Summary Notes from the Joint Workshop: ETSI-AFI and ITU-T SG2/WP2; SG13/Q16; SG15/Q14: 22nd October 2013: 14:00 – 17:00

Standardization of Network Resilience & Survivability, Recovery, Autonomic Fault-Management and Autonomic Security Management in Evolving & Future Networks

ETSI AFI participants:

Ranganai Chaparadza: co-moderated the workshop with Zhili Wang (SG2 WP2 chair)
Tayeb Ben Meriem
Michal Wodczak (presenter)
Benoit Radier
Others had intended to join but could not make it.

ITU-T SG2, SG13, SG15 participants/representatives:

Zhili Wang and his colleagues from SG2/WP2
Lam Hing-Kam (SG15/Q14);
Gyu Myoung Lee (SG13/16);

Invited persons from technical areas related to the topics:

Invited presenter: *Burcu Barla Isil: Nokia Solutions Networks, TU Munich*
Invited presenter: *Jan Der Meer (SmartspaceLab)*, could not make it, will present in the next workshop

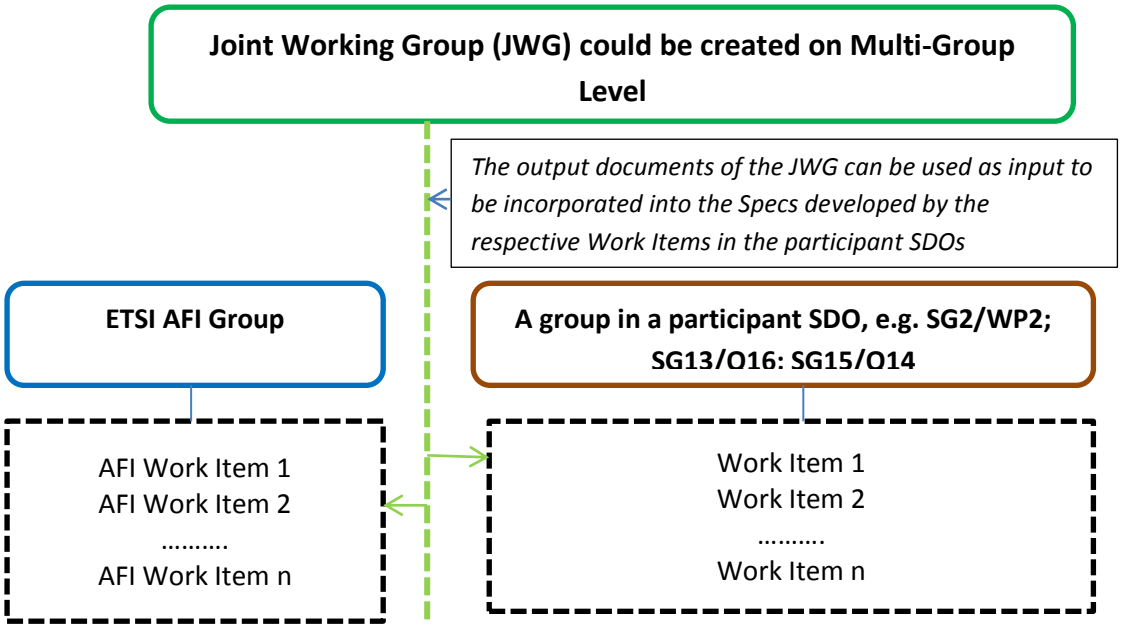
Summary of the main points

- We summarized the discussions of the previous workshop and the items we already identified as useful towards the contributions to *Standardization of Network Resilience & Survivability, Recovery, Autonomic Fault Management and Autonomic Security Management*. Zhili had circulated the presentations of the previous workshop to SG13/Q16 and SG15/Q14, and invited them to this second workshop. AFI indicated that there is already a general Liaison established with SG13 (including the Q14 particularly) and it relates to the GANA Reference Model application/instantiation in the SG13' FN architecture through the envisaged Y.AMNSA Framework, and that the topic of Resilience and Autonomic Fault-Management will add to the topics of collaboration with SG13 as well, apart from collaboration initiated with SG2 and SG15.

- We will continue the joint workshops but we discussed the best approach to bring the various groups to work together on the area and produce some documents that can be shared by the groups and can be incorporated into the Specs in ETSI AFI and/or the ITU-T Study Groups.

- The proposal communicated by Tayeb from AFI is to go for the facilitation that is possible under the NGMN through the Multi-SDO initiative, in creating space for joint work that can

be carried out by multiple SDOs together via the instrument of Joint Working Group (JWG). SG2 WP2 had proposed an idea of using a Focus Group, but since this would take long to setup we agreed to go for the Joint Working Group facilitation that the Multi-SDO provides under NGMN. The following diagram illustrates how the contributing Groups (AFI and SG2, SG13, SG15, any other interested group) can benefit from working together in a JWG. The output of the JWG work (some documents) can be taken as input by each of the contributing SDOs, and each of the groups can incorporate some of the JWG output documents' contents into their respective Specifications in their SDO Work Items. This proposal is yet to be introduced and discussed during the Multi-SDO meeting and we will get feedback on when and whether such a JWG could be created or not. Some of the aspects that will be covered in the JWG on Multi-SDO level will be of relevance to SG2, and some aspects will be of relevance to SG13 and some aspects will be of relevance to SG15, but as for AFI, all the aspects in the JWG will be relevant to the AFI Work Items, since AFI will be helping in leading on the big-picture in general.



- Following the presentation from Burcu on characterization of Algorithms for Network Resilience (Multi-Layer Resilience), the following points were concluded:
  1. The AFI GANA Reference Model defines the "Autonomic Functions" (called Decision Elements (DEs)) through which Algorithms can be inbuilt by design or orchestrated by the respective DEs that are meant to realize Autonomic Resilience & Survivability, Autonomic Fault-Management and Autonomic Security Management in particular node and network architectures. How to design the respective DEs in such a way that they can selectively employ some algorithms that best suit a given resource topology and network dynamics (including emergent network structures) is a subject of interest in the work on "empowering" the network with algorithmic schemes that can be dynamically employed by the autonomic network. The subject will be discussed during the work items activities
  2. The algorithms that are applicable at design time for design for resilience (e.g. while doing network planning) could be used in designing the respective DEs such that the autonomic network can use the same algorithms in automatically creating the designed resource topology structure that guarantees desired resilience properties.
  3. There are Algorithms for Resilience that fundamentally should be employed by the respective DEs during the operation of the autonomic network based on the autonomic network's learning capabilities

- Following the presentation by Michal from AFI, the following points were concluded:
    1. Michal will share the Journal paper describing some components that were prototyped in the EC funded EFIPSANS FP7 project w.r.t. Autonomic Resilience & Survivability, Autonomic Fault-Management and Autonomic Security Management
    2. Michal also suggested a follow up presentation that will go into specific aspects of the prototyped GANA based architecture for Autonomic Resilience & Survivability, Autonomic Fault-Management and Autonomic Security Management.
    3. Tayeb will also share the deliverable from FP6 EC project on Network Resilience/Survivability

Next Steps

- We plan to organize **Workshop #3 in November 2013** to continue our discussions and to get feedback from NMGN Multi-SDO on when the JWG could be launched on the topics.
  Some presentations in Workshop #3 include: **Presentation on Middleware based approach to network resilience** [Jan der Meer, SmartspaceLab]

- The potential Work Items to be targeted include Semantic Alarm Models, EFPMs and Tools to build the models, as well as architectural aspects from the 6 Items identified by the AFI DRCN paper as potential for standardization. For example, the following Work Item could be launched (proper phrasing will be discussed): ***A Framework and Requirements for constructing Semantic Alarm Models to enable Automated/Autonomic Network & Services Management***
- The ETSI AFI work items to be launched will be inspired by the AFI DRCN 2013 paper, which defines the GANA Functional Blocks that are meant to implement Resilience & Survivability, Autonomic Fault-Management and Autonomic Security Management when instantiated in a particular architecture (node and network architectures). A summary of the *6 Items identified by the AFI DRCN 2013 paper as potential for standardization* will continue to guide.