THE ROLE OF STANDARDIZATION

FIA Athens 2014

Session: TRANSPORT SOFTWARE DEFINED NETWORKING

Basic Requirements for Standards

- Standards must free for download to everybody

- IPR Policy defining obligations to inform users of standards about Essential IPRs

- FRAND IPR policy is strongly recommended
  - **F**air
  - **R**easonable
  - **A**nd
  - **N**on-
  - **D**iscriminatory

- details in SR 000 314

Why Standardization Matters

- Standardization contributes to consumer confidence

- Standardization lowers the burden of evolution and maintenance, supported by industry

- Products are commercialized faster by
  - Exploiting already existing research results
  - discovering and feeding back technical issues into research
  - avoiding full manufacturing of interim development steps

- Standardization focuses investment into research for certain issues

- Standardization improves technologies and products through multiple feed-back

- Products reach global markets

- Standardization ensures interoperability

- Standardization ensures backward compatibility

SDN and NFV, possible solutions

ETSI

Software Defined Networking (SDN)

- *Approach to networking where **control** is **decoupled** from **hardware** and given to a **software application** called a **controller.***

- *Allow network engineers and administrators to **dynamically configure networks remotely** from a **central control** point*

- *Reduces the need for physical intervention in the network*

- *Reduces delay and cost on intervention*

Network Functions Virtualisation (NFV)

- ***Decouples** the **network functions**, such as network address translation (NAT), firewalling, domain name service (DNS), caching, etc., from **proprietary hardware** appliances,*

- ***Network functions** run as **software** installed on **high-volume service, switch and storage hardware***

- *Reduces need for dedicated (expensive) hardware, and the operating costs*

- *Networks are more agile and responsive*

SDN with NFV

- *NFV and SDN are highly complementary, they are mutually beneficial but not dependent upon each other (NFV can be deployed without SDN and vice-versa)*

SDN in ETSI NTECH/AFI

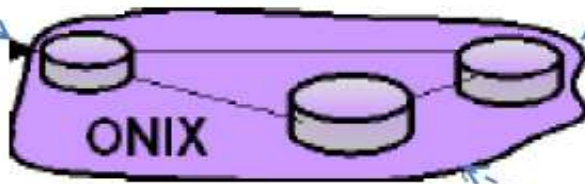GANA (Generic Autonomic Network Architecture) reference model
ETSI GS AFI 002

New Work Item to analyze the impact of new and emerging technologies on the GANA reference model

- Instantiations

- propose resulting enhancements and/or modifications

- considered technologies comprise (but is not limited to)
    - Cloud computing/networking
    - Network Function Virtualization (NFV)
    - Software Defined Network (SDN)
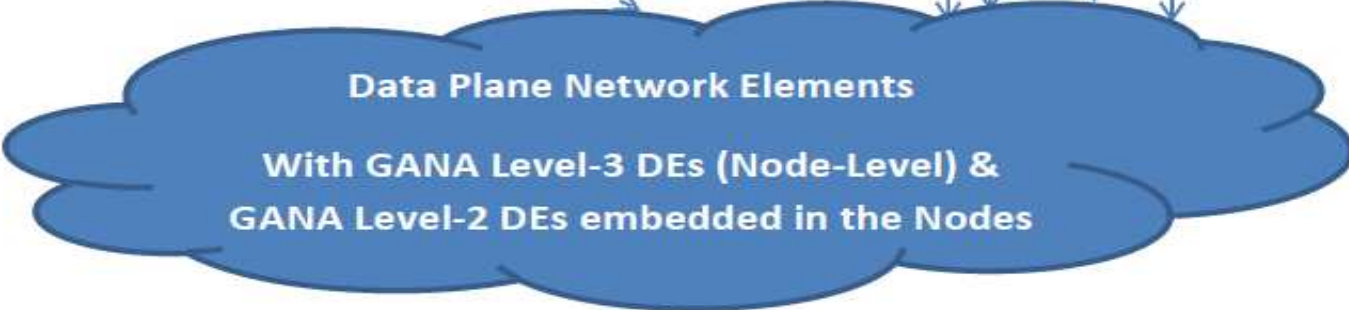   - converged management of fixed and mobile networks

Network-Level-DEs of the GANA Knowledge Plane (with inter-DE Coordination Functions)

Network-Level-DE e.g.
Net-Level-DataPlane-and-Forwarding-Management-DE

Network-Level-DE

Network-Level-DE e.g.
Net-Level-Security-Management-DE

API i.e.
Northbound API

SDN Controller

MBTS Libraries

ONIX

API i.e. Southbound API
Multiple Protocols:
OpenFlow; SNMP; NetConf;
TR069; CMIP; COPS; etc

Data Plane Network Elements

With GANA Level-3 DEs (Node-Level) &
GANA Level-2 DEs embedded in the Nodes

Future SDN Topics for Standardization ETSI

3rd ETSI workshop on Future Network Technologies, 2013 identified needs for:

- standardized integration of virtualisation and programmability methods for use and operation on all connectivity, storage and processing resources under new autonomic management interacting with control systems for provisioning of on-demand networking services and applications

- what are and how to create the conditions for continuous updating and changing of networking functions without reinventing architectural aspects and related components (e.g. Softwarization of Future Networks and Services)

Ref. 3rs ETSI workshop on Future Network Technologies, eProceedings 2013, ISBN 979-10-92620-00-9, editors Galis A., Lenhart G.

ETSI and ONF

- 19.03.2014 ETSI & ONF announced strategic partnership

- NFV architecture is supported by SDN and benefits from ONF's work with the OpenFlow™ protocol

- explore how SDN can enable forwarding-plane support for some of the most important NFV use cases

  - Collaboration on the means to build dynamic, programmable Virtualized Network Function (VNF) forwarding graphs

  - Proofs of conceptss that employ both NFV and SDN and showcase

- Press release: http://www.etsi.org/news-events/news/764-2014-03-onf-and-etsi-announce-strategic-collaboration-for-sdn-support-of-nfv

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Thank you!