

DNSSEC & PowerDNS

Large Scale DNSSEC Deployments

“lessons learned when securing a million+ zones”

Swedish Internet Days

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Agenda

- PowerDNS & Netherlabs
- Evolution of thoughts on DNSSEC
- DNSSEC profile of PowerDNS
- Criteria for large scale (DNSSEC) success
 - Sweden & The Netherlands
- Lessons learned from Swedish & Other



PowerDNS & Netherlabs

- PowerDNS is the name of the products: Authoritative & Recursor
- Around since late 1990s. Started out as proprietary software, saw the light 10+ years ago, now 100% Open Source
- Powers $\pm 30\%$ of all domains in Europe, 95+% of DNSSEC in Scandinavia & The Netherlands
- Major SLA-supported users include lots of telecommunications companies named after their country.
- Developed by Netherlabs & Community, 100% SLA-backed supported by Netherlabs
- Works based on all popular databases, MyDNS, djbdns, LDAP and regular zone files

DNSSEC & PowerDNS

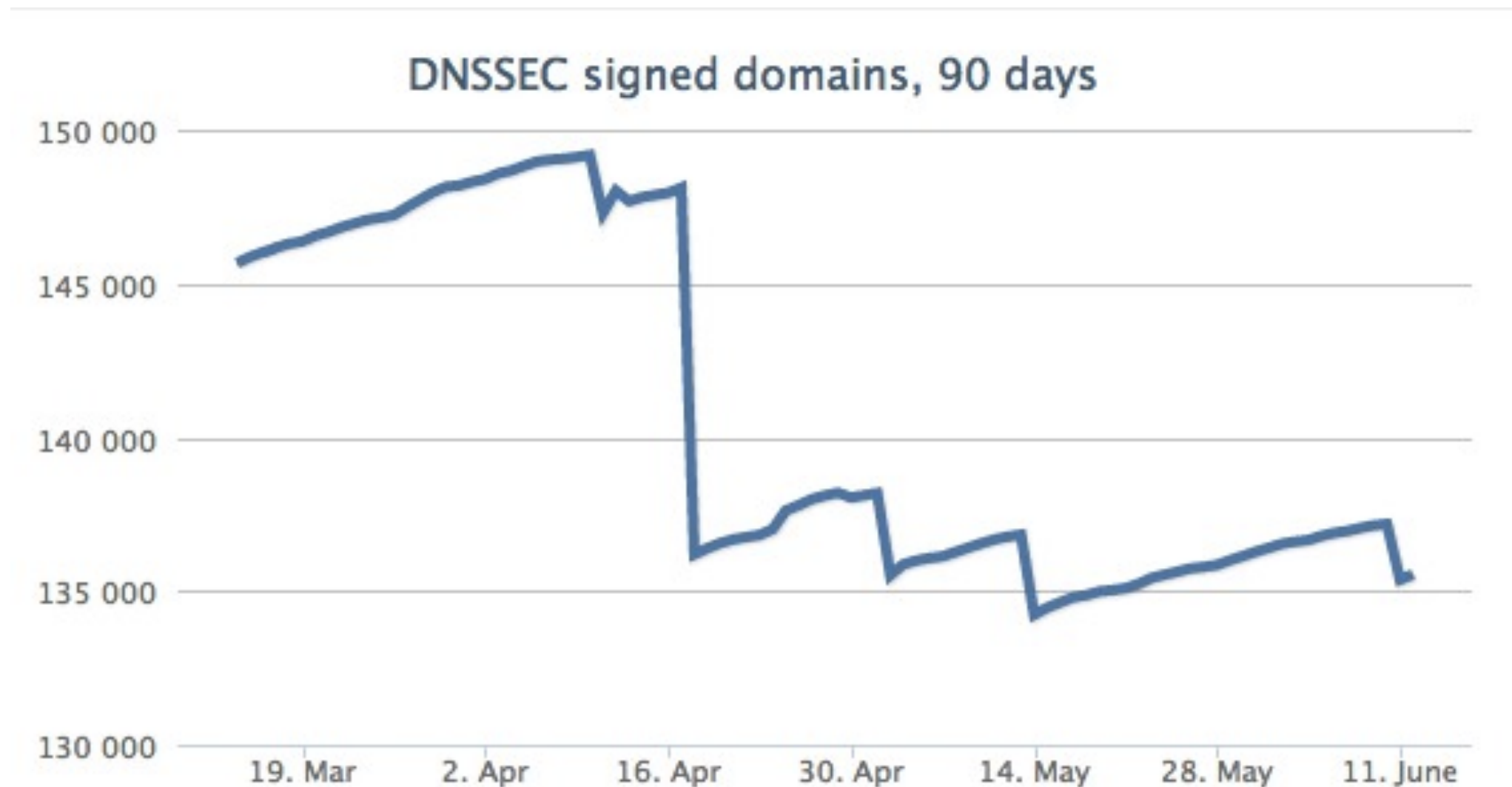
- Spent a decade on IETF mailing lists explaining DNSSEC was over-engineered, too complex and tricky to implement
- In 2010 we gave up & implemented DNSSEC “if it has to be done, let’s do it in a way **that can be deployed**”
- Now powers 1,500,000+ DNSSEC domains!
- By now however we are **SURE** DNSSEC is over-engineered, too complex and tricky to implement ;-)

DNSSEC “Market”

- Not all decisions are very rational (especially in large organizations!)
- However, it appears that before DNSSEC became fully automated, nobody wanted to deploy it at scale: “**total cost > benefit**”
 - Even though there was an incentive program
 - **total cost \pm benefit**
- **All** big deployments have been with fully automated software
 - **total cost < benefit**
- Cost not only factor: uncertainty too

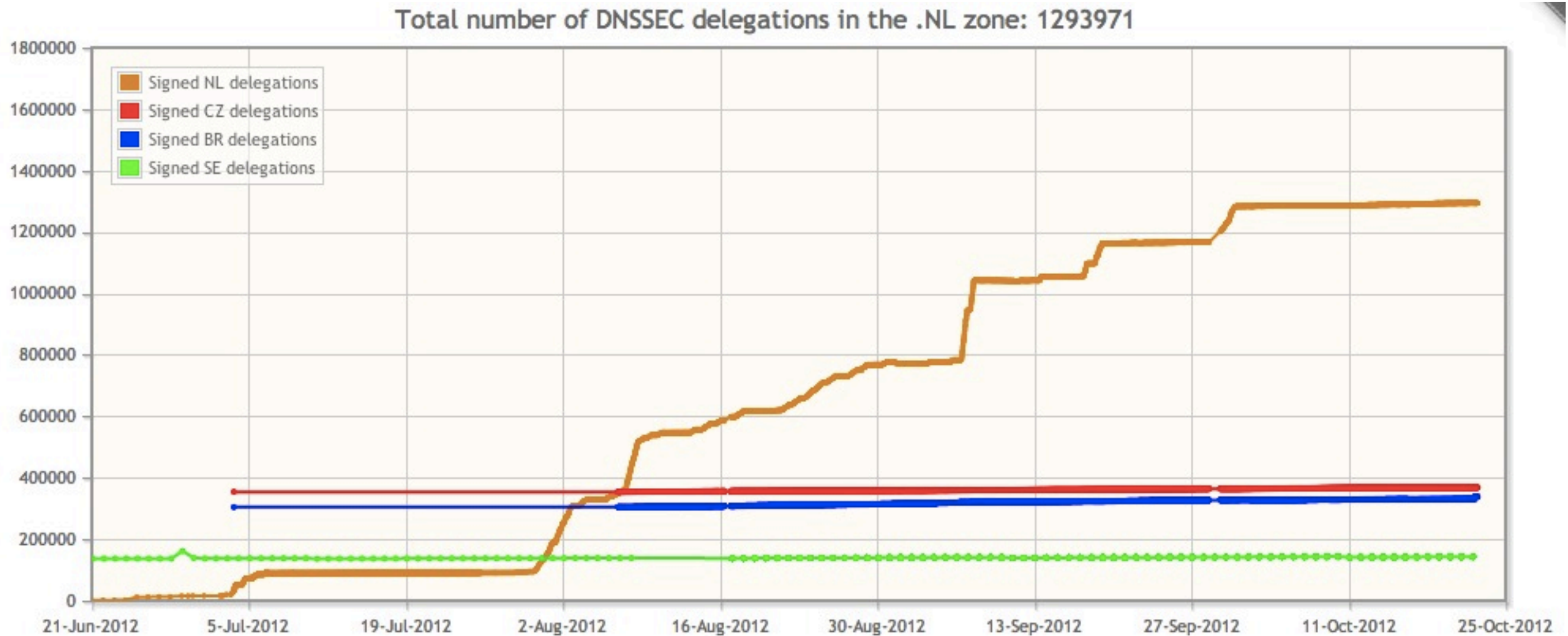
Thank you Sweden!

“Bugs in action”



<https://www.iis.se/en/domaner/statistik/tillvaxt?chart=per-type>

“2nd generation Guided deployment in action”



Guided DNSSEC deployment

- Together with SIDN, PowerDNS supported all big DNSSEC deployments happening within the Netherlands
 - 24/7
- In the course of the 1.3 million+ signing run, we developed best practices
 - And even helped prevent problems in non-PowerDNS deployments
- This “cooperative rollout model” is highly recommended!
 - Worked in Sweden too!

Summarizing

- PowerDNS is an enthusiastic supporter of DNSSEC these days
- DNSSEC is not 100% mature, should do “guided rollouts”, like in Sweden & The Netherlands
- Success depends on **total cost < benefit!**
 - Work on ‘cost’ AND ‘benefit’ side
 - Guided rollouts decrease risk & uncertainty
- Any large scale DNSSEC migration will have issues, be hypervigilant, but generally things work!

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