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**DC aware TE topology model  
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Abstract

This document proposes the extension of the TE topology model for including information related to data center resource capabilities.

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**1. Introduction**

More and more service providers are deploying cloud computing facilities in order to host different kinds of services and applications. Such facilities can be generally referred as Datacenter Points of Presence (DC-PoPs). Those DCs will consist on a number of servers and networking elements for connecting all of them with the transport network. Depending on the number of servers in the data center, there will be distinct capabilities in terms of CPUs, memory and storage available for deploying and running the aforementioned services.

In such distributed and interconnected DC-PoPs, both computing and topological information are of interest for determining the optimal DC where to deploy a given service or application.

This document propose a DC-aware extension for the topology model.

**2. Datacenter information**

The relevant information for datacenter capabilities can be described in different ways. One potential manner is to describe resource capabilities such as CPU, memory, storage, etc. This can be done in terms of total, used and free capacity for each of the parameters of interest. Another form of populating the information is by describing those resource capabilities as a bundled, usually referred as quota or flavor. In this respect, reference bundles such as the ones proposed by the Common Network Function Virtualisation Infrastructure Telecom Taskforce (CNTT) [[CNTT](#)].

Additional information can refer to the management capabilities of the compute infrastructure, such as hypervisor details or virtualization technologies available.

Finally, all can be complemented with information related to the networking details for reaching the aforementioned compute capabilities (IP addressed, bandwidth, etc).



### 3. Model structure

```

module: ietf-dcpop-dc
  +--rw dcpop
    +--rw dc* [id]
      | +--rw hypervisor* [id]
      | | +--rw ram
      | | | +--rw total? uint32
      | | | +--rw used?  uint32
      | | | +--rw free?  uint32
      | | +--rw disk
      | | | +--rw total? uint32
      | | | +--rw used?  uint32
      | | | +--rw free?  uint32
      | | +--rw vcpu
      | | | +--rw total? uint16
      | | | +--rw used?  uint16
      | | | +--rw free?  uint16
      | | +--rw instance* -> /dcpop/dc/instance/id
      | | +--rw id          string
      | | +--rw name?      string
      | +--rw instance* [id]
      | | +--rw flavor
      | | | +--rw disk?    uint32
      | | | +--rw ram?     uint32
      | | | +--rw vcpus?   uint16
      | | | +--rw id?      string
      | | | +--rw name?    string
      | | +--rw image
      | | | +--rw checksum  string
      | | | +--rw size      uint32
      | | | +--rw format
      | | | | +--rw container? enumeration
      | | | | +--rw disk?    enumeration
      | | | +--rw id?      string
      | | | +--rw name?    string
      | | +--rw hypervisor? -> /dcpop/dc/hypervisor/id
      | | +--rw port*       -> /dcpop/dc/network/subnetwork/port/id
      | | +--rw project?    string
      | | +--rw status?     enumeration
      | | +--rw id          string
      | | +--rw name?      string
      | +--rw image* [id]
      | | +--rw checksum  string
      | | +--rw size      uint32
      | | +--rw format
      | | | +--rw container? enumeration
      | | | +--rw disk?    enumeration

```



```

| | +--rw id          string
| | +--rw name?       string
| +--rw flavor* [id]
| | +--rw disk?      uint32
| | +--rw ram?       uint32
| | +--rw vcpus?     uint16
| | +--rw id         string
| | +--rw name?      string
| +--rw dc-monitoring-param* [name]
| | +--rw name        string
| | +--rw value-string? string
| +--rw network* [id]
| | +--rw subnetwork* [id]
| | | +--rw port* [id]
| | | | +--rw ip-address?  inet:ip-address
| | | | +--rw instance?   -> /dcpop/dc/instance/id
| | | | +--rw project?    string
| | | | +--rw status?     enumeration
| | | | +--rw id          string
| | | | +--rw name?       string
| | | +--rw project?     string
| | | +--rw status?      enumeration
| | | +--rw id           string
| | | +--rw name?        string
| | +--rw dhcp-agent* [id]
| | | +--rw enabled?     boolean
| | | +--rw pools* [ip-address]
| | | | +--rw ip-address  inet:ip-address
| | | +--rw project?    string
| | | +--rw status?     enumeration
| | | +--rw id          string
| | | +--rw name?       string
| | +--rw project?      string
| | +--rw status?       enumeration
| | +--rw id            string
| | +--rw name?         string
| | +--rw dcpop-ref?    -> /dcpop/dcpop-id
| +--rw ap*             -> /actn-vn:actn/ap
/access-point-list/access-point-id
| +--rw dcpop-ref?      -> /dcpop/dcpop-id
| +--rw id              string
| +--rw name?           string
+--rw dcpop-id?        string

```



#### **4. Security Considerations**

The data-model in this document does not have any security implications. The model is designed to be accessed via NETCONF [RFC6241], thus the security considerations for the NETCONF protocol are applicable here.

#### **5. IANA Considerations**

This draft does not include any IANA considerations

#### **6. References**

- [CNTT] "Common NFVI for Telco Reference Model, Release 4.0", September 2020, <[https://cنتt-n.github.io/CNTT/doc/ref\\_model/](https://cنتt-n.github.io/CNTT/doc/ref_model/)>.
- [RFC6241] Enns, R., Ed., Bjorklund, M., Ed., Schoenwaelder, J., Ed., and A. Bierman, Ed., "Network Configuration Protocol (NETCONF)", RFC 6241, DOI 10.17487/RFC6241, June 2011, <<https://www.rfc-editor.org/info/rfc6241>>.

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