



Webinar: Dynamic DNS service

Viet Tran
Institute of Informatics SAS
Slovakia



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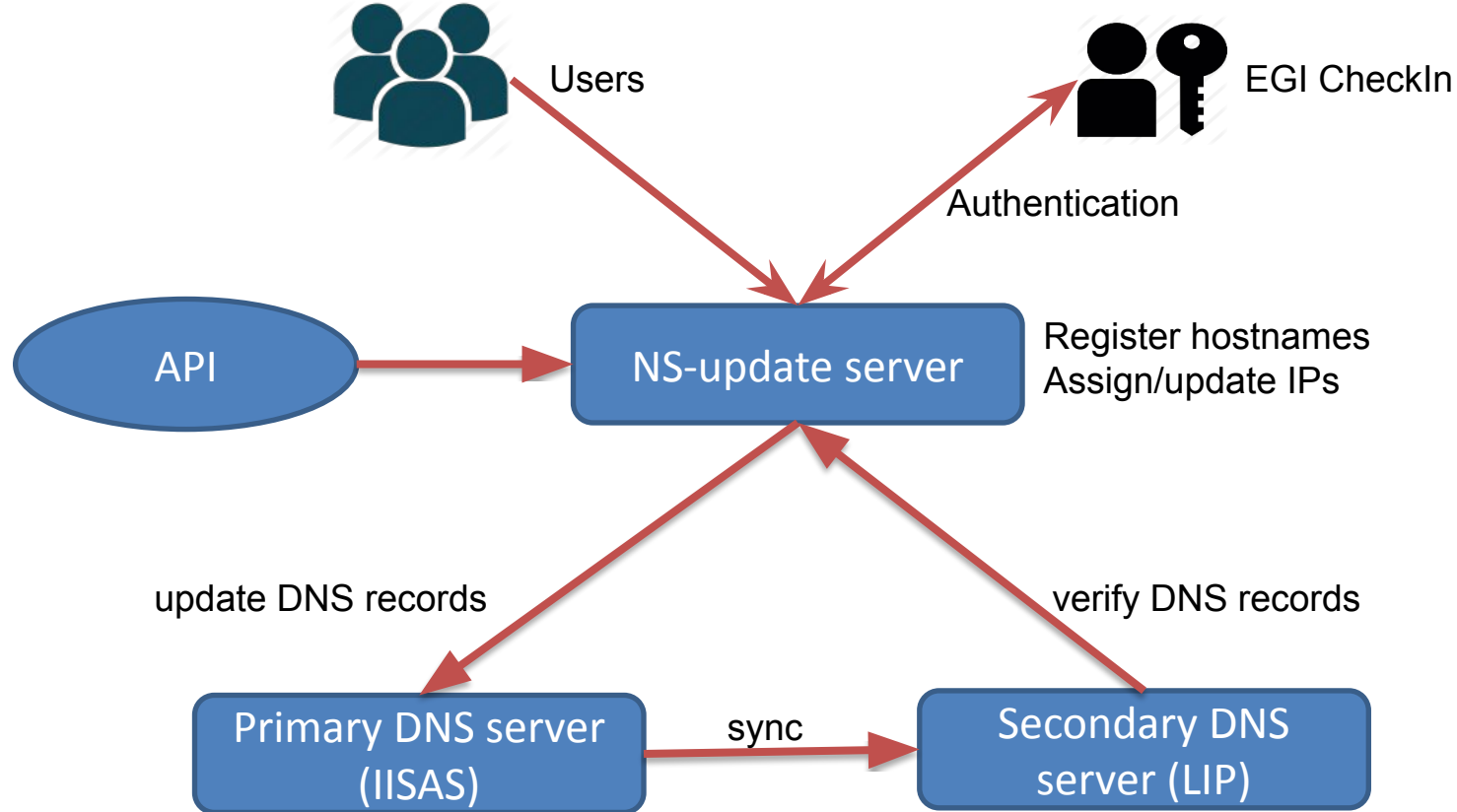
- VMs in EGI Federated Cloud are usually accessed only via IP addresses
- But hostnames are often required
 - for getting SSL certificates
 - for user-friendly access
 - for hiding complexity of clouds
- Dynamic DNS service was developed to address the issue

Dynamic DNS service



- With Dynamic DNS service, users can:
 - register sensible, memorable hostnames in supported domains
 - attach the hostnames to hosts/VMs in Cloud
 - then access services deployed in the VMs via the hostnames
- Full automation, self-service, immediately available, easy to use
- Independent, no additional requirements (software, support from Cloud providers or site admins)

Service architecture



Standards and compliance



- All communications between components are supported by standards:
 - OIDC authentication (NS-update – EGI CheckIn)
 - dyndns2 protocol (command-line client – NS-update)
 - RFC 2136 standard (NS-update – BIND9 server)
- All relationships are many-to-many, e.g.
 - One NS-update server – many OpenID identity providers
 - One NS-update server – many DNS servers (one portal for many domains)
 - Many NS-update servers – one DNS server (many portal for one domain)

- Register a hostname via <https://nsupdate.fedcloud.eu/>
- Assign/update an IP address to the hostname (attach the hostname to the server with the IP)

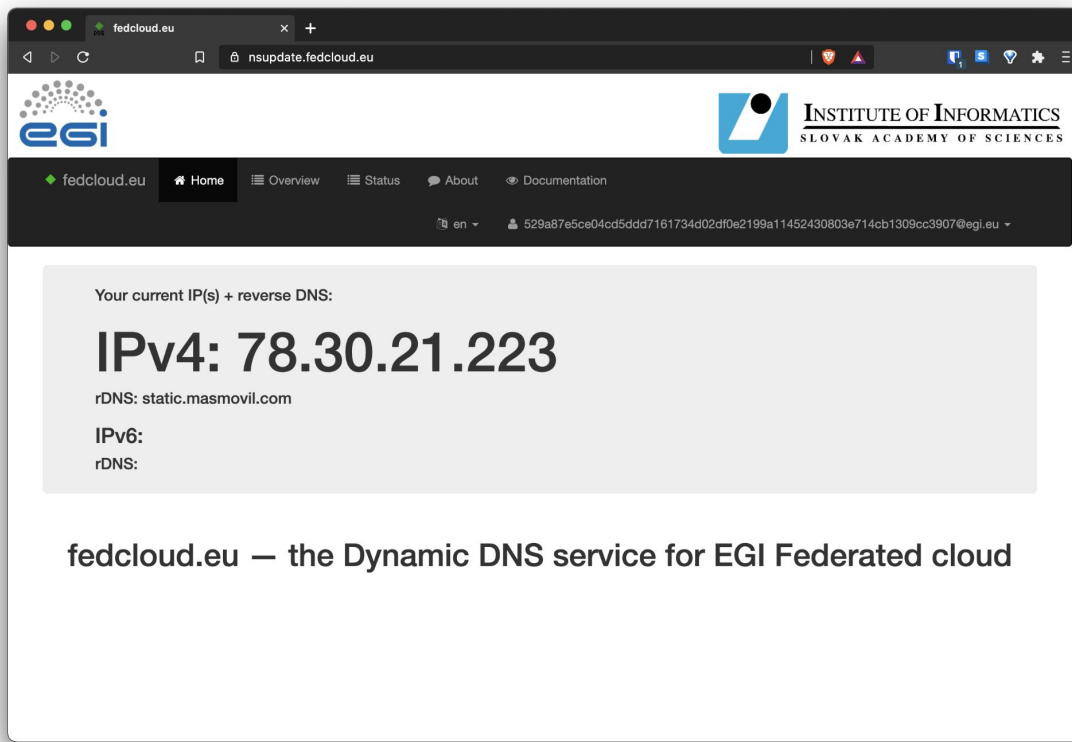
Hostname registration:

- via GUI portal <https://nsupdate.fedcloud.eu>
- authentications via EGI Check-in
- hostnames in subdomains of fedcloud.eu and fedcloud.eosc-synergy.eu

IP assignment:

- via GUI portal or via API
- no limitation of IP ranges => can be used anywhere
- no user credentials required => improved security
- TTL (Time-to-Live) is set to 60s
 - flush DNS cache on client if need to refresh immediately

Live demo



The screenshot shows a web browser window with the URL `fedcloud.eu`. The page header includes the EGI logo and the Institute of Informatics, Slovak Academy of Sciences. A navigation menu contains links for Home, Overview, Status, About, and Documentation. The main content area displays the following information:

Your current IP(s) + reverse DNS:

IPv4: 78.30.21.223

rDNS: static.masmovil.com

IPv6:

rDNS:

fedcloud.eu — the Dynamic DNS service for EGI Federated cloud

Explicit IP assignment

- By default, IP assignment can be done implicitly by execute the following command on targeted VMs/hosts:

```
curl https://<hostname>:<secret>@nsupdate.fedcloud.eu/nic/update
```

- But the API enables also explicit IP assignment:

```
curl "https://<hostname>:<secret>@nsupdate.fedcloud.eu/nic/update?hostname=<hostname>&myip=<ipaddress>"
```

- Explicit IP assignment is useful:
 - assign IP addresses from client without logging in VMs
 - assign private IP addresses

Usage scenarios



- User-friendly, sensible, memorable service names instead of IP addresses
- Getting SSL host certificates
- Configuring clients/servers before deployment
- Migrating services between different cloud sites without changing clients
- Configuration of complex systems with several services connected together

- And mainly, no need to remember IP addresses

Example of usage scenarios

- Testing and development
 - Register a hostname and assign it to local server
 - Develop/configure/test the service on local server using the hostname
 - Move the service to cloud and assign the hostname to host in Cloud
 - No additional changes in configurations (both clients and servers)

Ongoing development



- API for registering hostnames
 - for better integration with automation tools
- Integration with UPV Infrastructure Manager
 - User can give hostname via IM and completely ignore IP address
- IPv6 support
 - User can access services via hostnames instead of loooooong IPv6 addresses

More information

- GUI portal: <https://nsupdate.fedcloud.eu>
- Documentation: <https://docs.egi.eu/users/cloud-compute/dynamic-dns/>
- GGUS support unit: Dynamic DNS at <https://ggus.eu/>
- Contact: viet.tran@savba.sk

- support, feature requests, suggestions for improvements, bug reports, comments, critics, ... all are welcomed



Thank you!

Contact: viet.tran@savba.sk

Website: <https://nsupdate.fedcloud.eu>



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