DNSSEC TCO

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Components of DNSSEC Deployment

- Processes
- Technology
- People

Process: Best Practices RFC 4641

- Generation of keys process:
- Key Calculation storage protection FIPS 140 (Federal Information Processing Standardization)
- Store the keys in an Anti-dumper device

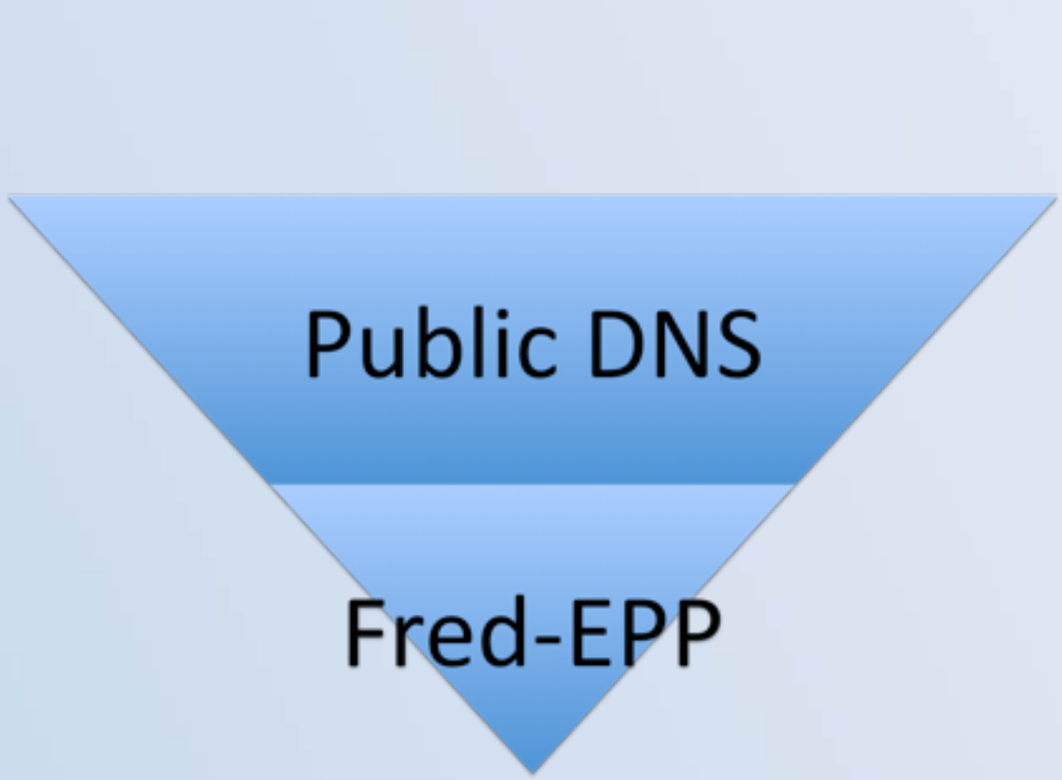
Best practices (cont)

- ZSK and KSK signing process.
  - Off line signing.
  - Secure copy of signed zones.
- Most of recommendations are based on a PKI Certificate Authority Management.

Trust

- The security process is pointed to provide trust in the signer.
- How much can be invested in trust?
  - How much a CA invest in trust?
  - How much a bank invest in trust?
  - How much a Registry invest to be a Trust Anchor?

Security in-deep



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Registro de dominios bajo .cr

Technology

- The hardware to manage keys is already on the market, like HSM devices. (± $20k)
- Physical security could be provided (expensive).
- It is possible to increase the capacity of the servers in case is need it (low cost).
- Software of Registry can be modified to adopt the process (in our case Fred is ready).

People

- Operations personnel: Cost of training (relative low)
- Technical personnel: NEW process, maybe new personal (maybe high).
- Change in organizational culture always costs a lot.

The cost in numbers

- According with ENISA study the anticipating capital and operational expenses could be:
  - Registry: between 250K and 1.250k Euro
  - Registrar: 10.000 Euro
  - Recursive Resolver Operator: 15k-250k Euro.

The appropriate investment

- What should be the balance in provide reasonable trust anchor for a small, medium or large ccTLD Manager?
- What should be the level of security to protect the keys? All the recommendations of RFC? More than that?

Scalability of costs

- Investments that not affected by the number of domains:
  - Software modifications
  - Key management (*).
- Costs relative to the size of the ccTLD
  - Bandwidth, Memory of servers

Conclusions

- The costs to be trust anchor is very high for a small ccTLD. (According to ENISA study 250k Euro).
- Must of the cost of be a trust anchor are the same for a small, medium or large ccTLD.