.PR DNSSEC History and Experiences

History

- Why was NIC.PR interested?
- NIC.PR was a research laboratory involved in various research projects that included:
  - Watermarking
  - Public Key Cryptography
- Being a technology center of Computing Science, NIC.PR considered DNSSEC to be an area of interest.

History

- Why was NIC.PR interested?
- Circa 2000, the local government site was redirected to a malicious site at the ISP level.
  - Completely avoidable had DNSSEC been available.
- Shortly after Sweden (.se) became the first ccTLD to offer DNSSEC, it became clear that this was the way forward in terms of DNS security.

History

- When was DNSSEC activated?
- NIC.PR started signing the zones on July 2006.
- NIC.PR started transmitting DNSSEC zones to the public servers for the first time in August 2006.

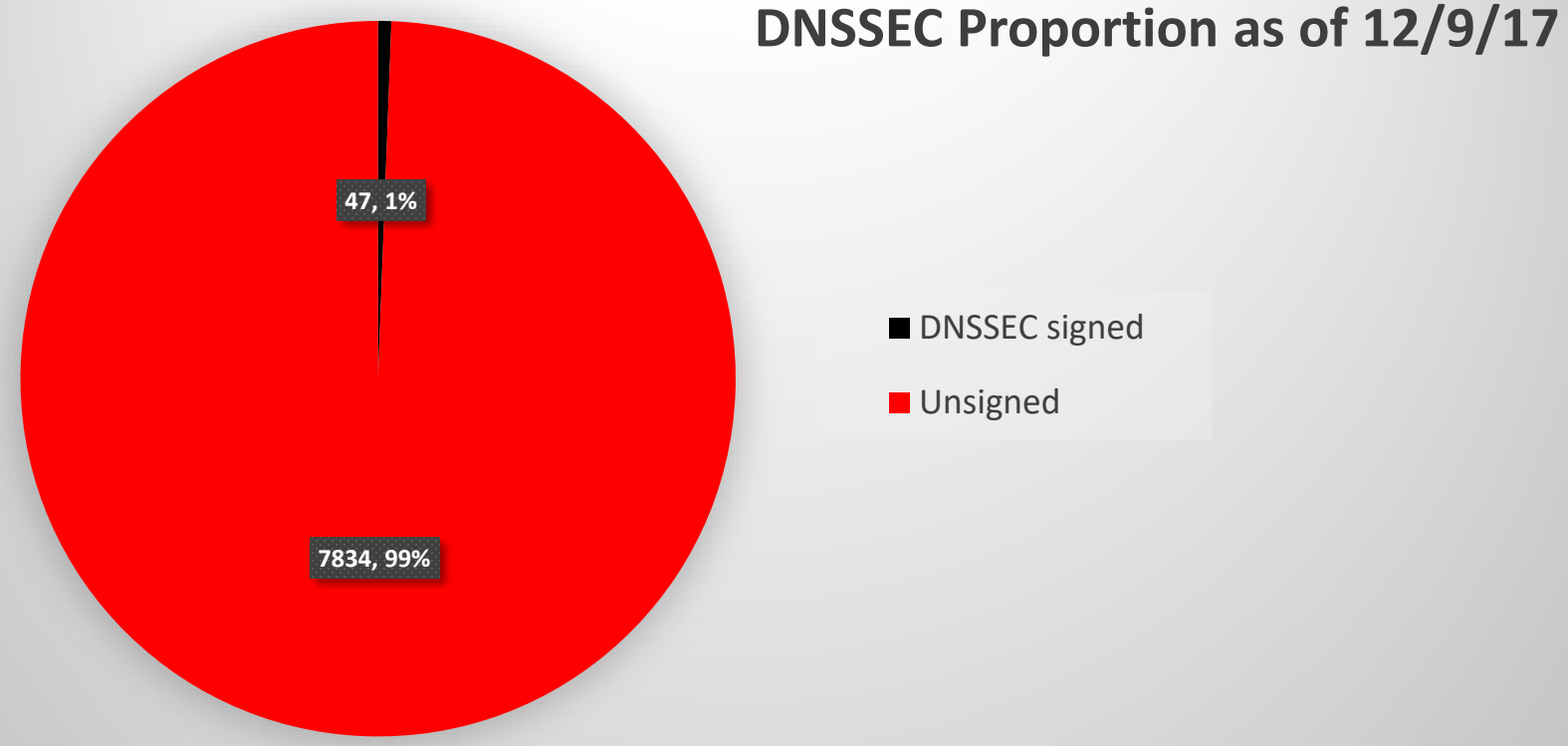
History

- List of DNSSEC signed zones at deployment (2006):
  - .pr
  - .nic.pr
  - .com.pr
  - .net.pr
  - .org.pr
  - .isla.pr
  - .edu.pr
  - .gov.pr
  - .pro.pr
  - .biz.pr
  - .info.pr
  - .name.pr

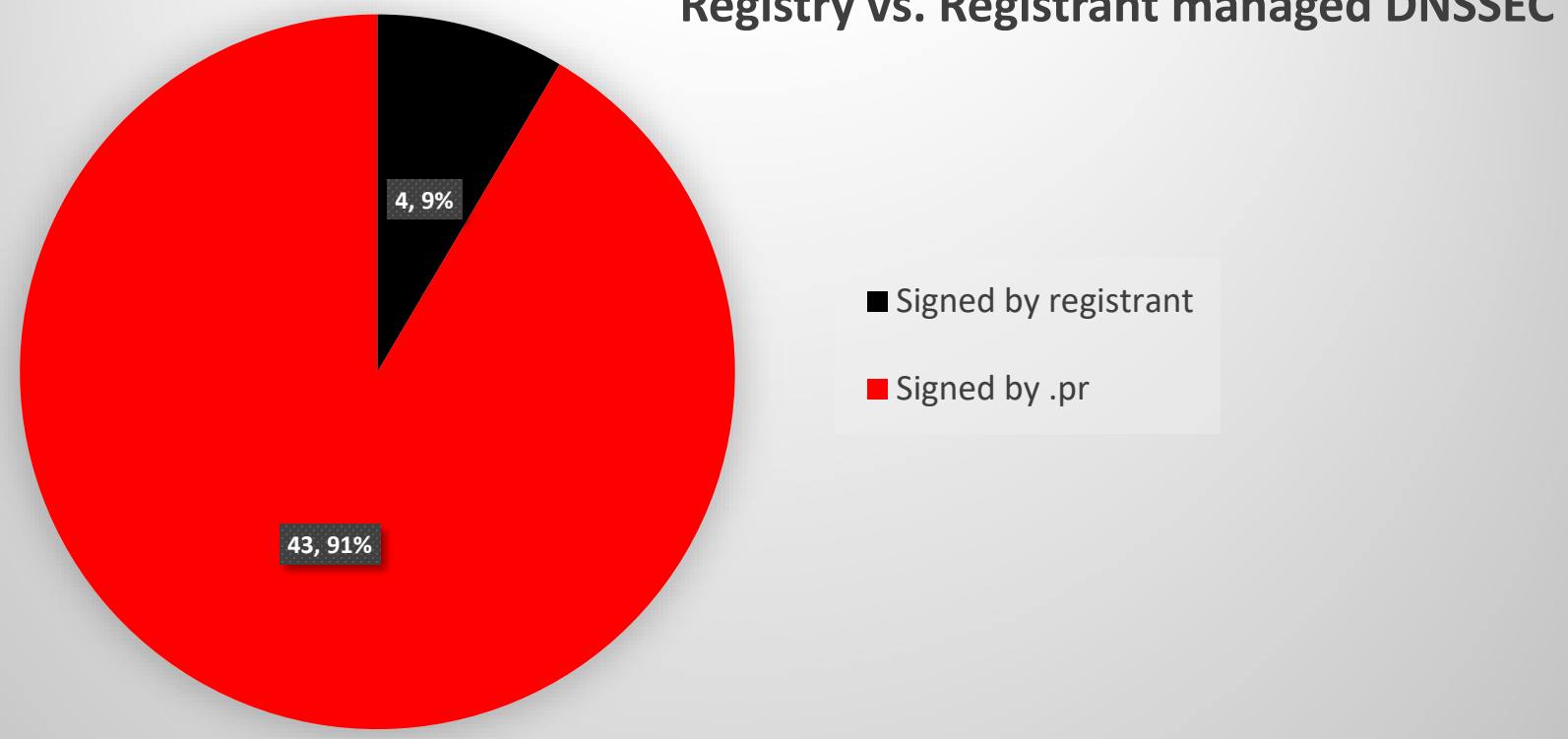
Promotion efforts

- An informational website was created at http://dnssec.nic.pr to publish .pr DNSSEC related information.
- The local government was encouraged to sign the domain gobierno.pr.
- Signed and hosted DNS zones of clients under the incentives program.

DNSSEC proportion



Signed zones proportion



Operational experiences

- .pr zones were signed on a Windows 2003 Server machine.
- Zone file generation and DNSSEC signing were performed using VBScript.
  - `dnssec-keygen -a rsasha1 -b 1024 -n zone [domainname]`
  - `dnssec-keygen -a rsasha1 -b 2048 -f KSK -n zone [domainname]`
  - `dnssec-signzone -o [domain] -t -g -k [KSK] [zone file] [ZSK]`
- DNSSEC functionality was verified by:
  - Querying OARC's open DNSSEC resolvers (149.20.64.20, 149.20.64.21)
  - http://www.dnsviz.net

Thank you!
Questions?