Requirements for Plug & Produce

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Make network configured
traffic types and PTP instances

available for middleware / application alignment

Günter Steindl
Siemens AG

Splitting network configuration from middleware/application configuration

Plug & Produce requires the splitting of responsibilities between middleware/application and network provisioning.

This make it impossible for the middleware/application configuration tool to assign PCP/VID values to middleware defined traffic types.

Another topic is the alignment of PTP instance IDs.

Thus, a translation

- between middleware defined traffic types **and** network provisioned traffic types is needed.
- between middleware defined PTP instances/names **and** network provisioned PTP instance IDs / descriptionDS.userDescription is needed.

Traffic Type Translation

Application

Middleware

IEC/IEEE 60802

Application

Middleware translates its Traffic Types into the network provided traffic types!

Middleware A

Middleware Traffic type	IEC/IEEE 60802	Other profile e.g. DetNET or 5G, …
HIGH	Iso	…
LOW	Cyc	…
RT	ACyc	…
NC	Network Control	…
EV	Event and Alarms	…
CM	Connection Management	…
BEH	BEH	…
BEL	EL	…

Application

Middleware n

Middleware Traffic type	IEC/IEEE 60802	Other profile e.g. DetNET or 5G
Critical	Iso	…
Medium	Cyc	…
Low	ACyc	…
NC	Network Control	…
EV	Event and Alarms	…
CM	Connection Management	…
BEH	BEH	…
BEL	BEL	…

Traffic type	PCP	VID	VID (red)
Iso	6	101	102
Cyc	5	103	104
ACyc	4	100	---
Network Control	7	---	---
Event and Alarms	3	100	---
Connection Management	2	100	---
BEH	1	100	---
BEL	0	100	---

IEC/IEEE 60802 need to provide this information to the different middlewares to support the translation / use of the network configured values.

This values are defined by the TDME/CNC and provided by Network Provisioning (NPE).

PTP Instance ID / descriptionDS.userDescription translation

Application

Middleware

IEC/IEEE 60802

Applicati

Target-Clock A

Target-Clock B

Applicat

Target-Clock C

Target-Clock D

Middleware translates its PTP instances into the network provided PTP instances!

Middleware A

Middleware PTP instance	IEC/IEEE 60802	
WorkingClock	WorkingClock	
GlobalTime	GlobalTime	

Middleware n

Middleware PTP instance	IEC/IEEE 60802	
Clock for Application	WorkingClock	
Clock for Time	GlobalTime	
…	…	

descriptionDS. userDescription	ID	ID (red)
WorkingClock	20	21
GlobalTime	0	1
SpecialApplicationClock	43	---
…	…	…

IEC/IEEE 60802 need to provide this information to the different middlewares to support the translation / use of the network configured values.

This values are defined by the TDME/CNC and provided by Network Provisioning (NPE).

Conclusion

Translation tables allows late binding of the Middleware / Application to the network resources.

This late binding supports Plug & Produce use cases.

Additionally, using string references would allow to skip definition of instanceID in the 60802 profile. Instead the content of “descriptionDS.userDescription” would need to be defined and used for the binding.

Questions?