

**Source: ETSI Director-General**

**Title: Board consultation on ISG proposal of an ISG on 'Next Generation Protocols' (NGP)**

**Agenda item: 4**

**Document for:**

Decision	
Discussion	<b>X</b>
Information	

Late submission **X**

### **1 Decision/action requested**

***The Board is invited to provide the Director-General with any comments it may have so that he may approve the creation and move forward with the signing of the Agreements of the ISG NGP 'Next Generation Protocols'.***

### **2 References**

As stated in TWP 3.2 the creation of an ISG is the responsibility of the Director-General, in consultation with the Board. Therefore, the Director-General invites the Board to provide him with any comments it may have so that he may approve the creation and move forward with the signing of the ISG agreement.

### **3 Rationale**

The TCP/IP protocol suite has undoubtedly enabled the evolution of connected computing and many other developments since its invention during the 1970's. This ISG aims to gather opinions on how we can build on this momentum by evolving communications and networking protocols to provide the scale, security, mobility and ease of deployment required for the connected society of the 21<sup>st</sup> century.

The industry has reached a point where forward leaps in the technology of the local access networks (such as LTE-A, G.FAST, DOCSIS 3.1 and 5G) will not deliver their full potential unless, in parallel, the entire infoComms protocol stacks evolve more holistically. The purpose of this ISG is to review the future landscape of Internet Protocols, identify and document future requirements and trigger coordinated follow up activities. The driving vision is a considerably more efficient Internet that is far more attentive to user demand and responsiveness - whether "the user" is human or millions of things. The prize is to remove the anchor drag of historic sub-optimised IP protocol stacks and allow all the next generation networks to inter-work in a way that accelerates a post-2020 connected world unencumbered by past developments.

This ISG is foreseen as having a transitional nature i.e. a vehicle for the 5G community (and others of interest) to first gather their thoughts together and prepare the case for the Internet community's engagement in a complementary and synchronised modernisation effort. Therefore the ISG aims to stimulate closer cooperation over standardisation efforts for generational changes in communications and networking technology.

The ISG shall consider the requirements across the range of network segments and interconnects (including peering and transit) as highlighted in the diagram below. Consideration shall be given to an evolved end to end Internet model as we have today along with opportunities for 'breaking the current rules' to enable new architectures which allow optimisation of network performance and applications.

The ETSI members supporting this proposal ('founding members') are:

- BBC
- BSI – British Standards Institution
- CCSR (University of Surrey)
- Fujitsu Laboratories of Europe
- Huawei Tech. (UK) Co., Ltd
- Imagination Technologies Ltd.
- Samsung R&D Institute UK
- TELEFONICA S.A (Spain)

The main differences with respect to the normal TWP rules are (Definition: "ISG NGP Member(s)" = ETSI Full/Associate members and applicants for Full/Associate membership who have signed the ISG NGP Membership Agreement)

- One vote per ISG NGP Member
- Founding members acquire voting rights from the very beginning.
- ISG NGP Members keep voting rights if they have participated in at least 1 of the 2 preceding meetings.
- Non-member participation (subject to signature of an ISG NGP Participant Agreement) will be charged on the basis of 100.- Euros per person per meeting day in 2016 and increased to 200.- Euros per person per meeting day from 2017 onwards.
- Non-member participation will be terminated if the participant has not participated in at least 2 meetings of the ISG in a 6 months period.
- The term of chairmanship is 1 year.

The full proposal is attached.

If you have any specific questions please contact Gaby Lenhart directly ([gaby.lenhart@etsi.org](mailto:gaby.lenhart@etsi.org)).

**From:** Founding members of an ISG on ‘Next Generation Protocols’ (NGP)

**To:** ETSI Director General

**Subject:** Terms of Reference of the Industry Specification Group on ‘Next Generation Protocols’ (ISG NGP)

*The Director-General is requested to approve the creation, Terms of Reference, and Membership Agreement for an ISG NGP; and to appoint Andy Sutton (CCSR (University of Surrey)) as Convenor for the first meeting.*

**1 References**

TWP clause 3	Operation of Industry Specification groups
TWP clause 3.2	Creation and Termination of an Industry Specification Group
TWP Annex D 3	Requirements for an Industry Specification Group

**2 Rationale**

The TCP/IP protocol suite has undoubtedly enabled the evolution of connected computing and many other developments since its invention during the 1970’s. This ISG aims to gather opinions on how we can build on this momentum by evolving communications and networking protocols to provide the scale, security, mobility and ease of deployment required for the connected society of the 21<sup>st</sup> century.

The industry has reached a point where forward leaps in the technology of the local access networks (such as LTE-A, G.FAST, DOCSIS 3.1 and 5G) will not deliver their full potential unless, in parallel, the entire infoComms protocol stacks evolve more holistically. The purpose of this ISG is to review the future landscape of Internet Protocols, identify and document future requirements and trigger coordinated follow up activities. The driving vision is a considerably more efficient Internet that is far more attentive to user demand and responsiveness - whether “the user” is human or millions of things. The prize is to remove the anchor drag of historic sub-optimised IP protocol stacks and allow all the next generation networks to inter-work in a way that accelerates a post-2020 connected world unencumbered by past developments.

This ISG is foreseen as having a transitional nature i.e. a vehicle for the 5G community (and others of interest) to first gather their thoughts together and prepare the case for the Internet community’s engagement in a complementary and synchronised modernisation effort. Therefore the ISG aims to stimulate closer cooperation over standardisation efforts for generational changes in communications and networking technology.

The ISG shall consider the requirements across the range of network segments and interconnects (including peering and transit) as highlighted in the diagram below. Consideration shall be given to an evolved end to end Internet model as we have today along with opportunities for ‘breaking the current rules’ to enable new architectures which allow optimisation of network performance and applications.



Figure 1: Network segments and interconnects (including peering and transit)

### **3 Terms of Reference for ETSI ISG NPG [TWP D.3, Part Aa]**

#### **3.1 Scope**

NGP ISG is intended to identify the requirements for next generation infoComms protocols and where appropriate, network architectures, from all interested user and industry groups. The goal is to formulate a series of Group Specifications which focus on documenting the state of the art in future Internet research and proposals, recap what issues those proposals try to resolve and which requirements they try to meet and identify where the shortcoming exist or are likely to emerge. The scope also includes describing the requirements of evolving access network technologies and identify which communities appear to be already working on such new requirements and could be important stakeholders to engage or coordinate with and identify any gaps.

Topics will include the following:

1. Addressing
2. Security, Identity, Location, Authorization, Accounting/Auditing and Authentication
3. Mobility
4. Requirements from Internet of Things
5. Requirements from video and content distribution
6. Requirements from ultra-low latency use cases from different sectors (i.e. automotive)
7. Requirements from network operators (e.g. challenges with E2E encrypted content)
8. Requirements from eCommerce
9. Requirements for increased energy efficiency within the global ICT sector

The ISG will provide a forum for interested parties to contribute to its goals by sharing research and results from trials and developments in such a way that a wider audience can be informed of the future challenges. The deliverables will include a summary of relevant technologies, architectures and protocols under research, including an assessment of their maturity and practicality for start of implementation in the 2020 timeframe. Requirements from key technology areas (i.e. 5G and IoT) along with a business case or cases (i.e. the cost benefits of increasing the efficiency of applications and protocols over cellular radio spectrum) will justify the consequential need for follow-on standardisation effort in other organisations. Additionally a set of goals and an action plan to engage other standards groups, such as the IETF, IEEE, 3GPP etc. will be developed so that parallel and concerted standardisation action can take place in the most appropriate standards group.

#### **3.2 Membership**

Membership is restricted in accordance with Clause 3.4 of the ETSI Technical Working Procedures to ETSI Full/Associate members and applicants for Full/Associate membership [hereafter "ISG NPG Member(s)], who have signed the ISG NPG Membership Agreement.

Observers and non-members of ETSI may participate in the ISG according to the rules as described in the ISG NPG Participant Agreement (see clause 3.7.1 below). Participation of non-members of ETSI [hereafter "ISG NPG Participant(s)] is subject to signature of the same ISG Participant Agreement, and payment of a per-meeting participation fee as described in the ISG Participant Agreement.

ISG NPG Member(s) and ISG NPG Participant(s) together will be defined as ISG NPG member(s).

#### **3.3 Dues**

Dues for membership and operation are fixed on an annual basis by the ISG NGP members, based on the costs the ISG NGP members anticipate to incur. Currently, no or minimal annual dues are anticipated.

### **3.4 Duties and Rights of Members**

ISG NGP Members and ISG NGP Participants have the duty to constructively cooperate in compliance with all applicable competition law rules on the development of ISG Group Specifications within the scope of the ISG as described in 3.1.

ISG NGP Members have the right to cast their vote on the approval of a Group Specification when necessary, and in other instances when decisions by the ISG NGP Members are required. ISG NGP Members have the right to appeal directly to the ETSI Board to challenge a Chairman's decision and shall inform the ISG Chairman and the ETSI Director-General beforehand.

### **3.5 Participant Fee**

The ISG NGP Participant shall pay to ETSI a per-meeting attendance fee amounting to €100.- (excluding taxes) per delegate per meeting day in 2016. These fees will be increased by ETSI to €200.- (excluding taxes) per delegate per meeting day from January 1<sup>st</sup>, 2017 onwards.

### **3.6 Preparation of Group Specifications**

Group specifications are prepared within the ISG NGP or within specific working groups. Working groups are chaired by working group chairs, who are appointed according to the rules of operation of the ISG. All draft specifications should be approved by Consensus by the ISG NGP members according to the rules of operation of the ISG. In case Consensus cannot be achieved then article 3.7.3 applies. If a specification is prepared in a working group and fails to be approved by the ISG NGP members, it is referred back to the working group.

### **3.7 Detailed deviations from the ETSI Technical Working Procedures (TWP)**

In the following, deviations from the applicable ETSI TWP as agreed by the ISG NGP Members, are stipulated.

Section 3.7 is included in these Terms of Reference only for information as the prevailing document in respect of changes to the TWP is the ISG NGP Membership Agreement.

#### **3.7.1 Participation in the work of the Industry Specification Group (extension of TWP 3.4)**

Observers or non-members of ETSI must agree to and sign the ISG NGP Participant Agreement in order to be authorized to participate. The ISG NGP Participant Agreement will be terminated if the ISG NGP Participant has not participated in at least 2 meetings of the ISG NGP in a 6 months period, or if there are not 2 meetings in a 6 months period but only in a longer period, if the participant has not participated in 2 meetings of the ISG NGP in such longer period. A revocation notice under article 9.1 (c) of the ISG NGP Participant Agreement is sent to the ISG NGP Participant in this case. The ISG NGP Chairman will periodically review the participation record of authorized ISG NGP Participants.

Access to meeting documents, mailing lists etc. will be removed from authorized ISG NGP Participants if they fail to participate in, or register and pay participation fees for 2 successive meetings in the time period mentioned above.

**3.7.2 Convening an ISG meeting (TWP 3.5)****3.7.2.1 Invitation to an Industry Specification Group meeting (TWP 1.5.1)**

The invitation to an Industry Specification Group meeting and the necessary logistical information shall be disseminated by the hosting organization at least 21 days before the meeting to all on the Industry Specification Group membership list (see clause 3.7.2.5).

The first meeting of a new Industry Specification Group will be announced in a Collective Letter, with at least 30 days notice, by the ETSI Secretariat.

**3.7.2.2 Agenda for an Industry Specification Group meeting (TWP 1.5.2)**

The draft agenda shall be disseminated by the responsible Chairman to all on the Industry Specification Group membership list at least 21 days before a meeting. The draft agenda shall include details of draft ETSI Group Specifications for approval and officials for appointment. Any other subject matters where voting may be required shall also be included and indicated in the draft agenda.

The draft agenda for the first meeting of a new Industry Specification Group will be announced in a Collective Letter, with at least 30 days' notice, by the ETSI Secretariat.

**3.7.2.3 Documentation for an Industry Specification Group meeting (TWP 1.5.3)**

Documents shall be numbered as shown in the following example:

**ETSI/NGP(nn)x**

This numbering system has three logical elements:

- 1) **ETSI:** to indicate that it is an ETSI document;
- 2) **NGP:** the name of the Industry Specification Group or related Working Group;
- 3) **(nn):** to indicate the year, e.g. (15);
- 4) **x:** to indicate any additional information concerning the unique number of the document or its status, etc

**3.7.2.4 Registration for an Industry Specification Group meeting (TWP 1.5.4)**

Every attendee shall register prior to the meeting using the Meetings Application on the ETSI Portal or on arrival at the meeting. Where registration is made on arrival at the meeting each Attendee representing an ISG NGP Member or ISG NGP Participant shall declare the precise name of that ISG NGP Member or ISG NGP Participant. An Attendee may only represent one ISG NGP Member or one ISG NGP Participant.

**3.7.2.5 Maintaining an Industry Specification Group membership list (TWP 1.5.5)**

The NGP Industry Specification Group shall maintain a membership list within an email exploder list established specifically for that purpose. Any individual may join this email exploder list if he/she is a representative of a legal entity that has signed an ISG NGP Member or Participant agreement and has an ETSI server user account, and those who join this email exploder list will be considered as being on the Industry Specification Group membership list. Without prejudice to article 3.7.1 above, failure to reconfirm the intention to remain on the email exploder list at regular intervals (lists are normally reviewed every six months) will result in removal from this email exploder list and thus from the Industry Specification Group membership list.

The Industry Specification Group membership list shall be used for the dissemination of information and for decision making within the Industry Specification Group.

**3.7.3 Decision making (TWP 1.7 and TWP 3.7)****3.7.3.1 Principles of decision making (TWP 1.7.1)**

The ISG NGP shall endeavour to reach Consensus on all issues, including the approval of draft ETSI Group Specifications. If Consensus cannot be achieved, the Chairman can decide to take a vote which may be performed by a secret ballot. A vote may be conducted during an ISG NGP meeting or by correspondence.

Where voting is used, vote results shall be evaluated by the Chairman on the basis of one ISG NGP Member, one vote. ISG NGP Participants do not have the right to vote.

Decisions concerning (i) the ISG NGP budget under Article 3.1(b) of the ISG NGP Member Agreement, (ii) Additional Costs under Article 3.1(c) of the ISG NGP Member Agreement, and (iii) the allocation of costs among ISG NGP Members under Article 3.2 of the ISG NGP Member Agreement, require unanimous support. For all other decisions, except for the appointment of officials of the ISG NGP, a proposal shall be deemed to be approved if 71 % of the votes cast by the ISG NGP Members are in favour. Abstentions or failure to submit a vote shall not be included in determining the number of votes cast.

**3.7.3.1.1 Voting during an ISG NGP meeting (TWP 1.7.1.1)**

The following procedures apply for voting during an ISG NGP meeting:

- before voting, a clear definition of the issues shall be provided by the chairman;
- voting ISG NGP Members shall only be entitled to one vote per ISG NGP Member;
- if a voting ISG NGP Member has more than one representative present, only one representative may vote;
- if manual voting procedures are used, each voting ISG NGP Member may only cast the vote once; if electronic voting procedures are used, votes may be changed prior to the closure of the vote;
- ISG NGP Members are only eligible for voting (voting members), if they have been present during at least 1 out of the previous 2 meetings;
- Founding members of the ISG NGP as identified in the ISG Agreement shall be eligible to vote during and up to the end of the first 2 meetings following the creation of the ISG. Thereafter they are subject to the above participation requirements as for all other ISG NGP Members;
- voting by proxy is not permitted;
- there are no quorum requirements;
- the voting weight shall be 1 per voting ISG NGP Member;
- the result of the vote shall be recorded in the meeting report.

**3.7.3.1.2 Voting by correspondence (TWP 1.7.1.2)**

The following procedures apply for voting by correspondence:

- before voting, a clear definition of the issues shall be provided by the Chairman and disseminated to all on the ISG NGP membership list;
- the voting period shall be defined by the ISG NGP Chairman and communicated to all on the ISG NGP membership list;
- ISG NGP Members are only eligible for voting (voting members), if they have been present during at least 1 out of the previous 2 meetings;
- Founding members of the ISG NGP as identified in the ISG Agreement shall be eligible to vote during and up to the end of the first 2 meetings following the creation of the ISG. Thereafter they are subject to the above participation requirements as for all other ISG NGP Members;
- voting members shall only be entitled to one vote per ISG NGP Member;
- electronic voting only shall be used for voting by correspondence;
- votes may be changed prior to the closure of the vote;
- the voting weight shall be 1 per voting ISG NGP Member;
- there are no quorum requirements;
- at the end of the voting period the Chairman shall count the votes as described in clause 3.7.3.1 above;

- the result of the vote should be disseminated to everybody on the ISG membership list within 15 days.

#### **3.7.3.1.3 Voting for the election of an ISG NGP official (TWP 1.7.1.3)**

For the purpose of electing any ISG NGP official the procedures given in clauses 3.7.3.1, 3.7.3.1.1 and 3.7.3.1.2 shall apply.

In the case where there is more than one candidate, a secret ballot shall be used. For interpreting the result of an election for an ISG NGP official the candidate obtaining the highest number of votes in the ballot is elected.

In addition to performing its task in strict impartiality and in the interest of ETSI, the ISG NGP Chairman shall be responsible for the voting process and shall ensure that confidentiality is maintained.

If the vote is conducted during an ISG NGP meeting only the final result shall be recorded in the meeting report.

If the vote is conducted by correspondence only the final result of the vote shall be disseminated.

#### **3.7.3.2 Appealing against a Chairman's decision (TWP 1.7.2)**

Any ISG NGP Member who is against the Chairman's ruling on a vote may submit its case to the Board for decision. In such cases the ISG NGP Member shall also inform the Industry Specification Group Chairman and the ETSI Director General beforehand.

When the Industry Specification Group Chairman has made a ruling, his decision shall be taken as the basis for future operations, unless overturned by the Board.

## **4 ETSI field of interest [TWP D.3, Part Ab)].**

The ETSI field of interest is developing relationships and harmonised action plans with other standards bodies on next generation protocols.

## **5 Why any overlapping or complementary elements (with reference to existing work or Terms of Reference of any existing Technical Committee or Project) is regarded as desirable [TWP D.3, Part Ac)]**

The work of the ISG NGP would be complementary with existing work in ETSI. There is no known overlapping with any ongoing work in ETSI.

## **6 Time plan [TWP D.3, Part Ad)]**

The ISG NGP intends to hold an initial meeting within 12 weeks of formation to appoint the Chairman. The ISG NGP intends to meet thereafter in person or by teleconference to produce Group Specifications.

After 2 years, ISG NGP will make proposals on how to evolve the ISG NGP's future activities:

- close the ISG,
- or transfer and continue the work in an existing Technical Body meaning that all ISG NGP Participants would be required to become ETSI members and that the ISG NGP voting rule would be changed to the ETSI Directive TC weighted vote rule,
- or create a new Technical Body (new WG in a TC, new TC, new EP or new EPP)
- or continue in ISG NGP for an extended period with revised Terms of Reference.

## **7 Chairmanship [TWP D.3, Part Ae]**

Andy Sutton as representative of CCSR (University of Surrey) has accepted to stand as convenor for the first meeting. The Collective Letter announcing the first meeting will include a call for candidates for the Chairmanship. If it is not possible to appoint a permanent Chairman at the first meeting then the meeting shall appoint a convenor for the second meeting. The term of chairmanship is 1 year.

## **8 Resource requirements [TWP D.3, Part Af]**

No resource requirements, beyond the "basic administrative support" provided by the ETSI Secretariat to ISGs, have been identified. Further resource requirements may be identified from time to time by the ISG NGP members, who will decide on the funding arrangements as required.

## **9 ETSI Secretariat resources [TWP D.3, Part Ag]**

"Basic administrative support" will be provided by the ETSI Secretariat, e.g.:

- info/meeting/document handling area on the ETSI Portal.
- document storage area on the ETSI DOCBOX server.
- e-mail lists provision
- entry of the Work Items into the WPM database .
- processing/publication of ETSI Group Specifications (providing they have respected the ETSI Drafting Rules).
- a support officer will be allocated to provide guidance and assistance to the ISG.

Support for meetings will be provided when the meeting is held at the ETSI Headquarters, e.g.:

- meeting rooms in ETSI premises.
- meeting support for invitations, badges, etc. in ETSI premises.
- tea/coffee in ETSI premises.

Meetings held outside of the ETSI Headquarters shall be supported by the hosting ISG NGP member organization.

## **10 ISG membership agreement [TWP D.3, Part Ah]**

See separate ISG NGP Agreements (Member Agreement and Participant Agreement).

## **11 ETSI full and/or associate members having declared their willingness to provide resources [TWP D.3, Part Ba]**

The following ETSI members ('founding members') have indicated that they are willing to provide resources to support the work of this ISG NGP:

- BBC
- BSI – British Standards Institution
- CCSR (University of Surrey)
- Fujitsu Laboratories of Europe
- Huawei Tech. (UK) Co., Ltd
- Imagination Technologies Ltd.
- Samsung R&D Institute UK
- TELEFONICA S.A (Spain)

**12 Planned deliverables and their delivery dates shall be identified [TWP D.3, Part Bb)]**

At the point of writing this proposal no specific deliverables have been planned.

**13 Internal organization [TWP D.3, Part Bc)]**

No internal organization or Working Groups have yet been identified. This will depend on the results of the initial work of the ISG.

**14 Any committee/project-external ETSI resources required (i.e. outside those provided by the Industry Specification Group participants) shall be specified [TWP D.3, Part Bd)]**

No additional resources required.

**15 Maintenance arrangements for deliverables shall be specified [TWP D.3, Part Be)]**

The maintenance of any deliverables will be assured by the ISG. At the end of the work the ISG shall define the follow-on responsibility for any required maintenance.

**16 The relationship with ETSI Technical Organisation shall be specified (i.e. list the interfaces between the ISG and ETSI TBs) [TWP D.3, Part Bf)]**

Initially liaisons are envisaged with the following entities:

- ETSI ISG IP6
- ETSI ISG NFV
- ETSI ISG MEC
- ETSI TC Cable
- ETSI TC NTECH
- ETSI TC ATTM
- ETSI TC LI
- ETSI TC CYBER
- 3GPP

Other liaisons with external organisations include:

- IEEE
- IETF