

# Stateful H-PCE & ACTN



Hierarchical Stateful PCE [draft-dhodylee-pce-stateful-hpce-03](#)

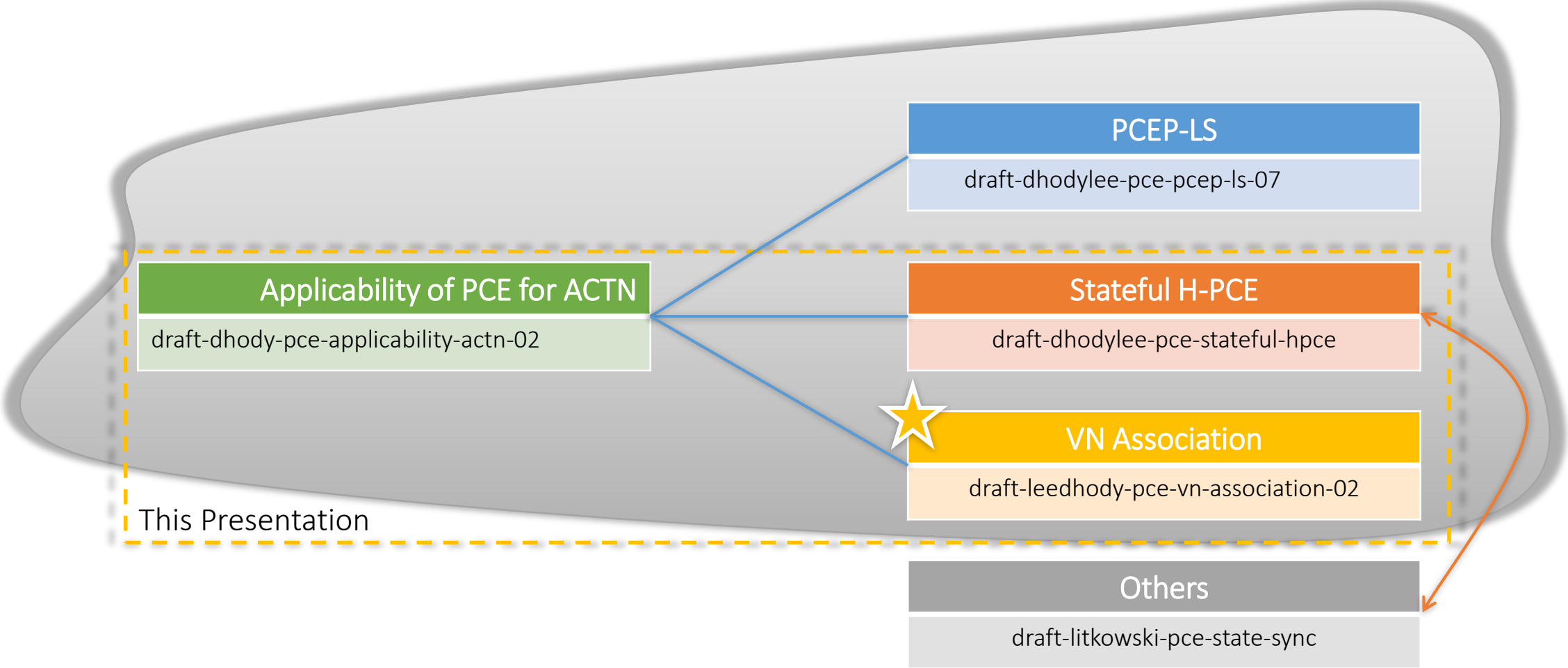
Applicability of PCE for ACTN [draft-dhody-pce-applicability-actn-02](#)

PCEP Extensions for Establishing Relationships  
Between Sets of LSPs and VNs [draft-leedhody-pce-vn-association-02](#)

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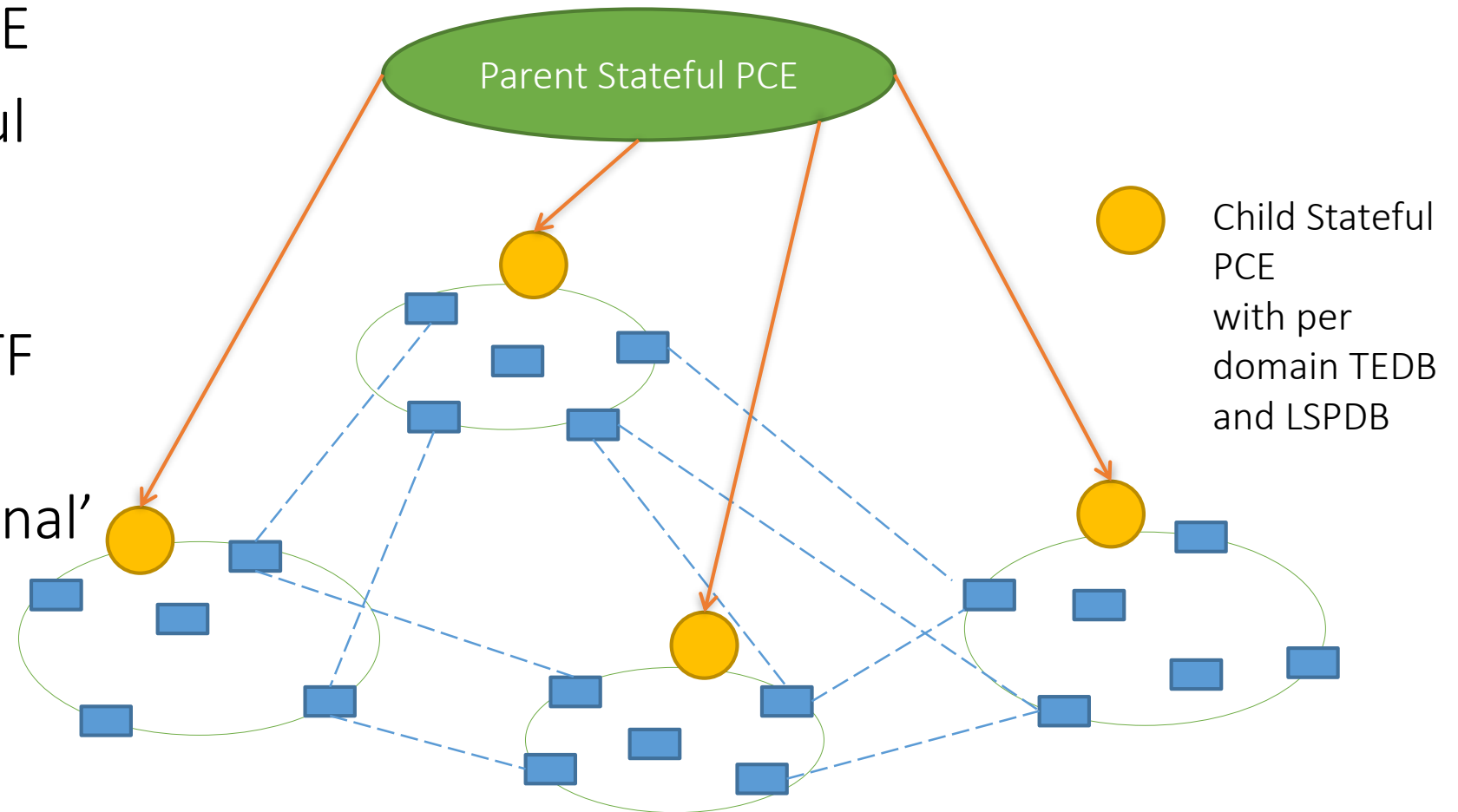
# Documents Relationship



# Stateful H-PCE

Maintain the domain topology map and LSPDB

- H-PCE + Stateful PCE
- Hierarchy of Stateful PCE
- -00 version was discussed in the IETF 95 (BA)
- Marked 'Informational'



# Stateful H-PCE – Changes since -00

- Clarification on the recursive nature of Stateful PCE constructs
  - Delegation, Reports, Updates
- Capability advertisements
  - H-PCE capability TLV [I-D.ietf-pce-hierarchy-extensions]
  - Stateful PCE capability TLV [I-D.ietf-pce-stateful-pce]
- State sync procedures and update
  - as per [I-D.litkowski-pce-state-sync]
- Scalability Consideration
  - only report necessary LSPs to the parent PCE
- Security & Manageability Considerations

# VN Association

- ACTN describes various Virtual Network (VN) operations.
  - Associating a set of LSPs with a VN "construct" to facilitate VN operations.
  - This 'association' allows the PCEs to identify which LSPs belong to a certain VN.
  - The PCE could then use this association to optimize all LSPs belonging to the VN together.
  - The PCE could further take VN specific actions on the LSPs such as relaxation of constraints, policy actions, setting default behavior etc.
- Using ASSOCIATION object [I-D.ietf-pce-association-group]
- -00 version presented in IETF 95 (BA)

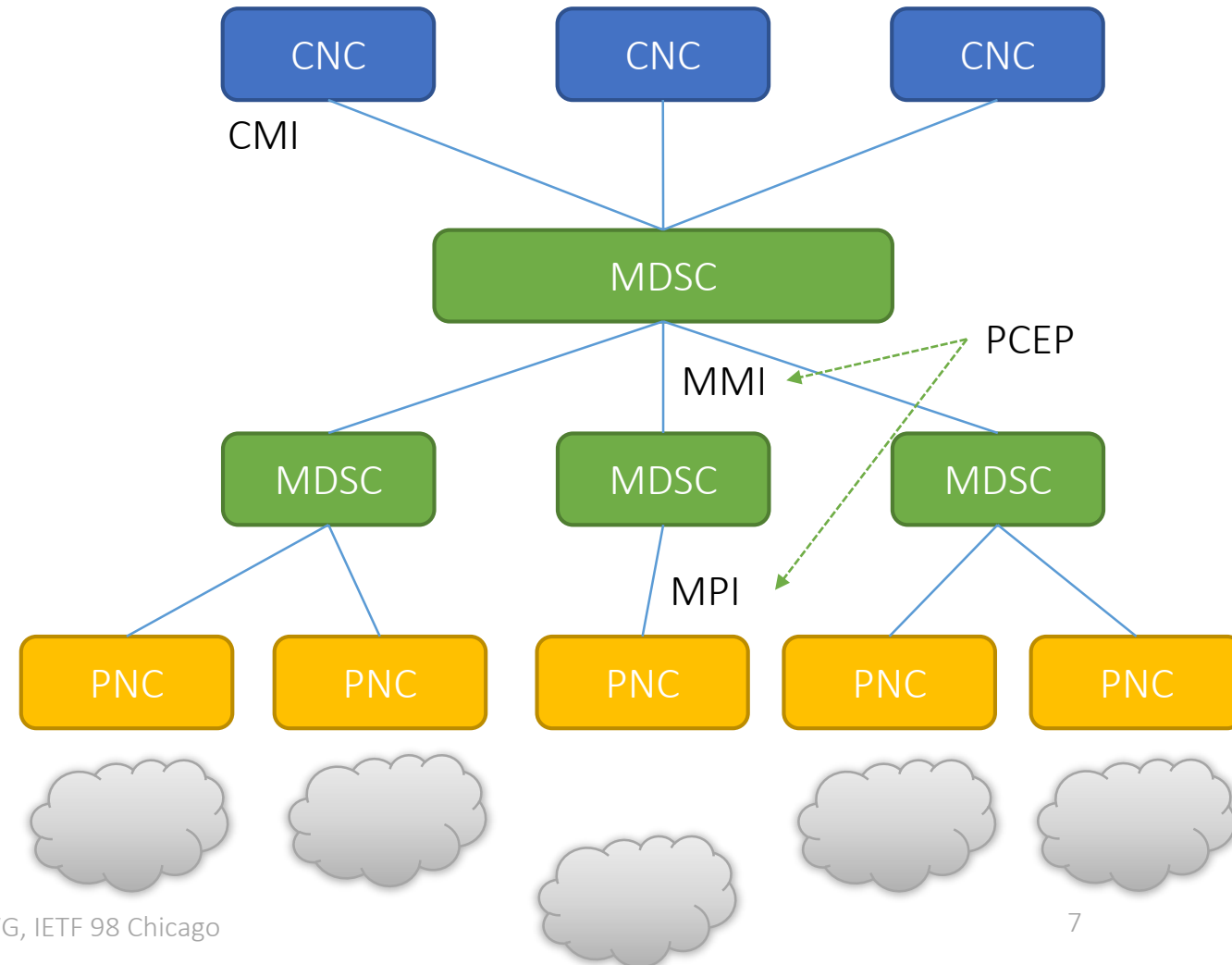
# VN Association – Changes since -00

- Path Computation
  - When computing path for a LSP, the impact of this LSP, on the other LSPs belonging to the same VN is useful to analyze.
  - The aim would be optimize overall VN and all LSPs, rather than a single LSP.
  - Apply optimization criteria for all LSP in the group.
- Path Re-Optimization
  - The child or Parent PCE can use advanced path computation algorithm and optimization technique that consider all the LSPs belonging to a VN/customer and optimize them all together.
- Usefulness of this relationship between parent and child PCE for ACTN VN operations
- Support for VENDOR-INFORMATION-TLV
- Security & Manageability Considerations

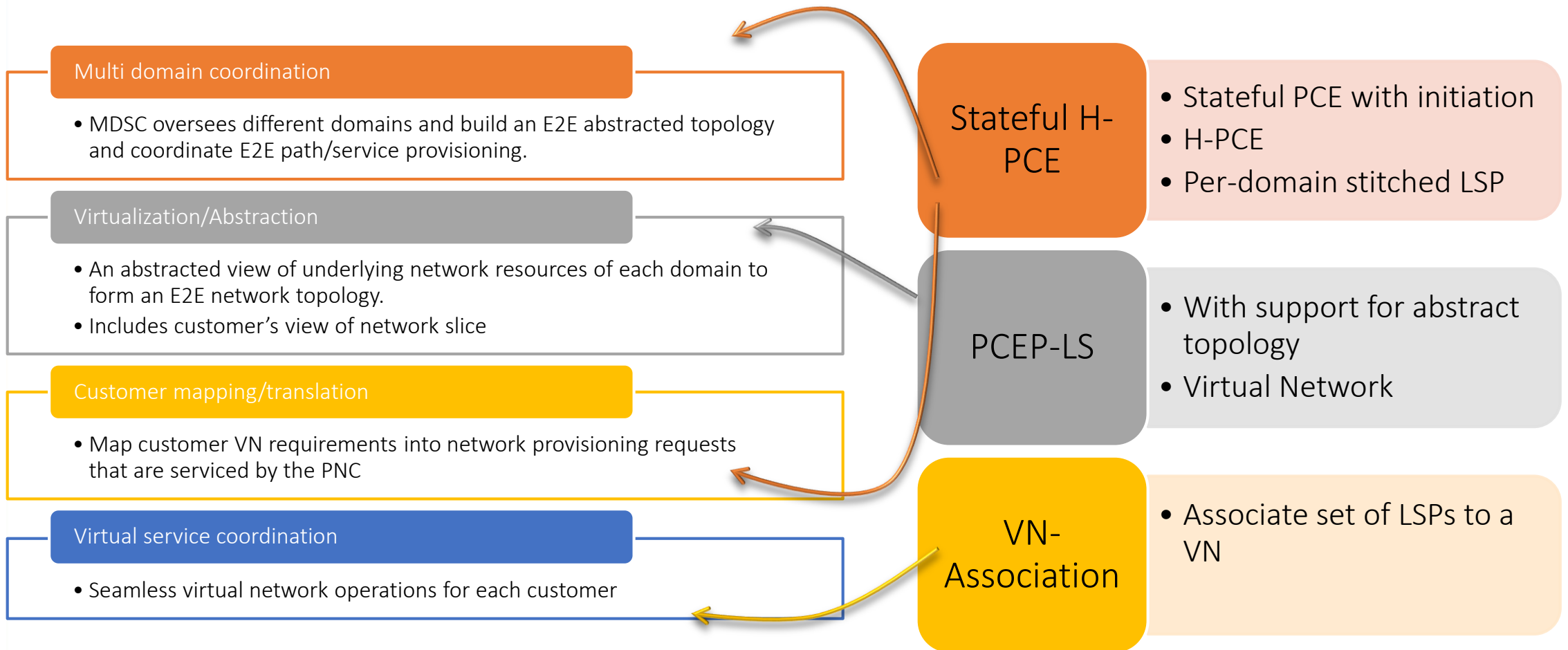
CNC	Customer Network Controller
MDSC	Multi-Domain Service Coordinator
PNC	Physical Network Controller
CMI	CNC-MDSC Interface
MMI	MDSC-MDSC Interface
MPI	MDSC-PNC Interface

# Applicability of PCE for ACTN

- ACTN – Abstraction and Control of TE networks
- Four Functions in ACTN
  - Multi domain coordination function
  - Virtualization/Abstraction function
  - Customer mapping/translation function
  - Virtual service coordination function
- We list all ways PCEP could be used



# Architectural Considerations





# Applicability of PCE for ACTN – Changes since -00

- Clarification that PCEP doesn't need to be used for all functions in all deployments
- Clarifications around ACTN functions and other PCEP extensions such as
  - [I-D.litkowski-pce-state-sync]
  - [I-D.ietf-pce-association-policy]
  - [I-D.lee-teas-actn-abstraction]
- Relationship to PCE based central control

# How to progress these documents?

## Independent

Stateful H-PCE

PCEP-LS

## ACTN Specific

ACTN Applicability

ACTN-VN association

These functions are hacked on, implemented, showcased during past IETF

- Implementation reports for some, shared on the list.
- PCEP-LS, Stateful H-PCE, VN-Association etc

All comments so far are handled

- More reviews are always welcome.

WG Adoption

- In a particular order?



Thank You!