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Enterprise Profile for Precision Time Protocol

ITSF 102 - Montreal

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Working Group Last Call Comments

- The following addition will be made to section 4 (problem statement):

  “Interoperability among independent implementations of this PTP profile has been demonstrated at the ISPCS Plugfest.” A citation will be added to references.

- The following text will be added to section 13 (Forbidden Options),

  “Unicast discovery and unicast negotiation SHALL NOT be used.”

Working Group Last Call Comments

- Question on the logMessageInterval in the enterprise profile delay response header.

  The following text will be added to section 7:

  “The logMessageInterval carried in the unicast Delay Response message MAY be set to correspond to the master ports preferred message period, rather than 7F, which indicates message periods are to be negotiated”

Working Group Last Call Comments

- The following additions will be made to section 16 (Security Considerations):
  - *“General security considerations of time protocols are discussed in [RFC7384]".* A citation will be added to the reference section.
  - “PTP native management messages SHOULD not be used, due to the lack of a security mechanism for this option. Secure management can be obtained using standard management mechanisms which include security, for example NETCONF. A citation will be added to the reference section.

Working Group Last Call Comments

- Nits
  - In section 3(Clock Identity): *"Often the Ethernet MAC is used,"* shall be changed to *"Often it is derived from the Ethernet MAC address."*
  - In section 3(PTP): *"define by IEEE 1588,"* shall be changed to *"defined by IEEE 1588."*
  - In section 14: *"The default profile would have to operates over IPv4 or IPv6,"* shall be changed to *"The default profile would have to operate over IPv4 or IPv6."*
  - The following terms will be consistently capitalized: Grandmaster, Master Clock, Ordinary Clock, Boundary Clock, Transparent Clock, and Slave Only Clock.

PTP Enterprise profile at the ISPCS Plugfest

Tested at the last three ISPCS Plugfest events

ISPCS 2015 Beijing
ISPCS 2016 Stockholm
ISPCS 2017 Monterey

- HW and SW implementations tested
- Commercially available solutions
- Up to nine participating organizations
- Multidomain
- IPv4 and IPv6

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Thank you for you attention.

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Enterprise Profile for PTP

Intended for enterprise networks, especially in financial companies

Main PTP features:

- Mixed multicast/unicast operation
- Multi domain operation for grandmaster redundancy

History

Proposed by Pedro Estrella of IMC Trading

Challenges Deploying PTPv2 in a Global Financial Company, Pedro V Estrela and Jan L Bonebakker, ISPCS San Francisco, 2012

Draft RFC in IETF

tictoc Working Group

Enterprise Profile for Precision Time Protocol with Mixed Multicast and Unicast

Tested at ISPCS IEEE 1588 Plugfest

2014-2017

Profile

Layer 3
- IPv4
- IPv6

Delay Request-Response propagation delay measurement
- BCs, TCs allowed but not required

Mixed multicast and unicast operation
- Pure multicast slaves allowed
- Delay Responses sent in same communication mode as Delay Request
- Native management allowed, but unicast when directed at one PTP instance

Profile

Message rates

- Default Sync rate (Follow Up): 1/sec
- Default Delay Request rate (Delay Response): 1/sec
- Default Announce rate: 1/sec
- Minimum message rate: 1/128 sec
- Maximum message rate: 128/sec

Multi-domain operation

- Network elements may include PTP instances in multiple domains for redundancy

No performance criteria defined