Compute-Aware Traffic Steering for Midhaul Networks

<draft-lcmw-cats-midhaul-01>

Luis M. Contreras (Telefónica)
Mark Watts (Verizon)

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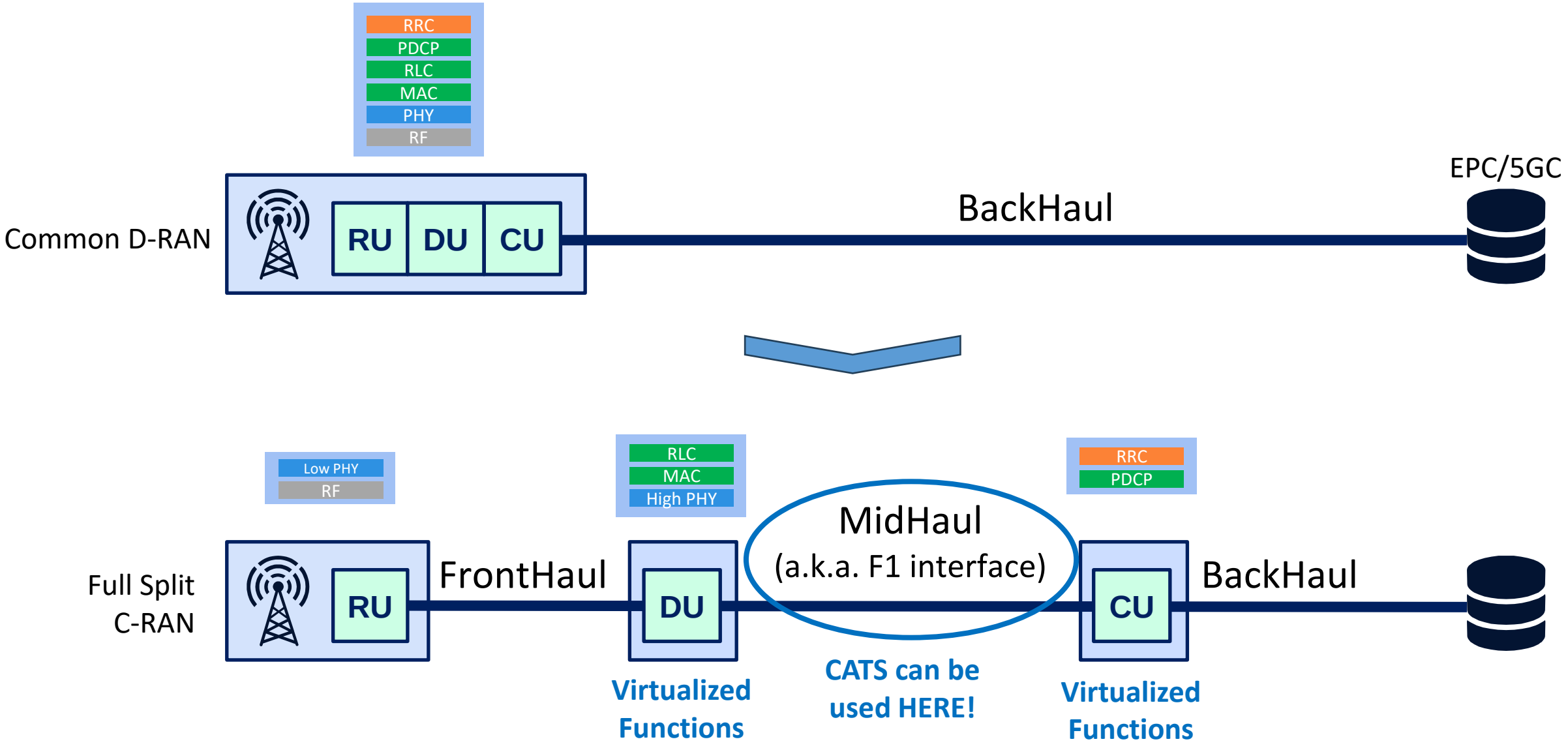
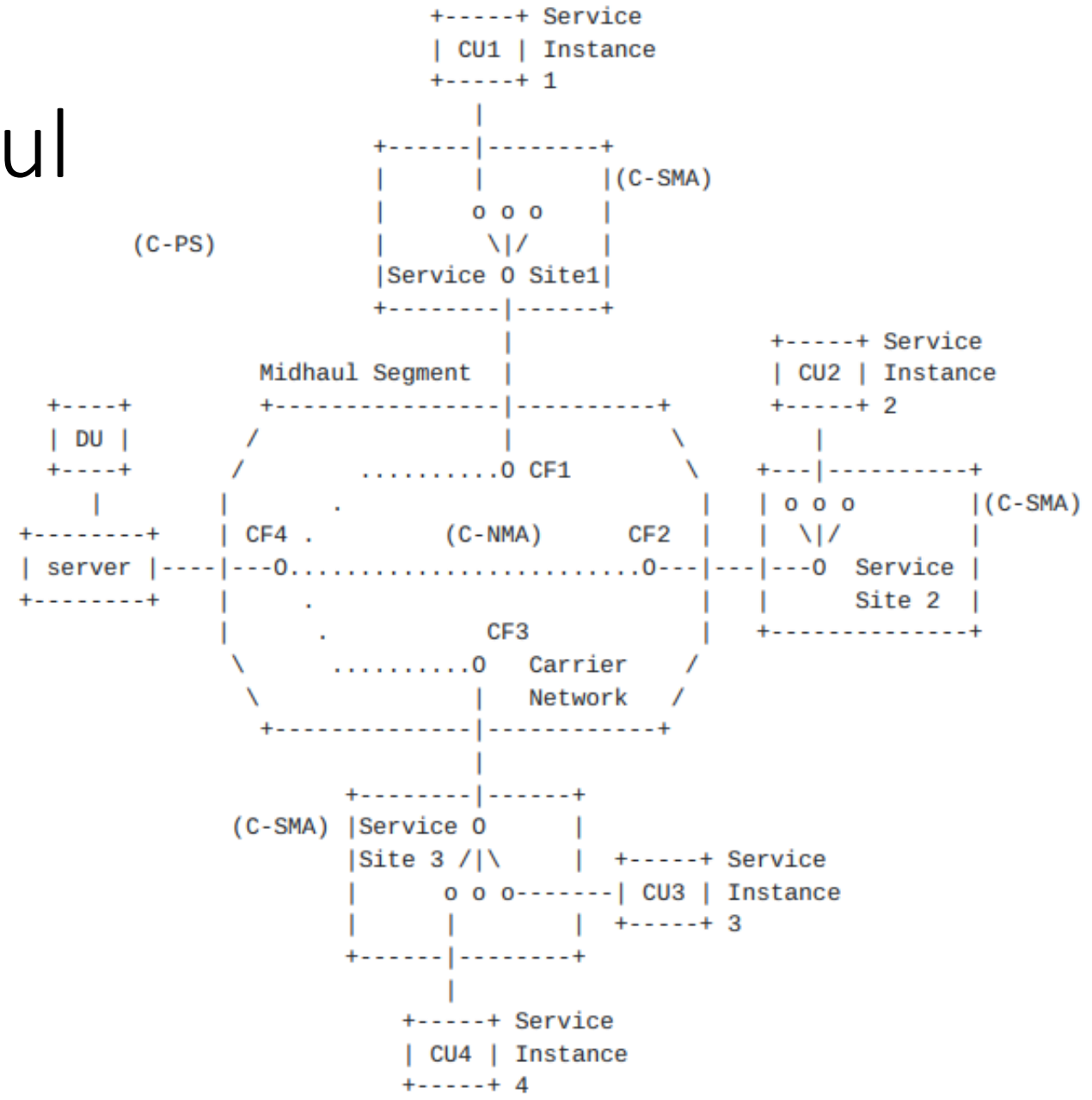
Radio functional split
(recapping on the scope of the draft)

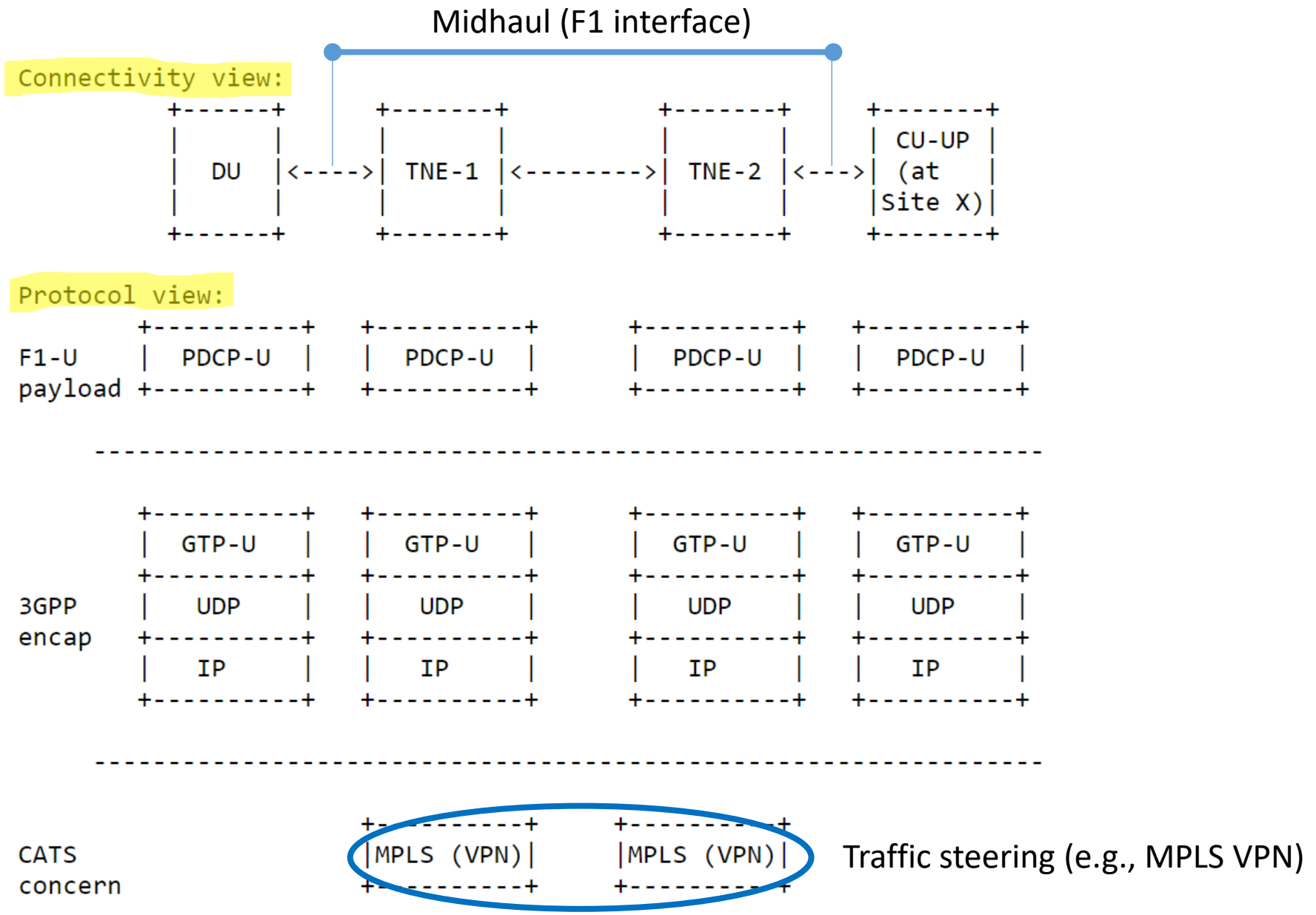


CATS framework applicability for Midhaul

- DU as client of CU instances
- C-PS will take decision on which CU (or Service Instance) deliver all the DU traffic (until any change applies)
  - Maybe an App of O-RAN control architecture
- C-NMA and C-SMA will provide views on metrics relevant for networking and compute respectively
  - O-RAN considers CPU average utilization or the memory and energy usage of every CU-UP instance
- Example in the draft refers to the usage of RFC9543 network slice service for connectivity



Protocol encapsulation view



Example using IETF Network Slice Service for steering

Definition of the CATS steering paths as IETF Network Slice Service

```
"connection-groups": {
              "connection-group": [
                {
                  "id": "matrix1",
                  "connectivity-type": "ietf-vpn-common:hub-spoke",
                  "connectivity-construct": [
                    {
                      "id": "1",
                      "p2mp-sender-sdp": "du1",
                      "p2mp-receiver-sdp": [
                        "cu-up1",
                        "cu-up2",
                        "cu-up3",
                        "cu-up4"
                      ],
                      },

                      "status": {}
                    }
                  ]
                }
              }
```

Enforcement of the path steering leveraging on match-criteria

```
"service-match-criteria": {
                    "match-criterion": [
                      {
                        "index": 1,
                        "match-type": "ietf-nss:destination-ip-prefix",
                        "value": ["2001:db8::1/64"],
                        "target-connection-group-id": "matrix1"
                      }
                    ]
                  }
```

Next steps

- Describe CATS as mechanism within O-RAN WG9 specifications
  - A liaison statement would be useful to progress the work?
- Collect (more) feedback from WG (based on additions and clarifications)
- Prepare new version for IETF 121
  - Keep working on the interplay between O-RAN orchestration framework and CATS components
  - Adoption of the document could help on the task of considering CATS for O-RAN. If so, authors would intend to request adoption for IETF 121, as long as the document progresses