

SAC 024

Report on Domain Name Front Running



An Advisory from the ICANN
Security and Stability
Advisory Committee
(SSAC)
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Introduction

SSAC released an advisory on Domain Name Front Running on 20 October 2007 (see [SAC 022](#)). In the Advisory, SSAC described Domain Name Front Running as an opportunity for a party to obtain some form of insider information regarding an Internet user's preference for registering a domain name and to use this opportunity to preemptively register that domain name. In this scenario, "insider information" is information gathered from the monitoring of one or more attempts by an Internet user to check the availability of a domain name. In SAC 022, SSAC asserts that *checking the availability of a domain name can be a sensitive act which may disclose an interest in or a value ascribed to a domain name*. In the Advisory, SSAC studies the risks associated with revealing that interest or value, identifies ways that sufficient information might be acquired to facilitate domain name front running, and identifies parties who might collect, use, or sell such information.

SAC 022 presented several preliminary findings. Two findings in particular caused SSAC to consider a call for community response:

1. Some potential registrants perceive that parties associated with the domain name registration process participate in domain name front running. SSAC believes that preventing this perception from evolving to accepted wisdom is an important consideration for the domain name community.
2. [At the time of SAC 022's publication], no Internet user has presented sufficient information to conclude that any party associated with the domain name registration process engages in domain name front running.

SSAC invited individual users, registrants, registrars and other parties who have information regarding possible domain name front running incidents to report incidents to the committee with as much information as possible to assist SSAC in studying the matter further. From 20 October through 5 January 2008, SSAC received approximately 170 responses to this call for community input; of these, 120 were claims of domain name front running. The remaining 50 responses were general or unrelated correspondence.

In this report, SSAC presents the findings of our studies of the claims received. We attempt to classify claims based on information provided by claimants. We review preliminary conclusions made in SAC 022 and either replace or supplement these based on the results of our studies. We conclude the report with recommendations for registrants as well as registrars and resellers that may eliminate confusion and alleviate frustration on the part of registrants and improve public opinion of the domain name registration industry among that part of the community that views the industry in a negative way.

Note: On 8 January 2008 Network Solutions, Inc. (NSI) introduced a revision in their domain name registration service whereby if someone used their service to check the availability of a name, if the name was available but the user did not purchase it, NSI would reserve it for four (4) days. NSI described this as a service to its customers that is intended to prevent domain name front runners from registering the name following an availability check. However, there is controversy as to whether or not this practice benefits the user. The change took place as SSAC completed this report, and the findings and the recommendations reported here do not include detailed examination of the NSI service.

Classification and Disposition of Complaints

SAC 022 asked that parties with claims of domain name front running provide as much information related to the suspected incident of domain name front running as possible, including:

- Method used to check domain name availability (e.g., web browser, application).
- Local access ISP.
- Provider or operator of the availability checking service.
- Dates and times when domain name availability checks were performed.
- Copy of the information returned (e.g., WHOIS query response) in the response to the availability check.
- Whether the domain name was reported as previously registered or never before registered in the response returned from the availability check.
- Copy of the information returned (e.g., WHOIS query response) indicating the name had been registered.
- Copies of any correspondence sent to or received from the registrant perceived to be a front runner.
- Correspondence with the registrar or availability checking service.
- Any information indicating a potential relationship between the availability checking service and the registrant that grabbed the name

SSAC members used the information provided by claimants in the following manner. We checked WHOIS and domain name records and examined domain name and web hosting histories. We attempted to resolve the domain name and visited the domain web site to check if active and to determine the activities of the current registrant (e.g., advertising or use of the name for a business or personal purpose that appeared to be related to or relevant for the domain). In many cases, we contacted the claimant for additional information and clarification. In all cases where sufficient information was available, we attempted to construct a chronology of domain registration and hosting related activities.

Table 1 summarizes SSAC's breakdown and classification of the claims and provides brief information regarding the way the domain names identified in the 120 claims were being used at the time SSAC members studied the claim.

Table 1. Breakdown of Domain Name Front Running Claims		
Classification	Description	Percent of cases
Unable to study	Claimants did not provide sufficient information for SSAC to study the claim, e.g., claimant was unable to identify query method, registrar or reseller, or provide a time for the event; in some cases, claimants were unable to recall the domain name checked.	19%
Unanticipated Consequences of Non-renewal of a Domain Name	Claimant had failed to renew a domain name and interpreted actions taken by another party to register the domain name when it became available as an act of front running. (See SAC 010)	10%
Competition for sought-after domain names	Examination of the domain name in question revealed that the 2 nd level label was interesting to multiple parties; in particular, the current registrant appears to use the domain name to host a web site with information that is relevant to the name, as the claimant may have. We also included "defensive" registrations in this category, observing that the same party had registered the 2 nd level label in multiple TLDs.	25%
Domain Tasting	Registration and hosting histories reveal that several (different) parties had registered the domain name in the past, in some cases for short periods (e.g., fewer than 5 days). In some cases, the registration of a domain in question had changed hands or had become available again at the time SSAC members reviewed the registration records. In some cases, the domain continues to host pay per click advertising, suggesting that the label was an interesting/popular string.	37%
Domain appears to be a typo-squat	Some claims illustrated an interest in a 2 nd level label that was registered for the purpose of hosting pay per click advertising at a name that is visually similar to or a common mistype of a popular searched word or name (e.g., pron for porn, realocate for relocate, liqid for liquid...)	8%
Provable cases of DNFR	Claimant provided sufficient information to dismiss all other plausible explanations for the claimant's failure to register a desired name and SSAC was able to study the claim and ascertain that a domain name front running incident had occurred.	0%

Chart 1 illustrates SSAC's classification of the 120 claims received from the community at large:

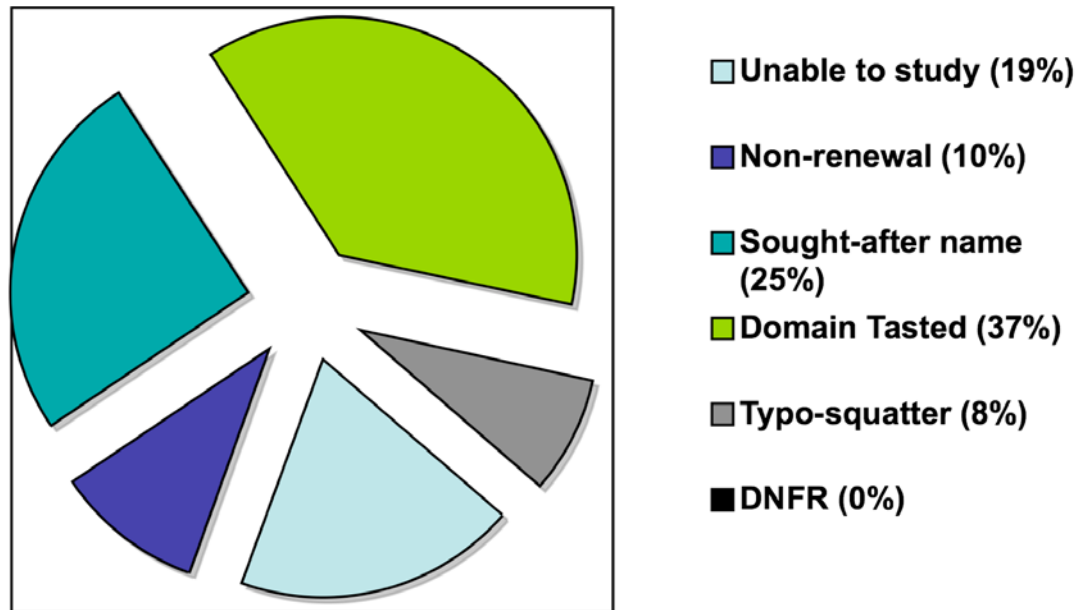


Table 2 presents some additional statistics compiled during its studies of front running claims. SSAC did not set out to collect this information, and acknowledges that these are not directly relevant to domain name front running. However, they help to illustrate that domain name market activities are not well understood by many Internet users. When Internet users are unable to distinguish among different market activities, they often appear to conclude that they have fallen victim to a domain name front runner.

Table 2. Further analysis of claims		
Classification	Description	Percent of cases
Domain for sale	A domain identified in a claim has a landing page that advertises the domain is for sale. Alternatively, the registrant included information somewhere in the WHOIS record to advertise that the domain is for sale (e.g., the registrant included a phrase like "this domain is for sale" in contact information). Landing pages associated with some of these domains also hosted advertising. In one reported claim, the registrar auctioned the expiring domain to the suspected front runner, who in fact had registered the domain for resale and hosts advertising.	14.%
Domain Available at time of SSAC study	A domain identified in a claim proved to be available for registration at the time an SSAC member checked the domain status. An examination of the domain histories revealed that these names have been registered in the past, in some cases repeatedly and by different parties.	15%
Back order process issue	Some claims expressed concern, frustration or disappointment with back ordering services offered by resellers and registrars. These cases suggest that Internet users have an expectation that placing a back order <i>assures</i> them that they will be provided an opportunity to register a domain name should it become available.	6%
Domain not available for registration	The registration of a domain name identified in a claim was locked during redemption grace period when SSAC members considered the case.	1%
Domain name registration is "private"	A domain name identified in a claim uses either a protected-WHOIS or private-WHOIS service (see SAC 023)	27%
Claims that might be appealed under UDRP	Claimant appeared to have sufficient information to appeal a domain name registration under the terms of ICANN's UDRP	2%
Domain hosts advertising	The web site hosted at the domain name contained advertising at the time SSAC members reviewed the claim.	38%

SSAC attempted to analyze the time elapsed between a claimant's initial domain name availability query and an attempt to register the domain name and could find no discernable pattern. No clear pattern emerged: specifically, the elapsed times ranged between hours and weeks with no appreciable locus of elapsed time.

Findings

The findings here replace the findings from SAC 022.

- 1) *Checking the availability of a domain name can be a sensitive act which may disclose an interest in or a value ascribed to a domain name.*

The results of the study do not affect this finding from SAC 022; in fact, several claims illustrate how important name selection remains for individuals and businesses alike, while others illustrate that competition for what are perceived to be popular strings is strong.

- 2) *Some potential registrants perceive that parties associated with the domain name registration process participate in domain name front running. SSAC believes that preventing this perception from evolving to accepted wisdom is an important consideration for the domain name community.*

SSAC studied approximately 120 claims of domain name front running. Given the millions of domain names registered during the same time period as the public call for comment, this figure is not extraordinarily large but it is unlikely that every potential claimant learned of SSAC's call for public comment and equally unlikely that all those who were aware took the time and had the information to contact SSAC; however, the perception appears broader and more troubling than the reality and should not be treated lightly.

- 3) *To date, no Internet user has presented sufficient information for SSAC to conclude that any party associated with the domain name registration process engages in domain name front running.*
 - No claims provide sufficient information for SSAC to dismiss all other plausible explanations for the claimant's failure to register a desired name and conclude that a claim was indeed a case of domain name front running. In particular, SSAC was able to find alternate plausible explanations for the domain name front running claims it received. The studies do not disprove the possibility that domain front running occurs, nor do any provide us with a “smoking gun”.
- 4) *Various acts of collecting names of interest from DNS, WHOIS, domain name availability checks, and other resources to preemptively register a domain name may appear to be unfair, improper and even criminal to registrants but these conclusions are not necessarily established facts.*
 - SSAC observes that many forms of data mining are routinely practiced elsewhere in the Internet by and for web site operators, search engine providers, ISPs, and other parties. In the absence of policy and policy enforcement to prohibit the collection of names (if indeed the Internet community could agree that such policies are necessary), it is difficult to claim that collecting domain names of

interest is different from other data mining techniques (except in jurisdictions where the means of collecting names violates malware/spyware laws).

- 5) *As noted in the Introduction, NSI recently modified its service to temporarily register names of interest to its customers.*

NSI's customer protection service is not discussed in this report. If warranted, SSAC will study the service independently from the claims analyzed in this report.

- 6) *If we assume that parties who responded to SSAC's call for public comment are representative of all potential domain registrants, we observe that the community does not fully understand the complexities of the domain registration process and the domain name marketplace.*

Of the 11.21% of cases involving domain name renewal difficulties, several parties either claimed they did not receive notice in advance of registration expiry or the details of a case illustrated that the party did not understand the terms of registration in general and the Redemption Grace Period in particular. Similarly, numerous claimants complained that a secondary marketplace for a domain name is unethical and should be prohibited. While SSAC acknowledges that such complaints are not new, they illustrate an undercurrent of mistrust and skepticism regarding the registration process that at some part of the community shares.

If the claims reviewed by SSAC are representative of all claims, acts frequently interpreted as domain front running often prove to be side effects of domain name tasting and other secondary market activities. From our review of claims, we note the following:

- By summing the percent of domain names that were tasted (37%), names that were available when SSAC studied the claim and determined to have been tasted (15%), names which appear to be typo-squatted (8%), and names that appear to be registered primarily for resale on a secondary market (14%), we are able to attribute approximately 74% of the suspected domain name front running incidents to equally plausible, "other" domain name marketing activities.
- Domain names that claimants perceive to be of limited or exclusive interest are often not as unique as claimants imagine. Interest and hence competition for domain names containing commonly used or popular words and phrases and even surnames is intense. We determined that 25% of the cases attributed to domain name front running were likely or demonstrable situations where a competing party registered a domain name and hosts content (not advertising) that is relevant to the name.
- Interest in deleted domain names (registered domain names that had been allowed to expire and become available) – especially those that have a traffic history or active links to the domain – is intense, not only by parties who speculate on domain names, but by parties who find the name relevant to a personal or business purpose. SSAC notes an unanticipated result from its studies. Six per cent (6%) of the claimants

experienced with domain name back orders; specifically, none of these back orders were filled.

- Strong interest exists in typo- and visually similar (deceptive) domain names: 8% of claimants sought names that proved desirable to pay per click advertising due to their similarity to existing and popular words and phrases. If we assume parties who responded to SSAC's call for public comment are representative of all potential domain registrants, we can observe that the logic domain tasters and name speculators use to determine "interesting" domain names is not well understood.

The set of claims submitted to SSAC illustrate how intense and extensive competition is for what would-be registrants consider "interesting" names. Traditionally, short and easily remembered 2nd level labels were the most sought-after domain names. Nearly all of these as well as single dictionary words, common surnames, and labels representing trademarks, brands, and intellectual property are already registered in gTLDs and ccTLDs that offer open registrations. Choosing an interesting and available domain name becomes a uniqueness issue and uniqueness begs the question, "Is it reasonable that two or more entities desire the same string within a specific time frame?"

One way to attempt to answer this question is to apply probability statistics. Using VeriSign's Domain industry brief for the month of August 2007 and VeriSign's monthly TLD operator report for July 2007 as data points, SSAC calls attention to the following statistics:

- Nearly 138 M domains are included in the global DNS, of which 51.5M are included in ccTLD zones
- COM and NET combined have 72M domains of which 23% are parked, 65% host active web sites and 12% have no site.
- Registration retention is high: 77% of domains in the COM and NET gTLDs are renewed.

During the month of July 2007, we find the following expressions of interest in domain names in COM and NET:

- 3.9 B Whois queries
- 1.5 B EPP <check> commands
(used to determine if a label can be provisioned within a registry)

Combining Whois and EPP queries, we have 5.4 Billion expressions of interest in July 2007, or 2016 expressions of interest per second. We note that this figure is conservative as it does not include DNS queries that return NxDomain or other methods of collecting names mentioned in SAC 022.

Now, looking at actual registration activities in COM and NET in July 2007, we find:

- 1.4 B EPP <create> commands
(used to add a label to a registry; in simple terms, this is the part of the registration process that reserves the domain name for the registrant actively engaged in registering a domain name)
- 34 M EPP <delete> commands
(used to delete a label from a registry; in simple terms, this action returns the domain name to the pool of names available for registration from this registry)

Of the 1.4 billion attempts to register domains, only 3.3 million were satisfied, suggesting that, on average, 333 attempts are made to register a domain name for every fulfilled domain registration. It is thus very reasonable to conclude that any given label is not as unique as Internet users might imagine, that multiple attempts are likely to be made to register the same label within a given time frame, and that the probability of multiple attempts increases as the time elapsed between a query and an attempt to register a domain increases. A less formal interpretation of this statistical result is that a very large number of attempts are being made to register not only a considerably smaller set of labels but an even smaller subset of names that are "interesting".

Conclusions

SSAC has insufficient information to conclude that domain name front running is practiced in any appreciable measure by parties who provide query services. We base this assertion on the claims submitted to SSAC and from our own statistical analyses. The claims we reviewed do not disprove the possibility of domain name front running entirely, and alternate, plausible explanations can be found for all the cases studied. Domain name front running may exist, but it is very difficult to prove the act or pinpoint the party who performed the act, even in cases that seem suspicious to the point of being "obvious" to complainants. Whether domain name front running exists or not, it has become one of several rallying flags that parts of the community wave to express dissatisfaction the domain name registration process.

The responses to SSAC's call for public comment illustrate that the domain name registration process and the associated markets form a much more complicated environment than many Internet users and prospective domain name registrants understand or appreciate. *Domain name kiting, front running, hijacking, monetization and tasting are not readily distinguishable to the average Internet user and the conclusion many users draw from the sum of these activities is that the (parties who comprise the) registration process is not trustworthy.*

Registrants partake in a transaction when they register a domain name. A registrant is a client and the registrar (reseller) is an agent or broker. Whether implicitly or explicitly covered by a contract, every client has an expectation that information related to a transaction that he shares with an agent will not be disclosed to third parties without cause. Clients also expect that the agent will not use shared information for the agent's direct/personal gain and at the client's expense. *SSAC strongly contends that any agent who collects information about an Internet user's interest in a domain name and who discloses it in a public way violates a trust relationship. This violation is exacerbated when agents put themselves or third parties in an advantageous market position with respect to acquiring that domain name at the expense of its client.*

Domain name front running is not easily proved, but it has become one of several rallying flags that parts of the community wave to express dissatisfaction the domain name registration process. From the community response to SAC 022, *SSAC observes a deteriorating trust relationship between registrants and registrars and urge ICANN and the community to consider the implications of continued erosion and a loss of faith in the registration process.*

Recommendations

Based on the conclusions and findings, SSAC makes the following recommendations.

1. SSAC encourages all parties involved in the domain name registration process to work to better educate registrants about the global market for domain names, the existence of after-markets and how these affect registrants.
2. The domain name industry uses terminology that is largely unfamiliar to consumers and non-technical Internet users. SSAC encourages registrars and resellers to eliminate the use of industry jargon wherever possible when presenting information to these audiences.
3. Internet users often assume that domain name back ordering services offer a guarantee that they will register the name when the current registration expires and is not renewed. SSAC encourages registrars and resellers to consider ways to eliminate this misconception.
4. Prospective domain name registrants should recognize that (a) querying the availability of a domain name demonstrates an interest or ascribes a value on that name and (b) interest in and competition for domain names is intense, and these factors increases the probability that multiple parties will show interest in the same name. Thus, prospective registrants may wish to prepare in advance and to register a domain name at the time of they query the availability of a domain name of interest.

Registrants should maintain records of domain name availability checks and registration attempts. Registrants who have a strong interest in a particular name are encouraged to record as much of the following information as possible as they check and register domain names:

- Method used to check domain name availability (e.g., web browser, application).
 - Local access ISP.
 - Provider or operator of the availability checking service.
 - Dates and times when domain name availability checks were performed.
 - Copy of the information returned (e.g., WHOIS query response) in the response to the availability check.
 - Whether the domain name was reported as previously registered or never before registered in the response returned from the availability check.
 - Copy of the information returned (e.g., WHOIS query response) indicating the name had been registered.
 - Correspondence with the registrar or availability checking service.
5. Registrants continue to struggle with unanticipated consequences of non-renewal of a domain name registration. SSAC again refers registrations to SAC 010 and in particular Recommendation (7) of that report, reproduced below:

"(7) Begin any research on domain name valuation and complete domain name transactions well before your name is due for renewal. Once the domain name of a registrant crosses the expiry date, registrants have a limited amount of time before the name is made available for registration to any other party. After the expiry date, the only option available to registrants is to either renew the name at the same registrar they used, or allow it to expire. Registrants who intend to determine the value of their domain name(s) and take steps to capitalize on this value should budget sufficient time prior to expiration to execute their research and complete any transactions prior to the expiry date of the domain registration."

6. Registrars should provide clear notice to Internet users regarding how they treat information submitted during an availability check