Fast Flux Hosting PDP
Update to the GNSO Council

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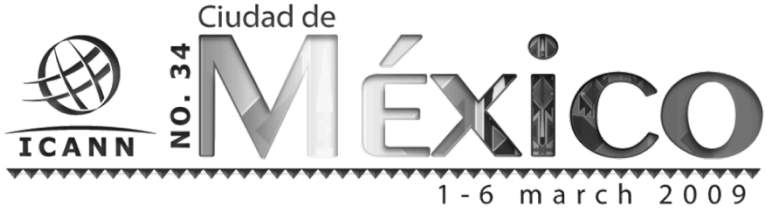
Sunday, 1 March 2009



Background

- January 2008: SAC 025 Fast Flux Hosting and DNS
  - Characterizes Fast Flux (FF) as an evasion technique that enables cybercriminals to extend lifetime of compromised hosts employed in illegal activities
  - 'Encourages ICANN, registries, and registrars [...] to establish best practices to mitigate fast flux' and 'consider whether such practices should be addressed in future agreements'.
- March 2008: GNSO Council Request for an Issues Report
  - Issues report recommends further fact-finding and research
- May 2008: GNSO initiates Policy Development Process (PDP) on Fast Flux Hosting
- June 2008: Fast Flux Hosting Working Group formed

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Charter Questions

- Who benefits from FF, who is harmed?
- Who would benefit from cessation of the practice, who would be harmed?
- Are registry operators involved in FF hosting activities? If so, how?
- Are registrars involved in FF hosting activities? If so, how?
- How are registrants affected by FF hosting?
- How are Internet users affected by FF hosting?
- What technical and policy measures could be implemented by registries & registrars to mitigate the negative effects of FF hosting?
- What would be the impact of establishing limitations, guidelines, or restrictions on registrants, registrars or registries with respect to practices that enable or facilitate FF hosting?
- What would be the impact of these limitations, guidelines, or restrictions to product and service innovation?
- What are some of the best practices available with regard to protection from fast flux?
- Obtain expert opinion on which areas of fast flux are in scope and out of scope of GNSO policy making

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Approach by the WG

- WG started working on answering charter questions in parallel to preparation of Constituency Statements
- In addition, several members of the WG worked on collecting supporting data on Fast Flux to be incorporated in the report
- Weekly conference calls, close to 900 emails exchanged to date
- Where no broad agreement could be reached, the WG would use 'support' and 'alternative view' labels to indicate level of support for certain position

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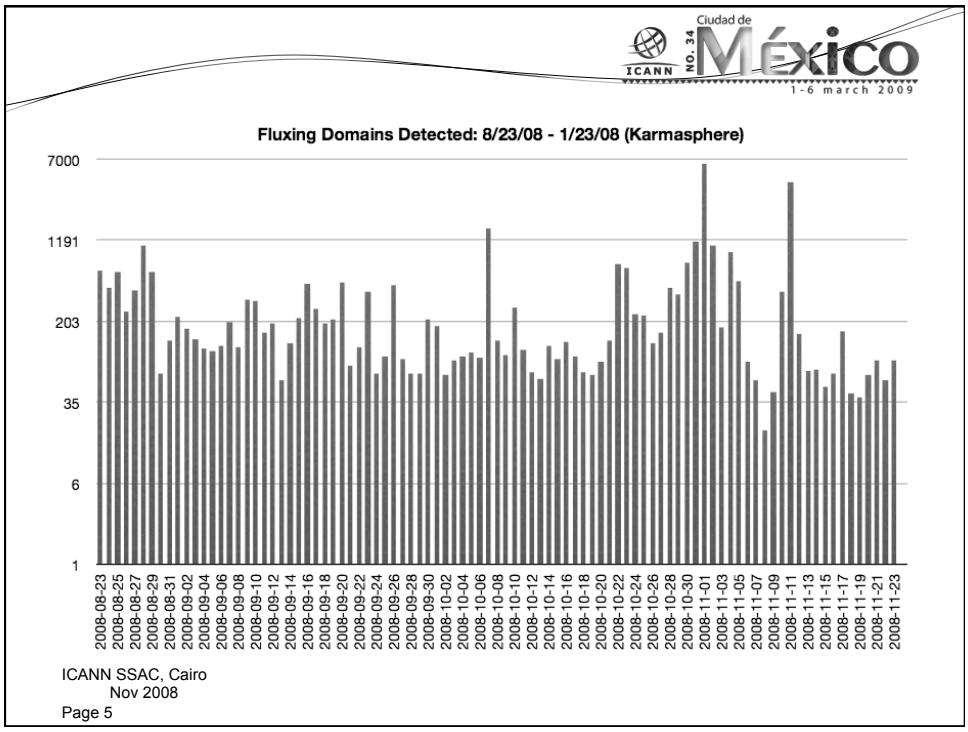
Ciudad de
ICANN NO. 34 MÉXICO
1-6 march 2009
Fluxing Domains Detected: 8/23/08 - 1/23/08 (Karmasphere)
7000
1191
203
35
6
1
2008-08-23
2008-08-25
2008-08-27
2008-08-29
2008-08-31
2008-09-02
2008-09-04
2008-09-06
2008-09-08
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2008-09-22
2008-09-24
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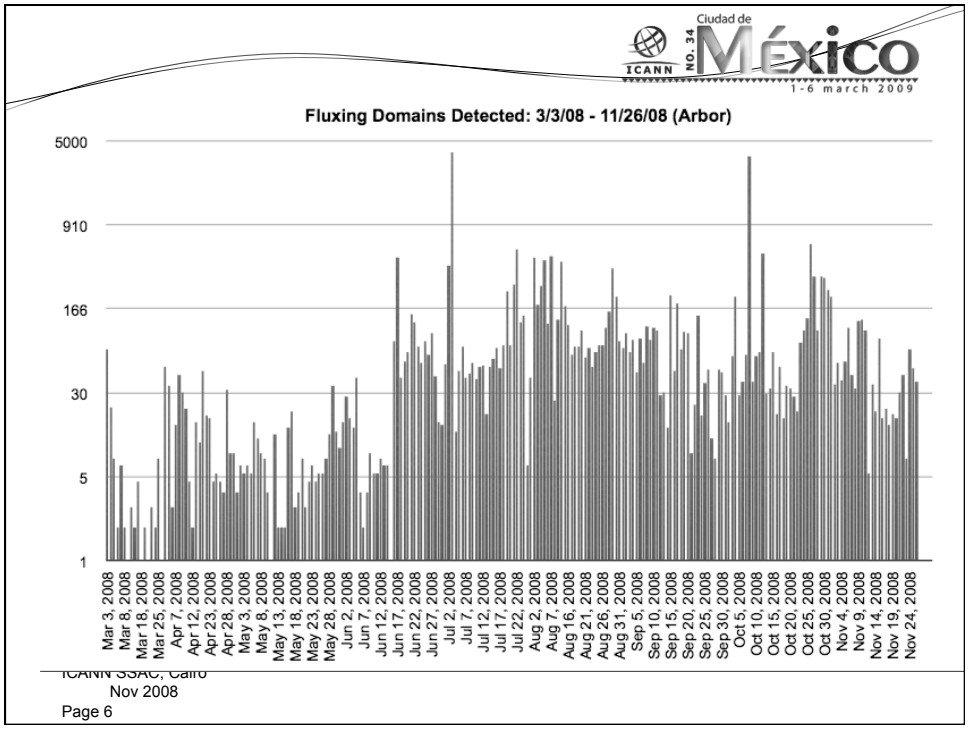
2008-11-23


Ciudad de
ICANN NO. 34 MÉXICO
1-6 march 2009
Fluxing Domains Detected: 3/3/08 - 11/26/08 (Arbor)
5000
910
166
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5
1
Mar 3, 2008
Mar 8, 2008
Mar 18, 2008
Mar 25, 2008
Apr 7, 2008
Apr 12, 2008
Apr 23, 2008
Apr 28, 2008
May 3, 2008
May 8, 2008
May 13, 2008
May 18, 2008
May 23, 2008
May 28, 2008
Jun 2, 2008
Jun 7, 2008
Jun 12, 2008
Jun 17, 2008
Jun 22, 2008
Jun 27, 2008
Jul 2, 2008
Jul 7, 2008
Jul 12, 2008
Jul 17, 2008
Jul 22, 2008
Aug 2, 2008
Aug 7, 2008
Aug 16, 2008
Aug 21, 2008
Aug 26, 2008
Aug 31, 2008
Sep 5, 2008
Sep 10, 2008
Sep 15, 2008
Sep 20, 2008
Sep 25, 2008
Sep 30, 2008
Oct 5, 2008
Oct 10, 2008
Oct 15, 2008
Oct 20, 2008
Oct 25, 2008
Oct 30, 2008
Nov 4, 2008
Nov 9, 2008
Nov 14, 2008
Nov 19, 2008
Nov 24, 2008

Challenges encountered

- Purview
  - Does this matter fall within ICANN's remit or should other avenues be pursued?
  - How should Fast Flux be defined?
  - Legitimate vs. Illegitimate use
- Activities
  - What kinds of monitoring are needed?
  - How should monitored data be reported, published, shared?
  - What actions (responses) are appropriate?
- Roles of players
  - Who monitors FF activities today? Are they trustworthy?
  - Are registrars and registries expected to monitor FF activity?
  - Are data currently collected accurate and sufficient to justify a domain suspension action?
  - What is an acceptable "false positive" rate?

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Initial Report

- Initial Report published on 26 January 2009
- Report provides initial answers by the WG to the Charter Questions, incl. a list of characteristics that a fast flux attack network might exhibit and fast flux metrics
- Interim Conclusions:
  - Challenges encountered by the WG in relation to intent and definition / characterization of fast flux
  - Fast flux is one component of larger issue of Internet fraud and abuse
  - Perhaps these broader, interrelated issues ought to be taken into account in any potential PDP and/or next steps.
  - Careful consideration to be given to the role ICANN should play in this process

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GNSO Questions

- Who benefits from fast flux?
  - Organizations that require high availability, have highly targetable assets, or operate highly adaptive networks (CDNs)
  - Free speech and and advocacy groups
  - Criminals, anyone who uses the technique for harmful purposes
- Who is harmed?
  - Users/consumers/victims of criminal activities abetted by flux attack networks
  - Parties who are exploited (FIs, emerchants, Govts, …)
  - Some debate as to the extent to which FF attacks contribute to the overall impact of e-crime
    - "fast flux attacks have considerable influence in the duration and efficacy of harmful activities"

GNSO Questions

- Are registrars involved in fast flux hosting activities? If so, how?
  - Varying opinions on what the WG should say here, as "involvement" has many interpretations:
    - Reputable registrars are "uninvolved"
    - Certain registrars are unwitting participants (ignorant of problematic registrations)
    - Certain registrars appear to lack competence in managing abuse
    - The actions of certain registrars (or lack thereof) create the appearance of facilitation or complicity

GNSO Questions

- How are registrants affected by fast flux hosting?
  - Registrants who employ self-beneficial flux techniques improve network availability and resiliency to failure/attack
  - Registrants are also targets for phishing and other forms of attacks that result in unauthorized access to domain accounts and DNS exploitation
- How are Internet users affected by fast flux hosting?
  - They are the victims of fraud, malicious, and criminal activities that are abetted by flux hosting which is used to extend the duration of the attack
  - Internet user assets are used to facilitate flux attacks (e.g., bots on PCs, compromised servers, domain accounts and name services
  - Bear the burden of detection and recovery costs (individual users as well as businesses and organizations that make use of online presence)

GNSO Questions

- What technical (e.g. changes to the way in which DNS updates operate) and policy (e.g. changes to registry/registrar agreements or rules governing permissible registrant behavior) measures could be implemented by registries and registrars to mitigate the negative effects of fast flux?
  - Examples of solutions involving registries and registrars
    - Sharing of additional non-private DNS information via TXT response messages (domain age, # of NS changes over a measurement interval)
    - Publish summaries of unique complaint volumes by registrar, by TLD, and by name server
    - Cooperative, cross-community information sharing
    - Adopt accelerated domain suspension processing in collaboration with certified investigators
    - Stronger registrant verification procedures

GNSO Questions

- What are some of the best practices available with regard to protection from fast flux?
  - Cited Anti-Phishing Best Practices Recommendations for Registrars from APWG http://www.apwg.org/reports/APWG_RegistrarBestPractices.pdf
  - Cited SAC 025
  - Enumerated subset of recommendations from both that FF WG believes to be applicable

Constituency Statements

- Four Constituency statements: Registry Constituency, Non-Commercial Users, Intellectual Property Constituency and Registrar Constituency
- All recognize that fast flux is being used by miscreants involved in online crime to evade detection, but disagree on whether ICANN or policy development is the appropriate way forward
- All recognize the difficulty in separating legitimate from illegitimate use, and several highlight the importance of ensuring that any potential solutions do not impact legitimate use
- Overall support for further fact-finding and data gathering

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Initial Report

- Possible next steps (ideas for discussion and feedback during the public comment period):
  - Redefine issue and scope by developing new charter or explore further research and fact-finding prior to new charter
  - Explore the possibility to involve other stakeholders in the fast flux policy development
  - Explore other means to address the issue instead of a PDP
  - Highlight which solutions / recommendations could be addressed by policy development, best practices and/or industry solutions
  - Consider whether registration abuse policy provisions could address fast flux by empowering registries / registrars
  - Explore the possibility to develop a Fast Flux Data Reporting System

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Public Comment Period

- Public Comment Period ran from 26 January to 15 February 2009
- 25 Comments received, including two from GNSO Constituencies (IPC, RC)
- Comments focused on:
  - Legitimate vs. Illegitimate use of fast flux
  - Negative impact of fast flux on digital divide
  - Unpatched computers and unsecure applications are the real reason why fast flux can be used by criminals
  - Ways in which registrars and registries can restrict fast flux
  - Restricting fast flux will not stop criminal behaviour

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Public Comment Period

- Comments focused on (cont'd):
  - Role of ICANN in tracking and publishing reports on registrars' response rate to abusive domain names
  - Role of ICANN in formulating a best practice and/or consensus policy for registries, registrars and ISP
  - Fast flux as a technique is not a problem, only the way in which it is used by criminals to avoid detection
  - Need for accelerated domain suspension process
  - Lack of evidence to include 'free speech' advocacy groups as benefitting from fast flux
  - Need to continue work in this area despite difficulties encountered by the WG
  - Support for rapid implementation of policy measures discussed in report

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Public Comment Period

- Comments focused on (cont'd):
  - Need for stronger conflict resolution measures to deal with non-responsive registrars / IP owners
  - Problems with 'proving' the crime and take down of hosted domain does not necessarily address underlying infrastructure
  - Creation of a blacklist / whitelist of FF domains
  - Support for other means than a PDP to address fast flux
  - Need for further study and research
  - Need for more accurate description of the problem, its scope and role of ICANN, registries and registrars in suspension of domain names
  - No technical solution possible, suspension of domain names is only possibility
  - ICANN to provide leadership and guidance in developing policies and guidelines to distinguish good and bad use

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Next Steps

- Working Group to review, discuss and analyze comments received
- Continue discussions with aim to develop a final report with recommendations for the GNSO Council to consider

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More information

- Initial Report - http://gnso.icann.org/issues/fast-flux-hosting/fast-flux-initial-report-26jan09.pdf
- Summary of Public Comments – http://forum.icann.org/lists/fast-flux-initial-report/msg00025.html
- Public Comment Forum – http://forum.icann.org/lists/fast-flux-initial-report/
- Working Group Wiki - https://st.icann.org/pdp-wg-ff/index.cgi?fast_flux_pdp_wg

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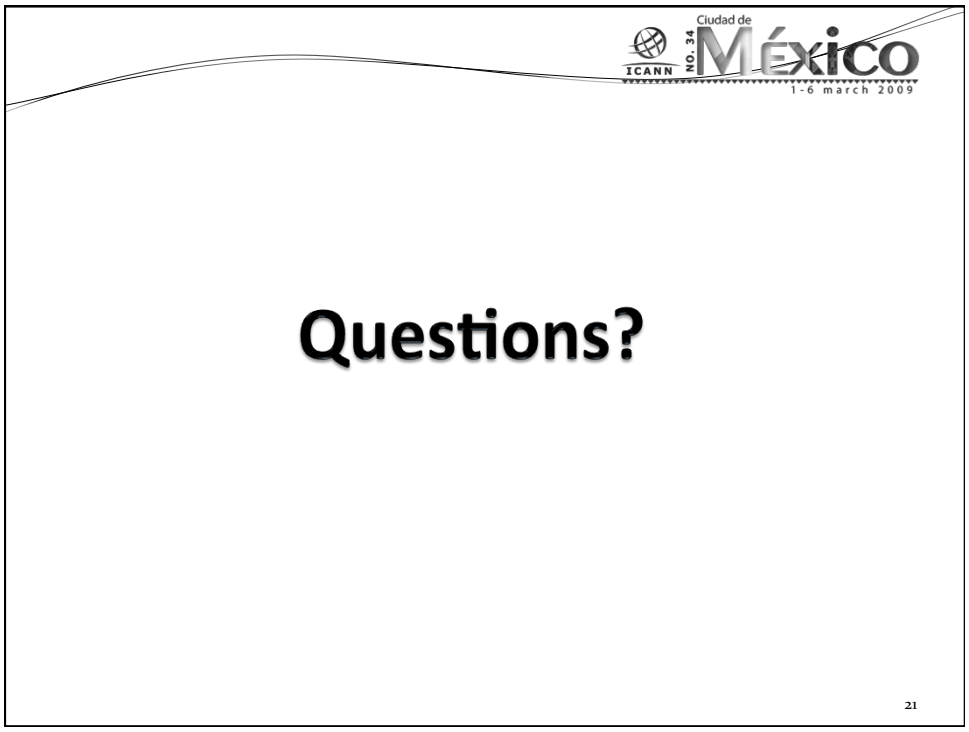
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México
1-6 march 2009
Questions?
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