Rapid Growth in Top Level Domains in the Domain Name System

SEM5720 - Assignment 1

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1 Introduction

In recent years, the number of Top-Level Domain (TLD) in the Domain Name System (DNS) has been increasing. This is, in part, due to the introduction of Internet Corporation for Assigned Names and Numbers (ICANN), the aim of which was to promote competition in the registration of domain names.

Before the creation of ICANN in 1998 there were a total of eight generic Top-Level Domain (gTLD); TLDs which are not specific to a country or the infrastructure of DNS. These eight were intended to have specific uses (`com` for commercial entities, `gov` for government organisations, etc.) but since then a proportion of these have become truly generic.

In 2000 and 2004 ICANN successfully applied for and instated fifteen new gTLDs and have since gone on to create a program which reviews all applications for new gTLDs[1].

2 Expansion of TLDs

At time of writing there are a total of 364 TLDs, of which 295 are country-code Top-Level Domains (ccTLDs), 42 gTLDs (three of which are restricted use), 15 sponsored TLDs, 11 used for testing and 1 (`.arpa`) dedicated to the infrastructure for DNS[2].

There are two factors which have spurred the growth of TLDs:

1. Introduction of new gTLDs by ICANN
2. Support for non-Latin characters in the DNS, allowing for Internationalized Top-Level Domains (ITLDs)

Until October 2009[3] TLDs could only consist of US-ASCII (or "Latin") characters. This changed with the approval of the "IDN ccTLD Fast Track Process"[4], which allows countries to apply for Internationalized Domain Name (IDN) ccTLDs which represents their specific country (or territory) name in non-Latin script enabling users to access domain names in their own language.

In more recent years, 2011 to be specific, IDNs have also been approved for use in gTLDs, allowing for a greater degree of freedom in international users.

In hand with this there has been a fair increase in the number of gTLDs before 2010 there were only 22 gTLDs available. On 12 January 2012, applications for new gTLDs opened and since then a total of 20 new gTLDs have been added, including several IDNs.

Even so, this is a drop in the ocean compared to the 1,930 applications ICANN received and it is anticipated that the number of gTLDs will increase further in coming years.

3 Non-technical Support of the Expansion of TLDs

There is much support in favour of the expansion of TLDs, much of which is non-technical, especially in marketing and branding. The ability to have self-descriptive domain names is obviously appealing to businesses, especially those with well known trademarks.

Berneke[5] gives ten reasons as to why gTLDs are important to businesses, explaining the notable factors such as the ability to have self-descriptive domains which clearly identify the area of a business.

There is the counter argument that TLDs are becoming obsolete[6], tools like search engines and increasingly "intelligent" web browsers are reducing the need for domain names. Though this is obviously true, there is still a need for a human-readable name to access websites; the

machine-readable IP addresses are not memorable, or short, enough to easily distribute. Domain names also play a significant part in Search Engine Optimisation (SEO), although according to Google experts, the new gTLDs will not have any kind of preference over existing TLDs[7].

Another important factor Berneke details the ability to target a international demographic through the new non-Latin IDNs.

4 Technical Issues in the Expansion of TLDs

References

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[3] (2013) Internationalized Domain Names. ICANN. Accessed 19/12/2013.

[4] *Final Implementation Plan for IDN ccTLD Fast Track Process*, ICANN, 5 Nov. 2012.

[5] L. Berneke. (2013, Feb.) 10 Reasons Why the New Internet Extensions (new gTLDs) Are Important.

[6] B. Leiba, "The Good and the Bad of Top-Level Domains," *Internet Computing, IEEE*, vol. 13, pp. 66–69, 9 Jan. 2009.

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