

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

[draft-gstk-ccamp-actn-optical-transport-mgmt](#)

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ACTN for Abstract Management of Optical Networks

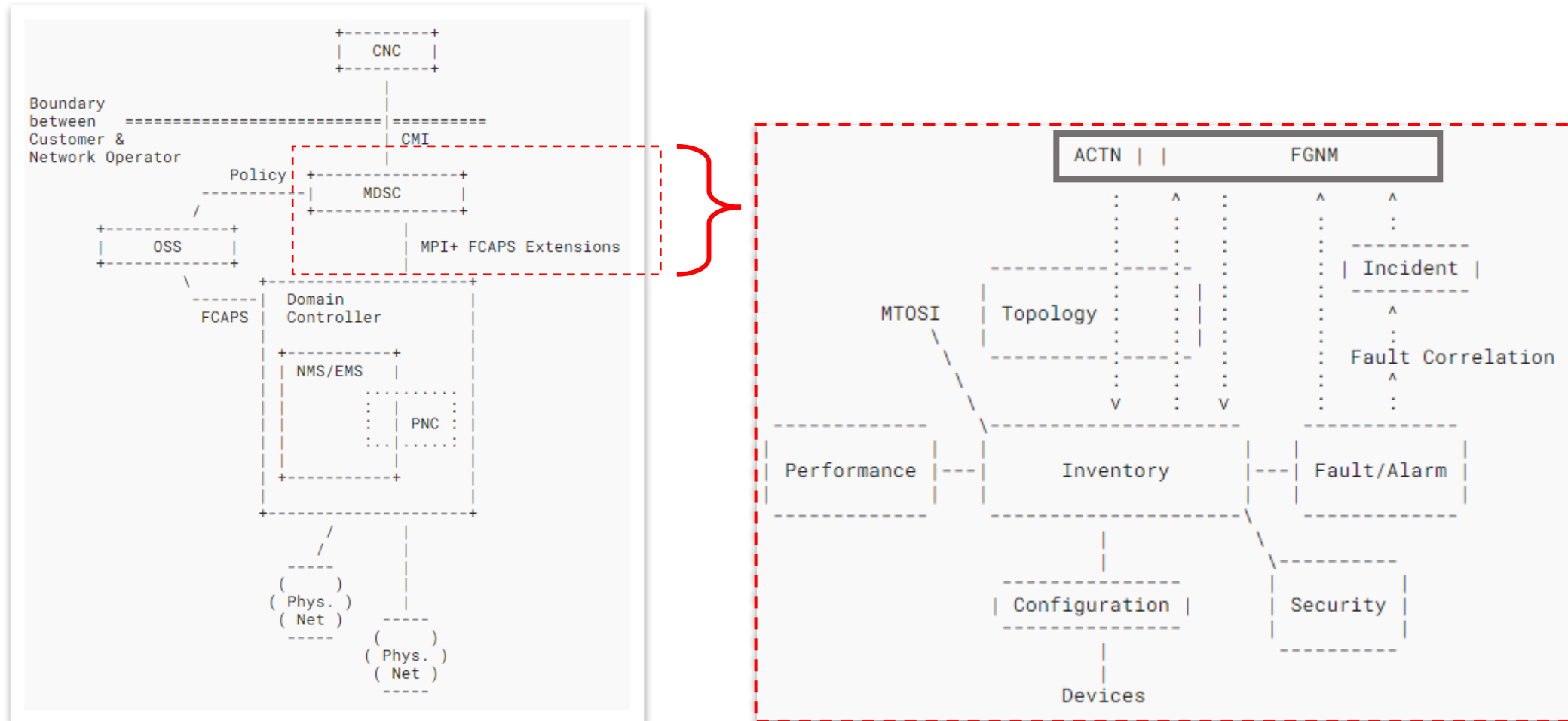
- Abstraction and Control of TE Networks (ACTN) [RFC8453]
 - Abstracts TE network resources to provide a limited network view for customers to request and self-manage connectivity services
 - Provides functional components to orchestrate and operate a TE network
- However, ACTN does not include consideration of more traditional management functions:
 - MTOSI/CORBA Interfaces
 - TMF Resource Models
 - Fault, Configuration, Accounting, Performance, and Security aspects of management (known as FCAPS)
- New IETF Inventory models will play a big role in enhanced management
 - Need to leverage the new Inventory models to provide Fine-Grain Network Management for optical networks

Extending ACTN to Support FCAPS

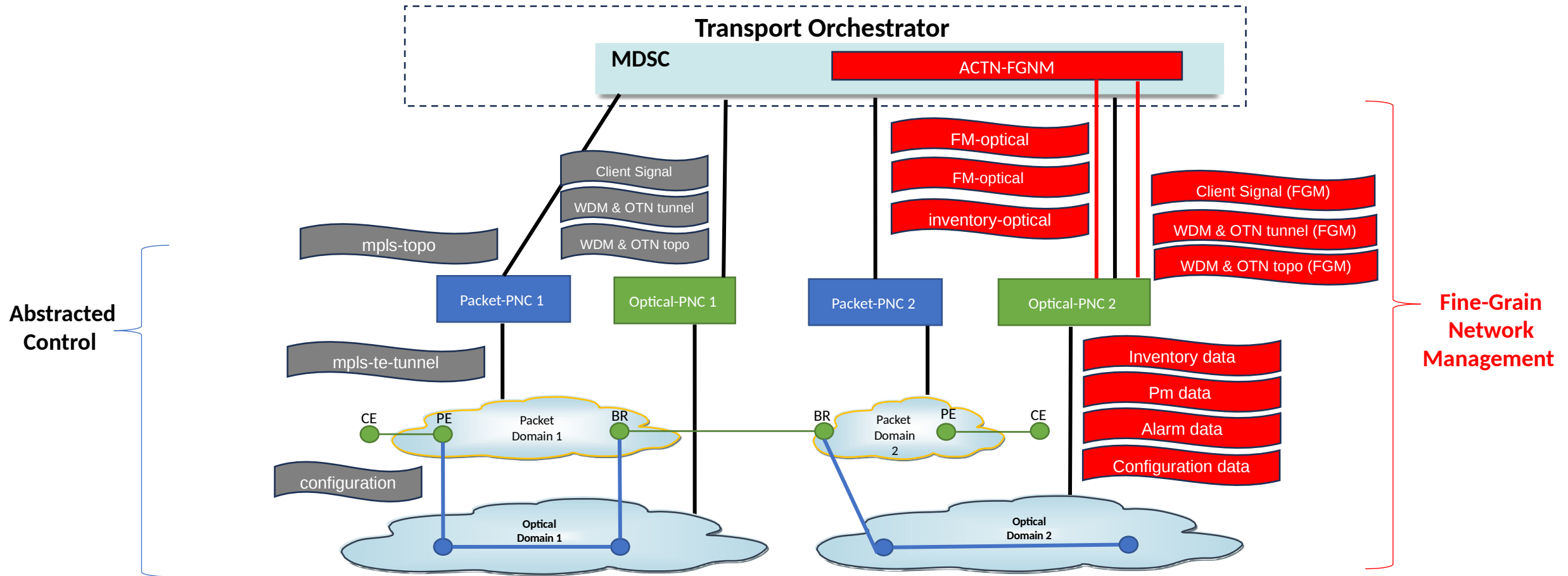
- In ACTN the function of the PNC may be provided by an NMS or an EMS
- In a conventional management system, the OSS uses an interface with the Domain Controller to exchange FCAPS information.
 - Historically, this interface has been based on CORBA/XML
 - Furthermore, in an ACTN system, the OSS is likely 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
- In the future a Transport SDN Controller (which supports ACTN) will also need to request FCAPS capabilities to lower ACTN components (such as PNC)
- Our document examines how the ACTN architecture can be augmented and the MPI extended, to provide FCAPS functions for Fine Grain Network Management
 - Supporting a range of use cases for FCAPS capabilities
 - Leveraging recent CCAMP and IVY data models
 - Using IETF RESTful APIs

Emerging ACTN Management Requirements

- I-D Reference Network Architecture



ACTN FGNM for Optical Networks



Note that ACTN and ACTN FGNM are not mutually exclusive!

Conclusion

- Evolve legacy MTOSI/CORBA configuration and operation functions, to an ACTN Architecture and Fine Grain Network Management using IETF data models with RESTful APIs
 - Will provide the ability export much more detail from the technology domain and element itself
 - Great for fine grain configuration
 - Troubleshooting and performance management
 - Node and network resource optimisation
 - Still retains the abstract control functions of ACTN
- 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?”
- Early work, still much more investigation needed
- Any questions?