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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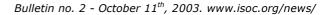
1775 Wiehle Ave.
Suite 102
Reston, VA 20190-5108
USA
tel: +1 703 326 9880
fax: +1 703 326 9881
Email: info@isoc.org

4, rue des Falaises
CH-1205 Geneva
Switzerland
tel: +41 22 807 1444
fax: +41 22 807 1445

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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.
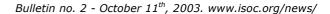
Certain protocol resources are required to be allocated and administered on a unique Internet-wide basis in order for an un-partitioned Internet Architecture to remain coherent and for participating networks to function in a safe, stable and predictable manner e.g. Internet Protocol (IP) addresses (e.g. 206.131.249.182) need to be globally unique and domain names (e.g. www.isoc.org) 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.
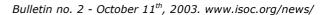
Finding this balance is not always easy or possible – and often it's controversial. Nevertheless by adopting open processes that help foster consensus, when consensus can be found, they help build the trust necessary to implement the policies that are developed. Furthermore they do so in a manner that 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