Power Matters

IEEE802.3bt 4-Pair Power over Ethernet Task Force

Interoperability and Backward Compatibility

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History - 1

- On March 2014 we discuss and analyze different use cases of interoperability and backwards compatibility issues with different PSE concepts.

- See: http://www.ieee802.org/3/bt/public/mar14/darshan_02_0314.pdf

- In this presentation, the focus will be on a specific case that we believe is the key to other areas and discussions in our group. It was discussed first in the 4P-ID adhoc in the attached presentation link:

http://www.ieee802.org/3/bt/public/sep14/darshan_6_0914_rev_05b.pdf

The use case is described in the next slide:

History - 2

- How we verify that Type 1 and Type 2 PDs that are already in the field, are capable of getting 4P power and work.

- A 4P PSE is connected to Type 1 / 2 PD. What is the possible behavior?

#	Possible behavior	Notes
1	Work with 4P	OK
2	Work with 2P (either on Mode A or B)	OK
3	Work with 4P with higher current unbalance than permitted by specification of 802.3bt	OK
4	Not working with 4P	Backwards compatibility issue.
5	Damage with 4P	Not acceptable.

We care about items 4 and 5.

History - 3

- We all agreed that behavior #5 is not acceptable and we need to ensure by 4P-ID that it will not happen.
- However the 1P channel approach can not repower the PD as 2P if it fails 4P-ID or in X cable case.

From :http://www.ieee802.org/3/bt/public/sep14/darshan_6_0914_rev_05b.pdf		
#	Possible behavior	Notes
4	Not working with 4P	Backwards compatibility issue.
5	Damage with 4P	Not acceptable.
We care about items 4 and 5.		

- **So the question is principle one.**
- Should we accept a situation where Type 1 or 2 PDs that are fully compliant PD that was working fine in Type 2 PSE will not be able to work as Type 2 when system was upgraded to 4P PSE?

What our project objectives and 5C say?

- **Objectives**
- **4PPoE PSEs will be backwards compatible with IEEE 802.3-2012 PDs**.

- **4PPoE PDs which operate at power levels consistent with IEEE 802.3-2012 PDs will interoperate with IEEE 802.3-2012 PSEs.**
- **5C**
- All enhancements will be backward compatible with IEEE Std 802.3-2012 Clause 33

It means that Type 1 or 2 PD that is connected to 802.3bt (4P) PSE will operate the PD

Summary

- We have clear situation were we break BACKWARD COMPATABILITY objective and criteria.
  - We need to decide if we allow not powering a PD because one PSE can't do it and other PSE can do?

This is the question.

- <u>Notes:</u>
- The discussion is about compliant PDs.
- PDs that exists at the market and being supported by exiting pre standard systems
- If PSE can't support a PD it doesn't mean that the PD is not compliant since it was working well as 2P PD and it was meeting the IEEE standard at the PI.
- Most PDs (70-90%) will not have this issue however this is a standard for many years and we need to ensure interoperability and backwards compatibility for the future designs as well.

Thank You