DNSSEC
The next thing to think about?

Andy Linton
.nz Domain Name Commission
asjl@lpnz.org

.nz is our home

Haven't we go enough to do?

- IPv4 runout?
- IPv6 upgrades?
- Keeping our networks running?
- DDOS?
- Making a profit?
- And now you want more?
  - DNSSEC?

.nz is our home

DNSSEC

- We'll cover a whole bunch of stuff this week on why, how etc
- Assuming you decide to go for DNSSEC, what else is involved besides the technical stuff like setting up the DNS servers
- It's quite a lot….

.nz is our home

So what's the problem?

- It's possible to persuade the DNS to give incorrect answers e.g.
  - an incorrect IP address is returned for the query www.mybank.com.fj
  - if that IP address is for a malicious server bad stuff can happen….
- DNSSEC stops the first part of this
  - not magic – doesn't remove all badness from the Internet

.nz is our home

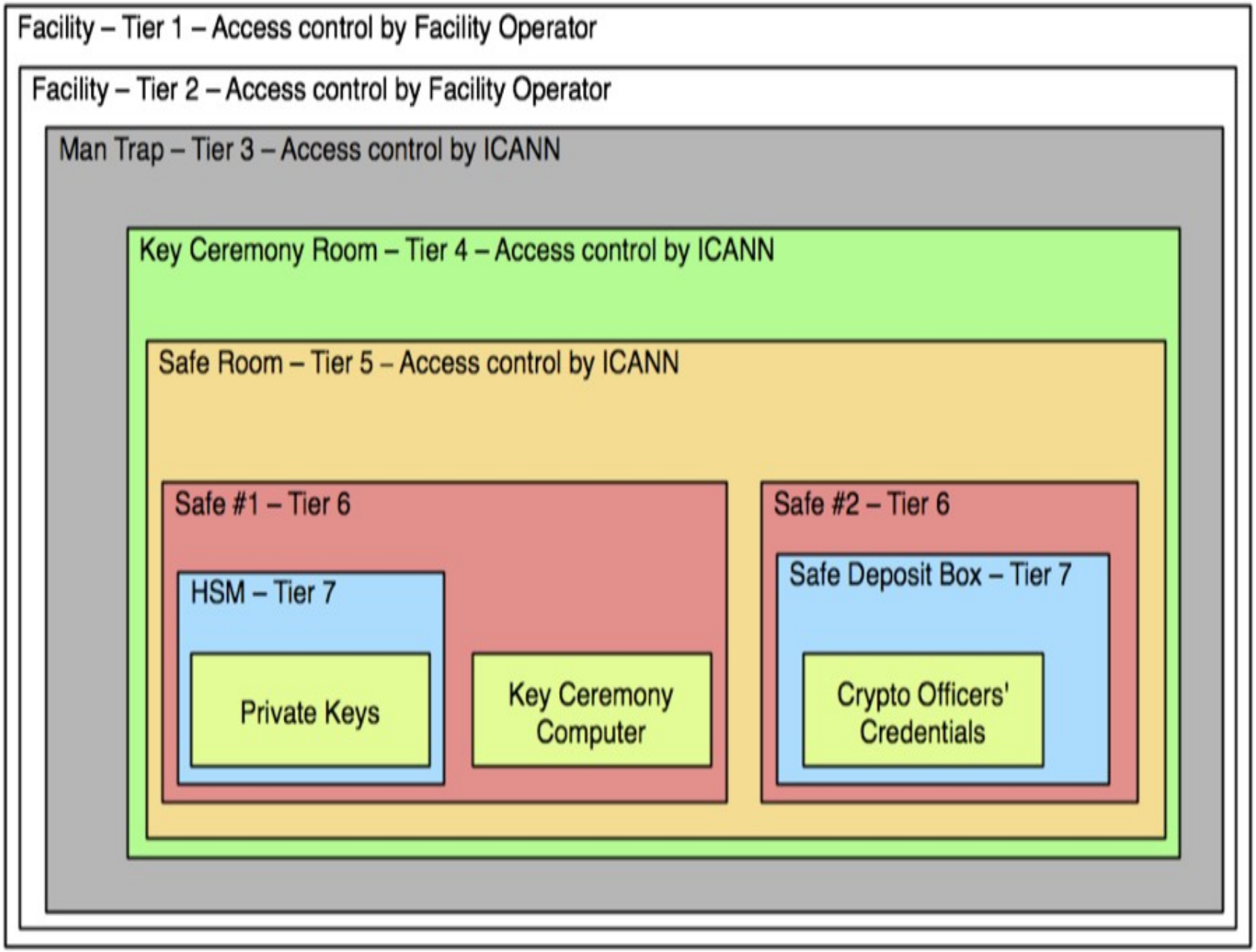
So again what's the problem?

- You need to get a lot of things right for "day one"
  - Policy
  - Processes
  - Security
  - Technical
- These translate into "Trust"

Signing the root

- Involved process with lots of planning and testing
  - ICANN Draft Architecture
- Done in a secure facility with lots of people present
- Highly detailed process
  - Key ceremony script

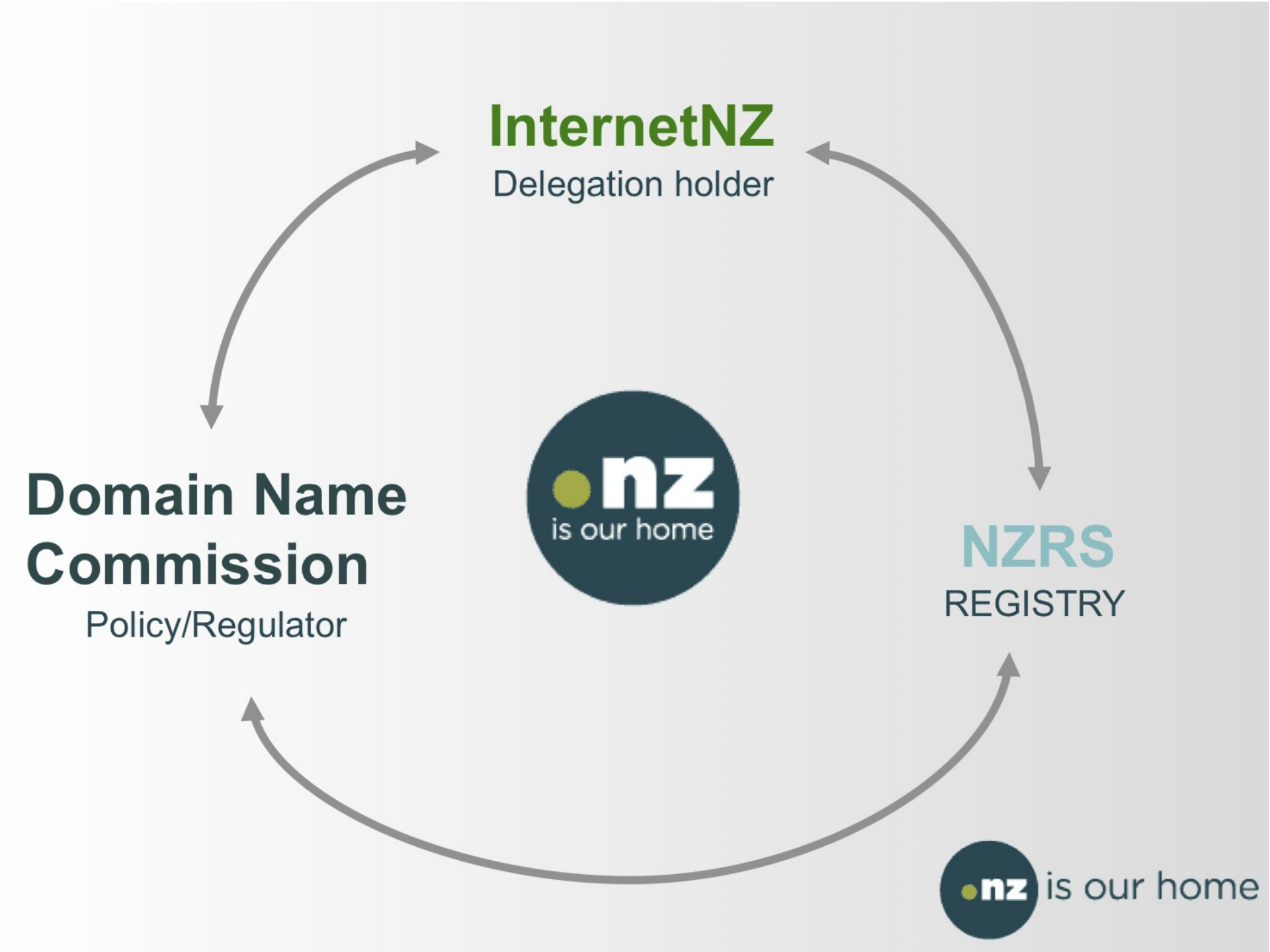
.nz is our home


Facility – Tier 1 – Access control by Facility Operator
Facility – Tier 2 – Access control by Facility Operator
Man Trap – Tier 3 – Access control by ICANN
Key Ceremony Room – Tier 4 – Access control by ICANN
Safe Room – Tier 5 – Access control by ICANN
Safe #1 – Tier 6
HSM – Tier 7
Private Keys
Key Ceremony Computer
Safe #2 – Tier 6
Safe Deposit Box – Tier 7
Crypto Officers' Credentials

Root - https://www.iana.org/dnssec

- Rick Lamb said:
  - 5 Key Ceremonies with invaluable dedication of trusted community representatives (TCRs). Without such support from the community, we would be nothing!
  - First DNSSEC deployment with International SysTrust certification by independent 3rd party auditor

.nz is our home


InternetNZ
Delegation holder
Domain Name Commission
Policy/Regulator
.nz is our home
NZRS
REGISTRY
.nz is our home

Two Parallel Developments

- The goal is to maintain the Chain of Trust throughout the management of any .nz signed domain names
  - NZRS → Technical implementation
  - DNCL → Policy development

.nz is our home

.nz Signing Status

- 22/05/11 SRS began accepting DS records
- 30/06/11 Testing of solution completed
- 25/07/11 Key generation
- 28/07/11 Publish .nz signed with obscured key
- 29/07/11 Obscured key in operation
- 17/08/11 Publish .nz signed with clear keys
- 18/08/11 Clear keys in operation without DS in root
- 23/08/11 Submit DS records to root zone
- 25/08/11 Keys published in root
- 01/09/11 Sign second levels
- 31/12/11 Fully operational

.nz is our home

.nz DNSSEC Resources

NZRS

- High Level Architecture
  - http://nzrs.net.nz/dns/dnssec/dnssec-high-level-architecture
- DNSSEC Practice Statement
  - http://nzrs.net.nz/dns/dnssec/dps
- For more information email: support@nzrs.net.nz

DNC

- Policy Summary
  - http://dnc.org.nz/story/dnssec-policy-amendment-notification
- For more information email: info@dnc.org.nz

.nz is our home

DNSSEC ccTLD Deployment Initiative

- PCH DNSSEC signer platform is ready
  - Free for any ccTLD
  - No lock in
  - Based on root processes and architecture
  - Singapore - San Jose - Zurich
  - Had KC #3 in Singapore last week with external witnesses and notarized by independent 3rd party
  - Status: 14 ccTLDs signed up

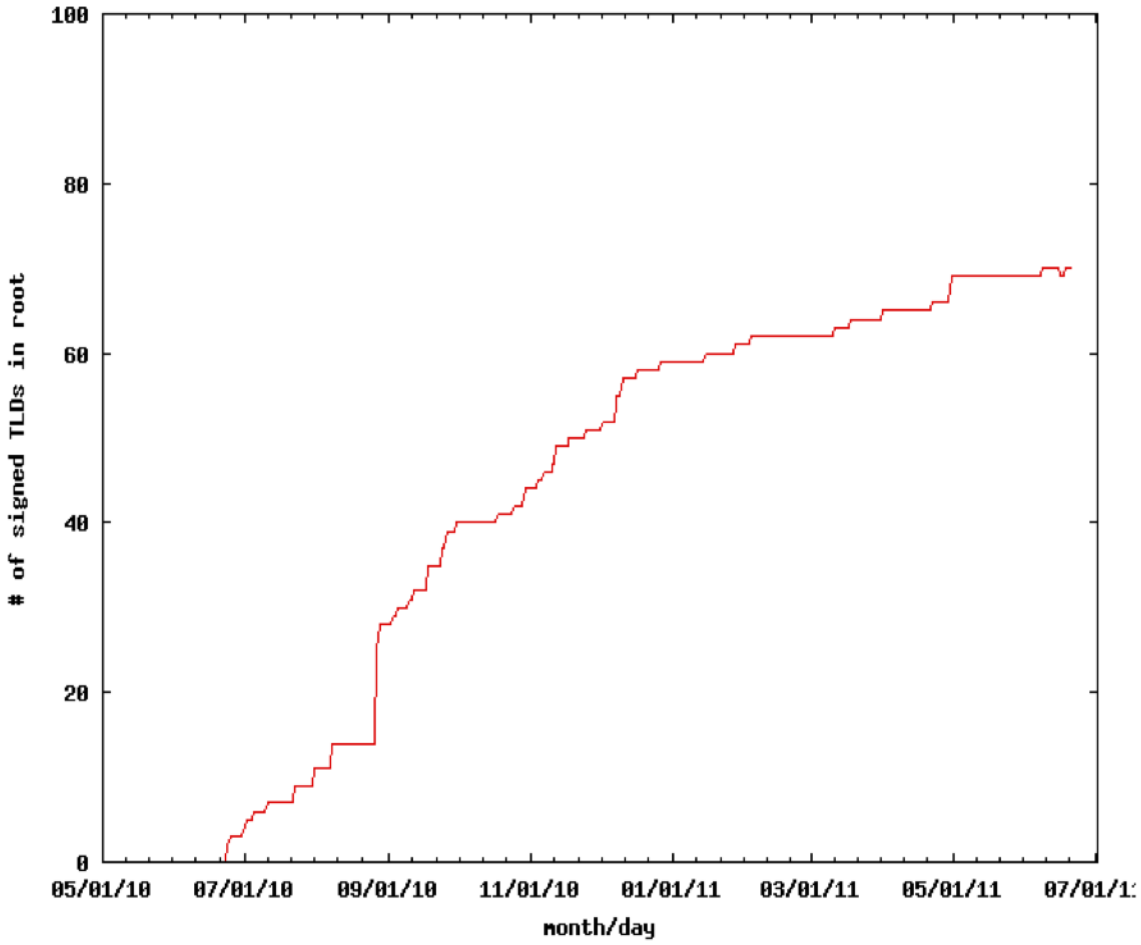
.nz is our home

DNSSEC ccTLD Deployment Initiative

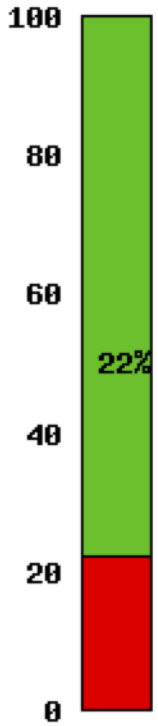
- Education, Training and Awareness
  - Lesson: Transparent Processes are good for everyone
  - Automate Automate Automate….

Total TLDs: 310 / Signed TLDs in root: 70

Trend



% of TLDs signed in root



% potential DNSSEC deployment weighted by total domains per signed TLD