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NFV

Cloud Standard Coordination Workshop

January 28th 2016, Brussels

Vision and high level expectations

SCALE LIKE:

Google

MANAGE DATA LIKE:

HAVE THE AGILITY OF:

amazon.com

Cloud, NFV and SDN are perceived as key tools by the Services Providers to compete against the Internet players

What do we want to achieve with NFV?

Business agility

- Low entry investment for market-trial of new service vs multi year business case
- Fast scaling of successful services, removal of other services eliminating the risk of stranded assets
- Reduce time-to-market: fast launch of new services at low risk and cost
- Innovative ecosystem and open competitive landscape: fostering innovation that could enable service providers to catch up with very agile Internet companies

OPEX saving

- Shared HW allows sharing spare pools and on- site operation
- Shared life cycle management, shared processes
- Automation of shared processes versus multiple manual processes
- Automated healing allowing to drop expensive HW repair SLA

CAPEX saving

- Separation of HW and SW procurement
- Sourcing of shared COTS HW and I&C services leveraging vendor volume
- Sourcing of VNF SW-only solution from new entrants / Open Source
- Sourcing of VNF capacity license on demand
- High asset utilization

ETSI NFV : Recent History, Short Recap

Until 2012

Tens of organisations addressing Cloud standardisation.

New organisations created, existing ones claim to address piece of Cloud.

No one place to address Telco requirements

The Idea in 2012

NFV Whitepaper#1 published in October 2012 by 13 network operators.

Network Functions Virtualisation (NFV) Concept introduced.

Intent to bring in operators, network vendor, IT companies, smaller sw companies.

ETSI NFV ISG formed

The formation NFV Industry Specification Group (ISG) announced in January 2013.

To achieve industry consensus on business and technical requirements for NFV.

Output documents are openly published and shared with relevant standard bodies.

Nokia is involved in and is a committed contributor to ETSI NFV from the beginning in January 2013.

ETSI NFV Phase 1

Operator-led Industry Specification Group (ISG)

Operators: 33+

Companies: 226+

Scope:

- Pre-standardization works: White papers addressing challenges and operators requirements, use cases, architectural framework, as input to standardization bodies.

Accomplishments:

Published 4 NFV Framework documents:
Use Cases, Requirements, E2E Architecture and Terminology

Published 13 Group Specifications (GS) from 6 Working Groups
Multiple Proof of Concept (PoC) and interoperability demonstrations of the NFV concepts.

NFV Phase 1 published documents:
http://docbox.etsi.org/ISG/NFV/Open/Published/
Approval of Term of References for the new WG structure
Approval 28 new Work Items.

ETSI NFV Phase 2

Operator-led Industry Specification Group (ISG):

Operators: **38+**

Companies: **280+**

Scope:

- Develop NFV ISG role as a place for industry collaboration.
- Foster interoperable implementations rather than necessarily creating new standards activity, by developing requirements specifications and informative reports

Work Program:

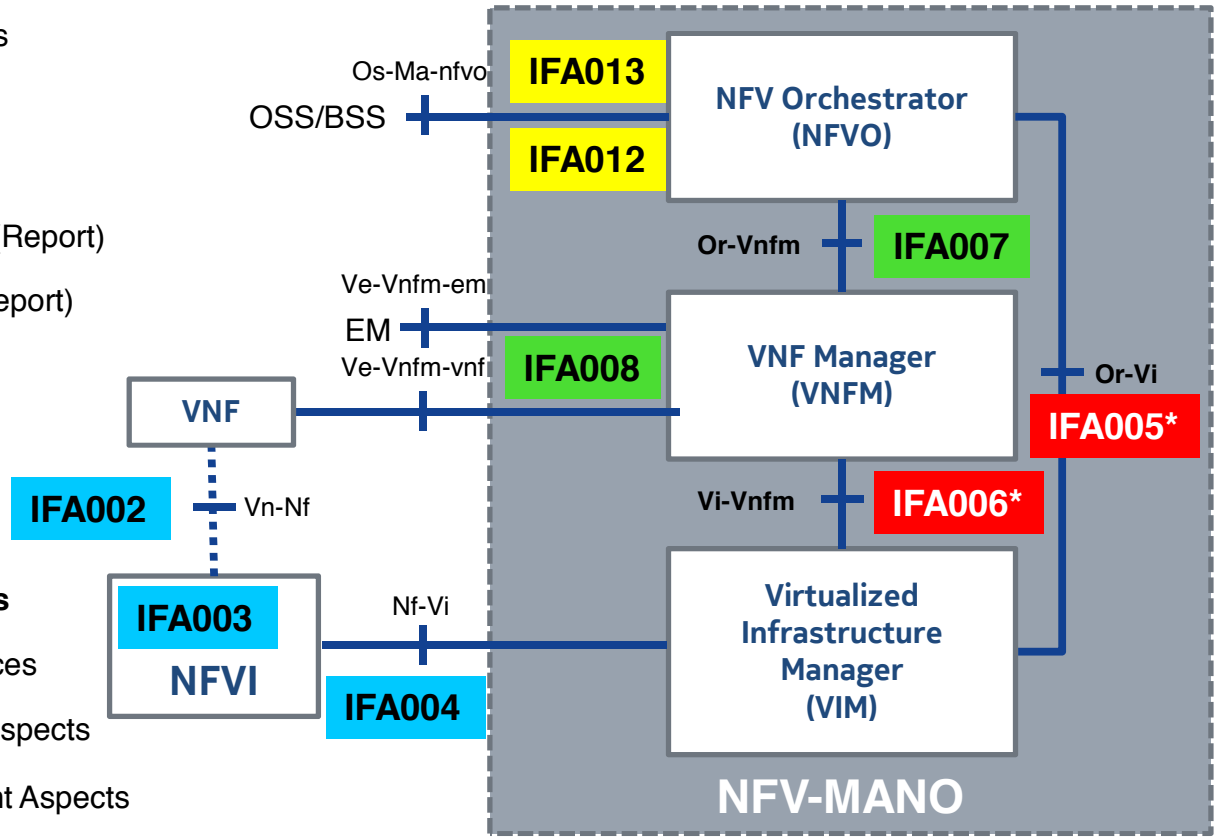
Specifications examples:
Management and orchestration functional requirements; Reference points and interfaces of NFV-MANO; VNF packaging; Acceleration technologies; Hypervisor domain, Network Service descriptor.

Reports:
Technology inter-working use cases with NFV, e.g., SDN and MEF; NFVI-Node architecture guidelines; Other virtualization technologies; NFV architectural options; Trust, security monitoring, Lawful Intercept, privacy and regulation; Reliability and assurance; Testing, Quality Assurance Framework.

Proof-of-Concept:
Raising total Phase 1/2 to 38+

IFA Work Programme

IFA010	Functional Requirements
IFA011	VNF Package & VNFD
IFA014	NSD
IFA015	NFV Information Model (Report)
IFA009	Architectural Options (Report)



IFA001*	**Acceleration Use Cases**
IFA002	Acceleration VNF Interfaces
IFA003	Acceleration Switching Aspects
IFA004	Acceleration Management Aspects

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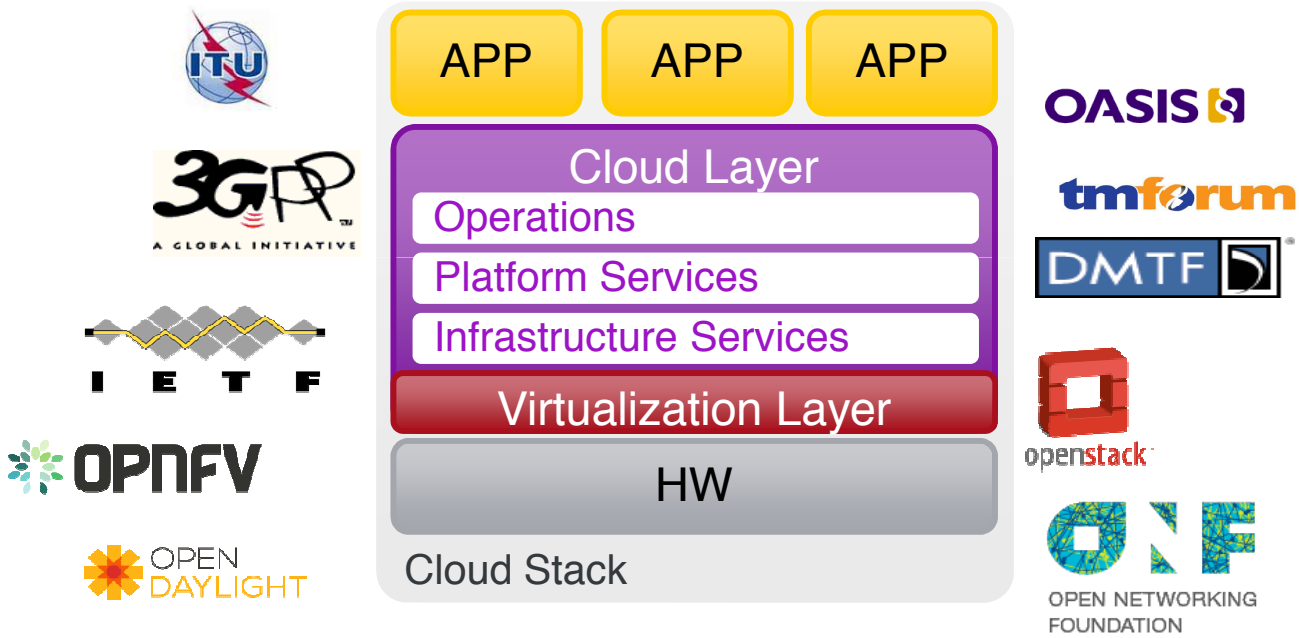
Other Bodies (standards or open source) relevant for NFV



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Nokia commitment on Telco Cloud Open Architecture

- Engagement in industry organisations

Strong contribution since inauguration, driving through leadership positions

ETSI NFV ISG

Actively driving 3GPP SA5 Telco Cloud work, leading the focus group

3GPP

Actively driving relevant working groups on SDN , SFC

ONF, IETF, TMForum, MEF

Monitoring relevant activities

OASIS Tosca, DMTF,

Strong contribution from founding, steering and technical contribution

OPNFV

Active in NFV related open source: Linaro ODP, OpenStack, Open Daylight

Open Source

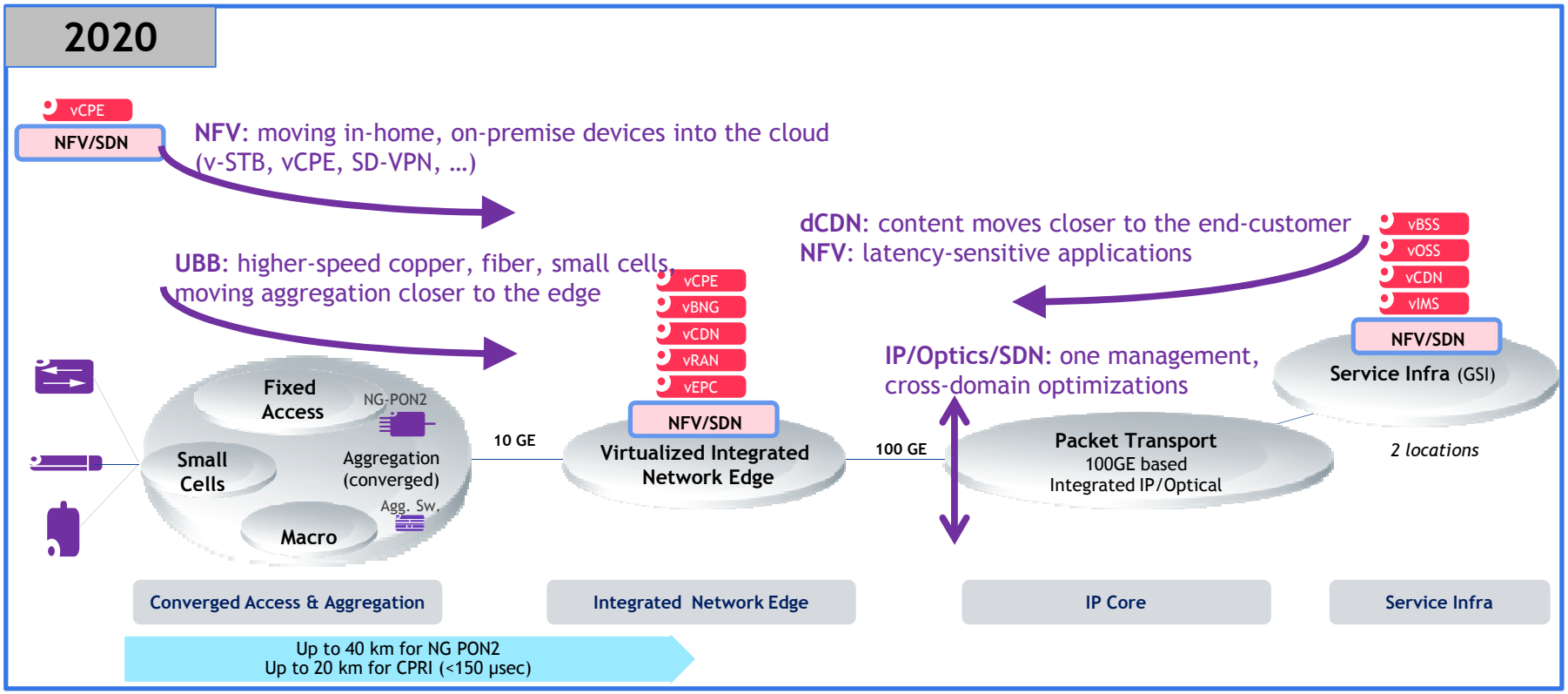
Active contribution to the relevant industry forums and open source activities

Participation and close monitoring of complementary industry forums and open source projects

Driving for fruitful collaboration between standardization and open source communities

Summary

THE NETWORK VISION 2020



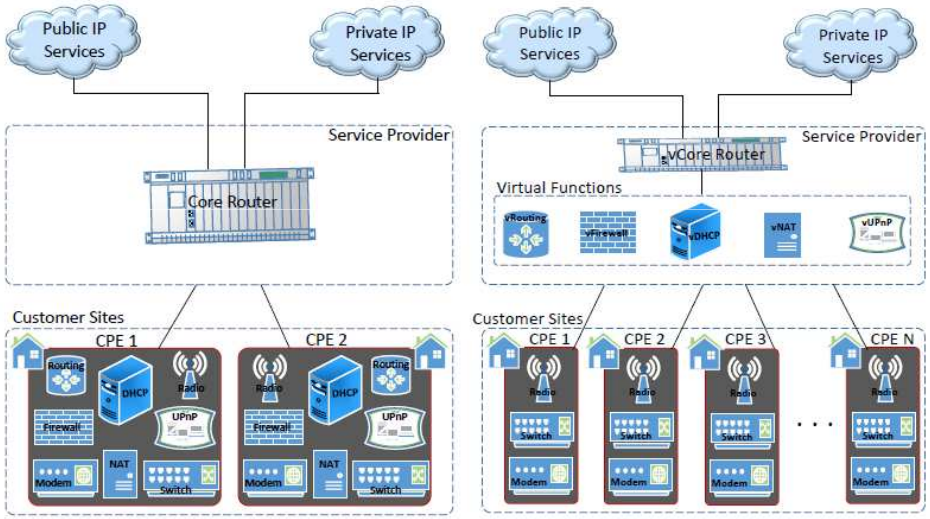
Operators activities - Use cases

ETSI NFV Use Cases

- ETSI NFV use cases:
  - Virtualization of the Mobile Core and IMS
  - Virtualization of the Mobile base station
  - Virtualization of the Home Environment
  - Etc.

- Other use cases:
  - Replace end of life products
  - Deploy new sub-systems (e.g. IMS for VoLTE)

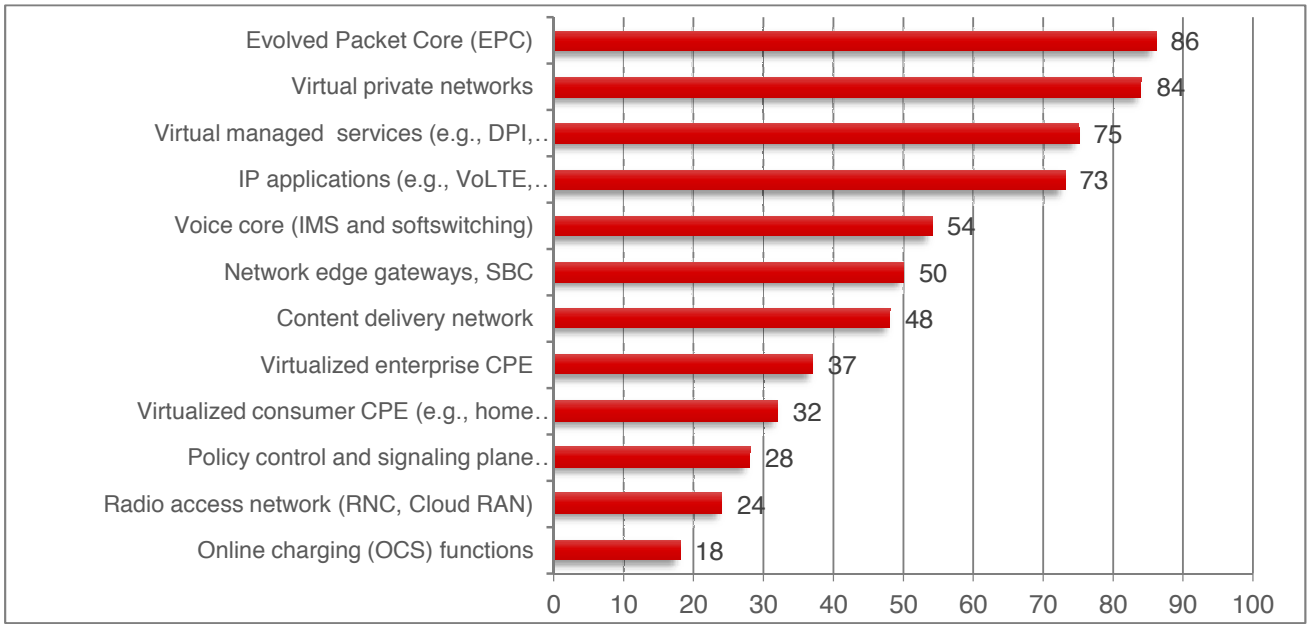
- **CPE virtualization:**



Source: IEEE Communications Surveys and Tutorials
http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7243304

Operators activities - Priorities for virtualization

What are your company's top three priorities for network virtualization?



Source: Heavy Reading – Multi-Client Study: OSS and NFV MANO; August 2015

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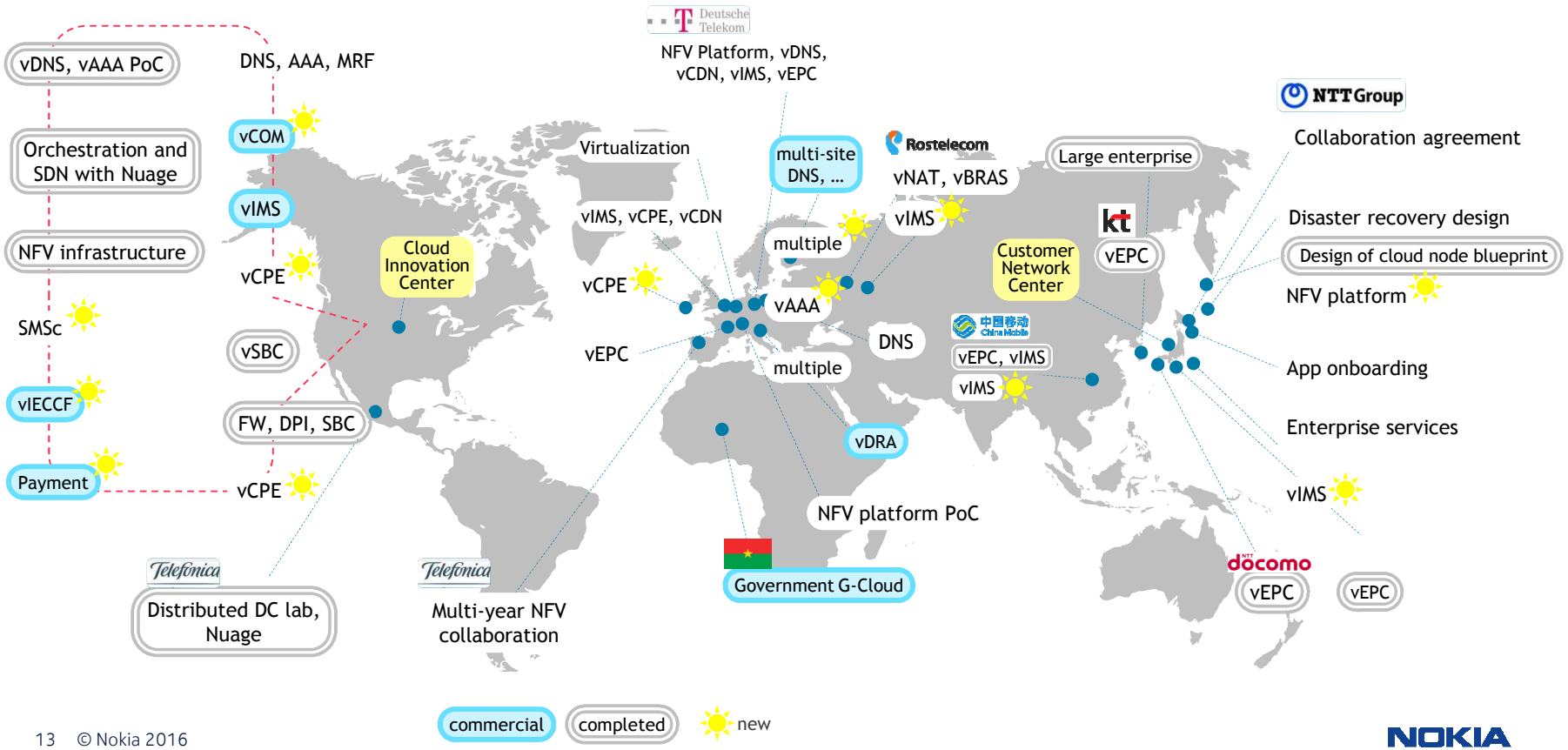
CloudBand world map Nov 2015



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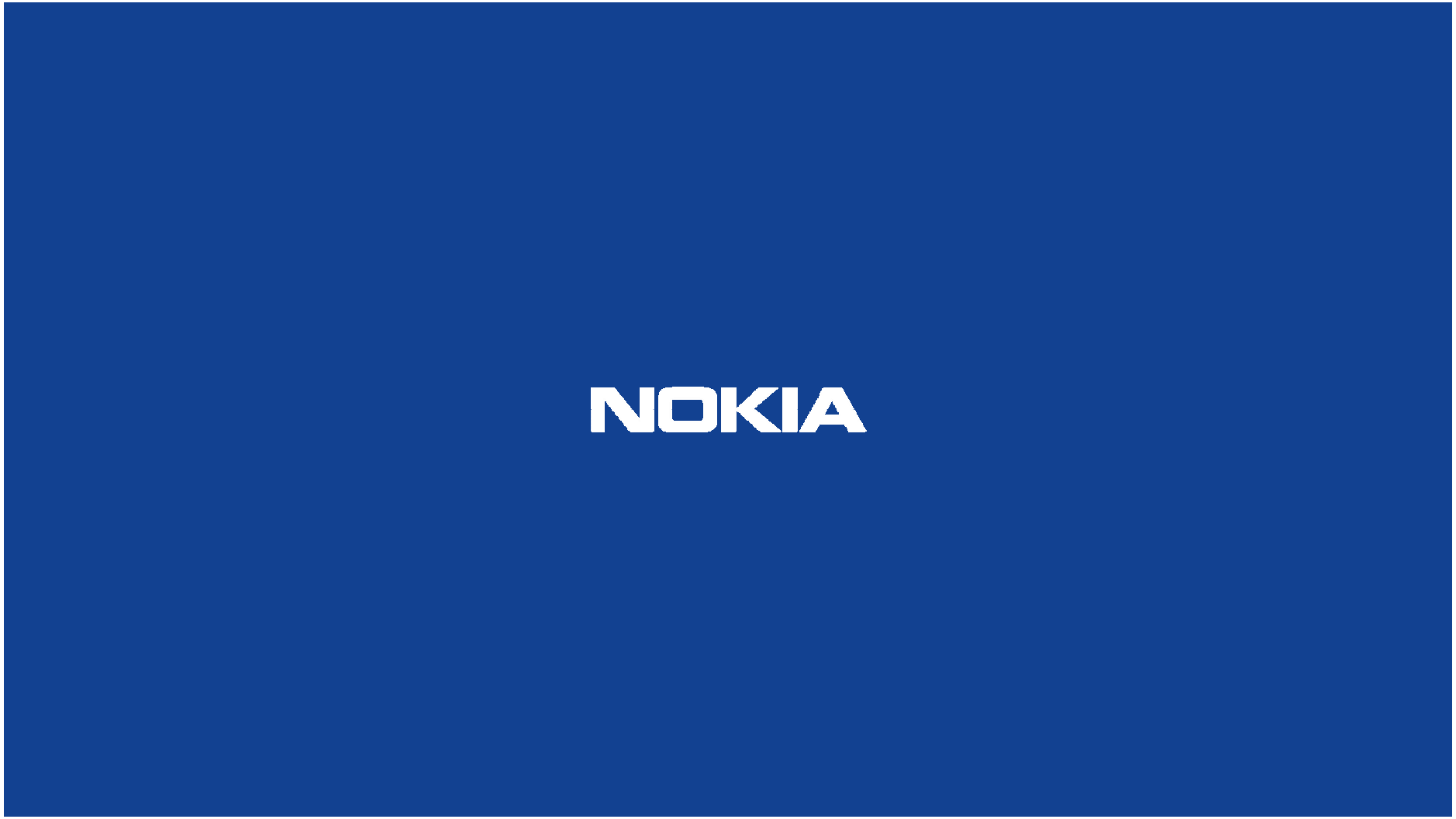
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