Publishing zone scan data using an open data portal

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Motivation

- NZRS is an InternetNZ company
- Provider of:
  Critical Internet infrastructure
  Authoritative Internet data
- Embracing open data
- Helping NZ ecosystem to provide arguments with data
- Enabling a new generation of research

Zone scan

- Started on Aug 2013

- Runs monthly

- Governed by policy
  https://nzrs.net.nz/dns/zone-and-web-scanning

- Based on a fork from dnscheck
  https://github.com/NZRS/dnscheck

- DNS tests for configuration correctness + data gathering

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Zone scan

- Notable examples
  Domain is broken, lame, has mail server

- Name server status
  Answers UDP, TCP, recursion, AXFR

- DNSSEC
  Signed domains, signed delegations, DNSKEY algorithms

- Web server, mail server, name server addresses
  Both v4 and v6

Zone scan

- TTL distributions
  NS RRset, MX RRset, "web" RRset

- Geolocation of services
  Name servers, Web servers, Mail servers

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Cloud mail services market
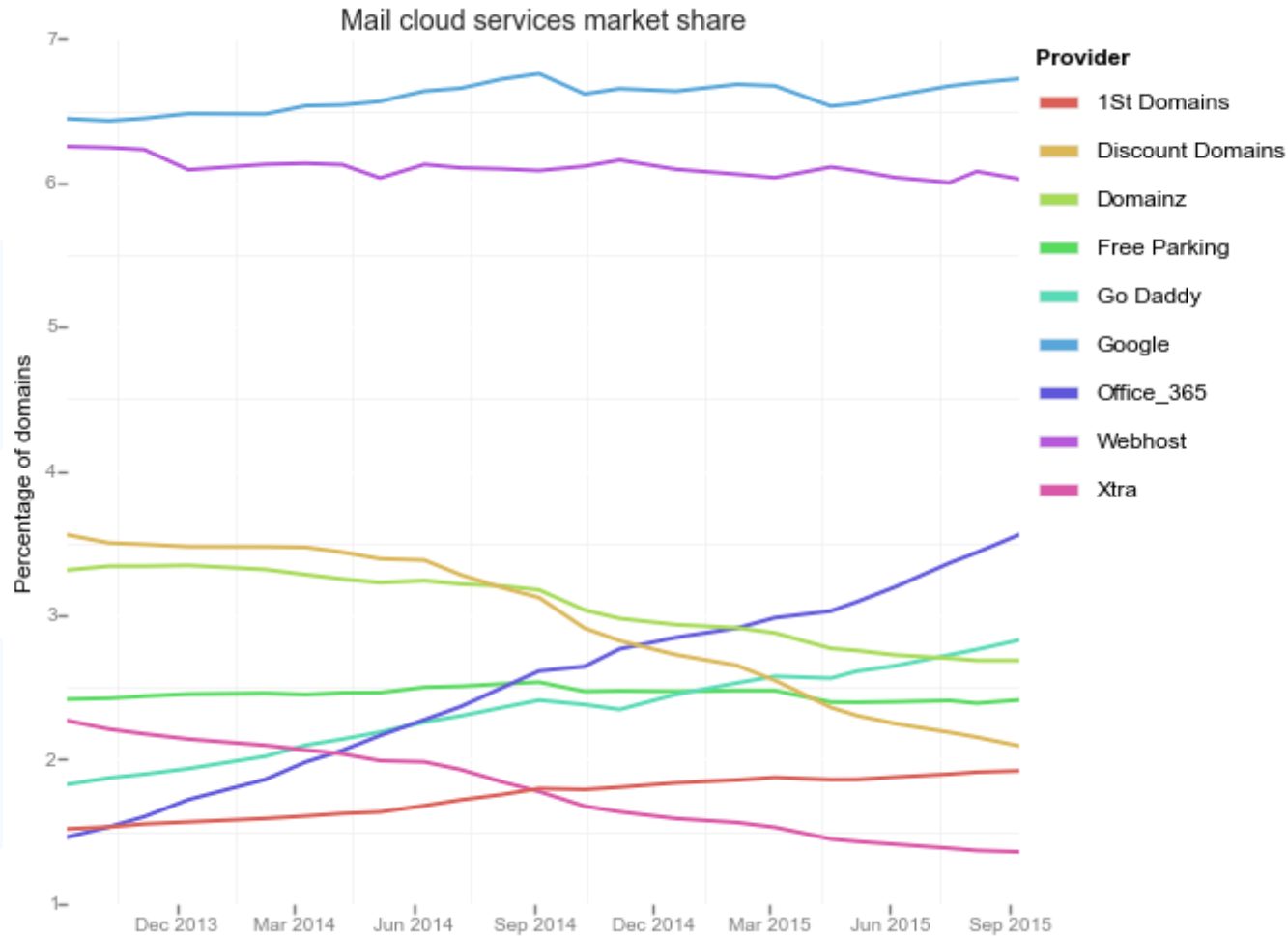
Zone scan future

- Collect data about "new" technologies
  DANE, SPF, DKIM

- Improve some of the collections
  DNSKEY key length

- Update the software
  Give zonemaster a try

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Internet Data Portal

- http://idp.nz
- Cloud solution provided by Socrata
- Our efforts to support Internet research and share data openly
- Two datasets at the moment
  .nz zone scan
  .nz registration data
- Aggregated and anonimized

IDP - Examples

- .nz Zone Scan Data Set
  https://idp.nz/Domain-Names/-nz-Zone-Scan/ep35-2s5u

- Zone scan visual explorer
  https://idp.nz/view/d8mm-tt52

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IDP - Examples

- Domain level errors
https://idp.nz/Domain-Names/-nz-Zone-Scan-Domain-Errors/2cqk-jxpt

- Name servers errors
https://idp.nz/Domain-Names/-nz-Zone-Scan-Nameserver-Errors/g8c6-rp3v

- DNSSEC Status
https://idp.nz/Domain-Names/-nz-Zone-Scan-DNSSEC/jd96-epec

- IPv6 adoption
https://idp.nz/Domain-Names/-nz-Zone-Scan-IPv6/rypa-4eiq

IDP - Examples

- DNSKEY algorithms
  https://idp.nz/Domain-Names/-nz-Zone-Scan-DNSKEY-algorithms/ari3-y5bk

- TTL distribution sample

- https://idp.nz/Domain-Names/-nz-Zone-Scan-TTL-Sample-/98tk-cy6d

IDP – Potential uses

- Data is available for others to use
- For example, server geo-location dashboard
- Server geo-location animation
- Interactive map

http://blog.nzrs.net.nz/visualizing-server-locations-for-nz-using-open-data/

IDP - Future

- More datasets

    Aggregated from .nz DNS traffic

    Thanks SIDN for the inspiration

    DNSSEC and IPv6 adoption for NZ from APNIC

    Thanks Geoff!

    String analysis of the registry

    Levenshtein

    Portfolios

    Word segmentation and tagging

- External visualizations using the data

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NZRS

an InternetNZ company