ALTO Cost Schedule

draft-randriamasy-alto-cost-schedule-00

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Outline

• Motivation
  – Use cases and I2aex related discussions
• Our Proposal:
  – ALTO Cost Schedule
• Conclusion
Motivation

• ALTO supported applications spatially shift traffic between network regions
  – Lower routing cost for ISPs

• Many non-real time applications have degree of freedom on *when* to use a resource
  – Resource = content in a CDN, computation resource in a DC
  – Use = data transfer between caches, access a service, use a physical server for virtualized application, time shifted content delivery.
Motivation

• Example use cases where scheduling is needed
  – Pre-population of caches
  – Data-replication across time-zones (DCs, SONs)
    • Need to avoid peak periods while using bandwidth leftovers (Netsticher)
  – Ends-systems with limited access to datacenters
    • Needing to schedule their access to resources

• ALTO extension to support time-shift of traffic
  – Lower traffic peaks & Save scarce resources for user QoE
  – Provide costs describing resources over a set of time periods
  – Need to keep resources information abstract enough
    • To protect confidentiality

• Well suited ALTO services
  – Endpoint cost service
  – Filtered cost map
ALTO Cost Schedule

- Extend Cost Map in time horizon
  - Define slots (e.g. hourly) over a period of time (e.g. one day)
  - Per Cost-Type

- Add "cost-mode" : ["schedule"]

- Schedule scope defined in new IRD capability
  "cost-scope": [{"unit": ["hour", 1], "size": 24,
  "begin": 0, "time zone": "GMT",
  "lastupdate": mm/hh/dd/mm/yyyy,
  "nextupdate": mm/hh/dd/mm/yyyy} ]
Example

• Request:
  POST /endpointcost/lookup HTTP/1.1
  Content-Type: application/alto-endpointcostparams+json
  
  { "cost-type" : ["pathoccupationcost"],
    "cost-mode" : ["schedule"] }

• Response:
  HTTP/1.1 200 OK
  Content-Type: application/alto-endpointcost+json
  
  { "meta" : {},
    "data" : { "cost-type" : ["pathoccupationcost"],
      "cost-mode" : ["schedule"],
      "map" : { "ipv4:192.0.2.2":
        { "ipv4:192.0.2.89" : [7, ... 24 values],
          "ipv4:198.51.100.34" : [4, ... 24 values],
          "ipv4:203.0.113.45" : [2, ... 24 values] } } } }
Conclusion

• Current draft
  – Use cases
  – Specifies Cost Schedule

• Next steps: