

# Integrating YANG Configuration and Management into an Abstraction & Control of TE Networks (ACTN) System for Optical Networks

<https://datatracker.ietf.org/doc/html/draft-gstk-ccamp-actn-optical-transport-mgmt>

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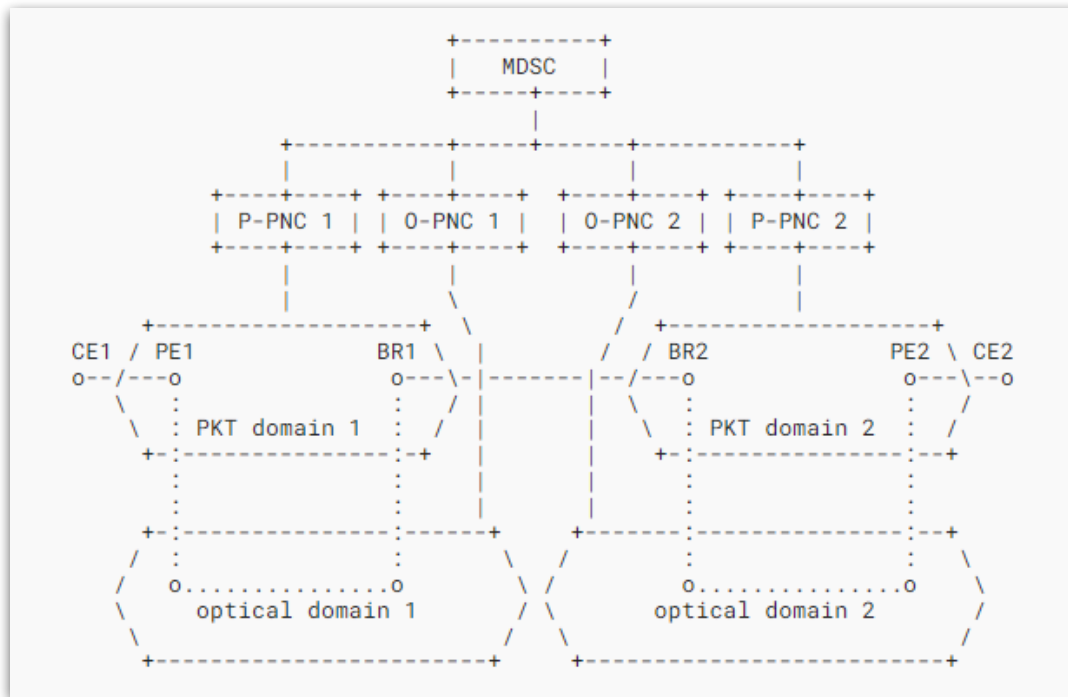
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# ACTN for Abstract Management of Optical Networks

- Abstraction and Control of TE Networks (ACTN) [RFC8453]
  - Abstracts TE network resources to provide a limited network view for customers to request and self-manage connectivity services
  - Provides functional components to orchestrate and operate a TE network
- However, ACTN does not include consideration of more traditional management functions, including:
  - Fault, Configuration, Accounting, Performance, and Security aspects of management (known as FCAPS)
- Service assurance for network operations, typically a proprietary or customised platform, is increasingly requiring standards-based approaches
  - Will require both Abstract Control and Fine-Grain Management

# Emerging ACTN Management Requirements

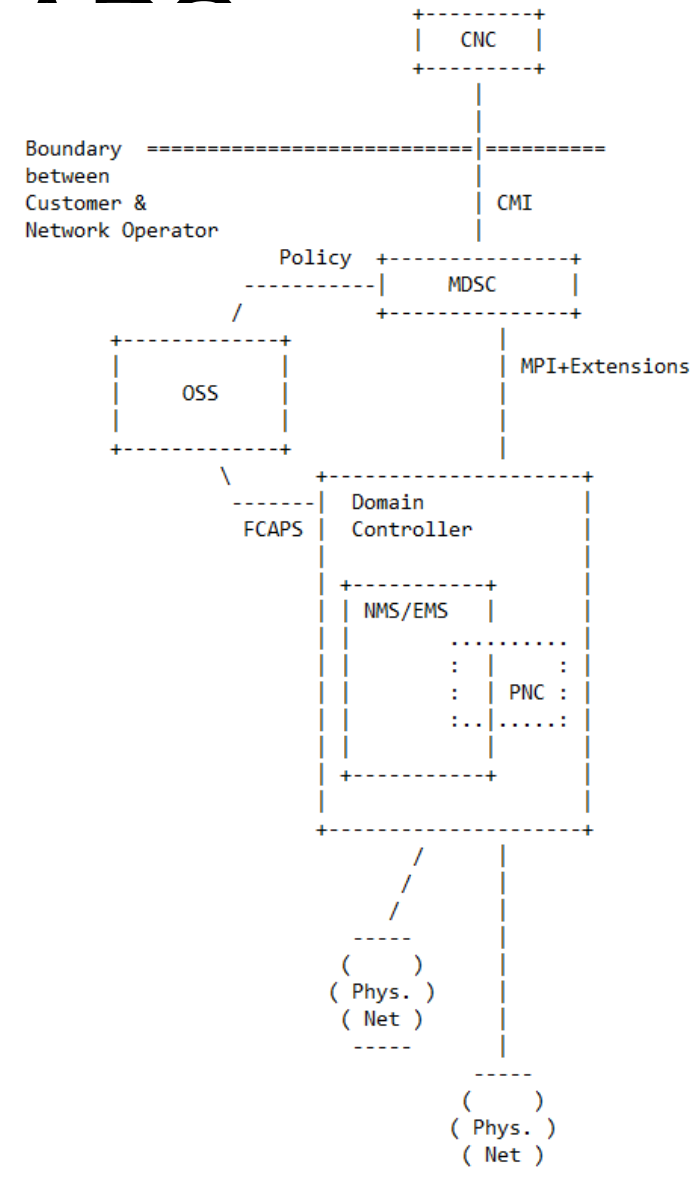
- Such as, Applicability of Abstraction and Control of Traffic Engineered Networks (ACTN) for Packet Optical Integration (POI) service assurance
  - [datatracker.ietf.org/doc/draft-poidt-teas-actn-poi-assurance/](https://datatracker.ietf.org/doc/draft-poidt-teas-actn-poi-assurance/)
- I-D Reference Network Architecture



1. How to ensure the quality, availability, and performance of services delivered by a network?
2. What needs to be monitored and manage the end-to-end service experience and meet Service Level Agreements (SLAs) and customer expectations?
3. Which IETF YANG protocols and models would help detect and resolve faults, manage configurations, track resource usage, optimise performance, and enhance security?

# Extending ACTN to Support FCAPS

- In ACTN the function of the PNC may be provided by an NMS or an EMS
- In a conventional management system, the OSS uses an interface with the Domain Controller to exchange FCAPS information.
  - Historically, this interface has been based on CORBA/XML
  - Furthermore, in an ACTN system, the OSS is likely the point of origin for policy instructions that guide the MDSC in how it orchestrates customer service requests and configures the network
- In [RFC8453] the MPI is used by the MDSC to instruct the PNCs about how the network must be configured to deliver the customers' services.
  - The MPI also reports to the MDSC on the status of provisioning commands and the availability of network resources
- However, up to now, the MDSC has had no visibility into the majority of the FCAPS functions and has, therefore, had limited reactive and proactive abilities
  - Need for ACTN to support **Fine-Grain Management**
- Our document examines how the MPI may be enhanced with extensions that utilise current and future IETF data models to deliver extensions that provide FCAPS support



# Conclusion

- Early work, still much more investigation needed
- Need operator feedback
- Already received feedback since posting the I-D
  - “Is this only applicable to optical networks?”
  - “You did not include [insert my YANG model]”
  - “Do we need to extend the existing abstract models, or will we need new ones?”
- Any questions?