SAP Edge Integration Cell on PRIMERGY

Configuration, Design and Sizing Best Practices

This document extends the Best Practices SAP Edge Integration Cell describing how to define on-premises SAP Edge Integration Cell landscape using either Bare-metal or Virtualization. Different ways to use servers efficiently is described in architecture - section. Correct sizing according to needs of SAP application plays also important role and it is addressed as well.

Introduction

SAP Edge Integration Cell is a containerized application offered by SAP, which acts as an extension of the SAP Integration Suite, which is a cloud offering by SAP. The SAP Integration Suite, thus SAP Edge Integration Cell, allow the integration of different SAP and non-SAP applications. It facilitates communication between these applications and their different interfaces, allowing centrally controlled data exchange.

SAP Edge Integration Cell offers these capabilities on-premises, in the data center of the customer. Prominent use cases for the Edge Integration Cell include: Data sovereignty, Compliance requirements, Connectivity and Latency Requirements.

Design

Architecture

SAP Edge Integration cell runs on SUSE Rancher. To run SUSE Rancher, you will need a Rancher Server Cluster, which can take over the management of multiple clusters running actual workloads (so-called Downstream Clusters). Downstream Clusters themselves consist of nodes that take over management tasks of the cluster (Controlplane nodes and etcd nodes) and Worker Nodes, which run the actual workloads. There always need to be three etcd nodes for high availability. Therefore, the minimum starting configuration should be three physical nodes.

Depending on the scenario, management and worker nodes may be separated, or they may run on the same hardware. If choosing a separated approach, the following (physical) nodes need to be considered:

- 3x Rancher Nodes (Running the Rancher Cluster) Existing Management Nodes can be used)

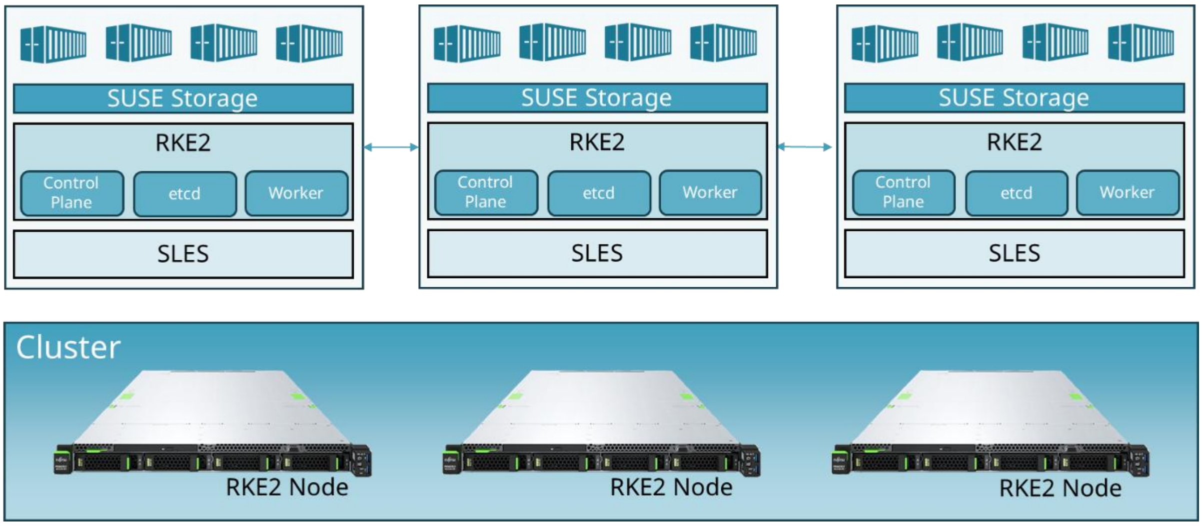
- 3x Downstream Cluster Management Nodes (managing the cluster with the actual workload)
- 3x Worker Nodes (running the actual workload)

If choosing an all-in-one approach (sometimes also referred to as “HCI”), three physical nodes would suffice.

The different architecture options are further described in the following.

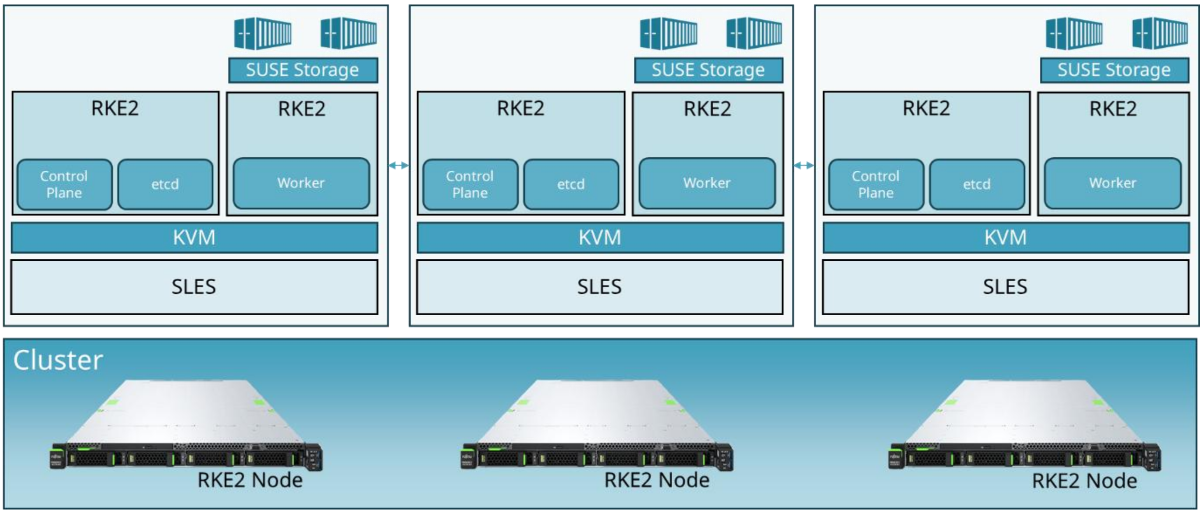
Option 1: Bare-metal

So called Bare-Metal installation does not have any virtualization components and all software components are directly installed after installing the OS. It has its benefits in small test installations, when only application functionality needs to be tested. On the other hand, it most likely leads into having underused servers with excess resources like CPU and Memory.



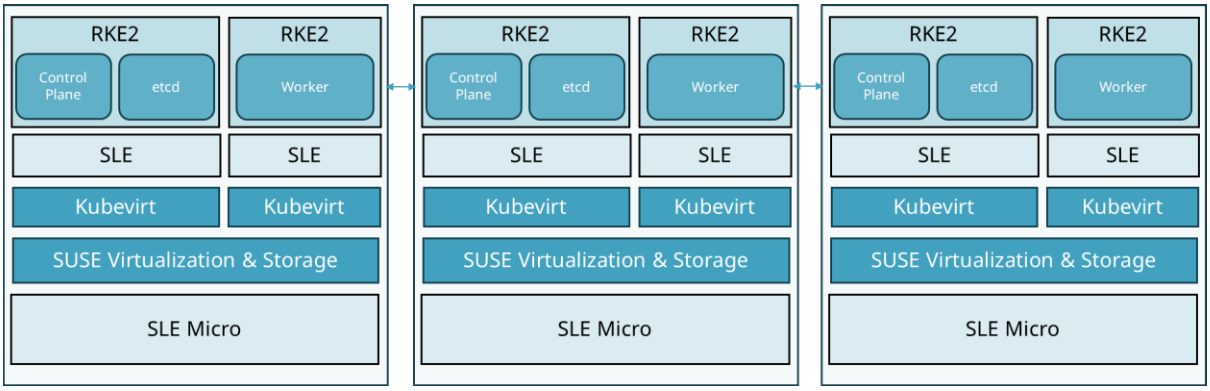
Option 2: Virtualization – KVM

Virtualization allows more efficient use of server resources like CPU and Memory. It also isolates different application instances network- and storage-wise. KVM is used here as a solution as it comes included in SUSE Linux Enterprise Server OS. KVM is suitable for smaller landscapes as it needs to be configured/managed semi-automatically. It is also possible to use VMWare as virtualization and the decision what to use is most likely defined by already existing solution or experience.



Option 3: Virtualization – SUSE Virtualization

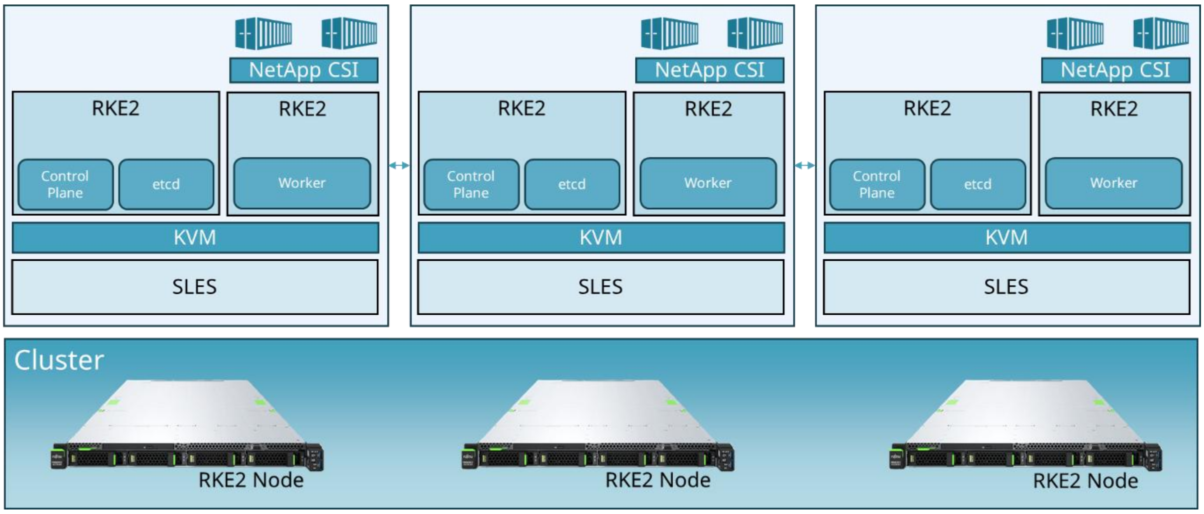
SUSE Virtualization (Harvester) is a hyper-converged infrastructure (HCI) solution integrating above mentioned components like KVM, SUSE Storage (Longhorn) together. It adds more capabilities like UI for managing virtualization, networking, storage, backups and snapshots. As Longhorn is built-in it reduces overhead of installing Longhorn separately on every RKE2-cluster needing storage for applications. Furthermore, it provides better fault-tolerance as it is able to restart VM if a HW-node fails.



Option 4: KVM with NetApp Storage

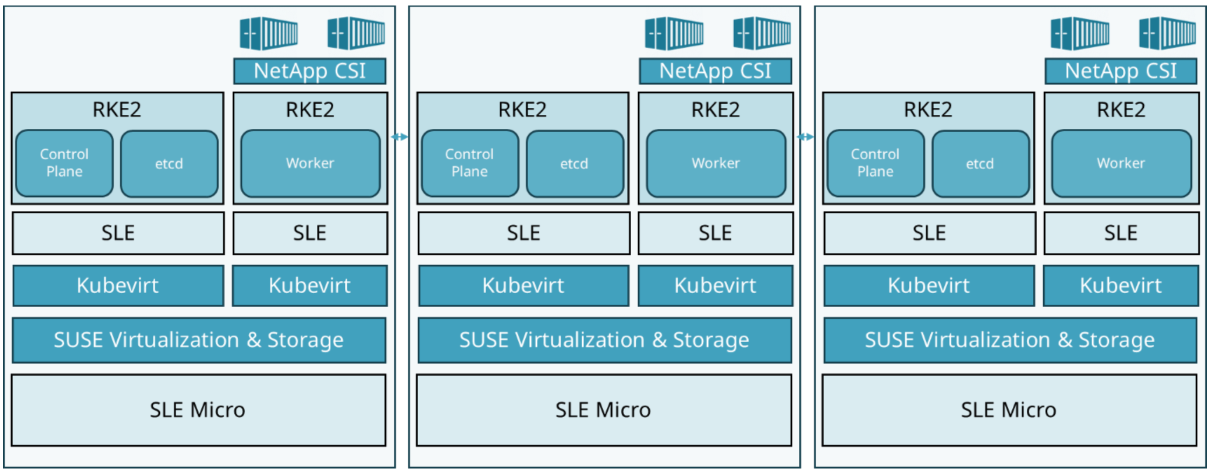
A Kubernetes cluster cannot access storage directly and normally a CSI-driver (K8S CSI) is used to connect to an external storage. Addition to those CSI-drives listed as tested in SAP note 3247839 it is planned to test also ONTAP NAS driver integration.

Instead of installing Longhorn on RKE2, NetApp CSI is installed, Additionally NFS-packages are needed in VM-OS.



Option 5: SUSE Virtualization with NetApp Storage

Instead of installing Longhorn on RKE2, NetApp CSI is installed, Additionally NFS-packages are needed in VM-OS. Longhorn remains in Harvester as it is used for storing i.e OS-images.



SUSE Licensing

Disclaimer: the following section describes the SUSE Licensing conditions at the time of writing this document. Those rules may change, please consult [SUSE Subscription Terms] for information on this topic.

Different bundles are available from SUSE for Enterprise Container Management. We recommend using SUSE Rancher Suite for licensing with Edge Integration Cell. It contains all necessary components and is applicable to most use cases.

You may use a different bundle, e.g. SUSE Rancher Prime if you neither need SUSE Storage nor SUSE Virtualization (if using third-party storage and non-virtualized deployments). A full list of the different SUSE options can be found below.

Product	SUSE Kubernetes Engine	SUSE Rancher Prime	SUSE Rancher Suite	SUSE Virtualization	Standalone or Add-On
SUSE Linux Micro	✓	✓	✓	✗	Standalone
SUSE RKE2/K3s	✓	✓	✓	✗	No
SUSE OS Management (Elemental)	✗	✓	✓	✗	No
SUSE Rancher Management Server	✗	✓	✓	✓	No
SUSE Observability	✗	✓	✓	✗	No
SUSE Rancher Prime Application Collection	✗	✓	✓	✗	No
SUSE Observability	✗	✗	✓	✗	Add-On
SUSE Storage	✗	✗	✓	✓	Add-On
SUSE Security	✗	✗	✓	✗	Add-On
SUSE Virtualization	✗	✗	✓	✓	Standalone

The general licensing rules are:

- Nodes without any workloads (productive or non-productive workloads) are not counted for licensing (e.g. nodes for cluster management, control plane).
- The subscriptions are stackable.

The number of subscriptions required is following the license metric, which is dependent on the scenario:

- Virtualized deployment (includes virtualization on KVM):
  Core-based licensing
- Bare-Metal Deployment:
  Core-based or socket-based licensing

Core-based licensing

Core-based licensing is applicable in both virtualized and bare-metal deployments. One subscription covers two (2) Cores or four (4) vCPUs. To get the correct number of subscriptions, you need to collect the total amount of vCPUs for all worker nodes[1]. You then divide this number by four (4) to get the amount of subscriptions needed.

For example:

- Four worker nodes (4)
- Eight vCPUs per worker node (8)

*= 4 * 8 / 4 = 8*

Following order codes are used for core-based licensing for SUSE ECM at Fsas:

Material number	Description
S26361-F2348-P848	SUSE Rancher Suite 2Core/4vCPU Prio 1y
S26361-F2348-P849	SUSE Rancher Suite 2Core/4vCPU Std 1y
S26361-F2348-P846	SUSE Rancher Prime 1-2Soc/64Core Prio 1y
S26361-F2348-P847	SUSE Rancher Prime 1-2Soc/64Core Std 1y

Socket-based licensing

For Bare-Metal deployments and for SUSE Rancher Suite using SUSE Virtualization as the hypervisor, socket-based licensing may be applied. A socket-based subscription covers only one physical node with one or two sockets and up to 64 cores. To license further sockets or cores, another subscription needs to be added.

For example:

- Two physical nodes
  - Node 1: two sockets and 32 cores each CPU
  - Node 2: two sockets and 40 cores each CPU

= (32 * 2 / 64) + (40 * 2 / 64) = 1 + 1.25 = 2.25 → three subscriptions required in total

Following order codes are used for core-based licensing for SUSE ECM at Fsas:

Material number	Description
S26361-F2348-P850	SUSE Rancher Suite 1-2Soc/64Core Prio 1y
S26361-F2348-P851	SUSE Rancher Suite 1-2Soc/64Core Std 1y
S26361-F2348-P846	SUSE Rancher Prime 1-2Soc/64Core Prio 1y
S26361-F2348-P847	SUSE Rancher Prime 1-2Soc/64Core Std 1y

The following table shows which architecture options would require which subscriptions:

Option	SUSE Linux Enterprise Server	KVM	SUSE ECM Offering
1 Bare Metal	Yes	No	SUSE Rancher Suite, core-based or socket-based
2 Virtualization – KVM	Yes	Yes	SUSE Rancher Suite, core-based
3 Virtualization – SUSE Virtualization	No	No	SUSE Rancher Suite, core-based or socket-based
4 KVM with NetApp Storage	Yes	Yes	SUSE Rancher Suite or SUSE Rancher Prime, core-based
5 SUSE Virtualization with NetApp Storage	No	No	SUSE Rancher Suite, core-based or socket-based

For SUSE Linux Enterprise Server and KVM please see following order codes:

Material number	Description	KVM included?
S26361-F2348-P461	SUSE LES 1-2 Sock 24x7 L3 Supp. 3Y	No
S26361-F2348-P464	SUSE LES 1-2 Sock 9x5 L3 Supp. 3Y	No
S26361-F2348-P531	SUSE LES LP 1-2 Sock uVirt 7x24 L3S 3Y	Yes
S26361-F2348-P534	SUSE LES LP 1-2 Sock uVirt 5x9 L3S 3Y	Yes

Hint: For multi-cluster environments, the environment has to be licensed for each cluster, even if sharing the same physical hardware.

Sizing

SAP Sizing Information

SAP-note Prerequisites for installing SAP Integration Suite Edge Integration Cell (3538596) describes the minimum configuration needed for running SAP Edge Integration Cell. Following table takes also into account additional resources needed for OS, RKE2 and Longhorn for a minimum configuration of SAP Edge Integration Cell on PRIMERGY for bare metal or virtualized workloads.

	Description	CPU	Memory (GB)	Storage (GB)
Messaging	1k Service tier	2	7	350
Bare-metal				
	OS	1	24	50
	Suse Storage	4	4	
	Control Plane RKE2	4	8	
	Worker node SAP (HA)	16	64	101
	PostgreSQL	1	2	50
	Redis	1	1	10
	Prometheus			20
	Total	**29**	**110**	**581**
	HA fail-over			
	Messaging	1	3,5	
	Total HA fail-over	**30**	**113,5**	
	1k Service tier	2	7	350
VM				
	OS Host	1	24	50
	OS Guest for 2 VMs	2	48	150
	Longhorn	4	4	
	Control Plane RKE2	4	8	
	Worker node RKE2 + SAP (HA)	20	64	101
	PostgreSQL	1	2	50
	Redis	1	1	10
	Subtotal	**35**	**158**	**711**
KVM	Overhead 10%	3,5		
	Images			50
	Total	**38,5**	**158**	**761**
	HA fail-over			
	Messaging	1	3,5	
	Total HA fail-over	**39,5**	**161,5**	

SAP provides also even more detailed sizing: Sizing Guidelines | SAP Help Portal

Configuration

WebArchitect Templates

When configuring SAP Edge Integration Cell, we recommend using a template offered in WebArchitect as a starting point.

You find the Templates under *Solutions → Kubernetes on PRIMERGY → SAP Edge Integration Cell*.

For worker nodes or deployments, where worker nodes and downstream cluster management nodes are running on the same physical nodes, you may choose the "*SAP EIC Worker Node*" Template. You can start with as few as three physical nodes, using SUSE Virtualization for best resource utilization and affordable entry configurations, depending on sizing and workload. For best resource utilization, we usually recommend an all-in-one approach, meaning worker nodes and control plane nodes share the same physical nodes, enabled by SUSE Virtualization.

In case you do not have a Rancher cluster yet, select three "*Bare Metal Master Node*" from the *SUSE Rancher* templates. If you wish to run separate downstream cluster management nodes, you may configure another three "*Bare Metal Master Node*" from the templates in the *SUSE Rancher* folder.

RAM, Disks

There are no certification requirements from SAP or SUSE, so you can flexibly choose the components which best fit to the given workload and the sizing outcomes defined above.

CPU

Any CPU that fits the sizing and workload requirements can be selected. For best economic value when considering licensing aspects, we recommend using a CPU with a core count of 32 per CPU.

Boot disks

We recommend using M.2 devices with at least 960 GB capacity. Using less capacity may result in an incorrect OS Installation target choice during installation. Additionally, we recommend the "pre-configured RAID" option, so that the RAID is ready-to-use when the system is shipped.

Licenses and subscriptions

Running SAP Edge Integration Cell workloads on SUSE will require licenses from SUSE and SAP.

Fsas Technologies offers SUSE licenses as OEM licenses in the WebArchitect. The template includes a SUSE Rancher Suite subscription with Priority Support.
For Rancher subscriptions, only the worker nodes are to be licensed. To be precise, all physical nodes, which may run a worker node (including virtual ones), need to be considered. If a node is purely dedicated to (Rancher) Cluster Management, no subscription is required.

For detailed overview of packages and included functionality, refer to the section "Licensing".

The SUSE Rancher Subscriptions can be added via WebArchitect under *Components → Software → PRIMERGY-Software: SUSE Rancher.*

If you run SLES and KVM on the node, you also will need to add subscriptions for that, which you can find here: *Components → Software → PRIMERGY-Software: SUSE LINUX.*
However, due to the additional license costs, we recommend using SUSE Virtualization (HCI) rather than SLES + KVM, as SLE Micro and SUSE Virtualization (HCI) are already included in the Rancher Prime Suite. SLES and KVM are not included, therefore need to be licensed additionally.

SAP licenses are not offered by Fsas Technologies and need to be acquired from SAP directly, as they are part of the SAP Integration Suite Subscription.

Support

Support is required for SUSE Components as well as PRIMERGY. Support can be added in the via the Service assistant, which can be found in the left pane under "configure services". There, you can select the components and the required service levels, based on which the correct Support Packs will be added.

Please note, there is no SPoC / TSS (Solution Support) offering available at the moment.

Solution Identifier

When configuring projects for SAP Edge Integration Cell, make sure to include the following solution identifier for correct tracking and reporting purposes (required once per solution/configuration, not once per node).

Order Code	Description
D:SAP-ID-001	Sol-ID SAP EIC Bespoke

Implementation

You can find Implementation Services for Kubernetes on PRIMERGY here:
https://docs.ts.fujitsu.com/dl.aspx?id=a60a9190-ead6-4d50-8df9-6464f2c7c835

These Implementation Services are available through the WebArchitect under Options → Service Options → Data-Driven Services: Kubernetes on PRIMERGY.

Additionally, for SAP related implementation tasks, you can configure an ImplementationPack for SAP related tasks with the following ImplementationPack.

Order Code	Description
FSP:G-IM25300PRDDS	ImplementationPack SAP Time (Germany)
FSP:G-IM253XXPRDDS	ImplementationPack SAP Time (Outside of Germany)

However, please make sure to reach out to the Technical Competence Center team or raise a query via AskPSS in advance to agree on the scope and time of the implementation!

Useful links

SUSE

Best Practices SAP Edge Integration Cell

SAP

Prerequisites for installing SAP Integration Suite Edge Integration Cell (3247839)

SAP Integration Suite : restrictions for the Edge Integration Cell (3391207)

Sizing Guidelines | SAP Help Portal

SAP Road Map Explorer

Administering Edge Nodes

SAP Integration Suite Pricing

Fsas Technologies

SUSE Rancher

More information

Fsas Technologies Portfolio
Built on industry standards, Fsas Technologies offers a full portfolio of datacenter hardware, software and related services. This allows customers to select alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

Data Center Solutions
https://www.fsastech.com/en-eu/

Fujitsu green policy innovation
Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment.

Using our global know-how, we aim to contribute to the creation of a sustainable environment for future generations through IT.

Please find further information at http://www.fujitsu.com/global/about/environment

Disclaimer
Please note that the data sheet reflects the technical specification with the maximum selection of components for the named system and not the detailed scope of delivery. The scope of delivery is defined by the selection of components at the time of ordering. The product was developed for normal business use.