

BNG S-CUSP Update

draft-cuspdt-rtgwg-cu-separation-bng-protocol

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Authors

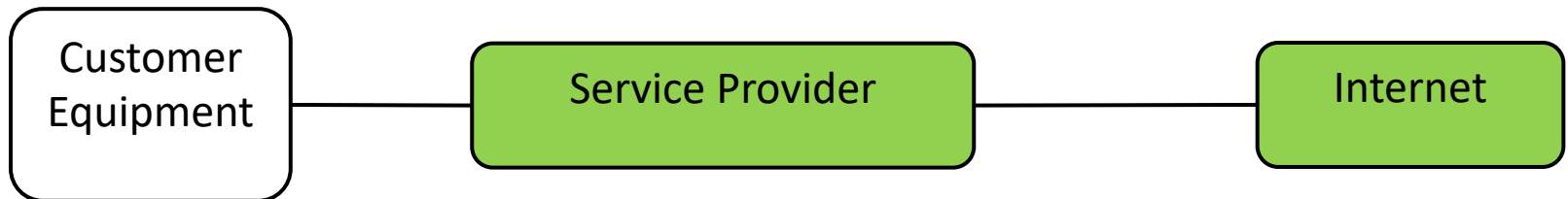
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Purpose

- Provide a brief background on the relevant architecture, the S-CUSP Protocol, and S-CUSP messages.
- Provide an update on the draft-cuspdrt-gwg-cu-separation-bng-protocol draft.
- S-CUSP = Simple Control plane and User plane Separation Protocol

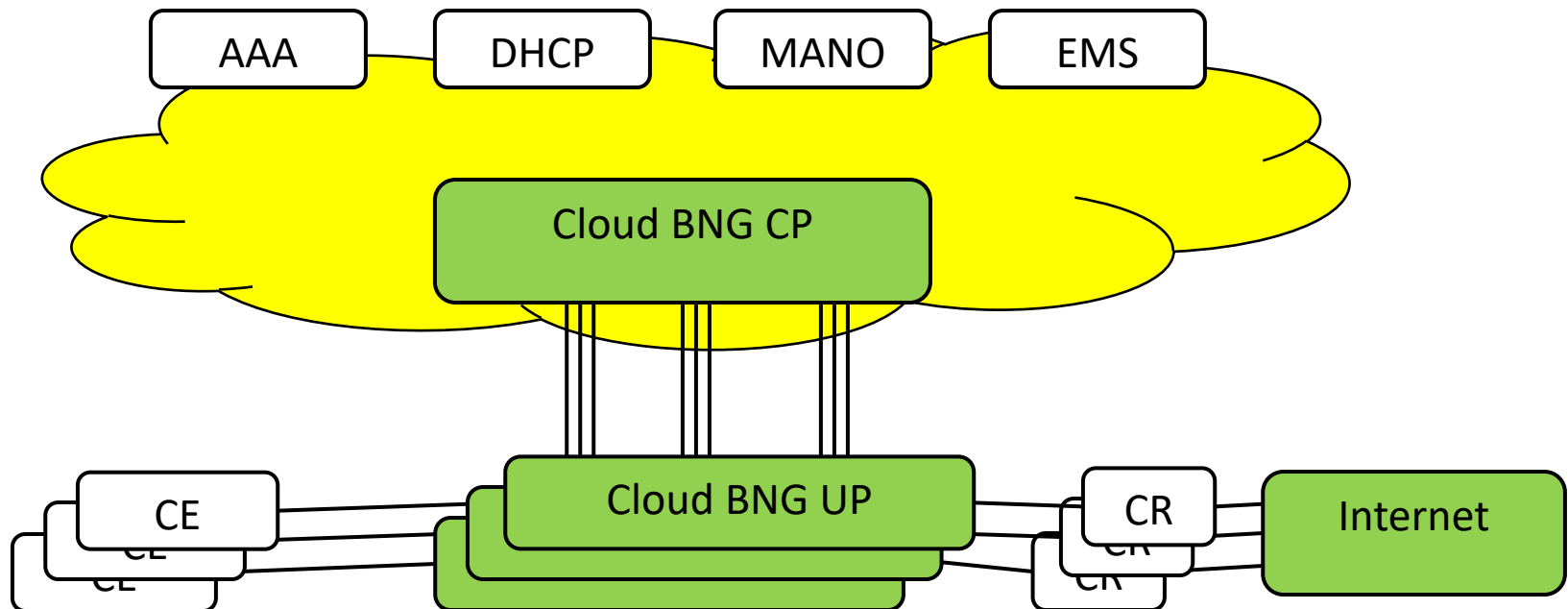
Architectural Background

- A Broadband Network Gateway (BNG) is part of the service provider equipment whereby customer equipment is connected to the Internet.

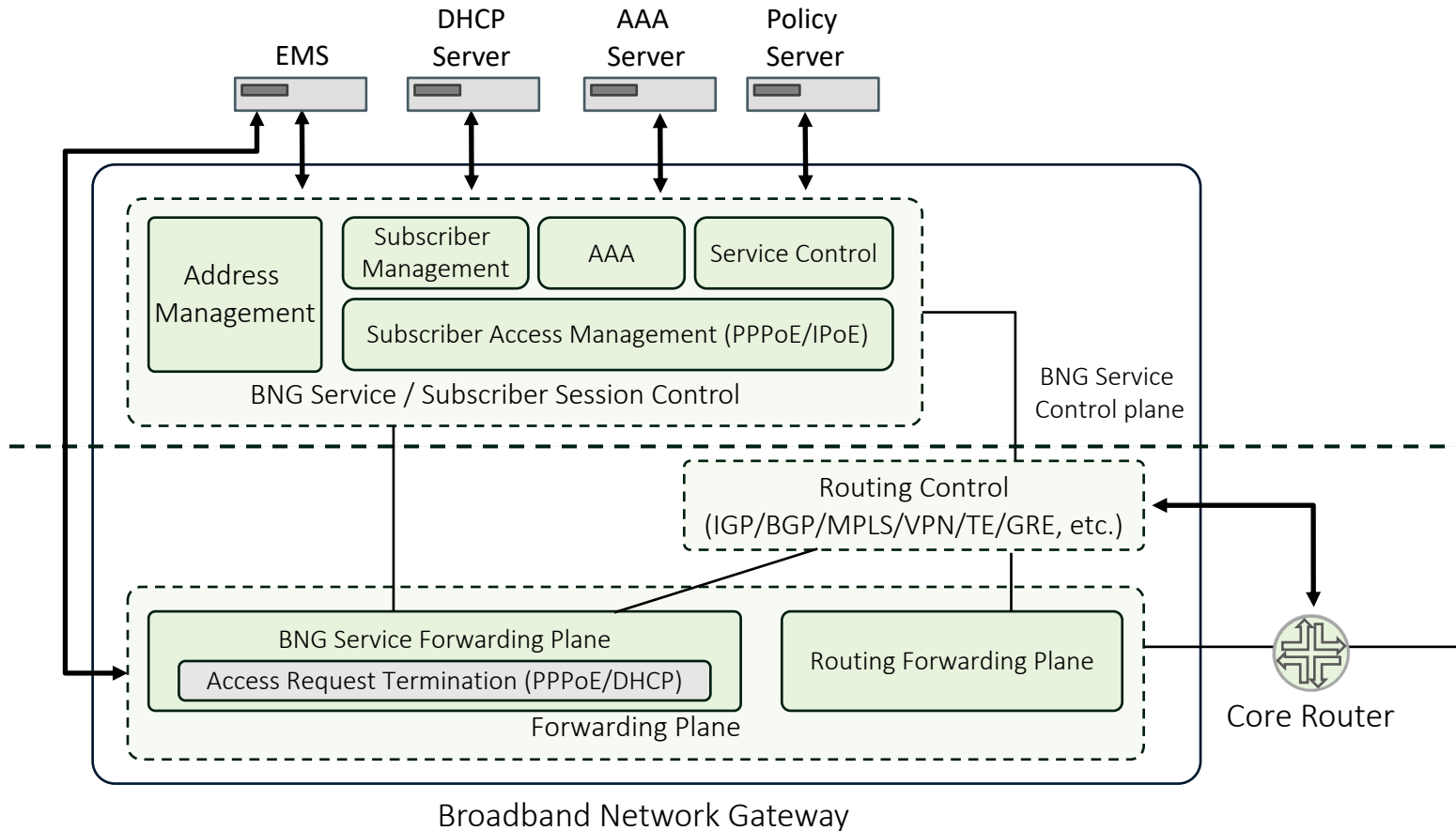


Architectural Background

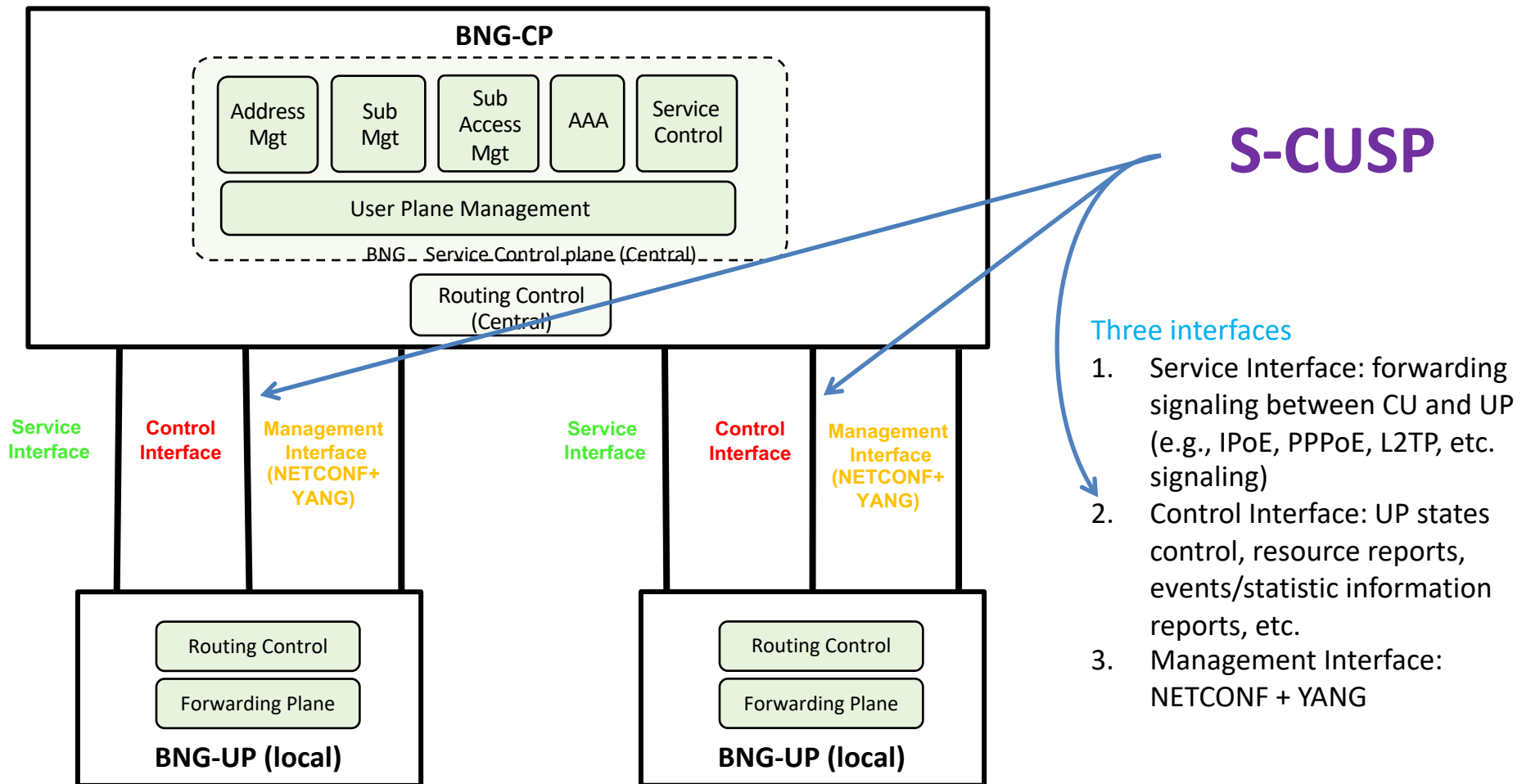
- Some goals are to improve scalability and economy of Broadband Network Gateways (BNGs) by factoring the needed functions and virtualizing many of them. This also enables faster roll-out of services.



Architectural Background



Architectural Background



S-CUSP

- Light weight extensible protocol to support the Control Interface for fixed networks.
- Runs over TCP.
- In production use for >100,000 customers, expected to grow to >1,000,000 next year.
- IETF held the BCause BoF at IETF 104 and is currently awaiting further input from the Broadband Forum. (A number of liaisons have been exchanged between the IETF and BBF.)

Changes from -05 to -06 Draft

- Up from 70 pages to 127 pages
 - Increase of more than 80% increase
 - Updated closer to the deployed implementations
- Re-organization of the specification material
- Extensive additional details
 - Message contents specified in RBNF
 - Error fields values detailed
- Expanded Security Considerations

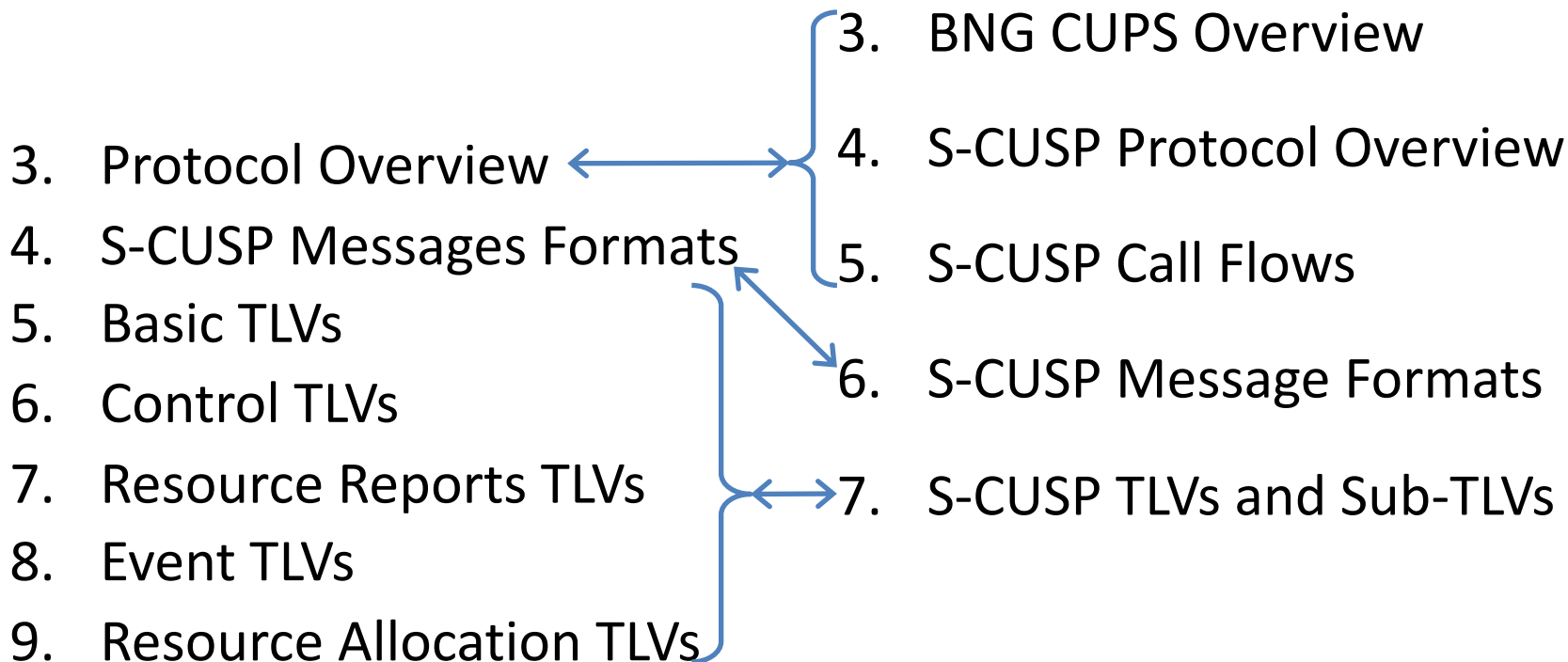
Re-organization of the Specification Material

Draft -05

- 3. Protocol Overview
- 4. S-CUSP Messages Formats
- 5. Basic TLVs
- 6. Control TLVs
- 7. Resource Reports TLVs
- 8. Event TLVs
- 9. Resource Allocation TLVs

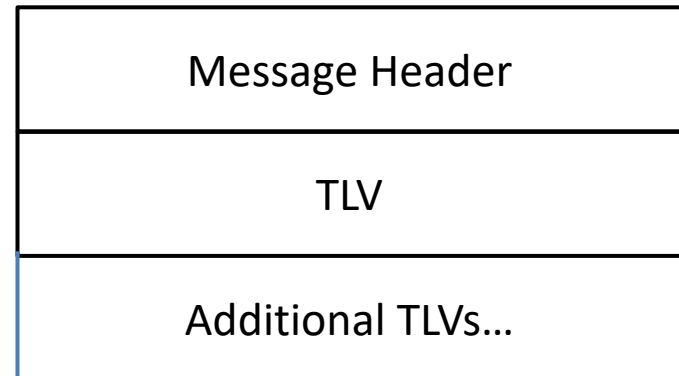
Draft -06

- 3. BNG CUPS Overview
- 4. S-CUSP Protocol Overview
- 5. S-CUSP Call Flows
- 6. S-CUSP Message Formats
- 7. S-CUSP TLVs and Sub-TLVs

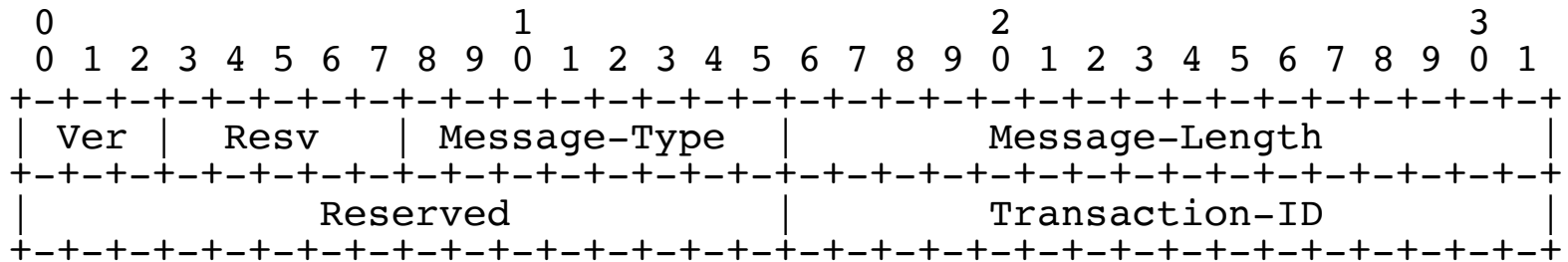


S-CUSP Messages

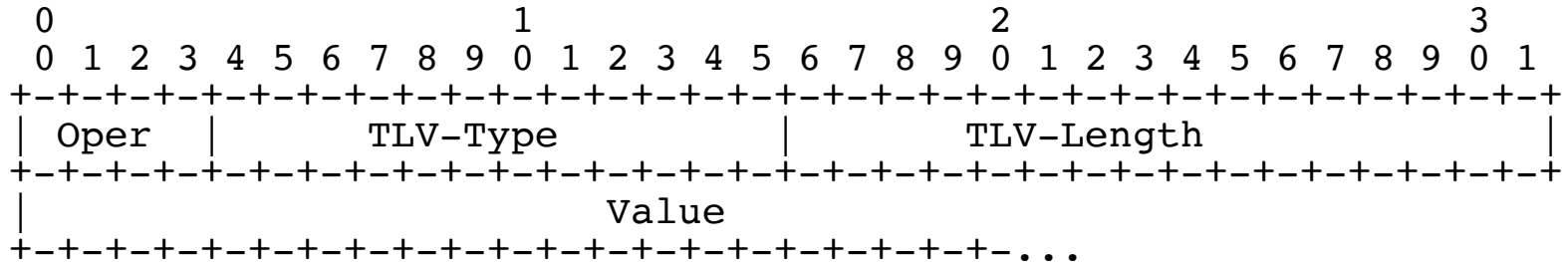
- S-CUSP Uses a Simple Extensible Message Format
 - Message Header followed by TLVs
 - Some TLVs contain sub-TLVs
 - There is a Vendor specified message and a Vendor specified TLV



S-CUSP Messages



S-CUSP Message Common Header



TLV Format

S-CUSP Messages

Message Categories

- Control Messages
- Event Message
- Report Message
- CGN Messages
- Vendor Message
- Error Message

TLV Categories

- Hello TLV
- Keep Alive TLV
- Error Information TLV
- BAS Function TLV
- Routing TLVs
- Subscriber TLVs
- Device Status TLVs
- CGN TLVs
- Event TLVs
- Vendor TLV

END

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Back Up Slides

draft-cuspd-rtgwg-cu-separation-bng-protocol

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Broadband Forum

- S-CUSP fits the framework in BBF TR-384:
“Cloud Central Office Reference
Architectural Framework”, January 2018
 - <https://www.broadband-forum.org/technical/download/TR-384.pdf>