

DNS as a Service

Eliminate the manual IP-registration bottleneck



Domain Name System (DNS)

The Domain Name System (DNS) is a hierarchical and distributed naming system for computers, services, and other resources connected to the internet or a private network. It associates various information with domain names assigned to each of the participating entities. Most prominently, it translates more readily memorized domain names to the numerical IP addresses needed for locating and identifying computer services and devices with the underlying network protocols. By providing a worldwide, distributed directory service, the Domain Name System has been an essential component of the functionality of the internet since 1985.

DNS and (Public) clouds

Classic rigid DNS management and clouds do not go together well. Anyone who starts a virtual machine in a typical cloud will initially receive a configuration without DNS entries, which means there aren't any A records for a specific domain or PTR records for the respective IP addresses. Public clouds assign public IPs dynamically from a predefined pool and provide authority over the domains. However, the provider is hardly going to allow its customers direct access to its DNS server. At worst in such cases, the customer is forced to create a support ticket with the desired DNS entries; still, this doesn't have anything to do with automation or dynamic use.

Because computers can only recognize IP addresses, DNS is essential to nearly every cloud application. It allows you to use internet more easily by allowing you to specify a meaningful name on your web browser instead of using IP address. It is almost unimaginable to launch any cloud service without a robust DNS implementation. But while booting a virtual machine in OpenStack only takes seconds, most OpenStack operators still must manually create a ticket to register the IP address with the corporate DNS before it can run production. This registration process differs per organization but in some cases can take days! So you try to create a responsive and agile cloud platform but get slowed down by a manual process? You give users the power to boot virtual machines on demand only to have them submit an IT support ticket for a DNS entry? That's why you want to delegate the responsibility for maintaining DNS records all the way down to the application owners: entirely self-serviced, transparent for the user, scalable and high available, reducing the load on IT teams and giving users the power to do what they want. That is what DNS-as-a-service will do for your cloud platform.



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Multi-tenancy

Designate provides a REST API with integrated Keystone authentication. It can be configured to auto-generate records based on Nova and Neutron actions and is a multi-tenant DNSaaS service. It allows multiple OpenStack users to use the same DNS infrastructure, while keeping control of DNS zones limited on a project by project base. This means that it can be setup once and then used in all of your projects, for all your tenants and end customers. Saving time for the customer, your networking team as well as your open infrastructure systems management.

```
9. bash
# designate domain-create --name example.com. --email designate@example.
+-----+-----+
| Field      | Value                               |
+-----+-----+
| description | None                                 |
| created_at  | 2015-02-13T16:23:26.533547          |
| updated_at  | None                                 |
| email       | designate@example.com               |
| ttl         | 3600                                 |
| serial      | 1423844606                          |
| id          | 60f57a40-a9b4-11e6-b78b-00215acd73e2 |
| name        | example.com.                        |
+-----+-----+
```

As soon as Designate is working, domains can be created using Designate CLI.

Extending the value your open infrastructure adds to your business

Fairbanks is testing modules that add value to your open infrastructure everyday. With for example a virtual desktop infrastructure, advanced backup and failover we make sure your cloud enables your digitization process and your platform will deliver ever more added value. Automating manual processes where possible resulting in ICT resources being deployed by your organization like drawing water from the tap. Self service for DNS records has been one of the most requested features from the OpenStack user community. Fairbanks is proud to manage and support the OpenStack Designate option in your open cloud infrastructure.

Selection	Product	Quantity
✓	OpenStack cloud build	
	OpenStack Managed Services 24x7	
✓	OpenStack Managed Services 8x5	
	Virtual Desktop Infrastructure	
✓	Designate DNS automation	
	Backup and restore cloud infrastructure	
	Backup and restore virtual machines	
	Failback Amazon Web Services	
	Failback Azure Cloud	



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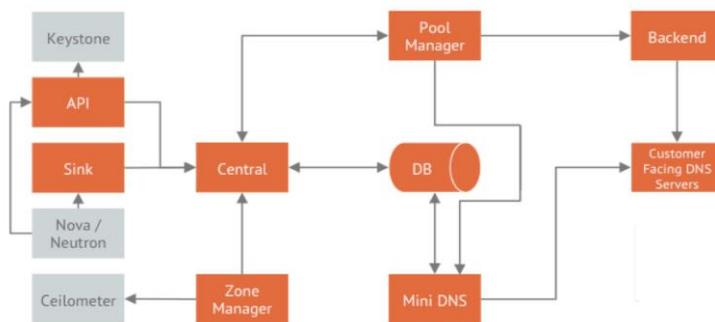
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Designate Architecture

The architecture of designate is depicted with the following components:



- **API service** is the consumption layer of Designate. API service is also responsible for validation of API input.
- **Sink** is a notification event listener. It also generates simple DNS forward lookup A record based on Nova and Neutron notification events.
- **Central Process** is responsible for the user and permission validation. It also manages access to the Designate database and request dispatch.
- **Pool Manager** manages the states of the DNS servers. The Pool manager divides DNS servers into 'Pools' so that zones within Designate can split across different sets of backend servers. The Pool Manager is also responsible for making sure that backend DNS servers are in sync with the Designate database.
- **Zone Manager** handles all tasks relating to the zone shard. A zone shard is a collection of zones allocated based on the first three characters of zone UUID.
- **Backend** are software plugins for common DNS servers (for example PowerDNS and BIND9). Pool Manager will load corresponding plugins based on type of backends.
- **MiniDNS** serves information from the database to DNS servers via notify and zone transfer. Also, most importantly, do not expose MiniDNS to end user consumption.

About Fairbanks

Fairbanks provides consulting, support, implementation, optimization, managed services, troubleshooting and training services for Open Infrastructure cloud solutions. With managed services Fairbanks makes sure that companies can focus on their core business and don't have to worry about the cloud infrastructure.



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