# CAMARA & TM Forum API mapping

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## Source documents:

* API backlog proposal for change pdf
* Detailed Network API inventory excel

## Caveat:

This document is an Orange contribution to Camara project. **It has not been reviewed by the TM Forum and as such it is not a TMF endorsed document**.

## Objectives:

For each Camara API family we identify potential TMF API candidates.

For each TMF identified API we provide some information about resources description. This description could be completed in a second step with examples and resources model.

This document is still in draft and must be completed. In particular, it could be interesting to work on E2E UC including the ‘ordering’ part in the BSS (BSS level API are not listed in this table).

## Mapping table:

For each Camara API family we identify potential TMF APIs. We did not provide in this table a panorama of the TMF open APIS but it is worth to be note that all TMF API identified are part of a consistent Product/Service/Resource package.

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| **CAMARA API Family** | | **Description of API Family** |
|  | **TMF API** | **TMF API Comment** |
| Connectivity Service management & monitoring | | Order Connectivity Services with a specific SLA (min throughput, max latency, min availability etc)  • Manage SLAs (read,update,) |
|  | **TMF623 SLA** | API resources managed:  ServiceLevelAgreementSpecification: To define a definition of a SLA (design)  ServiceLevelAgreement : To instantiate a SLA to one or several instance of service (runtime)  ServiceLevelAgreementViolation : To log a SLA violation (linked to a ServiceLevelAgreement) |
| Baseline OAM | | • It provides the customer with the ability to consume customer related data (e.g., SLA, subscriber data, customer profile),  • It provides the customer with the ability to consume operation related data (e.g. PM/FM data, logs, trace, analytics reports, event notifications).  NOTE 1: The management data feeds customer owned systems, and can be used for internal consumption (B2B) or made available to their own customers (B2B2X, e.g. hyperscaler enriches management data with additional information, and exposes them to their own customers via proprietary APIs).  • It provides the customer with the ability to gain access to Customer-Facing Service (CFS) catalog and inventory.  NOTE 2: This includes catalog of APIs and inventory of edge nodes (features, location, availability) |
|  | **TMF632 Party**  **TMF629 Customer** | Related to customer data, these 2 TMF API allow to manage party (individual or organization) end party role as Customer. |
|  | **TMF633 Service Catalog**  **TMF 638 Service Inventory** | TMF633 manages the service specification 🡪 the catalogue description of the service while TMF638 exposes the service instances in the inventory.  These API could be completed with Resource level API to retrieve and consult all supporting resource.  The service is managed with state and in relationship with place (location)  Additional API at service level **like TMF640 Service Activation & configuration** could be also useful. |
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| Geofencing | | * Define a geographical area or path on which a device/devices are allowed to operate * Manage rules for action at violation |
|  | **TMF675 Geographic location** | Resource GeographicLocation… The API is aligned with GeoJson and allow to manage point, multiPoint, line, multiline & polygon  Device are managed as resource and are related with place (GeographicLocation is a place subtype) |
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| Device Status | | Retrieve information about an individual device or groups of devices, e g   *  Reachability status *  Roaming status *  Network used *  Geographical position *  IP address *  IMSI-Device relation *  Abnormal behaviour   NOTE 1: The customer can explicitly query for this information (request-response mode) or be reported with notifications on subscribed events (subscribe-notify mode).  NOTE 2: Examples of this info include e.g., location tracking (UE location and cell site), USIM change, no. devices present in an area (RA, TA, cell), device mobility info (intra-TA handover, inter-TA handover), CN type change (5G to 4G, viceversa), roaming status, device reachability (e.g. for SMS delivery).  Note 3: Device status is limited to information available in the communication network and especially does NOT include device specific information about firmware ,software, battery state etc |
|  | **TMF639 resource Inventory**  **TMF702 resource activation & configuration**  **TMF688 Event** | A device is managed as a physical resource. 2 APIs could be considered to retrieve the device information:  TMF639 to access an inventory of the device representation (a database) or TMF702 to directly access to the device itself.  Resource location, status & characteristic will allow to manage this information.  These API triggers event directly, and all event could managed with TMF688 |
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| Network status | | It provides the customer with the ability to receive information about network status.  NOTE 1: The customer can explicitly query for this information (request-response mode) or be reported with notifications on subscribed events (subscribe-notify mode).  NOTE 2: Examples of this network info include performance measurements (e.g., UL/throughput, latency, jitter, packet loss rate, etc.), fault events (e.g. network congestions, nodefailure).  NOTE 3: Performance measurements and fault events can be provided at network node (function)level (e.g. disturbances) , network domain (slice subnet, private network) or end-to-end (slice) level. |
|  | **TMF623 SLA**  **TMF628 Performance** | See above for TMF623.  TMF628 allow to define performance indicator specification (and group of them) and then to manage on demand performance collection capture or measurement job (for recurring indicator collection).  **TMF657 Service Quality management** could perhaps also be considered as this API manage consequence action  **TMF656 Service Problem** could also be used to trigger service issue like network congestion. |
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| Traffic influence | | It provides the customer with the ability to modify the connection policies of UEs and applications in terms of how the traffic flows  NOTE 1: wrt routing, the customer can specify the edge node towards which traffic shall be routed. |
|  | No API identified |  |
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| Quality On Demand | | It provides the customer with the ability to:   * set quality for a mobile connection (e.g., required latency, jitter, bit rate). * get notification if network cannot fulfill.   NOTE: The scope of this API family should be limited (at least at a first stage) to 4G and 5G. |
|  | **TMF640 Service Activation & Configuration**  **TMF702 Resource Activation & Configuration** | TMF640 & TMF702 allow to perform operations on the service and resource themselves.  TMF allow to specialize this API resources.  These 2 APIs provided a set of event + monitor pattern for async operation completion. |
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| Accounting, Charging and Billing | | It provides the customer with the ability to:   * get information about the usage of the services and components that can be charged for (e.g. changes for QoS during each session lifetime) * get information about actual cost for API usage   NOTE: This could be transversal to the functional (service) APIs, and apply to all of them. |
|  | **TMF635 Usage**  **TMF678 Customer bill** | TMF632 manage definition of usage (usage specification) an instance for usage. This usage could be rated and then associated to a product.  An evolution with TMF project is to introduce a service usage.  On rated usage could be ‘collected’ and aggregated in AppliedCustomerBillingRate (from TMF648) on order to be bill (within a customer bill). |
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| Edge Discovery | | It provides the customer with the ability to:  Discover the set of edge nodes available in a certain region, where the customer can deploy edge applications  discover the set of edge nodes in a certain region where a certain API functionality is available (and thus the customer edge application can make use of it).  NOTE: Applicable at provisioning time. Note that there can be a mode in which the customer does not know about the actual edge nodes and can just ask for the deployment of an edge app to cover a certain region (the provider decides which edge nodes will be needed).  request the edge service instance to connect to for a certain user/device, based on its location and app requirements. This includes edge application discovery (mandatory) and edge application relocation (optional, in mobility scenarios for service contuinity support).  NOTE: Applicable at operation time. |
|  | **TMF639 resource Inventory**  **TMF633 Service Catalog**  **TMF640 Service Activation & Configuration**  **TMF 638 Service Inventory**  **TMF642 Alarm Management**  **TMF641 Service ordering management**  **TMF675 Geographic Location** | TMF Catalyst The Edge in Automation provided an API component description in support of a set of Operational Domains exposing and managing “Network” Services. These services are referred to as Edge Computing as a Service (ECaaS) and include all services offered from a service provider including connectivity, end points, etc. An Operational Domain supports a set of functions and capabilities responsible for the complete lifecycle of services and resources within its domain, including exposure of services supported by SLAs, interfacing via standard TMF APIs with the OSS systems and other operational domains. |