Contents

1 Main differences between TAPI 2.3 RC1 and TAPI 2.1.3

24 May 2021

1.1 Tapi Common

1. Removed the "presence" statement of *context* container
2. Removed grouping *resource-spec* and *service-spec*
    - The classes now directly *uses global-class* or *uses local-class.*
3. identity OBJECT_TYPE is now defined in TapiCommon
    - In 2.1.3 was an enum in TapiNotification
    - In 2.3 each module defines its own identities, e.g. TapiConnectivity the CONNECTIVITY_OBJECT_TYPE
4. Added identity PM_PARAMETER_NAME
5. *layer-protocol-name* DIGITAL_OTN replaces ODU
6. *termination-state*
    - CAN_NEVER_TERMINATE replaces LP_CAN_NEVER_TERMINATE
    - NOT_TERMINATED replaces LT_NOT_TERMINATED
    - PERMANENTLY_TERMINATED replaces LT_PERMENANTLY_TERMINATED
7. grouping *bandwidth-profile* deleted (no more present in grouping *capacity*)
    - typedef *bandwidth-profile-type* deleted

1.2 Tapi Topology

1. Grouping *topology* now includes list *boundary-node-edge-point* (not yet used in RIA)
2. NEP, the *supported-cep-layer-protocol-qualifier* is now *supported-cep-layer-protocol*, with different type (*nep-layer-protocol-capability*)
3. NEP, added the (not yet used in RIA)
    - list *supported-mux-sequence* (uses *multiplexing-sequence*)
    - list *available-mux-sequence* (uses *multiplexing-sequence*)
    - leaf *base-layer-protocol-qualifier* (type *tapi-common:layer-protocol-qualifier*)
4. NEP, *available-cep-layer-protocol* is now *supported-cep-layer-protocol*
5. NEP, added the (specified in RIA 1.1)
    - container *inter-domain-plug-in-pac* (uses *inter-domain-plug-in-pac*)
6. *protection-type*:
    - NO_PROTECTION replaces NO_PROTECTON
7. New identity TOPOLOGY_OBJECT_TYPE

1.3 Tapi Connectivity

1. Added new grouping *connectivity-service-internal-point*, for possible future usage (not yet used in RIA)
2. Grouping *connection*, added
    - *layer-protocol-qualifier*
    - container *bounding-node* (uses *tapi-topology:node-ref*) (not yet used in RIA)
3. Grouping *connection-end-point*, added
    - *protection-role* (type *protection-role*)
4. grouping *connectivity-constraint*, removed
    - *service-layer* (redundant wrt *connectivity-service* layer)
    - *connectivity-direction* (redundant wrt *connectivity-service direction*)
5. grouping *connectivity-service*, added
    - *layer-protocol-name*
    - *layer-protocol-qualifier*
    - *direction* (type *tapi-common:forwarding-direction*)
    - list *internal-point* (list of *connectivity-service-internal-point)*
    - list *connectivity-service* (association to other *connectivity-service* instances for complex connectivity provisioning, not yet used in RIA)
6. grouping *connectivity-service*, strict composite instead of extended composite for
    - *connectivity-constraint, routing-constraint, resilience-constraint*, e.g. from
        - *uses tapi-path-computation:routing-constraint* to
        - *container routing-constraint {*
            uses tapi-path-computation:routing-constraint
7. grouping *connectivity-service*, now *topology-constraint* is a list
8. grouping *connectivity-service-end-point*, added
    - list *csep-role* (not yet used in RIA)
    - list *assembled-connectivity-service-end-point* (for inv mux like OTSiA --> n x OTSi on distinct line ports)
    - list *server-constraint* (a new grouping for some use cases involving server layer provisioning, e.g. DSR over ODU)
9. container *resilience-route-pac* renamed as *resilience-route*
10. grouping *switch*, removed
    - *selection-control* (moved to *ResilienceConstraint*)
11. grouping *resilience-constraint*, added
    - *fault-condition-determination* (type *fault-condition-determination*)
    - *selection-control*
    - list *resiliency-route-constraint* (the associated constraints related to resiliency routes)
12. new grouping *resiliency-route-constraint* (the constraints related to the resiliency route), with
    - *priority*
    - *routing-constraint*
    - *topology-constraint*
13. New identity FAULT_CONDITION_DETERMINATION
14. New identity CONNECTIVITY_OBJECT_TYPE
15. New type *csep-role*

1.4 Tapi Equipment

1. Fixed *supporting-physical-span* augmentation of *link*
2. Fixed missing
    - *base tapi-common:OBJECT_TYPE*
    - from *identity EQUIPMENT_OBJECT_TYPE*
3. grouping *connector-pin-address*, list *pin-and-role*, specified key *'location-in-connector*'
4. added *local-class* to *actual-non-field-replaceable-module* and *expected-non-field-replaceable-module*
5. grouping *equipment*, set as config false
    - list *expected-equipment*
    - container *actual-equipment*
6. grouping *physical-span*, set min-elements 1
    - list *abstract-strand*
7. grouping *physical-context*, removed wrong
    - uses *tapi-common:global-class*

1.5 Tapi OAM

1. New containers *connectivity-oam-job* and *connectivity-oam-service-point* augment resp. connectivity-service and CSEP. This allows OAM provisioning at Connectivity Service creation/update time.
2. Note that *alarm-info* and *tca-info* are now defined in TapiFm and augment *tapi-notification:notification*
3. Removed deprecated grouping *maintenance-entity-ref*
4. Several other enhancements.

1.6 Tapi Notification

1. *object-type* is now defined in TapiCommon
2. grouping *notification*, added
    - *layer-protocol-qualifier*
3. grouping *notification*, removed
    - *alarm-info* and *tca-info*, now defined in TapiFm module
4. New identity NOTIFICATION_TYPE, replaces enum *notification-type*
5. New identity NOTIFICATION_OBJECT_TYPE, replaces enum *object-type*, now defined in TapiCommon

1.7 Tapi ODU

1. Fixed wrong augment, now *odu-mep-spec* augments *oam-mep*.
2. ODU OAM completely restructured. Separation between connectivity and OAM parameters.
   List of OAM classes:
   - odu-oam-service --> odu-meg-spec
   - odu-oam-mep-service-point -- > same as odu-mep-spec (same classes for state and config)
   - odu-oam-mip-service-point -- > same as odu-mip-spec (same classes for state and config)
   - odu-mep-spec --> odu-mep, odu-tcm-mep, otu-mep --> otsia-mep
   - odu-mip-spec--> odu-mip, odu-tcm-mip
   - odu-measurement-job
   - odu-error-performance-data --> odu-cn-error-performance-data
   - odu-fec-performance-data
   - odu-delay-performance-data
3. ODU Connectivity classes:
   - odu-node-edge-point-spec
   - odu-connectivity-service-end-point-spec --> odu-csep-ttp-pac, odu-csep-ctp-pac
   - otu-connectivity-service-end-point-spec --> odu-cn-csep-ttp-pac, otu-csep-ttp-pac, otu-otsia-csep-ttp-pac
   - odu-connection-end-point-spec --> odu-termination-and-client-adaptation-pac, odu-ctp-pac
   - otu-connection-end-point-spec --> odu-cn-ttp-pac, otu-ttp-pac
4. FEC configuration and PM Metrics in OTU classes
5. New identity OTN_ALARM_CONDITION_NAME (preliminary – the detailed list of probable causes will be available in the RIA 1.1)
6. New identity OTN_FAULT_CONDITION_DETERMINATION
7. New identity ODU_OAM_JOB_TYPE
8. New identity ODU_PM_PARAMETER_NAME
9. New identity OTU_TYPE
10. New identity STANDARD_FEC_TYPE

1.8 Tapi Photonic Media

1. Classes reorganized
2. OTSi classes:
    - otsi-service-interface-point-spec
    - otsi-node-edge-point-spec (new)
    - otsi-connectivity-service-end-point-spec
    - otsi-connection-end-point-spec
    - otsia-csep-ttp-pac (new)
    - otsi-termination-pac
    - otsi-spectr-config-pac (new)
    - otsi-freq-config-pac (new)
3. Media Channel classes:
    - media-channel-service-interface-point-spec
    - media-channel-node-edge-point-spec
    - mcg-connectivity-service-end-point-spec (new)
    - media-channel-connectivity-service-end-point-spec
    - otsi-mcg-connectivity-service-end-point-spec (new)
    - otsi-mc-connectivity-service-end-point-spec (new)
    - media-channel-connection-end-point-spec
    - otsi-mc-connection-end-point-spec (new)
    - mc-cep-pac, ots-cep-pac, oms-cep-pac, physical-cep-pac (all new)
    - media-channel-bw-config-pac (new)
    - media-channel-spectrum-pac
    - otsi-mc-config-pac (new)
    - otsi-mc-bw-config-pac (new)
    - otsi-mc-freq-config-pac (new)
    - mc-cep-pac (new)
4. Classes removed:
    - otsi-assembly-connection-end-point-spec
    - otsia-connectivity-service-end-point-spec
    - ots-connection-end-point-spec
    - media-channel-assembly-spec
    - mca-connectivity-service-end-point-spec
5. Moved to TapiOdu all FEC related definitions.
6. identity PHOTONIC_LAYER_QUALIFIER, deprecated in 2.1.3, removed in 2.3:
    - PHOTONIC_LAYER_QUALIFIER_OTSiG
    - PHOTONIC_LAYER_QUALIFIER_NMC
    - PHOTONIC_LAYER_QUALIFIER_NMCA
    - PHOTONIC_LAYER_QUALIFIER_SMC
    - HOTONIC_LAYER_QUALIFIER_SMCA
7. identity PHOTONIC_LAYER_QUALIFIER, deprecated in 2.3:
    - PHOTONIC_LAYER_QUALIFIER_OTSiA
    - PHOTONIC_LAYER_QUALIFIER_OTSiMCA

- PHOTONIC_LAYER_QUALIFIER_MCA
- PHOTONIC_LAYER_QUALIFIER_OMSA
- PHOTONIC_LAYER_QUALIFIER_OTSA

8. identity PHOTONIC_LAYER_QUALIFIER, defined in 2.3:
    - PHOTONIC_LAYER_QUALIFIER_OTSi
    - PHOTONIC_LAYER_QUALIFIER_OTSiMC
    - PHOTONIC_LAYER_QUALIFIER_MC
    - PHOTONIC_LAYER_QUALIFIER_OCH
    - PHOTONIC_LAYER_QUALIFIER_OMS
    - PHOTONIC_LAYER_QUALIFIER_OTS
    - PHOTONIC_LAYER_QUALIFIER_OTS_OMS
9. *modulation-technique* type now has two attributes
    - *standard-modulation-technique*
    - *proprietary-modulation-technique*

2 Differences between TAPI 2.3RC1 and TAPI 2.3

9 August 2021

1. TapiCommon, new enumeration ConditionName.
2. TapiCommon, PmParameterName augments ConditionName.
3. TapiCommon, SIP direction from RW to RO.
4. TapiFm, PerceivedSeverityType, deprecated “CLEAR” severity.
5. TapiFm, Deprecated AlarmCategory, replaced by DetectorCategory.
6. TapiFm, AlarmConditionName augments ConditionName.
7. TapiFm, added ConditionType enumeration.
8. TapiFm, added SimpleDetectorState enumeration.
9. TapiNotification, added new EventNotification signal for alignment to Streaming, with spec classes DetectedCondition, PmMetricInfo, DetectorInfo, SimpleDetector.
10. TapiOam, OamJob, OamServicePoint reference from [1..*] to [0..*].
11. TapiOam, OamJob, added reference by name to CEP for simple OAM tasks like loopback.
12. TapiOam, added to OamJob a reference to ConnectivityService, in case the OamJob instance is not related to any OamService/Point but created together with ConnectivityService through ConnectivityOamJob augment.
13. TapiOdu, copied diagram comments to class comments.
14. TapiPhotonicMedia, OtsiCapabilityPac, maxNumberOfOtsi and supportedFecType from RW to RO.
15. TapiPhotonicMedia PowerManagementCapabilityPac, all attributes from RW to RO.
16. TapiPhotonicMedia, copied diagram comments to class comments.
17. TapiTopology, Link direction description "Is applicable to simple Links where all LinkEnds are BIDIRECTIONAL (the Link will be BIDIRECTIONAL) or UNIDIRECTIONAL (the Link will be UNIDIRECTIONAL)" is removed.
18. TapiTopology, comment on NEP/ inter-domain-plug-in-pac (ENNI Identifier).
19. Aligned the ObjectType enumerations for Notification and Streaming.
20. TapiTopology: aligned the inter domain plug id attribute names with RIA. From interDomainPlugIdSapi, interDomainPlugIdDapi to resp. plugIdInterDomainLocalId, plugIdInterDomainRemoteId.

3 Differences between TAPI 2.3 and TAPI 2.3.1

14 October 2021

1. TapiCommon (YANG):

```
identity PM_PARAMETER_NAME {
    base CONDITION_NAME;
    description "none";
}
```

2. TapiConnectivity:

   Two associations were still in the diagrams.

3. TapiOam (YANG):

```
grouping oam-job {
      list oam-service-point {
          uses oam-service-point-ref;
          key 'oam-service-uuid oam-service-point-local-id';
          min-elements 1;
          description "The OamServicePoint (OSP) instances involved in the OamJob.";
      }
```

4. TapiOam:

   Multiplicities corrected (from 1 to *): OamJobRelatedToCS, OamJobHasCep, CurrentDataOfCep, CurrentDataOfMep, CurrentDataOfMip

5. TapiOam:

   The relationship between NEP to MEP/MIP was missing.

6. TapiFm (YANG):

```
identity ALARM_CONDITION_NAME {
    base tapi-common:CONDITION_NAME;
    description "none";
}
```

7. TapiFm:

   SimpleDetector, DetectorInfo and PmMetricInfo are now conditional packages (composition) of DetectedCondition. Previously they augmented the DetectedCondition.

8. TapiOdu:

   OtuCsepTtpPac/otuType and OduCsepCommonPac/oduType are redundant wrt the layer protocol qualifier of the augmented CSEP. Deprecated.
   OduCommonPac/oduType and OtuTtpPac/otuType are redundant wrt the layer protocol qualifier of the augmented CEP. Deprecated.

9. Integration of Streaming and Fault Management

   Now TapiStreaming behaves similarly to TapiNotification, i.e. it is positioned at the core of the TAPI model.
   TapiStreaming has been disaggregated: Each technology agnostic module specifies its own augments to Streaming (and Notification). All technology agnostic modules will import both TapiNotification and TapiStreaming.
   Object Creation model is now aligned for both Notification and Streaming.
   Generic "object content" attribute has been kept for backward compatibility.

10. OAS modules, replaced trailing “/:” with “:”

    E.g. from:

```
 /data/tapi-common:context/tapi-connectivity:connectivity-context/connectivity-service/:
   post:
    tags:
    - "tapi-connectivity"
```

    To:

```
 /data/tapi-common:context/tapi-connectivity:connectivity-context/connectivity-service:
   post:
    tags:
    - "tapi-connectivity"
```

11. TapiNotification: EventNotification signal includes two additional attributes: targetLocalObjectIdentifier, targetLocalObjectType.

12. TapiFm: updated comments of *deprecated* AlarmInfo and TcaInfo.

13. TapiOam: added LOOPBACK_TERMINAL and LOOPBACK_FACILITY Oam Job Types.

14. TapiPathComputation: TopologyConstraint, the include/excludePath attributes are now of “path” type, no longer the simple UUID.

15. TapiNotification: NotificationType enumeration, added DETECTED_CONDITION to cover alarms/TCAs.

16. Removed supportedNotificationTypes and supportedObjectTypes from NotificationSubscriptionService and corrected the association between NotificationSubscriptionService and SubscriptionFilter from 1 to 1 to 1 to 0..*

17. TapiConnectivity: ConnectivityConstraint, the connectionInclusion/exclusion attributes are now of “connection” type, no longer the simple UUID.

18. TapiTopology: MultiplexingSequence, set as optional numberOfCepInstances and capacity, added comments. Updated the comments of ONE_PLUS_ONE_PROTECTION_WITH_DYNAMIC_RESTORATION and PERMANENT_ONE_PLUS_ONE_PROTECTION.