Unapproved Minutes

IEEE 802.3 Next Gen ECDC Ad Hoc

Interim Meeting
Jan 18-22, 2016
Atlanta, GA, USA

Prepared by John D'Ambrosia

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Session #1

Prepared by Pete Anslow

IEEE Next Gen ECDC Ad Hoc plenary meeting convened at 8:32 am, Monday, January 18, 2016, by John D'Ambrosia, IEEE 802.3 Next Gen ECDC Ad hoc Acting Chair.

D'Ambrosia appointed Pete Anslow to be the recording secretary for session #1.

David Law, IEEE 802.3 WG Chair announced that he had appointed John D'Ambrosia as Chair of the Ad Hoc.

Agenda & General Information
By – John D'Ambrosia
See - agenda_ecdc_01_0116
Chair reviewed the agenda.

Motion #1:
Move to approve the agenda

- Moved by: P. Jones
- Second by: T. McDermott
- Passed by voice without opposition

Chair noted that photography and recording not allowed without permission.

Chair called for members of the press or individuals reporting publically on the meeting to identify themselves. No one responded.

Chair displayed the reflector and web page information.

Chair reminded attendees to observe decorum rules.

Chair reviewed ground rules.

Chair displays the Bylaws and Rules slides.

Chair reviewed patent policy, see agenda_ecdc_01_0116

Chair went over expected output from the Ad Hoc.

Chair noted that there would be two further sessions for the ECDC. Session 2, YANG Models for IEEE 802.3 would be Wednesday night 8pm to 10pm. Session 3, 400G Extended Reach PMD, would also be held Wednesday night. Currently, it is scheduled from 8pm to 10pm, but was being rescheduled. Currently, start time is thought to be 9pm. Chair would announce after consulting with Yoshiaki Tone.

Session #1 ended at 8:43 am.

Session #2 – YANG Models

Prepared by Marek Hajduczenia

IEEE Next Gen ECDC Ad Hoc Session #2 convened at 8:01pm, Wednesday, January 20, 2016, by John D'Ambrosia, IEEE 802.3 Next Gen ECDC Ad hoc Acting Chair. D'Ambrosia appointed Marek Hajduczenia to chair the session.

D'Ambrosia gave an overview of the Ad hoc, and noted need for group to identify if it would be working towards any output other than records of the meeting. This would include consensus presentations for CFI or white paper.

Presentation
Title: YANG Models for 802.3
By: Yan Zhuang & Marek Hajduczenia
See: http://www.ieee802.org/3/ad_hoc/ngrates/public/16_01/zhuang_ecdc_01_0116.pdf

Discussion: Aspects for the CFI:

- YANG project is needed and we have people to do it
- Clarify what 802.3 has to do to support the project (very similar to what they have to support SNMP management)
- Outline the plan for publication (start development when PHY project is within WG ballot – this will give ~6 months to develop changes to existing YANG and publish them)

Presentation
Title: IEEE 802.1 YANG Update
By: Marc Holness
See: http://www.ieee802.org/3/ad_hoc/ngrates/public/16_01/holness_ecdc_01_0116.pdf

Discussion:

- Two projects are ongoing (802.1Xck + 802.1Qcp), providing the baseline for development of more complex projects in the future
- UML modelling was used as basis for initial development of YANG models in 802.1, simple Clause 30 modelling might be a good start for 802.3 model
- Discussion on YANG structure and modelling, including focus on where L2 functionality is expected to fit (interface versus system, a new functional block, etc.)
- Discussion on publication of YANG code – it seems that publication via GitHub required a special permission from IEEE-SA. By the time we get project started in 802.3, is this situation going to be the same or there will be a mechanism in IEEE-SA to support open-source projects as well?

Session ended 9:28pm

Session #3 – 400GbE Extended Reach

Prepared by John D'Ambrosia

IEEE Next Gen ECDC Ad Hoc Session #3 convened at 9:00pm, Wednesday, January 20, 2016, by John D'Ambrosia, IEEE 802.3 Next Gen ECDC Ad hoc Acting Chair. D'Ambrosia chaired the session.

D'Ambrosia gave overview of ECDC to participants.

Presentation
Title: 400GbE Extended Reach PMD
By: Yoshiaki Sone
See: http://www.ieee802.org/3/ad_hoc/ngrates/public/16_01/sone_ecdc_01c_0116.pdf

Discussion:

- Technical feasibility was discussed, but it isn't just an issue of technical feasibility, but also economic feasibility and broad market potential.
- It was pointed out that the 25GbE SMF had also adopted objective to do 40km SMF.
- Concern raised about interest in another optical project at this time given work in 802.3bs, 50GbE & NGOATH Study Groups, and the 25GbE SMF, and perceived broad market potential of each.
- Discussion of white paper, but not clear what focus of white paper would be.

Session ended approximately 9:45pm.

Session #4 - Single Twisted Pair – 1000m Reach

Prepared by David Brandt / John D'Ambrosia

IEEE Next Gen ECDC Ad Hoc Session #1 convened at 8:00am., Thursday, January 21, 2016, by Ludwig Winkel.

D'Ambrosia gave overview of ECDC to participants.

Ludwig appointed David Brandt to take minutes for meeting.

Ludwig gave an introduction to the needs for single pair 1000m within industrial automation: Numerous non-Ethernet fieldbuses (Profibus-PA, FF, HART) are used to connect process automation devices and are supported by multi-vendor organizations. Ethernet has been requested by customers but fell short. Industrial Ethernet (defined within the IEC) carries the multiple application protocols within the same infrastructure. IEEE 802.1 TSN and IEEE 802.3br bring real time extensions. Use of the existing single pair installed cables (1000m) can facilitate an Ethernet transition. Other areas can benefit as well, windfarms which are tall, benefit from length and from cable weight reduction. Intrinsic safety is necessary to prevent explosions. High speed is not a big issue, above 31kb/s is an improvement.

Discussion:

- Market Potential
    - To meet oil industry specifications (sensors for monitoring, seismic) longer distance is needed, copper 100m std Ethernet and non-standard RJ45, crosstalk from robots is an issue, they want to go longer, speed is not a bit issue, 10k sensors around rigs, single pairs can bring simplified installation options, this is IoT connectivity, it broadens the market.
    - Oil / Gas industries have Intrinsic Safety (IS) needs. These needs can limit power on cable, so need to be cautious. Will these IS needs impact acceptance in broader industry
- Variable PHY?
    - Suggested to not preclude.
- Discussion regarding application space?
    - Brownfield / Greenfield / Both?
    - Channel specifications need to be done carefully
    - It was noted that the CFI defines the target to serve, classes of technology to serve, no objectives. Range of bitrates. SG hashes out the objectives.
    - It was noted that the group was not there to solve the problem, but to identify the problem to solve.
- Connector selection was discussed. It was noted that this is a big debate, and more than one connector would be needed.
- Potential for wired IoT - there is power and data over a pair, temperature sensors are cost sensitive. Single pair means simple installation by an inexperienced installer, only a screwdriver, a std connector.

- Potential for PoDL.
- Devices on low end non-Ethernet networks and currently non-networked devices are other use case candidates. Single pair reduces components and footprint. Low power for IS reduces power supply requirement.
- There are use case in the EU, Cenelec cable group, cable specs for reduced pairs, November, Athens, there is a position paper, 2 ways to map over pairs, examines single pair structured cables, ISO family 6 parts, part 6 distributed building services, this fits perfectly. 1km, presented next month at IEC?, liaison report in Macau

Presentation:
Title: Draft4 – CFI – Single Twisted Pair with a reach of up to 1000m
By: Ludwig Winkel
See: http://www.ieee802.org/3/ad_hoc/ngrates/public/16_01/Single%201000m_CFI_rev4.pdf

Discussion

- Difference between this version and earlier versions was more supporters added.
- Discussion regarding use of “extended reach”
  - Extended reach too vague. Title goes to SG. SG adds specifics. “Extended reach intermediate rate applications”. Get a name. Statement of problem.
  - There is a need for 1200m for existing wire structures, for the BACnet std.
  - Single pair, variable distance, variable speed. This is SG question.
  - Say up to at least 1000m, not just “extended reach”.
- When should CFI be held? Group voted and choose July in San Diego. Macau meeting to be used for socialization.
- Discussion regarding EMC section. David Brandt to provide text.
- David Brandt to provide market info.
- “Motivation” slide needs further work
  - Example - Replacement of Legacy 485 Wiring
  - Ludwig requested that everyone consider market specifically.
- Other issues discussed
  - To handle 802.1 bridging protocols, must be fast enough, otherwise complexity goes up, there is a lower limit
  - Focus on use cases, not on adapting existing PHY
  - Types of connectors & potential impact on cost
  - Not a single segment over such a long distance, but several
  - There is a lack of knowledge of the market. There should be slide sets on motivation.
  - Variety of power expectations.
  - PoDL limited the BW at the low end, and this is a concern.

Session ended approximately 9:30am.

Attendees:

IEEE 802.3 Next Gen ECDC Ad Hoc			**1/18/2016 Session 1**	**1/20/2016 Session 2**	**1/20/2016 Session 3**	**1/21/2016 Session 4**
Last Name	**First Name**	**Employer / Affiliation**	**Mon**	**Wed**	**Wed**	**Thrs**
Anslow	Peter	Ciena			x	
Bains	Amrik	Cisco				x
Bhatt	Vipul	Inphi	x			
Bouda	Martin	Fujitsu	x			
Brandt	Dave	Rockwell Automatioin				x
Brillhart	Theo	Fluke				x
Carty	Clark	Cisco				x
Chang	Ayla	Huawei	x			
Chen	David	A02	x			
Cibula	Peter	Intel				x
D'Ambrosia	John	Futurewei, subsidiary of Huawei	X	X	X	X
DiMinico	Chris	MC Communications / Panduit				x
Estes	David	Spirent				x
Fajima	Keisuke	Mitsubishi Electric			x	
Flatman	Alan	LAN Technologies				x
Fritsche	Matthias	Harting				x
Groell	Jim	NPP	X			
Groell	James	NanoPrecision			x	
Gustlin	Mark	Xilinx	x			
Hajduczenia	Marek	Brighthouse Networks		x		
Hall	Robert	Johnson Controls				x
Hess	Dave	CORD Data				x
Holness	Marc	Ciena		x		
Huang	Xi	Huawei	x			
Isono	Hidaki	Fujitsu Optical Components	x		x	
Issenhuth	Tom	Microsoft	x			
Jackson	en	Sumitomo			x	

Jones	Peter	Cisco	X	x		x
Kinney	Patrick	Kinney Consulting				x
Kolesar	Paul	CommScope	x			
Lackner	Hans	QoSCom				x
Lane	Brett	Panduit				x
Leizerovich	Hanan	MultiPhy			x	
Li	Yichou	Huawei		x		
Liu	Hai-Feng	Intel	x			
Lo	William	Marvell				x
Maki	Jeffrey	Juniper Networks	x		x	
Malicoat	David	HPE	X			
Masood	Shariff	CommScope				x
McCarthy	Mick	Analog Devices				x
McClellan	Brett	Marvell				x
McDermott	Tom	Fujitsu	X		x	
Moffitt	Bryan	CommScope				x
Mooney	Paul	Spirent	x			
Moskowitz	Robert	HTT Consulting				x
Muir	Ren	JAE			X	
Murray	Dale	LightCounting	x			
Ogura	Ichiro	Petra	x			
Perez de Aranda	Ruben	KDPOF				x
Renteria	Victor	Bel Magnetics				x
Rossbach	Martin	Nexans				x
Shariff	Masood	Commscope		x		
Sparrowhawk	Bryan	Leviton				x
Stassar	Peter	Huawei			x	
Szczepanek	Andre	Inphi	X			
Szeto	Bill	Xtera	x			
Takahata	kiyoto	NTT	x			
Tamura	Kohichi	Oclaro	x			
Tamura	Kohichi	Oclaro			x	
Teipen	Brian	ADVA	X			

Thompson	Geoff	GraCasi SA		x		
Trowbridge	Steve	Alcatel-Lucent			x	
Ulrichs	Ed	Source Photonics	x			
Umnov	Alexander	Corning		x		
Vaden	Sterling	Surtec				x
Vanderlaan	Paul	Berk-Tek				x
Wagner	Bob	Panduit				x
Wang	Tongtong	Huawei	x			
Wang	Xinyuan	Huawei	x		x	
Way	Winston	NeoPhotonics			x	
Woods	Jordon	Innovasic				x
Wu	Peter	Marvell				x
Xu	Qing	Belden	x	x		
Xu	Yu	Huawei	x		x	
Yoshiaki	Sone	NTT	x			
Zhang	Huanlin	Applied OptoElectronics	x			
Zhong	Hangyuan	Marvell	x			
Zhuang	Yan	Huawei	x	x		
Zimmerman	George	CME Consulting		x		x