T-MPLS: Is it Really Different than MPLS?

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Overview of topic

- A few years ago the ITU-T's SG-15 embarked on defining a variant of MPLS called T-MPLS
  - based on perceived requirements that concluded that MPLS was insufficient to meet the needs of a simple, next-generation optical access switch.
  - Cost and operational model were large issues.
- Concerns raised by IETF
  - Why is the ITU-T defining a new variant of MPLS?
  - What are the requirements?
  - Can existing deployments/definitions satisfy requirements?

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Requirements

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T-MPLS Requirements

- Transport shall be connection-oriented packet switched technology.
- A transport pseudowire shall operate under a common operation, control and management paradigm with respect to other transport technologies (e.g. SDH, OTN or WDM)
- The identification of each connection within its aggregate shall be based on labels, based on RFC3031 label stack entries.
- Bi-directional and unidirectional p2p connections.

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T-MPLS Requirements Continued

- Forward and backward directions should take same network path along transport psedudowire network.
- Support traffic engineering capabilities for traffic, performance and resource-oriented criteria such as packet loss and QoS measurement.
- Supports connections through one or more domains.
- Operation via a centralized NMS with support of a distributed control plane.

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T-MPLS Requirements Continued

- Protection switching. Must be capable of operation without an IP control plane.
- OAM able to function without any IP functionality present.
- A transport pseudowire shall offer as much commonality as possible with the MPLS user plane as defined by IETF. When MPLS offers multiple options in this respect, TRANSPORT PSEUDOWIRE should select the minimum sub-set (necessary and sufficient subset) applicable to a transport network application.

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T-MPLS Requirements In A NutShell

- Based on MPLS technologies
- protection switching
- no PHP
- no label merging
- no ECMP
- no IP control plane
- static labels
- static provisioning.

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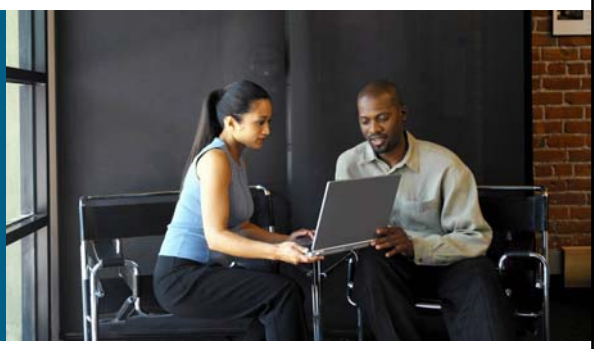
MythBusters
Requirements Call for a Completely New Technology



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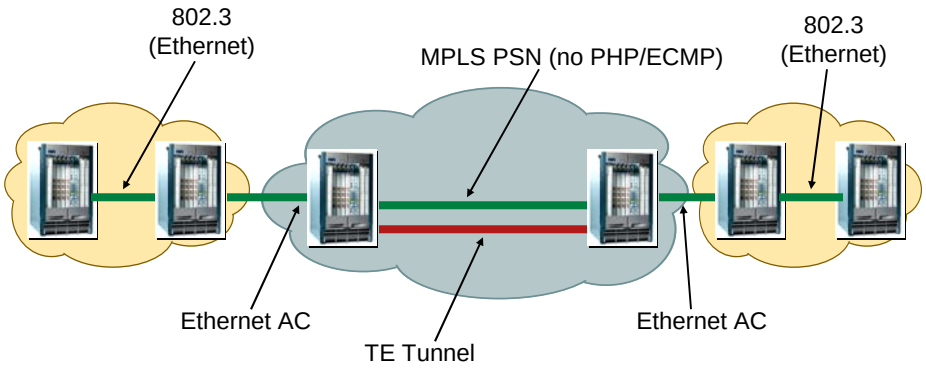
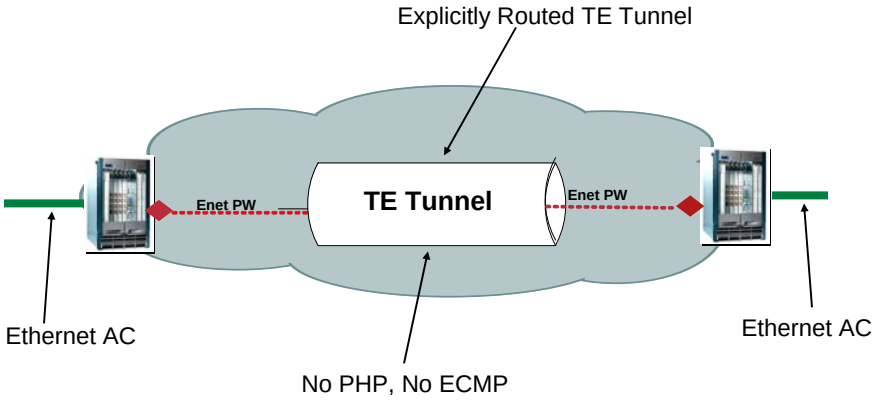
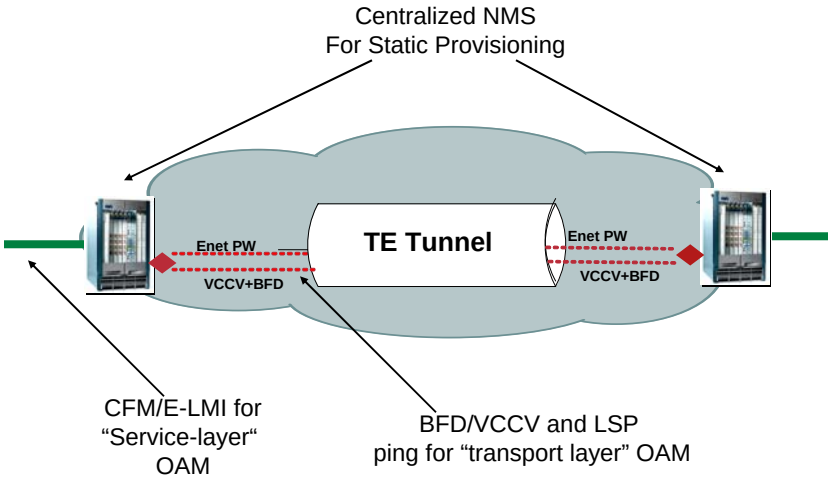
Realize Requirements Using Existing Technologies



MPLS Transport Details



Transport MPLS OAM



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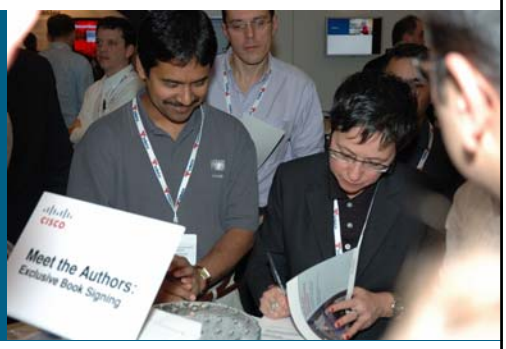
Observations and Conclusions



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Observations

- The requirements for T-MPLS can be achieved using existing MPLS and PWE3 technologies!
- Dangers are that if ITU-T alters T-MPLS OAM specifications or others.
- Advantages to this approach are that this entails what amounts to a constrained configuration.
- Advantages are that this can be deployed on low-cost devices using existing, proven code and deployment models including NMSs.

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Question and Answer

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