Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: On Transitioning to a 40/100 Gbps Study Group
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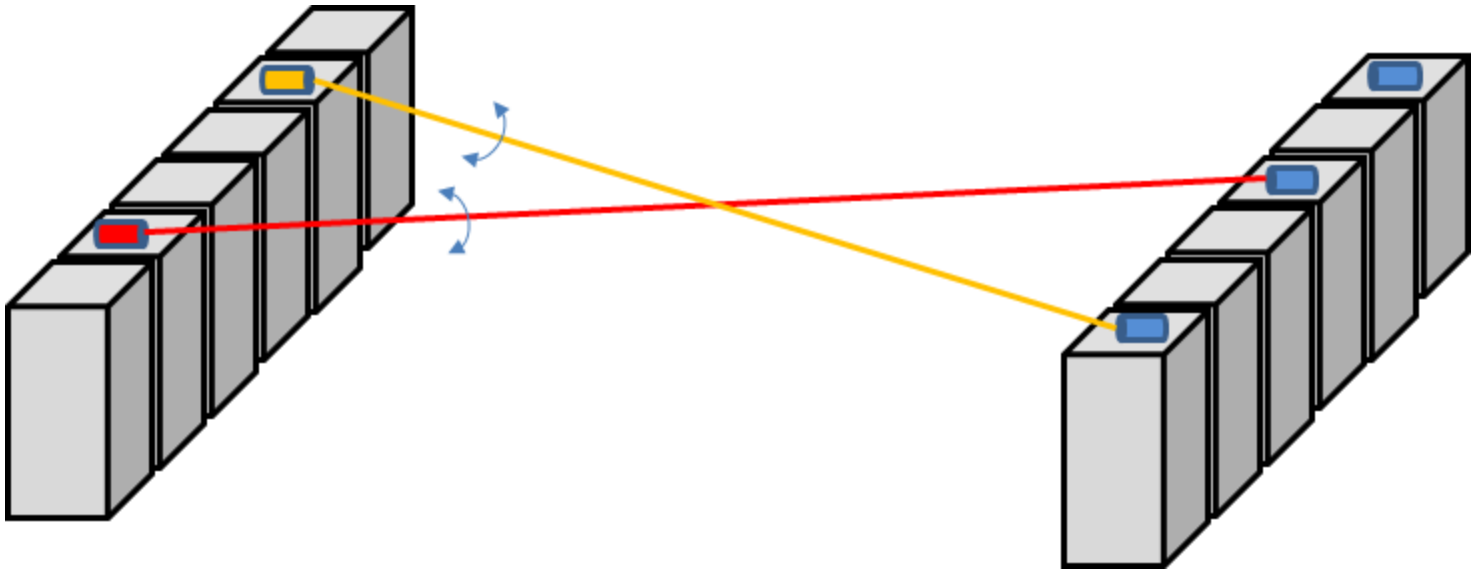
Re:

Abstract:

Purpose:

Introduction

The application currently driving the transition to a SG is switched point-to-point wireless connectivity at 40/100 Gbps.



An example of switched pt-pt between fixed rack assemblies

All details are TBD as to what exactly switched pt-pt means. Providing these details would be the work of the task group.

The purpose of the study group would be to write a PAR and 5C, and convince all those concerned that this is a “worth while” project that should go forth.

The PAR will require some detail that 802.15 THz IG will need to come to agreement on. The details are not extensive and are the subject of this contribution.

The opinions expressed are those of the author, acting as an individual delegate to IEEE802.

Opinion: the PAR should indicate that this will be an amendment to 802.15.3.

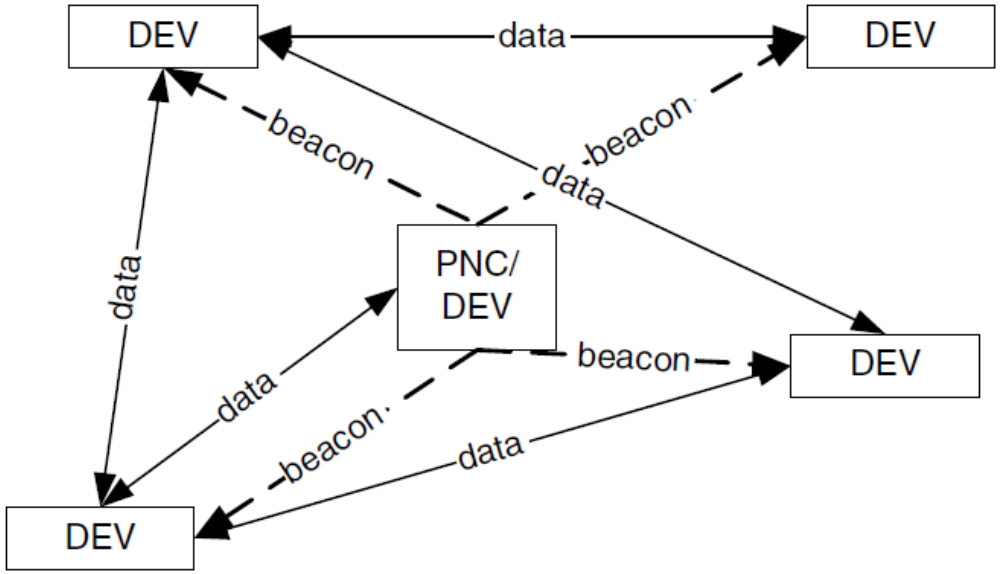


Figure 1—802.15.3 piconet elements

The 802.15.3 topology is piconet centric but supports point-to-point as one of its use cases. In a switched point-to-point configuration, one device would assume the function of PNC.

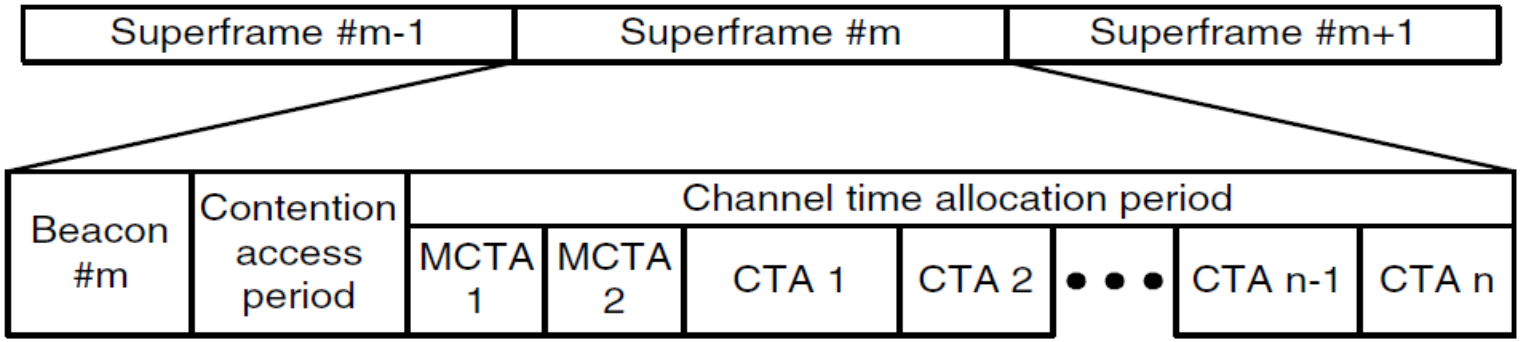


Figure 2—802.15.3 piconet superframe

Since there would be no channel contention, the superframe could be partitioned to send data either exclusively in the CAP or an extended CTA could be assigned that accomplishes the task.

Of interest is the possibility of full-duplex operation and the required MAC modifications. To accommodate this use case we only need to say that the 802.15.3 amendments will be made to support the switched pt-to-pt usage.

The PAR should indicate that one or more PHY options will be developed for this amendment, operating in mutually exclusive bands.

We've already identified potential PHY options:

- THz
- Optical Wireless
- Perhaps 60 GHz

The PAR should indicate that each PHY would support 40 Gbps as an optional rate and that 100 Gbps would also be supported by at least one PHY option (but not necessarily in all PHY options).

Why an amendment to 802.15.3?

Why not?

Would this amendment become the definitive document on the 40/100 Gbps SW pt-pt use case?

- May be *yes*, but may be *no*. Time will tell.

Why not take this directly to 802.11?

- 802.11 is not ready for this use case yet. The market is too ill defined to suit 802.11.

So why do an amendment to 802.15.3 when it may not be the definitive document?

- Got to start some place!
- Will help flesh out the use cases and identify the players.