Red Hat Summit

Connect

Warszawa | 14 listopada 2024

Red Hat Solution for RAN

Arkadiusz Sitek

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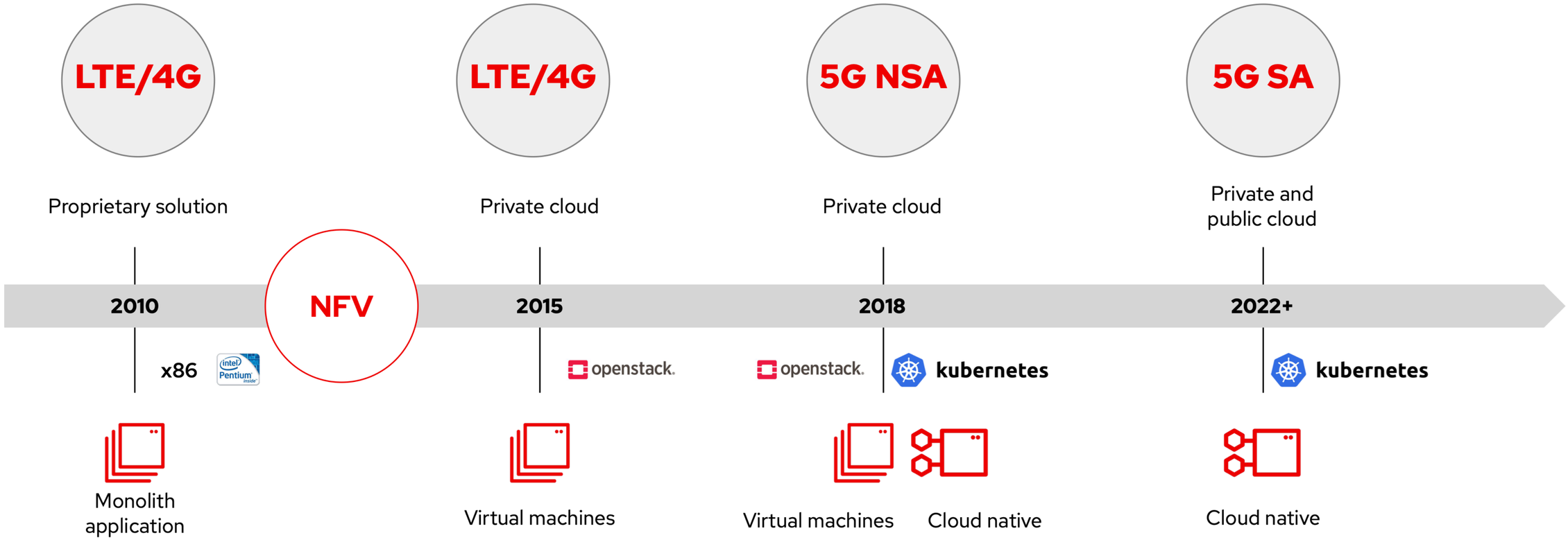
Red Hat

NFV and Mobile Networks Journey



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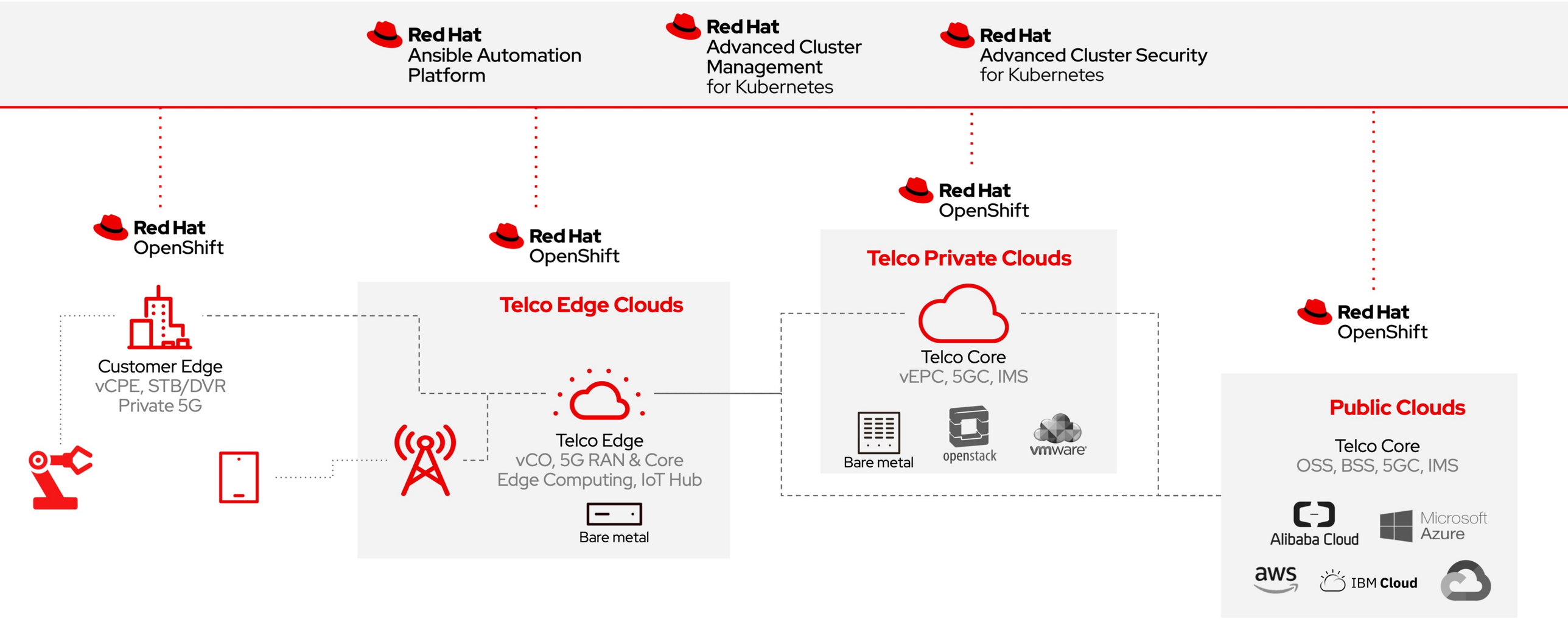
Telco Horizontal Cloud with Red Hat OpenShift



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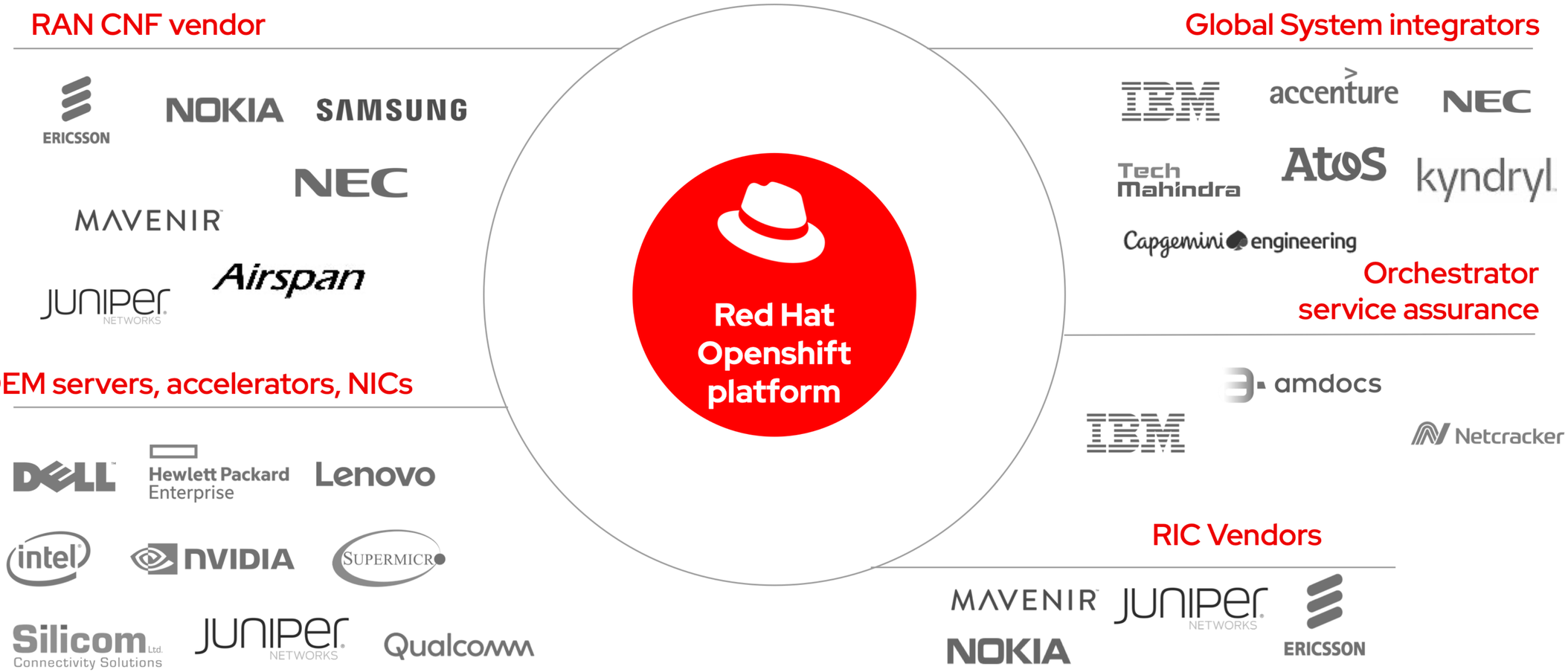
Red Hat Partner Ecosystem in Telco RAN



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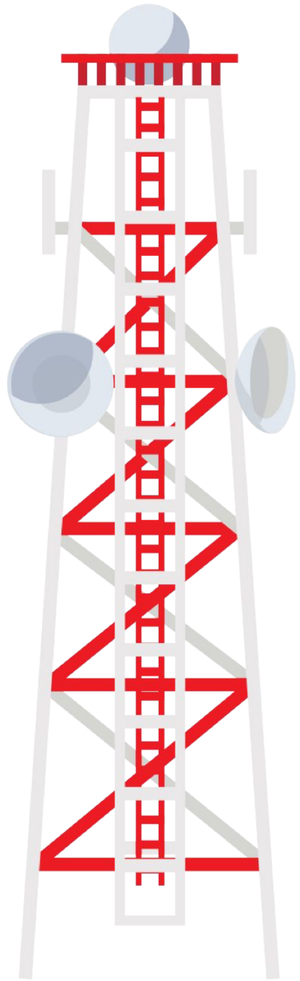
Two Dimensions of RAN Evolution

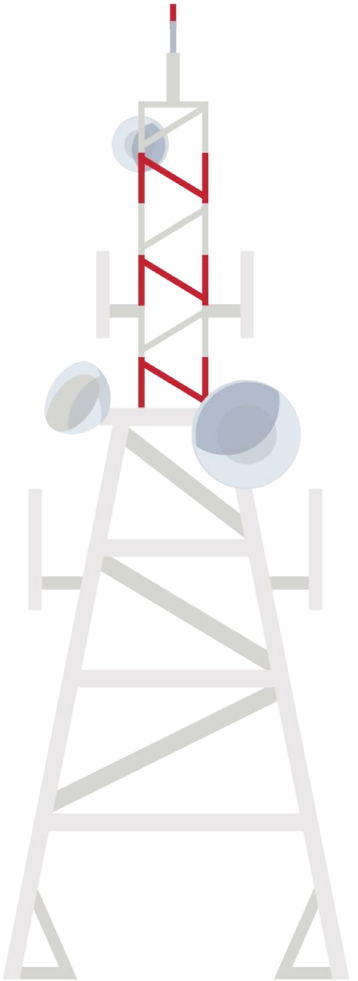


RAN Functional Split
(disaggregation of functionality)

RAN Functional Split: disaggregating baseband functionality from radio functionality

RAN Cloudification
(disaggregation of HW & SW)

RAN Cloudification: Deploy baseband functionality on consistent cloud platform



Open RAN

Red Hat

Telco Invests in Open RAN Development

ERICSSON

Key elements of Open RAN

Cloudification

Hardware and software dis

RAN applications as cloud-

NOKIA

Intelligence and automation

We are enabling a robust 5G ecosystem through our investment in Open RAN and Cloud RAN

As 5G continues to be rolle
an expanded ecosystem o
Providers (CSPs), vendors
open standards and how t
enhanced efficiency. Open

MAVENIR

Accelerating Network Transformation with Cloud-Native OpenRAN

OpenRAN principles present an alternative way of buildi
interoperability, vendor competition, element security
radio access networks (RAN).

OpenRAN focuses on using vendor-neutral hardware
and community-developed standards, giving operators
with another supplier's RAN applications. With 5G de
around the globe are using the opportunity to transfor

KDDI

KDDI will expand its Open RAN deployment leveraging the advantages of a fully disaggregated and software-based architecture powered by Samsung vRAN. KDDI's Open RAN network will feature enhanced capabilities for improved energy efficiency, optimized performance and intelli he
deployment will be carried on
with Hewlett Packard E
(processors) and Red Hat (c

verizon

Verizon announced today it has extended its network virtualization efforts with the addition of the first Ericsson virtualized cell site (Ericsson Cloud RAN), with support from Intel and Red Hat providing the pr native orchestration functic

vodafone

"Vodafone is dedicated to supporting the development and adoption of Open RAN worldwide by fostering a diverse ecosystem of partners and solutions. This approach offers numerous benefits, including i e, enhanced energy efficiency, h apacity, and improved performanc

elisa

"The key benefits of Cloud RAN include support for diverse network service platforms and scalability to meet different kinds of customer needs. In the future, we can provide more agile network services to the customers whose use cases will be closer to the network edge"

SAMSUNG

Open RAN Economies Promises to Bring New Innovation

While cost savings and eliminating vendor lock are certainly the key drivers for Open RAN, the ultimate goal of Open RAN is to bring intelligent software-defined networking and automation to wireless networks. With the growth in automation, machine learning, AI, and other latency-demanding applications, wireless networks will become increasingly complex.

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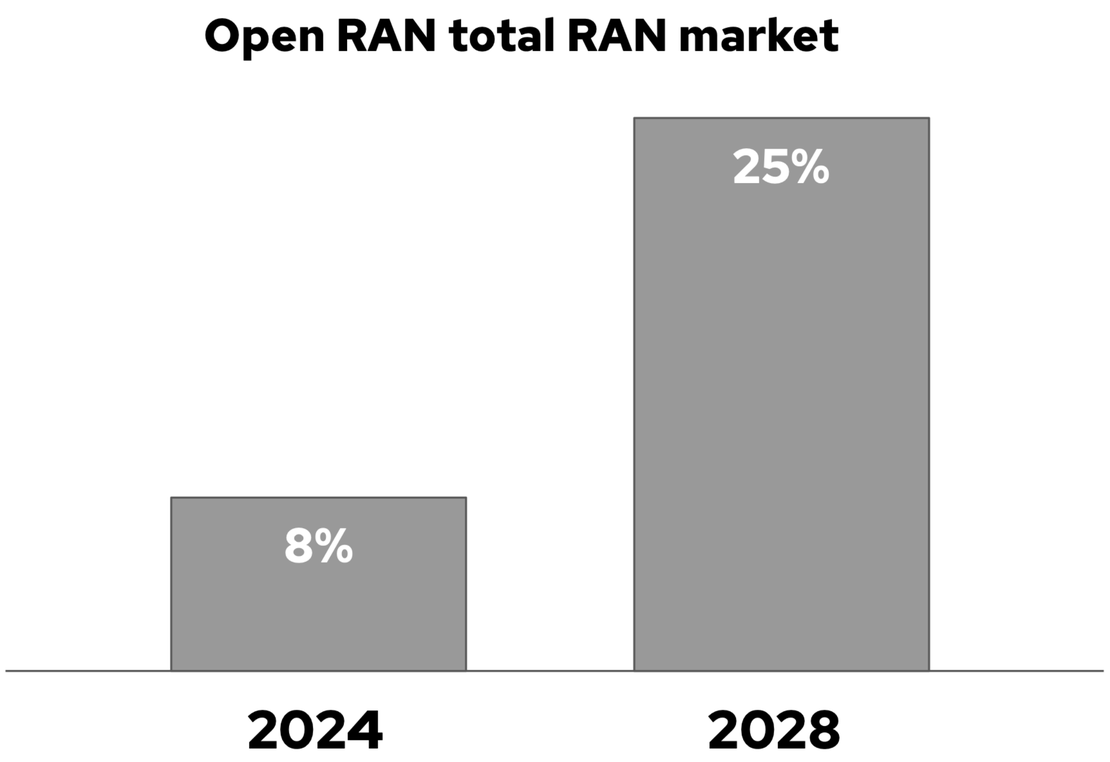
When Will Open RAN Become Mainstream?



2024

"Currently, Open RAN vendors including **Samsung, Mavenir, NEC, Fujitsu, Rakuten Symphony** and **Parallel Wireless** hold around **95-97%** of total **open RAN market share** whereas, incumbent vendors including Ericsson started to develop their Open RAN ecosystem and the industry is expected to see a turn-around during the **second half of 2024**"

2028

"Dell'Oro's latest report highlights that Open RAN is expected to account for **25%** of the total RAN revenue by 2028. Open RAN is projected to capture **30-40% of revenues outside China**, with North America leading the adoption. Europe's Open RAN revenues are expected to rise to 15-20% of the global market"

Sources: ABI research News (Jan 2024) and Dell'Oro Report (August 2024)

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RAN Standardization

Standardization authority in
Mobile Network space

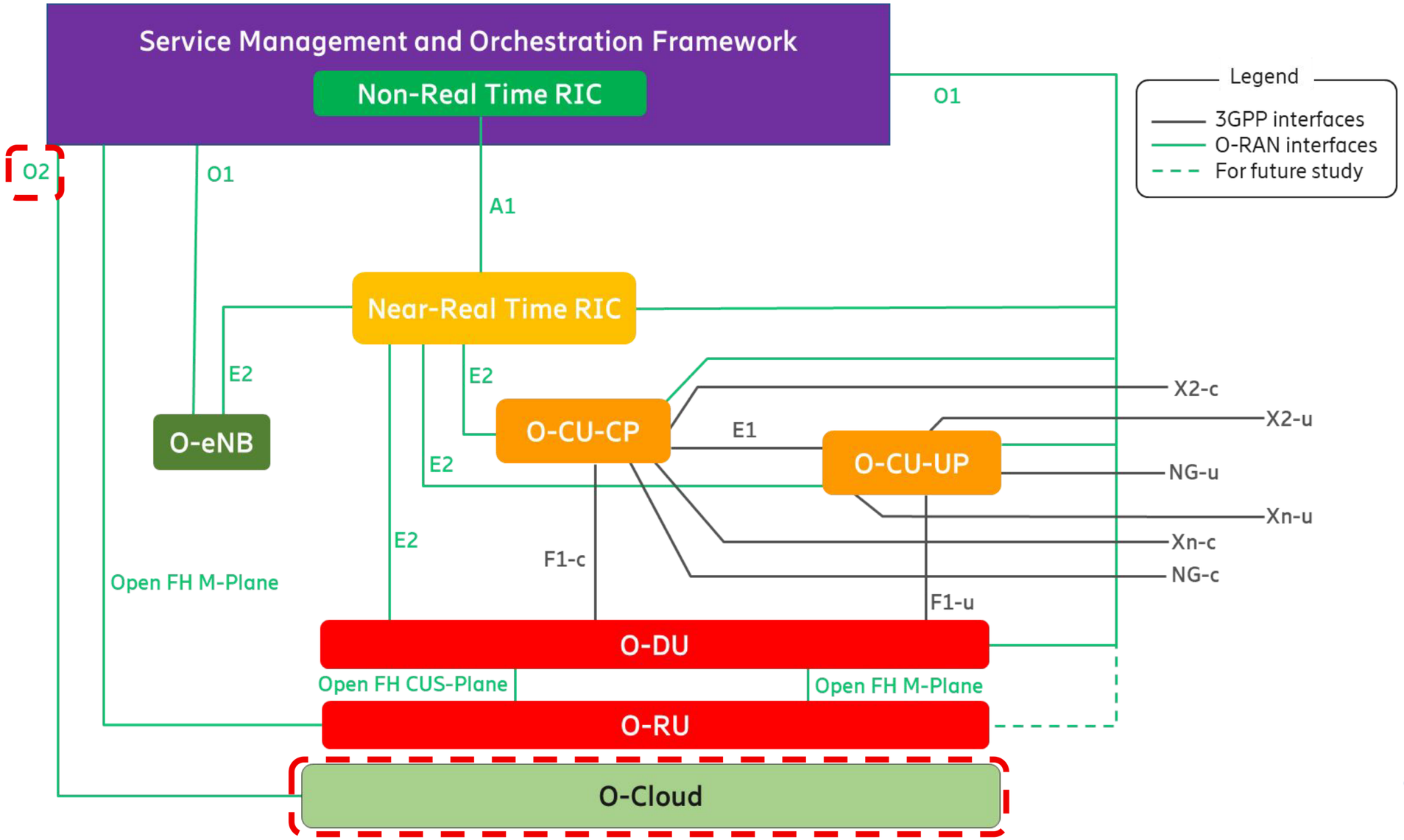
O-RAN Alliance takes RAN
related 3GPP specifications
and complements those

De Facto standards initiative
within RAN space

TELECOM INFRA
PROJECT

TIP runs practical workgroups and Community Labs
to test Open RAN related work products and builds
The Industry Ecosystem

O-RAN Architecture



Source: https://www.o-ran.org/specifications

O-RAN ALLIANCE Compliant Model

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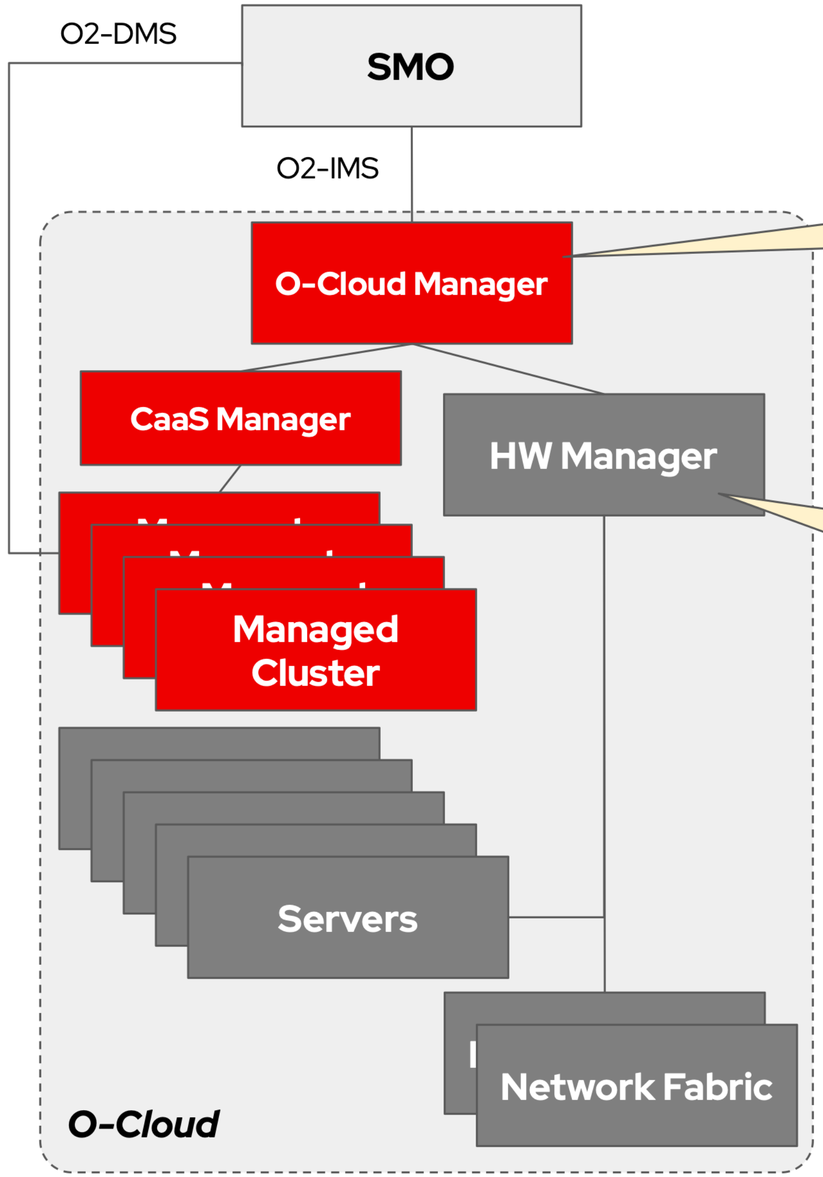
What Is O-Cloud Based on O-RAN?

O-RAN only specifies the external interfaces of O-Cloud (O2-IMS and O2-DMS) and set of capabilities (use-cases and requirements) O-Cloud should fulfill.

O-RAN does not specify internals of O-Cloud **O-Cloud is Black Box from O-RAN perspective**



O-Cloud manager is a **function**
Not necessarily a dedicated software component

HW Manager manages: servers, storage and network fabric

SMO vendor | HW vendor | Red Hat

Red Hat

OpenShift as a Foundation of O-RAN O-Cloud Solution

O-RAN Alliance WG1, WG6 and WG11 Contributions

Influence O-RAN to implement an intent-based API for the O2 interface and follow the K8s declarative paradigm

Continue participation in PTP, HW Acceleration and Energy Savings

O2-IMS Interface Development

Analysis and implementation of API for O2 interface

Hardware Management

Cooperation with Hardware vendors to deploy and provision the O-Cloud

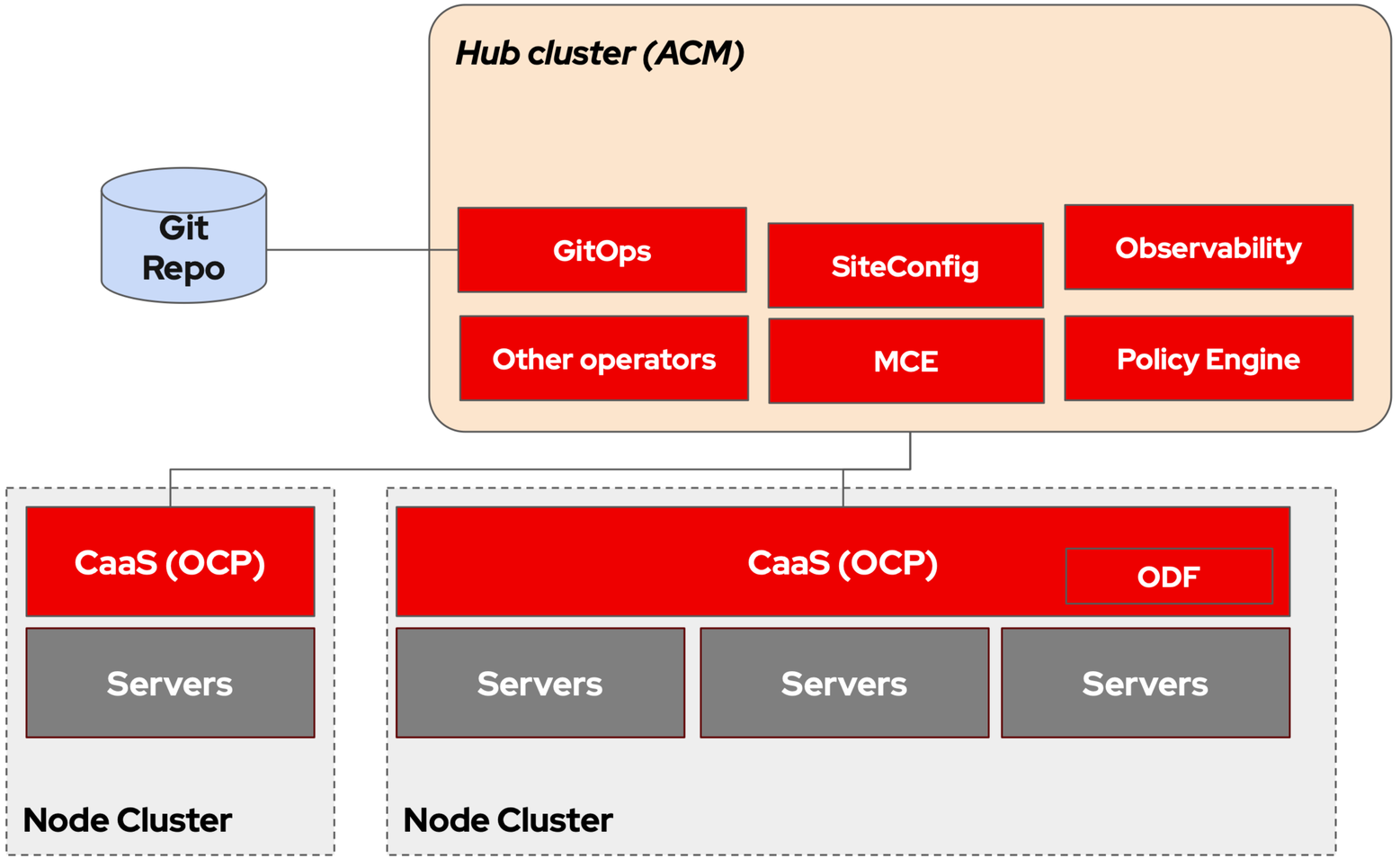
SMO/RAN Solution Integration

Pre-integration and validation with the SMO/RAN

Full LCM for RAN, Cloud, HW

Solution Support

Red Hat Architecture for O-RAN



HW vendor | Red Hat | 3rd Party

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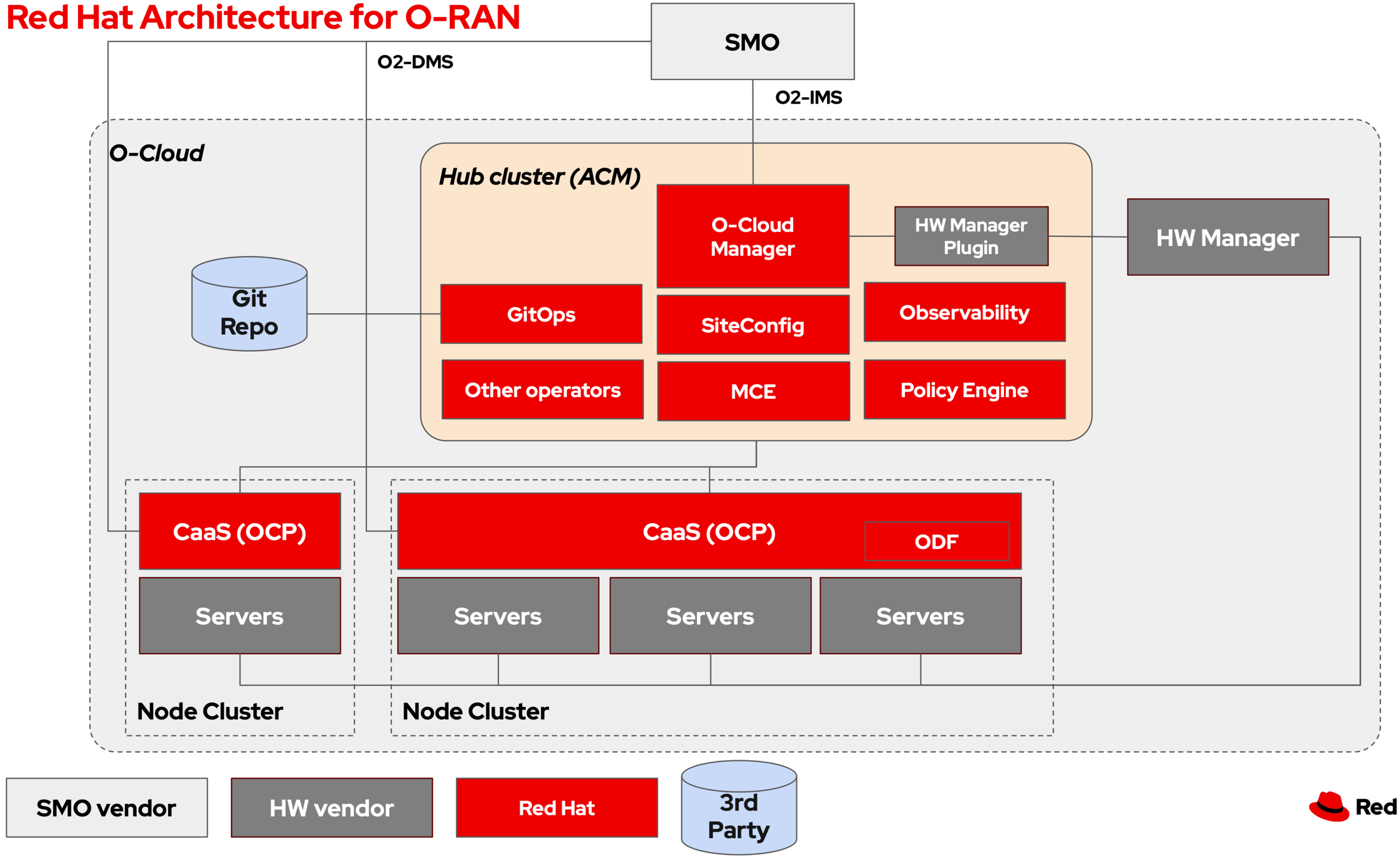
Red Hat Architecture for O-RAN



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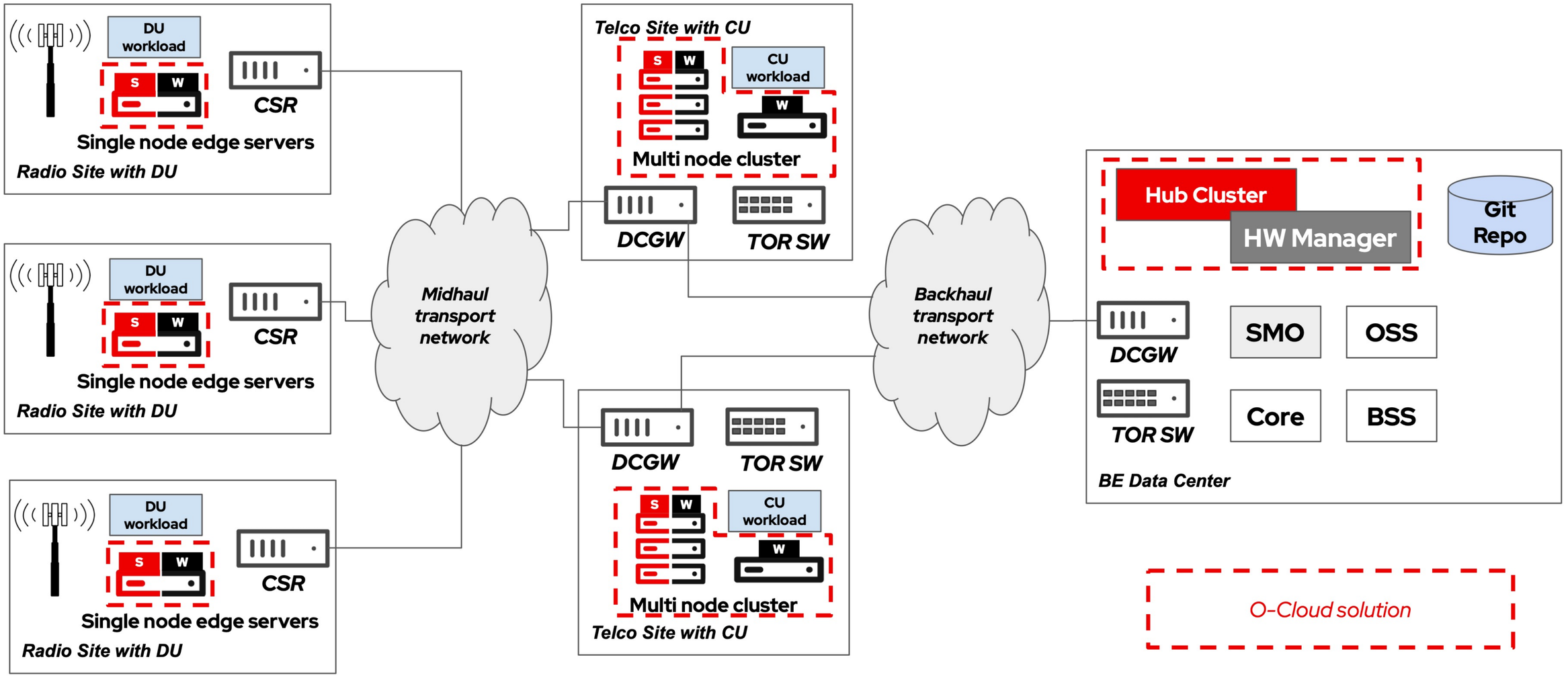
O-Cloud in Distributed RAN (DRAN) scenario



SMO vendor | HW vendor | Red Hat | RAN workload vendor | 3rd Party

CSR - Cell Site Router
DCGW - Data Centre Gateway
TOR SW - Top Of the Rack switch

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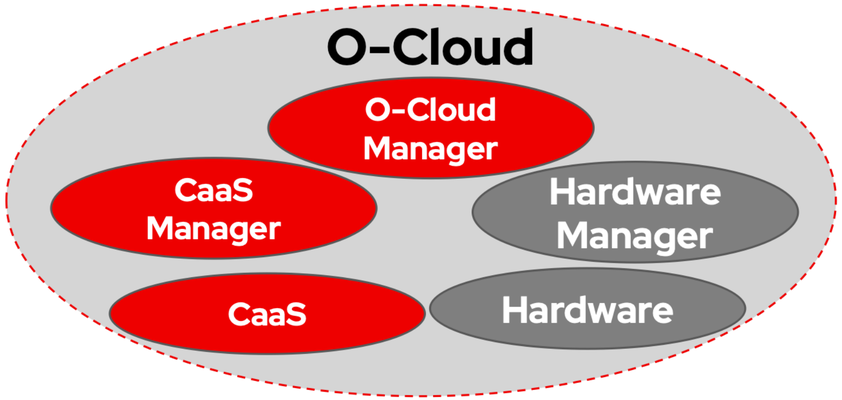
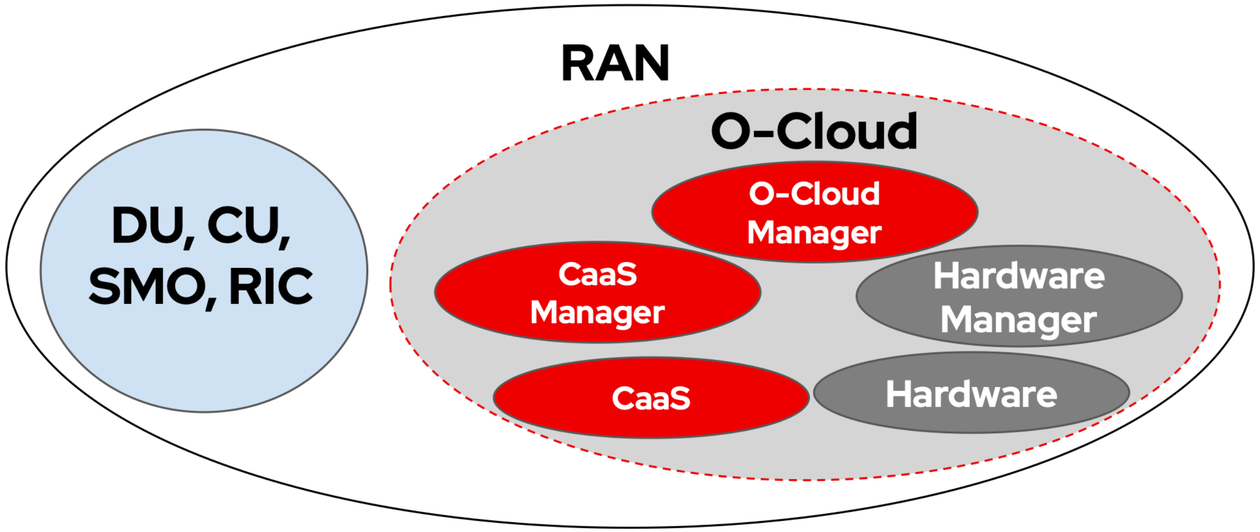
Do You Consider O-RAN Implementation?



Existing Telco Network | HW vendor | Red Hat | RAN workload vendor | E2E System Integrator

Red Hat

Do You Consider O-RAN Implementation?



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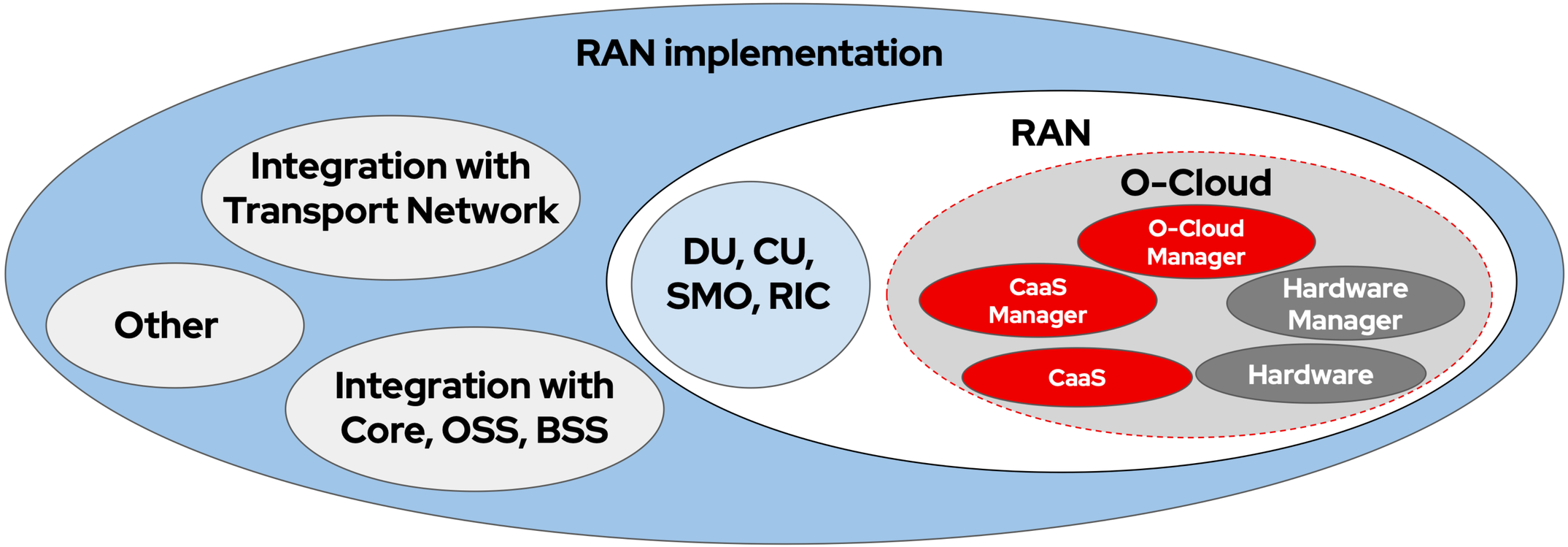
Do You Consider O-RAN Implementation?



- How do you see the responsibility split between workload/CaaS/HW partners?
- How do you see the role of SI for E2E RAN implementation?

Existing Telco Network | HW vendor | Red Hat | RAN workload vendor | E2E System Integrator

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