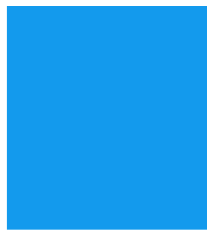
Hijacking through routing in Turkey

Stéphane Bortzmeyer

bortzmeyer@nic.fr

Context

Criticisms against the turkish government on Twitter and YouTube...



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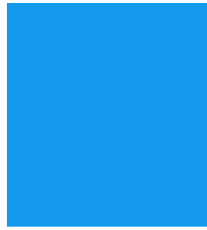
...First, the government requests IAPs to censor, through lying DNS resolvers, sending false results for `twitter.com` (21 march)...



Context

. . . First, the government requests IAPs to censor, through lying DNS resolvers, sending false results for `twitter.com` (21 march). . .

. . . Users switch to other resolvers, such as Google Public DNS. . .

Context - 2

. . . Governement blocks some of the alternative resolvers, breaking Internet access for their users (25 march). . .

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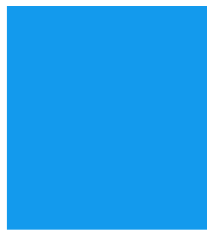
Facts

Turkish IAPs inject routes (29 march) for the important public resolvers (`8.8.8.8/32`)...



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It is no longer "simple" censorship, it is now hijacking by the State.

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Aftermath

1. Lying apparently stopped (4 april)
2. Hijacking apparently stopped (7 april)

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Proofs

1. (No NSID or `hostname.bind` for Google Public DNS but they are easy to forge, anyway)
2. Turk Telecom's Looking Glass,
3. DNS requests from RIPE Atlas probes (when the probe is connected to a network which is tunneled outside, the problem disappears),
4. DNS requests by human users in Turkey,
5. Traceroutes,
6. Latency to `8.8.8.8`, measured by Atlas probes and Renesys probes (unlike many other things, like traceroute, latency is hard to fake).

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Solutions

DNSSEC would help if done properly (validation on the user's own machine) and if `twitter.com` were signed.

. . . Authentication of the resolver (with TSIG, SIG(0) or DNScrypt - like OpenDNS does) would help (the security of a very long "last mile"). . .

. . . RPKI would not help: hijacking was internal, inside the IGP. No routing security solution here. . .

. . . Detecting the lie is one thing, working around it is another issue. . .

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For the regular user

1. Switch to another public resolver (many were not blocked),
2. Local DNS resolver (port 53 was not blindly blocked),
3. tunnels, Tor. . .

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Merci !

www.afnic.fr
contact@afnic.fr