

Unconfirmed Minutes - Multiple MCS IEEE 802.3bn EPoC Ad Hoc - 011113

No response to the IEEE call for patents.

Attendance

Attendee
Joe Solomon – Comcast
Jorge Salinger – Comcast
Bill Powell – ALU
Charaf Hanna – ST Micro
Christian Pietsch - Qualcomm
Curtis Knittle – CableLabs
Dave Urban – Comcast
David Law – HP
Duane Remein – Huawei
Dylan Ko – Qualcomm
Ed Boyd – Broadcom
Eugene Dai – Cox
George Hart – Rogers
Hesham ElBakoury – Huawei
John Dickinson – Brighthouse
John Ulm - Motorola
Juan Montojo - Qualcomm
Leo Montreuil – Broadcom
Mark Laubach – Broadcom
Marek Hajduczenia – ZTE
Matt Schmitt – CableLabs
Michel Allard – Cogeco
Mike Darling – Shaw
Mike Emmendorfer – Arris
Nicola Varanese – Qualcomm
Patrick Stupar - Qualcomm
Peter Wolff – Titan Photonics
Saif Rahman - Comcast
Steve Shellhammer – Qualcomm
Thushara Hewavithana – Intel
Tim Brophy - Cisco
Venkat Arunarthi – Cortina

Straw Poll

Do you think MMP should be included in the EPoC project?

Attendee	Favor	Opposed	Undecided	Abstain
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Joe Solomon – Comcast	X			
Jorge Salinger – Comcast	X			
Bill Powell – ALU			X	
Charaf Hanna – ST Micro	X			
Christian Pietsch - Qualcomm	X			
Curtis Knittle – CableLabs	X			
Dave Urban – Comcast	X			
David Law – HP			X	
Duane Remein – Huawei	X			
Dylan Ko – Qualcomm	X			
Ed Boyd – Broadcom		X		
Eugene Dai – Cox		x		
George Hart – Rogers	X			
Hesham ElBakoury – Huawei	X			
John Dickinson – Brighthouse			X	
John Ulm - Motorola			X	
Juan Montojo - Qualcomm	X			
Leo Montreuil – Broadcom		X		
Mark Laubach – Broadcom				x
Marek Hajduczenia – ZTE			X	
Matt Schmitt – CableLabs			X	
Michel Allard – Cogeco			X	
Mike Darling – Shaw	X			
Mike Emmendorfer – Arris			X	
Nicola Varanese – Qualcomm	X			
Patrick Stupar - Qualcomm	X			
Peter Wolff – Titan Photonics	X			
Saif Rahman - Comcast			X	
Steve Shellhammer – Qualcomm	X			
Thushara Hewavithana – Intel				x
Tim Brophy - Cisco			X	
Venkat Arunarthi – Cortina			x	
Totals	16	3	11	2

What information is needed for undecided?

Performance data on the systems, inclusion of OLT, FCU, and CNU in a real world model

- See key metrics and performance; network simulation
- Potential benefit or actual simulation?
 - Could be a paper exercise to see projected results
- Compare MMP and SMP environments

Have had some presentations on improvements from MMP; want to see fuller picture?

- Yes. Look at system as a whole, rather than in isolation.

This is the reason for undecided as well; need to see how it all fits together

Have to understand overall delay and jitter to understand bigger picture

Concern of combining 2 different systems together and getting the desired outcome

- Already decided on TDD and FDD
- Think MMP could work in TDD, but not FDD?
- Yes
- If we break this down to TDD/FDD system specific, we might have more consensus?
 - Personally, believe that would support if MMP was related to TDD only

If we broke the question into TDD or FDD, would your votes change?

- Big concern is the changes outside of the PHY; with the TDD, have accepted that things happen outside of the PHY. With FDD, shouldn't have to do anything outside PHY and want to keep it that way
- How would you vote for MMP in TDD?
 - Undecided; would have to consider more. But remain opposed in FDD.

Been analyzing the impacts of different things, and with minor tweaks, performance varies greatly. Working on putting this tool together.

Can we make this an optional feature?

- Allowed in IEEE?
- Yes
- If this was made optional, does anyone change vote if optional?
- Would be in favor if it was optional. Is EPoC supposed to be as simple as possible or will it have more features to make it more efficient/attractive.
 - Think it would be good if this is a feature that could evolve into the platform over time
- Wouldn't change vote; would slow the standard due to complexity. Still oppose it on FDD. If only TDD, maybe.
- Options are available, but still have to be interoperable. Have to support a lowest common denominator. Would have to have a default option.
 - The devices at bootup could negotiate capabilities.
- The operator would always have the option to configure the number of profiles used (if it was supported).
 - Think it wouldn't be too hard to create mechanisms to deal with devices that do and do not support
- Wouldn't you have to skip over data if you didn't support; going to have to move/shuffle packets, which impacts performance. Have to shuffle back to have no impact to jitter; this would impact the headend devices.

- Think it can be done without pre-sorting; packets have to come out with the same delay at the receiver as they came out of the transmitter

If it slows the standard significantly, would be concerned. If it doesn't impact devices significantly

- How do manage profiles; does it really provide a performance increase?

Optional helps to move toward favoring it

The overall gain is the biggest concern, rather than optional.

Additional Information Needed (cont'd)

- Simulation will be helpful; concerned if we'd be penalized by the implementation eventually
 - Would probably be ok with TDD, but not sure how you manage subcarriers between profiles
- Impact on the skew (gate message delay); need to better understand and make sure shuffling doesn't break things
- Largest concern with MMP for TDD: this will impact design of the PCS. Not yet detailed enough to determine if it's ok. For FDD, there is no information on how MMP could be implemented.
 - As long as we can show that there is a valid implementation that wouldn't impact performance, you'd be ok?
 - May be ok to come back with a recommendation for one and not the other
 - FDD side concerns come from the lack of information on FDD implementations; all TDD so far.
- Concerned about complexity; think there may be MAC impacts. Also, might be other ways to get similar functionality without having to change the EPoC specification.
 - Need elaboration on what would need to happen to enable FDD
 - If this is outside of the scope of IEEE, could be defined in the system level forum
 - Agree; not sure we can do this without system performance.
 - TDD has potential, since links run on their own time slots. MMP easier to implement and sustain. But not strongly committed to this.
- The feature is useful or not; shouldn't be a question of TDD or FDD supporting MMP.
 - MMP might be useful based on what we have seen so far, but whether than can be implemented in the end-to-end system is the question. Not sure it can be done so effectively. Most skeptical about FDD
 - Need to understand the tradeoffs
 - Need to establish that there is value
 - Can't yet characterize how much value
 - Then the question is how hard it is to achieve the value. Not whether it can be done, but how hard it is to get the value.
 - Not even sure that it is implementable.

Plan on extending each meeting next week to 2 hours