA-device” based on their primary function, for example “IA-controller” for IA-stations including an IA-controller function and an IA-device function.

Industrial Applications in IA-stations

impact on Conformance specification: proposal (1)

Align conformance specifications to IEEE 802.1Q-2018:

	IEEE 802.1Q-2018
Common **IA-station** requirements / options (5.5 – 5.6) • PHY and MAC (external ports) • Topology Discovery (IA-station as a whole) • Security (IA-station as a whole) • Synchronization (PTP Instances)	C-VLAN Bridge conformance (5.9)
IA-station bridge **component** requirements / options (5.7 – 5.8)	C-VLAN Component conformance (5.5)
IA-station end station **component** requirements / options (5.9 – 5.10)	End station implementation requirements (5.25 – 5.28)

Questions ?