Link-local Registration Protocol (802.1CS)
 - Database and Synchronization

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Introduction

❑ At the Atlanta Interim meeting, we discussed the goal for LRP
(http://www.ieee802.org/1/files/public/docs2017/cs-chen-lrp-architecture-and-transport-0117-v01.pdf)

LRP should become an application-neutral protocol and provide only link-local service for the applications built on it.

Application-neutral means
- clear separation of LRP and LRP-App in architecture
- trying not to put any application-specific parts in LRP
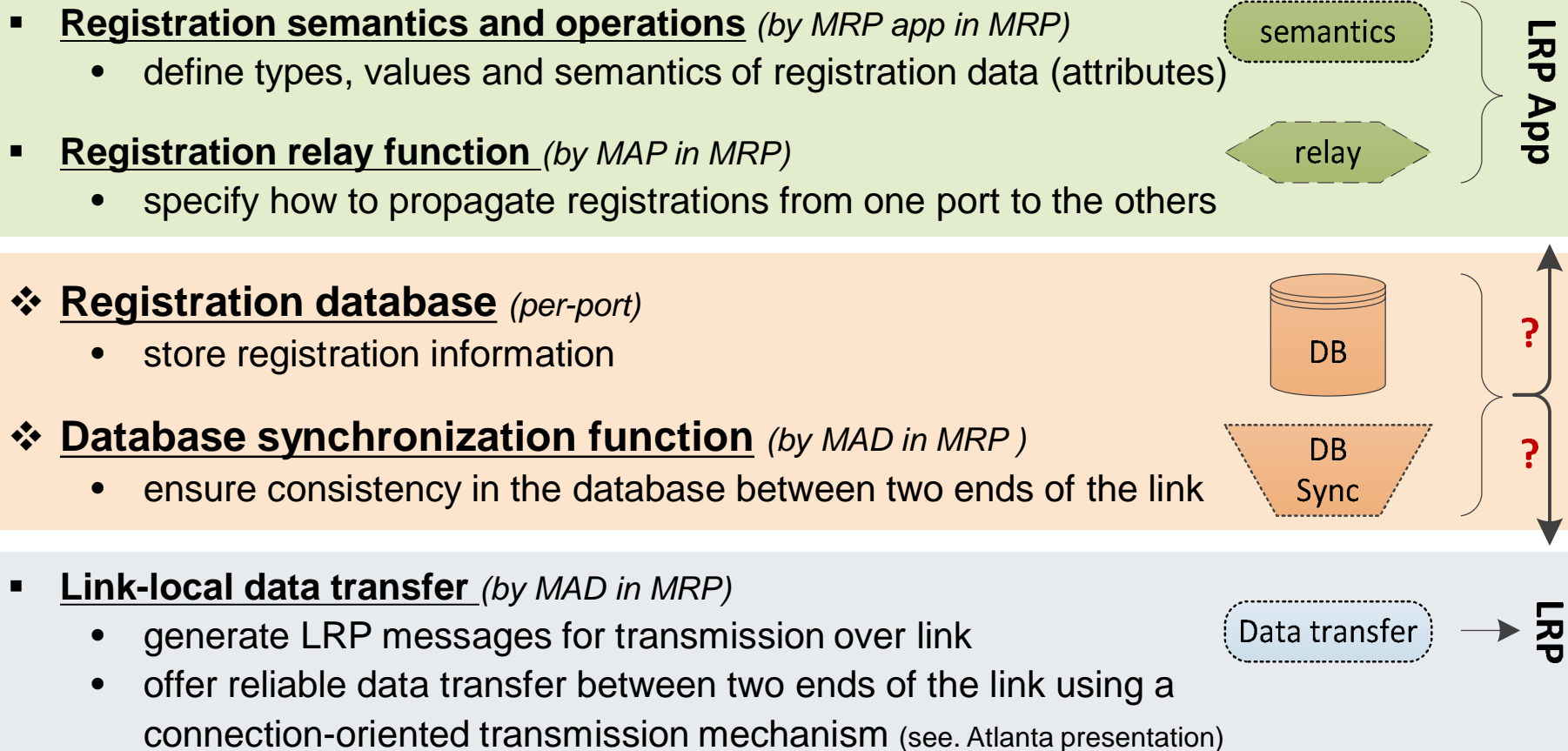
Link-local means
- a per-port entity specifying only port and link-local operations
- leaving any relay functions to LRP-App

❑ Focusing on the application-neutral goal, this presentation is intended for discussion of the following issue.
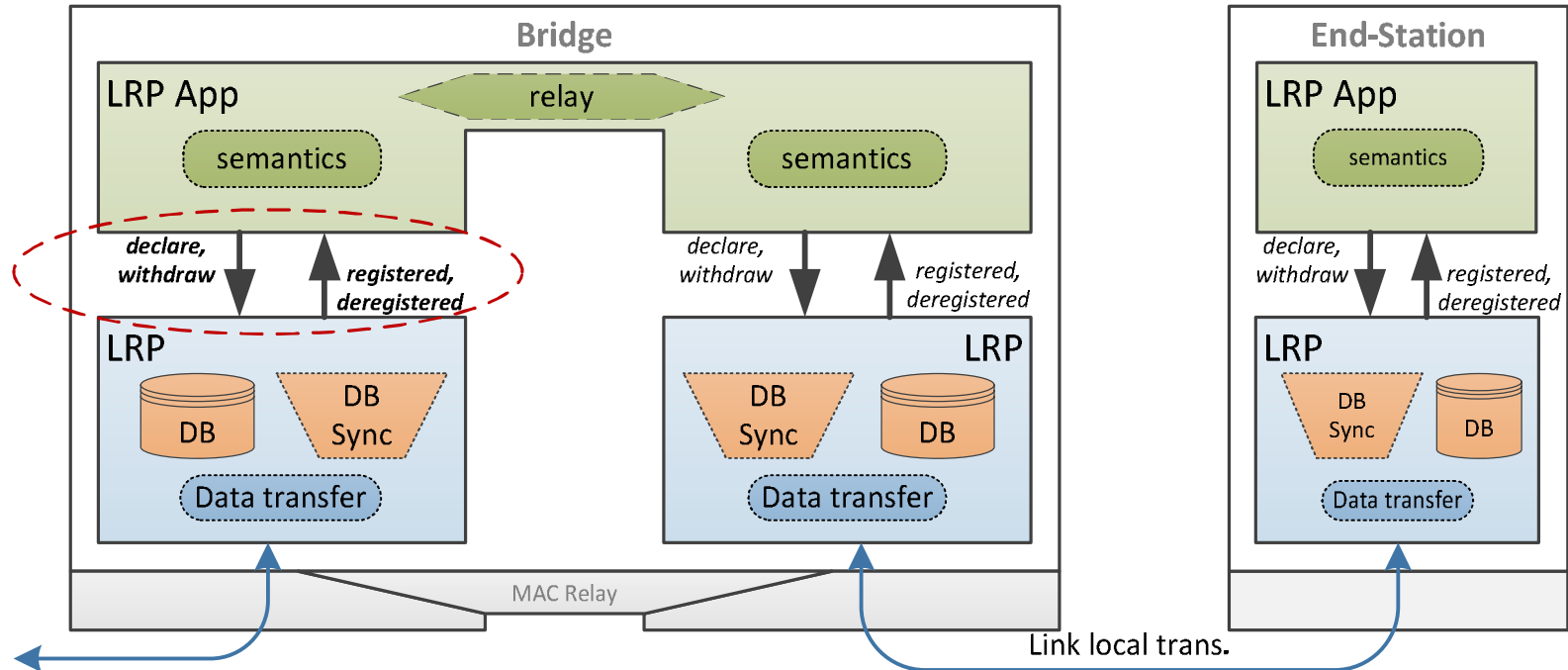
Where to locate the registration database and its synchronization, in LRP or in LRP-App?

Components of Registration Protocol

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A LRP-based registration protocol (LRP + one LRP app) may require the following basic components/function blocks.

- **Registration semantics and operations** *(by MRP app in MRP)*
  - define types, values and semantics of registration data (attributes)

  semantics

- **Registration relay function** *(by MAP in MRP)*
  - specify how to propagate registrations from one port to the others

  relay

  LRP App

- ❖ **Registration database** *(per-port)*
  - store registration information

  DB

  ?

- ❖ **Database synchronization function** *(by MAD in MRP)*
  - ensure consistency in the database between two ends of the link

  DB Sync

  ?

- **Link-local data transfer** *(by MAD in MRP)*
  - generate LRP messages for transmission over link
  - offer reliable data transfer between two ends of the link using a connection-oriented transmission mechanism (see. Atlanta presentation)
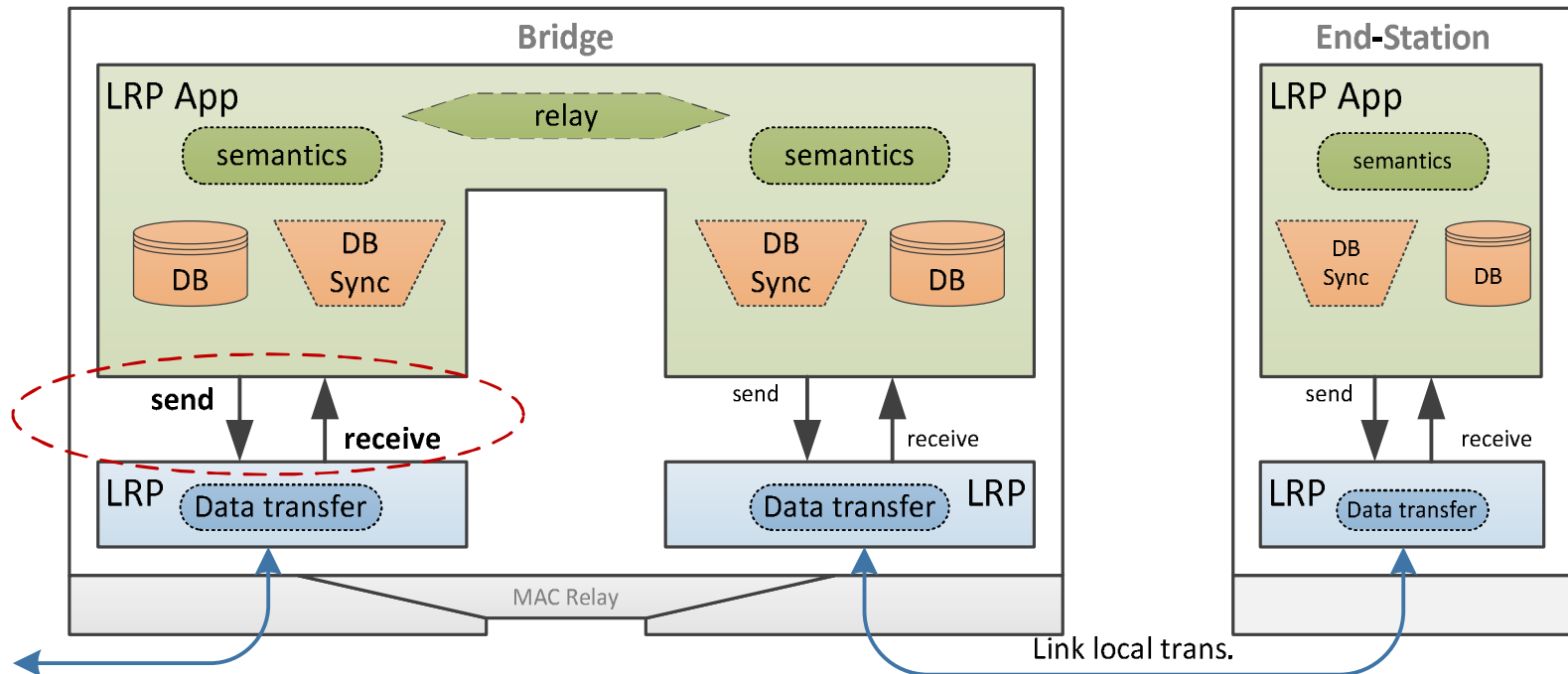
  Data transfer

  LRP

Option 1: DB + Sync in LRP

LRP is application-specific and analogous to MAD of MRP in architecture

- using a very similar interface as that between MAD and MRP-App in MRP, where attributes and their operations are explicitly exchanged across the interface

- accessing DB and conducting DB synchronization within LRP strongly rely on the semantics of attributes defined by each application

- encoding of attributes in LRPDUs and their decoding needs also to be semantics-aware

Option 2: DB + Sync in LRP App

LRP is an application-neutral link-local data transfer protocol

- only "data of bytes" to be transmitted or being received are exchanged between LRP and LRP-App resulting in a simple and generic data interface

- encoding/decoding of LRPDUs in LRP can also be generalized.

- allowing application-specific optimization in the DB sync function without the need of changing LRP (one LRP instance per port for multiple LRP-Apps)

Summary

The partition issue on where to locate DB and Sync function described in this presentation will have a major impact on the degree of dependency of LRP on application.

- Placing DB+Sync in LRP makes LRP more like a link-local registration framework and results in a similar issue as MRP which has strong dependencies on application.

- Placing DB+Sync in LRP-App can achieve a completely application-neutral LRP.

The group needs to make a decision between the above two options.

Thank you for your attention!

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