

Requirements on Virtualization and Cloud Infrastructure

Ericsson Dynamic Activation 1

Ordering Guide

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1 Introduction

This document provides guidelines for deploying Ericsson Dynamic Activation (EDA) as a virtual cluster or in a cloud environment.

A Virtual Machine (VM) is a piece of software that can be executed on top of a hypervisor layer, emulating physical hardware. Guest refers to the operating system and the application running on a VM.

For general information about virtualized deployments, see *Function Specification Dynamic Activation Execution Environment*, Reference [1].

1.1 Purpose and Scope

The scope of this document is to specify the requirements of the host hardware and software components required for deploying the Dynamic Activation virtual appliance.

1.2 Target Group

The target group for this document is as follows:

- Solution Architect
- System Integrator

The target groups are described in more detail in the *Library Overview*, Reference [2], document.

1.3 Typographic Conventions

Typographic conventions are described in the document *Library Overview*, Reference [2].

For information about abbreviations used throughout this document refer to *Glossary of Terms and Acronyms*, Reference [3].





2 Requirements on Virtual and Cloud Infrastructure

This section describes the requirements on the physical host hardware, virtualized and cloud Infrastructure. These requirements must be met to be able to deploy the Dynamic Activation virtual or cloud appliance.

2.1 Host CPU Requirements

The host requires an x86-64 host processor with support for one of the following hardware-assisted virtualization instruction sets:

- AMD virtualization (AMD-V)
- Intel virtualization (VT-x)

2.2 Generic Requirements

This section describes generic requirements for both virtual and cloud deployments.

2.2.1 Block Storage / Ephemeral Storage

Dynamic Activation system requires the underlying infrastructure to provide either of the following in accordance with the output provided by the Dimensioning Tool:

- Block Storage – for Virtualized and Cloud OpenStack deployments
- Ephemeral disk – for Cloud CEE deployments

2.2.2 vNICs

Dynamic Activation system requires a minimum of two vNICs per VM:

- Internal
- External

2.2.3 External Access

The external network must be made routable through the virtual or cloud infrastructure hosting Dynamic Activation Virtual Network Function (VNF).



2.2.4 L2 Redundancy

Fail-over time at L2 level cannot be higher than 3000 ms.

2.2.5 L3 Redundancy

Dynamic Activation relies on VRRP for fail-over. In the underlying infrastructure the following applies:

- IGMP snooping must be disabled
- ARP spoofing must be enabled

2.2.6 IP Address Allocation

For Cloud deployments DHCP is used on all Dynamic Activation IP interfaces.

2.2.7 Latency

The latency towards surrounding systems (northbound and southbound) must not exceed 50 ms in one direction.

The round-trip time between the Dynamic Activation VMs must not exceed 2 ms.

2.2.8 Packet Loss

Packetloss towards surrounding systems (northbound and southbound) must not exceed 1×10^{-3} .

Packetloss internally (between the Dynamic Activation VMs) must not exceed 1×10^{-5} .

2.2.9 Dimensioning

- Each VM requires at least 20 GB of RAM.
- Dynamic Activation image size is 50 GB.
- Required number of vCPUs (allocated hyper threads) per VM (N) can be calculated by using the formula:

$$N \times \text{CPU-clock-frequency (in GHz)} \geq 19$$

Note: For experiment use, Dynamic Activation VM can be allocated a minimum of 6 vCPUs (hyper threads) without generating alarms related to high CPU load and still be able to handle occasional provisioning requests.



For more detailed information about dimensioning, please refer to Dimensioning Tool, which can be found in the Ericsson Product Catalog, or via [this link](#).

Caution!

Running Dynamic Activation VMs with less resources than what is proposed by the Dimensioning Tool can cause throughput problems, for which Ericsson takes no responsibility.

2.3 Supported Virtualized and Cloud Infrastructure

Virtualized deployment of Dynamic Activation requires either of the following:

- KVM
- VMWare
- Cloud deployment on ECEE.
- Cloud deployment on OpenStack.

2.3.1 KVM

A host platform with Linux x86_64 kernel (2.6.32 or later), and corresponding KVM kernel modules, for example:

Note: Libvirt user-space components are required for deploying, and managing virtual machines on top of KVM.

- kvm.ko
- kvm-amd.ko or kvm-intel.ko

It is recommended to use the KVM kernel modules and libvirt user-space components provided by the package manager in your Linux distribution.

System verification of virtual Dynamic Activation has been done for KVM hypervisor running on RedHat Enterprise Linux (RHEL6/RHEL7/RHEL7.1/RHEL7.2).

For more information on:

- KVM kernel modules, see Reference [4]
- libvirt user-space tools, see Reference [5]



2.3.2 VMWare

VMware ESXi 5.1 and later.

For more information, see Reference [7].

2.3.3 ECEE

Cloud deployment requires a working Ericsson Cloud Execution Environment (ECEE) release R6A/1 or later, based on ECEE backwards compatibility.

Deployment is supported via Heat Orchestration Template (HOT) – minimum `heat_template_version: 2014-10-16`.

For more information, see Reference [8].

2.3.4 OpenStack

OpenStack (Newton or later) is a supported platform for cloud deployments.

Deployment is supported via Heat Orchestration Template (HOT) – minimum `heat_template_version: 2016-10-14`.

For more information, see Reference [9].



Reference List

Ericsson Documents

- [1] *Function Specification Dynamic Activation Execution Environment*, 6/155 17-CSH 109 628 Uen
- [2] *Library Overview*, 18/1553-CSH 109 628 Uen
- [3] *Glossary of Terms and Acronyms*, 0033-CSH 109 628 Uen

Online References

- [4] <http://www.linux-kvm.org/page/Downloads>
- [5] <http://libvirt.org/>
- [6] http://www.linux-kvm.org/page/Tuning_KVM
- [7] <http://pubs.vmware.com/vsphere-51/index.jsp?topic=%2Fcom.vmware.vsphere.doc%2FGUID-1B959D6B-41CA-4E23-A7DB-E9165D5A0E80.html>
- [8] <http://cpistore.internal.ericsson.com/>
- [9] <https://www.OpenStack.org/>