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Service migration and high availability via Dynamic DNS service

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Nowadays, more and more services are dynamically deployed in Cloud environments. Usually, the services hosted on virtual machines in Cloud are accessible only via IP addresses or pre-configured hostnames given by the target Cloud providers, making it difficult to provide them with meaningful domain names. The Dynamic DNS service for EGI Infrastructure is developed for solving the problem.

The Dynamic DNS service provides a unified, federation-wide Dynamic DNS support for VMs in EGI infrastructure. Users can register their chosen meaningful and memorable DNS hostnames in given domains (e.g. my-server.vo.fedcloud.eu) and assign to public IPs of their servers.

By using Dynamic DNS, users can host services in EGI Cloud with their meaningful service names, can request valid server certificates in advance (critical for security) and many other advantages.

This talk is devoted to special use cases of the Dynamic DNS service: service migration and high availability. There are many software solutions for developing high availability services but they are mostly designed for a single site or relying on load balancers. If the entire site hosting the services is down, e.g. due to power outage, software solutions like keepalived/haproxy cannot help.

The Dynamic DNS service can be used to achieve high availability for critical services that need to operate even a whole cloud site hosting the services are down. Critical services may have backup instances deployed on other sites located on other regions to minimize the risks that all instances of the services are down at the same time. Simple scripts will check the health of instances and assign the service endpoint to a working instance via Dynamic DNS service. Implementation of such a solution via Dynamic DNS is very simple and without single point of failure. The EGI secret management service [1] is the example of the solution.

1. <https://docs.google.com/document/d/18uqpZ2AkdAm9WMSDfQgDnv4Y4qMyoUpBilsLiHPfvk/edit?usp=sharing>

Any relevant links

Dynamic DNS service: <https://nsupdate.fedcloud.eu/>

Vault's design: <https://docs.google.com/document/d/18uqpZ2AkdAm9WMSDfQgDnv4Y4qMyoUpBilsLiHPfvk/edit?usp=sharing>

Topic

A Federated Compute Continuum

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