

A blurred photograph of a modern office hallway with large glass windows and a central revolving door. Several people in business attire are walking through the hallway, their figures slightly out of focus to convey a sense of movement and activity.

SIEMENS

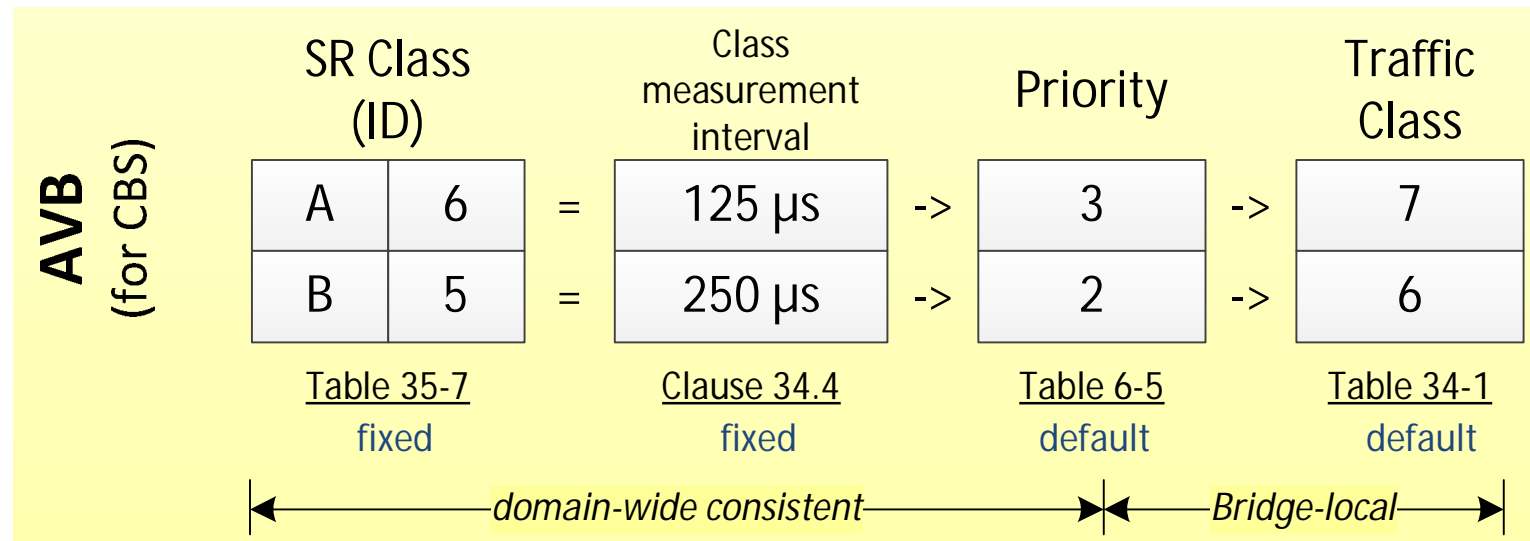
Configurable Stream Reservation Class for TSN

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Stream Reservation Class in MSRPv0 (AVB)

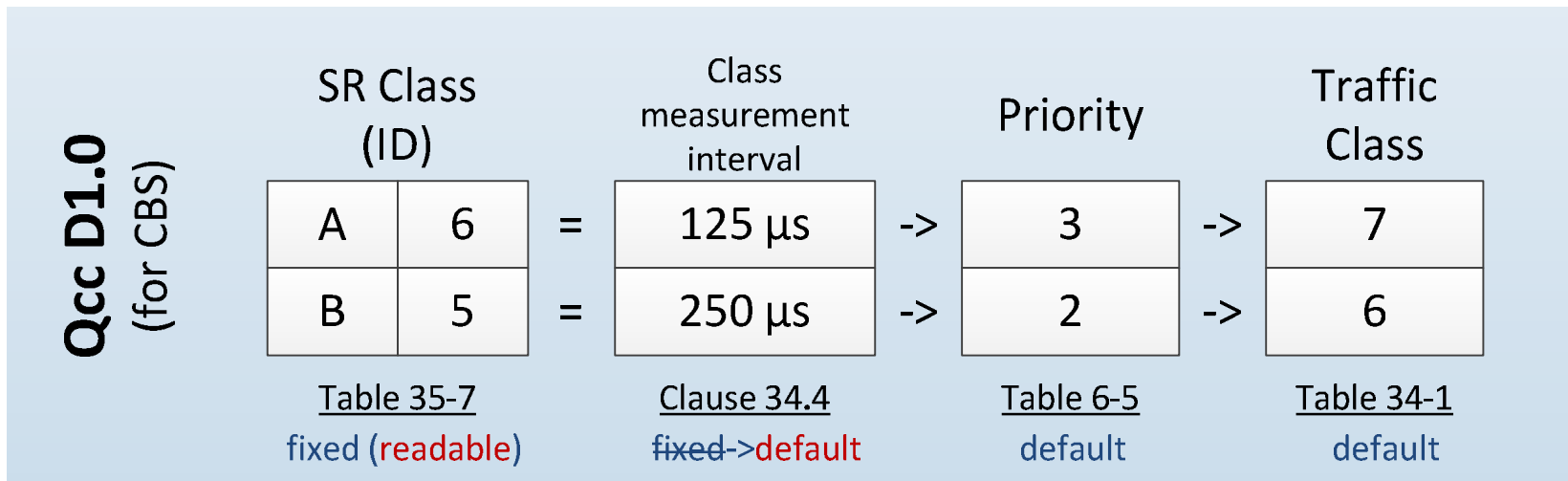
- ❑ Two SR Classes: Class A and Class B - both for CBS
- ❑ SR Class parameters - consistent in the domain
 - **srClassID**: fixed, no managed objects, only deployed in domain discovery
 - **measurement interval**: fixed, no managed objects
 - **priority**: default values defined, configurable by management



Stream Reservation Class in MSRPv1 (Qcc)

- ❑ two managed objects added to Class A and B for CBS
 - *classMeasurementInterval* - read & write
 - *srClassId* - read-only

- ❑ But no SR class defined for the new TSN shapers other than CBS
 - streams demanding non-CBS shaping need to be handled by CNC
 - different shaping among bridges for the same stream is not supported in the fully distributed model



Industrial Requirements for Configurable SR Class

Intended configuration flow in the industrial TSN networks

- ❑ SR classes are defined during the network planning and configured onto the network per management (network engineering)
- ❑ configured SR class parameters are propagated to end stations
- ❑ end stations request streams with SRP using the SR classes configured in the network

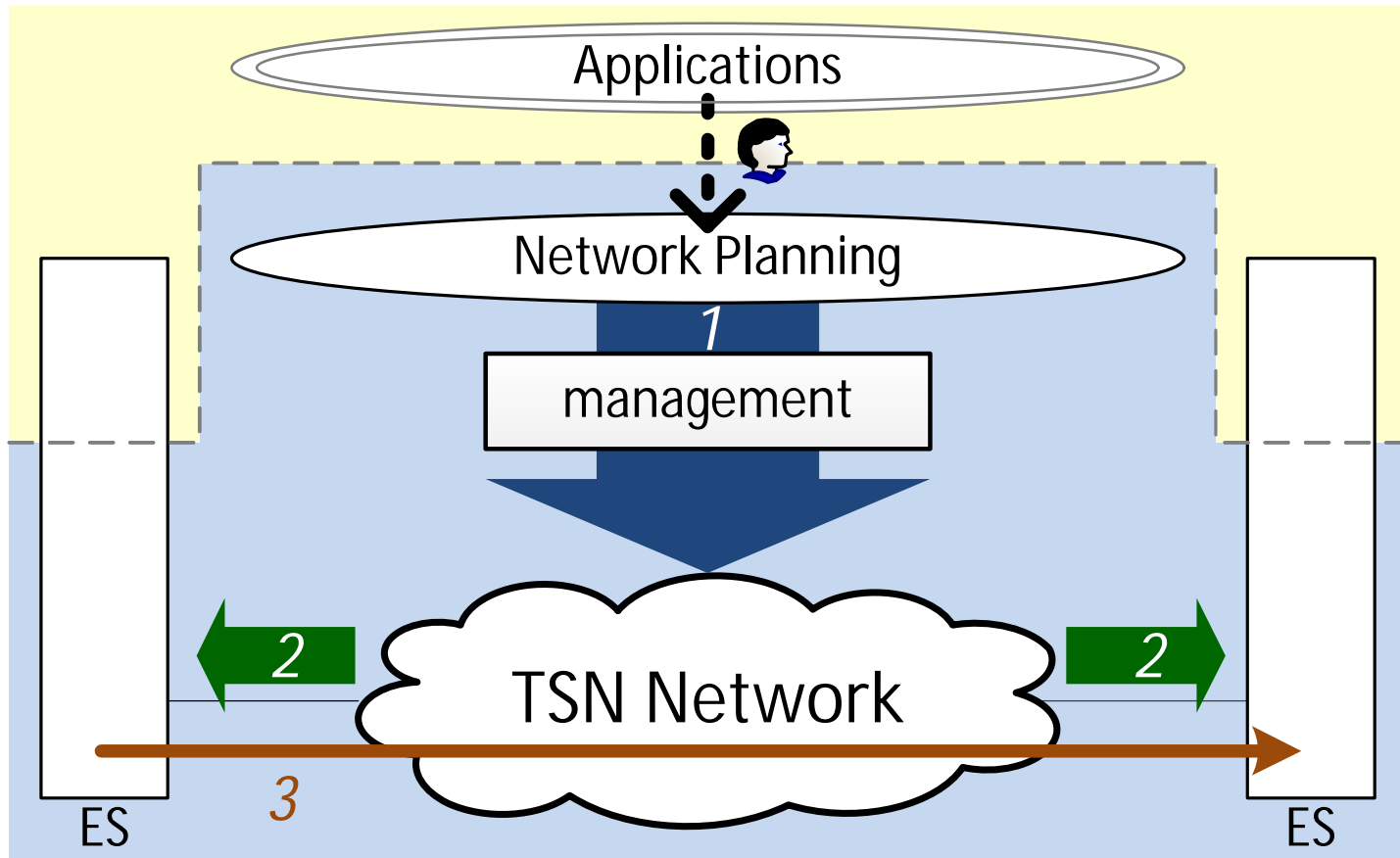
Benefits of using SR Class in industrial TSN network

- ❑ easier mapping of application requirements to network service classes
- ❑ reduced complexity in designing the stream reservation protocol for TSN

Requirements for configurable SR Class

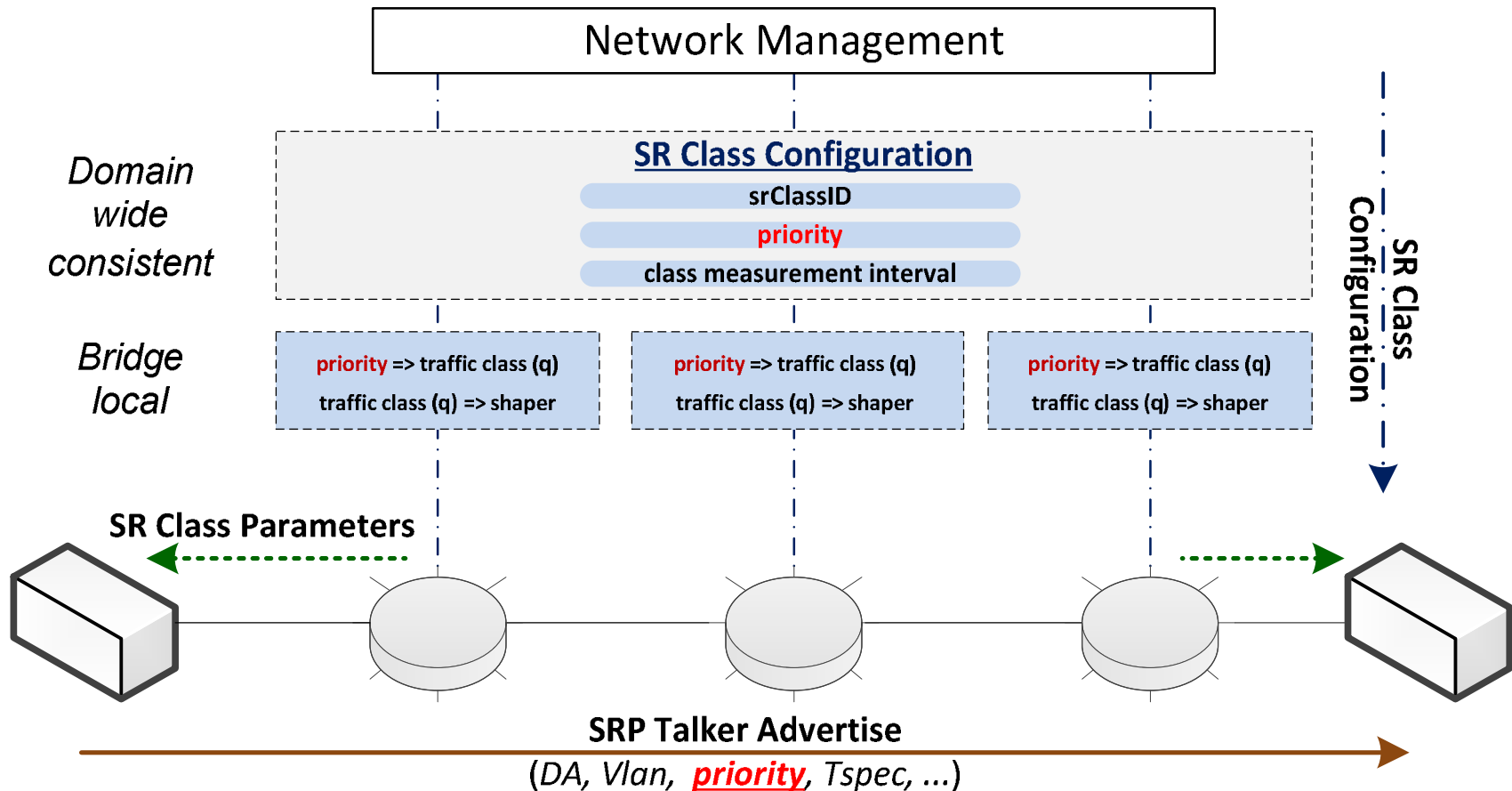
- ❑ SR class parameters are configurable per management
- ❑ shaper assignment for a SR class is bridge-specific and configurable per management

Information Flow in an Industrial TSN Network

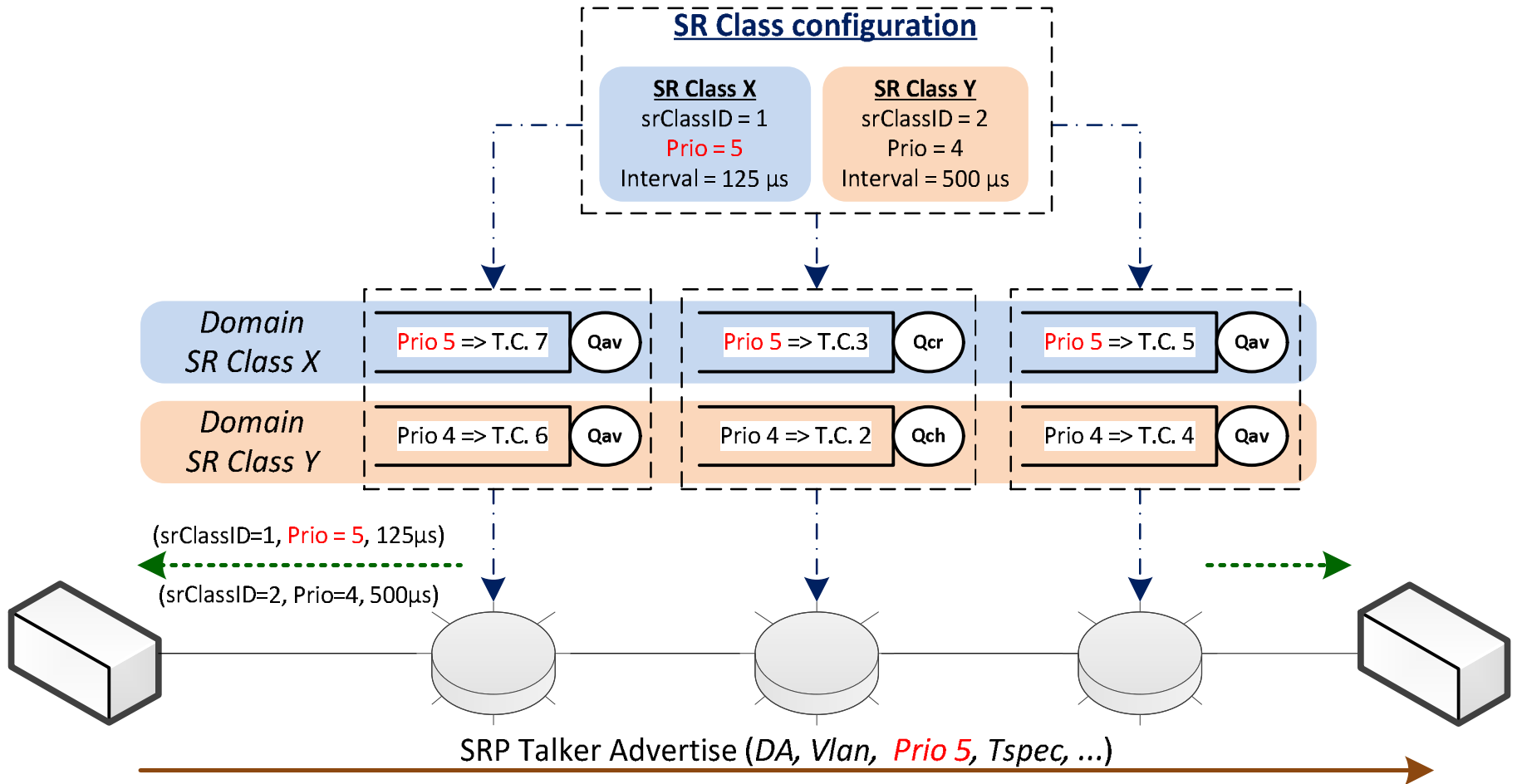


Proposals for Configurable SR Class

- ❑ make SR class parameters configurable
- ❑ allow flexible assignment of shaper to SR class
- ❑ not mandate consistent shaping for the same SR class

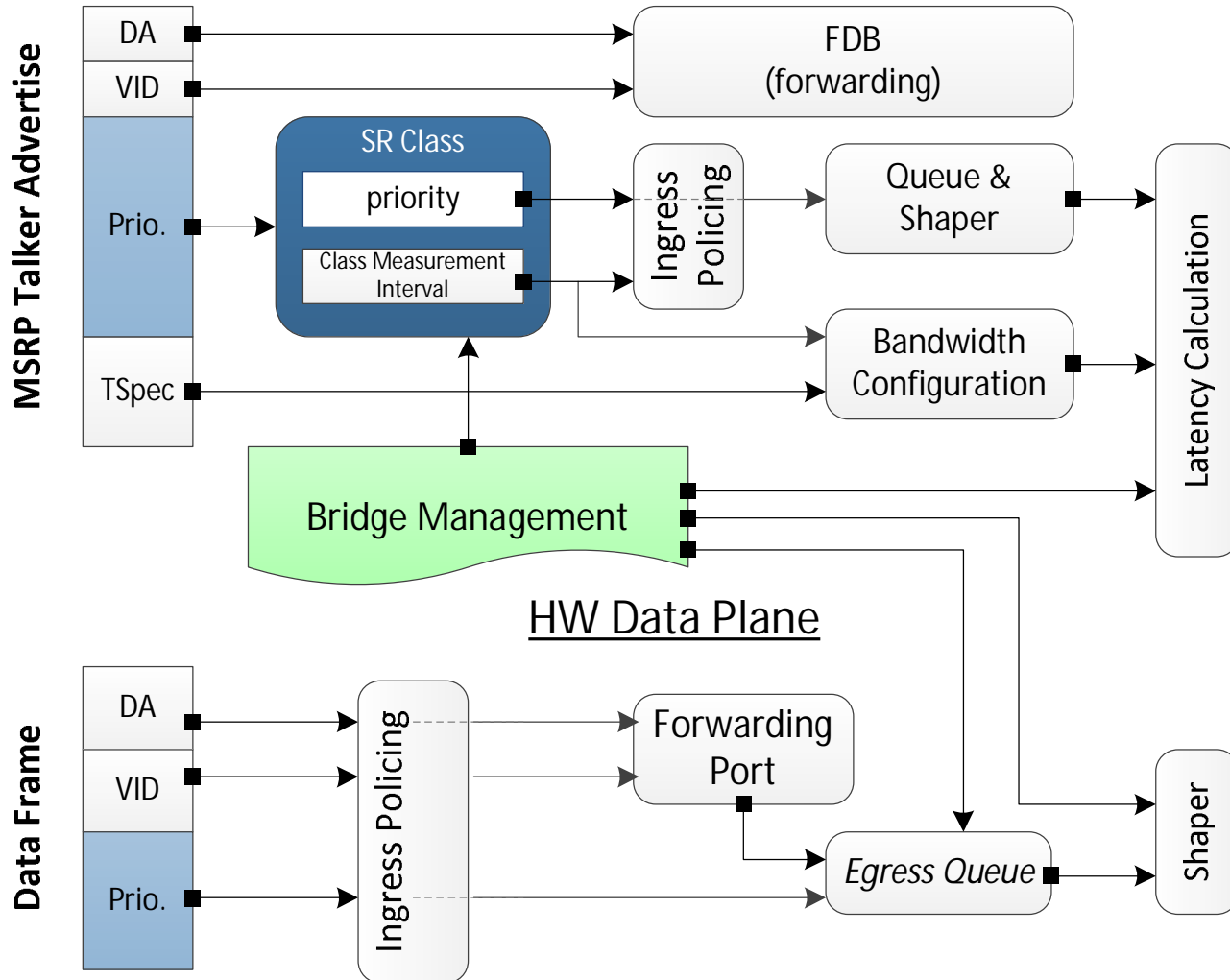


Example SR Class Configuration



Dependencies of SRP Attributes and Bridge Configuration

SRP Bridge Configuration



Conclusion

Proposals for configurable SR Class in TSN

- ❑ configurable SR Class parameters
 - srClassID, measurement interval and priority
- ❑ flexible shaper assignment for SR class
 - allow use of the new TSN shaper in SR class
 - allow different shaping among bridges on the same SR class

Only **minimal changes in the SRP Protocol are required to support configurable SR Classes and new TSN shapers**

Thank you for your attention!



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