

----- Forwarded message -----

From: [REDACTED] [REDACTED] <[REDACTED]>

Date: Mon, 7 Mar 2022 at 13:06

05/04/2022, 14:47 Department for Digital, Culture, Media & Sport Mail - Fwd: Official Sensitive: Questions about Nominet

Subject: Re: Official Sensitive: Questions about Nominet

To: [REDACTED] [REDACTED] <[REDACTED]>

Hi [REDACTED]

Thanks so much for confirming the receipt. Looking forward to your response.

On another note, I'm starting to look at whether Certificate Authorities should be considered in my review. From the little bit that I have read, it looks like Nominet may have some interaction with these organisations. Is this correct?

If yes, it would be good to find out more about how you work with them.

Thanks

[REDACTED]

On Wed, 2 Mar 2022 at 13:56, [REDACTED] [REDACTED] <[REDACTED]> wrote:

Hi [REDACTED],

Just wanted to confirm receipt. Will review you findings with colleagues here and revert back to you shortly.

Best Regards,

[REDACTED]

From: [REDACTED] [REDACTED] <[REDACTED]>

Sent: Thursday, February 24, 2022 2:33 PM

To: [REDACTED] [REDACTED] <[REDACTED]>

Subject: Official Sensitive: Questions about Nominet

Hi [REDACTED]

I hope you are well.

Thanks so much to you and your colleagues for taking the time to speak with me a couple of weeks ago.

As I mentioned on our call, I'm running a review of potential critical infrastructure across the UK internet sector, which will include Nominet and it's systems. Since we last spoke, I've

managed to carry out a lot of my own research using existing resources, but it would be good to test what I've found with you to make sure that I haven't missed anything and what I have found is still accurate. I've split my questions into sections below.

Could you please review the summaries below and let me know what you think? I'm happy to do this over email, virtual call with you or a colleague or I could come to Nominet to talk it through in person. Whichever approach suits you best.

Critical Functions - what does Nominet do?

As I understand it, Nominet carries out two key functions that underpin the operation of the UK internet:

- Maintain registry infrastructure which handles registration requests from registrars: i.e. add/delete/renew/change a domain name. These registry systems are owned, controlled and operated by Nominet.
- Maintain authoritative DNS servers for the .uk TLD, which answer queries from the Internet's resolving name servers.

Do you agree with these functions and would you suggest any additions?

Registry infrastructure

I've pulled together a brief summary of what I've been able to find on your registry infrastructure below. Is this all accurate? Would you suggest any changes or additions?

- The registry systems process domain name registration requests submitted by registrars, handle registrar payments/invoicing and manage the database of registered names. This core registry IT platform also distributes DNS data to the authoritative .uk name servers.

- These registry systems are owned, controlled and operated by Nominet. [REDACTED]

- [REDACTED]

- [REDACTED]

- [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

- However if that [REDACTED]
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[REDACTED] resolution of something.co.uk could fail because the .uk nameservers hold out of date information for that domain name and the registrant is unable to get that delegation data changed until the registry systems return.

Authoritative DNS servers for the .uk TLD

Similar to the registry section, I've pulled together a summary of what I've found on the authoritative DNS servers. Could you please check this for accuracy and let me know if you would add or change anything? Could you please also send me the locations of the [REDACTED] [REDACTED]?

- The DNS infrastructure Nominet has arranged for .uk is exceptionally robust and resilient. Great care has been taken to avoid or minimise exposure to single points of failure. Name servers are well-provisioned with network and computing resources. There are very comfortable margins of spare capacity which are available to absorb abnormally high loads and reduce the impact of Denial of Service (DoS) attacks.

- [REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- The remaining active name server can handle all the site's query traffic while work is underway on the other. [REDACTED]
[REDACTED] At the others, Nominet's access router is configured to provide load balancing.
- The Nominet-run name servers use a mixture of DNS software. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
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- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] UltraDNS serves many important domains and has experienced staff and mature procedures for coping with DoS attacks.
- The authoritative DNS servers for .uk routinely handle around 2.5 billion queries per day between them: approximately 29,000 queries per second. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Just one of the 12 Nominet DNS servers could handle around 250,000 queries per second: nearly 10 times the current

query load for .uk as a whole.

- [REDACTED]
[REDACTED] If this ever did happen, the UltraDNS infrastructure would easily be able to handle all the .uk DNS traffic. A commitment to meet that load is part of Nominet's contract with UltraDNS.
- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Although a massive DoS attack might possibly overwhelm one or two locations which host .uk name servers for a few hours, [REDACTED]
[REDACTED]

I'm happy to chat any of this through with you or one of your colleagues if that would be helpful.

Thanks again

[REDACTED]

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[REDACTED] [REDACTED]

Head of Internet Infrastructure Security Policy, Cables and Internet Team, Telecoms Security &

Resilience

Digital Infrastructure

[REDACTED] | Tel [REDACTED]