Updates since IETF96

- Previously
  - draft-randriamasy-alto-cost-calendar-06
- Moved to WG item at IETF96 – Berlin
  - Casted to draft-ietf-alto-cost-calendar-00 – Aug. 9th 2016
  - Updated to draft-ietf-alto-cost-calendar-01 – Feb. 13th 2017
- Diffs between v00 and v01
  - Re-wording,
  - Clean-up,
  - Updates for backwards compatibility with RFC7285
  - Draft organization
Design updates

• For backwards compatibility with RFC7285

• If ALTO Client and Server support Multi-Cost ALTO
  – Added: "cost-type" field with value set to '{}’ in Server
    responses for Filtered/Cost Map and EP Cost services
  – In sections
    • 4.1.2. Calendar extensions in Filtered Cost map response
    • 4.2.2. Calendar attributes in the Endpoint Cost Map response
Draft organization updates

• In order to drop “Section 5 Use cases for ALTO Cost Schedule”: changed titles of
  – Section 4.1.3. *Use case and example* for a FCM with a bandwidth Calendar
  – Section 4.2.3. *Use case and example* for the ECS with a routing cost Calendar
  – Section 4.2.4. *use case and example* for the ECS with a multi-cost calendar for routing cost and latency

• Section 4.3 Recap of rules related to ALTO Cost Calendars
  – Moved some text to other sections
  – Should be removed and distributed in other sections
Next proposed updates

• Example cost metrics need to be aligned w.r.t. [draft-ietf-alto-performance-metrics]
  – E.g. “availbandwidth”, “latency” need be replaced by e2e path metrics
  – Or ALTO Calendar needs to be considered for link metrics

• Section 3.1. Calendar attributes in the IRD resources capabilities
  – Description of object “CalendarAttributes” needs update and clean-up
    • Member “JSONString cost-type-name” must not be mandatory

• Section 5. Use cases for ALTO Cost Schedule
  – Will be dropped: content already present in § 4.1.3, 4.2.3, 4.2.4
Next steps

- Collect WG feedback
  - In progress
- Progress towards WGLC
- Next version
  - Integrate proposed «next updates» and WG feedback
- Please note the Calendar use cases in
  - [draft-ietf-alto-performance-metrics]
  - [draft-randriamasy-alto-cost-context]
Thank you

Back-up slides
ALTO Cost Calendar in a nutshell

• ALTO Calendar: allows deciding where to connect *and when*
  – Array of time-dependent cost values for a given metric,
  – Set of attributes describing time scope of the calendar
• Allows Delay tolerant applications to schedule their connections
  – Optimal time for data transfers
• Allows ALTO Clients to schedule their Calendar requests
  – ALTO servers may save transactions on repeated value arrays
• Applicable to
  – time-sensitive ALTO metrics
  – Filtered Cost Map (FCM)
    • for full Cost Map: use empty SRC & DEST
  – Endpoint Cost Map (ECM)
• Addresses target WG item: cost extensions (May 2014)
ALTO Calendar design

• Backwards compatibility with legacy Clients and Multi-Cost Map
  – Calendars associated to ALTO information resources
  – Calendar attributes specified in
    • IRD information resources of IRD
    • "meta" member of ALTO Server responses

• Does not introduce a new mode
• Does not introduce new media types
• Compatible with all cost-modes
  – numerical, string, ...
"endpoint-cost-calendar-map": {
  "uri": "http://custom.alto.example.com/calendar/endpointcost/calendar/lookup",
  "media-types": ["application/alto-endpointcost+json"],
  "accepts": ["application/alto-endpointcostparams+json"],
  "capabilities": {
    "cost-constraints": true,
    "cost-type-names": ["num-routingcost", "num-latency",
                        "num-pathbandwidth", "string-service-status"],
    "calendar-attributes": [
      {"cost-type-names": "num-routingcost",
       "time-interval-size": "1 hour",
       "number-of-intervals": 24
      },
      {"cost-type-names": "string-service-status",
       "time-interval-size": "2 minute",
       "number-of-intervals": 30
      }
    ],
    "uses": ["my-default-network-map"]
  } // ECM capab

Calendar-aware clients understand text in blue. Others ignore it.
POST /calendar/endpointcost/lookup HTTP/1.1
Host: alto.example.com  Content-Length: [TODO]
Content-Type: application/alto-endpointcostparams+json
Accept: application/alto-endpointcost+json,application/alto-error+json

{   "cost-type" : {"cost-mode" : "numerical", "cost-metric" : "routingcost"},
    "calendared" : [true],
    "endpoints" : {
        "srcs" : [ "ipv4:192.0.2.2" ],
        "dsts" : [ "ipv4:192.0.2.89",
                   "ipv4:198.51.100.34",
                   "ipv4:203.0.113.45" ]
    }
}
HTTP/1.1 200 OK
Content-Length: [TODO]
Content-Type: application/alto-endpointcost+json

```
{
  "meta": {
    "cost-type": {
      "cost-mode": "numerical", "cost-metric": "routingcost"},
    "calendar-response-attributes": [
      {
        "calendar-start-time": Mon, 30 Jun 2014 00:00:00 GMT,
        "time-interval-size": "1 hour",
        "numb-intervals": 24,
        "repeated": 4
      }
    ], // means: same value array for Monday, Tuesday, Wednesday, Thursday
  } // end meta

  "endpoint-cost-map": {
    "ipv4:192.0.2.2": {
      "ipv4:192.0.2.89": [v1, v2, ... v24],
      "ipv4:198.51.100.34": [v1, v2, ... v24],
      "ipv4:203.0.113.45": [v1, v2, ... v24]
    }
  }
}
```