Domain Analytics

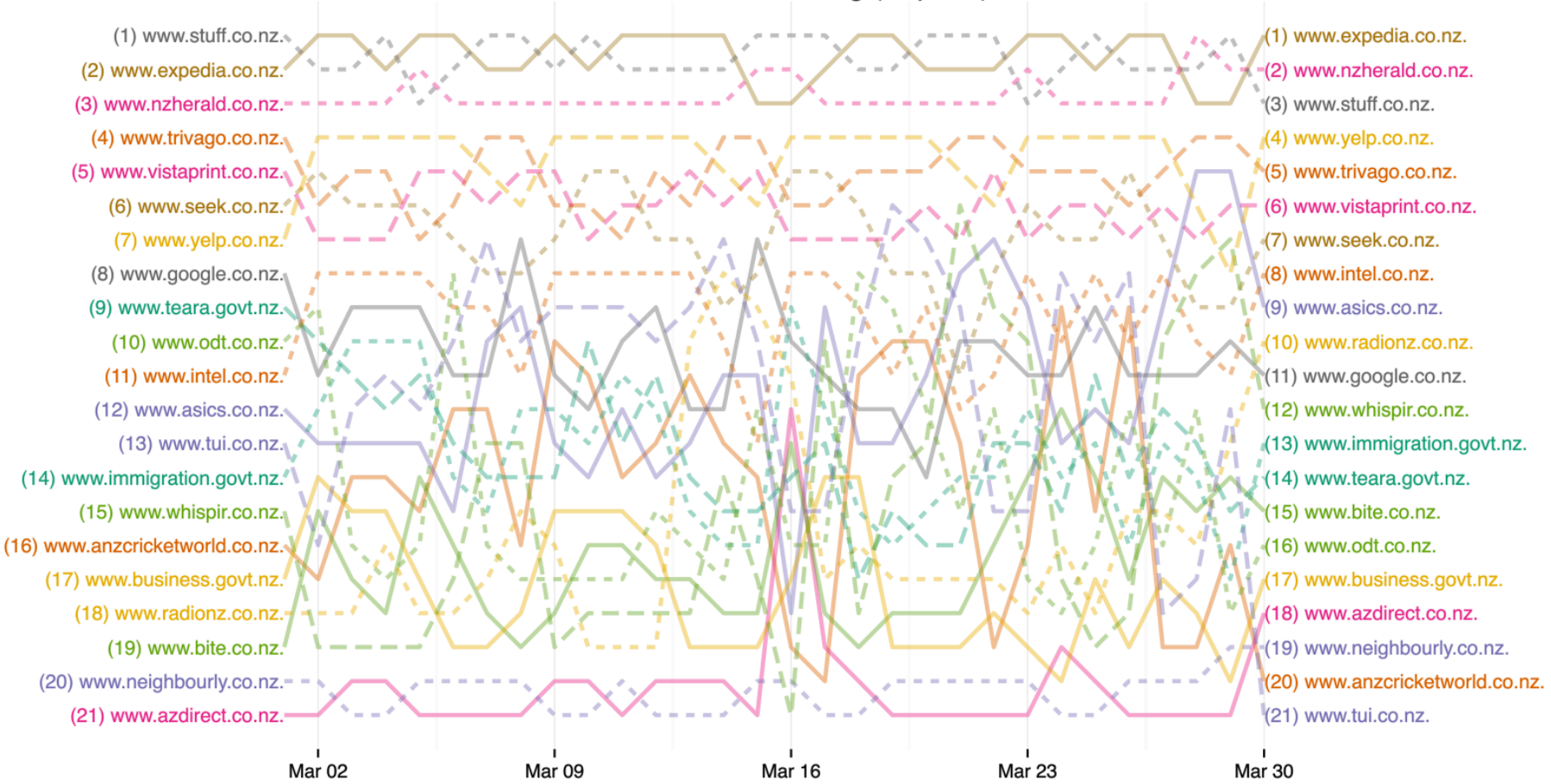Jay Daley, ICANN58 Copenhagen, 2017

Domain Analytics Explained

- Using data science to provide insight into domain name usage
  Value for registrars – understanding customers
  Value for registrants – understanding competition

- Two key techniques
  Algorithmic popularity ranking from DNS traffic
  Industry coding of domains by machine learning

- Two key outputs
  New functionality on registrar portal
  New product for registrars to sell

- Had these ideas in October 2012
  Only now are we close to launch!
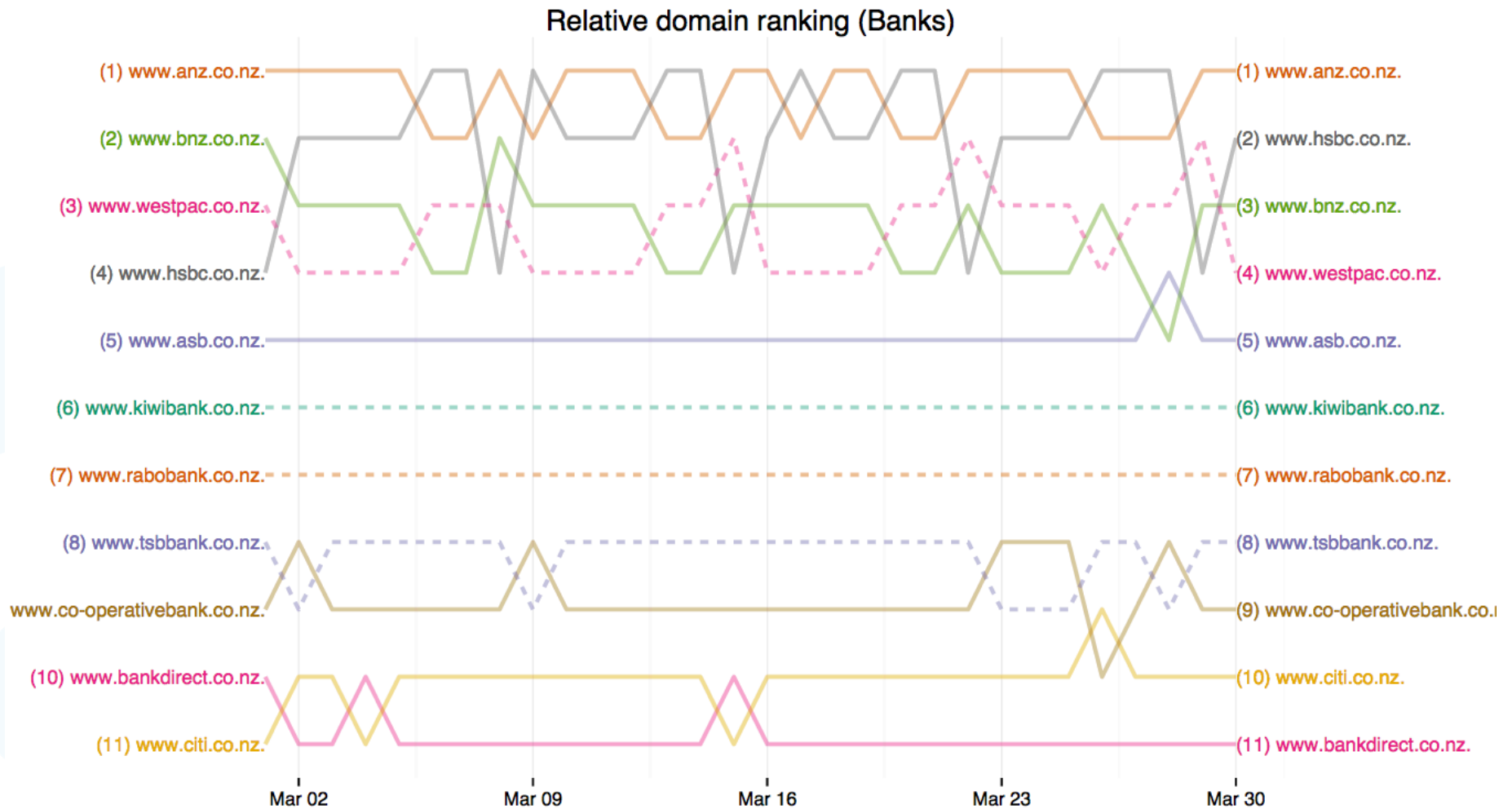
Popularity Ranking

- We capture all DNS traffic to our servers
  But we need an algorithm that sees past caching resolvers

- Development of an algorithm
  Current - Tf-idf (term frequency–inverse document frequency) – ranks importance of words in a corpus of documents
  Developing – Adjusting for resolver behaviour and scaling by resolver size
  Requires determining resolver centricity accurately
  Further – Compensate for varying TTL?

Top 20 – March 2015

Relative domain ranking (Popular)

Left axis:
(1) www.stuff.co.nz.
(2) www.expedia.co.nz.
(3) www.nzherald.co.nz.
(4) www.trivago.co.nz.
(5) www.vistaprint.co.nz.
(6) www.seek.co.nz.
(7) www.yelp.co.nz.
(8) www.google.co.nz.
(9) www.teara.govt.nz.
(10) www.odt.co.nz.
(11) www.intel.co.nz.
(12) www.asics.co.nz.
(13) www.tui.co.nz.
(14) www.immigration.govt.nz.
(15) www.whispir.co.nz.
(16) www.anzcricketworld.co.nz.
(17) www.business.govt.nz.
(18) www.radionz.co.nz.
(19) www.bite.co.nz.
(20) www.neighbourly.co.nz.
(21) www.azdirect.co.nz.

Right axis:
(1) www.expedia.co.nz.
(2) www.nzherald.co.nz.
(3) www.stuff.co.nz.
(4) www.yelp.co.nz.
(5) www.trivago.co.nz.
(6) www.vistaprint.co.nz.
(7) www.seek.co.nz.
(8) www.intel.co.nz.
(9) www.asics.co.nz.
(10) www.radionz.co.nz.
(11) www.google.co.nz.
(12) www.whispir.co.nz.
(13) www.immigration.govt.nz.
(14) www.teara.govt.nz.
(15) www.bite.co.nz.
(16) www.odt.co.nz.
(17) www.business.govt.nz.
(18) www.azdirect.co.nz.
(19) www.neighbourly.co.nz.
(20) www.anzcricketworld.co.nz.
(21) www.tui.co.nz.

X-axis: Mar 02, Mar 09, Mar 16, Mar 23, Mar 30

Top Banks – March 2015

Relative domain ranking (Banks)

(1) www.anz.co.nz.   (1) www.anz.co.nz.
(2) www.bnz.co.nz.   (2) www.hsbc.co.nz.
(3) www.westpac.co.nz.   (3) www.bnz.co.nz.
(4) www.hsbc.co.nz.   (4) www.westpac.co.n
(5) www.asb.co.nz.   (5) www.asb.co.nz.
(6) www.kiwibank.co.nz.   (6) www.kiwibank.co.nz.
(7) www.rabobank.co.nz.   (7) www.rabobank.co.nz.
(8) www.tsbbank.co.nz.   (8) www.tsbbank.co.nz.
www.co-operativebank.co.nz.   (9) www.co-operativebank.co.
(10) www.bankdirect.co.nz.   (10) www.citi.co.nz.
(11) www.citi.co.nz.   (11) www.bankdirect.co.nz.

Mar 02   Mar 09   Mar 16   Mar 23   Mar 30

Industry Coding

- ANZSIC – Australia/New Zealand Standard Industry Code (2006)

- 19 broad divisions:

  A — Agriculture, forestry, fishing and hunting   B — Mining   C — Manufacturing   D — Electricity, gas and water supply   E — Construction   F — Wholesale trade   G — Retail trade   H — Accommodation, Food Services   I — Transport and storage   J — Information Media and Telecommunications   K — Finance and insurance   L — Rental, Hiring and Real Estate Services   M — Professional, Scientific and Technical Services   N — Administrative and Support Services   O — Public Administration and Safety   P — Education and Training Q — Health Care and Social Assistance   R — Arts and Recreation Services   S — Other Services

- 96 sub-divisions, 200+ group, 500+ classes

  L   Rental, Hiring and Real Estate Services

  66   Rental and Hiring Services (except Real Estate)

  661   Motor Vehicle and Transport Equipment Rental and Hiring

  6611   Passenger Car Rental and Hiring

  6619   Other Motor Vehicle and Transport Equipment Rental

ANZSIC for the Register

- Bought two hand-curated marketing databases.
  Bought two fields - Domain Name, ANZSIC
  106k in one, 15k in the other

- Used as training set for machine learning

- Now at stable point
  After testing 16 different ML algorithms (ask Sebastian Castro if you want details)

- Still looking at improvements
  Will probably do much more hand coding (top 100 per main industry)

Value for Registrars

- ## Penetration by vertical
  Specialise in specific verticals (accidentally)?
  Repeat business in same vertical?

- ## Potential of verticals
  How does overall registry penetration compare to industry size?
  Has a vertical been fully mined?
  What are the most untapped verticals?

- ## Value of verticals
  Do some verticals bring more repeat business?
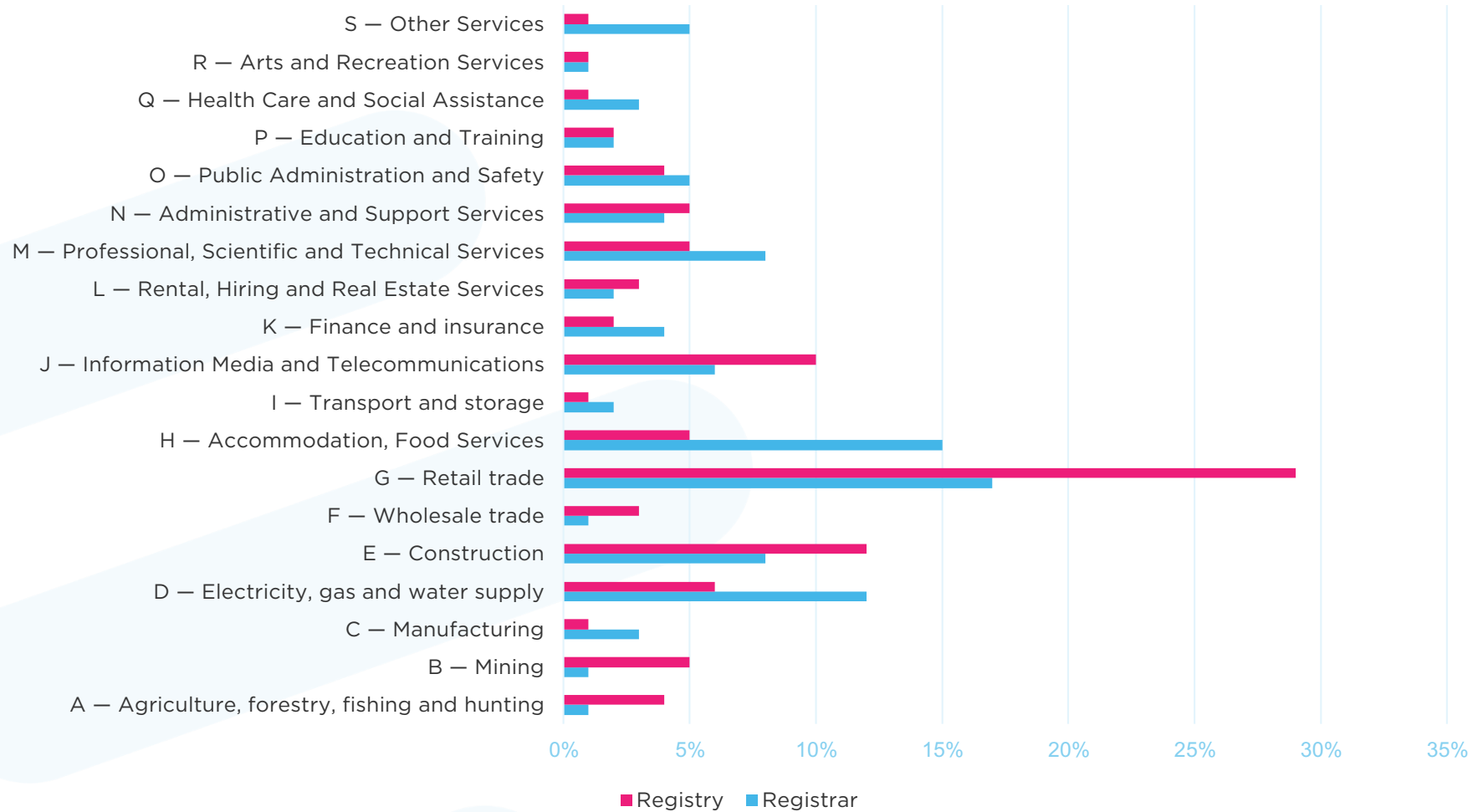 Buy more add-on products?

Value for Registrars

Registrar
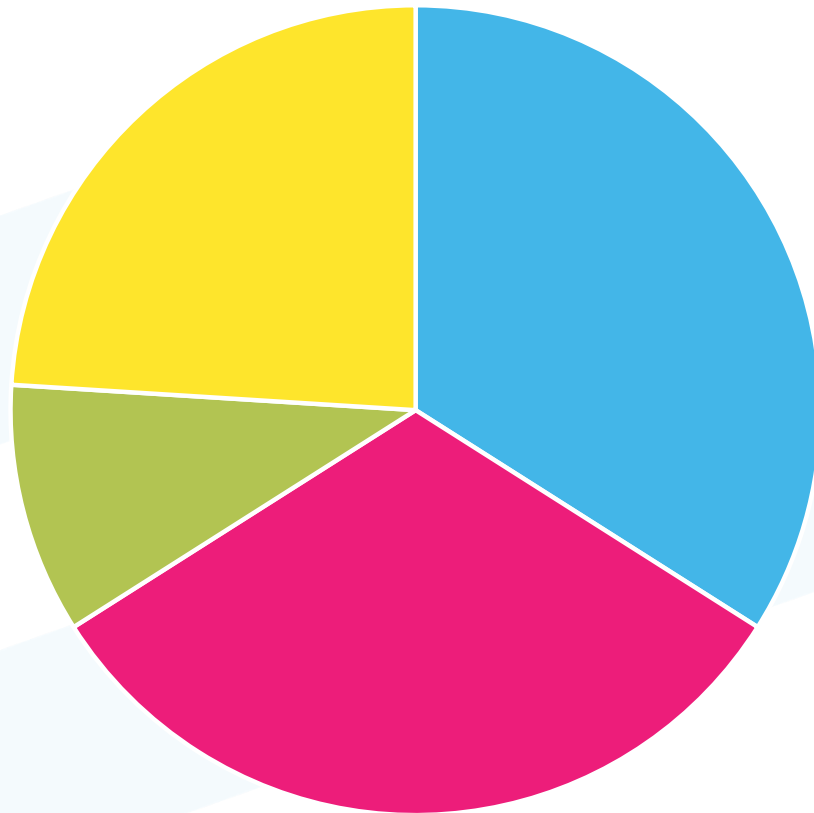
Registry

- ANZSIC
- Personal
- Parked
- Unknown

Value for Registrars

Chart legend: Registry (pink), Registrar (blue)

Categories (top to bottom):
- S — Other Services
- R — Arts and Recreation Services
- Q — Health Care and Social Assistance
- P — Education and Training
- O — Public Administration and Safety
- N — Administrative and Support Services
- M — Professional, Scientific and Technical Services
- L — Rental, Hiring and Real Estate Services
- K — Finance and insurance
- J — Information Media and Telecommunications
- I — Transport and storage
- H — Accommodation, Food Services
- G — Retail trade
- F — Wholesale trade
- E — Construction
- D — Electricity, gas and water supply
- C — Manufacturing
- B — Mining
- A — Agriculture, forestry, fishing and hunting

X-axis: 0% 5% 10% 15% 20% 25% 30% 35%

Value for Registrants

- The online advertising dilemma
  Imagine you're an online flower shop
  You advertise in the lead up to Mothers' Day
  You get 50% rise in online traffic, 10% rise in sales

- BUT ....
  How do you know how your competitors did?
  What if they got 50% rise without advertising?
  How much of this was just Mothers' Day uplift?

- Not even Google Analytics can tell you!

- We can.

Popularity product

This domain is classified as follows

Type

Business

Category

Level 1 **Manufacturing**

Level 2 **Beverage and Tobacco Product Manufacturing**

Level 3 **Beverage Manufacturing**

Level 4 **-**

Popularity product

If this is not correct then please select from the options below:

Business		Not-for-profit		None of these are suitable
Level 1	Health Care and Social Assistance	Level 1	Social services	
Level 2	Hospitals	Level 2	Emergency and relief	Specify classification
Level 3	Hospitals	Level 3	-	
Level 4	Hospitals (except Psychiatric Hospitals)	Level 4	-	
Use this classification		Use this classification		

Popularity product

Listed services

List by: **Type** | **Name**

	App

api

Label	Record
amet2222	AAAA

Show more

Edit   Delete

	Mail

primary mail

Label	Record
lorem6	MX
lorem1	MX

Show more

Edit   Delete

	Web

blog

Label	Record
amet51	AAAA
amet2345	ABBA

Show more

Edit   Delete

Popularity product

Domain traffic score

Using the billions of queries recorded by the authoritative .nz servers and a sophisticated algorithm, we extract the underlying domain traffic score for a domain. This is then calculated for each of the services you define and shown in the chart below. Depending on the type of service selected, this traffic score should correlate with other measures such as visits to your web site or emails received.
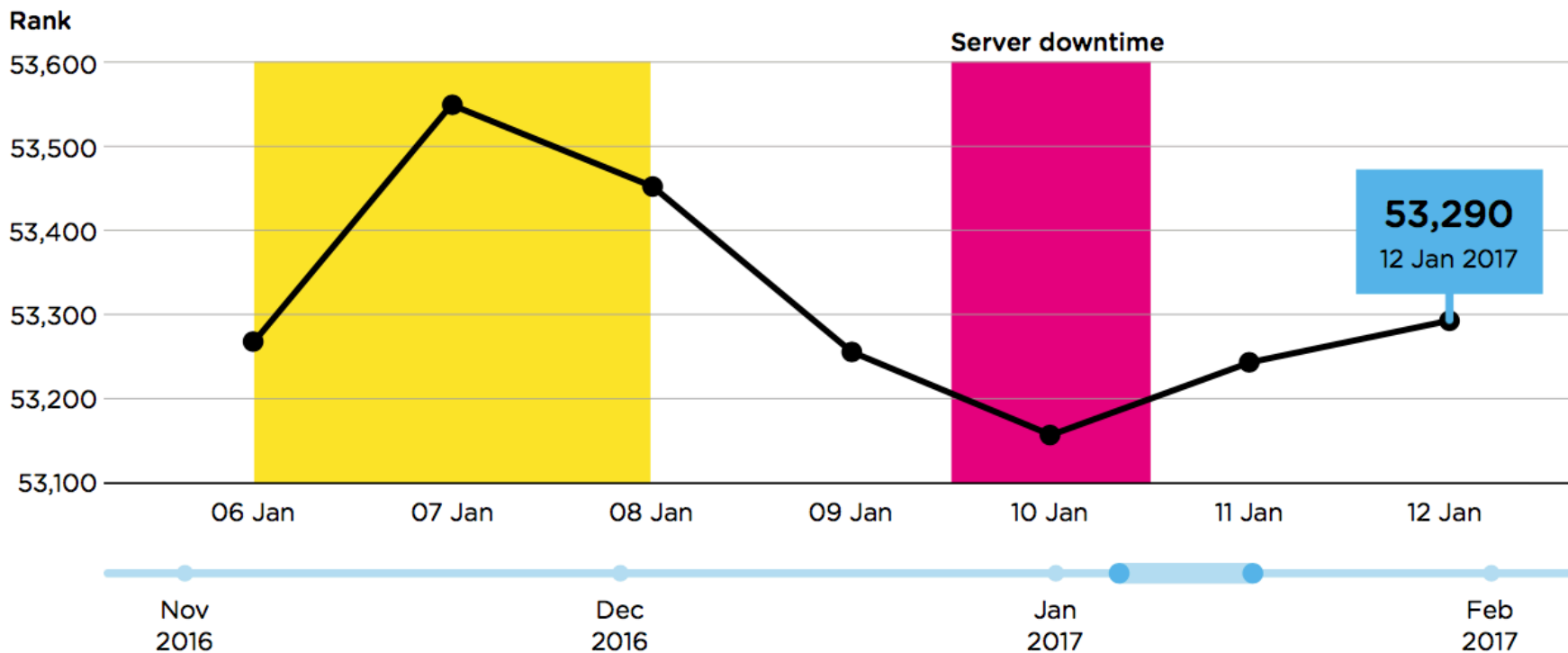
Popularity product

Popularity

This traffic score can now be compared against all other services of the same type within the same usage classification to provide a rank for that service. The higher the rank, the more popular it is. In the box below you can choose what to compare against and see the rank for this service, how many other services it is ranked against and how that rank has changed over time.

Compare

Web – blog

Against all others in:

Business: Level 1: Manufacturing ▼

Rank

123
out of
3,000

Popularity product

Service rank history
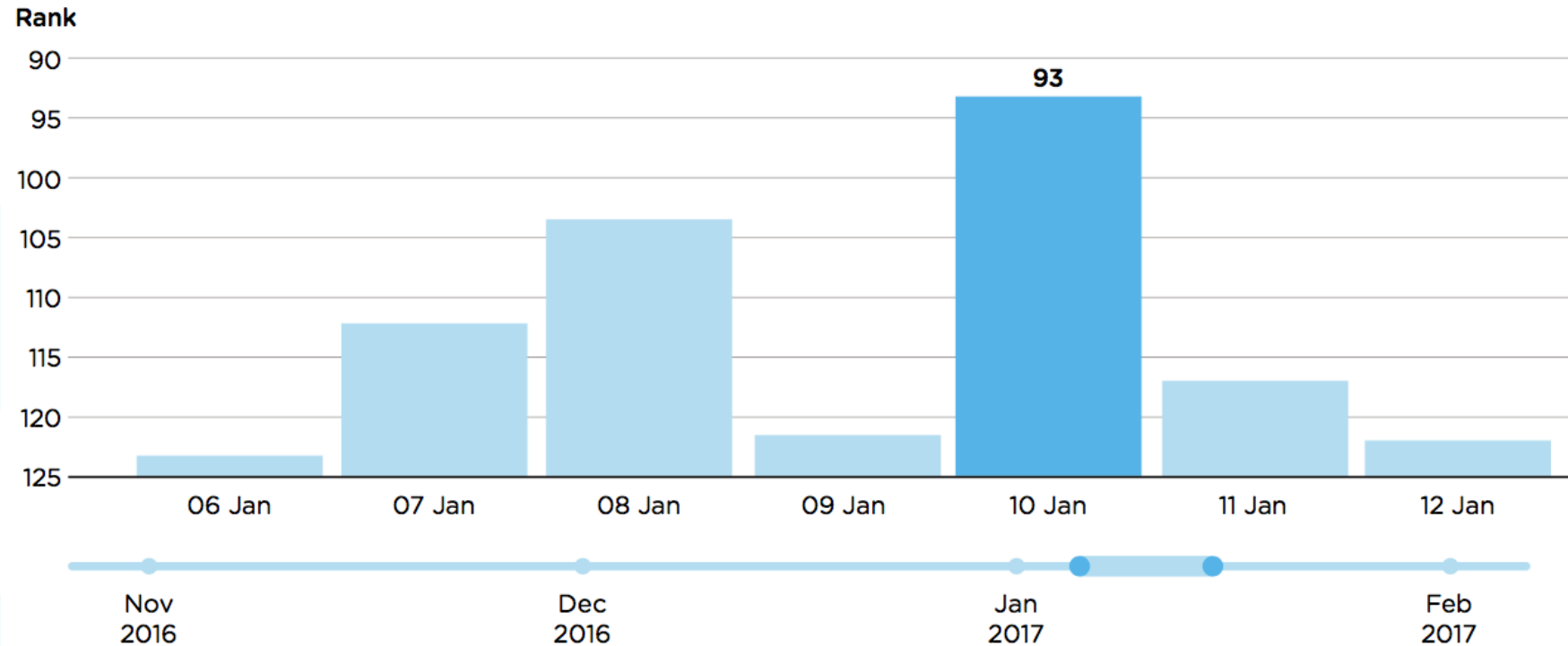
Popularity product

Comparison set in more detail

Knowing where you service ranks is a good start but if you want to improve your service ranking then it helps to understand where the other services score and how much your service score will need to improve to move up the rankings. The chart below shows the score for all the services being compared in rank order.
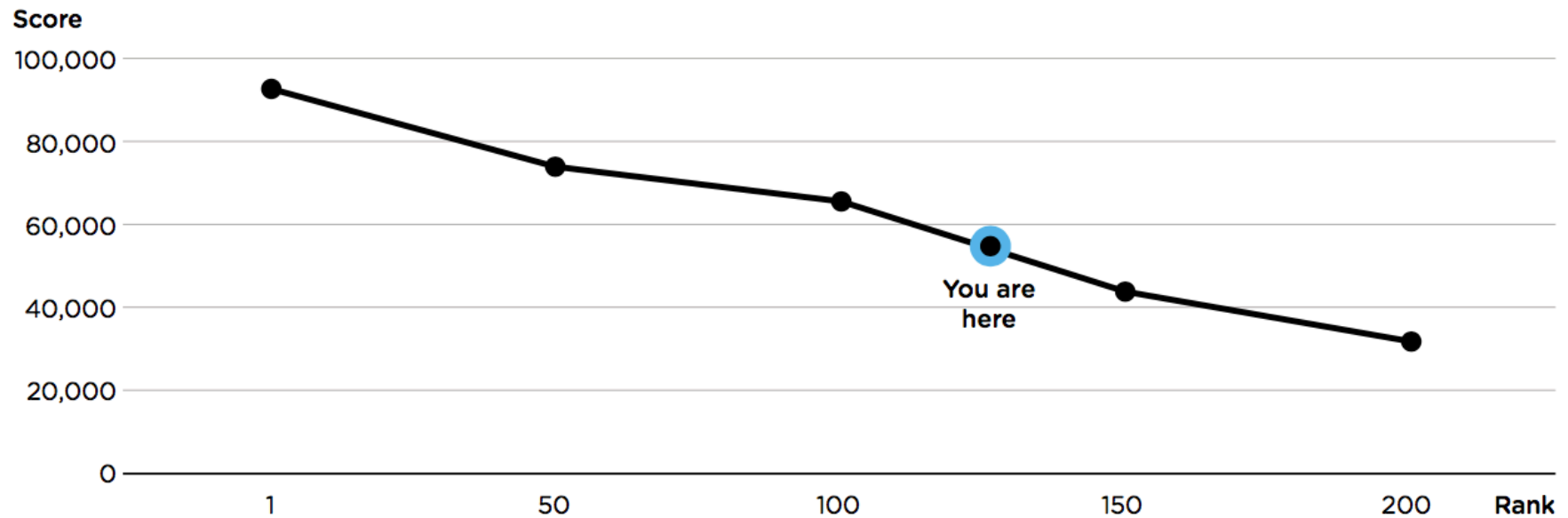
Health check

- We scan the DNS of all our domains (675k) every month

- Already provide that data to our registrars in our portal

- But registrar may not be DNS operator
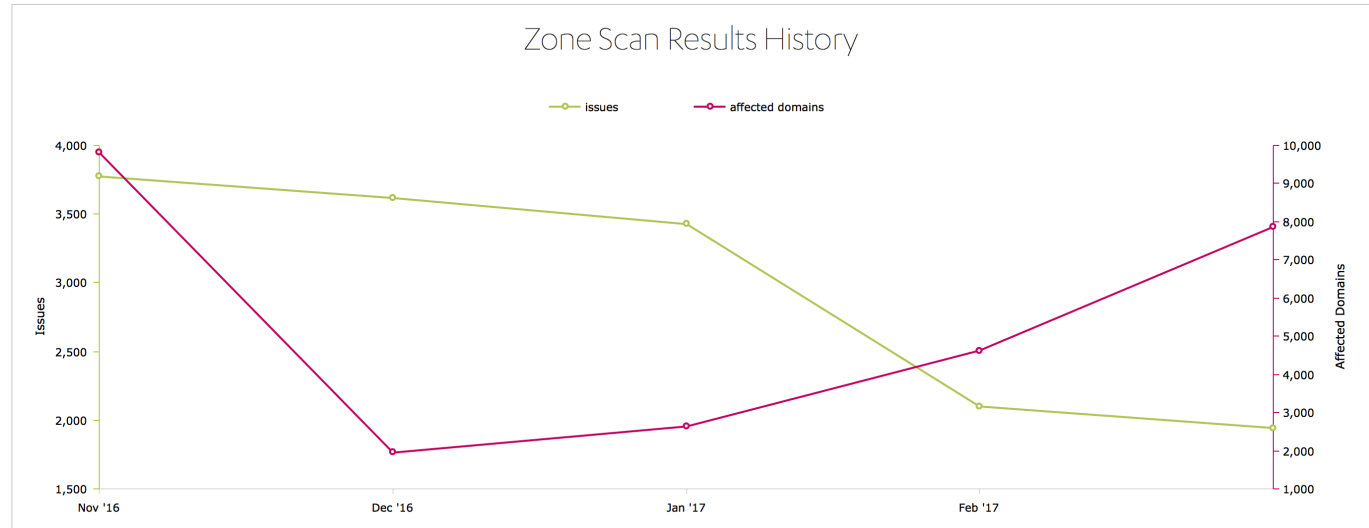
- So providing it for free in the product

Health check in our portal

Issues & Domains

1,943   7,865

	Issues	Domains
Registrar Total	1,943	7,865
Registry Total	9,067	20,258
🚫 Critical	409	94
● Error	929	80
● Warning	354	55
● Notice	59	34
● Info	192	54

Zone Scan Results History

- issues
- affected domains

Zone Scan Results

Download CSV

Show 10 entries   Search:

Domain	🚫	Error	Warning	Notice	Info	Date
bartoletti.nz	🚫	○ ○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○ ○	○○○○○○○	01 March 2017
batzsimonis.net.nz	○	○ ○ ○	○ ○ ○ ○ ○ ● ○ ○ ○	○ ○ ○ ○	○○○○○○○	01 February 2017
beer.maori.nz	○	○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○ ○	● ● ○ ● ○	○○○○○●○○	01 March 2017
botsford.kiwi.nz	○	○ ○ ● ●	○ ○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ● ○	○○○○○○○	01 February 2017

Health check product

Report summary

The DNS configuration for this domain is broken

This means:

- no further health check tests are possible.
- The Popularity information is probably meaningless

Recommended actions

Talk to whoever manages your DNS and tell them your domain has failed its DNS Health Check for the reasons listed below.
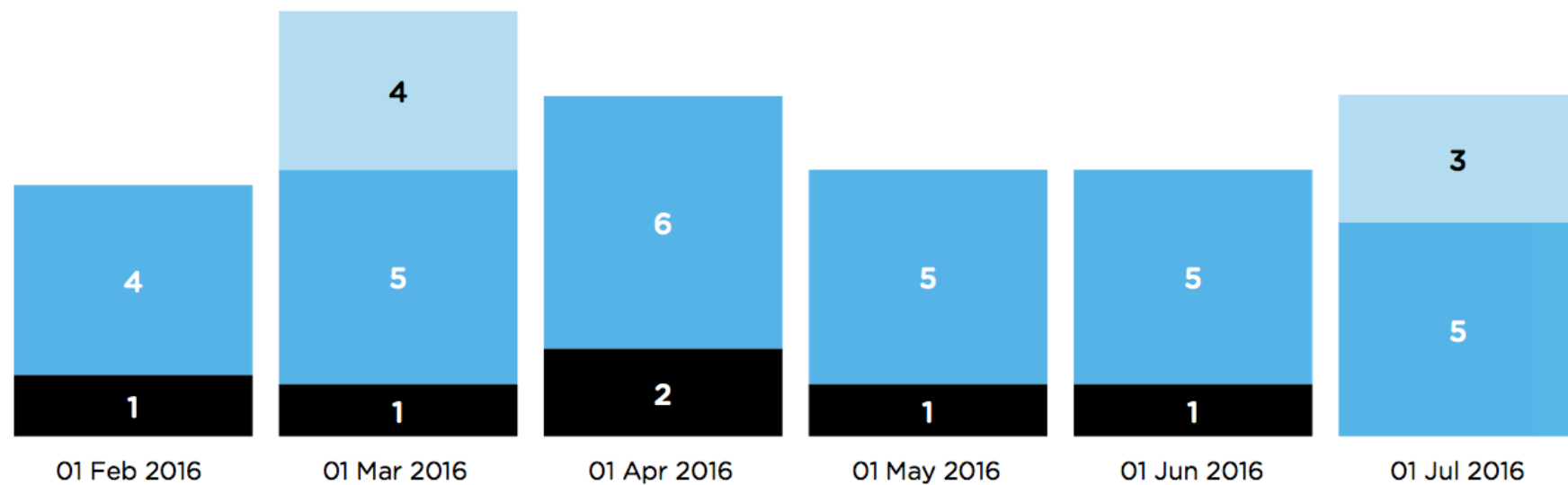
Health check product

Report details

2	serious operational errors	✗
0	configuration warnings	✓
1	informational notices	✗

Health check product

Health Check history

Health check product

Shared reports

Date	Broken	Errors	Warnings	Notices	URL
21 Jul 2016	Yes	-	-	0	link
28 Jul 2016	No	0	5	2	link

Future – Similarity?
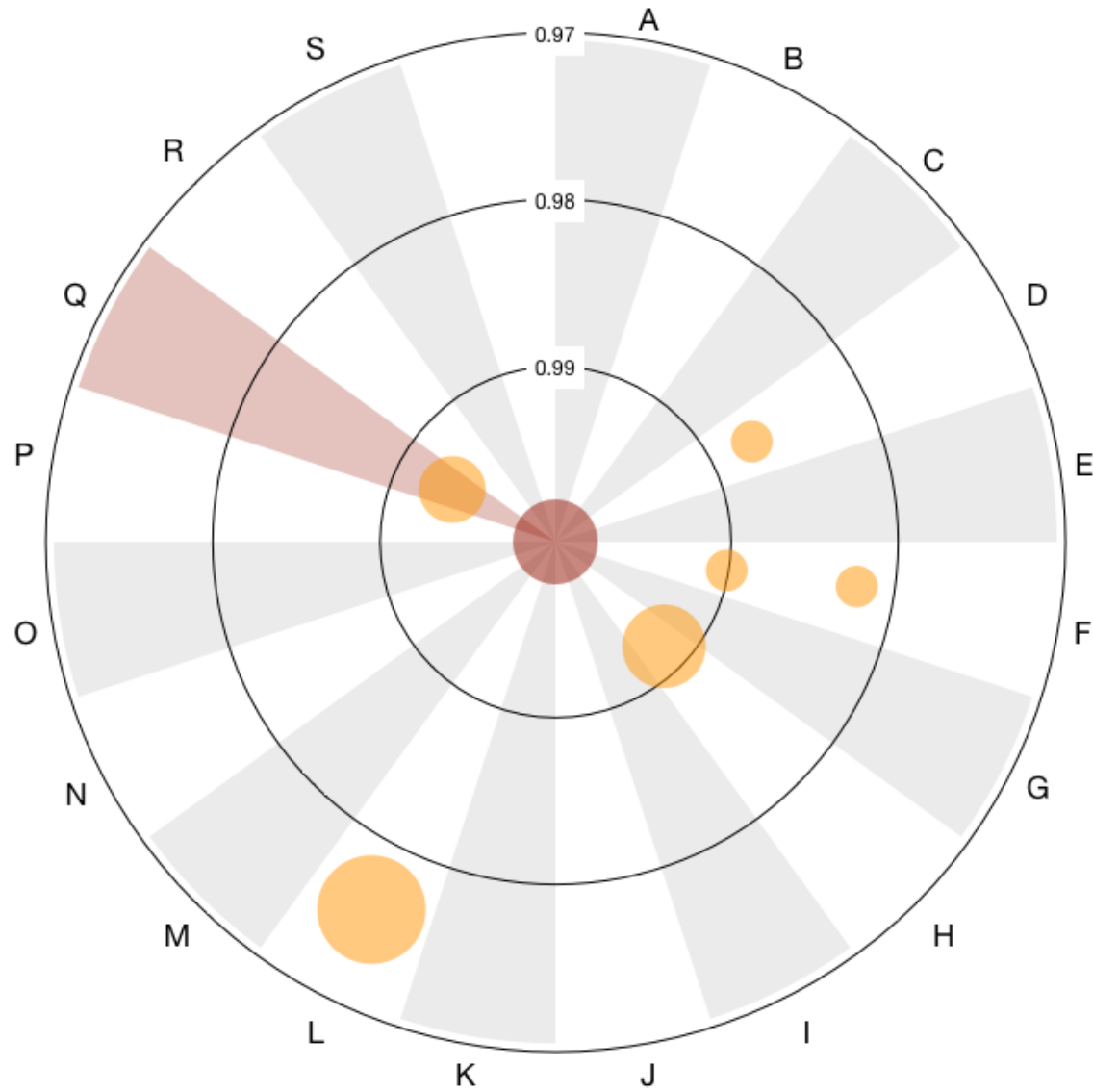
Finally

- How do we integrate with Registrars?
- Option 1
  Registrar manages user
  Embeds site
  We charge wholesale fee

- Option 2
  We manage user
  Public site
  We charge retail fee
  We pay registrars a commission per customer

- Registrars are split
  Not sure the two options are compatible

Thanks

Contact: Jay Daley, jay@nzrs.net.nz
www.nzrs.net.nz

NZRS

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