The .nlyst

ICANN

In the third week of March, San Francisco will be the centre of attention for the global internet community. Roughly fifteen hundred people from all over the world will be gathering for a five-day meeting. Governments, ISPs and registries will all be represented. As will the music industry, multinationals and various lobby and special-interest groups. Speakers scheduled to appear include no less a figure than Bill Clinton. The event that is to bring all these people together is the fortieth meeting of ICANN, the Internet Corporation for Assigned Names and Numbers. So it is pertinent to ask: what does this organisation do that is so important to the internet community?

ICANN's responsibilities

Anyone who wants to visit a website or send an e-mail has to use an internet address. That may be a name (a URL), or a number (an IP address). ICANN has an important role in the coordination of these unique names and numbers. It is ICANN, for example, that assigns the IPv4 and IPv6 addresses that are used around the world. The organisation is also responsible for the root zone and for coordination of the DNS. In addition, ICANN plays a part in defining the policy and the management of gTLDs and where necessary also for ccTLDs. Furthermore ICANN stimulates competition and a strong role of the market for gTLDs as they are part of ICANN's core values. The technical aspects of IP address assignment and DNS management are handled by IANA: the Internet Assigned Numbers Authority, which was actually ICANN's predecessor. IANA also manages the root zone's DNS data, which is published on the thirteen globally dispersed anycast servers that support the system. Although the root zone file is a mere 200kB, the internet could not function without the information it contains. ICANN does not actually operate the individual servers itself; they are controlled by a number of other organisations, including AMSIX in Amsterdam.

Important debate

Management of the DNS data in the root zone is not an intensive activity. Modifications are only made from time to time, so DNS servers don't have to check the zone file for changes very frequently. Why, then, do ICANN meetings attract so much attention? The answer is that other subjects are debated, which are very important to the global internet community. At the fortieth meeting, for example, decisions are expected on the creation of additional generic top-level domains and on the conditions that will apply to their creation. ⇢

The abbreviation ccTLD stands for 'country code top-level domain'. A ccTLD is a TLD associated with a country or region, such as .nl, .it or .eu. The registries for the ccTLDs are answerable to their local internet communities and/or their governments. ICANN has relatively little involvement in the ccTLDs' activities.

The letters gTLD mean 'generic top-level domain' – a TLD for a general category of domains. Familiar gTLDs include .com, .org and .biz. The policies that apply to the gTLDs are defined by the ICANN community. ICANN therefore has a major say in the way these TLDs work.

SIDN

Foreword

2011 is a special year for SIDN. On 25 April, .nl will be exactly 25 years old. It was one of the very first top-level domains whose control was delegated to an organisation outside the USA. In the quarter-century since, the Dutch top-level domain has developed into one of the largest and safest country-code domains in the world. It isn't just the domain that is celebrating a jubilee. On 31 January, it was fifteen years since SIDN was founded and took on responsibility for the administration of .nl. One of the ways in which we are marking .nl's silver jubilee is with the website www.de25jaarvan.nl, where people can share their personal memories of .nl and the development of the internet in the Netherlands. The best anecdotes will be published in a special jubilee magazine that will be introduced in May.

The internet is the largest and most successful global collaborative project in human history. It is collaboration that has given the internet its characteristic structure. And, when it comes to the structure of the internet, one of the main actors is ICANN. ICANN is responsible for worldwide coordination and policy on various technical aspects of the internet, such as the DNS and IP addresses. Many people perhaps don't appreciate just how influential ICANN is, so we felt it worthwhile considering the organisation's role in some detail. Ever since ICANN was set up in 1998, SIDN has invested in (the collaboration with) ICANN. What's more, SIDN staff can always be found at ICANN meetings. In addition to giving us an opportunity to have a say in ICANN global policy, the meetings enable us to collaborate globally and to exchange knowledge and experiences with other parties. We have a great deal of expertise that we happily share with our fellow registries and can learn from their knowledge and expertise too.

Roelof Meijer

CEO, SIDN

⊕ What are the security implications of having more gTLDs? What should be done to protect brand and trademark owners? Could any of the new gTLDs extensions be confusing for internet users? Who will decide any disputes that might arise?

Questions such as these have been debated for years. And considerable controversy surrounds a number of these topics, including DNS CERT, the DNS Community Emergency Response Team. This is an ICANN program that is supposed to enhance the security of the DNS … a program regarding which it has so far proved impossible to find consensus. Is the security problem CERT is supposed to address as serious as ICANN say? If so, is CERT the best solution, or would it be better to leave everything to the registries? And is ICANN really the right organisation to set up a program like CERT, anyway? The technical dimensions of such debates are, of course, over the heads of most outsiders. Nevertheless, what ICANN decides will affect the way we use the internet for years to come.

History

ARPANET, the predecessor of the current internet, was created in America during the 1960s. Although the internet rapidly expanded into a global phenomenon in the decades that followed, much of the coordination remained US-based. That situation changed in 1998, however, when the Clinton administration set up an independent organisation, ICANN. Since coming into being, ICANN has made a number of important modifications to the internet. It has introduced IDN, for example, making it possible for non-western characters to be used in URLs.

It has also opened the way for various new gTLDs, such as .info and .cat. The intention was that ICANN should represent the global internet community, and should be free of government interference. Nevertheless, the US government does formally retain a degree of control through its Ministry of Trade, which has a supervisory role and the right to veto ICANN decisions. In practice, the ministry veto has never been used, but the American authorities do occasionally flex

their muscles. In 2005, for example, ICANN ruled out creation of a new .xxx TLD for pornography sites, apparently under pressure from the Bush administration.
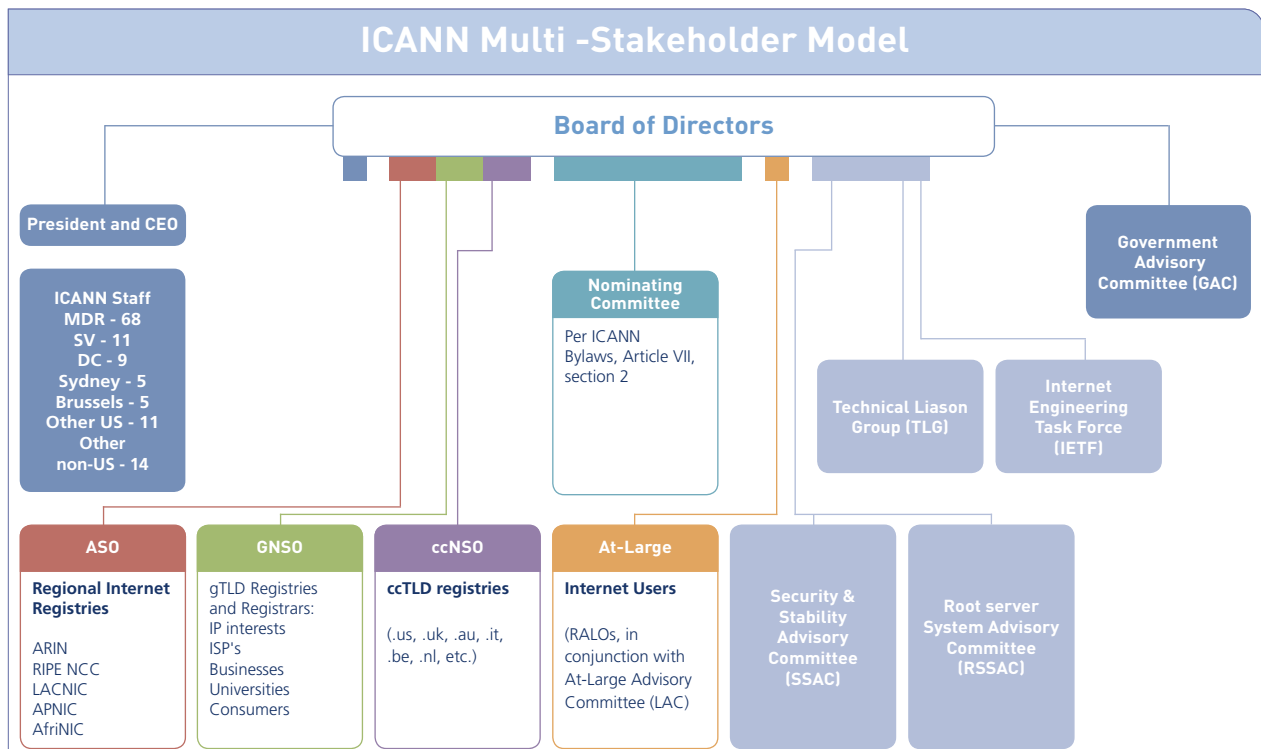
The incident provided opponents of the existing organisational structure with evidence to support the case for bringing ICANN under international supervision.

A unique organisation

The internet is an extremely international entity. Therefore, in order to give everyone a voice, ICANN is structured according to a multi-stakeholder model. Decisions are made by the Board of Directors on the basis of consensus. The Board members are appointed by an independent committee and various so-called 'ICANN groups'. No government has a seat on the Board, but governments are entitled to advise the Board via the Governmental Advisory Committee (GAC). The business community and registrars, plus any interest groups and individuals who wish to exert influence on the Board's decision-making, are able to do so via ICANN's various groups. These groups have a say in the election of Board members, and can also get items placed on the Board's agenda. ICANN's decision-making is therefore a bottom-up process, insofar as issues are raised by the internet community's grass roots. First, agreement has to be reached about a problem, then about a possible solution and finally about the action to be undertaken.

The ICANN groups

Each of the various ICANN groups represents a particular set of stakeholders and has a particular field of interest. So, for example, there is the ccNSO – the Country Code Names Supporting Organization – which brings together the different registries and ccTLD stakeholders. The ccNSO is a forum for the debate of issues such as whether there should be fixed procedures for creating or doing away with ccTLDs. That is an important matter for the Netherlands Antilles, for example. In October 2010, the Antilles became three autonomous countries, each of which is entitled to have its own top-level domain. Dutch influence in the ccNSO will increase because off the election of SIDN CEO Roelof Meijer to the ccNSO Council. Another ICANN body is the GNSO, the Generic Names Supporting Organization, which represents the stakeholders of the gTLDs. Because ICANN has a great deal of influence over the gTLDs, this organisation is very important for the registries and registrars associated with these top-level domains. The gTLDs' policies have to be approved by ICANN, which also decides who is allowed to act as a registrar, selling generic domain names. Finally, there is the ASO (the Address Supporting Organization), which is concerned with IP addresses, and At-Large, a body whose task is to look after the interests of individual internet users. ICANN additionally has various advisory committees, of which the above-mentioned GAC is the most important.

ICANN Multi-Stakeholder Model

Board of Directors

President and CEO

ICANN Staff
MDR - 68
SV - 11
DC - 9
Sydney - 5
Brussels - 5
Other US - 11
Other non-US - 14

Nominating Committee
Per ICANN Bylaws, Article VII, section 2

Government Advisory Committee (GAC)

Technical Liason Group (TLG)

Internet Engineering Task Force (IETF)

ASO	GNSO	ccNSO	At-Large	Security & Stability Advisory Committee (SSAC)	Root server System Advisory Committee (RSSAC)
Regional Internet Registries ARIN RIPE NCC LACNIC APNIC AfriNIC	gTLD Registries and Registrars: IP interests ISP's Businesses Universities Consumers	ccTLD registries (.us, .uk, .au, .it, .be, .nl, etc.)	**Internet Users** (RALOs, in conjunction with At-Large Advisory Committee (LAC)		

How the DNS works

On the internet, computers recognise each other using identification numbers, known as IP addresses. Each IP address is unique to a particular internet-connected machine. What the DNS does is associate IP addresses with URLs. That means that you can type www.sidn.nl into your browser when you want to visit SIDN's website, instead of having to remember the address 213.136.31.216. It also means that domain names aren't tied to particular computers. So it's quick and easy to move a website to another machine, for instance.

Slow decision-making

One drawback of ICANN's organisational structure and procedures is that decision-making tends to be slow and involved. Certainly where complex issues are concerned. Sometimes, the different stakeholders' interests are in direct opposition. As a result, getting everyone to agree on something can take a long time. For example, debate about how much registrant data gTLDs should make public has been ongoing for years. Privacy and human rights campaigners want the amount of information about registrants that can be obtained from a Whois kept to the absolute minimum. Large companies, which want to be able to act quickly if they think their trademark rights have been infringed, want access to as much information as possible. Consensus remains elusive after years of talks, prompting some people to ask whether it will ever be achieved.

SIDN and ICANN

For SIDN, ICANN is an important partner. Naturally, SIDN has a presence at all ICANN meetings. The gatherings give the Dutch registry not only an opportunity to influence global internet policy, but also to network and to exchange knowledge. The value of having good international contacts was illustrated by the response to the Conficker virus. When worries about the virus arose in 2008 and 2009, people from different registries who knew each other personally were able to get in touch and decide what to do, quickly and efficiently.

The knowledge that SIDN acquires at ICANN meetings is shared with other interested parties. SIDN gives pointers to registrars that want to attend ICANN meetings, for example. It also organises closed pre-ICANN meetings for registrars and others, such as policy-makers at government ministries.

The future

ICANN started as a unique experiment. In the thirteen years since it was founded, the organisation has more than demonstrated its worth. And the years ahead promise to be eventful. On the one hand, the US authorities are increasingly distancing themselves from ICANN; on the other, governments around the world are looking to exercise more influence over the internet. Meanwhile, mobile apps, QR codes and the like are changing the way we interact with the internet. SIDN intends to remain abreast of all ICANN-related developments and is committed to playing its part in ensuring that the internet is secure, stable and open.

The root zone

Every domain name has two parts, one before the dot and one after it. The part after the dot is the top-level domain, such as .nl, .de, .com or .org. In fact, there is another dot after the top-level domain. However, the final dot – which represents the root zone – is invisible to users. The root zone file is a sort of address book listing all top-level domains. Each TLD registry then has its own address book, in which all the names within its domain are associated with IP addresses.

1 ∞	2 abc	3 def	*
4 ghi	5 jkl	6 mno	0
7 pqrs	8 tuv	9 wxyz	#
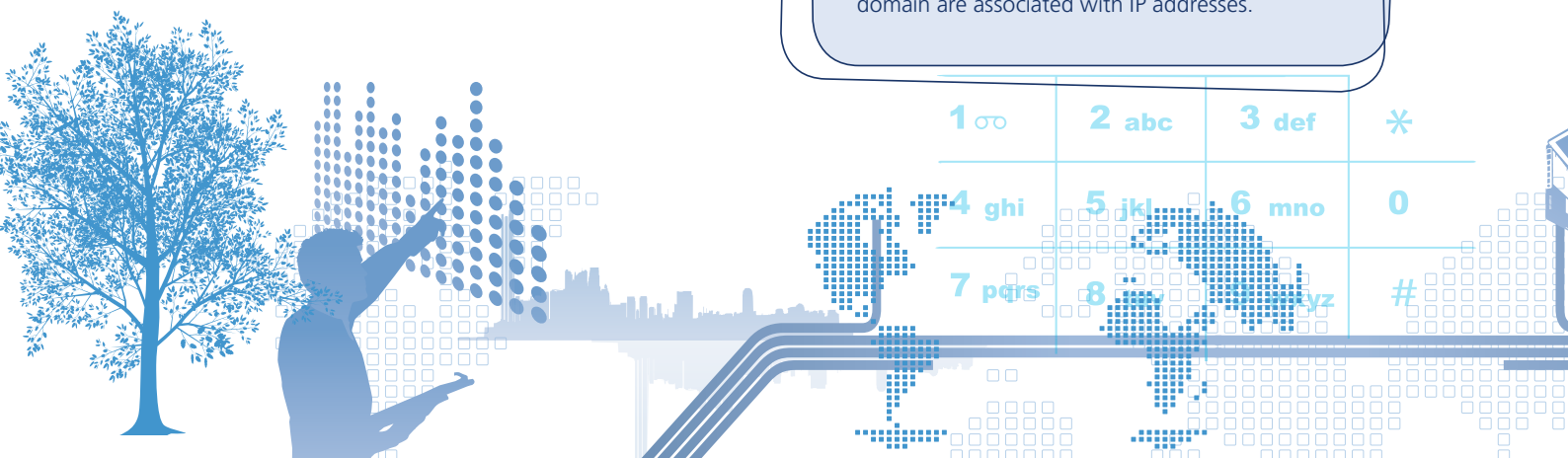
.NL Analysed

.NL Analysed features facts and figures that shed light on national and international developments involving the .nl domain and the world in which we operate. Different topics will be covered in each edition. If there is anything that you feel we should focus on in .nl Analysed, please send your suggestions to communicatie@sidn.nl.

TLD top 25 ranking

	TLD		Count Q4*	Growth	
1	.com	Generic	91.520.197	1,7%	=
2	.de	Germany	14.038.327	1,4%	=
3	.net	Generic	13.563.109	1,5%	=
4	.uk	United Kingdom	9.005.676	2,3%	=
5	.org	Generic	8.765.919	2,2%	=
6	.info	Generic	7.270.845	5,5%	=
7	.cn	China	4.349.524	-28,1%	=
8	.nl	Netherlands	4.192.454	3,4%	=
9	.eu	European Union	3.332.222	2,7%	=
10	.ru	Russia	3.128.660	3,9%	=
11	.br	Brasil	2.319.188	3,5%	=
12	.ar	Argentina	2.223.783	2,0%	=
13	.it	Italy	2.052.258	4,1%	↑

	TLD		Count Q4	Growth	
14	.biz	Generic	2.048.671	0,1%	↓
15	.pl	Poland	1.993.944	3,2%	=
16	.au	Australia	1.940.881	4,8%	=
17	.fr	France	1.898.302	3,7%	=
18	.us	United States	1.610.864	1,1%	=
19	.ca	Canada	1.577.727	6,9%	↑
20	.ch	Switzerland	1.524.488	2,5%	↓
21	.es	Spain	1.266.733	2,3%	=
22	.jp	Japan	1.198.105	1,0%	=
23	.be	Belgium	1.101.668	2,9%	↑
24	.dk	Denmark	1.095.384	1,4%	=
25	.kr	Korea	1.076.367	-1,5%	↓
	*By December 31, 2010				

Where the top ten were concerned, there was again no change in the final quarter of 2010. In the quarter ahead, however, the fourth biggest ccTLD, .cn, may be overtaken by .nl. China's national domain has been contracting for a while, and there are no signs of the tide turning just yet. It was a good quarter for Italy, which moved up to thirteenth in the table, displacing .biz. The .biz domain has seen zero growth for several years, and looks likely to be surpassed by Poland, Australia and France before too long. The Canadian and Belgian TLDs also had good quarters, rising one and two places, respectively. By contrast, the number of domains registered within South Korea's TLD has been falling. The Asian TLD's lead over the national domain in twenty-sixth place (Sweden's .se) is now less than 20,000.

Zone profiling

With the help of one of our specialist service providers, the .nl zone is automatically analysed on a quarterly basis. The aim is to provide a detailed picture of the zone's makeup. Some of the findings are briefly described below. (By Q4 2010).

Where are .nl domain names hosted?
In a market that is as strongly national as the .nl domain name market, it's not surprising to find that the vast majority of domain names are hosted here in the Netherlands. This is partly down to the strength and competitiveness of the Dutch hosting service market. The other countries with significant concentrations of .nl domain names are also countries with robust hosting service markets, such as Germany and the USA.

Legend	Country	% of hosted .nl domains
	The Netherlands	83,6%
	Other	16,5%

	Germany	35,4%
	United States	17,2%
	Denmark	11,2%
	Canada	9,5%
	Norway	7,4%
	Belgium	4,8%
	United Kingdom	4,1%
	France	2,1%
	Luxembourg	2,0%
	Other (<2%)	6,4%

Overall

Hosted outside the Netherlands
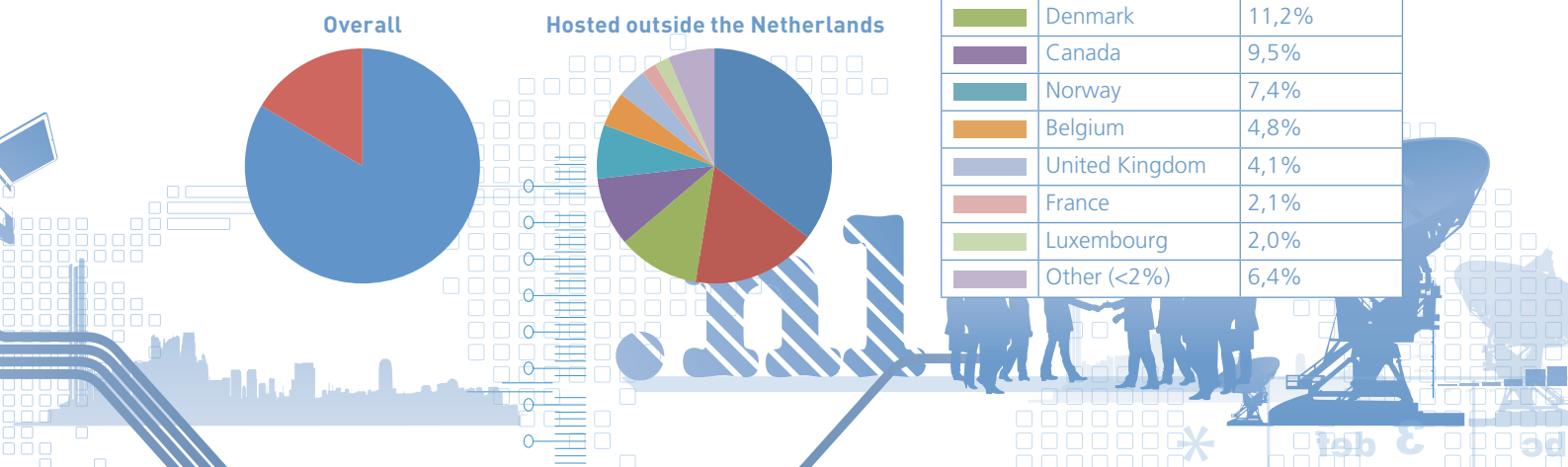
Origin of .nl registrants

About 96% of all .nl domain names have registrants living or based in the Netherlands. The other 4% of registrants are distributed across 174 countries. Our neighbours Belgium and Germany are both well represented, each accounting for roughly 18% of non-Dutch registrants. Many of the other non-Dutch registrants are people and companies in tax havens, together responsible for about 20% of our international registrations. Another offshore hotspot is formed by what used to be the Dutch Antilles. However, the registrants of .nl domain names really are to be found in almost every corner of the world. Greenland, various Pacific Islands, South Africa and Chile are just some of the countries that our registrants call home. What's more, the number of non-Dutch registrants in the .nl zone is rising – a clear sign that easing of the rules on international registrations is bearing fruit.

Overall

The Netherlands 96,4%
Non-Dutch 3,6%

Non-Dutch

| Legend	Country	%
	Germany	18,6%
	Belgium	17,9%
	United States	13,0%
	United Kingdom	7,9%
	Panama	5,5%
	France	4,9%
	Luxembourg	3,9%
	Saint Kitts and Nevis	3,9%
	Bermuda	3,4%
	Switzerland	2,0%
	Other (<2%)	19,4%
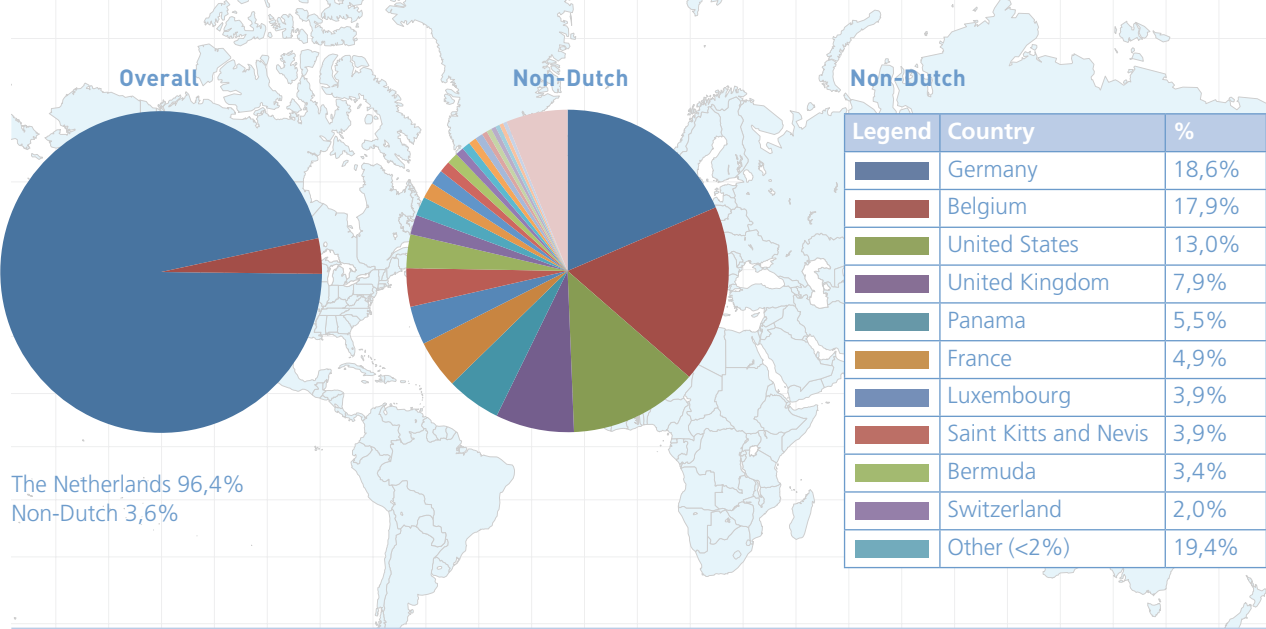
Regional distribution of hosts within the Netherlands

Within the Netherlands, there is a clear correlation between the strength of a region's economy and the number of domain names hosted there. Local internet hubs, such as AMS-IX in Amsterdam, also act as catalysts for hosting activity.
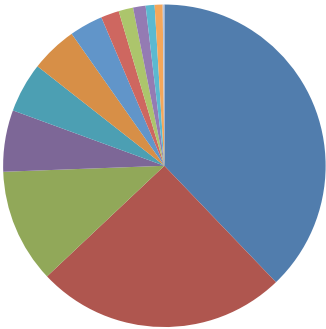
| Legend	Province	%
	Noord-Holland	37,8%
	Zuid-Holland	25,1%
	Noord-Brabant	11,4%
	Gelderland	6,2%
	Utrecht	5,0%
	Overijssel	4,7%
	Groningen	3,4%
	Zeeland	1,8%
	Flevoland	1,5%
	Friesland	1,3%
	Limburg	0,9%
	Drenthe	0,8%
	Unknown	0,2%

A detailed analysis of the .nl zone

In order to shed light on the make-up of the .nl domain, a survey of the content linked to .nl domain names has been carried out. Six content categories were defined:

1. No content: the domain name is not linked to any visible content.
2. Quality content: the domain name is linked to high-grade content, such as a webshop, weblog or corporate website.
3. Unreachable: the domain is unreachable; no host is configured or an http error is returned.
4. Redirect: the domain name simply points to another domain name.
5. Content unclassifiable: the domain name is linked to a website whose content cannot be classified automatically.
6. Parked: the domain name is parked and linked either to pay-per-click or other advertising or to a page with a standard message, such as 'This domain name has been registered by a client of [registrar]'.

Differences can be observed between the domain name portfolios of the 25 largest registrars for .nl and the overall picture. The top 25 registrars have a strikingly high number of parked domain names. Recently registered domain names (i.e. registered in the last six months) are more likely than 'older' names to have no linked content; this trend is particularly apparent where domains registered through large registrars are concerned. The explanation probably has a lot to do with the declining cost and increasing ease of registering a domain name: there is less incentive to 'do something' with a name that you paid very little to acquire.

The higher proportion of domain names with linked content in smaller registrars' portfolios probably reflects the nature of the registrars' core businesses; web designers, for example, will tend to register names for the sites they build. In this context, it is pertinent to ask to what extent a high percentage of quality content is to be expected in association with recently registered domain names in a mature TLD. It should be pointed out that the analysis was fairly limited in its scope. For example, it is not possible to tell whether a domain name is being used exclusively for e-mail. Nor is it possible to say how long a domain name remains free of content.

Top 25

3,6%
7,4%
8,7%
22,5%
16,6%
41,2%

All registrars

5,2%
12,6%
8,4%
10,3%
20,1%
43,3%
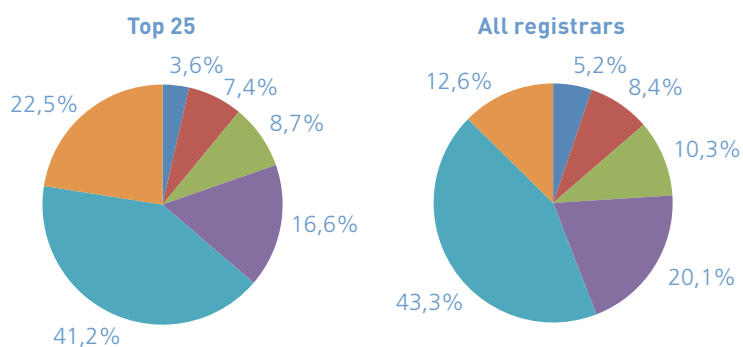
Legend	
	No content
	Quality content
	Unreachable
	Redirect
	Content unclassifiable
	Parked

Hosts types of .nl domain names?

Host-level analysis reveals that almost all .nl domain names are reachable both via the web and by e-mail. Only a few are completely invisible on the internet on account of having an unreachable host. The percentage of unreachable domains within .nl is consistent with comparable TLDs. The number of such domains is also steady in relation to the overall size of the TLD. However, the proportion of unreachable domains hosted by relatively small registrars – those outside the top one hundred – is increasing.

Legend	Type	% of domains
	Web & e-mail	86%
	No host	6%
	Web only	8%
	E-mail only	0%

Host type
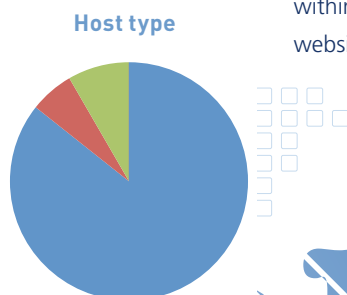
Redirects

About 20% of all .nl domain names simply point to other domain names. The breakdown of these 'redirects' is fairly predictable. Nearly three quarters are to other .nl domains. In many cases, the .nl redirects are to a page hosted by an ISP, such as home.(isp).nl or members.(isp).nl. By contrast, redirects to domains within .com usually involve corporate websites.

TLD	%
.nl	72,0%
.com	20,9%
.eu	1,6%
.net	1,2%
.de	0,6%
.be	0,6%
.org	0,5%
.nu	0,5%
.uk	0,4%
.info	0,3%
.tv	0,1%
Other	1,2%

Did you know...?

At the moment there are about 4.2 million registered .nl domain names. That's a large number, of course. But it's a very tiny fraction of the theoretical maximum. The total number of different domain names that could be devised under the existing rules is no less than: 592,802,695,348,959 ,000,000,000,000,000,000,000,000,000,000,000,00 0,000,000,000,000,000,000,000,000,000,000,000,0 00,000,000. (To save you counting: that's 99 digits!) So the .nl domain names that we have now represent about 0.0000 00000000000000000000000000000000000000000000 00000001% of the number that we could in theory have.

Suggestions

If there is a topic that you think we should be covering in The.nlyst, please send your suggestions to: communicatie@sidn.nl.

Event calender

SIDN frequently sends representatives to national and international congresses. We undertake these activities in our capacity as the registry for the .nl domain and the Dutch ENUM zone. In doing so, we seek to represent the Dutch internet community and our registrars. In addition, we ourselves organize regular gatherings for our registrars.

In the coming months, SIDN is represented at the following conferences:

Date	Event	Place
13-03 to 18-03	40th ICANN Meeting	San Francisco, USA
27-03 to 01-04	80th IETF	Czech Republic
28-04 to 29-04	5th CENTR Marketing Workshop	Helsinki, Finland
02-05 to 06-05	RIPE 62 Meeting	Amsterdam, The Netherlands
19-05	SIDN Contact Day	Utrecht, The Netherlands
23-05 to 24-05	3rd Joint R&D Workshop	Amsterdam, The Netherlands

The .nlyst

In the next issue:

→ the IP address problem

→ inaccessibility of .nl domain names

→ developments in the top 25 TLD's

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