

## P1904.2

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**Submitter Email:**

**Type of Project:** New IEEE Standard

**Project Request Type:** Modify / New

**PAR Request Date:**

**PAR Approval Date:**

**PAR Expiration Date:**

**PAR Status:** Draft

**Root PAR:** P1904.2

**Root PAR Approved on:** 05 Dec 2018

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**1.1 Project Number:** P1904.2

**1.2 Type of Document:** Standard

**1.3 Life Cycle:** Full Use

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**2.1 Project Title:** Standard for Control and Management of Virtual Links in Ethernet-based Subscriber Access Networks

**Change To Title:** Standard for ~~Universal~~ Control and Management ~~Tunnel~~ of for Virtual Links in Ethernet-based Subscriber Access Networks

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**3.1 Working Group:** Access Networks Working Group(COM/AccessCore-SC/1904\_WG)

**3.1.1 Contact Information for Working Group Chair:**

**Name:** Glen Kramer

**Email Address:** glen.kramer@ieee.org

**3.1.2 Contact Information for Working Group Vice Chair:**

None

**3.2 Society and Committee:** IEEE Communications Society/Access and Core Networks Standards Committee(COM/AccessCore-SC)

**3.2.1 Contact Information for Standards Committee Chair:**

**Name:** Alexander Gelman

**Email Address:** adg@ieee.org

**3.2.2 Contact Information for Standards Committee Vice Chair:**

**Name:** Glen Kramer

**Email Address:** glen.kramer@ieee.org

**3.2.3 Contact Information for Standards Representative:**

None

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:** Dec 2020

**Change to Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:** ~~Oct~~ Dec ~~2019~~ 2020

**4.3 Projected Completion Date for Submittal to RevCom:** May 2021

**Change to Projected Completion Date for Submittal to RevCom:** May ~~2020~~ 2021

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**5.1 Approximate number of people expected to be actively involved in the development of this project:** 9

**5.2 Scope of proposed standard:** This standard describes control mechanisms and management methods necessary to enable creation and operation of virtual links in Ethernet-based subscriber access networks. The key characteristics of the Virtual Link Control (VLC) mechanisms are:

- The ability to transit Layer 2 bridges in a single IEEE 802 Media Access Control (MAC) domain to allow remote device management;
- Extensibility to accommodate new protocols and new types of devices;
- The ability to simultaneously send messages to multiple VLC-aware stations using broadcast or multicast addressing.

The standard describes the message format, as well as processing operations at the stations participating in the VLC protocol.

**Change to scope of proposed standard:** This standard describes a control ~~Universal~~ mechanisms ~~Management~~ and ~~Tunnel~~ management (UMT) methods for necessary to enable creation and operation of

~~devices~~ virtual ~~used~~ links in Ethernet-based subscriber access networks. The key characteristics of the ~~specified~~ Virtual Link Control ~~management~~ (VLC) ~~mechanism~~ mechanisms are:- The ability to transit Layer 2 bridges in a single IEEE 802 Media Access Control (MAC) domain to allow remote device management;- Extensibility to accommodate new ~~management~~ protocols and new types of devices;- The ability to simultaneously send messages to multiple ~~UMT~~ VLC-aware stations using broadcast or multicast addressing. The standard describes the message format , as well as processing operations at the stations participating in the ~~UMT~~ VLC protocol.

**5.3 Is the completion of this standard contingent upon the completion of another standard?** No

**5.4 Purpose:** This document will not include a purpose clause.

**5.5 Need for the Project:** In their quest to find the optimal balance between the performance of subscriber access networks and their cost, the network operators increasingly combine optical distribution section with a copper-based drop section, which typically includes a twisted pair, a Category-5 cable, or a coaxial cable. Network operators require a management system that would allow them to efficiently access and manage the subscriber demarcation device as well as the various devices that interconnect their optical and copper sections of the network.

In addition, to achieve the best-possible service quality, the access network operators find it necessary to extend their management domains past the typical subscriber demarcation device, such as an Optical Network Unit (ONU), a Coaxial Network Unit (CNU), Cable or DSL modem, or a Residential Gateway (RGW). As Ethernet-based networks (switched Ethernet, point-to-point Ethernet, or Ethernet Passive Optical Network) are becoming technologies of choice for public subscriber access network, there is a pressing need to provide virtual links (tunnels) compatible with Ethernet and that would allow network operators to manage a variety of devices in access network or in subscriber premises in a uniform and consistent way.

**Change to Need for the Project:** In their quest to find the optimal balance between the performance of subscriber access networks and their cost, the network operators increasingly combine optical distribution section with a copper-based drop section, which typically includes a twisted pair, a Category-5 cable, or a coaxial cable. Network operators require a management system that would allow them to efficiently access and manage the subscriber demarcation device as well as the various devices that interconnect their optical and copper sections of the network. In addition, to achieve the best-possible service quality, the access network operators find it necessary to extend their management domains past the typical subscriber demarcation device, such as an Optical Network Unit (ONU), a Coaxial Network Unit (CNU), Cable or DSL modem, or a Residential Gateway (RGW). As Ethernet-based networks (switched Ethernet, point-to-point Ethernet, or Ethernet Passive Optical Network) are becoming technologies of choice for public subscriber access network, there is a pressing need to provide ~~a~~ virtual ~~universal management~~ links ~~channel~~ (tunnels) compatible with Ethernet and that would allow network operators to manage a variety of devices in access network or in subscriber premises in a uniform and consistent way.

**5.6 Stakeholders for the Standard:** The stakeholders include telecom system and component vendors, telecommunications carriers, and multiple system operators (MSOs)

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## 6.1 Intellectual Property

**6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?**

No

**6.1.2 Is the Standards Committee aware of possible registration activity related to this project?**

Yes

**Explanation:** This project has already received an allocation of an Ethertype value to identify the Virtual Link Control (VLC) protocol data units

**Change to Explanation:** This project has already received an allocation of an Ethertype value to identify the ~~management~~ Virtual Link Control (VLC) protocol data units

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**7.1 Are there other standards or projects with a similar scope?** No

**7.2 Is it the intent to develop this document jointly with another organization?** No

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**8.1 Additional Explanatory Notes :** The PAR is being modified to better align it with the terminology adopted by the working group and used in the draft. Specifically, the term "Universal Management Tunnel (UMT)" is replaced in the PAR title and the scope with a more accurate term "Virtual Link Control (VLC)"

**Changes to Additional Explanatory Notes :** The PAR is being modified to ~~clarify~~ better ~~the~~ align ~~scope~~ it ~~of~~ with the project. ~~terminology~~ Specifically, ~~adopted by~~ the ~~encryption~~ working ~~mechanisms~~ group ~~are~~ and ~~removed~~ used ~~from~~ in the scope of the project draft. At the same time Specifically, the project term ~~scope~~ "Universal ~~is~~ Management ~~extended~~ Tunnel ~~to~~ (UMT)" ~~cover~~ is ~~all devices~~ replaced in the access networks, such as optical line terminals and L2 ~~PAR~~ switches, ~~title~~ and not just the customer premises ~~scope~~ equipment ~~with~~ (optical a ~~network~~ more ~~units,~~ accurate ~~coaxial network~~ term ~~units,~~ "Virtual ~~residential~~ Link ~~gateways,~~ Control ~~etc.~~ (VLC) "