IEC / IEEE 60802 - IA profile

Inter TSN domain streams –

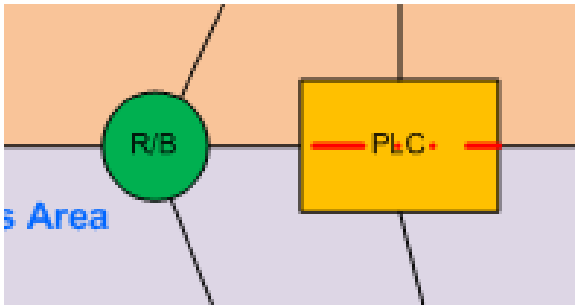
different use cases and constraints?

-To be discussed-

Prepared by
Günter Steindl
(Siemens AG)

Basic scope

IEC / IEEE 60802 use cases requires three different kinds of TSN domain “connectors” (see 60802-industrial-use-cases-0818-v11.pdf, Figure 1)



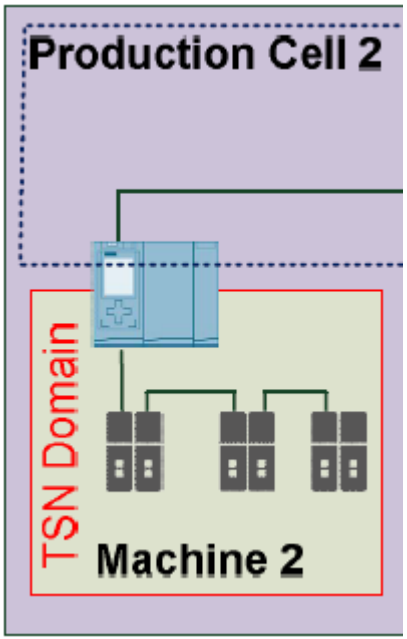
Application Level Gateway: See e.g. use case 17 and use case 11

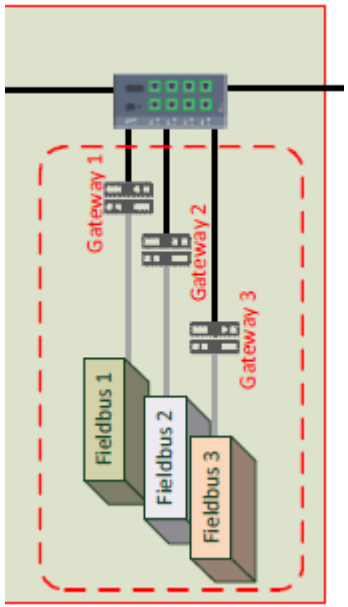
Bridge: See e.g. use case 17

Router: See e.g. use case 17

Inter TSN Domain streams Application Level Gateway

Requirements / constraints are already covered by use case 17 and use case 11





Inter TSN Domain streams Bridge

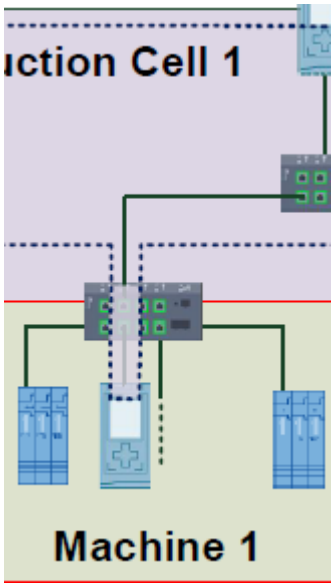
Requirements / constraints are already covered by use case 17

Overlapping TSN domains, each with independent sets of VLANs, sharing some ports of one or more bridge and/or end-stations.

Example:
Two overlapping TSN domains means nine supported VLANs.
Three overlapping TSN domains means thirteen supported VLANs.

Four overlapping TSN domains means seventeen supported VLANs.

…and so on…



This solution doesn't scale, thus the author supports the solution proposed in "60802-Hantel-TSN-Interdomain-Communications-0718.pdf"

Inter TSN Domain streams Router

Requirements / constraints not really integrated into any use case, only shown in 60802-industrial-use-cases-0818-v11, Figure 1.

Author's proposal:

Extend at least use case 17 to cover routers as TSN Domain connection!

In addition a solution for this kind of Inter TSN Domains streams is needed.

It may follow the idea stated in "60802-Hantel-TSN-Interdomain-Communications-0718.pdf" about a needed "management mechanism" but this time including TSN domains connected with routers.

Reference:

IETF DetNet: https://tools.ietf.org/html/draft-ietf-detnet-use-cases-17

Thank you

Questions?