

2019-08-06 TAPI Meeting Notes

Date

06 Aug 2019

Attendees

- [Karthik Sethuraman](#)
- [Hing-Kam Lam](#)
- [Andrea Mazzini](#)
- [Malcolm Betts](#)
- [Xiabing NIU](#)
- [Yuji Tochio](#)
- [Nigel Davis](#)
- [Arturo Mayoral](#)
- [Italo Busi](#)
- [Pedro Amaral](#)
- [Xiang YUN](#)
- [@anton Snizar](#)

Goals

- Administrative
 - 2.x Release status
 - 3.x Planning
 - Update from ITU-T SG15 meeting related to Photonic model
 - ONF F2F Meeting planning
- Continuation of Resilience discussions
 - <https://wiki.opennetworking.org/display/OTCC/2019-07-23+TAPI+Meeting+Notes>
- TAPI Outstanding Issues

Discussion items

Time	Item	Who	Notes
15 mins	Administrative	Karthik Sethuraman	<ul style="list-style-type: none">• Next TAPI Call: Next week<ul style="list-style-type: none">• Possible topics: Topology, Profile & Template,• Update from ITU-T SG15 meeting related to Photonic model<ul style="list-style-type: none">• G.872 (OTN Arch) and G.807 (Media Arch) consented and on AAP LC now.• Plan for LS from the Sept F2F meeting to have LS to SG15 on photonic stuff that are supported in TAPI but not in SG15 (yet). Schedule time for discussion in the F2F meeting• Arturo Mayoral : Draft of reference implementation ready for review in the next call
20 mins	TAPI Release Plan	Karthik Sethuraman Andrea Mazzini Nigel Davis Stephane St-Laurent	<ul style="list-style-type: none">• Bug Fix release: 2.1.2<ul style="list-style-type: none">• Released last month (07/16/2019)• Minor Feature release: 2.2.0<ul style="list-style-type: none">• Released last month (07/28/2019)• Bug Fix release: 2.2.1<ul style="list-style-type: none">• Planned - (Sept-end 2019)• Major Release: 3.0.0<ul style="list-style-type: none">• Planned by Dec-end 2019• RC1 by Sept-end 2019• RC2 by Oct-end 2019• RC3 by Nov-end 2019• Proposed Features<ul style="list-style-type: none">• TAPI Roadmap
20 mins	F2F Meeting @Cisco / San Jose	Hing-Kam Lam Karthik Sethuraman	<p>Agenda plan for 2019 September 9-13 OIMT & OTCC Silicon Valley Meeting</p> <ul style="list-style-type: none">• TAPI key topics<ul style="list-style-type: none">• T1 Topology enhancement• T2 Connectivity• T3 Resilience• T4 Notification/Streaming• T5 Photonic• T6 Routing constraint
30 mins	Resilience	Andrea Mazzini	

SIP/CSEP or NEP/CEP (1)

- Currently TAPI allows the provisioning of Connectivity Service and OAM Service on SIP/CSEP objects.
 - Note that in multi-layer connectivity model, SIPs may be available also on INNI (or even on *internal* NEP) side, for the provisioning of “infrastructure” Connectivity Services, driving the implementation of “trail” Connections which will support client connectivities (e.g. ODU4 Connectivity Service that supports ODU2 or DSR etc. clients).
 - Hence today is possible to provision OAM also on “infrastructure” Connectivity Service scope.
 - Note that from MEF perspective, OAM is applied only to “UNI to UNI” or “UNI to ENNI” Services.
- Currently it is not possible to provision OAM between generic CEPs, unless we introduce the “OAM SIP”, somehow similar to the “Infrastructure Connectivity SIP”.
- In this light, we can also introduce the “Resiliency SIP”, allowing the provisioning of protection/restoration schemes between NNIs.
 - Pros: the OAM and Resiliency provisioning capability is explicitly shown by Server.
 - Cons: proliferation of objects – same result can be achieved by an attribute/package in NEP, like *Supported CTP Rates* etc.
- Should we reconsider SIP as distinct entity and instead think of SIP as a role played by a particular NEP instance?
 - Semantically same behavior as current TAPI releases, but the mechanics of modelling SIP could utilize decorator pattern or such...

Service and Resource distinct provisioning

- Another approach is to split the provisioning:
 - “Service Provisioning”: Connectivity/OAM/Resiliency on SIP/CSEP
 - ConnectivityService, OamService, ResiliencyService
 - “Resource Provisioning”: Connectivity/OAM/Resiliency on NEP/CEP
 - ConnectionMaintenance, OamMaintenance, ResiliencyMaintenance
- Simplification (similar result of previous slide):
 - ConnectivityIntent, OamIntent, ResiliencyIntent on either SIP/CSEP or NEP/CEP
- Is it necessary/convenient to separate ConnectivityService and Connection provisioning?
- The provisioning of Service Resiliency should focus on SLA/SLS, delegating to the Server the choice of more appropriate protection/restoration scheme.
- The provisioning of Resource Resiliency implies details of protection/restoration scheme and operator commands.

Resiliency on Resources (1)

- Which entity does resiliency apply?
 - Two (or 3 or 4) CEPs, normally belonging to one of the Routes of a Connection
 - This allows to ignore how the (unprotected or even already protected) signal is currently routed between the CEPs
- “Create Resiliency Resource” operation parameters:
 - CEP(s) A and CEP(s) Z, and their roles in the scheme
 - SwitchControl parameters (e.g. SNCP/I or “restoration”, revertive, hold off time, etc.)
 - RedundancyRoute, i.e. the new branch, specified with more or less details
 - There could be more Redundancy Routes
- “Resiliency Resource” may compose one or more SwitchControl objects (ladder/nesting/protection+restoration), or
- “Resiliency Resource” is 1:1 with SwitchControl, hence just manage SwitchControl (which already can recursively describe subordinate protection schemes)

Resiliency on Resources (2)

- In Core IM, both the C&SC and the FcSwitch are part of a Forwarding Construct. Partitioning allows to model a hierarchy of C&SC, e.g. one at “end-to-end” Connection, the other ones at “cross-connection” level.
 - Does TAPI need these levels? It is true that certain configurations and commands apply to whole protection scheme, other may apply to the switch at “cross-connection” level (even if likely this applies only in case of no coordination between switches, i.e. local criteria only). Somehow similar to MEG and MEP paradigm.

TR-512.5_OnfCoreIm-Resilience:

- *C&SC stand-alone*
 - Used where the C&SC coordinates switches and other configuration spread across multiple FCs etc.
 - In this case it replaces the traditional protection group approach
- TAPI may allow more Connections referenced by same SwitchControl instance.
 - Cases where the protection/restoration scheme is wider than managed domain

Protection Use Cases

- (OTN, Photonic) SNCP
- Ethernet Ring Protection (?)
- Add/Remove Protection, Remove Keeping Spare
- Operator Commands: Manual, Forced, Lockout

• Modify Route:

RouteList.T addedOrNewRoute:

Depending on the modifyType, AddedOrNewRoute describes the route of a new protection leg or the whole SNC. When it describes a segment to be added, either the SNCP cross-connects or the switch TPs that will be changed in the segment may be specified by the NMS. The EMS then chooses the missing segments. Alternatively, the NMS may specify the full route.

RouteList.T removedRoute:

- RemovedRoute describes dropping of a protection leg from the original SNC. Either the last cross-connects (that contain the SNCP) are specified by the NMS or the full route may be specified. This parameter can be used in conjunction with addedOrNewRoute only to reroute a segment.

Action items

