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## **Internet Society**

# News from the Internet Society

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## Internet Governance:

### ***Strength and stability through open consensus***

The Internet is the critical global information infrastructure now routinely relied upon by millions of people, businesses and organizations worldwide. Any 'governance' activity that might affect its smooth operation needs to be carefully considered in light of the existing structures that have evolved to enable the Internet to prosper thus far. This paper identifies the strengths and shortcomings of existing 'Internet Governance' and coordination mechanisms.

### ***Internet Governance: A Misnomer?***

The Internet's core enabling technologies are protocols that describe agreed methods for information exchange and which are defined by open Internet Standards. The Internet itself is comprised of tens of thousands of autonomous networks that voluntarily interconnect by using implementations of these standards. This approach allows for an architecture that enables seamless interoperation between these autonomous networks allowing for implementation of useful services across the entire network. It is a tribute to the quality of the individual protocols, and the processes that engineer them, that this architecture has managed to cope with the exponential growth and the unforeseen demands placed on the Internet.

It is therefore misleading to use the term 'Internet Governance' when 'The Internet' is clearly not a single entity to govern. It is perhaps more useful and accurate to refer to 'Internet Coordination', as experience has shown that various forms of close coordination are essential to ensure operational stability and preserve architectural integrity. Specifically, close coordination is essential to successfully develop and deploy protocols and carefully allocate the resources that these protocols require to be useful.

### ***Coordinating Consensus: The IETF and ICANN***

Over the last 30 years, these coordination processes have successfully addressed areas of common concern (e.g. the rapid depletion of Internet Protocol addresses). They have also evolved from being performed by a handful of individual volunteers to being performed by several independent, but closely coordinated, activities and organizational structures such as the IETF and ICANN.

Many of the protocols at the heart of today's Internet (e.g. TCP, IP, HTTP, FTP, SMTP, Telnet, PPP, POP3, the DNS Protocol etc.) are the successful output of the coordinated standards development activity known simply

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The Internet Society ([www.isoc.org](http://www.isoc.org)) is a not-for-profit membership organization founded in 1991 to provide leadership in Internet related standards, education, and policy. With offices in Washington, DC, and Geneva, Switzerland, it is dedicated to ensuring the open development, evolution and use of the Internet for the benefit of people throughout the world. ISOC is the organizational home of the Internet Engineering Task Force (IETF), the Internet Architecture Board (IAB), the Internet Engineering Steering Group (IESG) and other Internet-related bodies who together play a critical role in ensuring that the Internet develops in a stable and open manner.

as the Internet Engineering Task Force (IETF). The results from the closely focused IETF work are well-engineered and practical open protocol standards that are trusted and open to widespread implementation with little or no licensing restrictions.

The strength of the IETF process lies in its unique culture and talented global community of network designers, network operators, service providers, equipment vendors, and researchers. They all put aside their formal affiliations, and issues of geography, to contribute openly their individual technical experience and engineering wisdom in an environment that fosters innovation, open exchange of ideas, grounded debate ('rough consensus') – with a particular emphasis on experimental validation ('running code'). There is no voting.

This process, which is open to anyone, helps quickly identify and articulate problems of common interest. The practical consensus-building process helps build the trust required to make the further investments necessary for a protocol to be usefully implemented and deployed. Ultimately, however, it is the marketplace that determines whether or not a protocol is valuable and useful enough for widespread use. Here the IETF track record of producing useful, widely deployed protocols is unrivaled.

Certain protocol resources are required to be allocated and administered on a unique Internet-wide basis in order for an un-partitioned Internet Architecture to remain coherent and for participating networks to function in a safe, stable and predictable manner e.g. Internet Protocol (IP) addresses (e.g. 206.131.249.182) need to be globally unique and domain names (e.g. [www.isoc.org](http://www.isoc.org)) globally resolvable.

Coordinating this is the Internet Corporation for Assigned Names and Numbers (ICANN) and its affiliated supporting organizations. These organizations provide the primary source of policy recommendations within their specialized charters and are involved with the administrative system of IP addresses, with generic top-level domain names (e.g. .org) and with two-letter country-code top-level domain names (e.g. .cn).

Established in 1998 in response to a US Government request, ICANN is a global, non-profit organization formed by a coalition of business, technical, non-commercial and academic communities. It has no inherent authority on its own, rather it adopts 'bottom-up' mechanisms that, just like the IETF, are open to any interested participant. These mechanisms facilitate the development of consensus-based policies. Those who have voluntarily entered into contract with ICANN then implement these policies, e.g. the Uniform Domain-Name Dispute-Resolution Policy (UDRP).

A good example of policy coordination can be found in the Regional Internet Registries' (RIRs) Policy development process. The RIRs are responsible for allocating and assigning Internet Protocol (IP) resources within a particular geographical region. These resources include IP addresses and autonomous system numbers (commonly referred to as

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number resources). Currently, there are four RIRs recognized by ICANN: APNIC (the Asia Pacific Network Information Centre), ARIN (the American Registry for Internet Numbers), RIPE NCC (the Réseaux IP Européens Network Coordination Centre), and the most recently recognized LACNIC (the Latin American and Caribbean Internet Addresses Registry). A fifth RIR, AfriNIC, has been proposed for the continent of Africa (which is currently serviced by APNIC, ARIN, and RIPE NCC).

The RIRs are all structured similarly as not-for-profit, member-based organizations with public policy meetings that are open to all those interested in discussing IP address related issues. Members are typically those network operators and service providers that need to source their own assignment of IP addresses. These RIRs all closely coordinate policies that are proposed and developed in a bottom-up manner. The collective responsibility of the RIR structure is the development and application of these policies to ensure fair distribution, conservation, aggregation, effective utilization and responsible stewardship of number resources.

The strength of ICANN, and the RIR structure in particular, is their ability to find balance between often conflicting goals - while at the same time not affecting the smooth operation of the Internet! For example, ICANN's need to balance the stability and security of the Domain Name System is often in conflict with the demand for introducing new top-level domains (e.g. .aero, .biz, .coop, .info, .name, .museum, .pro) or new technologies (e.g. multilingual domain names).

### ***Effective Evolution***

Existing processes such as those implemented by ICANN and the IETF have successfully coordinated the Internet's seamless growth so far: thousands of new networks, new policy procedures, new top-level domain names, new protocols etc. Essentially both try to balance the needs and stability of today's Internet with future demands.

Finding this balance is not always easy or possible - and often it's controversial. Nevertheless by adopting open processes that help foster consensus, when consensus can be found, they help build the trust necessary to implement the policies that are developed. Furthermore they do so in a manner that minimizes any unexpected risk to the operational Internet or its architecture.

The consensus processes used to find this balance have worked so far, but are certainly not without shortcomings and problems. They rely on active, sustained and informed participation. It has not always been easy to create awareness and informed participation in an environment of exponential growth.

Indeed the success of the Internet raises considerable organizational and financial stresses that force existing mechanisms to evolve to cater to these unexpected demands. Specifically, new mechanisms need to be found to encourage informed participation while at the same time ensuring that meaningful contribution and effectiveness are maintained.

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Fortunately these challenges have been well known for some time and existing Internet coordination processes are rapidly evolving to adapt. For example, ICANN has recently completed a lengthy process of evolution and reform, and the IETF is currently in the process of reviewing the way it operates.

Although history may provide some reassurance, it is perhaps too early to judge whether or not such rapid evolution will be successful. The key will be in encouraging the evolution by participating in existing processes such as ICANN and the IETF. The path of least risk to the operational Internet is by constructively engaging and participating in these processes; rather than attempting to create new untested mechanisms that are inexperienced and unaccustomed to the Internet's unique characteristics.

### ***ISOC Understands the Internet***

Since 1991, ISOC has played a central role in shaping the evolution of the Internet: we provide the organizational home of the IETF; we administer the .ORG Top-level domain via the Public Interest Registry (PIR), we provide support and funding for the publication of Internet Standards.

Indeed, many of our members deeply understand the Internet's unique characteristics, have pioneered its spread and driven its evolution so far. Clearly there are many other ways in which the Internet community needs to work together to promote the growth of the Internet (e.g. education and training, policy). Mechanisms will need to be found to address these new common concerns and the Internet Society will continue to drive initiatives in support of our motto: The Internet is for Everyone.

**Join the Internet Society today: [www.isoc.org/members](http://www.isoc.org/members)**

# News from the Internet Society

Bulletin no. 4 - October 11<sup>th</sup>, 2003  
Also available at: [www.isoc.org/news/](http://www.isoc.org/news/)



## The Genius of the Internet:

### *Open processes drive growth and connectivity*

The explosive growth of the Internet since the 1980s has been far faster than the growth of any other communications medium - faster than the spread of the telephone, radio, television, or even cellular telephones. This growth has been possible largely because of the open processes that have supported the development of Internet technologies and the administration of Internet resources. The continued success of the Internet as a public communications infrastructure depends on maintaining these open processes while building on the extensive experience of the organizations that facilitate them.

### *Who's in charge of the Internet?*

No one is in charge of the Internet and yet everyone is in charge of the Internet. Unlike the telephone network, which for years in most countries, was run by a single regulated telephone company, the global Internet consists of tens of thousands of interconnected networks run by Internet Service Providers, individual companies, universities, governments, and other institutions. These entities, together with the users of the Internet and the developers of Internet technologies and applications, have specific needs that are catered for by a number of non-governmental organizations and communities - some of which are introduced here.

One such community is the Internet Engineering Task Force (IETF). The IETF develops the standards that provide the technological foundation for the Internet. Historically, the IETF has been much more nimble than other standards groups because of its informal structure and streamlined consensus-based procedures. Unlike many other standards bodies, the IETF is open to anyone who cares to participate and the standards it sets are open, rather than proprietary.

Internet resources must also be coordinated in a way that is fair and equitable. For example, a critical component of the Internet is the Domain Name System (DNS) that translates domain names into numerical addresses that machines on the Internet can understand. The technical coordination of Internet resources including the Domain Name System is the responsibility of the Internet Corporation for Assigned Names and Numbers (ICANN), an international, non-profit organization, which works with the root server operators, registries, independent domain name registrars, and the broader Internet community to ensure the stability of the Internet.

At the regional level, the Regional Internet Registries' (RIRs) policy development processes provide a further good example of how open, inclusive policy coordination can work - here it is applied to the allocation

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and assigning of Internet Protocol (IP) resources within a particular geography.

All these organizations and groups share several common characteristics: they are open, independent, non-profit membership organizations that work together to meet the needs of the global Internet community. They provide for direct participation by any interested party and ensure that the policies for allocating Internet resources (such as domain names and IP addresses) are defined by those who require them for their operations. This self-regulation has been the key to the successful growth of the Internet and is flexible enough to adapt to changing future needs.

The Internet has evolved in a way that ensures that no one person or entity is "in charge". No one person or entity can determine how the Internet will work and what applications can or cannot run on the Internet. And that is the genius and beauty of the Internet. Hundreds of different organizations and thousands of different companies make decisions every month that might affect how the Internet develops. Through this decentralized process, the companies that supply connectivity, services, computers, software, and content - along with the users who purchase them and employ the network for their own purposes - are free to innovate, experiment, generate value, and enjoy the connectivity, information, and services that are made available. More than any other communications medium, it is the users that define what the Internet is and what it will become.

***What can the Internet community do to help ensure the continued rapid growth and evolution of the Internet?***

At a time when many of the existing processes behind the development and administration of the Internet are being questioned, it is more important than ever before that policy makers - both in the public and private sectors - have a sound understanding of just how the Internet has developed and what has made this development so successful. The biggest future threat to the stability, growth and global reach of the Internet may come from decisions based on uninformed discussions or a lack of understanding of the unique way in which the Internet's technologies and resources are developed and coordinated.

The Internet Society (ISOC) actively encourages the further development of the open processes that have enabled the Internet's growth. We will respect the outcomes of these processes and we will advocate for their recognition and respect by other interested parties.

Furthermore, the Internet Society will continue to provide education and information services aimed at increasing general awareness of the benefits of open, consensus-based processes and structures. We invite all those members of the Internet community with an interest in the future of the Internet to join ISOC and support us in these initiatives. Equally, we are reaching out to non-governmental organizations, regulatory and governmental bodies. Your involvement is welcome and necessary.

**Join the Internet Society today: [www.isoc.org/members](http://www.isoc.org/members)**

# News from the Internet Society

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## Developing the Potential of the Internet through Coordination, not Governance

### *The Internet Society at the 'World Summit on the Information Society' (WSIS 2003)*

**The Internet Society (ISOC) is a global not-for-profit membership organisation founded in 1991 to provide leadership in Internet-related standards, education, and policy issues. We are dedicated to ensuring the open development, evolution and use of the Internet for the benefit of people throughout the world. Our education initiatives, for example, have helped bring Internet connectivity to virtually all developing countries over the last 12 years. ISOC is the organisational home of the Internet Engineering Task Force (IETF) – an open consensus-based group responsible for defining Internet protocols and standards.**

Through our participation in WSIS 2003 we aim to increase understanding and awareness of what is important in order to develop and maintain the Internet's stability, open nature and global reach.

### ***The Internet has come of age***

In many countries, the Internet has become a mass medium. This has brought with it reflexive pressure on policy makers to regulate it as if it were radio, television, or other mass media. While Governments naturally seek to address their citizens' interests regarding online privacy, spam, Internet security, intellectual property protection, the price of Internet access, and the digital divide, our position is that better use of technology, and broad participation in today's Internet coordination processes, not Government regulation, are the most effective and appropriate ways to satisfy these concerns.

The biggest barrier to the Internet fulfilling its immense potential could turn out to be misinformed and inappropriate intervention in the way in which the Internet's technologies, resources and policies are developed, deployed and coordinated. The Internet Society can help provide guidance here.

### ***What is the nature of the Internet?***

The Internet is a modern distributed communications medium. No one is in charge of the Internet and yet everyone is in charge. Unlike the antiquated system of national telephone network monopolies, the global Internet consists of tens of thousands of interconnected networks run by

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Internet Service Providers, individual companies, universities, Governments, and other institutions. Some of these are global in scope, others regional or local. Hundreds of different organisations and thousands of different companies make decisions every year that contribute to how the Internet develops.

These varied entities, together with the users of the Internet and the developers of Internet technologies and applications, have specific needs for coordination. Collaborative processes that are critical for the future stability and evolution of the Internet, and which should not be modified arbitrarily or abruptly, satisfy these needs.

### ***Coordination, not Governance***

It is misleading to use the term 'Internet Governance' when the Internet is clearly not a single entity to govern. It is more useful to refer to 'Internet Coordination'. The multiple facets of the Internet require different types of coordination, each calling for specific competencies and sensitivities to balance the needs of the Internet user community globally and locally.

Specific Internet Coordination activities are taking place globally at three levels:

- ***Coordination of the definition of Internet standards***
- ***Coordination of the availability and assignment of Internet resources***
- ***Coordination of the policies preventing misuse of the Internet***

This coordination is best performed by the existing set of organisations using proven processes. Because of the diverse nature of these activities, it is unrealistic to expect a single body - Government or otherwise - to take on all these roles effectively.

### ***Coordinating Internet standards***

The Internet Engineering Task Force (IETF) under the umbrella of the Internet Society, is one of the oldest and most successful Internet coordination processes. Other organisations are also involved in Internet-related standards, including the IEEE, the W3C and the ITU.

Many of the protocols at the heart of today's Internet (e.g. TCP, IP, HTTP, FTP, SMTP, Telnet, PPP, POP3, the DNS protocol etc.) were developed through IETF standards activities. The results of the IETF are well engineered and practical open protocol standards that are trusted and open to global implementation with little or no licensing restrictions - they are freely available on the Internet, without cost, to everyone.

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The strength of the IETF process lies in its unique culture and talented global community of network designers, network operators, service providers, equipment vendors, and researchers. They all openly contribute their individual technical experience and engineering wisdom in an environment that fosters innovation and the open exchange of ideas.

This process, which is open to anyone, helps quickly identify and articulate problems of common interest. It also helps build the trust required to make the further investments necessary for a protocol to be usefully implemented and deployed. Ultimately, however, it is the Internet users themselves that determine whether or not a protocol is valuable and useful enough for widespread use. Here the IETF track record of producing useful, widely deployed protocols is unrivalled.

### ***Coordinating Internet resources: The Internet registry system***

There has always been a need to manage the allocation of Internet resources such as the unique addresses that identify devices connected to the Internet (IP addresses), generic top-level domain names (e.g. .org), country code top-level domain names (e.g. .ch), domain names (such as [www.isoc.org](http://www.isoc.org)), and the systems that translate domain names into IP addresses (e.g. the Domain Name System or DNS).

This coordination activity has been handled by long-standing, not-for-profit membership organisations such as the Regional Internet Registries (RIRs) and top-level domain (TLD) registries.

More recently, coordination at a global level has been supported by ICANN (the Internet Corporation for Assigned Names and Numbers). Established in 1998, ICANN is also a not-for-profit organisation. Business, technical, non-commercial, academic, governmental and end-user communities participate in ICANN.

These organisations are a meeting point for bottom-up, consensual, industrial self-regulation by the groups and individuals that use their services and resources.

### ***Coordinating policies preventing misuse of the Internet***

As we have seen, organisations such as the RIRs, TLD registries, ICANN and the IETF all have very specific roles. It is neither within their charters, nor within their capabilities, to take on responsibility for all areas of Internet Coordination – particularly that of preventing inappropriate use of the Internet. For example, areas such as 'cyber crime' (e.g. fraud and child pornography) require coordinated global attention by lawmakers – and not by those responsible for the equitable coordination of the underlying Internet infrastructure. Security matters also need to be addressed by organisations providing Internet access (not only by

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standards developers), and intellectual property issues may best be handled by organisations such as WIPO.

In discussions about these broader Internet policy issues there is cooperation between all the organisations mentioned above. ICANN for example works with WIPO to implement its Uniform Domain Name Dispute Resolution Policy (UDRP). And the Internet Society, with technical advice from the IETF, works with Governments and policy makers to explain the effects and possibilities of new Internet technologies.

### ***The way forward – Make your voice heard***

Existing consensus-based processes have given us the Internet and have successfully coordinated its phenomenal growth: thousands of new networks, new policy procedures, new top-level domain names, new protocols etc. All of them constantly balance the needs and stability of today's Internet with future demands.

An open debate is now needed to move towards common, globally acceptable policies, processes and technologies to prevent misuse of the Internet. Governments have a vital role to play here as a concerted effort on the part of the Internet community, non-governmental organisations and Governments can help strengthen and extend today's successful coordination processes.

The successful continued development of the Internet for the benefit of everyone can be ensured by participation in these proven processes rather than by attempting to create new untested mechanisms that are inappropriate to the unique characteristics of the Internet

The Internet Society remains dedicated to providing information and orientation about Internet structures and processes. We encourage broad participation in the activities of each of the organisations involved in Internet coordination.

**Join the Internet Society today: [www.isoc.org](http://www.isoc.org)**