802.3at 5-Criteria and Objectives Housekeeping

Carlson, Steve – HSD

Darshan, Yair – Microsemi

Diab, Wael William – Broadcom

Dineen, Thomas – Dineen Consulting

Dove, Dan – ProCurve Networking by HP

Feldman, Daniel – Microsemi

Flatman, Alan – LAN Technologies

Heath, Jeff – Linear Technology

Jetzt, John – Avaya

Landry, Matt – Silicon Laboratories

Law, David – 3COM

McCormack, Mike – Texas Instruments

Maguire, Valerie – Siemon

Nadeau, Gerard – UNH-IOL

Schindler, Fred – Cisco

Vetteth, Anoop – Cisco

Zimmerman, George – Solarflare

…more supporters welcome…

Agenda

Overview

Task Force Motions

Working Group Motions

Overview

- It has been pointed out by several 802.3 members that some of our (802.3at) objectives and documents require some housekeeping to align with the work being performed by 802.3at

- Specifically
  - Minor update to the 5 Criteria
  - Objectives

5 Criteria – Distinct Identity

- Current Distinct Identity text is out of sync with the draft and objectives

  - We forgot to update this when we changed the objectives

- Change the 30W reference to 24W

Objectives

- Several objectives are now ambiguous
  - written when we did not have all the data
  - and/or we wanted to investigate areas of work

- Specifically
  - #5: No longer necessary. Withdraw
  - #9: Work completed. Objective uses "research". Rewrite to reflect work
  - #10: Work completed. Objective uses "vigorously pursue". Rewrite to reflect work
  - #12: Completed (Corrigendum 1). Withdraw

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Motion 1

- Move to: Withdraw 802.3at Objective 5 "The enhanced standard will provide the maximum power to the PD as allowed within practical limits"

- Technical (75%)

- M: Diab   S: Vetteth

- ALL (Roll Call):   Y: 24   N: 0   A: 0

- Motion Passes 1.31pm

Motion 2

- Move to: Rewrite 802.3at Objective 9
  From: "Research potential extension of power   classification to support PoEPlus modes"
  To: "Extend power classification to support PoEPlus modes"
- Technical (75%)
- M: Diab S: Schindler
- ALL (Roll Call):   Y: 20   N: 2   A: 2
- Motion Passes 1.35pm

Motion 3

- Move to: Rewrite 802.3at Objective 10
  From :"PoE Plus will vigorously pursue
      supporting the operation of midspan
  PSEs   for 1000BASE-T"
  To: "Support the operation of midspan
  PSEs
      for 1000BASE-T"

- Technical (75%)

- M: Diab S: Darshan

- ALL (Roll Call):   Y: 20   N: 1   A: 3

- Motion Passes 1.38pm

Motion 4

- Move to: Withdraw 802.3at Objective 12 "That IEEE 802.3af power over the MDI isolation requirements be revisited as part of the PoE Plus work"

- Technical (75%)

- M: Diab   S: Carlson

- ALL (Roll Call):   Y: 21   N: 0   A:3

- Motion Passes 1.42pm

Motion 5

- Move to
  - Replace 30W with 24W on the 802.3at 5-Criteria under Distinct Identity to match the objectives, draft and previous motions.
  - Request that the 802.3 Working Group submit the updated 5 Criteria to the 802 Executive Committee for consideration at the November 2008 Plenary Session
- Technical (75%)
- M: Diab S: Landry
- ALL (Roll Call):   Y: 25   N:0   A:0
- Motion Passes 1.44pm

Motion 6

- Move to
  - Task the 802.3at Task Force Chair to work with the Maintenance Chair and prepare an updated PAR to reflect the contingency with 802.3bc for consideration at the November plenary
  - Task the 802.3at Task Force Chair to request the Working Group Chair to pre-submit the updated PAR to meet the 30-day deadline for 802.3 and EC consideration at the November plenary

- Technical (75%)
- M: Diab S: Heath
- ALL (Roll Call):   Y: 23   N: 0   A: 1
- Motion Passes 2pm

Distinct Identity Proposed Change

The project will increase the PD load from 12.95W to a minimum of *24W* which represents a substantial change to the capabilities of Ethernet. The power classification information exchanged during negotiation will increase to allow meaningful power management capability. Together these enhancements will make the project substantially different from existing IEEE 802 standards.

The project will edit and enhance Clause 33 which is the only 802.3 clause that provides power over the MDI; which will ensure that the power specification is unique. The resulting standard will create one definition of power via the MDI while allowing current 802.3af compliant devices to remain compliant and adding optional enhanced devices.

As Clause 33 will remain the only power related clause within 802.3, it will be easy for a reader to find the relevant specification within the 802.3 document.

Agenda

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Working Group Motions

WG Motions

TO BE ADDED PRIOR TO NOV

BACKUP

802.3at Objectives

- ## Objective 1
  - PoePlus will enhance 802.3af and work within its framework -- there will be no new clause.

- ## Objective 2
  - The target infrastructure for PoEPlus will be ISO/IEC 11801-1995 Class D / ANSI/TIA/EIA-568.B-2 category 5 (or better) systems with a DC loop resistance no greater than 25 Ohms. Further we will not cause a safety issue for a legacy installation with equipment conforming to ISO/IEC 60950.

- ## Objective 3
  - IEEE STD 802.3 will continue to comply to the limited power source and SELV requirements as defined in ISO/IEC 60950.

- ## Objective 4
  - The PoE Plus PSE shall operate in modes compatible with the existing requirements of IEEE STD 802.3af as well as enhanced modes.

802.3at Objectives

- ## Objective 5
  - The enhanced standard will provide the maximum power to the PD as allowed within practical limits.

- ## Objective 6
  - PoEPlus shall support a minimum of 24 Watts of power at the PD PI.

- ## Objective 7
  - PoEPlus PDs, which require a PoEPlus PSE, shall provide the user an active indication when connected to a legacy 802.3af PSE. This indication is in addition to any optional management indication that may be provided.

- ## Objective 8
  - The standard shall not preclude the ability to meet FCC / CISPR / EN Class A, Class B, Performance Critera A and Performance Criteria B with data for all supported PHYs.

802.3at Objectives

- ## Objective 9
  - Research potential extension of power classification to support PoEPlus modes.

- ## Objective 10
  - PoE Plus will vigorously pursue supporting the operation of midspan PSEs for 1000BASE-T.

- ## Objective 11 (Withdrawn May 2007)
  - Research the operations of midspan and endpoint PSEs for 10GBASE-T including providing cable heating data for evaluation by IEEE P802.3an.

- ## Objective 12
  - That IEEE 802.3af power over the MDI isolation requirements be revisited as part of the PoE Plus work.

- ## Objective 13
  - PoE Plus PDs within the power range of 802.3af will work properly with 802.3af PSEs.

802.3at Objectives

- Objective 14
  - PD Operation based on PSE

	PSE IEEE Std 802.3af PSE	PoEP PSE
IEEE Std 802.3af PD	Operates	Operates
PoEP PD < 12.95W	Operates	Operates[1]
PoEP PD > 12.95W	PD shall provide user active indication	Operates[1]

1: Operates with extended power classification

5 Criteria: Broad Market Potential

In 2005, VDC market predictions claim that 45% of all Ethernet ports shipped will support 802.3af. There is a demonstrated need for more power to support Pan/Tilt/Zoom security cameras, IP videophones, POS terminals, thin client, 802 multiband wireless nodes and access points, laptop computers and RFID readers. The proposed increase in the supplied power will result in a potential doubling or tripling of the PoE market.

At the Call for Interest, 43 individuals from 22 companies supported this initiative, and 27 organizations stated an intention to work on the development of such a standard and Study Group participation has been consistent with this. There are existing proprietary solutions in the market demonstrating an active demand. The goal of the standard is to reduce the issue of interoperability in the powered LAN market.

For some markets the cost of providing AC power is a barrier to the use of a LAN solution. Increasing the power available at the MDI will increase the market potential and station functionality.

5 Criteria: Compatibility

All enhancements will be backward compatible with 802.3af.

These enhancements will be compatible with 10BASE-T, 100BASE-TX, 1000BASE-T with no changes to the existing MAC.

10GBASE-T will not be precluded.

There will be no changes to the current MAC client interface

The proposed standard will conform to the 802.1D, 802.1Q and 802.

5 Criteria: Distinct Identity

The project will increase the PD load from 12.95W to a minimum of 30W which represents a substantial change to the capabilities of Ethernet. The power classification information exchanged during negotiation will increase to allow meaningful power management capability. Together these enhancements will make the project substantially different from existing IEEE 802 standards.

The project will edit and enhance Clause 33 which is the only 802.3 clause that provides power over the MDI; which will ensure that the power specification is unique. The resulting standard will create one definition of power via the MDI while allowing current 802.3af compliant devices to remain compliant and adding optional enhanced devices.

As Clause 33 will remain the only power related clause within 802.3, it will be easy for a reader to find the relevant specification within the 802.3 document.

5 Criteria: Technical Feasibility

At least five vendors are shipping products, based on proprietary schemes, which exceed the power limits of 802.3af specification. Numerous studies indicate methods for increasing power are viable for standardization.

PoE technology has been used in the field for at least six years; 802.3af has been published for over two years. In 2004 an estimated 28 million PSE ports shipped according to IDC and VDC. Significant laboratory study was also done during the development of 802.3af. Market feedback has provided new insights into market needs and technical capabilities.

Laboratory testing on extended power has been performed and reported to the Study Group. Proposals presented to the Study Group have been well documented and based on sound engineering practices.

5 Criteria: Economic Feasibility

Extrapolation from the experience of 802.3af provides a reliable baseline. The power supply industry is well established and has many years of practice. The cost factors are well known.

In the expected range of increased power capability, the cost increase is a declining curve of cost per watt. Intelligent power management will further reduce the cost of the increased capability.

For engineered deployments of security and radio devices, PoE installation costs vs. traditional powering methods have been demonstrated to be significantly lower in most cases. For many applications that require enhanced power services, such as power management or UPS, PoE is demonstrably less expensive than distributed services. There is every reason to believe that the relative cost of power over Ethernet versus installation of primary power service outlets will remain unchanged.