

Layer 2 power management

A mini-proposal (or 3)

Hugh Barrass (Cisco)

Layer 2 power management baseline

The first skeleton baseline was adopted in January
(hoorah!)

The details of the communication packets was left TBD
Based on LLDP protocol

The baseline included the concept of minimum support
A “dumb” PD that cannot dynamically manage power

This proposal (these proposals) cover the minimum support
Defining some protocols & parameters

New TLV (skeleton – as adopted)

New 802.3 TLV(s) – detailed headers – contents TBD

Bytes	Content	Value	Description
1	TLV type	127	Organizationally dependent
1	length	10	Length
3	OUI	00-12-0F	IEEE 802.3 OUI
1	subtype	05	New subtype – POE information
1	TBD		TBD
...	TBD		More TBD

Minimal PD requirements (proposal)

At a minimum the PD needs to state its required power

- Up to max needed for PoEplus (& more?)

- 16 bit field allows up to 102.3W in 100mW increments

Suggest also some concept of “power priority”

- Allows smarter power management

- i.e. “critical” “high” “low” (& “unknown”)

Knowledge of the power source is also useful

- Can be taken into account for power management

- i.e. “PSE only” “local only” “PSE & local”

All of these are supported in LLDP-MED (ANSI/TIA-1057)

- Already defined & published (April 2006)

PoE mode LLDP-MED frame

PDU frame – detailed contents

Bytes	Content	Value	Description
12	MAC DA / SA	01-80-C2-00-00-OE / ?	LLDP DA / sender address
2	Ethertype	88CC	LLDP type
9	Mandatory TLV		Chassis ID TLV
9	Mandatory TLV		Port ID TLV
4	Mandatory TLV		TTL TLV
2	TLV type/len	127 / 7	State code
4	OUI / subtype	00-12-BB / 04	TIA OUI / PoE subtype
1	Type / source / PRI		Power type, source and priority
2	Power		Power level 0 – 102.3 Watts
19	PAD / FCS		

Proposal(s)

We can mandate that all (802.3at) PDs support LLDP-MED PoE frame

- Use reference to ANSI/TIA-1057 (either 2006 only or living)

- Include informative descriptions & frame formats for neatness

We can use the exact frame & TLV definitions in TIA-1057

- Copy definitions as normative text, no need for out of document reference

- May run into copyright issues

We could use the same TLV definitions but use IEEE 802.3 OUI, subtype

- Almost identical to LLDP-MED frame

- May be better – or worse – for cross-compatibility

IEEE 802.3 version of LLDP-MED frame

PDU frame – detailed contents (suggestion...)

Bytes	Content	Value	Description
12	MAC DA / SA	01-80-C2-00-00-OE / ?	LLDP DA / sender address
2	Ethertype	88CC	LLDP type
9	Mandatory TLV		Chassis ID TLV
9	Mandatory TLV		Port ID TLV
4	Mandatory TLV		TTL TLV
2	TLV type/len	127 / 7	State code
4	OUI / subtype	00-12-OF / 05	802.3 OUI / PoE subtype
1	Type / source / PRI		Power type, source and priority
2	Power		Power level 0 – 102.3 Watts
19	PAD / FCS		

Next steps

Adopt first, second or third proposal

Three motions – in order

Strong preference for first approach

Good citizenship + backward compatibility

Second approach may run into trouble

Copyright issues & use of other's OUI

Third approach is usable but redundant

2 definitions of the same thing in 2 bodies

Questions...



... or comments

Proposal for adoption (#1)

Move that the Task Force accept the proposal to reference ANSI/TIA-1057 PoE TLV as the minimal mandatory requirement for PD support for Layer 2 management.

P: Hugh Barrass

S:

Y: nn N: n A: n (tech >75%)

(802.3) Y: nn N: n A: n

Proposal for adoption (#2)

Move that the Task Force accept the proposal to copy the definition of ANSI/TIA-1057 PoE TLV as the minimal mandatory requirement for PD support for Layer 2 management.

P: Hugh Barrass

S:

Y: nn N: n A: n (tech >75%)

(802.3) Y: nn N: n A: n

Proposal for adoption (#3)

Move that the Task Force accept the proposal to define a TLV similar to the definition of ANSI/TIA-1057 PoE TLV as the minimal mandatory requirement for PD support for Layer 2 management.

P: Hugh Barrass

S:

Y: nn N: n A: n (tech >75%)

(802.3) Y: nn N: n A: n