



APNIC

Asia Pacific Network Information Centre



DNS Registries

Overview

- What is a DNS registry?
 - DNS registries
 - Data In
 - Data Out
 - Transactions
- Registry Structure
 - Registry
 - Registrars
 - Registrants
- Interaction with others
 - Whois

What is DNS Registry?

- The point of a registry is to publish a zone which delegates child zones to other nameservers
- Registry system provide a systematic and automated method of maintaining a zone with a limited and well-defined structure
- If you do not delegate zones to others, possibly don't care how registries are run



DNS Registries

- Receive and validate external data
- Store data
- Publish data (DNS, whois, etc)





Data In

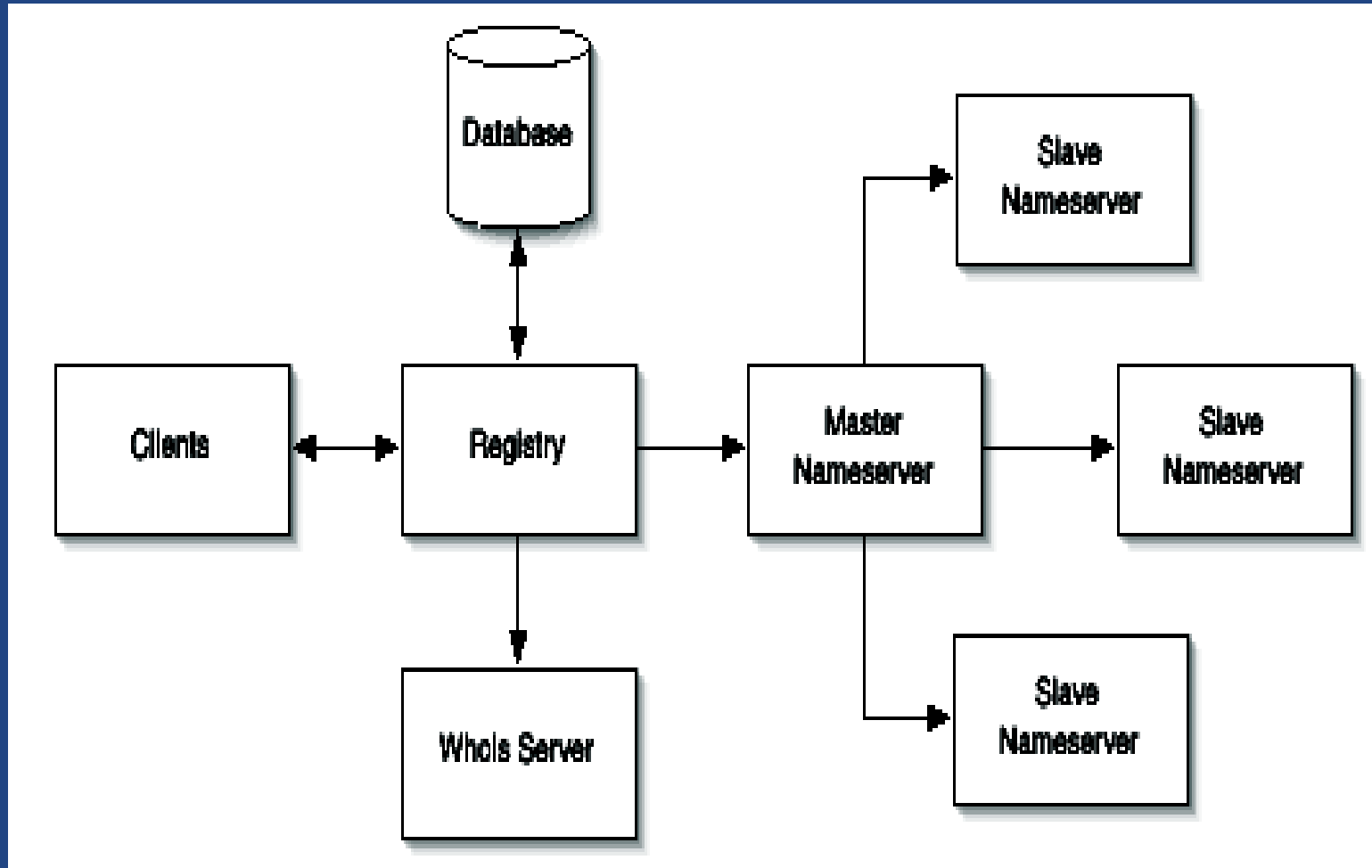
- Domain names
- Nameservers (FQDN & IP)
- Meta-data
 - authentication
 - technical coordination
 - billing (payments & renewals)



Data Out

- A zone file
 - a list of delegations (NS records)
 - delegation glue (A, AAAA records)
 - published via a master nameserver, replicated to slaves
- Whois
- Other data (statistics, logs, etc)

Data Flow





Transactions

- Add and delete records
- Modify records
 - add, delete nameservers (change delegation)
 - change meta-data
 - set status attributes



Manual Registries

- Some registries don't have to process many transactions
 - GOVT.NZ
 - AQ
 - INT
 - NAME
- A registry might just consist of a zone file edited by hand

The NET zone

- We have a top level domain called NET for the purpose of this workshop
- Right now, the NET zone is maintained manually
- Send mail to Arth (when doing the lab exercise)
- Lets start by thinking about what the NET zone might look like

The NET zone



\$TTL 8600

```
@                SOA      A.root-server.net.  Arth.apnic.net. (
                    2004011401      ; serial
                    1800             ; refresh (30 mins)
                    900              ; retry (15 mins)
                    604800           ; expire (7 days)
                    86400 )         ; negative cache TTL (1 day)
```

```
NS      A.root-server.net.
NS      B.root-server.net.
```

```
A.root-server.net.  A      192.168.100.1
B.root-server.net.  A      192.168.200.1
```

```
; APNIC Pty Ltd.
; contact Champs +91 98345678, champs@apnic.net
```

```
apnic              NS      ns1.apnic.net.
                   NS      ns2.apnic.net.
```

```
ns1.apnic.net.    A      192.168.300.1
ns2.apnic.net.    A      192.168.300.2
```

Transactions

- Add a domain
 - Add NS records
 - Add glue records (A , AAAA)
 - Store meta-data

; ; where-is-Sunny Enterprises Ltd

; contact Sunny, +91 0402567896, sunny@ep.net

where-is	NS	moon.ep.net.
	NS	star.ep.net.

Transactions....

- Modify nameservers, metadata
 - Change NS records
 - Change glue records (A, AAAA)
 - Change meta-data

; where-is-Sunny Enterprises Ltd

; contact Sunny, +91 0402567896, sunny@ep.net

where-is NS ship.ep.net.

 NS boat.ep.net.

Transactions

- Remove a domain
 - Remove NS records
 - Remove glue records (A, AAAA)
 - Remove meta-data

; where-is-Sunny Enterprises Ltd

; contact Sunny, +91 0402567896, sunny@ep.net

; deleted 2003-02-02 by hostmast@sanog.net

;where-is NS ship.ep.net.

; NS boat.ep.net.



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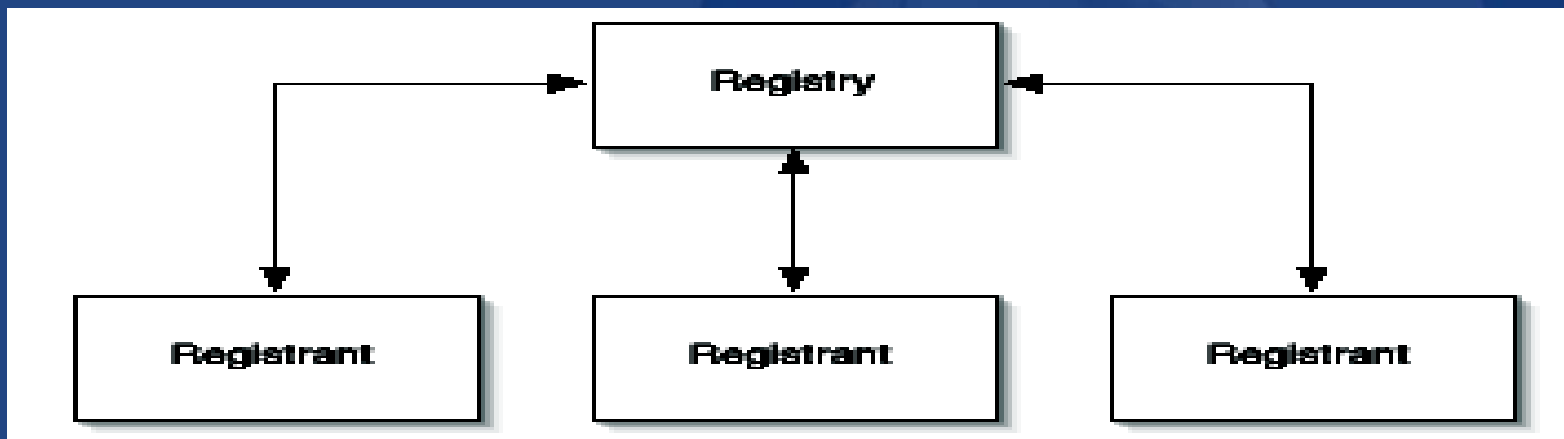
Registry Structure

Tedious definitions

- “registrant” – the organisation or person responsible for a domain
- “registrar” – the middlemen who interacts with registries on behalf of registrants
- “registry” - the organisations which maintains the register and publishes the zone
- “register” – the data that is maintained by the registry

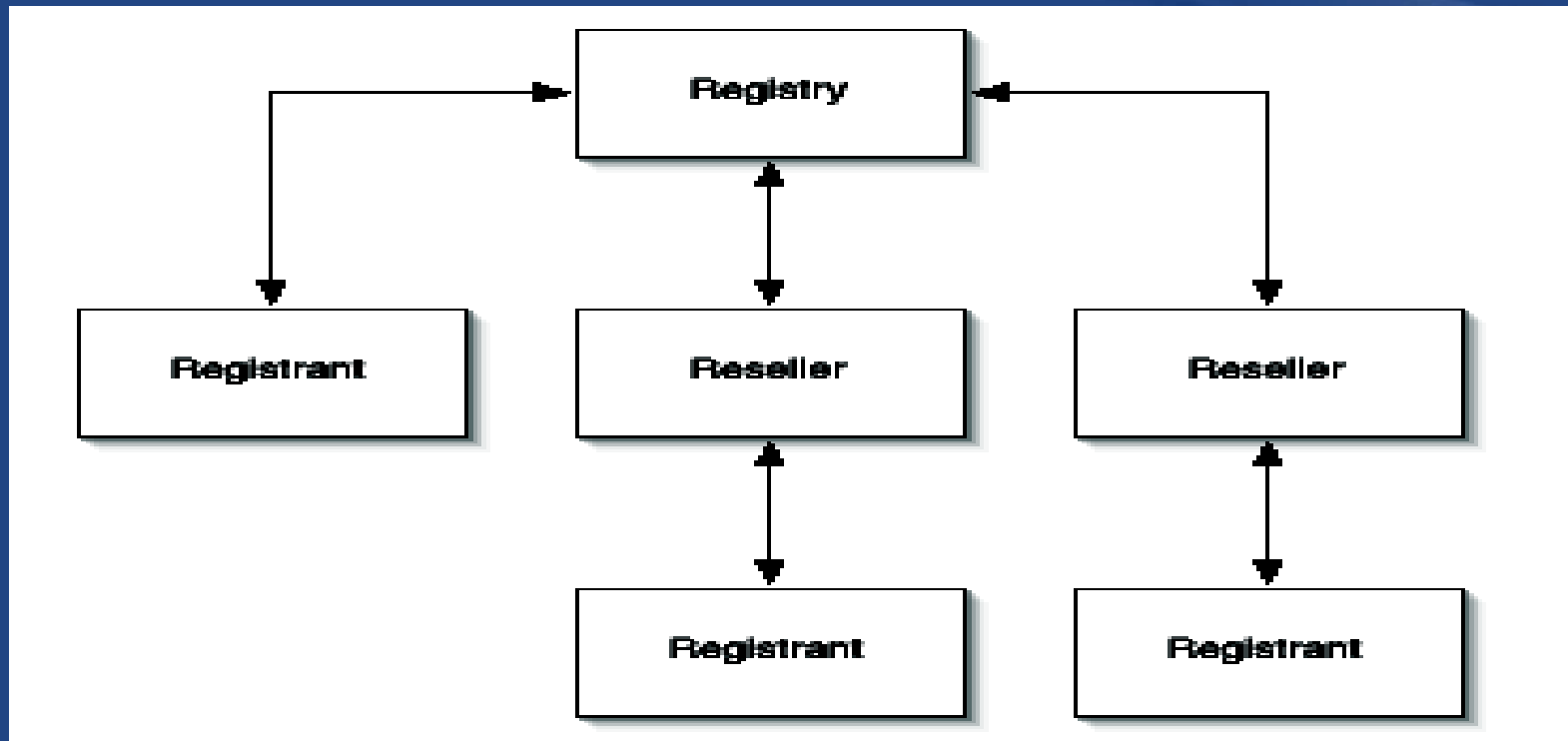
Simple Registry Structure

- Registry deals directly with Registrants
- No Registrars
- “Single Access Registry”
- “Monopoly Registry”



Simple Registry with Resellers

- Registrants can deal directly with the Registry, or they can deal with Resellers



Additional Transactions

- Registries only interact with registries
- For any particular domain, a Registrant only interacts with one Registrar
- That Registrar is said to “sponsor” the domain
- Registry “transfer” transaction

Centralise vs De-centralise

- Some shared-registry systems distribute much of the registry metadata to registrars, rather than maintaining it centrally
 - “de-centralise” registry (COM, NET)
- Other shared-registry systems keep all the metadata central
 - “centralise” registry (INFO, ccTLDs, etc)



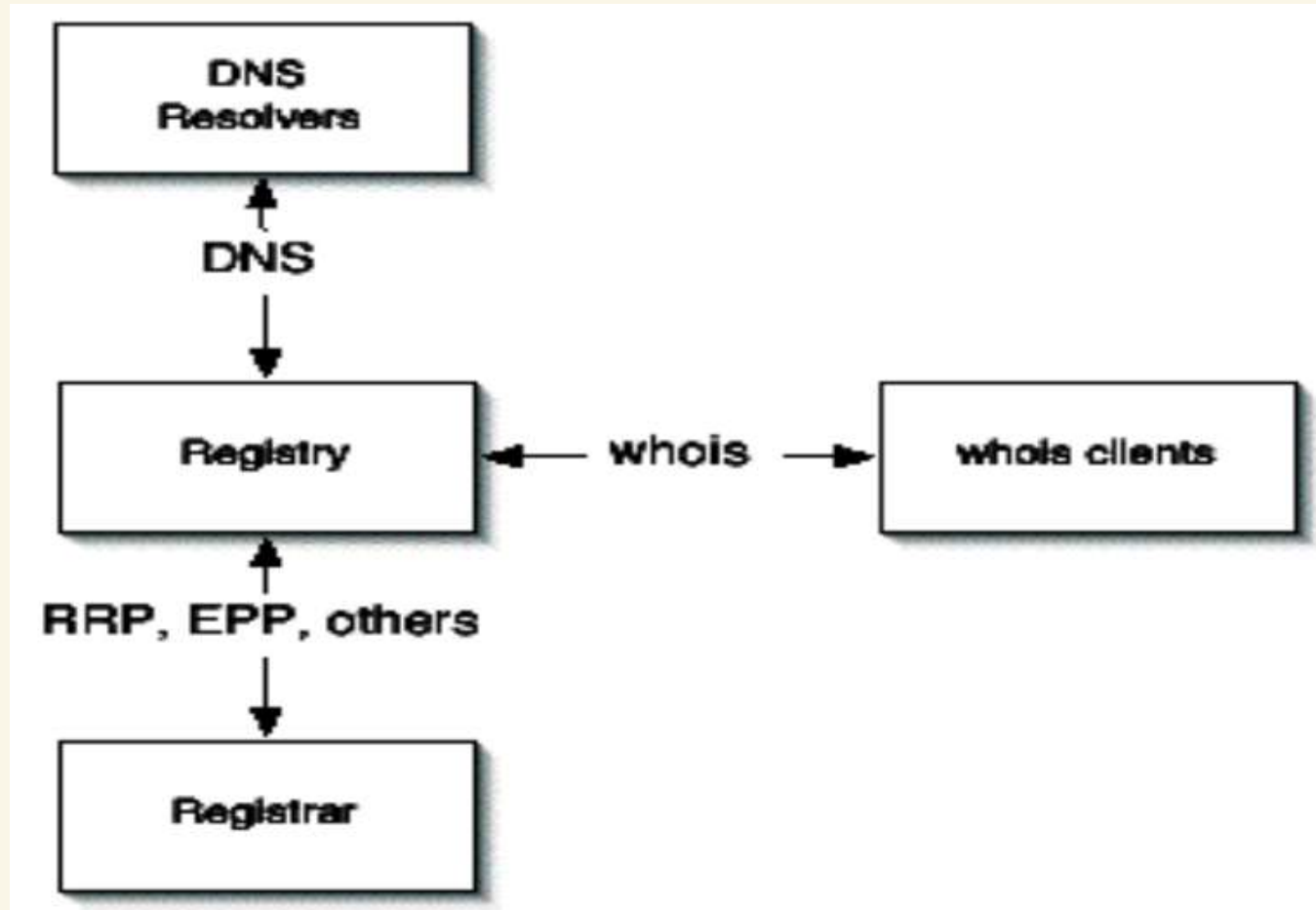
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Interaction with Others

Contact with Others



Whois

- Mechanism for retrieving metadata from registry
- RFC 954
- No data format specified
- Transport protocol is poorly specified
- Every registry whois output looks different

Whois.crsnic.net



Whois Server Version 1.3

Domain names in the .com and .net domains can now be registered with many different competing registrars. Go to <http://www.internic.net> for detailed information.

Domain Name: VIX.COM
Registrar: NETWORK SOLUTIONS, INC.
Whois Server: whois.networksolutions.com
Referral URL: <http://www.networksolutions.com>
Name Server: NS1.GNAC.COM
Name Server: NS-EXT.VIX.COM
Status: ACTIVE
Updated Date: 05-nov-2001
Creation Date: 20-jun-1995
Expiration Date: 19-jun-2003

>>> Last update of whois database: Wed, 19 Feb 2003 05:39:55 EST <<<

The Registry database contains ONLY .COM, .NET, .EDU domains and Registrars.

Whois.srs.net.nz



```
% New Zealand Domain Name Registry Limited
% Users confirm on submission their agreement to all published Terms
%
version: 0.95
query_datetime: 2003-02-20T02:33:39+13:00
domain_name: patho.gen.nz
query_status: 200 Active
domain_dateregistered: 1997-06-30T00:00:00+12:00
domain_datebilleduntil: 2003-06-30T00:00:00+12:00
domain_datelastmodified: 2003-02-03T17:03:30+13:00
domain_delegaterequested: yes
%
registrar_name: Domainz
registrar_address1: Private Bag 1810
registrar_city: Wellington
registrar_country: NZ (NEW ZEALAND)
registrar_phone: +64 4 918-1740
registrar_fax: +64 4 918-1719
registrar_email: 4service@domainz.net.nz
%
registrant_contact_name: Joe Abley
registrant_contact_address1: 10805 Old River Road
registrant_contact_address2: Rural Route 3
registrant_contact_city: Ontario
registrant_contact_province: Komoka
registrant_contact_postalcode: N0L 1R0
registrant_contact_country: CA (CANADA)
registrant_contact_phone: +1 519 641 3738
registrant_contact_email: jabley@automagic.org
%
[etc, etc, etc]
```

More Whois

- RIRs are registries too
 - IP addresses, ASNs, domains
 - Route policy (RIPE-181, RPSL)
 - IRR
- whois.apnic.net
- whois.arin.net
- whois.ripe.net
- whois.lacnic.net

- whois.ra.net



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Questions ?

