NMRG 47th meeting
co-located with IEEE NOMS 2018, Taipei, Taiwan
NMRG Chairs: Lisandro Granville (UFRGS) and Laurent Ciavaglia (Nokia)
Tuesday, April 24th, 16:00-18:00 (Taiwan time)

Participants: 24 (see blue sheets)

Agenda:
1.Meeting introduction, NMRG chairs (5min.)
Laurent presented an overview of the NMRG scope, mission, meetings, research topics, and recent activities.

2. Autonomic networking retrospective, Laurent Ciavaglia, NMRG co-chair (10 min.)
Laurent presented an initial work done with Jéferson and Lisandro on on historical perspective of autonomic networks comprising research and standards. The analysis tries identifying gaps and potential research directions considering new technologies (MEC, NFV, SDN…) or new environments (5G, IoT…).
Q Alex C.: clarify the goal of the effort.
A Laurent: identify gaps (diff. from RFC 7575/7576 and ANIMA) and areas where research can be done.

3. 5G Networks must be autonomic, Sven van der Meer, Ericsson (15 min.)
Sven presented issues for the management of 5G networks stressing missing standardized and simple models for resource, network, service, coordination; etc. and missing abstractions for e.g. control loops.
Q Alex C.: now some YANG models describing L2/L3 services.
Q Alex G.: not only data models needed, but most importantly common IM fit for the purpose of the autonomic networks (e.g. semantics).
Q Laurent: wouldn't the common denominator of generic resource model be too small to be meaningful and usable?
Q Alex C.: a useful point for the multiple models would be to be mappable to workflows as currently the various models are fragmented and there is no simple/documented way currently available.

4. Intent based networking, concepts and definitions, Alexander Clemm, Huawei (15 min.)
Alex C. presented a progress status on the IBN topics (incl. 2 IDs).
Q Alex G.:
-Policy systems are not widely used because the over time the management of the policy system becomes more complex than the managed system. Suggestion to ass scalability in the list of issues to investigate in this effort.
-A monolithic approach will not work and is difficult to be adopted in running/evolving systems. Need to fragment the approach.
-Networks are multi-domain and non-uniform. Need to consider these aspects in the effort from the start.

5. Exploiting external event detectors to anticipate resource requirements for the elastic adaptation of SDN/NFV systems, Pedro Martinez-Julia, NICT (15 min.)
Pedro presented on the inclusion of external events in the control-loop of network management to improve the response of the system such as better resource requirements anticipation and provisioning.
Q Alex G.: suggestion to add also service parameters/events in the sensing functionality.

6. Multi-MANO interworking for the management of multi-domains networks, Alex Galis, UCL (15 min.)

Alex G. presented work done at UCL on the integration of single domain NFV orchestrator (SONATA project) and multi-domain orchestrator (5GEx project) and lessons learned from this work, identifying some gaps, open issues and priorities.

7. Towards data-driven management, Kohei Shiomoto, TCU (15 min.)
--> cancelled due to agenda conflict.

8. Analytics and security monitoring, Jerome Francois, INRIA (15 min.)
Jérôme presented work done in the HSL at INRIA comprising the use of AI/ML techniques to improve insights and security responses, suggesting to develop more largely network-dedicated toolbox for AI/ML, define better metrics, features and algorithms.

9. Converging SDN and NFV at the network edges: the lightMANO approach, Roberto Riggio, Create-Net / FBK (15 min.)
--> cancelled due to agenda conflict.

10. Open discussion:
   - Discussion for next steps on research items 4, 5, 6, 7, 8, 9
   - Gaps, challenges, and propositions for an actualized road-map towards next generation autonomic networking (items 2 and 3)
--> very limited time left for the discussion.
In summary, future actions will be to:
      + Extend the Autonomics 2.0 item with further inputs (e.g. Sven) and propose an I-D to document the gaps and potential research items.
      + Continue progress on the IBN work including remarks from the meeting.
      + Further discuss, clarify and evaluate the new propositions (Pedro, Alex G., Jérôme) and how they could create new research items for the NMRG.

Next meeting will be co-located with IETF 102, Montreal, Canada, in week 15-20 July 2018.

11. Demo Multi-MANO interworking, Alex Galis, UCL
--> cancelled due to time limit.