Who rules the internet? Understanding ICANN

ICANN (the Internet Corporation of Assigned Names and Numbers) is the organisation that oversees the system of internet addresses. It is a non-profit membership organisation established in 1998 and based in the United States.

Why ICANN is important now: internet governance and WSIS

'Internet governance' was a subject of heated debate at the World Summit on the Information Society (WSIS) in Geneva in 2003. Some groups fear that the internet is controlled by commercial interests instead of being a global resource that is equally available to all; on the other hand, others fear that calls for reform of internet governance mask a desire on the part of some governments to control content and limit freedom of expression on the internet. ICANN is one of the most important actors in the present internet governance system, and was at the heart of much of the debate.

The 2003 Summit agreed that governance is important but did not agree on a new governance system, and so the UN Secretary General established a Working Group on Internet Governance. This Working Group is due to make recommendations to the second stage of WSIS in Tunis in November 2005. These will include recommendations on the future role of ICANN.

Why does the internet need Governance?

The internet is a global resource that anyone can use, but its growth would not be helped by leaving it as a complete free-for-all. Currently the internet has no single governance system – because it is so new and has been developed largely by the private sector. Different aspects are managed by a number of different organisations.

There are different ideas of what 'internet governance' should consist of. (The first task of the Working Group was to develop a definition of internet governance.) Among the areas in which the internet needs, or might benefit from, management, are:

- allocating addresses, and organising them into groups like .com, .org, and country groups such as .ug, .uk
- technical and engineering issues, to ensure smooth functioning of the system and compatibility of different elements
- managing spam, viruses and fraud in order to maintain users' confidence and meet expectations.

The basic question being debated is whether governments should have a larger role in governance of the internet – in which case internet governance would need to be brought under an intergovernmental body, probably within the UN system. Opponents of this view believe that the present system, in which the private sector and civil society have a greater role, can work well and does not need such radical change. They fear that if governments were given more power over the internet, they would use this to constrain its dynamic growth and limit users' freedom.

Opinions also differ strongly on whether the internet governance system should address the question of controlling undesirable content – pornography, hate-content, crime – or whether this is covered adequately by existing legislation in each country.

The functions of ICANN

When you type an address and open a web page, you don't have to pause to think about what makes this possible. The easy-to-use two- or three-part address (eg panos.org.uk) is part of a system overseen by ICANN and developed by ICANN's precursors.

ICANN is responsible for oversight of:

- the Domain Name System
- Internet Protocol addresses
- the Root Server system

Easy addresses – the Domain Name System

The most visible of ICANN's responsibilities is to oversee the internet address system. Web addresses contain an abbreviation such as .org, .com, .co or gov. This section in a web address is called the generic Top Level Domain name (gTLD). Another section of many addresses is a country code Top Level Domain name (ccTLD). All countries in the world have a two-letter ccTLD, such as .ug (Uganda), .za (South Africa).

generic Top Level Domain name (gTLD)

Address: http://www.panos.org.uk/

country code Top Level Domain name (ccTLD)

The original internet address system used Internet Protocol (IP) numbers: every website has a unique identifying number by which the system recognises it and routes information to it. But by 1984 there were so many addresses the system was becoming difficult to use, so the Domain Names System was introduced, replacing numbers with words and organising them into the generic 'Domains'. Country domains were introduced in 1985. Every name has to be registered in a central system so that it corresponds with an Internet Protocol (IP) number which is what the system actually uses for sending packets of information.

At first domain names were managed by Network Solutions, a monopoly company authorised to do this by the US government. Network Solutions registered the popular web domains .com, .net and .org. In 1989 the US Department of Commerce agreed a contract with the Department of Post and Telecommunications' Information Science Institute (ISI) at the University of Southern California, establishing the Internet Assigned Numbers Authority (IANA). Then ICANN was established in 1998, to take over the functions of both Network Solutions and the IANA, under contract with the US Department of Commerce. The aim was to privatise, internationalise and introduce competition into the Domain Names System. Now a number of different private companies are involved in allocating names and running parts of the root server system, operating under the umbrella of ICANN.

ICANN controls, governs and resolves disputes relating to the Domain Name System (DNS), but new Top Level Domain names have to be approved by the US Department of Commerce, according to the terms of ICANN's contract. Seven new generic Top Level Domain names (gTLD) have been approved recently: .info, .biz, .name, .pro, .aero, .coop, and .museum.

Who manages which domains?

Name	Company operating it	Target group
.biz	NeuLevel, Inc.	Restricted to business
.com	VeriSign Global Registry Services	Business
.info	Afilias Limited	An unrestricted domain for websites containing information about you, your organisation, your products or any other information you'd like to make available to a global audience.
.name	Global Name Registry	Reserved for individuals
.net	VeriSign Global Registry Services	Intended for and still commonly used by Internet service providers, but also used by many types of organisations and individuals globally
.org	Public Interest Registry	This name was divested from VeriSign in 2002, as part of ICANN's mission to introduce competition. Unrestricted, but intended to serve the non-commercial community.
.pro	RegistryPro	Restricted to certified professionals and related entities

Who manages the domain names in your country?
To find out, visit: **www.internic.net/origin.html**

Who should own the .info domain?

.info is one of the seven new generic Top Level Domains (gTLDs) that were recently approved by ICANN. Many countryname.info addresses are currently owned by private parties, as are countryname.com names. Market liberals argue that all gTLDs should be available to commercial users. Some governments, on the other hand, argue that .info addresses should be left to them, for use for tourism, cultural promotion and general awareness purposes.

See the difference for yourself by visiting www.southafrica.info and www.india.info. The first is owned by the South African government and offers accessible information about the country. The latter is owned by a honey products company called In Dia.

Should countries own their own country code names?

Like generic names, country code domain names are registered and managed (that is, they are owned) by different types of organisation, including some private companies and individuals.

Now that the internet is becoming such a dominant form of accessing information, some governments wish to have control over their country domain. They see the country code Top Level Domain (ccTLD) as something like a national flag, or in the same way as most countries until recently maintained their own airline – something which carries status and over which the country/government should have sovereign rights and control.

The system of country domains was developed to deal with a technical matter – the need to ensure communication between different countries. The Internet Assigned Names Authority (IANA) assigned the right to administer a country code Top Level Domain name to the first technically competent person from a country to come forward, and when ICANN was established it took over the same system. Some country-level managers or registrars are private companies, some are within governments, some are even individuals. ICANN does not control how the ccTLD managers work, or how much they charge.

At first, when few governments took much interest in the development of the internet, this system was accepted. But now that some nationalist feeling has developed around domain names, many people feel that a more formal and transparent system should be introduced which would allow governments to manage the domain themselves, or if for various reasons they do not have the capacity to do this, to select and manage appropriate organisations within the country to do it on their behalf. There is a system under ICANN rules for moving responsibility for the ccTLD from one organisation to another within a country but the process can be slow and frustrating.

What happens if the private ccTLD manager collapses, as happened in Ukraine in 2001? Should the government intervene and take over the ccTLD? Governments themselves may not be the best organisations to manage the country domain name effectively. In Cambodia, for example, the service became less efficient and more expensive when the government took over the task from an NGO. In Brazil, on the other hand, the government controls the operation of the ccTLD .br as a multistakeholder consortium for the common good.

Who owns the name southafrica.com?

The South African Sunday Times has launched a petition in support of the South African government's attempt to recover the domain name southafrica.com from the current registrant, Virtual Countries Inc., a private company based in Seattle.

South Africa's Director General of Communications Andile Ngcaba said that Virtual Countries, led by US lawyer Greg Paley, had registered the name and demanded between $5 and 10 million for it.

Virtual Countries has been the subject of some controversy in recent times as it controls more than 30 Internet domain names named after countries, including the .com domain names for Belgium, Russia, Scotland, Sweden, Turkey and Ukraine. At one time it also held the .com names for Korea, Switzerland and New Zealand. The latter domain was sold to the government of New Zealand for a reported $1million after that country's abortive attempt to challenge the registration under the Uniform Domain Name Dispute Resolution Policy. The debate continues.

Who owns your country's domain name?
To find out, visit: **www.iana.org/cctld/cctld-whois.htm**

Challenging the dominance of English

Generic Domain Names are based on English words (.com, .org, etc) and only function using English characters, which limits their ease of use by non-English speakers. Technical standards are now in place for the deployment of Internationalised Domain Names (IDNs) – which would allow a user to type the name in his/her own language script – but it will be a huge challenge to mobilise the resources and collaboration by different organisations needed to turn the possibility into reality.

VeriSign – one of the Domain Name Registrars – says that around 350 languages can now be registered in their scripts. However, this needs a lot of structural changes. It involves acceptance of common language platforms (hardware), common keyboards, and involves not only countries where populations speak the same language but making international software and hardware producers accept these standards in their business products. For example, countries with Tamil speaking populations have joined together and accepted a common keyboard practice, but Microsoft Windows has not yet accepted it and uses a different Tamil keyboard.
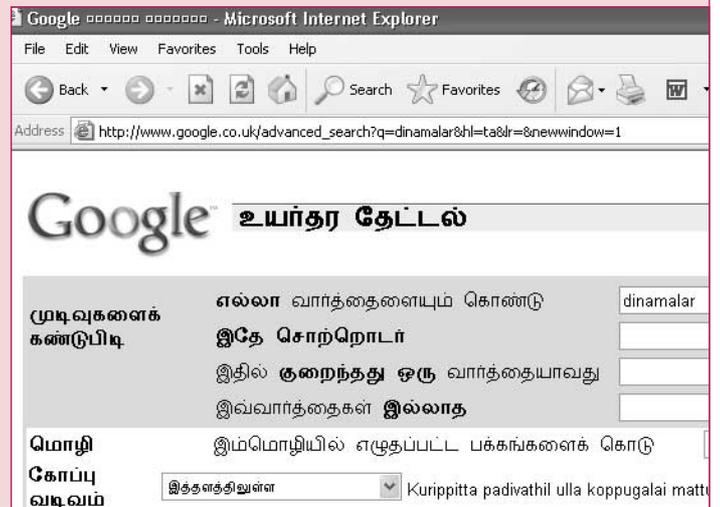
Every year 5,000 people gather at the world's largest computer convention in Hamar, Norway.

Who runs ICANN?

ICANN's structure has been revised several times since its establishment, and the present structure is still in the process of being introduced. ICANN aims to represent the Internet community through three Supporting Organisations made up of different stakeholder organisations (who join voluntarily) – the Address Supporting Organisation (formed from the Regional Internet Registries), the Generic Names Supporting Organisation, and the Country Code Name Supporting Organisation (created in March 2004). Each of these selects two members to the 15-member ICANN Board, and advises on policy in its area of interest. The remaining eight Board members are nominated by a Nominating Committee. There are also a number of user and technical committees, including an 'At-large' advisory committee (established in 2003) to represent the interests of individual internet users. These committees each select one non-voting liaison Board member. Each of five regions – Europe, Asia and Pacific, Latin America and the Caribbean, Africa and North America – has to be represented in ICANN's decision-making bodies.

ICANN is criticised for being dominated by business interests (there is little provision for civil society representation in the three Supporting Organisations), for lack of legitimacy (for instance, because of the high proportion of nominated Board members), and for ad hoc decision-making processes. However, some analysts feel that there are in fact significant opportunities for participation and influence by developing countries and by different stakeholder groups including civil society groups. The problem is that these opportunities are not well used, because the structures and processes of ICANN – including the nomination process for Board members and advisory committee members – are not widely understood.

Distributing internet addresses: Internet Protocol (IP) numbers

As well as domain names, ICANN oversees the allocation of the numbers that lie behind the verbal addresses (comparable with telephone numbers). IP addresses are numbers used to identify individual servers on the internet. Assigning these addresses requires global coordination.

Web addresses match Internet Protocol numbers

The address people use:	The address computers use:
www.interworldradio.com	**83.138.130.5**

Under the current Internet Protocol (IPv4), 80% of the over 4 US billion addresses available are allocated to organisations in the US. This reflects actual and predicted usage at the time the protocol was drawn up, but some critics feel the system is unfairly biased in favour of the US.

In the early 1990s, in an attempt to resolve this problem, independent Regional Internet Registries (RIRs) were established – open non-profit membership organisations. The IANA (under ICANN) allocates available addresses to these RIRs, which make their own policy and decisions about how to allocate them.

The Regional Internet Registries

RIPE-NCC (www.ripe.net)
serves Europe and surrounding areas, including parts of Africa

APNIC (www.apnic.net)
serves the Asia and Pacific Rim region

ARIN (www.arin.net)
serves the rest of the world, including parts of Africa

LACNIC (www.lacnic.net)
serves Latin America and Caribbean

A Regional Internet Registry for Africa, **AfriNIC** (www.afrinic.net), is in the process of being established

Together the RIRs have established a new organisation as a focal point for their global activities, the Number Resource Organisation (www.nro.net). The RIRs also form one of the subsidiary organisations of ICANN, the Address Supporting Organisation, which advises the ICANN Board on global policy relating to address assignment issues.

Recently, an International Telecommunication Union (ITU) report (http://www.itu.int/ITU-T/tsb-director/itut-wsis/files/zhao-netgov01.doc) proposed creating a new internet address distribution process based solely on national authorities. The existing international internet management organisations oppose this, fearing national authorities would be less objective in their allocation of addresses and that their own work would be undermined.

The central directory: the Root Server system

The Root Server system is the structure that organises and facilitates access to the internet. It consists of 13 file servers that collectively manage the single directory called the 'root zone' file which contains a reference to all 'top level' Domain Names servers. For a Top Level Domain (TLD) to appear on the global internet, it must be installed in the root zone file by the operators of the Root Servers.

Ten of the Root Servers are located in the US. This is for historical reasons – the internet's early development was largely in the US, and the Root Servers still have to be located as near as possible to the bulk of the internet traffic. However this – and the fact that the US government plays a role in maintaining about half of the servers – feeds the concerns of some critics that the US has too much control over ICANN. ICANN operates under a contract with the US Department of Commerce (renewed for five years in March 2003), which prohibits additions or deletions to the root zone file without permission. Thus the possibility exists for the US government to, for instance, delete a country's domain name. Though it is not likely to use this power, this is one of the serious problems raised during WSIS.

Some civil society organisations are considering a proposal to the UN Working Group on Internet Governance that a new international instrument could establish an inalienable right for a country's ccTLD to appear in the root zone file. Proposals are also being put forward to strengthen the management of ccTLDs in developing countries – for instance by promoting best practice.

On the other hand, since 2003, clones of the Root Servers have been established around the world (in 22 countries to May 2004) under the 'Anycast' system. This was done with no formal consultation or authorisation process and little involvement of ICANN, which suggests to some analysts that fears of US control are groundless.

Towards WSIS 2005

In the debate about internet governance, there are two main views:

- On one side are those who think the present system works reasonably well. They believe it maintains the internet's essential characteristic of freedom and keeps the role of governments to a minimum. Many of this group accept that ICANN needs reform and particularly that great efforts should be made to build more civil society participation. The majority of the Civil Society Caucus before WSIS 1 (which was more representative of northern than of southern civil society) supported this view.

- On the other side are those who want to bring internet governance under international – probably United Nations – control. They feel that the present system, in which private and non-governmental interests like ICANN manage the internet in a rather ad hoc way, is insufficiently transparent and accountable. They propose a new system modelled on or linked with the International Telecommunication Union (ITU), which would give more authority to national governments. In the discussions during WSIS 1, many southern countries took this position, including China, South Africa, Brazil and most Arab States.

Discussion at WSIS 1 was heated. However, some analysts feel that some of the disagreements were more apparent than real. They believe that feelings ran high partly because some government delegates lacked detailed understanding of the workings of the present system. For example, some southern governments and civil society organisations allege that ICANN is biased against developing countries. This charge may have arisen because developing countries are not yet taking advantage of the possibilities that already exist for participation and influence. Similarly, some people object to the dominance of English in the internet system. Some analysts suggest that such critics do not fully appreciate the technical difficulties and costs of introducing other languages and scripts.

On the other hand, many people agree that ICANN is not at present a representative organisation or easily held accountable. This is admitted even by those who support a non-governmental (ICANN) rather than inter-governmental (ITU-like) system. The sense that ICANN is not accountable is strengthened because so many governments lack capacity and institutionalised processes for participating fully in ICANN at the moment.

Many observers also agree that the ultimate power of the US government over ICANN, even if it is only potential and not actually used, is an obstacle to a fully international, open and equitable system.

Internet governance is becoming an influential factor in the way we access, consume, produce and exchange our information within and among nations. Therefore a debate about this – among publics and governments – is essential in the run up to WSIS 2.