

i³ Grid Information Store

Whitepaper - 'Platform- and brand independent archiving'

Introduction

The increase in digital data and the associated growing demand for storage capacity obliges companies to take a close look at how they have to store and archive these data, taking proper account of dynamic and static data. i³ groep has for several years been advising companies to split their data into dynamic and static data, which reveals that the volume of dynamic data is in fact not growing and that the volume of static data has the larger growth characteristics.

The infrastructure for accommodating dynamic data is above all determined by performance requirements and high levels of availability whereas static data will be used more and more as archives, where legislation and regulations and unlimited scalability will be the main concern. Moreover, this split between dynamic and static data provides the better stability for the infrastructure, with only dynamic data needing to be secured by traditional backup.

i³ groep is a partner of suppliers such as IBM, HP, EMC, HDS and NetApp and therefore also uses storage components from these suppliers when it comes to the storage of static data.

Apart from the outstanding performance of the above-mentioned products, these products also have an impact on the future of your environment. An archive system is normally purchased to serve for many years. As a result of technological developments, it may be desirable or necessary to amend the existing information infrastructure, which will necessitate changes of supplier or platform. This often requires a great deal of time.

What is iGIS?

On the basis of these assumptions i³ groep has built its own solution where dependence on the relevant hardware suppliers is restricted to a minimum. i³ groep has selected a design in which storage virtualisation software based on the NetApp Storage GRID is combined with (storage) hardware into a grid-based archive system called i³ Grid Information Store, referred to below as iGIS. i³ groep will take care of delivery, installation and maintenance, if desired, on a 24/7 basis.

iGIS advantages

- Flexible
- Transparent
- Cost savings
- Standardisation
- Any to any connection: all platforms can be connected

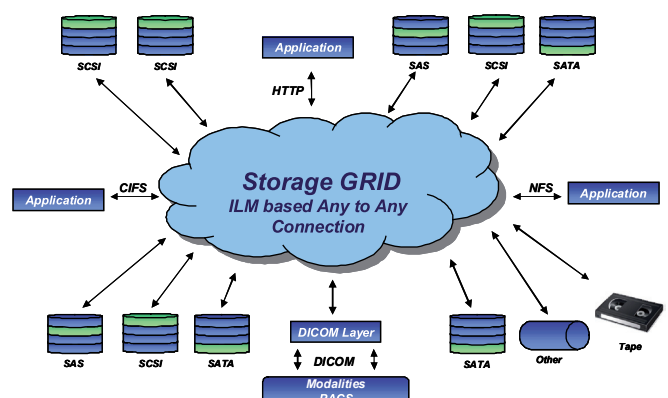
i³GRID Information Store



iGIS is a combination of storage virtualisation software and storage with which several storage systems, spread over several locations, together form a storage pool for the storage of fixed data such as (medical) images, documents and audio and video.

iGIS is installed on hardware that forms the virtualisation layer between the applications and the underlying storage. Applications may store and retrieve data via standard interfaces like CIFS and NFS. Here, virtualised servers are used in a highly-available configuration.

Data are stored by using policies with which, among other things, the number of copies, the geographical location and the desired storage tier are specified. The scalability of iGIS may extend to many petabytes spread over hundreds of locations via various kinds of network connections. The grid architecture provides a fault-tolerant, high-performance storage system that is scalable in terms of both capacity and geographical location.



integrating information infrastructures

Functional summary of components

Grid nodes

The iGIS is constructed by installing nodes. These nodes consist of standard virtualised hardware and, depending on the function, parts of the NetApp GRID software. Together they form the grid in which the various nodes can work with each other.

The following nodes may be used within iGIS:

- Gateway node.
- Control node.
- Admin node.
- Storage node.
- Archive node.

Gateway node:

The gateway node is the interface between the application to be linked to and the grid by means of standard protocols such as CIFS and NFS. The gateway node also provides replication between several gateway nodes, thus creating complete redundancy.

Control node:

The control nodes form the heart of the grid and manage the metadatabase and the ILM settings.

Admin node:

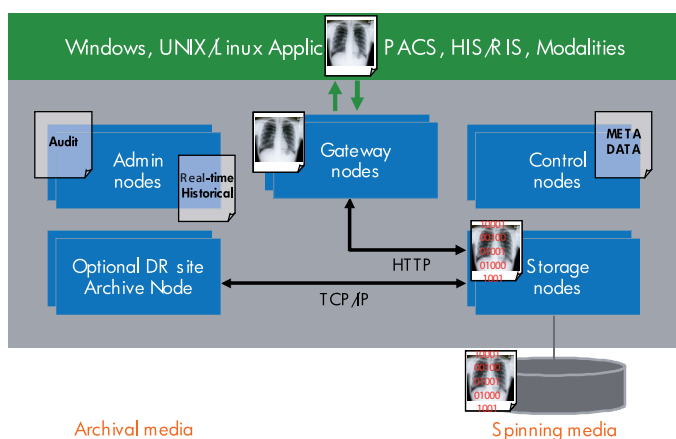
The admin node is the management node. The GUI is addressed via this node, permitting easy management of the grid.

Storage node:

The storage nodes provide the physical storage of the (encryption) data on disc.

Archive Node:

The archives nodes provide the physical storage of the (encryption) data on tape.



iGIS features

- Thanks to the automatic disaster recovery options, there is no longer any need for traditional backup/restore.
- Transparent migration of data when replacing storage hardware components.
- Connection of multivendor layered storage components.
- Adjustable ILM rules ensure a reduction in storage costs.
- Provides virtualised storage components over locations and tiers thereby isolates applications from the storage components.
- Uses industry-standard interfaces such as CIFS, NFS, HTTP.
- Monitors and guarantees data integrity proactively during storage, replication and retrieval.

iGIS component details

General

All iGIS server components may be constructed on the basis of standard hardware. The choice is made from the point of view of management (already-present installed base), extra functionality and support.

However, the total iGIS will offer the same basic functionality regardless of the hardware platform selected. All the iGIS components are built around a virtual server in which the processor, memory and disc capacities are configured. Various configurations are possible depending on the type of node.

Secondary Gateway Node

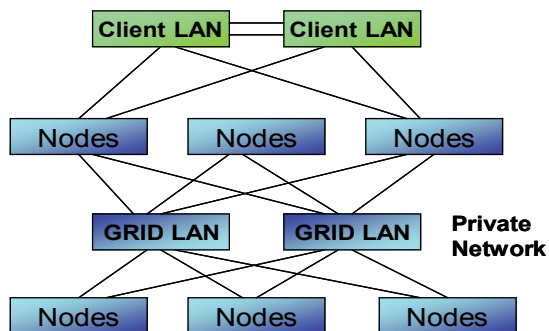
The secondary gateway node is only required in the event of the breakdown of the primary gateway node.

The iGIS may be constructed in various versions:

- All services have their own virtual node.
- A combination of services on virtual nodes (e.g. storage node and control node combination).
- Split of virtual nodes and physical nodes

LAN connections

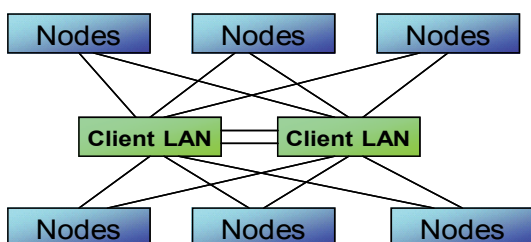
In order to connect the various nodes, the iGIS may be equipped with internal LAN switches. The nodes are connected at the back to a grid with these. This gives rise to an appliance design. The link to the client network is provided via 2 or more connections from the gateway nodes and/or the admin node. All other grid connections are routed via the internal private network. This results in a minimum number of connections required on the network.



Appliance GRID

iGIS can also be constructed without internal switches. The nodes are then linked directly to the existing client infrastructure via the (V)LAN. To this end, all the nodes are equipped with a client-specific IP address that must be configured as agreed. The advantage of this design is that it is complete flexibility. Nodes can be set up at various points in the client network. A network design must be produced for this design for the purposes of performance and management.

In the preparation of the structure of the iGIS, a full questionnaire is filled in with the client in which the above-mentioned matters such as IP addresses, routing etc. are specified.



Open GRID

WAN connections

If the iGIS is set up in two different locations, a connection must be created between these two locations. The connection must be set up as follows depending on the type of iGIS (appliance or open):

Appliance Grid

Because the iGIS Appliance is implemented with internal LAN switches and an internal private network with associated IP addresses (not client-specific), for the connection it must be routed to a second location. For this, it is sometimes necessary to include a network router in the grid at both locations.

'The advantage of this design is that it is complete flexibility'

Open Grid

With this type of grid, all the nodes in the entire grid at both locations are provided with client-specific IP addresses. The connection via the client IP network can be routed through here without modifications.



Summary

iGIS is a combination of storage virtualisation software and storage with which various storage systems, spread over several locations, together form a storage pool for the storage of fixed data such as (medical) images, documents, audio and video. For organisations that have several brands in-house and that have to deal with unbridled data growth and that need to keep data long-term, and here one might for example consider obligatory retention periods and the digitisation of (existing) information, the advantages of the i³ Grid Information Store are evident. This solution has already been implemented for a number of clients.

- Pay by use with CARE4Use
- Entirely managed by i³ groep
- Connection to multivendor layered storage components
- Savings on storage costs with ILM
- Spread over several locations possible
- Independent of the state-of-the-art technology and protocol
- Complies with legislation and regulations.

For more information about iGIS call one of our consultants on 0347-324600.