draft-frost-pwe3-timing-pw-reqs-00

IETF 63

NTP Working Group

Paris, August 2005

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Rationale for the draft

- **Purpose:** *To define the requirements of a protocol suitable for conveying Timing and Synchronization over Pseudo-Wires*

- **What is the relationship to the NTP Requirements draft?**
  - Both outline requirements of mechanisms for the transport of timing and synchronization over a packet network
    - NTP is targeted at a LAN or internet environment
    - draft-frost is targeted at a more restricted pseudo-wire environment
  - Functions are similar, but not identical
    - NTP is concerned with "wallclock" or absolute time
    - draft-frost is concerned with frequency/phase as well as absolute time
  - Performance aspirations may differ

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Possible Timing PW scenario

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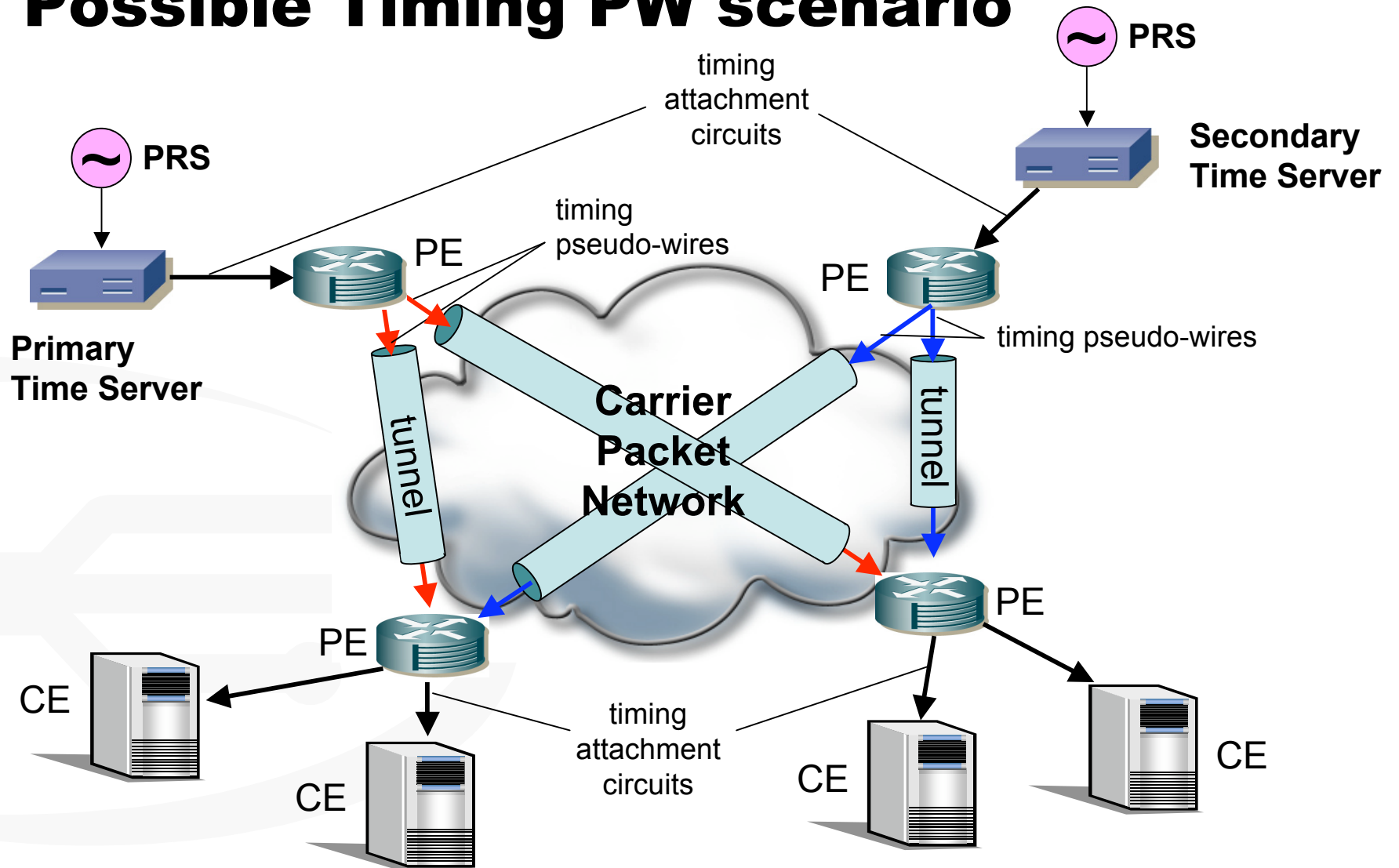
Potential Applications

- **There are many applications that require distribution of accurate synchronization and timing:**

    - **Industrial applications**

    - **Real-time services**

        - **Packet voice and video**

    - **Telecom applications**

        - **Synchronization of IP PBXs or Voice Gateways**

        - **Synchronization of cellular base-stations**

    - **TDM emulation**

        - **Improvement in timing quality over what can be achieved with existing TDM PWs**

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Comparison of *draft-ietf-ntp-reqs-00* and *draft-frost-timing-pw-reqs-00*

	NTPv4 Requirements	Timing PW Reqs.
Function	"Wallclock" time	Phase/frequency and Wallclock
Performance	Yes, TBD, (ms range)	By reference to ext. stds. (μs range)
Configuration & setup	Yes	By reference to PWE3 architecture
Security and Authentication	Yes, defined mechanism	Yes, method not defined
Robustness	Yes, covers bad implementations	Yes, covers PSN errors
Redundancy	Yes	Yes
Operational requirements	Yes, reference to NTP hierarchy	Yes, sync. quality messages

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Questions to resolve

- **Can we re-use the NTP to convey phase/frequency information as well as wallclock time?**
  - only requires unidirectional transfer from server to client

- **Can we use the NTP protocol without using the NTP algorithms at the clients?**
  - true for SNTP clients

- **Do we need a separate protocol for Timing Pseudo-Wires?**
  - Could we re-use NTPv4, and send over this over conventional packet pseudo-wires?
  - Could we re-use NTPv4 as a pseudo-wire protocol?

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Which working group?

- **Is there enough interest to pursue this work within the IETF?**

- **Where should the work be done?**
  - **PWE3 working group?**
  - **NTP working group?**
  - **Combination of both?**
    e. g. develop NTPv4 in NTP, and the adaptation to pseudo-wires in PWE3

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Next steps

- **Collect more information about all the potential applications to feed into the requirements**

- **Decide whether we can adapt NTP or need to design a separate protocol for timing PWs**
  - **this decision may influence whether draft-frost has a life of its own, or should be merged with the NTP requirements draft**

- **Decide which working group should carry out this work**

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