

# draft-ietf-alto-cost-calendar-01

## Updates since IETF96

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# 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. 9<sup>th</sup> 2016
  - Updated to draft-ietf-alto-cost-calendar-01 – Feb. 13<sup>th</sup> 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 routingcost Calendar
  - Section 4.2.4. *use case and example* for the ECS with a multi-cost calendar for routingcost 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)

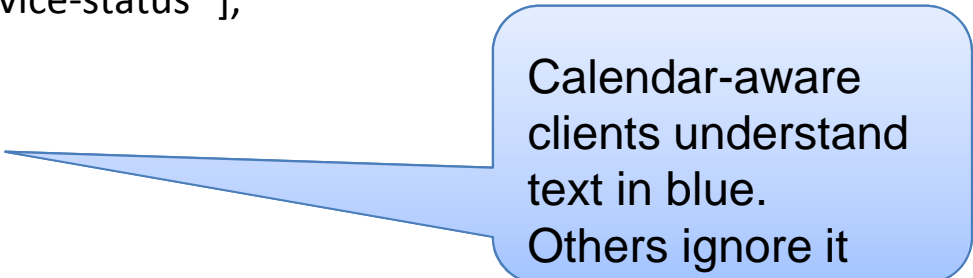


# ALTO Calendar design

- 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, ...

# ALTO Calendar v05- example IRD - §3.3

```
"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  
      },  
  
      // ... calendar attributes for "num-latency", "num-pathbandwidth" ...  
  
      {"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

# ALTO Calendar v05- example ECM - § 4.2.3

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"    ]  
  }  
}
```

# ALTO Calendar v05- examples ECM - §4.2.3

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]
    }
  }
}
```