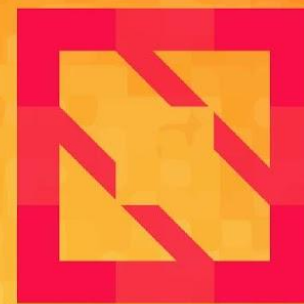




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Service Discovery With Hybrid and Multi-Cloud - Introduction to CoreDNS

Yong Tang



CoreDNS



Agenda

- Introduction
- Status Update
- Google Summer of Code
- Community Bridge by Linux Foundation
- Technical Deep Dive
 - Plugin and CoreDNS
 - Service Discovery with Hybrid & Multi Cloud
 - Demo CoreDNS with Google Cloud DNS
- Q & A



CoreDNS

- Flexible DNS server written in Go
- Focus on service discovery
- Plugin based architecture, easily extended
- Supports DNS, DNS over TLS, DNS over gRPC
- Default DNS server in Kubernetes
- Support integration with Route53/Google Cloud DNS/Azure DNS
- Started and led by Miek Gieben

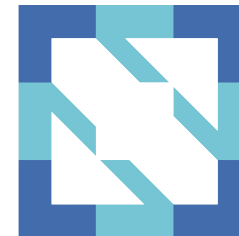


CoreDNS Community

- 192 Contributors and Growing (Big Thanks!)
- 14 Maintainers
- 30 Public Adopters
- 5000+ Stars
- **46 million** dockerhub downloads!



CoreDNS



CoreDNS Community

- Most active:
 - GitHub: <https://github.com/coredns/coredns>
 - Slack: #coredns on <https://slack.cncf.io>
- More resources:
 - Web: <https://coredns.io>
 - Blog: <https://blog.coredns.io>
 - Twitter: @corednsio



Google Summer of Code

- Participated 3 years in a row (2017-2019)
- 2017: Varyoo (GitHub: varyoo)
- 2018: Jiacheng Xu (GitHub: jiachengxu)
- 2019: An Xiao (GitHub: ihac)



Google Summer of Code



Community Bridge Program

- Sponsored by Linux Foundation
- 2019: Palash Nigam (GitHub: palash25)



CoreDNS: Plugins

- External plugin:
 - Link through <https://coredns.io>
- Plugin as a CoreDNS subproject
 - Separate repo within CoreDNS org for issue and PR tracking
 - Sponsored by one maintainer
- Plugin in CoreDNS project
 - More selective in quality
 - Same issue and PR tracking in CoreDNS repo (OWNERS)
 - Sponsored by one maintainer

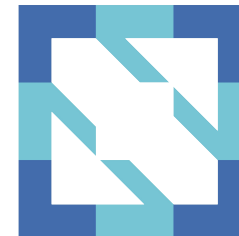


CoreDNS: Service Discovery

- DNS is a nice indirection
- Maximum flexibility
- Easy and simple to change DNS
- Pervasive in IT infrastructure
- Distributed in nature, scales to Internet



CoreDNS



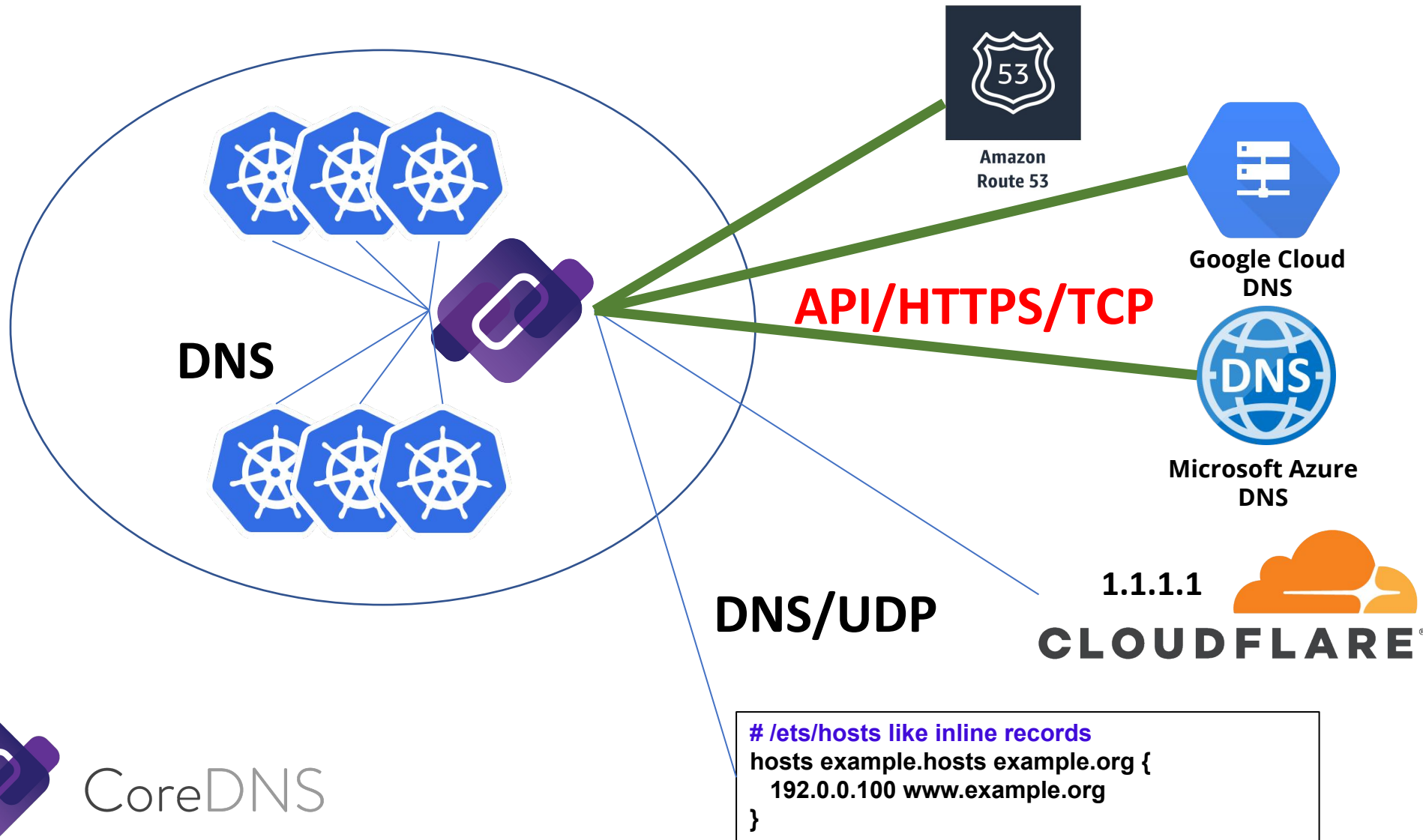
Corefile: CoreDNS Configurations



- `.:53 {`
- `# By default all plugins are disabled initially, unless enabled explicitly`
- `kubernetes cluster.local 10.96.0.0/12 {` `<- k8s integration`
- `pods insecure`
- `}`
- `route53 example.com.:Z1Z2Z3Z4DZ5Z6Z7` `<- route53 aws cloud data sync up`
- `hosts example.hosts example.org {` `<- additional records, added (inline)`
- `192.0.0.100 www.example.org`
- `}`
- `health` `<- healthcheck`
- `prometheus` `<- metrics`
- `cache 30` `<- cache & performance`
- `forward . 1.1.1.1:53` `<- forward to 1.1.1.1 (Cloudflare)`
- `errors`
- `}`



CoreDNS: Service Discovery



CoreDNS: Hybrid- and Multi-Cloud

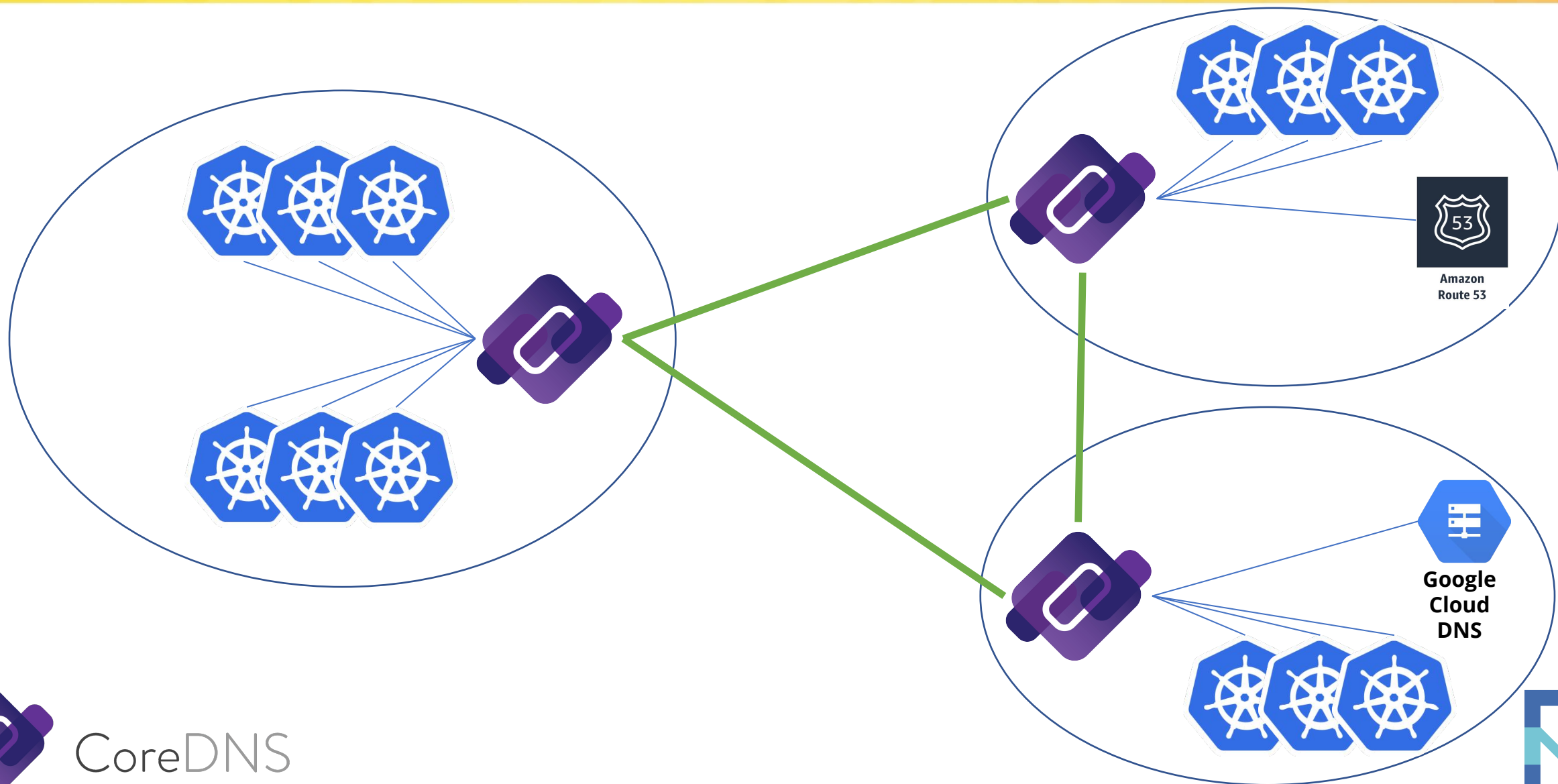


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CoreDNS: Demo

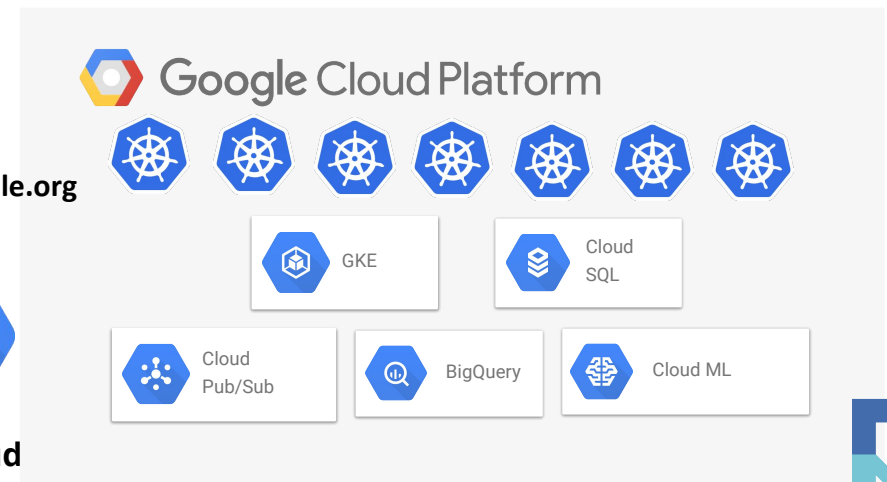
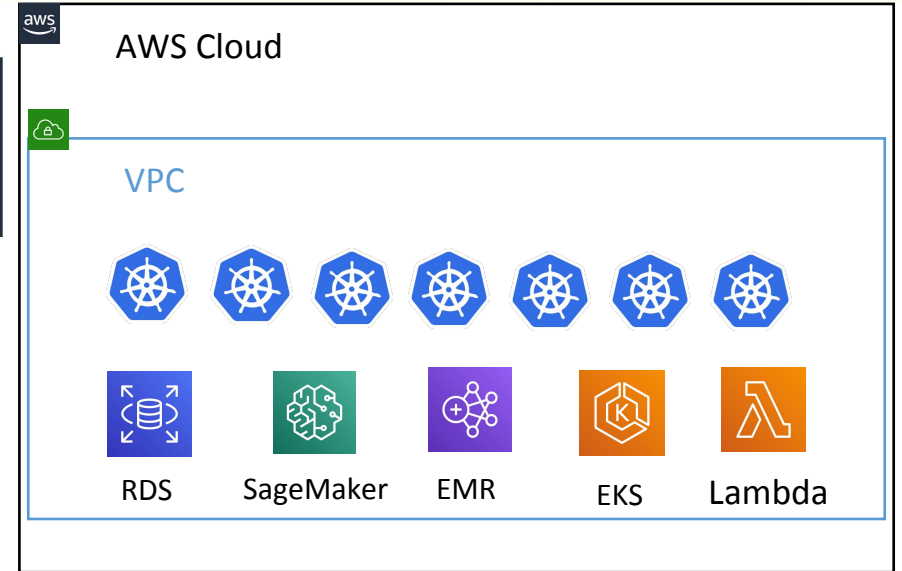
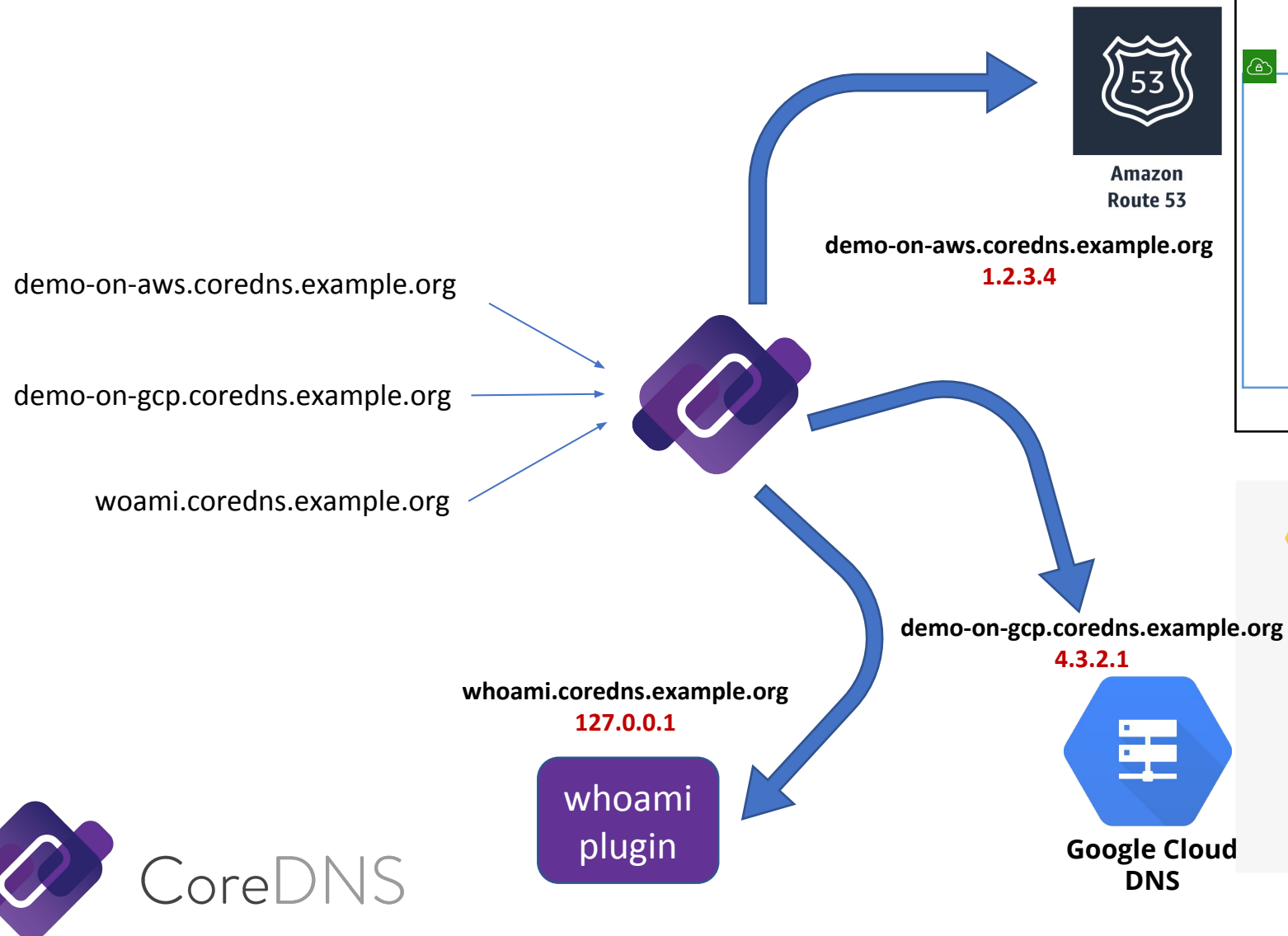


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CoreDNS: Demo



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- `.:53 {`
- `# Route53 (Amazon AWS)`
- `route53 coredns.example.org.:Z01234567890123456789 {`
- `fallthrough`
- `}`
- `# Cloud DNS (Google Cloud)`
- `clouddns coredns.example.org.:peerless-dahlia-123456:coredns-example-zone {`
- `credentials "My First Project-9feed012345.json"`
- `fallthrough`
- `}`
- `# Fallback whoami plugin`
- `whoami`
- `}`



CoreDNS: Contribution Welcome

- Star CoreDNS in GitHub:
 - <https://github.com/coredns/coredns>
- Add the name to ADOPTERS.md
- Participate in GitHub or Slack discussions
 - Slack: #coredns on <https://slack.cncf.io>
- Create a PR to become a contributor
- Become a maintainer
 - One significant pull request
 - Sponsored by one current maintainer





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THANK YOU



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