IETF Network Slice Use Cases and Attributes for the Slice Service IETF Network Slice Controllers Interface of IETF Network Slice Controllers

draft-ietf-teas-ietf-network-slice-use-cases-01

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Motivation (reminder)

- **Background:** The definition of IETF Network Slice (incl. high-level architecture framework, data models, etc) is being developed without a clear view yet of the overall needs for different use cases

- **Rationale:** Any mechanism for deploying IETF Network Slices can be expected to be used for different range of services
  - Unify provisioning systems rather than maintaining separated, specialized ones
  - Existing services can be expected to be delivered as slices looking for synergy and simplicity and taking profit of slice capabilities

- **Purpose:** This draft covers the gap of analysing use cases for identifying SLOs, attributes and methods needed for a IETF Network Slice controller

- The draft has been already presented at IETF 109 (Nov'20) and IETF 111 (Jul'21)

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+--------------------------+
|                          |
|      IETF Network        |
|    Slice Customer        |
|                          |
+--------------------------+
            A
            |
            |     IETF Network
            |     Slice Service
            |     Interface
            |
            V
+--------------------------+
|                          |
|      IETF Network        |
|    Slice Controller      |
|                          |
+--------------------------+
```
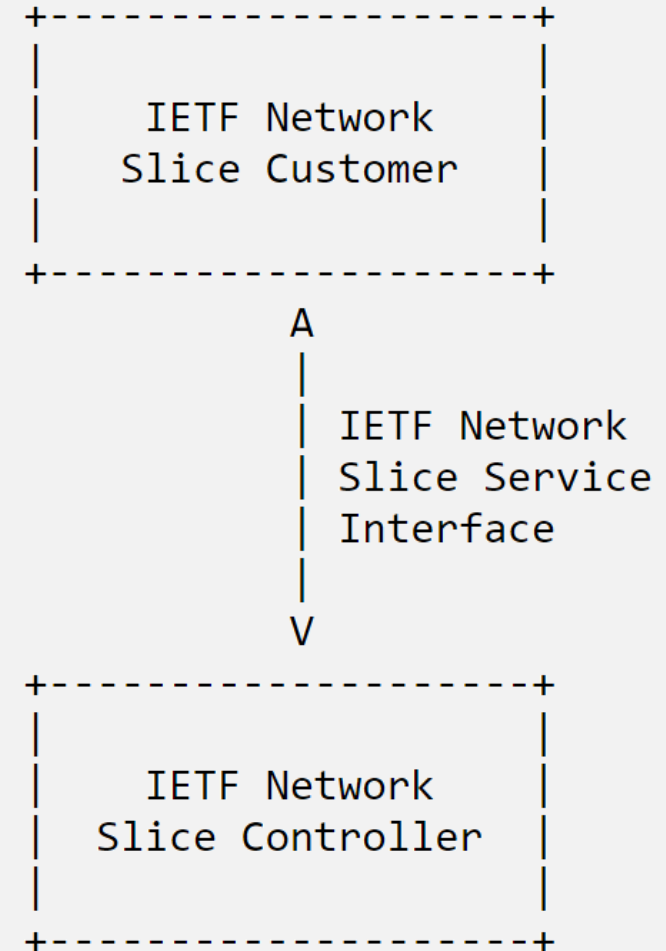
Use cases documented (before adoption)

The purpose is to document different use cases (i.e., customers) of the IETF Network Slicing services

- 5G services
  - Public and private networks
- NFV-based services
- Network sharing
- SD-WAN
- Radio functional splits

Updates from adoption (-01 versión)

- Two main directions of work
  1. Progress on the technical content
  2. Addressing of comments received during adoption

The major contirbution so far has been produced on addressing the comments received

However, comments are yet pending, so version -01 should be seen as an intermediate version

1. Progress on technical content

- The use case of data center interconnection has been initially drafted
- New section on "Gaps on related IETF Network Slice efforts" added
- Alignment with framework document terminology (even on the title)

- TO DO for version -02
    - Further details on DCI use case to be provided, as well as elicitation of requirements derived from this use case
    - Completion of section 5 about summary of attributes and procedures
    - Any further technical-related aspects coming from the comments received during adoption

2. Addressing of comments received during adoption

- Lot of comments received during adoption phase, being addressed gradually

- Backup slides report on detail the comments already addressed (in green) and those yet pending to be addressed (in black)

- TO DO for version -02
  - o Complete the review of comments, providing proper answer to the people who provide them, iterating on those that could not be easily resolved

Next steps

- Complete the work in progress
  - DC interconnection use case
  - Gaps on related IETF Network Slice efforts
  - Summary section

- Scan for additional relevant cases, if any

- Collect feedback / comments from the WG

- Prepare a new version for IETF#116 addressing all comments received

Backup

Comments from Joel Halpern

1. The one immediate concern is that the draft refers (in the section on radio functional split) to the "segment between the DU and CU is referred to as midhaul (MH)." From everything I have heard from my folks who work with radio units, the term midhaul is NOT used by 3GPP and does not have a commonly accepted definition. (The provided definition is one of several different definitions used informally.) As such, I would suggest remove the Fronthaul / Midhaul distinction from the document. Particularly since it does not affect us much at all.

2. I do want to get into the record that I have concerns with:

    o Traffic flow separation/segregation (e.g., segregation of user plane and other communications physically and/or logically)"

    "o Isolation level"

    As both of these are so vague as to be difficult to define as attributes which will be understood by both the requestor and the providing operator.

Comment from Jie Dong

3. Another comment is for the 5G network slice use cases, some of the text is good background information about 5G network slicing, while may not have requirement to the IETF network slice, thus my suggestion is that part may be simplified

Comments from Gyan Mishra

4. I would recommend that this draft and all terminology be in alignment with the network slicing draft.

5. The draft goes very deep into 3GPP network slicing which is good but I think overlaps with the 3 5G use case drafts being combined.

6. So I think this document should focus more on the use cases only as it applies to IETF network slicing and applicability.

Comments from Adrian Farrel (1/4)

7. I really wish we could get away from the "Northbound Interface" terminology. While it is OK as a term when it is given the context ("northbound of what?") as this document does in the Abstract, it is possible to quickly degrade to just talking about "the NBI" which becomes problematic because your NBI is my SBI. That is why the framework document now talks about the "IETF Network Slice Service Interface." I think that this document (and especially section 3) should align with that terminology. That is not a change that particularly blocks adoption, but it is a change that I would like to see made at some point. As the authors say in Section 2...

Comments from Adrian Farrel (2/4)

8. I really don't understand this! The customer has to satisfy requirements? Who places those requirements on the customer? Would "objectives" be a better word than "requirements"?
[...]
But even then, I am not sure it is right. Surely the functionality supported by the NBI depends on the features that the operator chooses to let the NSC expose to the customer. Of course, to be sensible, we

need the NBI to be useful so we are hoping that the operator will expose features that the customer finds useful to meet its objectives?

Comments from Adrian Farrel (3/x)

9. I appreciate the nominal placeholder in Section 4.6, and I see the short list (one member) of possible other use cases that could be added. It is obvious that any new use case would be added as a subsection of Section 4, so perhaps replace the current Section 4.6 with…

    4.6. Data-Center Interconnection

    Details of this sue case to be supplied in a future revision of this document.

Comments from Adrian Farrel (4/4)

10. Please move to using the up-to-date version of the BCP14 boilerplate.

11. It would be good to insert some more references into the text

12. There are a number of terms (inherited from GSMA etc.) that need to- at least have their abbreviations expanded. It might be nice to list them out early on and supply a reference for each term

13. Try to avoid saying "draft" in the body of the text as it will cause confusion if/when you publish as an RFC. Better to say "document".

Comments from Greg Mirsky

14. Thank you Adrian for bringing up the question of the relationship between draft-contreras-teas-slice-nbi and draft-ietf-teas-ietf-network-slice-nbi-yang. I agree with you that there are commonalities. At the same time I find substantial value in draft-contreras-teas-slice-nbi that, in my understanding, explains the motivation for the YANG data model draft. It seems to me that it would be beneficial to clearly establish that relationship between two documents. While there are many ways, I can consider two options:

- adding normative cross-references

- merging drafts

15. As a minor comment, I think that the use of references in draft-contreras-teas-slice-nbi needs more attention

Comment from Daniele Cecarelli

16. I completely agree with you analysis and I'm in favor of merging the two documents...otherwise this discussion will pop up again and again as soon as will forget the relationship between them or a newcomer will read them.

Comment from Med Boucadair / Adrian Farrel

Med - As you known, adopting does not mean that the document will make it to the RFC stage. IMO, this document is a good ** support document **. As such, it falls under https://www.ietf.org/about/groups/iesg/statements/support-documents/ and the WG may decide to let it expire when it serves its purposes or not. The merit I see in formally adopting is to have a WG reference to assess the slice service model against a set of cases and capture consensus about any missing attributes that need to be reflected in the service model itself.

17. **Adrian** - Might be nice to include a statement of intent in the Abstract/Introduction along the lines of "This document is intended to provide motivation and support for work on YANG models for the IETF Network Slice Service interface. As such, it might not be necessary to advance it to publication as an RFC."

Comments from Dhruv Dhody

19. As others have pointed out we need clarity on what this I-D claims to achieve and how it is related to other WG efforts.

20. It would also be useful to have a section on gaps in the current framework/YANG based on the analysis done by this I-D.
    It also needs to sync up on terminology with the framework I-D.

21. After reading the details in section 4.1.1.2, it was not clear "what is the key impact for IETF Network Slice?" It would be good to link this with SDP and AC discussion, otherwise, it is just background information that could simply be a reference?

22. Attributes in 4.1.2.3 don't seem to be very specific to Private 5G and since we do not list the attributes specified in the public 5G sections and have a later section on GST, it feels odd! Section 4.1.4.1. could use description/reference for the attributes.