

Edge Device for Genesis VNA



VNA Edge Device

Cloud based VNA solutions come with the promise of eliminating on-premises based hardware in your imaging facilities. In these deployments, imaging related patient data and the applications needed to store, view and process them are stored and accessed via a cloud hosted service. But an often overlooked fact of these solutions is that there must be a secure and at the same time efficient means of transporting data to and from the cloud. And in the case of disrupted cloud availability, there needs to be a way to maintain clinical continuity within the radiology and imaging departments.

This is the purpose of GE HealthCare's Edge Device for Genesis VNA.¹ Deployed as an on-premises component of the solution, it manages the connectivity to the cloud for your DICOM and HL7 dataflows. And since systems exchanging data via the DICOM and HL7 protocols within a healthcare organization rarely do so over secured channels, the Edge Device also secures all the bi-directional communications between your site and GE HealthCare's Genesis VNA services.

Other important services are also provided by the Edge Device such as: tag morphing, compression, pre-fetching, HL7 message transformation, and more.

Finally, the Edge Device enhances business continuity by providing access to the patient data in case there is a connectivity issue with the cloud services. This is done via a local enterprise archive and DICOM router so that data can be retrieved and routed via the on premise cache.

Deployment

The deployment of the Edge Device is done on your virtualization infrastructure, or via a dedicated hardware server. Genesis VNA customers provide the necessary Virtual Machines (VMs) and the additional infrastructure such as SQL Server, Active Directory, storage and Load Balancers (if necessary).

Edge Device Components

All your existing and new modalities and DICOM systems (such as workstations) can connect to the Genesis Edge Device. The connectivity between these systems and the Edge Device is through your internal network. Organizations may leverage backups, storage replication or any other high availability/disaster recovery (HA/DR) infrastructure in place to reduce the Recovery Time Objective (RTO) and Recovery Point Objective (RPO).

The Genesis Cloud Edge Device consists of the following components:

Component	Purpose	
Enterprise Archive	The Enterprise Archive (EA) receives exams from the modalities and compresses the DICOM images to JPEG2000 Lossless before they are transported to the Genesis VNA cloud storage instance by means of shadowing. All the communication between the edge EA and the cloud storage is via Secured DICOM. It also caches the images to support clinical/business continuity in case the connection to the cloud is dropped.	
Centricity™ Clinical Gateway	The Centricity Clinical Gateway (CCG) receives and forwards all HL7 messages from related systems (such as EMRs, RIS, etc.) to the Genesis VNA HL7 service via TLS (MLLPS). It also builds the local DICOM Modality Worklist as needed.	
SQL Server	The SQL Server hosts the EA and CCG databases.	

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Specifications

To support deployment of the Genesis VNA Edge Device, customers need to provide one VM with Windows Server 2019 and SQL Server 2019 Standard Edition and a second VM with Windows Server 2019 per these specifications:

VM/Applications	Specs (Minimum)	Count	Description
VM1/SQL+EA+CCG	Cores	8 cores at 2.6Ghz or above.	
	RAM	16GB	2GB OS, 4GB EA, 4GB CCG, 6GB SQL Server
	Network	1Gb	
	Storage	2TB SSD	OS + Apps C: 100GB DB D: 300GB LOG E: 100GB Tran Logs EA Cache F: 1500GB
	Licenses	1 Windows 2019 Server Standard	
		1 SQL Server 2019 Standard ²	
		1 EA	
		1 Cloverleaf	
VM2 / Zero Footprint Viewer	Cores	8 cores at 2.6Ghz or above.	
	RAM	16GB	
	Network	10Gb	
	Storage	200GB SSD	100GB OS + Apps, 100GB ZFP Cache
	Licenses	1 Windows 2019 Server Standard	
VM3/RMS	Cores	2	
	RAM	2 GB	
	Network	1 GB	
	Storage	62 GB	
	Licenses	Ubuntu 20.04.3 OS	

²The specifications for SQL Server are documented in the Enterprise Archive 8 Pre-installation Guide, section SQL Server requirements.

