# LNI 4.0 TSN Testbed
# Update of Stream Reservation Approach

05.11.2019
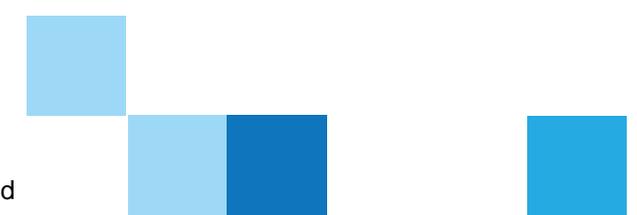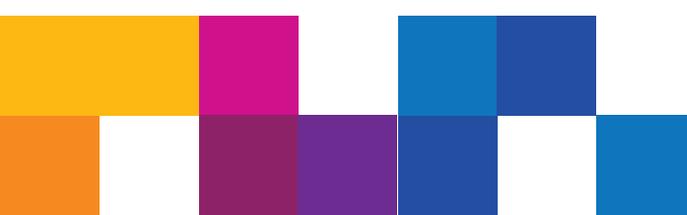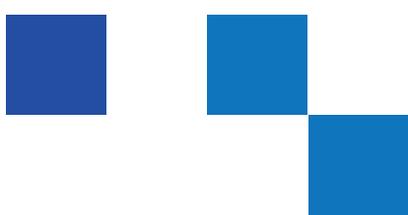
LNI 4.0 Goals

Drive solution for dynamic Industry 4.0 M2M use-cases:

- Provide Proof of concept for distributed stream configuration model
- Contribute feedback to standardization (Liaison with IEEE 802.1)
- Perform plug-fests to achieve cross-vendor interoperability

IEEE 802.1 Std. Development Process

Draft i

Standard

Validate relevant Subset

LNI 4.0 TSN Testbed Evaluation Steps

Contribute Feedback

Go to Market!
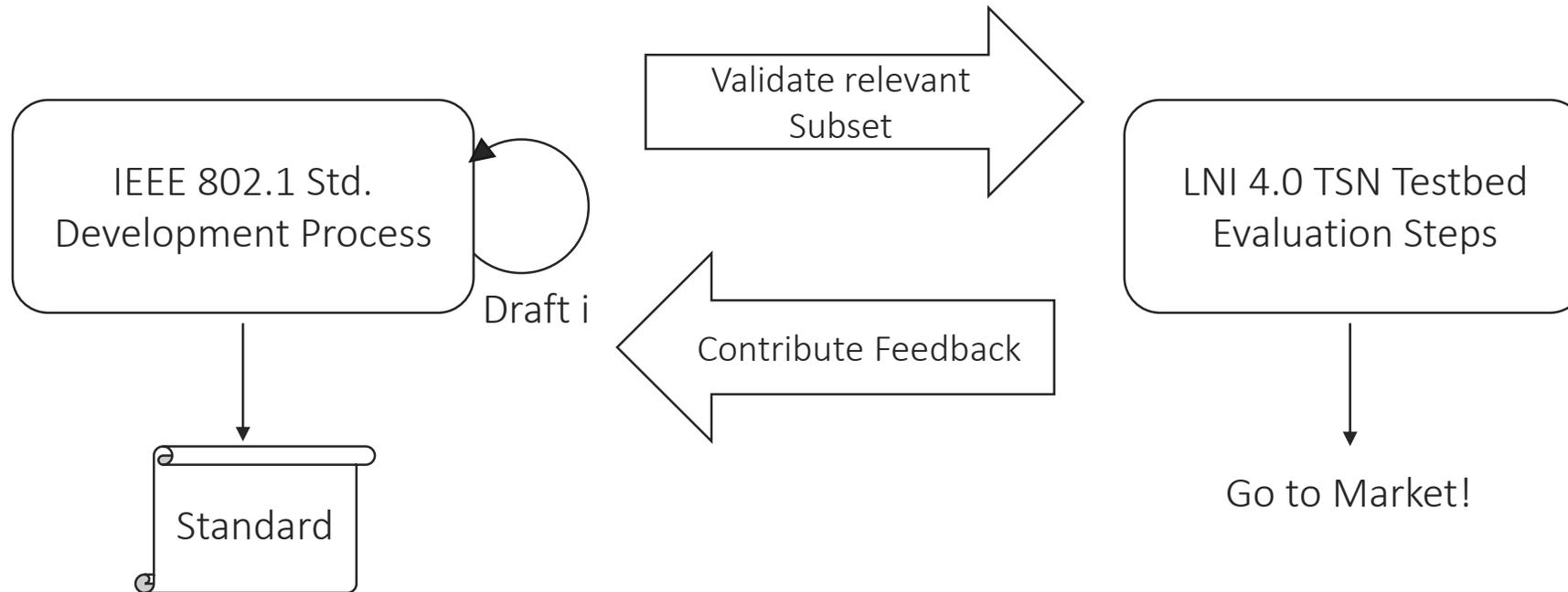
LNI 4.0 Approach to Distributed Stream Reservation

From MSRP++   ….   to LRP/RAP

802.1Q Clause 35

MSRP
CBSA

MSRP++
QBV

RAP (802.1Qdd)	Other	Other

LRP (802.1CS)
ECP / TCP
QBV, CBSA and other

Intermediate step

IEEE 802.1/IETF Standard	IEEE 802.1 Pre-Standard	LNI Community Spec	Other Community Spec
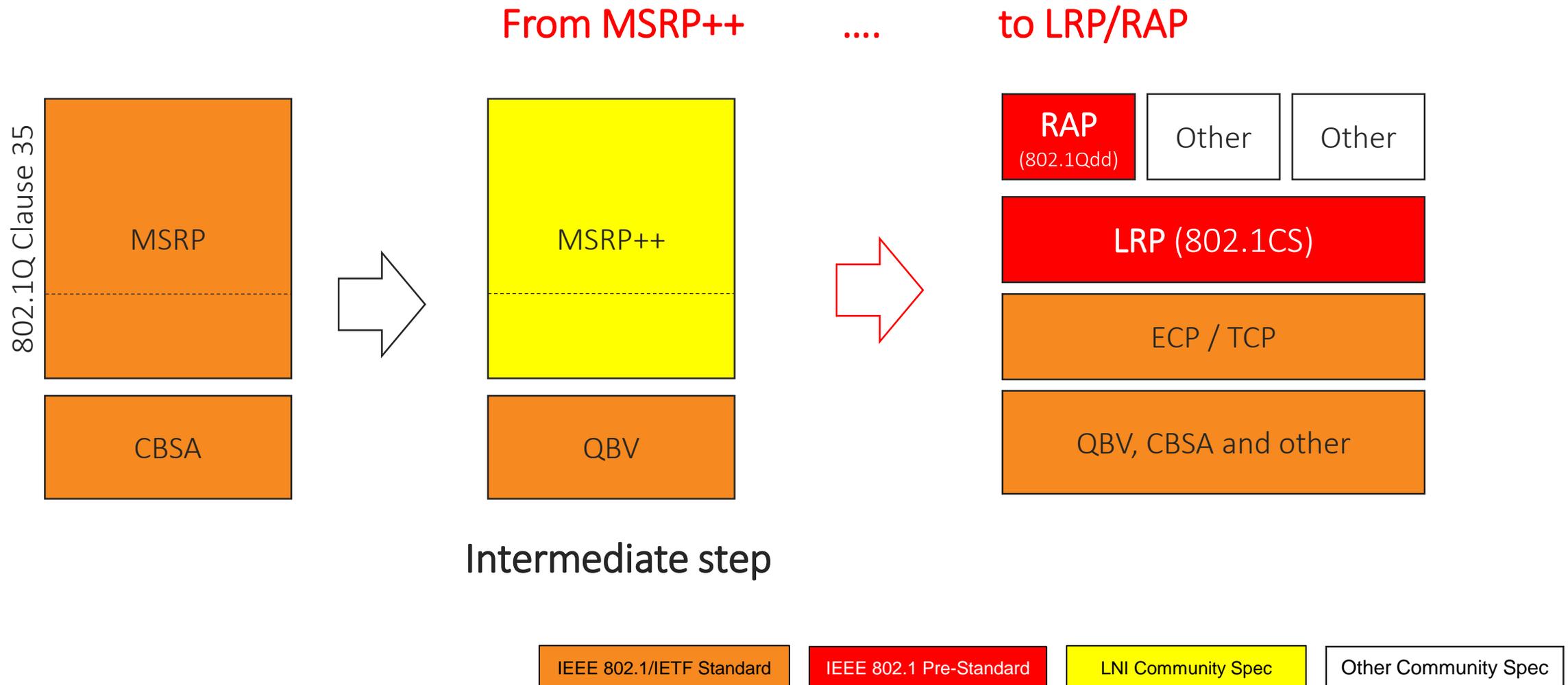
LNI 4.0 Expectations

- The LRP/ RAP standards will provide a **<u>flexible and generic framework</u>** of resource allocation models for distributed stream reservation:

  - Enhanced for arbitrary shapers / resource models,
  - Open for vendor / organization specific enhancements,
  - With proxy support to add "centralized" RAP stream reservation entities.

- The LRP/ RAP standards will be referenced by <u>IEC/IEEE 60802</u>

LNI 4.0: Options for "fast go to market"

LNI Stream Reservation Application

LNI-SR
LNI AppID

LRP (802.1CS)
ECP Subtype[1)]   *TCP Port[1)]*

ECP / TCP

QBV, CBSA and other

RAP Pre-Standard

RAP
802.1Qdd
IEEE AppID

LRP (802.1CS)
ECP Subtype[1)]   *TCP Port[1)]*

ECP / TCP

QBV, CBSA and other
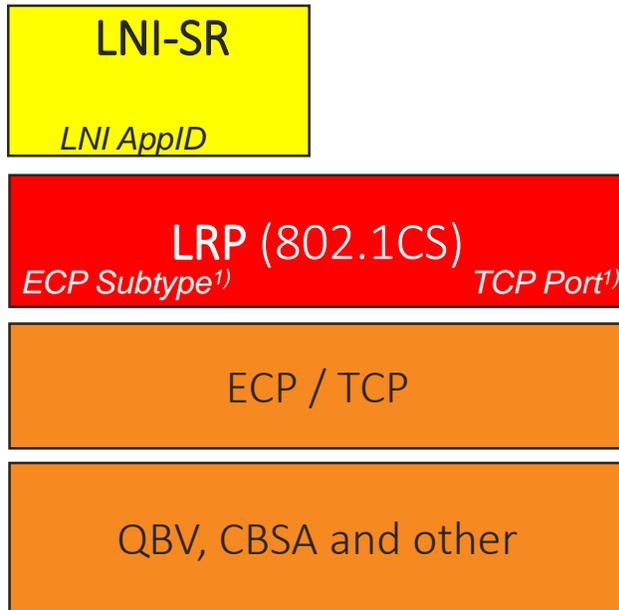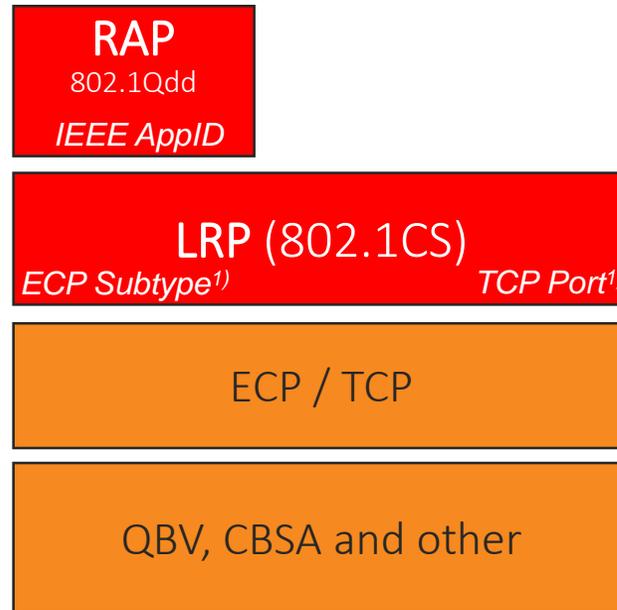
Discussion

The LNI-SR Application is an organization specific LRP Application, identified by an LNI CID based AppID.

The LNI-SR Application implements a subset of the RAP draft functionality.

LNI required enhancements are contributed to RAP.

Goal is easy migration from LNI-SR Application to IEEE Std 802.1Qdd.

[1)] will be specified just before Sponsor Ballot commences

IEEE 802.1/IETF Standard	IEEE 802.1 Pre-Standard	LNI Community Spec	Other Community Spec

LNI 4.0: Next steps

➢ Transfer MSRP++ Specification into LNI-SR Application Specification for LRP based Stream Reservation

➢ Deliver new stack for LNI members

➢ Plugging the next generation stack

➢ Deliver feedback to IEEE

LNI 4.0 TSN Testbed Evaluation Steps

LNI-SR Specification update	Stack Update	Plug-fest	LNI-SR Field trials
01/2020	01/2020	2020	2020

Questions ?