



Use of ALTO for Determining Service Edge

draft-contreras-alto-service-edge-06

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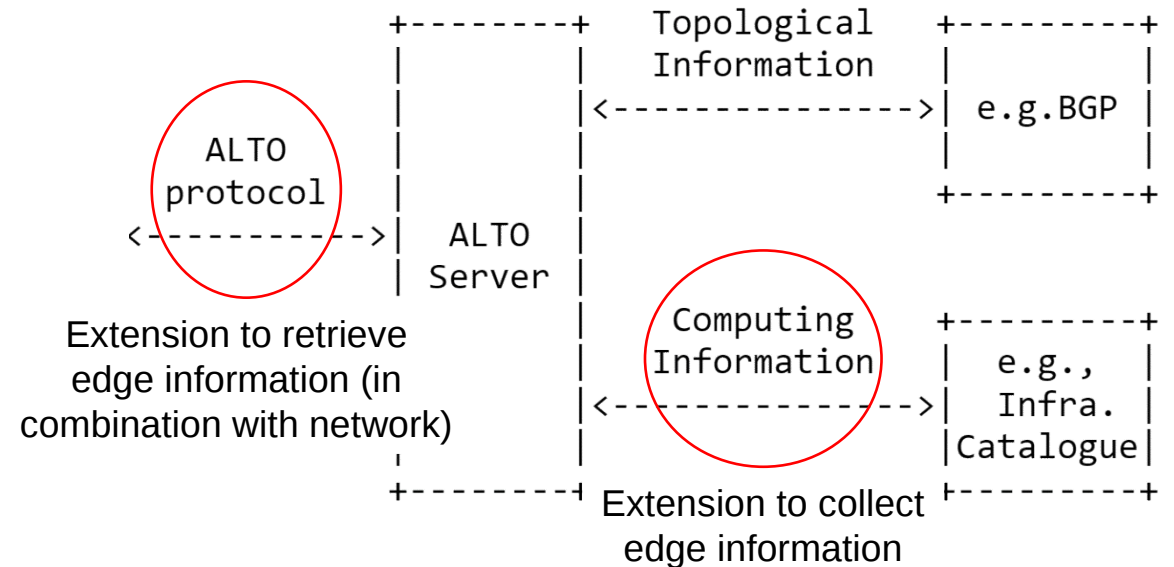
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Motivation (reminder)

- Multiple (heterogenous) DC - Data Centers across the network featuring resources (CPUs, memory, storage, bandwidth, etc)
- Identify the suitable DC to deploy a given application considering both compute and transport information

Main proposition

- Leverage the ALTO protocol (+ext) to assist on the selection of the “best” edge, combining both network & compute info.
 - Optionally complemented with other inputs such as performance metrics, etc



Updates from version -05

- Refinement of text in sections 3 and 4
- Clarification statement in section 3 about the fact that ALTO nowadays does not allow an edge server to be seen as an entity in both domains
- Refinement of text in section 4 and detailed example for retrieving information of a server as part of “ipv4” and “ane” domains

Getting information of edge server as an entity in the “ipv4” and “ane” domains

```
POST /propmap/lookup/dc-ip HTTP/1.1
Host: alto.example.com
Accept: application/alto-propmap+json,application/alto-error+json
Content-Length: TBC
Content-Type: application/alto-propmapparams+json
{
  "entities" : ["ipv4:1.2.3.4"],
  "properties" : [ "pid", "entity-domain-mappings" ]
}
```

```
HTTP/1.1 200 OK
Content-Length: TBC
Content-Type: application/alto-propmap+json
{
  "meta" : {},

  "property-map": {
    "ipv4:1.2.3.4" :
      { "pid" : DC10,
        "entity-domain-mappings" : ["ane"]}
  }
}
```

```
POST /propmap/lookup/dc-ane HTTP/1.1
Host: alto.example.com
Accept: application/alto-propmap+json,application/alto-error+json
Content-Length: TBC
Content-Type: application/alto-propmapparams+json
{
  "entities" : ["ane:DC10-HOST1"],
  "properties" : [ "entity-domain-mappings", "network-address" ]
}
```

```
HTTP/1.1 200 OK
Content-Length: TBC
Content-Type: application/alto-propmap+json
{
  "meta" : {},

  "property-map": {
    "ane:DC10-HOST1"
      {"entity domain mappings" : ["ipv4"],
       "network-address" : ipv4:1.2.3.4}
  }
}
```

Filtered Property Map query example

Entities are ANEs

- "ane:small-1" "ane:small-2" ...
- Bundles of compute resources
- Characterized by example properties
 - type, cpu, ram, disk
- Also named instances or flavors
- JSON syntax will be corrected in next version

```
POST /propmap/lookup/ane-flavor-name HTTP/1.1
Host: alto.example.com
Accept: application/alto-propmap+json,application/alto-error+json
Content-Length: 155
Content-Type: application/alto-propmapparams+json
{
  "entities" : ["small-1",
               "small-2",
               "medium-1",
               "large-1"],
               ["large-2"],
  "properties" : [ "type", "cpu", "ram", "disk"]
}
```

```
HTTP/1.1 200 OK
Content-Length: 295
Content-Type: application/alto-propmap+json
{
  "meta" : {
  },
  "property-map": {
    "small-1":
      {"type" : "basic", "cpu" : 1,
       "ram" : "512MB", "disk" : 1GB},
    "small-2":
      {"type" : "network-intensive", "cpu" : 1,
       "ram" : "512MB", "disk" : 1GB},
    "medium-1":
      {"type" : "compute-intensive", "cpu" : 2,
       "ram" : "4GB", "disk" : 40GB},
    "large-1":
      {"type" : "compute-intensive", "cpu" : 4,
       "ram" : "8GB", "disk" : 80GB},
    "large-2":
      {"type" : "compute-intensive", "cpu" : 8,
       "ram" : "16GB", "disk" : 160GB},
  }
}
```

Next steps

- Improve the description of the interaction with Cloud Managers
- Collect comments/feedback from WG
- Consider the draft for re-charter discussion