Update on DNS hijackings

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Chronology

2010

Uganda, Puerto Rico, Denmark

2011

Suriname, Malawi, Congo, Guadeloupe, Fiji, Bangladesh

2012

Nepal, Iran, Turkey, Thailand, Guadeloupe, Ireland, Algeria, Pakistan, Romania, Serbia, Indonesia

2013

Uganda, Morocco, Saint Helena, Kyrgyzstan, Turkmenistan, Malawi, Fiji, Kenya, Bosnia and Herzegovina, Oman, Malaysia

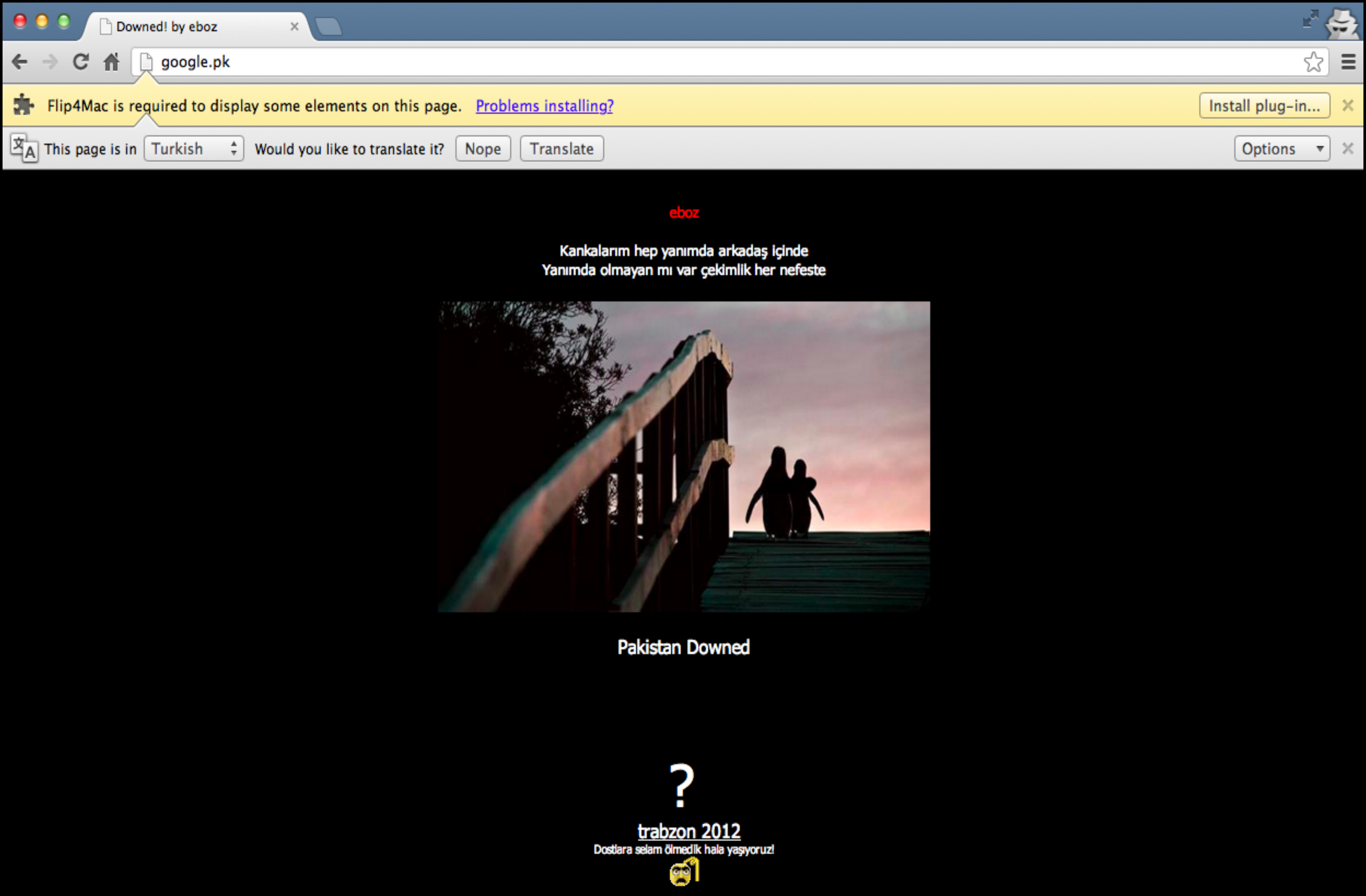
Impact

The impact of these incidents is that **all domains** can be subverted and redirected to a server of the attacker's choosing:

Potential goals of the attacker:

- Defacement and reputation loss
- HTTP authentication token theft
- Hosting of exploit kits; botnet creation

Impact of a hijack is difficult to assess. An apparent defacement may still lead to theft of authentication tokens.



Flip4Mac is required to display some elements on this page.

This page is in Turkish Would you like to translate it?

eboz

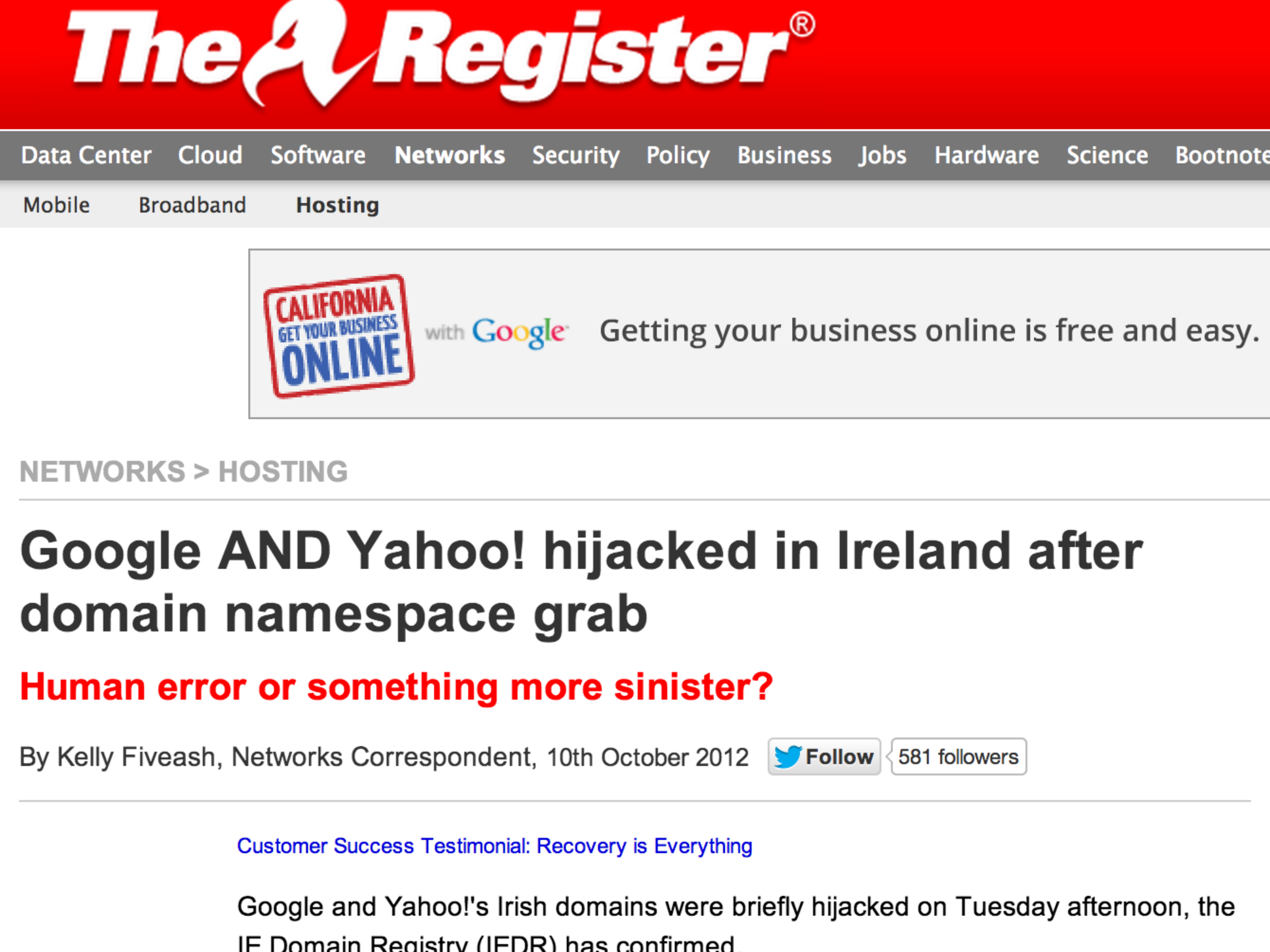
Kankalarım hep yanımda arkadaş içinde
Yanımda olmayan mı var çekimlik her nefeste

Pakistan Downed

?

trabzon 2012

Dostlara selam ölmedik hala yaşıyoruz!



NETWORKS > HOSTING

Google AND Yahoo! hijacked in Ireland after domain namespace grab

Human error or something more sinister?

By Kelly Fiveash, Networks Correspondent, 10th October 2012

Google and Yahoo!'s Irish domains were briefly hijacked on Tuesday afternoon, the IE Domain Registry (IEDR) has confirmed.

Recovery

Various complexities:

- Hijacks often happen **after the end of the business day**
- Average time to address an issue **often 6+ hours**
- Registry's first focus is often to protect additional domains
  - No response plan to recover existing users
  - Restoring previous settings is error-prone
- Once recovered, clients and intermediate service providers will **cache the poisoned results**

- Not always clear when incident is contained
  - Several registries have been hijacked more than once
  - Recently hijacked registries are visible targets

Top issues: (1) authorization schema

- Attacker creates account
- Attacker logs in, id value is carried forward in requests
- Attacker changes ID value, gains access to additional resources, e.g. the account of another registrar

```
GET /changeregistration.php?u=user123?domain=example.com
Session-ID: 3f0830bc30989de
```

Mitigations:

- Configure appropriate roles and privileges for each domain-name
- Ensure the access control mechanism is enforced when a new domain is being accessed

Top issues: (2) SQL Injection

The attacker is able to execute database queries allowing him to modify attributes of a domain name.

```
GET /query.php?name=google.com'; UPDATE nameserver SET
ns='rogueserver.example.com' WHERE name='example.com'"
```

```
SELECT * FROM domainnames WHERE name = 'google.com'; UPDATE
nameserver SET ns='rogueserver.example.com' WHERE
name='example.com';'
```

Mitigations:

- Sanitize information from external sources
- Use prepared statements or stored procedures
- Deploy a web application firewall (mod_security, ...)

Top issues: (3) registrar account compromise

Attacker attempts to authenticate using a list of frequent passwords, or using password stolen from another registry authentication database.

Mitigations:

- Properly **hash passwords using a salt value**
- **Two factor authentication**
- **IP address restrictions** for registrar accounts
- **Lock out accounts** after unsuccessful authentication
- Implement **password strength** requirements

Recommendations

- Deploy **registry lock** as an option for domain names
  - Disables modification of high value domain names without a specific outside protocol in place
  - Helps protect against registry portal compromises
  - Verisign's description is helpful: http://www.icann.org/en/resources/registries/rsep/verisignreglock-request-25jun09-en

- Provide **emergency contact information** to registrars and high traffic domain names
- Send **notification e-mails** to registrant, admin and registrar when a domain name is modified
- Consider **high traffic domains** useful canaries

Recommendations

- Develop a security management framework for the registry, which includes at minimum:
  - **Selection of supported software** for registry operations
  - Regular **third party security testing**
  - Develop a **proper understanding of the weaknesses of the infrastructure**, and ensure these weaknesses are tracked and remediated
  - Develop an **incident response plan**.
- Reach out to your local Computer Security Incident Response Team, and partner with them on understanding the threat environment

Google

DURBAN

NO.47 · 14-18 JULY 2013 ICANN

Thank You
(and we're here to help!)

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