

sonata

agile service development and orchestration in 5G virtualized networks



Context and trends

Overview

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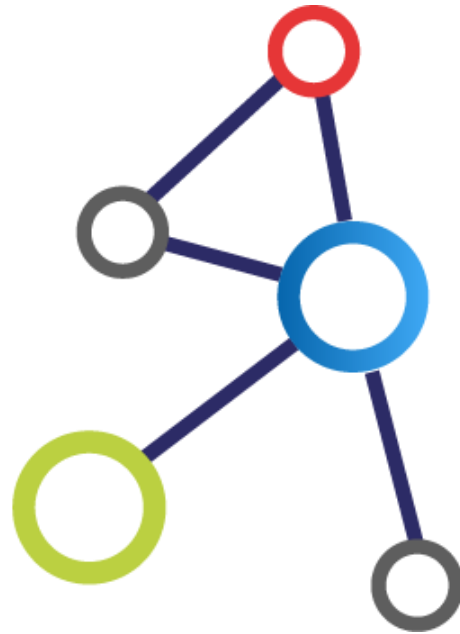
Agenda

- Trends and Drivers influencing future 5G networks
- SONATA Objectives and Innovations



SONATA: Agile Service Development and Orchestration in virtualised 5G Networks

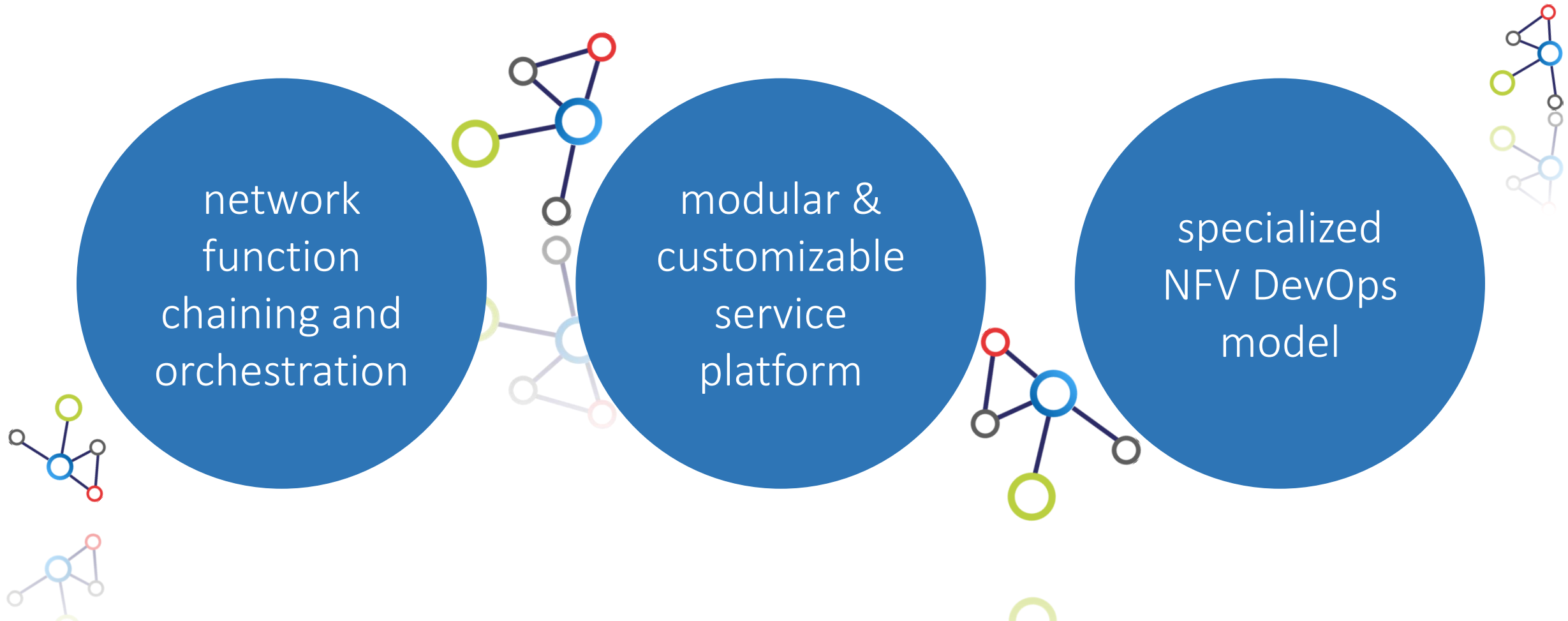
SDN and NFV are emerging as major transformational technologies, evolving the telecom sector with new network capabilities and business opportunities.



SONATA addresses the significant challenges associated with both the **development and deployment of the complex services envisioned for 5G networks** and empowered by these technologies



SONATA targets both the flexible programmability of software networks and the optimization of their deployments

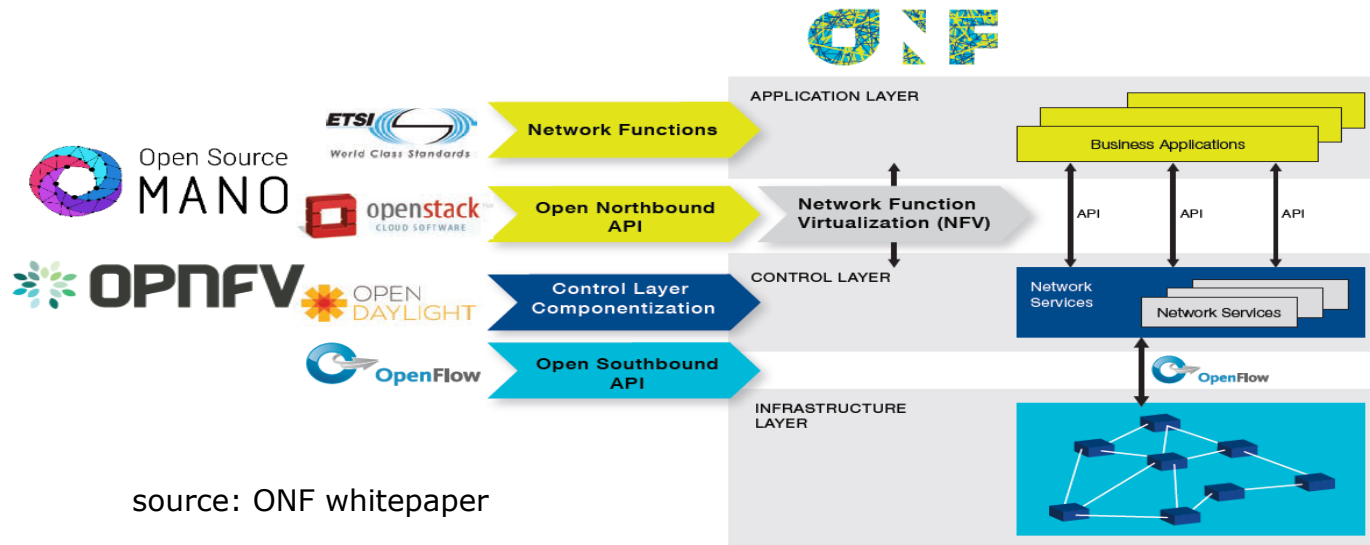
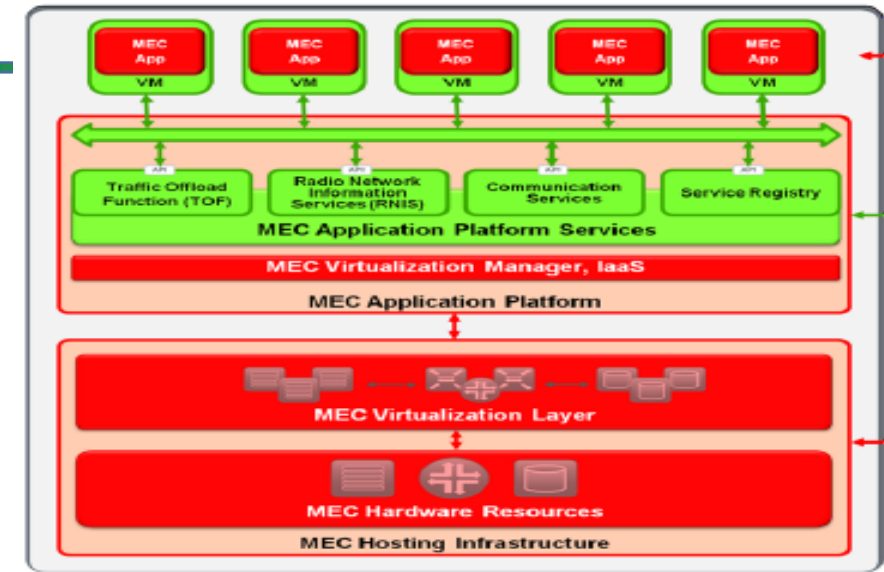


Drivers influencing future 5G networks

the rise of open platforms

- open network platforms for innovation are becoming a core driver of 5G
- larger reliance on APIs interconnecting open source solutions
- non-traditional players
- increased flexibility, programmability, adaptability, customization...

source: ETSI MEC white paper



source: ONF whitepaper

Drivers influencing future 5G networks

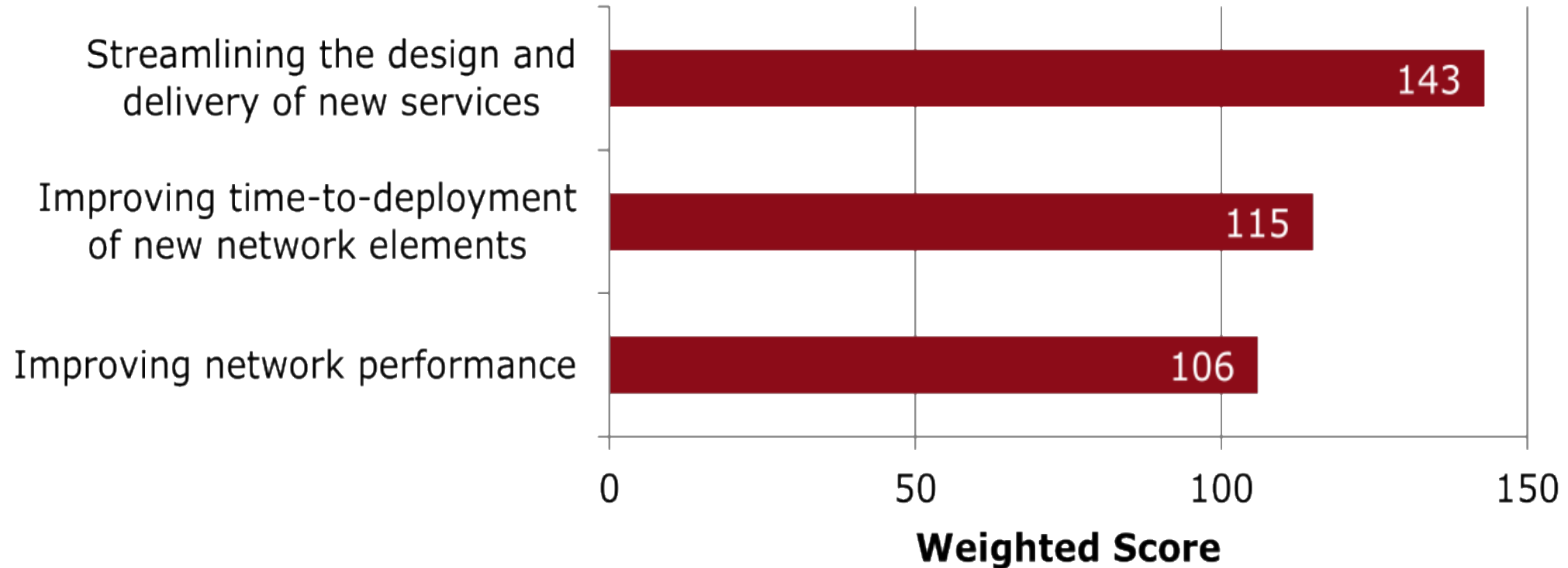
focus towards industry verticals

customization towards industry verticals will be key for opportunities:

- industry verticals will now be able to offer services directly to their customers
- new services, smart scenarios (including mission critical)
- new connected products, new market segments
- diverse business models among these verticals suggest opportunity for IT partnerships to adapt 5G solutions to their sector, empowering these companies in their own field (as opposed to purely horizontal solutions)



top 3 priorities for operators regarding their networks

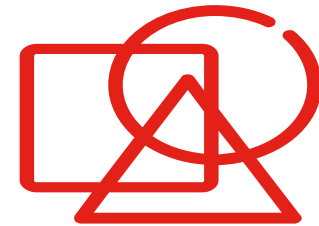


Source: Heavy Reading (Score is a weighted calculation. Items ranked first are valued higher than the following ranks; the score is the sum of all weighted rank counts.)

Drivers influencing future 5G networks

network abstraction and programmability

- Service Agility – shorter time for service creation and service adaptation
- Service Diversity - Share a single infrastructure among multiple services with wide range of requirements
- Resource Efficiency - Dynamically allocate the right amount of resources when and where needed



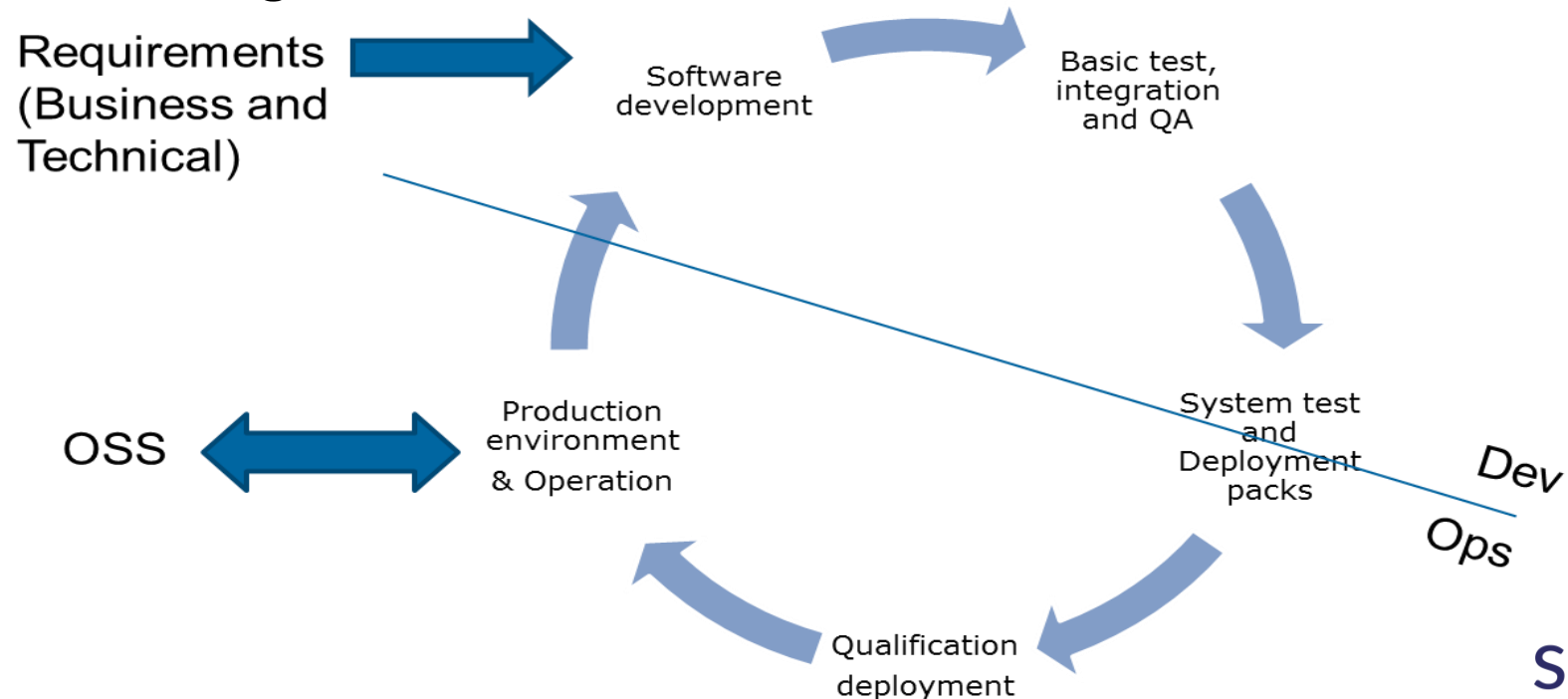
source: Ericsson

Drivers influencing future 5G networks

vendors and net operators interaction supported by DevOps

DevOps is being extended beyond boundaries of an organisation

- ▶ Continuous Integration / Continuous Delivery
- ▶ Info-model. VNF verification
- ▶ Micro-services and containers
- ▶ Organisational cultural changes



Agenda

- Trends and Drivers influencing future 5G networks
- **SONATA Objectives and Innovations**



SONATA Objectives

Reducing time-to-market of network services

SONATA streamlines development with abstract programming models, SDK and DevOps workflow that integrates network operators and third-party service developers in an open NFV ecosystem.



Supporting the transition to software networks

SONATA's open source results will support the full service lifecycle, including their development, testing, orchestration, deployment, management and operations in future SDN/NFV empowered 5G networks.



Optimising resources and reduce costs of service deployment

SONATA's platform orchestrates complex services to connectivity, computing and storage resources, and automatically re-configures running services.





SONATA Available results

1

- An open source **service platform** with a modular **orchestration** framework that will help network operators optimize resource utilization, increase automation, reduce OpEx and facilitate their NFV transition

2

- A **programming model and Service Development Kit (SDK)** that will empower service providers, network equipment vendors and SMEs to develop services based on new or existing network functions, opening the market and reducing time to delivery

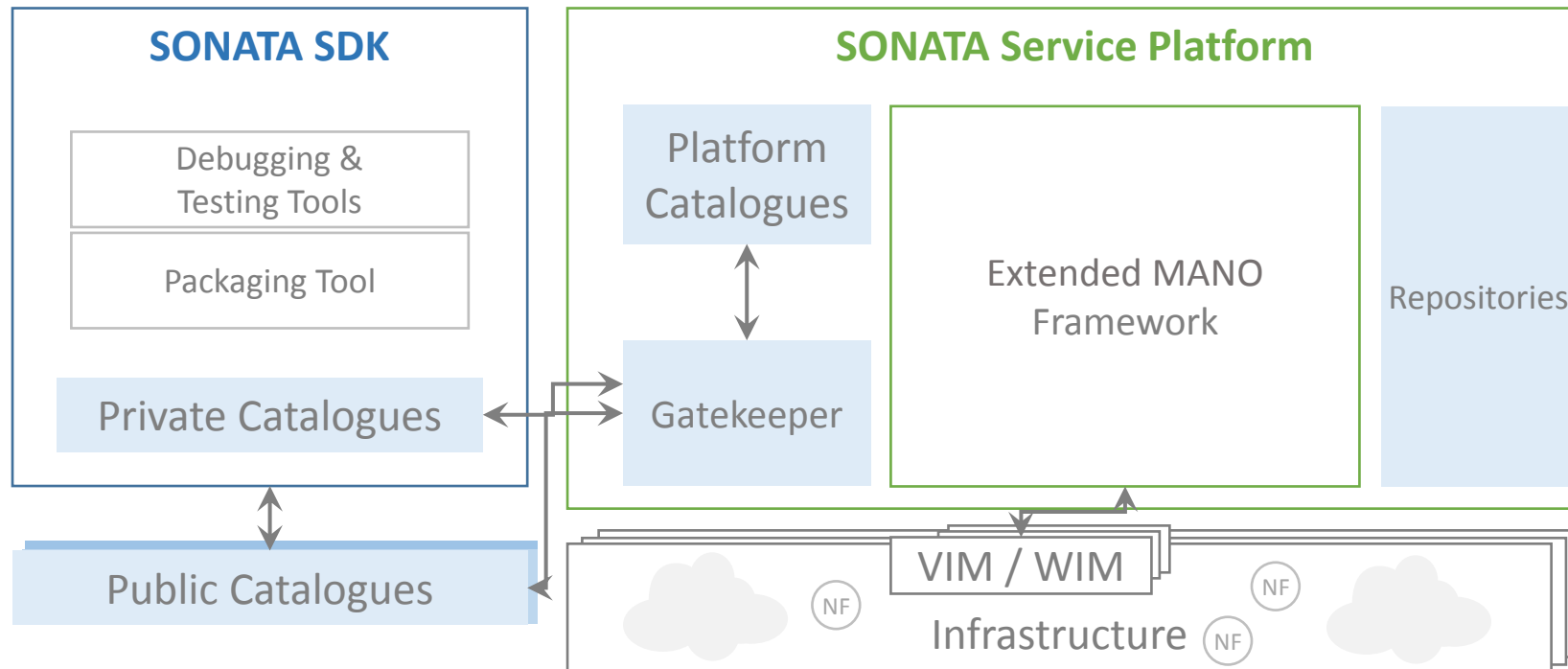
3

- A set of **DevOps tools and methodology** that will help connect these stakeholders to a modern, agile workflow that supports the rapid development cycles of software-driven networks, as well as the inter-organizational challenges between them.

**first architecture released
in
Dec 2015**

**Integrated open source
MANO released in
July 2016**

SONATA Architecture: a high-level look



Innovations

- **Modular plug-in architecture:** third-party logic support for operator and service developers (FSM/SSM)
- **Interoperable and Vendor agnostic:** support for multiple VIMs, VNFs, underlying ETSI-based architecture
- Built for **NFV DevOps** between operator and service developers of network services
- **“Recursion” support:** allowing stacked tenant and wholesale deployments in software networks models (e.g. MVNO)
- **Slicing support:** performance isolation and bespoke network configuration for industry verticals

SONATA available platform



- Embraced **agile** way, **CI/CD delivery strategy** as well as a DevOps approach that is at the very core of the SONATA development cycle. Roadmap.
- Publicly **released software prototype** in GitHub: an integrated version of Service Platform and SDK (*OS license Apache v2*)
 - runs on top of OPNFV brahmaputra (OS liberty +ODL)
 - installable and well documented
- Great **community engagement and SDOs impact**
 - Openstack tacker close collaboration (catalogues contribution)
 - Submitted ITU-T recommendation and active contribution ETSI-NFV group
- **Available “technical” demo:** service chain creation and test over multi-PoPs, service package creation, orchestration and deployment through the service platform. Running service update.



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Thank you!

SONATA on the web...



www.sonata-nfv.eu



[@sonataNFV](https://twitter.com/sonataNFV)

who we are

- SONATA is an EU-funded project (Horizon 2020) and part of the 5G-PPP initiative
- 30 month work plan, started in July 2015
 - First OS release available!
- 15 partners representing telecom operators, manufacturers, system integrators, service providers, SME developers, research and academic institutes

The logo for Atos, featuring the word "Atos" in a bold, blue, sans-serif font.The logo for NEC, featuring the letters "NEC" in a bold, blue, sans-serif font.The logo for altice labs, featuring a stylized blue figure with arms raised, followed by the text "altice labs" in a blue, sans-serif font.The logo for THALES, featuring the word "THALES" in a bold, blue, sans-serif font.The logo for Telefonica, featuring the word "Telefonica" in a blue, cursive script font.The logo for NOKIA, featuring the word "NOKIA" in a bold, blue, sans-serif font.The logo for UNIVERSITÄT PADERBORN, featuring a blue stylized building icon followed by the text "UNIVERSITÄT PADERBORN" and "Die Universität der Informationsgesellschaft" in a smaller font.The logo for Demokritos, featuring a small icon of a classical bust followed by the text "Demokritos" and "National Centre for Scientific Research" in a smaller font.The logo for UCL, featuring a small icon of a classical building followed by the letters "UCL" in a large, bold, black, sans-serif font.The logo for iMinds, featuring a pink and red stylized brain icon followed by the word "iMinds" in a bold, black, sans-serif font.The logo for Optare Solutions, featuring a blue stylized head icon followed by the word "Optare" in a bold, blue, sans-serif font and "Solutions" in a smaller font below it.The logo for i2cat FUNDACIÓ, featuring a stylized orange and white circular pattern followed by the text "i2cat" in a bold, orange, sans-serif font and "FUNDACIÓ" in a smaller font below it.The logo for SYNELIXIS, featuring the word "SYNELIXIS" in a bold, green, sans-serif font.The logo for BT, featuring the letters "BT" in a bold, blue, sans-serif font next to a colorful, multi-colored sphere icon.The logo for ubiwhere, featuring the word "ubiwhere" in a bold, blue, sans-serif font and "SUITING THE FUTURE" in a smaller font below it.The logo for sonata, featuring the word "sonata" in a blue, sans-serif font next to a stylized blue and red network icon.