

OPG #154 Meeting Minutes

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Date:	16-17/10/2023	Time:	09:00 – 17:00 BST
Subject:	OPG #154 Meeting Minutes		
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Other Attendees:		
Absent / apologies:		

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Security Classification		
Non-Confidential	Project Team or Group	X

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1. GSMA Antitrust Policy and Agenda

GSMA Anti-trust and US entity list statement were noted

The agenda for the meeting was approved.

2. OPG#153 Meeting minutes

No comments were made.

Minutes of OPG#153 were approved.

3. Action Points

Action points were reviewed. There are no open actions.

4. Participant Roundtable

Introductions were made of all participants.

5. MWC Barcelona 24 Release

Tom informed of the planning for the MWC Barcelona release, and the topics selected to cover in the release.

Next meeting is the last before CN Deadline on 31st October. Need to move to CRs

OPAG follow the same path

6. Whiteboarding about intersection between roaming and federated NSaaS

Sandra distributed use cases for discussion (see OPG_154_Doc_03_F2F.Whiteboarding.session.October2023.docx). The room was split into two groups to prepare for a whiteboarding session. Remote participants were asked to prepare questions. The solutions proposed as a result are to be presented assuming the level of understanding of a person without a deep knowledge of mobile network.

- Scenario 1
 - The SLA (latency, bandwidth and jitter needs) required by the application would need to be specified to determine whether optimisation of the current connectivity (i.e., QoS control) would allow to serve the needs or a dedicated service is required to which the devices could be onboarded. This kind of service could cover the whole country, but location may be relevant still to deploy the application close to the user to improve on the experience. It is assumed that the application will be provided for such a deployment in the network with its placement determined by the SLA.
 - Requirement to connect VR devices in public places to computing in the cloud.
 - The gaming company could be alerted if the SIM is removed from the device. It is also possible to geofence the device and alert when it is taken is outside area so you can detect a stolen VR headset. Accuracy depends on coverage but could be within 100m for the city locations that are targeted.
 - How much network planning needs to be done? Some planning might be needed (e.g., reservation of network resources) but that will depend on the SLA. Scheduling of the events might also be useful, and the number of parallel players should be known. Synchronisation between locations may not be required given that the game is played in one location only.
- Scenario 2
 - The solution for the players can be the same as in scenario 1, but a dedicated service might be more appropriate in this scenario to avoid interference with the spectators. For the spectators, other operators would need to be informed to allow them to reserve resources and of the spectator's identity.
 - Possibly spectators scan a QR code or similar and then activate it. Company pays for data in the application. The format in which a spectator provides their identity may vary and thus the solution will have to deal with that. There is potential to include number verification and location checks here to detect typos and other erroneous entries. Spectators can have any type of regular subscription, but corporate subscriptions may not work if their handset is externally managed.
 - Company wants to be responsible for QoE when a spectator buys a ticket, but there are no standard APIs to verify this that are aligned across operators.
- Scenario 3:
 - The application will have to be cloud ready and edge aware and APIs can be used that can be supported across networks and that would be accessed through a single point of contact.
 - CDNs could be used for delivery of the spectators' streams with minimal delay differences between the audience members. This would allow adaptive streaming adapting the bandwidth to the current load on the spectator's network and could be provided through any internet

connection. APIs could be made available to onboard users that also allow to verify whether a subscriber can be onboarded. This would avoid any conflict with the experience for the gamers.

- Scenario 4 could follow a similar approach as scenario 3.

Following gaps were identified:

- APIs for monitoring of QoS: TM Forum would be working on this.
- Alignment across networks on the measuring of latency
- Monitoring of resource usage, but this may not be necessary as the KPIs to be tracked from Application Provider perspective are not about resource usage.

7. Network Slicing as a service

Bart presented OPG_154_Doc_04 CN0001R5 on the NSaaS in a federated environment topic. Comments included:

- The intent of NSaaS from the developer/Application Provider perspective could be to ask for a slice or for a more generic communication service. They care more about the SLA being met than about the means through which that is achieved. The difficulty is that Network slicing needs 5G SA, but the realisation of a service may be achievable by other means such as QoD and be available on a wider range of access/core networks.
 - o Language used northbound should be like CAMARA and be intent-based in a customer friendly way.
 - o An application provider may not want to manage a network slice end to end and rather consume a simpler concept.
 - o Different offerings from different networks are thus fine if the KPIs requested are met.
- The GST could be used but it is now quite technical and contains information that CSC does not know or understand. It may thus be useful for the E/WBI, but too complex for use on the NBI. IT was proposed to create a mapping from the GST into a form asking for a slice.
- Could the existing solution for mapping between NSSAIs in a roaming context be reused for federation?
 - o Potentially, but not all operators may use a slice to realise the SLA.
 - o Monitoring between networks might be complex.
- UE access should be considered as well as part of the concept given that the device would have to be onboarded on the slice instance defined in its own network (if that has chosen to realise the SLA using slicing).
 - o Signalling to UE is restricted to 8 NSSAI's to one device although you can have more than 8 slices in a network.
 - o PDU sessions, QoS flows and Slices need to be differentiated.
 - QoS doesn't need slicing which is mostly a grouping of PDU sessions.
 - Billing can be separated as well.
- Proposal to scope work on the assumption that the slice is already in existence. So, you do not need to manage the slice. You may need an ID to identify the slice anyway.
 - o The basic assumption for NSaaS would be that the customer is aware of the slice and wants to manage it.
 - o That would mostly be the case if a dedicated core is required, or the customer wants a dedicated slice (e.g., law enforcement).
 - For all other times you can use other services. Eg roaming when you go over data limit and are then throttled.
 - Example of a connectivity service some years ago is in automotive. Separate SIMs are used to differentiate between

the data for the satnav etc is separated from the in-car Wi-Fi coverage.

- A further non-technical case might be the operator preferring to use slicing for business reasons (e.g., to group PDU sessions or facilitate monitoring).
- It might be needed to differentiate between bespoke solutions for large customers such as police services and services for generic Application Providers.
 - Focussing on the latter would exclude the need for LCM and dynamic network slicing but would still have to cover onboarding of the subscribers. An ID of the slice would have to be provided for that purpose.
- It might be possible to use slice/communication service templates, similar to the flavours used for edge.
 - That might work and could use a 1-to-1 mapping between the template and the communication service, but that may be difficult from a dimensioning perspective.
- A discovery service could be needed for the supported templates and instances.
 - Potentially Traffic categories could be used as identifiers but given their difference on Android and iOS that might need mapping.
- Differences between Enterprise and consumer devices.
 - IT admin may make the decision on what to subscribe to which is done by specific DNN or other means.
 - For IOT there are many different requirements, but they should be mapped to some standard.
 - Consumer – device OS does the mapping and support for the traffic categories. No dynamic CSP connection is needed as this is done on the fly.
 - Focussing on the two services:
 - Where enterprise owns and manages the service
 - consumer when Operator owns and manages the communications service.

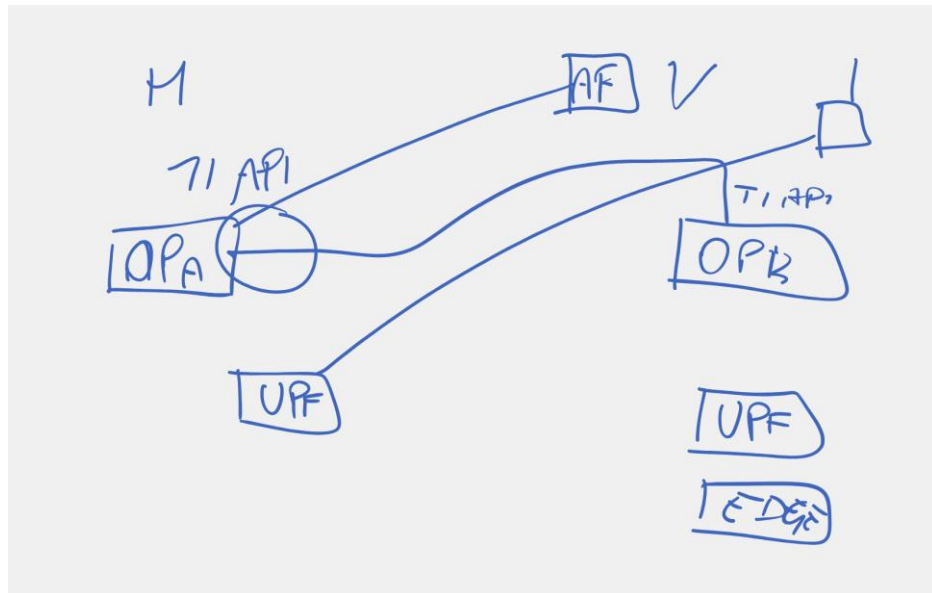
8. Roaming Architecture

Sandra presented OPG_154_Doc_05, CN0002R5 on the Roaming Architecture topic. Comments included:

- There should be no impact on the SBI-EIN
- The solution should not depend on operator given that OS providers DNSsec/DNS over HTTP are gaining more use.
 - Potentially the application could use a specific DNS, but that may be complicated.
- The need for relying on availability of the UNI was questioned:
 - It is not supported by existing solutions (unless through integration of SDKs).
 - Therefore, discovery of edge nodes through the NBI is used instead. This concept was drafted on the whiteboard.
 - As that would rely mostly on existing federation concepts for forwarding the API requests to the appropriate network, that would be easy to extend to roaming.
 - Consent management will normally be with the subscriber's home network, but that would be the case also when relying in the UNI.
 - It was decided to follow this concept using the NBI rather than the UNI for this first phase.

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- The diagram illustrates two network architectures:
- TEF (Top End Forward):** Labeled "TEF" in green. It shows a vertical stack of components: OP (Operator), Core, and Edge. A red arrow labeled "Lead up" points from the OP component to a cloud labeled "Cloud-". Another red arrow labeled "Down" points from the "Cloud-" cloud back to the OP component.
 - Orange:** Labeled "Orange" in orange at the bottom. It shows a similar vertical stack: OP, Core, and Edge. A dashed purple arrow labeled "Delete" points from a mobile phone icon to the Edge component. A dotted purple arrow labeled "Local" points from the mobile phone icon to the Core component.
- A horizontal blue line separates the two architectures. Both architectures also show connections to their respective clouds ("Cloud-" for TEF and "Cloud." for Orange).

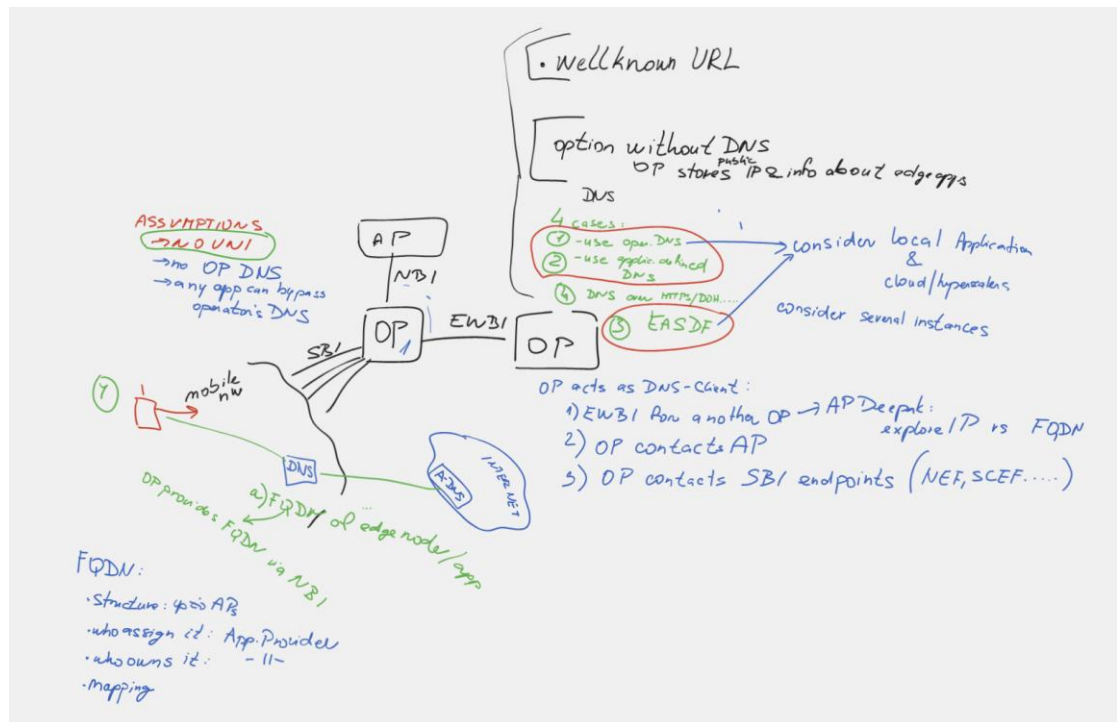
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9. DNS and Edge Security

Deepak introduced OPG_154_Doc_06, CN0003R5 on the DNS and Edge Security topic. Comments included:

- The term “Enterprise Application” should be avoided as that could be interpreted to be something like Microsoft office.
- OP-specific DNS services and edge discovery through DNS should be covered in a later version of OP. Public DNS or operator DNS should be used instead and this CR is only concerning security of the DNS services that need to be handled.
 - o The topic should focus more on security requirements where the OP needs to use DNS rather than on edge discovery through edge.
 - o In the case of interception and man in the middle attack the OP is not contacted, and it is only the client that is able to mitigate.
 - o OPG should consider DNS over HTTPS instead and how that can work.
- Assumption in the CN is that OP may operate a DNS service as an authoritative DNS for edge applications.
 - o OP may need access to EASDF. A new function that is involved in the delivery DNS services. OP may submit information to the EASDF so that element does the routing.
- EASDF is a new function that is not supported in networks yet and it is unclear whether it ever will.
 - o EASDF could take a user’s network location into account when responding which would be one possible mechanism to enable session breakout and the relocation of the UPF.
 - o Multiple PDU sessions would not depend on the EASDF.
- The quoted text from 3GPP TS 23.502 is confusing as it is taken out of context, and it is difficult to follow what is happening. Needs an architecture diagram.
- Proposal that we should change the scope of the topic to be the use of DNS services.
 - o Deepak has a CR already to add the topic of OP DNS services to the Backlog.
- A whiteboarding session was done to identify where the OP uses DNS and where it might have to update records.



- Assumption that each edge has its own FQDN and is unique.
 - o Question if the OP is a controller or dispatcher. It controls or needs to know where to get the information.
 - o There could be an option without DNS that the OP holds and reveals the information about all its edges.
 - When OP acts as a DNS client
 1. Identify EWBI for another OP
 2. OP contacts AP
 3. OP contacts SBI Endpoints
- Deepak will cover the new scope.

10. Open Gateway Alignment of requirements

Mark Cornall presented OPG_154_Doc_07, Open Gateway alignment of requirements. The following was covered:

- The differences highlighted are mainly gaps not covered by OP requirements yet or adding detail where not specified by OP yet.
 - o There may be some deviations though where Open GW decisions do not follow present OP requirements and resolution will be needed.
 - o Both solutions for gaps and deviations should be brought as company contributions to OPG for discussion and possible approval:
 - Note: it has been decided later to cover Open GW's technical stream as a taskforce under OPG allowing to bring such change proposals as a submission from the whole taskforce.
- The operate APIs would rely on TM Forum
 - o the companies that would have to consume them are not part of their development currently.
- The relation between OP, Open GW and CAMARA should be detailed:
 - o OPG defines the exposure platform architecture, requirements, and APIs (in OPAG) for the exposure of telco services accessed through APIs to external parties.
 - Northbound, i.e., to the Application Providers/Customers, the OP will use APIs defined in CAMARA for accessing those services.

- OPAG will provide guidance on the realisation of those APIs with the OP.
- Open GW is focussing on the commercialisation of operator services accessed through APIs.
 - The Open GW product stream decides which APIs are included in the Open GW scope and proposes them to CAMARA when a selected API was not available yet.
 - i.e., not necessarily every API proposed by other parties and agreed in CAMARA will be included in the commercialisation.
 - The Open GW technical stream focusses on the realisation of Open GW in the operator networks.
 - In principle that realisation will rely on the OP and the Open GW-specific work is about identifying gaps.
 - Most/several companies active in Open GW may not be aware of the OP yet because most of the current services in Open GW's scope do not require many capabilities from the exposure platform.
 - The Open GW technical stream is a subgroup of the OPG though and therefore all documentation that it produces will have to be approved by the OPG (i.e., the ISIG under the AA.35 process). That will mean that such documentation should either align with existing OP specifications (i.e., bringing additions) or where deviating, should propose changes to those specifications.
- CAMARA defines the APIs to be offered/consumed for accessing Operator services and can take in input from individual companies and groups like Open GW. It involves cooperation between the telco ecosystem and the customers of those services to ensure that they are fit for purpose.
 - As an independent group, CAMARA can make their own decisions.
- Commercial products implementing Open GW do not exist yet, partly because the CAMARA APIs to expose the services are not final yet.

Mark introduced the Open GW document repository on GitHub:

- The intention is to bring those documents as new PRD proposals or CRs to the existing PRDs to OPG once they are stable.
- The diagram in Open GW's chapter 6 focussing on aggregation does not align with the OP architecture that's part of the public presentations OP provided to other groups.
 - That's partly because the role of an aggregator as channel partner rather than as an enabler to facilitate an operator's OP deployment has not been covered by the requirements yet.
 - The roles of the parties in the diagram could change depending on the application, but the diagram itself is fixed for every application.
 - The definition of "federation" should be clarified on whether "aggregation and forwarding to the serving party" is a possible model/subset or a different approach.

11. MVP

Fabrizio presented the latest version of Whitepaper OP MVP Definition v0.3.docx. The meeting made online updates to the document. The terminology of Operator vs. Telco should align on the use of Operator.

The focus of the MVP should be on Edge:

- i.e., Support for Edge would be a requirement when supporting the MVP.
- Support for other services (i.e., NaaS) is being covered by Open GW already.
- This should be clarified in the scope.
- The goal should be to provide vendors with a view on what's essential for the initial deployments of OP/Edge.

Will there be a reference implementation to verify a vendor's compliance? That may be hard when there is no fixed NBI defined in CAMARA yet.

A drafting session will be organised on 24th October at 12:00 BST to progress the MVP document with this scope definition. A contribution on section 3.3 East west interface will be needed.

12. CAMARA Project Update

Eric Murray took the meeting through the CAMARA project using [CAMARA's introductory presentation](#) and [CAMARA's GitHub](#). The following was commented:

- "Network APIs" may have to be defined more broadly to cover Edge and other activities.
- Aggregation was presented as being simpler for the developer than API roaming even if at technical level it's mostly the same. The difference may be in less business agreements to be covered.
- API roaming and support for roaming subscribers might rely on similar mechanisms. Has that been considered? Not yet.
- Are there plans to test interoperability? CAMARA release compliance is being defined still.
- What is meant by cooperation with OPG? Mostly that involves contributions where there's reason to bring them.
- Who is contributing in CAMARA? The infrastructure to get a more detailed picture is being set up currently, but mostly it is operators and telco vendors.
- Is the definition of the transformation function in scope of CAMARA?
 - o It might be, but currently only example implementations are provided.
 - o Defining the transformation function may cause issues with IPR given that the APIs standardised by organizations like 3GPP will be provided under FRAND conditions.
 - o The CAMARA scope includes more than the pure APIs though (e.g., identify and consent). That are just topics that need to be defined globally as the concepts impact the different APIs.
- Is there a release concept across APIs to release new stable versions in a coordinated manner?
 - o Not as of now.
- When in the proposal process is an API checked for viability (e.g., a teleportation API proposal)?
 - o It is part of the backlog as that refers to operator implementations.
 - o Most API definition is left to the individual projects with the APIs that seem most relevant being followed closely.

13. AOB

The topic on feedback to the meeting was skipped due to lack of time.

Next meeting would be OPG#155, 31st October Virtual meeting.

F2F meetings for 2024

- o 11-14 March 2024: host to be announced shortly.
- o 3-6 September 2024: For Barcelona 25 release. Note bank holiday in US. Good to have a north American host.

A reminder was provided for the OPG Deputy chair election, where votes are due 18th October 23 at Noon BST.

#154 Call closed at 17:41 BST.

Action points log

Open action points

Action number	Description	Status	Notes

Closed action points

Action number	Description	Status	Notes

Decisions
