IEEE P802.11
Wireless LANs

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| IEEE 802.11 Real Time Applications TIGOctober 24, 2018, Conference Meeting Minutes |
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Abstract

This document contains the meeting minutes for the Real Time Applications TIG 24th Oct teleconference.

**IEEE 802.11 Real Time Applications TIG**

**Oct 24, 2018, Conference Call Meeting**

1. The IEEE 802.11 Real Time Applications (RTA) Technical Interest Group (TIG) meeting was called to order at 9:00pm ET by the Chair, Allan Jones (Activision).
2. Submissions
* Submission from Karthik Iyer https://mentor.ieee.org/802.11/dcn/18/11-18-1761-01-0rta-packet-prioritization-issues.pptx
* Submission from Peter Jeong <https://mentor.ieee.org/802.21/dcn/18/21-18-0059-00-0000-introduction-to-concept-of-the-network-enablers-for-seamless-hmd-based-vr-content-service-ig.pptx>
* Submission from Richard Candell <https://mentor.ieee.org/802.11/dcn/18/11-18-1784-00-0rta-nist-for-802-11-rta-tig.pptx>
1. Chair reviewed the IEEE-SA patent policy.
2. Chair asked if there is any response to his call for potentially essential patents. None.
3. Attendance:
* Allan Jones (Activision)
* James Gross (R3COMS)
* Tomoko Adachi (Toshiba)
* Akira Kishida (NTT)
* Karthik Iyer(Activision)
* Yusuke Tanaka (Sony)
* Kazuyuki Sakoda(Sony)
* Glenn Hu (Tencent)
* Kate Meng (Tencent)
* Wang Qi（Apple）
* Li Guo Qing (Apple)
* Kang Lee(NIST)
* Candell Richard(NIST)
* Wang Hao (Fujitsu)
1. Chair reviewed the operating rules for a TIG.
2. Chair reminded the participants about the objectives of the TIG and the following Working Group motion in July 2018:

“Approve formation of a Real Time Applications (RTA) TIG to investigate

* + Latency and stability issues observed with real time applications such as mobile and multiplayer games, robotics and industrial automation
	+ Potential mechanisms to address the identified issues

The TIG is to complete a report on this topic at or before the November 2018 session.”

1. Presentations
	1. **Karthik Iyer(Activision) present 18/1761.**

 Comments

Q: The performance is so bad. Have you track the load of the AP?

A: Yes, I do have. The load is not high, I am seeing exactly the same thing even if I change the AP.
Q: how far is your client away from AP?

A: About 10 meters. 20MHz.

Q: What is the load?

A: About 150byte and it’s like the constant load we use in gaming traffic.

Q: What are the EDCA parameters you are using between the client and the AP?

A: Haven’t done any configuration with default EDCA parts. That would be the next simulation I’m going to try. In this simulation, only DSCP is changed.

Q: Let’s focus on the latency from the client to AP, so the latency you are measuring here is just over the wireless or are you measuring also the pure delay at the client and perhaps at the AP side?

A: I’m measuring it on client and AP, and just using the arriving time for calculating the latency.

Comments: There is only one Client to the AP，there is no contention and no collision, the minimum access should be very small regardless whether it running at voice, video or best-effort.

I don’t understand why the simulation would not work, from mac protocol point of view, if you don’t have any congestion, the priority shouldn’t be contributed too much to this difference, the data didn’t show how the best-effort over the air and gave out the better performance.

Comments: The queuing delay probably dominant. When you have no much traffic going on, even with those 3 different categories, there should be so much differences.

Q: How do you measure the latency? Use TCP or UDP?

A: Use UDP.

Q: How do the AP reply the package from the Client？

A: I am using UDP here, I don’t really expect the reply from the server to the client.

What we focus here is if the package has been prioritized or the network to the server. So, we just get a one-way transaction. This is one-way latency from the client to the AP.

Comments: The DSCP value cannot overwritten from AP to game servers. So if you deploy server in your LAN. The result might change.

A: This simulation is focus between client and AP. The network from AP to server is mostly stable.

Q: In the second simulation, how is the video traffic?

A: I was using video streaming device such as Television or smart TV streaming 4K HD video and connected to one AP.

Q: Sounds like the AP itself is over 30ms？

A: Yes, just the client to AP is over 30ms.

Q: The data also looks strange to me. We also do the test; the latency should be very small like less than 10ms.

A: The only thing I can do is to try to use more AP which is much stronger, then I can distinguish this particular point. I tried with 3 AP the results are same.

8.2 Peter Jeong present <https://mentor.ieee.org/802.21/dcn/18/21-18-0059-00-0000-introduction-to-concept-of-the-network-enablers-for-seamless-hmd-based-vr-content-service-ig.pptx>

Q: Can you go back to the slide video resolution and frame rate? I am trying to understand the minimum throughput you are targeting. What’ s the reasonable compressing rate you are targeting?

A: This is a more MPEG question. We know that in order to understand the data transfer rate, the decoration we are using is resolution 4K multiple 3840\*1920 and true color is 24bits, and 90fps, so when you multiple all those together, it roughly comes out 17Gbps. So, the current dual-cable specification allows up to 18Gbps speed transfer with audio included. For a wired cable, we have no problem with the data latency. But how could we replace that with a wireless network? It’s a big problem. 5G infrastructure should be able to solve this problem. But according to the published 5G network specification, ideally it will reach up to 20Gbps, but the user can only get 1Gbps. Then come back to your question about the compression rate, we don’t really sure because it is normally done by MPEG.

OK, so I think one piece is missing here is the targeting compression rate, the figure targeting 17Gbps that is cannot be handled by 802.11 today, not by changing the PHY. If you could have the compression rate, then we could go down what the PHY layer can handle, that will be the information to help the group to understand this is a PHY change or a MAC protocol change.

Recommend to participate Bangkok 802.11 meeting and the EHT group because it not only focus on low latency and also wide bandwidth.

* 1. **Richard Candell** [**https://mentor.ieee.org/802.11/dcn/18/11-18-1784-00-0rta-nist-for-802-11-rta-tig.pptx**](https://mentor.ieee.org/802.11/dcn/18/11-18-1784-00-0rta-nist-for-802-11-rta-tig.pptx)

Due to overtime, there was no q&a session.

1. Review of November Agenda in Bangkok meeting:

Two Sessions:

Tuesday 11-13 PM1

Thursday 11-15 PM2

1. Meeting adjourned at 10:30pm ET.