Attachment Circuits: Updates & Next Steps

draft-boro-opsawg-teas-common-ac
draft-boro-opsawg-teas-attachment-circuit
draft-boro-opsawg-ntw-attachment-circuit
draft-boro-opsawg-ac-lxsm-lxnm-glue (new)

IETF#117
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(Reminder) Scope

• Specify an AC library with reusable types, identities, and groupings: **ac-common**

• Specify a model for managing AC-as-a-Service: **ac-svc**
  – Does **not make any assumption about the internal structure** or even the nature or the services that will be delivered over an AC
  – Accommodates both **integrated and separate provisioning models**
    - Includes **reusable groupings** for use by other service models
    - Exposes AC/bearer **references** that can be used in other service placement requests
  – Favor the approach of completely relying upon the AC service model **instead of duplicating data nodes into specific modules** of advanced services that are delivered over an AC

• Specify a network model for the AC management: **ac-ntw**
  – Augments the SAP model with required AC data nodes
  – Network-view of ACs

• Specify how to glue LxNMs and LxSMs with AC matters managed via ac-svc/ac-ntw: **ac-glue**
Updates Since IETF#116

- Released new versions to fix various issues (diversity, bearers' location, simplify profiles, MTU, bandwidth, record ACs that are bound to a bearer, explain how the provisioning of specific identifiers (e.g., VLAN-ID) can be coordinated, etc.)

- Bi-weekly meetings to review the issues and discuss how to address them

https://github.com/users/boucadair/projects/1/views/1
Updates Since IETF#116

• Received an LS from O-RAN
  – O-RAN-WG9-LS-2023-003-IETF on Transport Network Slicing Enhancement ([doc](#))
  – No reply was sent so far by OPSAWG and TEAS (?)
Updates Since IETF#116

• A Change Request was accepted by the 3GPP (S5-234742) to enhance TS 28.541 (Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3) with the required information to manage connections with "transport" domains:

An NRM touchpoint is needed containing sufficient information to resolve the associated connection point towards the transport domain. This includes well-defined, unambiguous identifier(s) which can be used to resolve, and associate, the appropriate model instance(s) in TN domain.

Excerpt from **TS 28.541** (June 30, 2023)

6.3.41 ConnectionPointInfo <<datatype>>

6.3.41.1 Definition

This datatype contains information required to identify a connection point outside of scope of 3GPP MIB (e.g. transport domain), for more details see RFC 8345 [89] and YANG Data Models for 'Attachment Circuits'-as-a-Service (ACaaS) [90].
Updates Since IETF#116

• TEAS WG Specifications
  – draft-ietf-teas-5g-network-slice-application-01 discusses now how to map 3GPP NRM objects to ietf-ac-svc and ietf-bearer-svc data nodes
    • Gaps will be reported back to the 3GPP
  – draft-ietf-teas-ietf-network-slice-nbi-yang-06 includes now the following data node
    • "ac-svc-name": Indicates the names of AC services, for association purposes, to refer to the ACs that have been created.
      – Using the references exposed in the ACaaS would be a clean design but the use of string is OK
      – Used to avoid normative dependency on the AC models
  • The spec also includes a discussion about how ACaaS and ac-common can be used for future extensions
Next Steps

• The scope and content are more stable
  – Build on OPSAWG RFCs 9181, 9182, 9291, and 9408

• The attachment circuit effort is being leveraged within the IETF and also in other SDOs

• Seek adoption of the AC I-D set in OPSAWG
Appendix
Sample Usage:

Cloud

```
{
  "ietf-ac-svc:attachment-circuits": {
    "ac": [
      {
        "name": "ac-BXT-DC-customer-VPC-foo",
        "description": "Connection to Cloud Provider",
        "requested-start": "2023-12-12T05:00:00.00Z",
        "12-connection": {
          "bearer-reference": "1243-56789"
        },
        "ip-connection": {
          "ipv4": {
            "local-address": "192.0.2.1",
            "prefix-length": 24,
            "address": [
              {
                "address-id": "1",
                "customer-address": "192.0.2.2"
              }
            ]
          }
        },
        "routing-protocols": {
          "routing-protocol": [
            {
              "id": "1",
              "type": "ietf-vpn-common:bgp-routing",
              "bgp": {
                "neighbor": [
                  {
                    "id": "1",
                    "peer-as": 65536,
                    "authentication": {
                      "keying-material": {
                        "md5-keychain": "nyxNER_c5sdn608fFPQ1331d"
                      }
                    }
                  }
                ]
              }
            }
          ]
        }
      }
    ]
  }
}
```