

**IN THE MATTER OF AN INDEPENDENT REVIEW PROCESS
BEFORE THE INTERNATIONAL CENTRE FOR DISPUTE RESOLUTION**

AFILIAS DOMAINS NO. 3 LIMITED,
Claimant

v.

INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS,
Respondent

ICDR Case No. 01-18-0004-2702

REPORT OF GEORGE SADOWSKY

20 March 2019

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I. Introduction

1. In December 2018, I was contacted by Dechert LLP, who have asked me to examine the performance of ICANN in fulfilling its mandate and core value to introduce and promote competition in the domain name industry in connection with the proposed acquisition of .web by Verisign, Inc. (“**Verisign**”). In this report, I: (i) describe my October 2018 interactions with the ICANN Board of Directors regarding the delegation of .web to Verisign; (ii) briefly summarize the origins and development of the Domain Name System (“**DNS**”); (iii) explain how the domain name industry operates; (iv) describe Verisign’s dominant position in the DNS; (v) analyze the competitive significance of the .web domain and of the likely effect on competition if it were to be acquired by Verisign; and (vi) provide examples of actions taken by regulators to limit the ability of dominant firms like Verisign to acquire additional resources to possibly increase their dominant positions.¹

2. In sum, and as discussed in detail below, it is my opinion that:

1. ICANN’s competition mandate requires it to introduce and promote competition for registry services. The competition mandate is both the *raison d’être* of ICANN’s creation and an essential element in its administration of the domain name industry. ICANN must do more than simply comply with antitrust and competition laws. It must affirmatively take steps to create a competitive environment within the domain name industry.
2. The delegation of .web to Verisign, a firm that already dominates in the provision of registry services, would result in the loss of a unique opportunity to introduce significant new competition to Verisign’s current registries, .com and .net. It would be a direct and significant attack on the competitiveness of the registry services industry, with predictable results for the future of the industry. Indeed, a transfer of .web to Verisign would be a repudiation of ICANN’s bylaws and its overall mandate to introduce and promote competition for registry services.

¹ My views do not depend in any way on information provided to me as an ICANN Board member and considered confidential as such.

3. It is my view that ICANN may not approve any action that would result in Verisign's exercising any degree of control or influence over .web. ICANN must consider the effects of its actions and their consequences within the context of its overall mandate. By not considering the competitive effects of the delegation of .web to Verisign, ICANN would be acting in a manner that is directly contrary to its competition mandate and would lose a unique opportunity to significantly increase the degree of competition in the registry services industry.

II. Education and Professional Qualifications

3. I received an A.B. degree with honors in Mathematics from Harvard College and M.A. and Ph.D. degrees in Economics from Yale University. I taught mathematics at Harvard during a year of advanced graduate study. After spending 1958-1962 as an applied mathematician and programmer, I began working on applying computers to economic and social policy, leading academic computing and networking organizations, and making information and communication technologies (ICTs) useful throughout the world. In 1963-64, I introduced the first use of computer-based microsimulation for tax analysis purposes in the United States Department of Treasury.

4. In 1964, I worked with a Special Master to the Connecticut Supreme Court to apply computers to creating Congressional redistricting plans for the State. During 1966-1970, I founded and directed the Computer Center at the Brookings Institution in Washington, DC and, in parallel, launched the Social Science Computing Special Interest Group of the ACM (Association for Computing Machinery). From 1970-73, I worked as an economic researcher at the Urban Institute, which culminated in my Ph.D. dissertation that described the creation and application of micro-analytic simulation models of the household sector for social and economic policy analysis.

5. From 1973 to 1986, I worked at the United Nations, where I directed both the evolution of the use of computing technology for the UN Statistical Office and the transfer of

information technology to developing countries. In that regard, I have worked in the field in about 50 developing countries and continue to do so. Among other things, I introduced the use of microcomputers for census data processing in Africa in 1979 and worked with China between 1982-1986 to support the computing activities of its 1982 Census of Population and Housing. In 1999-2000, I designed and implemented for Chinese technical staff one of the first CIO (Chief Information Officer) training courses in Shanghai and the U.S.

6. From 1986 to 2000, I directed academic computing and networking activities, first at Northwestern University and then at New York University. I have been a consultant to the United States Department of Treasury, the United States Congressional Budget Office, UNDP (United Nations Development Program), the Canadian and Swiss Governments, the Inter-American Development Bank, and a number of foundations. I was a Board member of AppliedTheory Corporation (Nasdaq: ATHY) and was a Trustee of the Corporation for Research and Educational Networking (CREN) and the New York State Educational and Research Network (NYSERNet). I was also actively involved in World Bank activities between 1996-2002 as a member and Coordinator of the Technical Advisory Panel for the infoDev program, as well as in UNDP and USAID activities. In 1994, I participated in the formulation of USAID's Leland Initiative for providing initial Internet connectivity for 20 African countries.

7. I was a member of the Internet Society Board of Trustees from 1996 to 2004 and served as its Vice President for Conferences (1996-1998) and Vice-President for Education (1998-2001). I also headed a group of ISOC volunteers that defined and conducted the ISOC Developing Country Network Training Workshops during 1993-2001. I have headed ICT projects for NATO that resulted in regional Internet training projects in Eastern Europe, Latin America, and West Africa, as well as aiding NATO ICT projects in Central Asia.

8. Between 2001-2006, I served as the Executive Director of the Global Internet Policy Initiative (GIPI), which had active ongoing Internet policy reform projects in 17 emerging economies. I also served as Senior Technical Adviser within USAID's dot-GOV program executed by Internews Network, providing ICT technical and policy assistance to the developing world. I am the editor of and lead contributor to the World Bank's Information Technology Security Handbook as well as the editor and lead author of the World Wide Web Foundation's seminal publication, Accelerating Development Using the Web: Empowering Poor and Marginalized Populations.

9. I have served as an expert witness for litigation in the United Kingdom and the United States and as a special adviser to Nitin Desai, the Chair of the UN Secretary-General's Internet Governance Forum, as well as to the Chair of UN G@ID. I have also served as a member of the PIR (Public Internet Registry) Advisory Board and, from September 2009 to October 2018, I served as a member of the ICANN (Internet Corporation for Assigned Names and Numbers) Board of Directors.

10. In recognition of my work, I was inducted into the Internet Hall of Fame in 2013.

11. My *curriculum vitae* is annexed hereto as **Exhibit GS-1**.

12. I am being compensated for my participation in this case. However, the views expressed in this report are my own and do not necessarily represent those of any organization or institution. My compensation is in no way affected by any opinions that I provide, by my conclusions, or by the outcome of this case. I reserve the right to supplement or amend this report based on additional evidence brought to my attention.

13. Prior to December 2018, I had never worked for Afiliias. I have never done any work for Verisign, Nu Dotco LLC ("NDC"), or any other company that was a member of the

.web contention set. Prior to October 2018, I was in discussions with Neustar, Inc., which had been identified in NDC's .web application as its back-end registry provider, regarding a potential consulting project. Although that project was wholly unrelated to any of the issues discussed herein, I voluntarily recused myself from the ICANN Board's discussions of .web. Ultimately, the project did not proceed and I subsequently rejoined the Board's discussions regarding .web in October 2018.

III. My October 2018 Interactions With the ICANN Board of Directors

14. My views on the issues discussed in this report were formed well before I was ever contacted by Afilias. On 3 October 2018, I participated in an ICANN Board of Directors meeting at which the decision to deny Afilias' 'DIDP request' for the production of documents was discussed.² At the time of that meeting, I had no knowledge of, or reason to believe that I would be involved in, this Independent Review Process in any manner.

15. I was, of course, aware from reports in the industry press that Verisign intended to acquire .web pursuant to an agreement that it had entered into with one of the .web applicants.³

Confidential Information Redacted

² Since I had recused myself from all Board discussions regarding .web prior to this date, my views did not reflect in any way information provided to me as an ICANN Board member.

³ See, e.g., A. Allemann, "Verisign Releases Statement About .Web," *Domain News Wire* (August 1, 2016), available at <https://domainnamewire.com/2016/08/01/verisign-releases-statement-web/>, [Ex. GS-2]; K. Murphy, "Verisign and Afilias in open war over \$135m .web," *Domain Incite* (November 11, 2016), available at <http://domainincite.com/21254-verisign-and-afili-as-in-open-war-over-135m-web>, [Ex. GS-3]; and D. Strizhakov, "Afilias asks ICANN to investigate winning bid for .web," *Trademarks & Brands Online* (August 16, 2016), available at <https://www.trademarksandbrandsonline.com/news/afili-as-asks-icann-to-investigate-winning-bid-for-web-4796>, [Ex. GS-4].

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⁴ See Stimmel, Stimmel & Smith, Basic Duties of a Director in a California Non-Public Corporation, available at <https://www.stimmel-law.com/en/articles/basic-duties-director-california-non-public-corporation>, [Ex. GS-5].

IV. The Domain Name System

18. The DNS was created in 1984 to permit Internet users to refer to Internet sites by human readable names instead of numeric IP addresses that are difficult to remember. Basically, the DNS is a distributed data base system whose principal function is to translate a domain name such as ‘washingtonpost.com’ to an Internet Protocol numeric address such as 157.74.108.17, which is then used by the routing apparatus of the Internet to make a connection between the requesting client and the goods and services that are offered by the entity that is being addressed. The history and basic workings of the DNS are described in greater detail in Jonathan Zittrain’s Expert Report.⁵

19. The introduction of the World Wide Web in the early 1990s enhanced the importance of the DNS by incorporating domain names into the web’s addressing structure. The Uniform Resource Locator (“**URL**”) of almost every web page uses a domain name as a principal part of its structure.

20. The DNS is absolutely critical to the effective and productive use of the Internet. In the early days of the Internet, users had to employ numeric addresses to reach resources connected to the Internet and, although this is still possible, the introduction of names with useful

⁵ Expert Report of Jonathan Zittrain (September 26, 2018) (“**Zittrain Report**”), Sec. 4.

semantic content has made the Internet usable by almost everyone.⁶ The integrity of the DNS is essential for the operation of the Internet and the structure, conduct, and performance of the industry that controls its implementation and operation have major implications for the trust in, and the utility of, the network.

21. Recognition of the importance of this burgeoning industry occurred in the mid-1990s and sparked the process that eventually led to the establishment of ICANN in late 1998. With an evolving perception of the rapid growth and importance of the incipient domain name industry, the competitive structure of the industry took on special importance, as documented in the Zittrain Report.⁷ Because .com was the most generic of the three “open” domains, it became the standard for websites, leading to the so-called “**dot-com boom**.”⁸

22. In turn, the rapid popularity of .com names led to very substantial speculation and increasing exhaustion of its available name space, to the point where almost all words in the English language as well as many two-word combinations were registered in .com. By the late 1990s, Network Solutions, which at the time controlled .com, was charging \$100 for a two-year registration in its .com registry and \$50 per year for a renewal.⁹ These developments contributed

⁶ Based upon work within the Internet Engineering Task Force (ietf.org) and ICANN (icann.org), as well as on the codification efforts of the UNICODE Consortium (unicode.org), internationalized domain names can now be created and processed in almost any script that exists today. More than 100 internationalized gTLDs now can be addressed in their native scripts. The Universal Acceptance Steering Group (uasg.tech), supported in part by ICANN, has as its goal the ability to use any properly formed domain name anywhere and obtain the intended result.

⁷ Zittrain Report, Sec. 6.

⁸ Each of the “legacy” open domains had been established and promoted by the early Internet technical community for discrete purposes: .com, for commercial applications, .net, for network organizations, and .org, for non-profit organizations. Other domains established at the time were reserved for specific entities, such as .gov (United States government), .edu (universities), and .mil (United States military). The legacy domains retain to this day strong associations with their original purposes.

⁹ U.S. Department of Commerce, “Statement of Policy on the Management of Internet Names and addresses,” Docket no. 980212036-8146-2 (June 5, 1998), [Ex. GS-7].

to awareness that competition was needed in the registry business and to the creation of ICANN to oversee and promote those efforts.

23. Verisign acquired Network Solutions in 2000 for \$21 billion.¹⁰ Even taking into account the excessive exuberance of the years of the dot-com boom, the magnitude of this price illustrates the explosive growth and rapidly increasing importance of the domain name industry in the evolution of the Internet.

24. As documented in Dr. Zittrain’s Report, ICANN and its founders regarded the introduction of meaningful competition in the domain name industry as not only the most important immediate goal for the newly created organization but as its primary *raison d’être*.¹¹

V. The Domain Name Industry

25. The two major sets of actors in the domain name industry are registries and registrars. Registries operate the specific top-level domains (TLDs), which they sell on a wholesale level to registrars. Registrars, in turn, serve as retail ‘front ends’ for registrants that want to obtain rights to use specific second level names in a given TLD.¹² The entry of a new

¹⁰ “VeriSign buys domain firm,” *CNNMoney* (March 7, 2000), available at <https://money.cnn.com/2000/03/07/deals/verisign/>, [Ex. GS-8]. Verisign later transferred the .org registry to the Public Interest Registry. See P. Festa, “VeriSign Transfers Control of .org,” *C/Net* (January 2, 2003), available at <https://www.cnet.com/news/home-security-drone-could-help-you-tell-possums-from-prowlers/>, [Ex. GS-9].

¹¹ Zittrain Report, ¶¶ 22-24.

¹² This IRP concerns generic top level domains (“gTLDs”). Another class of top level domains, country code top level domains (“ccTLDs”), are administered by national governments instead of by ICANN. ICANN processes, which are relatively open, transparent, and predictable, do not apply to ccTLDs. Rather, a sovereign government has absolute authority to set the rules of the operation of the ccTLD and to change them, as it wishes. A significant number of ccTLDs have registration requirements that include presence, residence, or citizenship in the country in order to register a name in the domain. Further, ccTLDs are strongly associated with a specific geography and/or language. Firms that operate in more than a single country could, in principle, register their names in multiple ccTLDs, or they could opt for a generic global name, or both.

Moreover, maximum stability and predictability are essential if the goal of obtaining a domain name is to have long lasting web page to build a customer base and brand loyalty. Using a ccTLD puts a domain name under the control of a government over which registrants may have no recourse in the case of a dispute, where policy, pricing, and/or control could change significantly and unpredictably. With some exceptions, ccTLDs are more likely to concern

generic TLD (gTLD) registry occurs through a contract between its operator and ICANN. Pursuant to ICANN rules, registries must contract with any accredited registrar that requests access to the registry's gTLD. In contrast, registrars have no obligation to contract with all registries to provide retail services for them.

26. Individuals and organizations acquire domain names for a variety of reasons. The most common reason is for the purpose of creating a web site that has a name that is specially selected by, and identifies, the registrant. Domain names that are chosen by companies generally identify the company names, brands, and/or trademarks, while domain names that are selected by individuals may relate to their own names or to other identifying characteristics or interests. Such names often advertise the identity of the name holder and can be used to advantage in both business and personal affairs. One could characterize this class of registrations, meant to be publicly distributed and actively used, as 'operational' registrations.

27. Domain names are also acquired by individuals and organizations that plan to start a business, enter a profession, or introduce a brand, for which the name may be useful in the future. The first claimant for a name can deny its use by others indefinitely. Therefore, if a specific name may be desired in the future, it is very important to register it as soon as it becomes available.¹³ These names are acquired because of their 'option values;' they insure that the option to use the names will be available to the registrant if and when they are ever wanted for operational purposes.

themselves with national issues and linguistic requirements and, as a result, registrations in ccTLDs are imperfect substitutes for registrations in gTLDs, if they are even substitutes at all. While having only a national domain may be sufficient if only national visibility is sufficient, the world is becoming more and more globalized and having an international presence is growing in importance for both organizations and individuals.

¹³ Registrants that successfully obtain domain names have perpetual presumptive renewal rights as long as they do not violate the terms of service in their registrar agreements.

28. Domain names can be transferred among registrants in private transactions with no restrictions. Because of this, speculation in domain names has existed since they became available for registration in the 1990s. One could characterize this class of registrations as ‘speculative,’ since they are acquired not to be used by the initial registrant but rather to be held for subsequent sales to buyers for whom they have additional value.

29. Desirable domain names are generally short, have meaning in the language of the registrant, are easy to remember, and are identified with the registrant.¹⁴ Since there is a limited supply of short and meaningful names that are not protected by trademarks in any given registry, these names command high prices. Speculators generally acquire a large number of such names in popular new gTLDs.

30. Registrants that choose domain names for operational purposes generally make choices that reflect meaningful personal or organizational identifiers. They publish their names widely as a part of their email addresses, in the URLs of their web sites, and through more traditional outlets such as business cards, letterheads, advertisements, and signs. Registrants want their domain names to be as widely distributed as possible, for awareness, commercial, and recognition purposes. Moreover, once a domain name is launched on the Internet, references containing it may be forwarded, copied, posted, or otherwise advertised anywhere on the global Internet without the registrant’s knowledge or permission. These links are often essential to driving traffic to a registrant’s website. Collectively, the dissemination of a domain name creates a certain ‘stickiness,’ creating both real and opportunity cost barriers to switching to a name in another domain. The longer that a domain name has been actively used by a registrant, the more

¹⁴ See A. Rowland, “10 tips for choosing the perfect domain name,” *GoDaddy* (updated November 5, 2018), available at <https://www.godaddy.com/garage/10-tips-for-choosing-the-perfect-domain-name/>, [Ex. GS-10], and D. Pinsky, “8 Smart Tips for Choosing A Winning Domain Name,” *Forbes* (April 10, 2017), available at <https://www.forbes.com/sites/denispinsky/2017/04/10/domain/#3bc445774b4f>, [Ex. GS-11].

‘sticky’ it is likely to be. Registrants therefore overwhelmingly prefer to renew their domain names, even possibly at a significantly higher price than registering their names in a new domain. Accordingly, for renewals, all registries enjoy some degree of market power.

31. In addition to competing for new registrants,¹⁵ new gTLDs also have the capability to erode the customer bases of existing registries, albeit slowly because of ‘stickiness’ in the use of existing domain names. If an existing registrant wants to change its domain name, it can register the new name in the new gTLD and forward e-mail traffic and redirect web queries destined for the old name to the email address and web site that are associated with the new name. For example, if the registrant of mycompany.old wants to register as mycompany.new for the future, it simply needs to register mycompany.new and select forwarding and redirection options to send all mail and queries to the new address. This is not difficult and services exist to help the registrant do so without loss of the information that search engines have generated for it.¹⁶ Over time, as the .new domain becomes broadly associated with mycompany, mycompany may choose not to renew the .old domain. Thus, while the registrant must have already acquired the name that it wants in .new, and must continue to maintain its registration in .old, at least for some time, switching between domains is feasible. However, the decision to acquire the desired name must be made when .new is launched, in order to assure that the name is available in that domain. Thus, for example, if mycompany wants to be known by the

¹⁵ The extent to which any new gTLD appeals to new registrants is determined by the characteristics of the gTLD itself. As discussed below, most new gTLDs have been aimed at niche groups and do not compete with generic gTLDs that are implicitly global in scope and have broad general appeal, such as .com and .net.

¹⁶ For example, Google has tools that allow a web site to maintain its list ranking when traffic to that site is redirected. See, e.g., Google Webmaster Central Blog, “Google’s handling of new top level domains” (July 21, 2015), available at <https://webmasters.googleblog.com/2015/07/googles-handling-of-new-top-level.html>, [Ex. GS-12].

same domain name, i.e. by ‘mycompany’ in .new, it must act promptly when registrations open in .new.

VI. Verisign’s Dominant Position

32. Verisign has had a dominant position since it acquired Network Solutions in 2000. For example, CENTR¹⁷ reports that, in October 2018, there were 191.9 million domains registered in all gTLDs of which 135.9 million, 70.8%, were registered in .com and 13.9 million, 7.2%, were registered in .net.¹⁸ CENTR also reports that, in October 2015, there were 161.2 million domains registered in gTLDs of which 120.0 million, 74.4%, were registered in .com and 15.1 million, 9.3%, were registered in .net.¹⁹ Thus, the share of registrations in gTLDs that are held by Verisign, the registry for both .com and .net, declined by only about 5 percentage points over this period, and remains very high, despite the introduction during the past several years of a very large number of new gTLDs.

33. Industry data suggest that the share of ‘permanent’ registrations in new gTLDs may be less than than even their small reported share. According to ntlstats.com, registrations in new gTLDs, which collectively rose to a peak of just under 30 million names in April 2017, stood at 26.6 million registrations at the end of 2018.²⁰ This represents only about 14% of

¹⁷ CENTR, the Council of European National Top-Level Domain Registries, publishes quarterly reports covering the status of and trends in registrations in all top-level domains.

¹⁸ CENTR, *CENTRstats Global TLD Report* (Q3 2018 – Edition 25), available at <https://centr.org/statistics-centr/quarterly-reports.html>, [Ex. GS-13]. Verisign reports that, at the end of Q3 2018, there were 193.1 million domains registered in gTLDs of which 137.6 million, 71.2% were registered in .com and 14.1 million, 7.3%, were registered in .net. Verisign, *The Domain Name Industry Brief*, Volume 14 - Issue 1 (February 2017), [Ex. GS-14].

¹⁹ ENTR, *CENTRstats Global TLD Report* (Q3 2015 – Edition 13), available at <https://centr.org/statistics-centr/quarterly-reports.html>, [Ex. GS-15].

²⁰ See nTLStats, new gTLD Summary, available at <https://ntldstats.com>. It is likely that at least some, and perhaps a large percentage, of these registrations are duplicates of registrations in legacy gTLDs, such as .com and .net.

registrations in all gTLDs, most of which are accounted for by registrations in a handful of new gTLDs.²¹ Moreover, Domain Name Stat reports that registrants are choosing *not* to renew domains that are registered in new gTLDs at a far higher rate (7.4%) than domains that are registered in legacy gTLDs (2.9%).²² A combination of factors contributes to this difference: newness of the new gTLDs, promotional activities by some new gTLDs, including providing free or very low cost initial registrations, and exploitation of new gTLDs by spammers.

34. History helps to explain how Verisign achieved its current dominant position. In the 1990s, only a few gTLDs were available for registrations. Of these, .com was the most generic and the most global and was regarded as the only viable choice for most registrants. The others were either restricted for use by certain entities or otherwise marketed to niche actors.²³ As the Internet expanded and became better known, there was an explosion of .com registrations. The dot-com boom was spurred by powerful ‘network effects’: the more users that were already registered in .com, the more that new users wanted to do the same.²⁴ As a result, registrations in .com grew rapidly while registrations in the other ‘legacy’ domains lagged far behind.

²¹ At the beginning of February 2019, the ten new gTLDs having the largest number of registrants were .top, .xyz, .loan, .club, .online, .site, .vip, .shop, .work, and .ltd. (nTLDStats, new gTLD Summary, *op. cit.* note 20).

²² Domain Name Stat, “Domain name registration’s statistics,” available at <https://domainnamestat.com/>, [Ex. GS-16]. Domain Name Stat refers to legacy gTLDs as Generic TLDs and reports data for them separately from data for New gTLDs.

²³ The ‘rules’ for .com, .org, and .net were, in fact, strong informal guidelines that were put into place by the early Internet community in an attempt to provide some logical categorization for registrations, but the guidelines were not enforced. It was therefore possible to register a name in .net even if the registrant had nothing to do with networks and, based upon the large number of registrations in .net, many registrants did take advantage of the opportunity. .Net was not actively promoted as an alternative to .com, however, and .net names never achieved the penetration of .com names. As noted above, there are currently about 10 times as many registrations in .com as there are in .net, which remains the second most popular gTLD, and is also controlled by Verisign.

²⁴ The earliest formal analysis of network effects is J. Rohlfs, “A Theory of Interdependent Demand for a Communications Service,” 5(1) *The Bell Journal of Economics and Management Science* (Spring 1974), [Ex. GS-17]. An earlier analysis, which labeled these “bandwagon” effects, is H. Leibenstein, “Bandwagon, Snob, and Veblen Effects in the Theory of Consumers’ Demand,” 64 *The Quarterly Journal of Economics* (May 1950), [Ex. GS-18].

35. Software developers unwittingly contributed to enhancing the perceived exclusivity of .com registrations. Some made the assumption that TLDs would always be three characters long and most assumed that the characters would come from the core Latin alphabet.²⁵ In an attempt to simplify access to the web, these browsers would automatically attach a .com suffix to any presumed domain name that was entered, allowing for example, a user to enter just ‘amazon’ instead of ‘amazon.com.’²⁶ This had the effect of conditioning prospective registrants to believe that .com was either the only gTLD or the default gTLD.

36. The United States Government has required ICANN to impose caps on the prices charged for registrations in .com ever since Verisign acquired Network Solutions in 2000. The reason for this is obvious. In their survey of price cap regulation in the telecommunications industry, economists David Sappington and Dennis Weisman observed that, “When competition is unable to impose meaningful discipline on incumbent suppliers of essential services, regulation can be employed as an imperfect substitute for the missing market discipline.”²⁷ This is the exactly the approach adopted by the United States Government in the case of Verisign, which maintains a dominant position in the supply of registry services. Specifically, in recognition of Verisign’s continuing dominance, the Government requires that the prices being charged for registrations in .com be subject to a cap that is administered by ICANN.

²⁵ The appropriate standard for domain names, RFC 1035, and updates to it, specify that names must be composed of some combination of the 26 Latin letters, digits 0-9, and a hyphen, and that the name must be less than 64 characters long. See Domain Names – Implementation and Specification (November 1987), available at <https://tools.ietf.org/html/rfc1035>, [Ex. GS-19].

²⁶ Zittrain Report, ¶ 17.

²⁷ D. Sappington and D. Weisman, “Price cap regulation: what have we learned from 25 years of experience in the telecommunications industry?,” 38 *Journal of Regulatory Economics* (2010), [Ex. GS-20], p. 229 (footnote omitted).

VII. The Introduction of New gTLDs and the Competitive Significance of .Web

37. As Professor Zittrain observes, ICANN's competition mandate was explicitly recognized as a primary driver behind the development of ICANN's New gTLD Program.²⁸ ICANN observed in 2009 that "New gTLDs are expected to bring innovative services and greater choice to Internet users through increased competition...."²⁹ Indeed, one of the criteria for assessing proposals to operate new registries in the most recent 'round' was the extent to which they would lead to "the enhancement of competition for registration services."³⁰ ICANN noted specifically that:

... market mechanisms that support competition and consumer choice should, where possible, drive the management of the DNS. One of ICANN's core principles is the encouragement of competition at both the registry and registrar levels.... Proposals will be evaluated to determine whether they are responsive to the general goal of enhancing competition for registration services.

38. Although the new gTLD program has increased considerably the number of gTLDs that are available to registrants, Verisign continues to command a dominant position in the domain name industry.

39. In my opinion, the only new domain that is likely to compete strongly with .com is .web, due to properties inherent in its name. Rather than stressing commercialism, .web stresses affinity. Rather than stressing business, .web stresses community, which is more

²⁸ Zittrain Report, Sec. 6. As Zittrain notes, "ICANN's Competition Mandate represents an obligation by ICANN to do more than just comply with applicable competition and antitrust laws. Rather, it is an affirmative undertaking by ICANN to ensure that its decisions and actions are consistent with its mission to create a competitive environment within the DNS in which market forces can operate without restraint." *Id.*, ¶ 2. This means that ICANN cannot abdicate its responsibilities in this regard by referring to the fact that antitrust authorities may also have responsibilities in this area.

²⁹ ICAN Announces Important Milestone in Making the Internet More Accessible to All (October 4, 2009), available at <https://www.icann.org/news/announcement-2009-10-04-en>, [Ex. GS-21].

³⁰ ICANN, Criteria for Assessing TLD Proposals (August 15, 2000), available at <https://archive.icann.org/en/tlds/tld-criteria-15aug00.htm>, [Ex. GS-22].

attractive to social networkers. The current population of Internet users is less technically savvy and more recreationally oriented than the users of the 1990's and many consider 'the web' to be the Internet. Thus, they are likely to think in terms of 'web addresses' rather than domain name addresses or URLs, and they may feel greater affinity with the Internet if they see or have a .web than a .com address.

40. Industry observers largely agree with this assessment. There is, generally, an expectation in the industry that there will be significant demand for registration of domain names in .web — the issue is not one of 'if' but rather of 'how much'. Moreover, once a name is registered in a new domain, it is potentially unavailable forever and, as a result, I would expect to see very considerable early demand for .web registrations that offer value to specific registrants, demand that would greatly exceed that for registrations in any other new gTLD.

41. My opinion regarding the attraction of .web for future registrants is based on the following observations:

1. **Universality.** Perhaps the greatest attraction of .web is the result of a constellation of features that it uniquely possesses. In particular, .web satisfies four essential requirements for broad adoption by users: (1) it consists of three letters; (2) it is a purely generic label with no semantic limitations of scope; (3) it has a very strong link to the Internet as a whole, meaningful for anyone using the Internet; and (4) it is memorable and easily pronounced. No other new gTLD has all four of these characteristics.
2. **Availability of names.** In contrast to .com, .web names have yet to be claimed.³¹ Desirable domain names will, therefore, be much more likely to be available in .web than in .com because so many names have already been taken by .com registrants. After delegation of .web, almost all of the 130+

³¹ Premium names and trademark-related names registered during the sunrise period account for only a very small part of the name space of any gTLD. Thus, at the beginning of the public registration period for a new domain, potential registrants effectively have their choice of a virtually unlimited number of second level names.

million or so domain names that are now registered in .com will become available for registration in .web.³²

3. ***Identity and Affinity.*** In the early days of using domain names, .com was the unchallenged choice for nearly every use that did not satisfy one of the niche categories of the other legacy gTLDs, e.g., .mil or .edu. The perceived lack of alternatives led users and consumers to believe that .com was the best, most prestigious, and safest domain in which to register. New registrants were most likely to want a .com domain name because most others had a .com domain name.

Today's Internet users have a different qualitative profile from that of Internet users in the 1990s. Today's Internet culture is expanding beyond its focus on commercial activity to making available a digital electronic agent to assist individuals in engaging in many forms of human activity. Having a .com address is more associated with the past and carries less importance now than it once did.

.Web is different. In addition to being new, .web is more directly and strongly associated with use of the Internet for a wide range of purposes, consistent with a multifaceted relationship and use of the Internet. .Web is a better fit for today's users than is .com because they are more likely to want a presence on the Internet, to communicate via email, to participate in social networks such as Facebook and Twitter, and to manage multiple aspects of their personal lives.³³

Because of the shift in Internet culture for many people, the Internet *is* the web, and for them, registering a name in .web would be a natural and logical choice, especially given the availability of millions of meaningful names in .web that are currently unavailable in .com. Moreover, just as .com initially benefitted from the fact that later registrants wanted to 'follow' the choices of early registrants, once .web acquires a significant number of registrants, others are likely to want to follow suit.³⁴

³² In addition, .web is 'suffix-friendly'. Some TLD names, including .web, can be attached as suffixes to words to make combinations that are memorable phrases. Examples of such names for .web are surfthe.web and futureofthe.web. By contrast, .com does not readily lend itself to naming of this sort.

³³ Significant examples of the new uses include getting health care information, making appointments, using search engines for finding information, participating in social networks, communicating with family, friends, and colleagues, taking educational courses and engaging in other self-help activities, gambling, finding partners, reading books and newspapers, as well as buying and selling goods and services.

³⁴ In an article written more than fifty years ago, Harvey Leibenstein refers to "...the desire of people to wear, buy, do, consume, and behave like their fellows; the desire to join the crowd, be 'one of the boys,' etc. -- phenomena of mob motivations and mass psychology either in their grosser or more delicate aspects. This is the type of behaviour involved in what we call the bandwagon effect." H. Leibenstein, "Bandwagon, Snob, and Veblen Effects in the Theory of Consumers' Demand," 64 *The Quarterly Journal of Economics* (May 1950), [Ex. GS-18], p. 184.

42. Three kinds of evidence support my belief that .web would be a competitive threat to .com if it were owned by an entity other than Verisign: (1) similar statements made by applicants for the .web domain about its competitive potential; (2) statements made by analysts of the domain name industry about the competitive significance of .web; and (3) the record amounts of the bids made by participants in the .web auction, I regard the record winning bid in the auction as highly persuasive evidence of the competitive significance of .web, since it reflects the actual bids that auction participants were willing to make to operate the .web domain and the amount that Verisign that was willing to pay to prevent .web from falling into the hands of a competitor.

43. Statements made by applicants for .web characterize it as a strong competitor to .com. For example:

Web.com knows from years of experience that the .com gTLD has played a revolutionary role in the advancement of global commerce and culture. In addition, the .com gTLD has had a powerful and democratizing impact, providing avenues for anyone to participate in online discourse and a growing market. There are, however, a finite number of useful second-level domains that can be applied for in .com, as ICANN knows and understands. Often other gTLDs, such as .org, .info, .biz and others either are unavailable or are not a good fit for a potential second-level domain. ... In looking to expand the gTLD landscape beyond the existing robustness of gTLD offerings, an easy-to-remember and intuitively logical gTLD such as .web is a relevant addition. *Consumers will instantly understand that a .web domain is an Internet website thereby ensuring quick adoption by users.*³⁵

The mission/purpose of .web is first choice. Domain name first choice, once again - globally. Some registrants got their first choice of a .com name. Many did not. When the .com registry gained its momentum selling names early on, the North

Although many of the new gTLD names were chosen to attract registrants that have a particular affinity with a sport, hobby, activity, profession, or other aspect of life, over the period in which new gTLDs have become available, the number of additional registrations in .com have almost equaled the number of new registrations in all of the new gTLDs combined. This demonstrates that there is still a very strong demand for registrations in gTLDs with broad general appeal, a demand that .web will be well-positioned to satisfy.

³⁵ New gTLD Application submitted to ICANN by Web.com Group, Inc., Application ID 1-1009-97005 (June 13, 2012), [Ex. GS-23], Sec. 18(a).

American market and particularly the United States were the first and primary purchasers of .com names. They got their first choice. And many global registrants who came after did not. ***Other generic top level domains have been introduced: .info, .biz, .net, .org – but none of those names have the true global generic appeal of the .com brand.***³⁶

The proposed gTLD will provide the marketplace with a new all-purpose gTLD for second-level domain names, .web. The mission of this gTLD is to act as an alternative to current gTLDs, in particular .com and .net. This mission will enhance consumer choice by providing new availability in the second-level domain space and increasing competition amongst generic gTLDs. Charleston Road Registry believes that registrants will find value in associating with this gTLD, which could have a vast array of purposes for enterprises, small businesses, groups or individuals seeking a second-level domain name already registered in .com or .net, or those simply seeking a competitive alternative to existing gTLDs....³⁷

44. Statements from analysts of the domain name industry also characterize .web as a potentially significant competitor to .com. These statements include:

.Web is ***both generic and pronounceable***, not to mention that to everyone who's been on the Net for the past 20+ years, the 'web' is almost synonymous with the internet.³⁸

.WEB is what we call a 'super generic' and arguably the best new TLD alternative to .COM. It is a word that is commonly used with intuitive meaning. ***WEB could make a serious dent to .COM over the long run.***³⁹

.web has been seen, over the years, as the string that is both most sufficiently generic, sufficiently catchy, sufficiently short and of sufficient semantic value to ***provide a real challenge to .com.***⁴⁰

³⁶ New gTLD Application submitted to ICANN by DotWeb, Inc., Application ID 1-956-26846 (June 27, 2014), [Ex. GS-24], Sec. 18(a).

³⁷ New gTLD Application submitted to ICANN by Charleston Road Registry, Inc., Application ID 1-1681-58699 (June 13, 2012), [Ex. GS-25], Sec. 18(a).

³⁸ DomainGang, "Editorial: The domain future is on the .Web" (August 1, 2016), available at <http://domaingang.com/editorial/editorial-the-domain-future-is-on-the-web/>, [Ex. GS-26] (emphasis in original).

³⁹ Authentic Web, ".WEB Acquired for \$135 Million. Too much? How does it compare?," available at <https://authenticweb.com/brand-tlds-digital-strategies/dot-web-acquired-for-135-million/>, [Ex. GS-27] (emphasis added).

⁴⁰ K. Murphy, "Verisign likely \$135 million winner of .web gTLD," *Domain Incite* (August 1, 2016), available at <http://domainincite.com/20820-verisign-likely-135-million-winner-of-web-gtld/>, [Ex. GS-28] (emphasis added).

.web is widely considered the gTLD with the most potential out of 1,930 applications for new domain extensions ICANN received to battle .com and .net for widespread adoption.⁴¹

...a handful of industry watchers and top level domain companies said that *.web is the one domain that could unseat .com*. While that's open to debate, Verisign might have viewed this as an opportunity to take the greatest threat from the new TLD program off the table.⁴²

Is it likely that .web will be a standout among new TLDs? Here are a few points that may indicate *.web is poised to gain traction relative to other recently introduced TLDs*....We're already used to using the term 'web' for internet-related activities....Web is short and memorable.....Dictionary names and short phrases are still available on .web.⁴³

These statements are consistent with my own analysis of the characteristics of .web that are likely to make it a significant competitor to .com.

45. Finally, ICANN reports that the proceeds from the .web auction were \$135,000,001. As a point of comparison, the proceeds from the auction with the second largest proceeds, which was completed in January 2016, were \$41,501,000, or only about 31% as large, and the proceeds from the auction with the third largest proceeds, which was completed in February 2015, were \$25,001,000, or only about 19% as large. The amount paid for .web represents about 56% of the total proceeds from all ICANN gTLD auctions.

46. The magnitude of the winning bid for .web provides strong evidence that Verisign regarded it as a significant competitive threat if were controlled by another registry operator. As Professor Paul Klemperer has noted, "since firms' joint profits in a market are generally greater *if fewer competitors are in the market*, it is worth more to any group of firms *to prevent entry of*

⁴¹ C. Negriz, "How a \$135 million auction affects the domain name industry and your business" (August 10, 2016), available at <https://biv.com/article/2016/08/how-135-million-auction-affects-domain-name-industry>, [Ex. GS-29].

⁴² Supremacy, "The Next Big Domain Extension," available at <https://supremacyseo.com/TWS60>, [Ex. GS-30] (emphasis added).

⁴³ TheHostingFinders, "Inside the High Stakes Auction for .Web" (July 25, 2016), available at <http://www.thehostingfinders.com/inside-the-high-stakes-auction-for-web/>, [Ex. GS-31] (emphasis added).

an additional firm than the additional firm is willing to pay to enter.”⁴⁴ Professor Klemperer’s observation is consistent with J.P. Morgan’s, which characterizes Verisign’s behavior as “a very good defensive strategic move keeping .web out of the hands of the potential competitor as we believe .web could be the closest thing to .com in the minds of customers looking for domain names.”⁴⁵

47. Verisign had good reason to make a bid that was high enough to keep .web out of the hands of a competitor. As economist Dennis Carlton stated in a report that he prepared for ICANN: “...entry is recognized to play a central role in maintaining competitive markets. Hence, to the extent that .com and other TLDs have any market power today, expansion of the number of TLDs would help dissipate it in the future.”⁴⁶ Verisign moved decisively to acquire .web, the new gTLD that industry observers generally agree would be the most significant competitive threat to .com, in order to keep it out of the hands of a rival.

48. It is also significant to note that Verisign would have only a limited incentive to promote .web, because its success would come, at least in part, at the expense of .com and .net. Another owner would not have the same concern and would, therefore, promote .web more aggressively. This is readily observable in Verisign’s management of .net. .Net shares many of the attributes that make .com successful, yet it is only about 1/10th its size. Verisign has not marketed .net aggressively and the perception that .net is a registry for technical, networking, and ‘nerdy’ concerns endures. Indeed, Verisign has done little to discourage that perception,

⁴⁴ P. Klemperer, “What Really Matters in Auction Design,” 16 *The Journal of Economic Perspectives* (2002), [Ex. GS-32], p. 177 (emphasis added).

⁴⁵ J.P. Morgan, *VeriSign (VRSN US), DoJ Clears Way for VRSN to Close .web Purchase* (January 10, 2018) [Ex. JZ-3], p. 1.

⁴⁶ Preliminary Report of Dennis Carlton Regarding Impact of New GTLDS on Consumer Welfare (March 2009), available at <https://archive.icann.org/en/topics/new-gtlds/prelim-report-consumer-welfare-04mar09-en.pdf>, [Ex. GS-33].

suggesting informally that .com names are useful to companies for their public facing websites and .net names are useful for their internal networking purposes.⁴⁷ This is not surprising. Since many new registrations in .net would likely have been at the expense of registrations in .com, increasing registrations in .net would not produce an equivalent increase in registrations for Verisign. As a result, Verisign did not have had a strong economic incentive to promote .net. Of course, Verisign would have the same economic incentive – the desire *not* to promote one of its domains at the expense of another — if it were to control .web. This anti-competitive risk would not be present if .web had an owner different from the owner of .com and .net.⁴⁸

49. Finally, even if ICANN were to conclude that there is uncertainty about the magnitude of the competitive threat posed by .web to .com, ICANN should, nevertheless, take whatever steps are necessary to prevent the transfer of .web to Verisign because of Verisign’s dominant position and ICANN’s mandate to promote competition. The potential of the competitive threat that would result from .web’s entry would be irrevocably lost if it were (mistakenly) placed in Verisign’s hands.

VIII. Relevant Precedents

50. ICANN is not the first regulator or administrator that has had to deal with a dominant player. Here, ICANN cannot refrain from acting to prevent Verisign from acquiring

⁴⁷ See, e.g., VeriSign, Leverage Your .Net Domain Name: DocuSign Promotional Video, available at https://www.verisign.com/en_US/domain-names/net-domain-names/net-domain/index.xhtml, [Ex. GS-34].

⁴⁸ It is well known that a firm that sells two competing products has an incentive to take into account the effect of a change in the sales of one of the products on the sales of the other. See, e.g., J. Farrell and C. Shapiro, “Upward Pricing Pressure in Horizontal Merger Analysis: Reply to Epstein and Rubinfeld,” 10(1) *The B.E. Journal of Theoretical Economics* (2010), [Ex. GS-35], Art. 41 (“...when a firm sells substitute Products 1 and 2, sales of Product 1 cannibalize to some degree the sales and profits of Product 2; ...multi-product firms...recognize such cannibalization as a pecuniary (opportunity) cost of selling incremental units of Product 1”). In the present context, this means that, if Verisign owned .web, it would recognize that additional .web registrations would, to some extent, occur at the expense of .com. As a result, it would have a smaller incentive to promote .web than would a registry that did not also own .com.

.web while also satisfying its obligation to introduce and promote competition in the provision of domain names services. ICANN has historically controlled Verisign's exploitation of its dominant position through the imposition of price caps on .com. In analogous markets, the United States Federal Communications Commission (FCC) has noted that "price caps act as a transitional regulatory scheme *until the advent of actual competition makes price cap regulation unnecessary.*"⁴⁹ The FCC stated specifically that "It anticipated creating...a mechanism whereby it would lessen, and eventually eliminate, rate regulation *as competition developed.*"⁵⁰ One way in which the FCC has sought to promote such competition is to limit the amount of *newly licensed* spectrum that could be acquired by dominant wireless carriers in spectrum auctions.⁵¹ ICANN could promote competition in the supply of registry services in the same manner, by limiting the ability of the dominant industry player, Verisign, to acquire .web.

⁴⁹ *In the Matter of Special Access Rates for Price Cap Local Exchange Carriers*, FCC, WC Docket No. 05-25, Order and Notice of Proposed Rulemaking (Adopted January 19, 2005; Released January 31, 2005), [Ex. GS-36], ¶ 11 (emphasis added, footnote omitted).

⁵⁰ *Id.*, ¶ 13 (emphasis added, footnote omitted). Similarly, UK telecommunications regulator Ofcom noted that "Price controls have been used to restrict [British Telecom] from excessive pricing *that its dominance would otherwise allow....*" Protecting consumers by promoting competition: Ofcom's conclusions (June 20, 2002), Statement issued by the Director General of Telecommunications, available at <https://webarchive.nationalarchives.gov.uk/20140702142545/http://www.ofcom.org.uk/static/archive/ofcom/publications/pricing/2002/pcr0602.htm>, [Ex. GS-37], Sec. 1.1 (emphasis added); and Ofcom, a successor to Ofcom, noted that its subsequent removal of these price controls was "enabled by - and reflects - *the rapid growth of competition....*" Ofcom, "Ofcom removes retail price controls on BT line rental and calls" (July 19, 2006), available at <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2006/ofcom-removes-retail-price-controls-on-bt-line-rental-and-calls>, [Ex. GS-38], p. 1 (emphasis added).

⁵¹ The FCC expressed concern that a "class of entities that, though their substantial existing holdings of below-1-GHz spectrum and potential acquisition of a significant portion of the 600 MHz Band in a particular geographic area, *could hamper competition* in the mobile wireless service market ..." and thus found it "necessary to *apply a limit* on the amount of 600 MHz spectrum that can be acquired in the forward auction" by such an entity. *In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, FCC, GN Docket No. 12-268, Report and Order (Adopted May 15, 2014; Released June 2, 2014), [Ex. GS-39], ¶ 752. The FCC has not been alone in placing limits on the amount of a newly licensed spectrum resource that can be acquired by incumbent wireless carriers. Cave and Webb observe that "The use of spectrum-aggregation limits is widespread around the world and appears to be becoming an increasing feature of spectrum auctions" They also note that "[t]he regulators' common goal has been to ensure that a sufficient number of operators have enough spectrum of the right kind *to generate effective infrastructure competition.*" M. Cave and W. Webb, *Spectrum Limits and Auction Revenue: the European Experience* (July 29, 2013), [Ex. GS-40], p. 5 (emphasis added).

51. Professor Peter Cramton provides a useful summary of the economic benefits of imposing limits on the ability of dominant firms to acquire resources that are being newly introduced into an industry through an auction: “More societal value may come from awarding a small bidder, rather than a large bidder, a spectrum lot. Yet in an auction without limits, the large bidder may nevertheless win. The reason is that the large bidder’s value is inflated by *the benefits the large bidder enjoys from reduced competition* in the wireless market in the event the small bidder fails to acquire spectrum.”⁵²

52. My purpose in recounting these actions is to illustrate the fact that regulators often face competitive concerns that are analogous to those faced by ICANN in this matter and to describe the kinds of actions that regulators have taken, and that ICANN could take, to address such concerns. In particular, it is a common practice to place limits on the amounts of resources that can be accumulated by dominant firms and, especially, to constrain their ability to acquire additional resources when new potential sources of competition are being introduced. Preventing the transfer of .web to Verisign is precisely the type of action that would promote competition among gTLDs.

IX. Summary and Conclusions

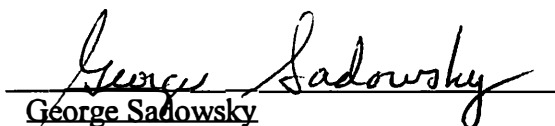
53. The New gTLD Program has led to an expansion of the domain name address space but it has had only a modest effect on Verisign’s dominance. Verisign controls two TLDs, .com and .net, that together continue to have a very large share of registrations in all gTLDs. Indeed, the U.S. government and ICANN expressly recognize and seek to control Verisign’s dominance by continuing to impose and enforce caps on the prices that Verisign can charge for

⁵² P. Cramton, *The Rationale for Spectrum Limits and Their Impact on Auction Outcomes* (September 2013), [Ex. GS-41], pp. 1-2 (emphasis added).

domain names in its .com registry. Without such controls, it is likely that Verisign would be able substantially to raise the prices that it charges for registrations in .com.

54. The evidence cited above supports the belief that a .web TLD would have a degree of attraction similar to .com and would attract a very large number of registrations. Verisign's motives in wanting to control .web are thus easy to understand. No gTLD other than .web has the potential to challenge Verisign's dominance. Control of .web by Verisign would prevent another industry participant from seriously challenging its dominance for many years to come.

55. Because one of ICANN's core values is to encourage competition in the provision of domain names, it is absolutely essential that it take actions to address Verisign's dominance. If it were to delegate .web to Verisign, ICANN would be abandoning one of the fundamental goals for which it was created and would go directly against ICANN's competition mandate.


George Sadowsky

Date: 20 March 2019

LIST OF EXHIBITS

Exhibit No.	Description
GS-1	<i>Curriculum Vitae</i>
GS-2	A. Allemann, “Verisign Releases Statement About .Web,” <i>Domain News Wire</i> (August 1, 2016), available at https://domainnamewire.com/2016/08/01/verisign-releases-statement-web/
GS-3	K. Murphy, “Verisign and Afilias in open war over \$135m .web,” <i>Domain Incite</i> (November 11, 2016), available at http://domainincite.com/21254-verisign-and-afilias-in-open-war-over-135m-web
GS-4	D. Strizhakov, “Afilias asks ICANN to investigate winning bid for .web,” <i>Trademarks & Brands Online</i> (August 16, 2016), available at https://www.trademarksandbrandsonline.com/news/afilias-asks-icann-to-investigate-winning-bid-for-web-4796
GS-5	Stimmel, Stimmel & Smith, Basic Duties of a Director in a California Non-Public Corporation, available at https://www.stimmel-law.com/en/articles/basic-duties-director-california-non-public-corporation
GS-6	Confidential Information Redacted
GS-7	U.S Department of Commerce, “Statement of Policy on the Management of Internet Names and addresses,” Docket no. 980212036-8146-2 (June 5, 1998)
GS-8	“VeriSign buys domain firm,” <i>CNNMoney</i> (March 7, 2000), available at https://money.cnn.com/2000/03/07/deals/verisign/
GS-9	P. Festa, “VeriSign Transfers Control of .org,” <i>C/Net</i> (January 2, 2003), available at https://www.cnet.com/news/home-security-drone-could-help-you-tell-possums-from-prowlers/
GS-10	A. Rowland, “10 trips for choosing the perfect domain name,” <i>GoDaddy</i> (updated November 5, 2018), available at https://www.godaddy.com/garage/10-tips-for-choosing-the-perfect-domain-name/
GS-11	D. Pinsky, “8 Smart Tips for Choosing A Winning Domain Name,” <i>Forbes</i> (April 10, 2017), available at https://www.forbes.com/sites/denispinsky/2017/04/10/domain/#3bc445774b4f
GS-12	Google Webmaster Central Blog, “Google’s handling of new top level domains” (July 21, 2015), available at https://webmasters.googleblog.com/2015/07/googles-handling-of-new-top-level.html
GS-13	CENTR, <i>CENTRstats Global TLD Report</i> (Q3 2018 – Edition 25), available at https://centr.org/statistics-centr/quarterly-reports.html
GS-14	Verisign, <i>The Domain Name Industry Brief</i> , Volume 14 - Issue 1 (February 2017)

Exhibit No.	Description
GS-15	ENTR, <i>CENTRstats Global TLD Report (Q3 2015 – Edition 13)</i> , available at https://centr.org/statistics-centr/quarterly-reports.html
GS-16	Domain Name Stat, “Domain name registration’s statistics,” available at https://domainnamestat.com/
GS-17	J. Rohlfs, “A Theory of Interdependent Demand for a Communications Service,” 5(1) <i>The Bell Journal of Economics and Management Science</i> (Spring 1974)
GS-18	H. Leibenstein, “Bandwagon, Snob, and Veblen Effects in the Theory of Consumers’ Demand,” 64 <i>The Quarterly Journal of Economics</i> (May 1950)
GS-19	Domain Names – Implementation and Specification (November 1987), available at https://tools.ietf.org/html/rfc1035
GS-20	D. Sappington and D. Weisman, “Price cap regulation: what have we learned from 25 years of experience in the telecommunications industry?,” 38 <i>Journal of Regulatory Economics</i> (2010)
GS-21	ICAN Announces Important Milestone in Making the Internet More Accessible to All (October 4, 2009), available at https://www.icann.org/news/announcement-2009-10-04-en
GS-22	ICANN, Criteria for Assessing TLD Proposals (August 15, 2000), available at https://archive.icann.org/en/tlds/tld-criteria-15aug00.htm
GS-23	New gTLD Application submitted to ICANN by Web.com Group, Inc., Application ID 1-1009-97005 (June 13, 2012)
GS-24	New gTLD Application submitted to ICANN by DotWeb, Inc., Application ID 1-956-26846 (June 27, 2014)
GS-25	New gTLD Application submitted to ICANN by Charleston Road Registry, Inc., Application ID 1-1681-58699 (June 13, 2012)
GS-26	DomainGang, “Editorial: The domain future is on the .Web” (August 1, 2016), available at http://domaingang.com/editorial/editorial-the-domain-future-is-on-the-web/
GS-27	Authentic Web, “.WEB Acquired for \$135 Million. Too much? How does it compare?,” available at https://authenticweb.com/brand-tlds-digital-strategies/dot-web-acquired-for-135-million/
GS-28	K. Murphy, “Verisign likely \$135 million winner of .web gTLD,” <i>Domain Incite</i> (August 1, 2016), available at http://domainincite.com/20820-verisign-likely-135-million-winner-of-web-gtld
GS-29	C. Negris, “How a \$135 million auction affects the domain name industry and your business” (August 10, 2016), available at https://biv.com/article/2016/08/how-135-million-auction-affects-domain-name-industry

Exhibit No.	Description
GS-30	Supremacy, “The Next Big Domain Extension,” available at https://supremacyseo.com/TWS60
GS-31	TheHostingFinders, “Inside the High Stakes Auction for .Web” (July 25, 2016), available at http://www.thehostingfinders.com/inside-the-high-stakes-auction-for-web/
GS-32	P. Klemperer, “What Really Matters in Auction Design,” 16 <i>The Journal of Economic Perspectives</i> (2002)
GS-33	Preliminary Report of Dennis Carlton Regarding Impact of New GTLDS on Consumer Welfare (March 2009), available at https://archive.icann.org/en/topics/new-gtlds/prelim-report-consumer-welfare-04mar09-en.pdf
GS-34	VeriSign, Leverage Your .Net Domain Name: DocuSign Promotional Video, available at https://www.verisign.com/en_US/domain-names/net-domain-names/net-domain/index.xhtml
GS-35	J. Farrell and C. Shapiro, “Upward Pricing Pressure in Horizontal Merger Analysis: Reply to Epstein and Rubinfeld,” 10(1) <i>The B.E. Journal of Theoretical Economics</i> (2010)
GS-36	<i>In the Matter of Special Access Rates for Price Cap Local Exchange Carriers</i> , FCC, WC Docket No. 05-25, Order and Notice of Proposed Rulemaking (Adopted January 19, 2005; Released January 31, 2005)
GS-37	Protecting consumers by promoting competition: Oftel’s conclusions (June 20, 2002), Statement issued by the Director General of Telecommunications, available at https://webarchive.nationalarchives.gov.uk/20140702142545/http://www.ofcom.org.uk/static/archive/oftel/publications/pricing/2002/pcr0602.htm
GS-38	Ofcom, “Ofcom removes retail price controls on BT line rental and calls” (July 19, 2006), available at https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2006/ofcom-removes-retail-price-controls-on-bt-line-rental-and-calls
GS-39	<i>In the Matter of Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions</i> , FCC, GN Docket No. 12-268, Report and Order (Adopted May 15, 2014; Released June 2, 2014)
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