Changing the Cryptographic Key That Secures the Web

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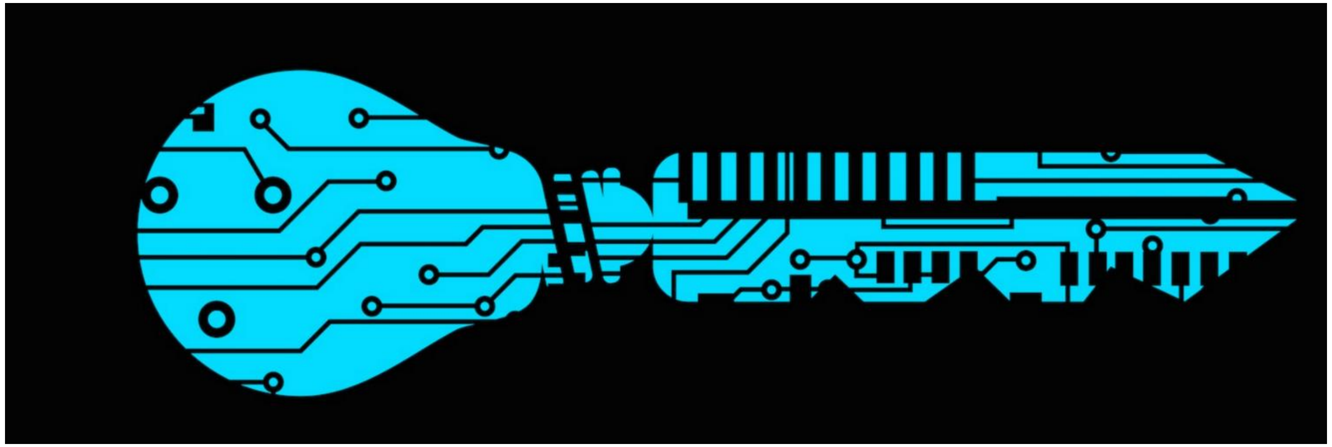
Wait? What Key?

- How do we search for information on the web?
- So how do we know that our searches are secure?

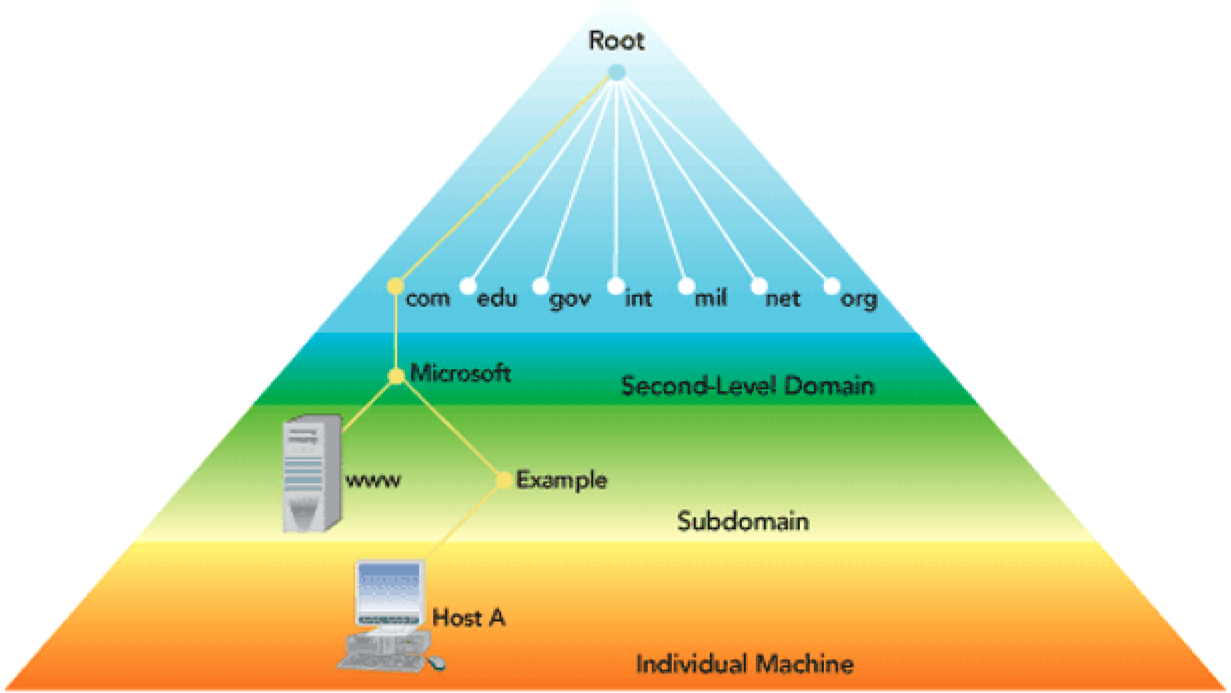


History

- When the web was first released, the DNS was not configured with the ideas behind our security principles today.
- Threats and Attacks on the DNS
- So how do we protect the DNS in the first place?
- The Internet Corporation for Assigned Names and Numbers (ICANN)

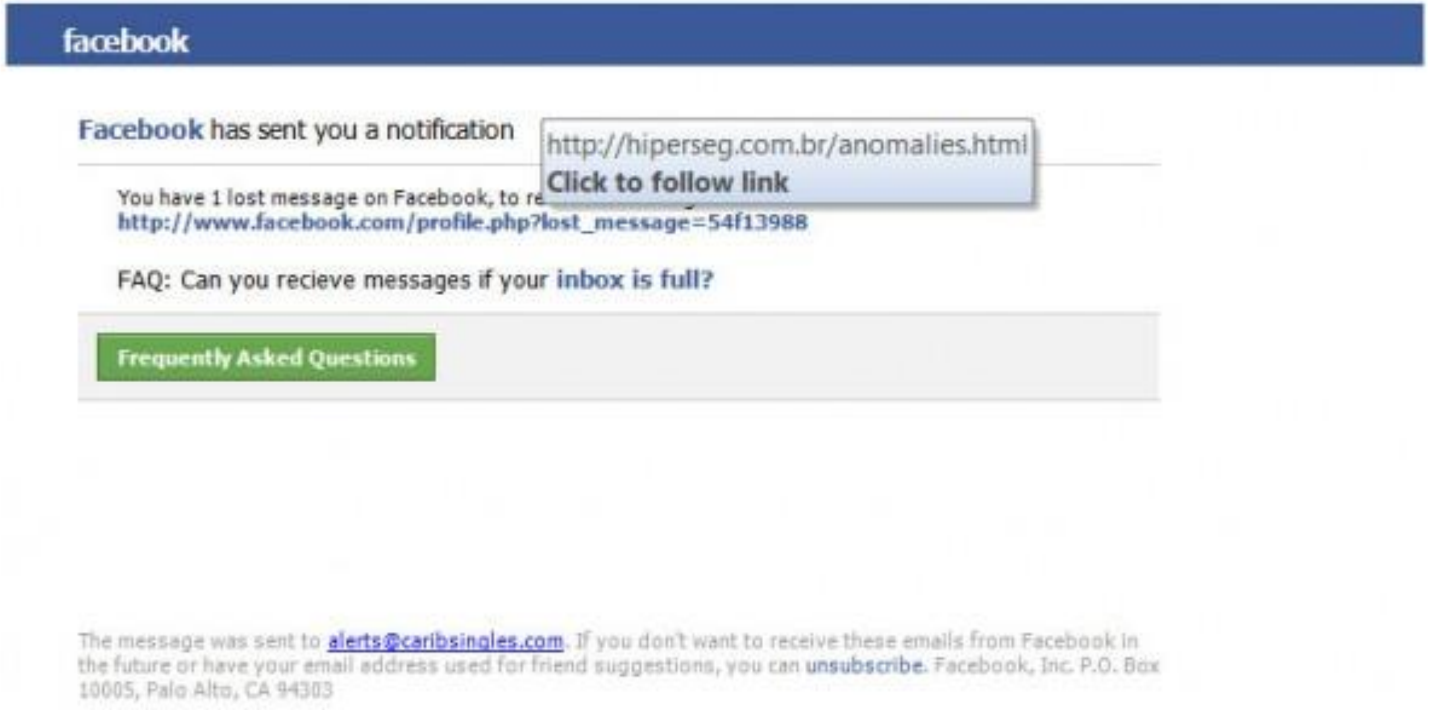
How does it work?

- Key (part of DNS Security Extensions) creates the first link in a long chain of cryptographic trust and protects the DNS root zone
- Processes and checks DNS data that comes in to ensure that it is correct
- Any piece of incorrect data will return an error
- If anyone holds this key, they can control much of the traffic
- Note: Keys do not encrypt data



Why Change?

- One of the biggest security issue is DNS cache poisoning / DNS spoofing
  - Forcing the DNS to return incorrect IP address and diverting traffic to different location
- Good cryptographic hygiene like changing your personal passwords occasionally
- Increase 1024 bits -> 2048 bits



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So how does this apply to you?

- Heightened protection for your sake when you are looking up documentation for this class
- Continue browsing like you always do
  - Just be cautious of where you are going
- Know that at anytime, the key can be compromised

Sources

- Cox, Joseph. “The Cryptographic Key That Secures the Web Is Being Changed for the First Time.” *MOTHERBOARD*, www.motherboard.vice.com/read/the-encryption-key-that-secures-the-web-is-being-changed-for-the-first-time.