Sylva Introduction

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Agenda

- Sylva context
- Sylva Ecosytem
- Sylva Architecture
- Sylva adoption opportunities
- Sylva Stream including validation Center

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Time For Action

Historical Model doesn't fit with multivendor approach

#Shift to a common Cloud Layer

Operators are increasingly threatened by hackers

#GSMA 2022 Security Report

New Network Functions require Cloud native infra and distributed Cloud

#O-RAN #5GCore #CDN

Continuous Innovation & Service Automation

#Shortest TTM (legacy model SW&HW common releasing)
#Security Response

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Sylva

Mission Statement

The main carriers in Europe, together with network function providers, initiated the Sylva project to address Telco and Edge use cases.

The project objectives are:

- To release a cloud software framework tailored for telco and edge requirements that addresses the technical challenges of the infrastructure layer of this ecosystem
- To develop a reference implementation of the cloud software framework and create a validation program for such implementations

orange TIM T-Mobile Telefónica Vodafone NOKIA Ericsson

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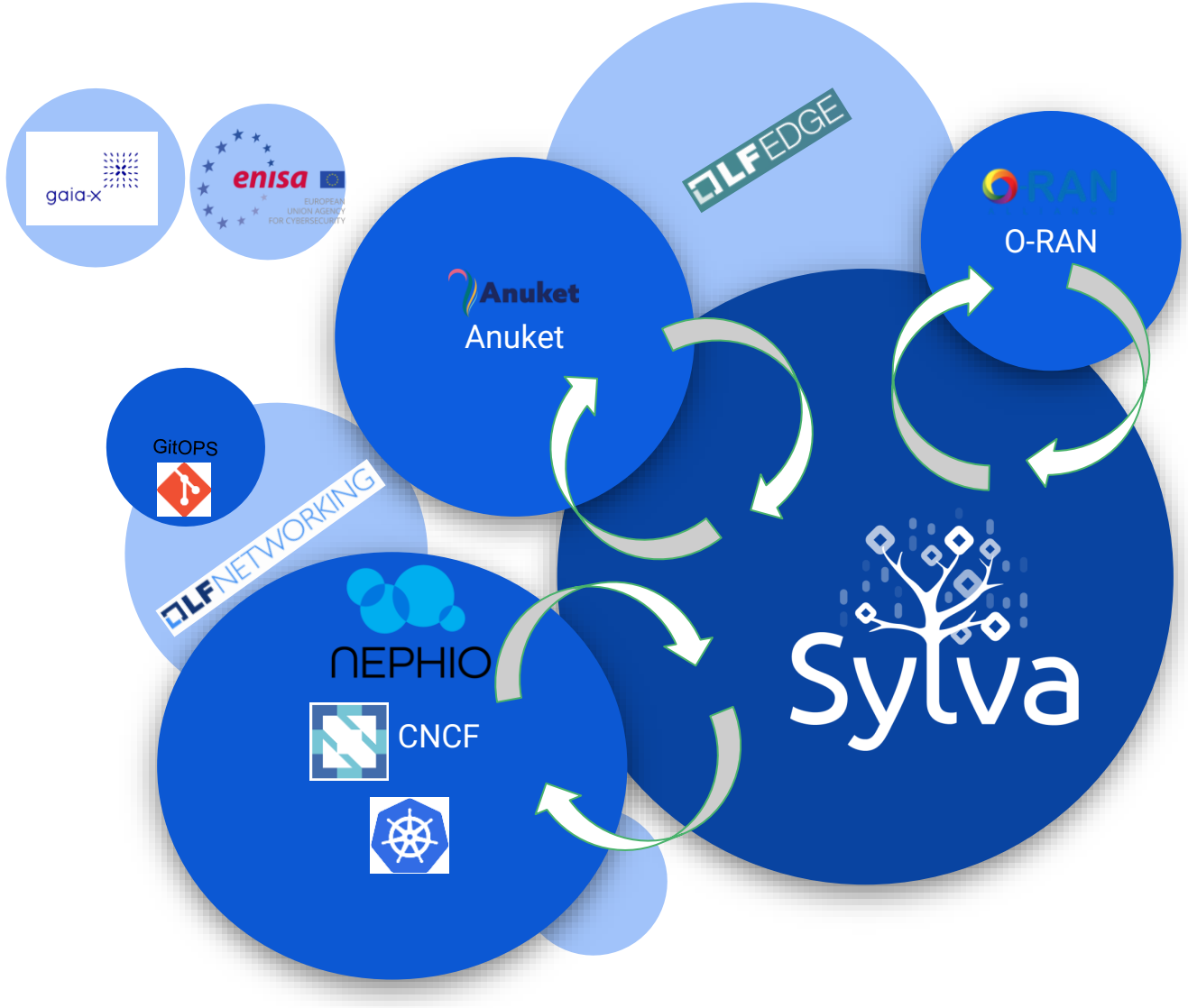
The Open source ecosystem



Project Synergies

- Anuket (RA2/RC2) covers the specifying, integrating and verifying Telco-specific stacks and the validation of Telco applications
  - Sylva will **leverage** RA2 and cover requirements specifics to European Telcos
  - Sylva will **contribute** back specific extensions to Anuket
- CNCF provides necessary components such as OSS projects (K8S) and validation programs (CNF)
  - **Leverage** K8S as part of the software framework
  - **Contribute** extensions that address Telco needs
  - **Build** on top of CNF Validation program
- The O-RAN Software community develops many of the workloads that will use the telco CaaS
  - **Address** requirements of O-RAN workloads (e.g. synchronization cards)
  - Provide **feedback** to the O-RAN-SC and O-RAN workgroups
- Sylva is **based** on open source components such as GitOps, Service Mesh and will **integrate** with the software coming from the LF Networking and Edge umbrella projects
- Sylva will align with the specifications and recommendations of organizations like Gaia-X (Secure and sovereign data management), MITRE and ENISA (Security). It will provide feedback, as necessary, to these organization for further improvements of the specifications.

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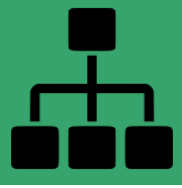
The 5 technical pillars

Network Performance to answer to CNF requirements and performance

Telco features : SRIOV, DPDK, Low latency, Specific CNI

CaaS on BareMetal



Distributed cloud

BM Automation : Declarative approach & Gitops to manage thousands of heterogenous nodes

MultiK8S : Optimized lifecycle Management of many K8S Clusters in DC

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Best in Class Security Design

Answer **Telco grade** requirements

Energy efficiency

Measure & Optimize to limit Energy Consumption

Open source and standardized API

Support multi-Vendor CNF & boost market adoption

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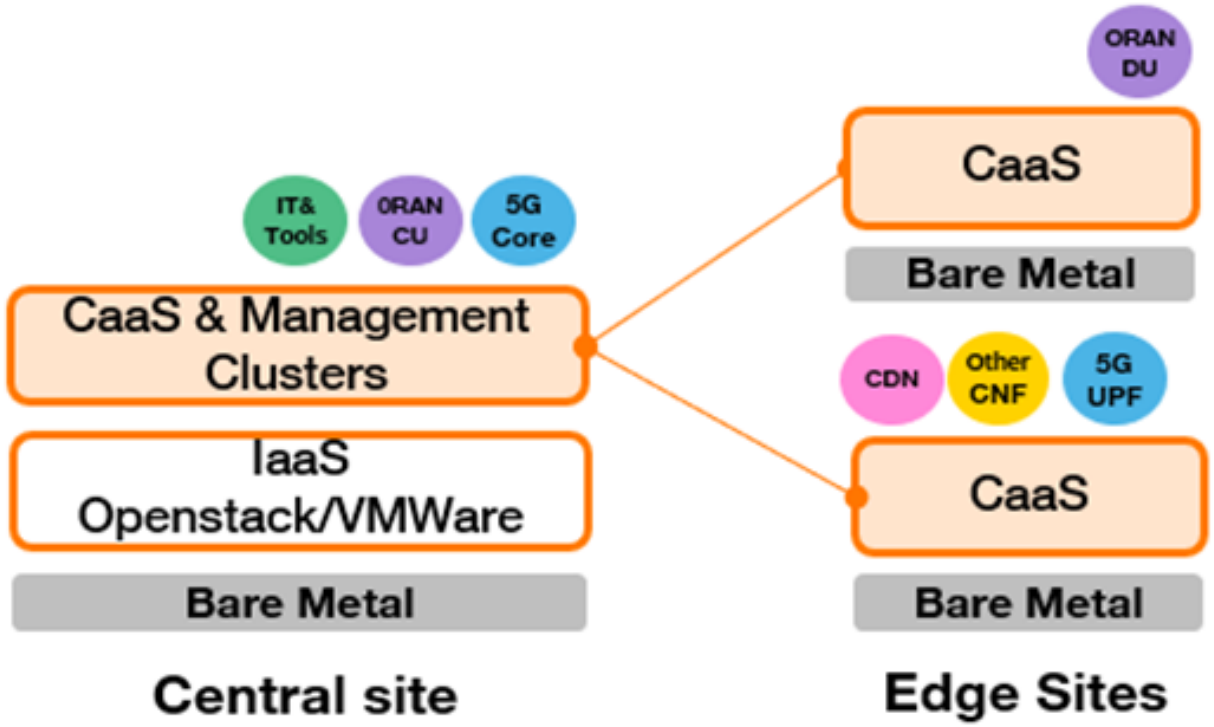
Sylva Architecture

To address such use case as 5GCore Distributed UPF, CDN or Open RAN, Sylva will provide an architecture able to manage from Central to far edge site



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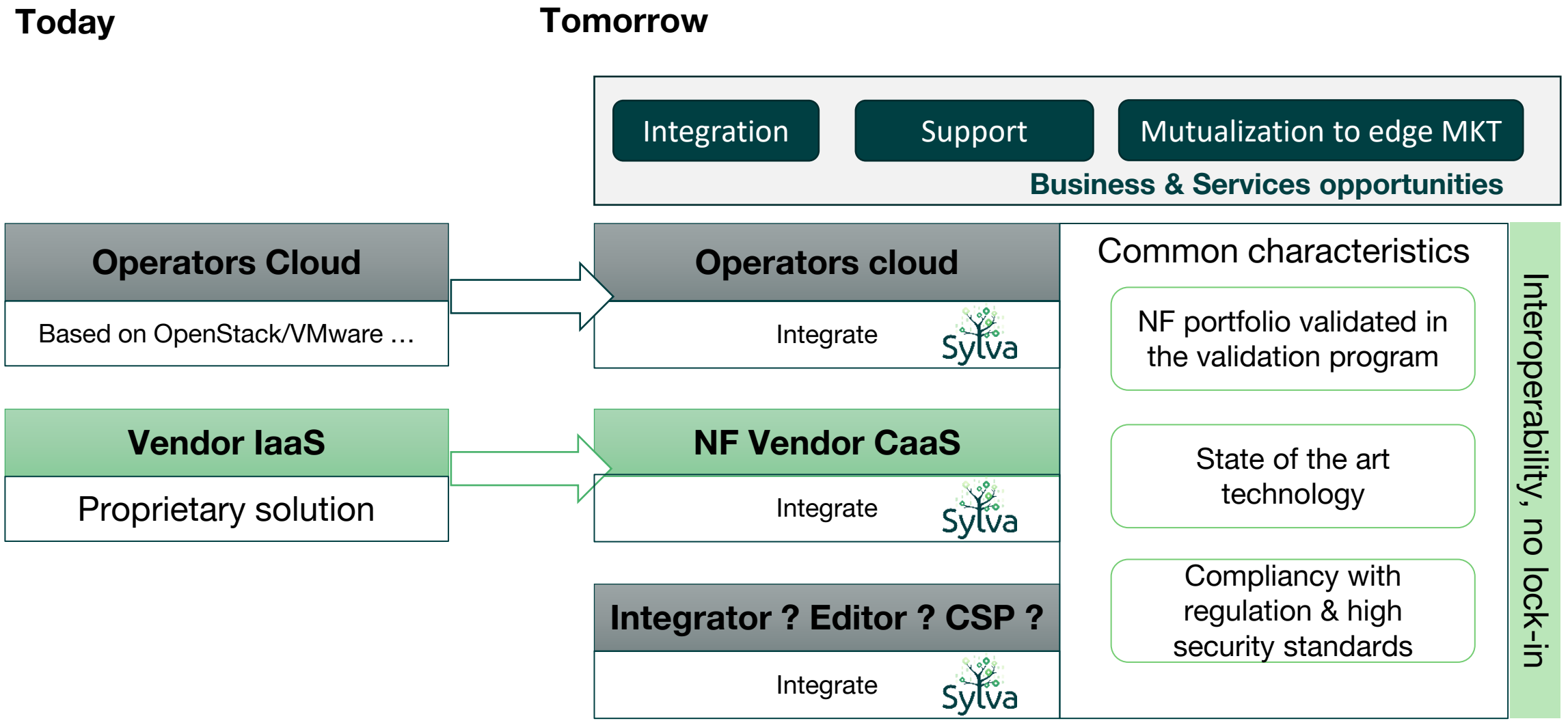
Sylva potential adoption



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Summary of workgroups under Sylva TSC

Workgroup/Regular meetings	Description	Profile
1 **Cloud Software Development**	Proposes sprint planification, releases, etc for TSC validation	Developers/Architects
Technical Workshop	Focus on technical topics	Developers/Architects
Scrum Dev Synchro	Sprint Planning, review & followup	Developers/Architects
2 **Validation Center**	Follow up on the work done for the Validation Center	Developers/Architects/ Testers
3 **Security Requirements**	EUCS requirements analysis and feature list construction	Security Experts

TSC

Will provide the need on resources and budget

Promote the project externally

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Validation Center
CNF validation process

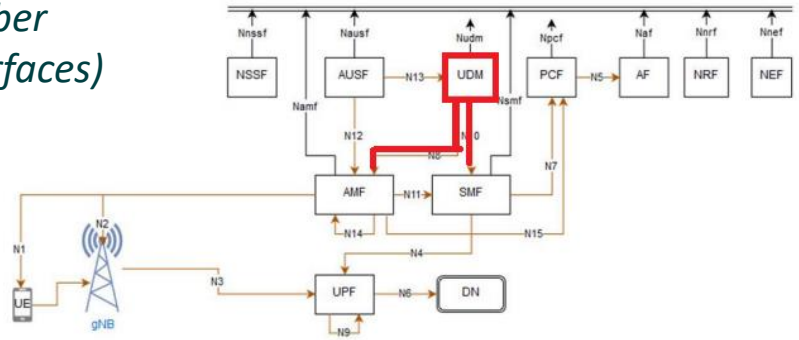
1. Identify platform capabilities required by CNF
   CNF provider support
2. Install & configure reference platform with required capabilities
3. Onboard CNF under test in reference platform
   CNF provider support
4. Confirm CNF onboarding
5. Identify minimum CNF functional test
   CNF provider support
6. Define steps/commands to provision CNF and run minimum CNF functional verification
   CNF provider support
7. Create script to run Steps for functional verification
8. Run minimum functional verification scripts and generate report

Operators may run any additional functional testing before deciding and/or deploying the CNF in production

Case of UDM: NOKIA UDM as first example

- *Register 1 subscriber*
- *Register multiple subscribers in a given period*
- *Deregister subscriber*

(exercise N8&N10 interfaces)



Thank You !

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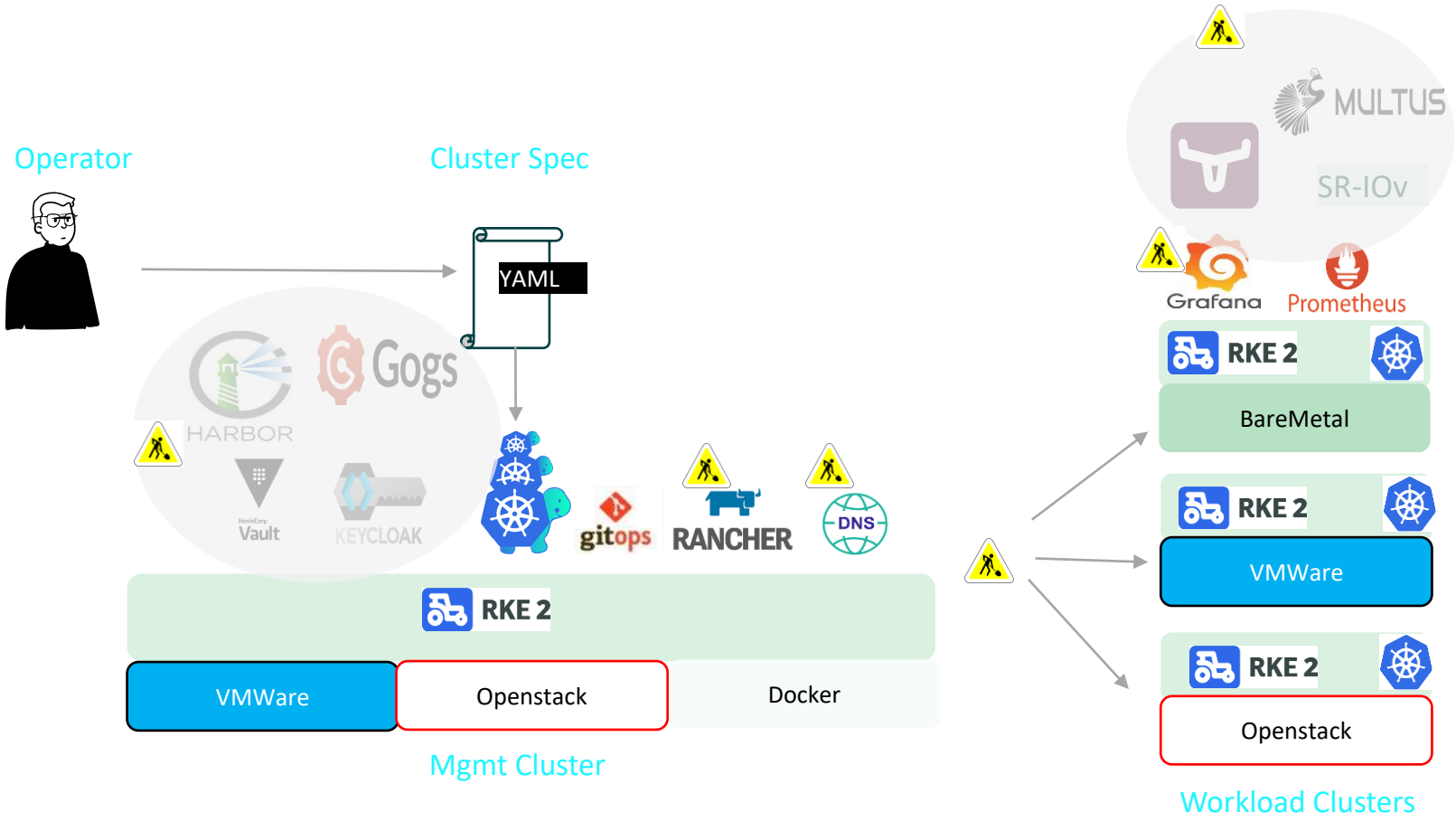

Gitops Tool: **Flux**, **Fleet** under study

K8s cluster manager: **CAPI**

Rancher started to work on a rke2 CAPI bootstrap provider:

https://github.com/rancher-sandbox/cluster-api-provider-rke2

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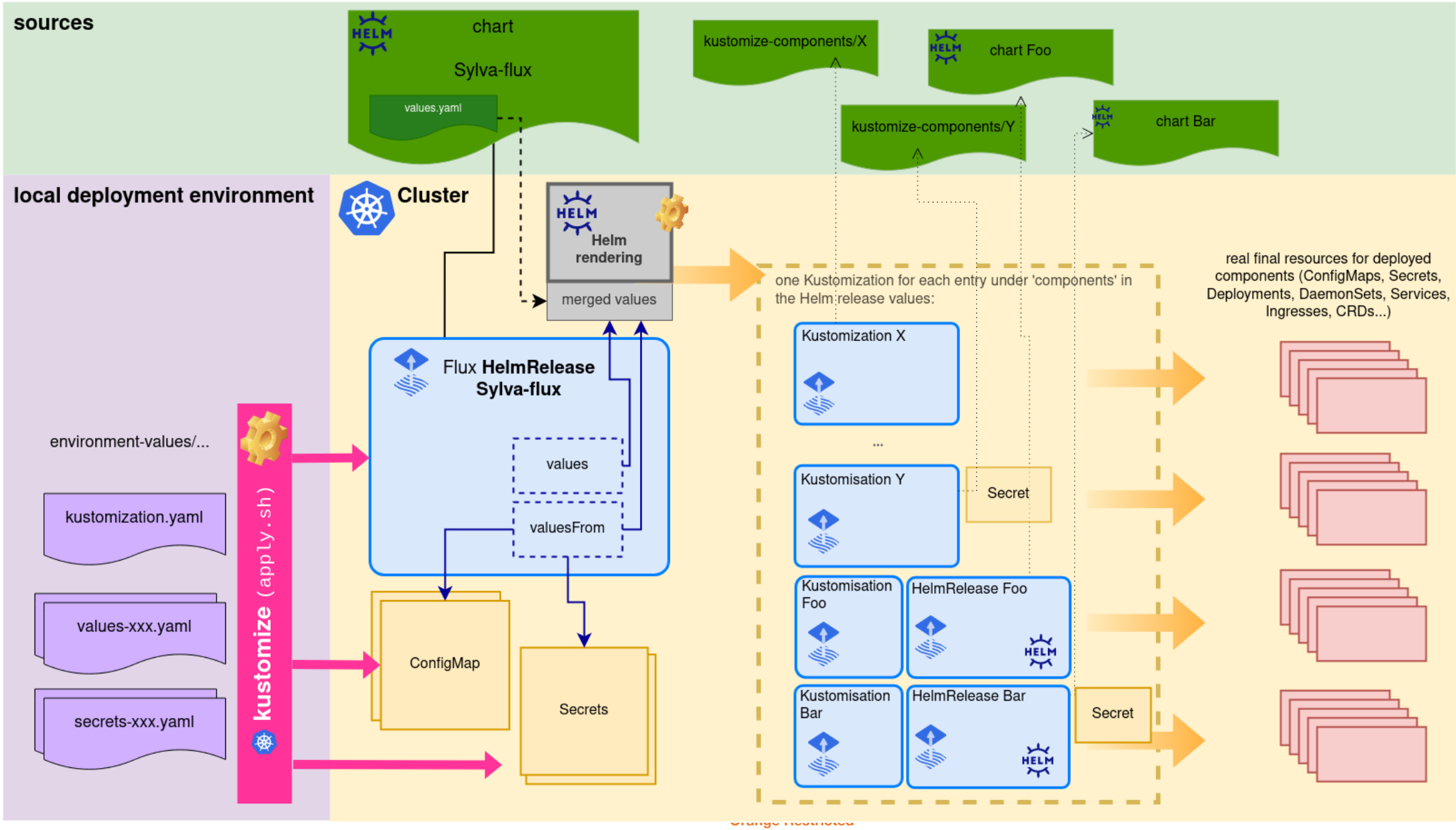
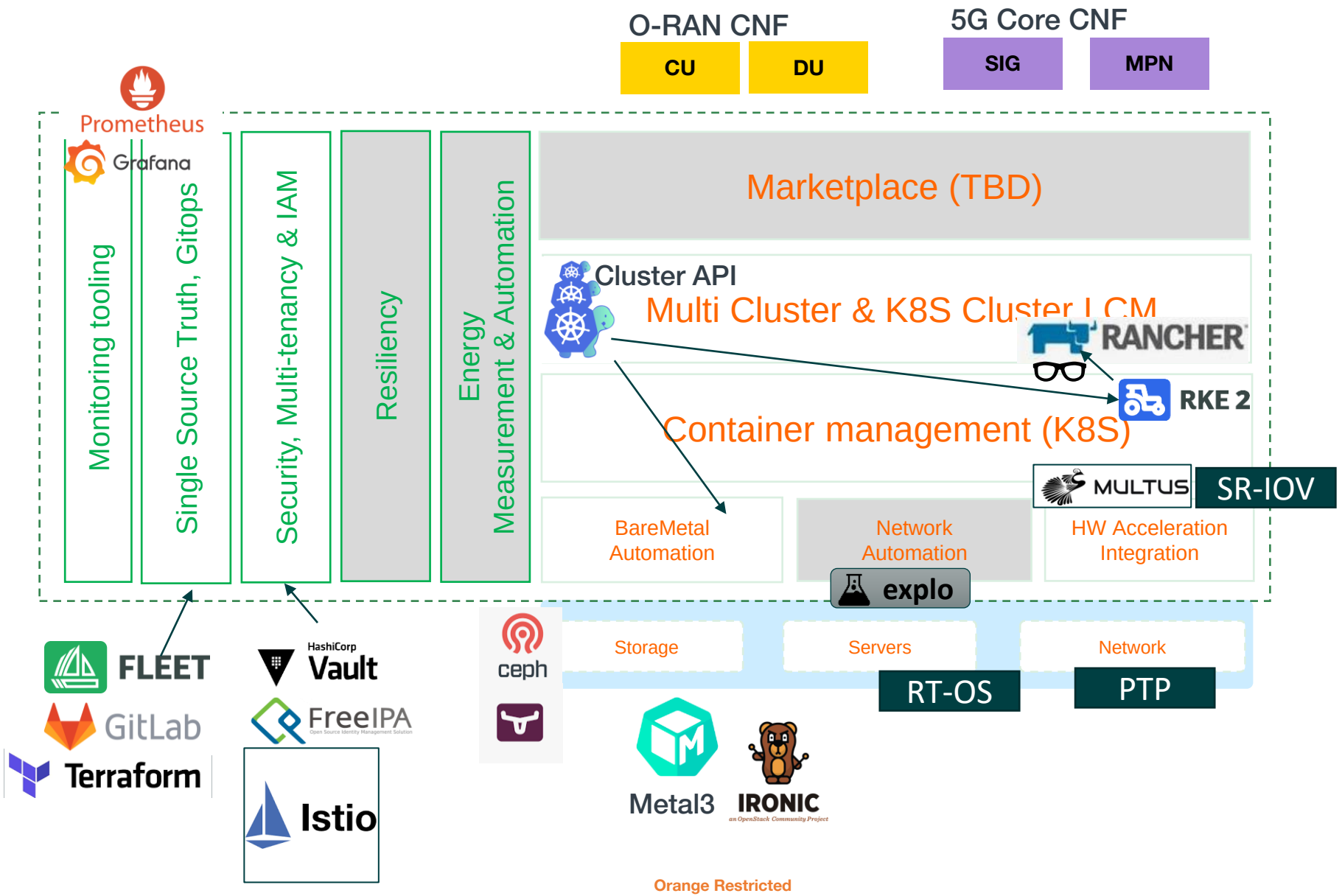
Sylva deployment: Helm chart



Telco Cloud Stack V1– 2023 - Jan



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