Internet Zoning Initiative
Technical Overview

Overview

The Internet Zoning Initiative leverages the existing infrastructure and technologies of the Internet to categorize and organize information in a manner that enables consumer choice. This is accomplished by designating ranges of Internet ports for specific forms of content. The Community Port range is designated for content that is appropriate for all ages and the Open Port range is for all other legal content.

How the Internet Works

Understanding the Internet Zoning Initiative requires a simple understanding of how the Internet works. The World Wide Web is so named because it suggests a concept of a massive spider web that connects computers from around the entire globe to each other; however, using such a simple concept to explain how the Internet works does not help you to understand how your data request is actually routed from your computer to its ultimate destination, and how a response is then directed back to the browser running on your computer.

The system works because there is a detailed order to the process and procedures of the Internet. It is not a chaotic, tangled web of connected computers. In simple terms, the Internet is comprised of millions of computers, websites, servers and Internet accessible devices located throughout the world. Each of these devices is connected to the Internet via an Internet Service Provider (ISP) (**See figure 1**).

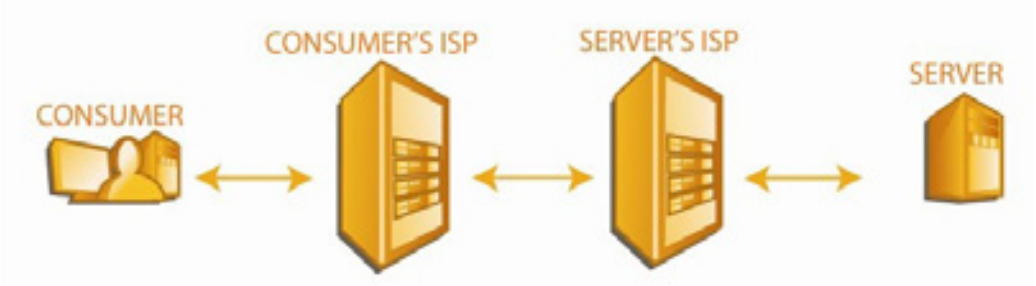

Figure 1

Browsing the web relies on two distinct actions: sending a request and receiving a response. A request is initiated by clicking on a link or entering a website name in a browser's address field. Each request creates a virtual packet of information.

This virtual packet of information, transparent to the computer user, contains the address of the requested website. The website name is translated into a specific delivery address (IP Address) – (**See figure 2**).

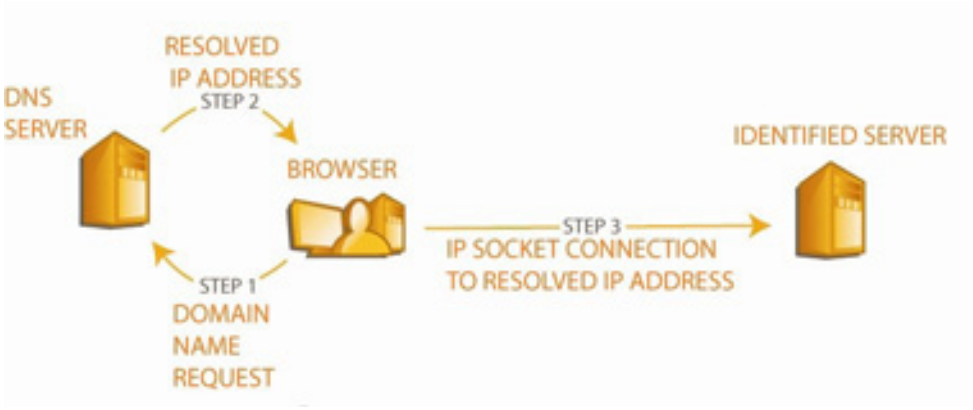

Figure 2

The addressee (website server) receives this packet, reads who is requesting the information and then replies with the requested information by sending back virtual packets containing the requested information (**See figure 3**). This process is repeated each time a new link is selected or a new website address is entered.

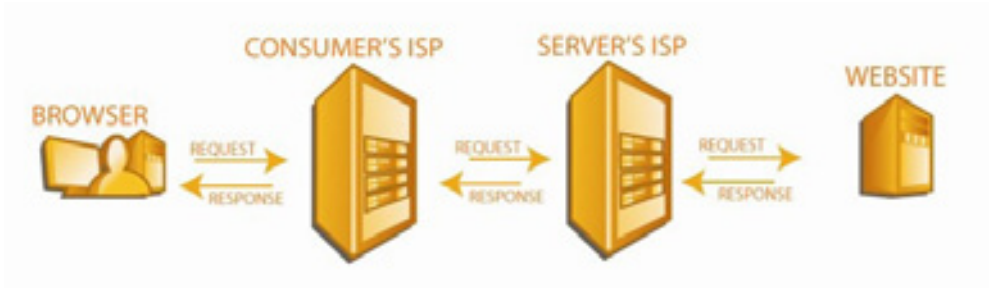

Figure 3

Web browsing uses the Hypertext Transfer Protocol (HTTP) to send and receive virtual packets. A protocol is a standard procedure for negotiating the data transmission between computers. This protocol is assigned a number commonly referred to as a port number.

The port number maps the virtual packet to the appropriate application running on a computer. When a request is sent to a server, the Internet Protocol (IP) process determines the appropriate application to use based on the port number within the request. The protocol allows the server to open, read, and respond to the request appropriately. The port number for standard web requests, by default, is port 80 (**See figure 4**).

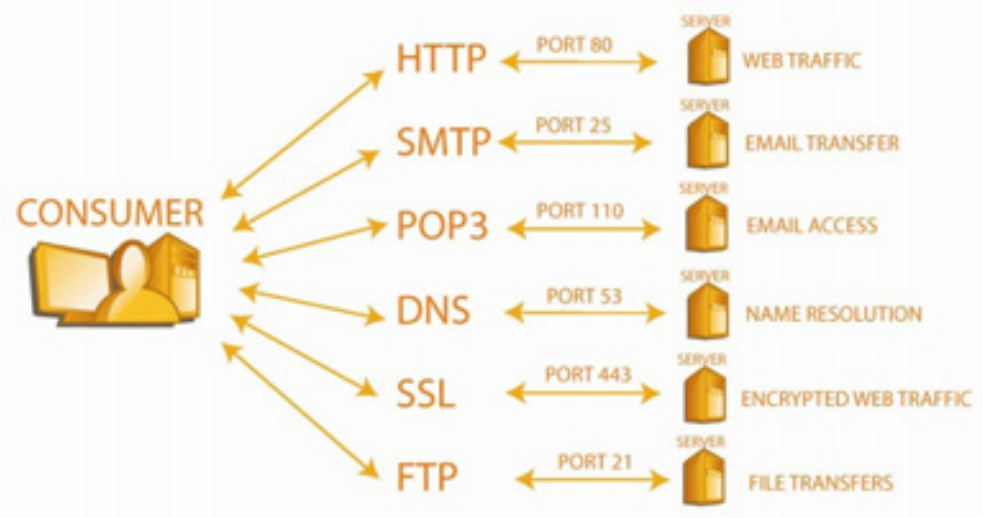

Figure 4

The combination of protocols and ports allows other applications using different protocols and ports to utilize network resources without conflicting or interfering with each other.

Why the Internet Fails Us

Currently, all content for a specific protocol uses the same port for transmission. For example, whether you are browsing children's programming, or pornography on the Web, you use port 80, the HTTP port. That is the equivalent of all television programs being forced onto a single television channel (**See figure 5**). Imagine this one channel being used simultaneously to watch a program geared towards children and a program with sexually explicit content.

Figure 5

In reality, there are many television channels that help categorize and organize different types of programming that are available to consumers. And although the Internet is currently only using a single zone for all types of content, it is comprised of over 65,000 ports or Internet channels. Some of these ports are already used to categorize content and services; however, less than 10 ports are commonly used by consumers and these unallocated ports could be adapted to further categorize and organize content on the Internet.

Internet Zoning Initiative

The Internet Zoning Initiative proposes that an Internet governing body, accountable to the general world public, designate content specific ports that zone the Internet into Community Ports and Open Ports. Community Ports are designated to contain only content appropriate for all ages. Open ports are designated for all legal content.

The appropriate Internet governing body will establish policies for content specific ports, making it illegal for content deemed inappropriate for minors to be routed via the Community Ports. Publishers of mature content must sanitize their Community Port presence and use the Open Port ranges to publish any legal content.

With content appropriately zoned into ports and communities, the consumer can then choose to opt-out of the Open Ports and only receive the Community Ports directly from their ISP (**See figure 6**).

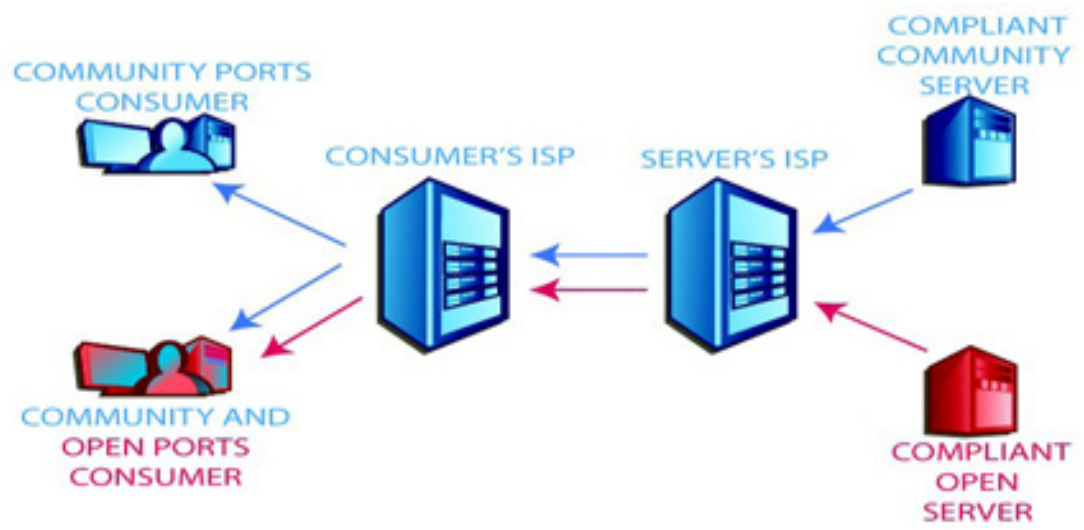

Figure 6

Thus, a child using a Community Port Internet connection attempting to access pornographic content published over the Open Ports, whether deliberately or inadvertently, and would not be able to access the mature content. The Internet Zoning Initiative addresses the issues associated with any and all Internet connected devices, including cellular phones, PDAs, desktops, laptops, nanotops, game consoles and any future Internet enabled devices (**See figure 7**).

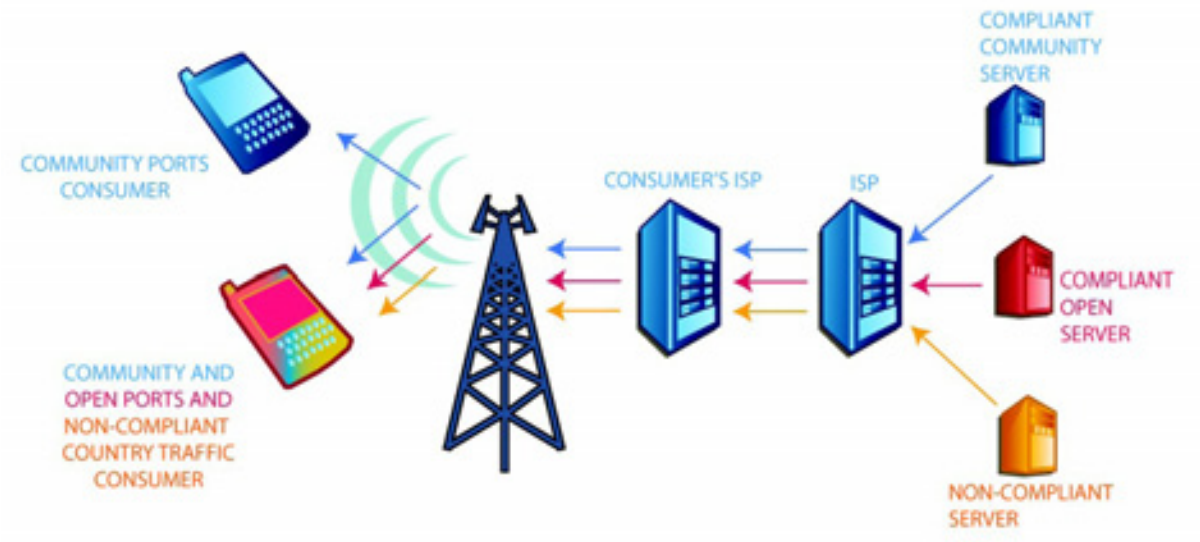

Figure 7

Website Server Configuration

Internet publishers of content that is inappropriate for minors will simply configure their web servers to only allow mature content to be available on the Open Ports. This is a simple web server setup and is often accomplished with less than 10 lines of configuration parameters (**See figure 8**). The server configuration is unseen and has no impact on the content of the material served. The simplicity of this approach is illustrated by the fact that a website server may be configured to serve content on both port 80 and port 443 simultaneously. This is a standard practice that is globally accepted and content neutral.

Figure 8

For example, a consumer shopping online at a website such as Amazon.com browses existing inventory over port 80. When a purchase is made, the transaction occurs securely via port 443. The consumer then returns to port 80 to continue browsing without ever realizing that the port switch had occurred.

Switching between ports takes place transparently to the consumer and can occur with any designated port with no impact to the network performance and no increased cost. At the same time, the transfer to port 443 protects the consumer's identity and credit card information in exactly the same way that access through a Community Port would protect a child from receiving material with mature content.

The Internet Zoning Initiative preserves the access to all forms of content to the consumer who chooses both the Community Ports and the Open Ports. In addition, this initiative creates a choice for those consumers who wish to receive

only the Community Ports. Under both scenarios, the port choice is transparent to the consumer (**See figure 9**).

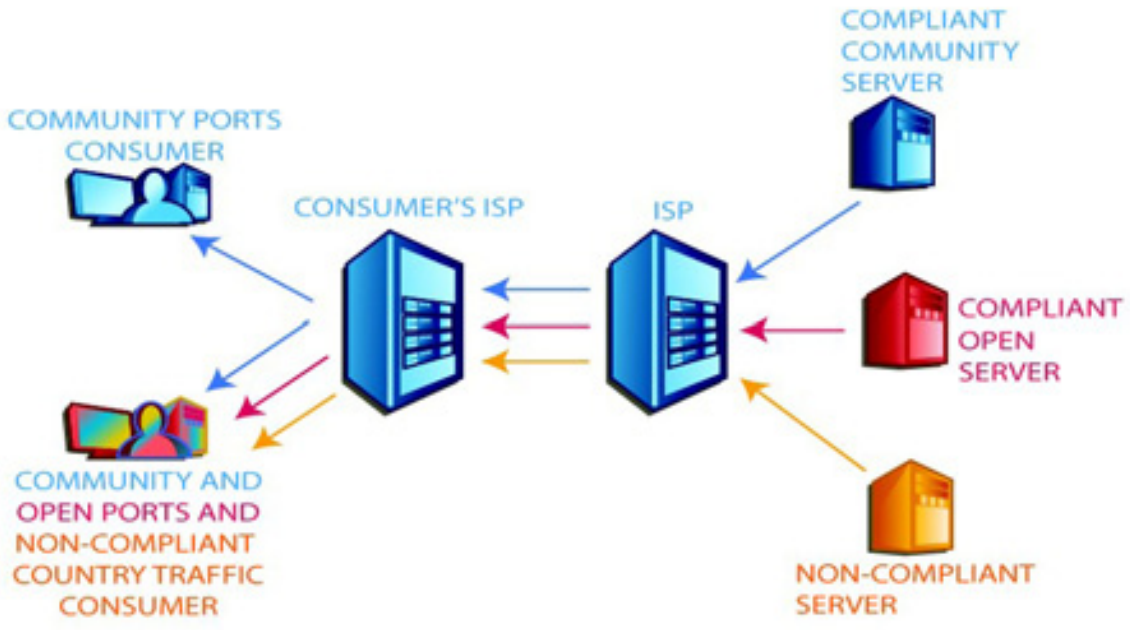

Figure 9

IP Address Blocking for Non-Compliance

As this solution takes root, a transition period will be necessary to fully implement the solution on global basis. Some countries will not have the needed legal infrastructure to ensure compliance with this mandate. ISPs that want to offer Community Port packages will simply block all IP addresses originating from a non-compliant country. A non-compliant country is a country that lacks the means to appropriately implement and enforce legislation, Internet governance policies or a combination of both.

The Internet governance agency will compile and make available a list of compliant and noncompliant countries. ISPs will utilize this list with existing infrastructure and methodologies to block access to non-compliant IP Addresses if a consumer requests a service including only Community Ports. A consumer who wants access to websites within noncompliant countries will continue to have access to all websites, worldwide. Thus each consumer's choice is unrestricted and flexible.

Global Enforceability Solution

Obviously, the technical solution is simple; it enhances consumer choice, preserves free speech, and places no economic burden on the consumer. The CP80 Foundation believes that ensuring compliance globally can be equally

simple. This approach consists of two parts, oversight by the appropriate Internet governance body and the enactment of suitable legislation where applicable. For example, in the United States the CP80 foundation is introducing a piece of legislation known as the Internet Community Ports Act (ICPA) to facilitate the required compliance.

Understanding Internet Governance

It is a popular notion that the Internet is without regulation or governance; this is false. Certain areas of the Internet are regulated. For example, there are standards bodies that define standards for protocols, policies for operation and methods for implementations. Additionally, there are both government and private entities that regulate domain names, IP numbers, electronic commerce and criminal activity on the Internet. Furthermore, there are numerous professional, governmental, non-profit, corporate, self-interested and global entities that direct policy and assert influence through these Internet governance agencies. (**See figure 10**)

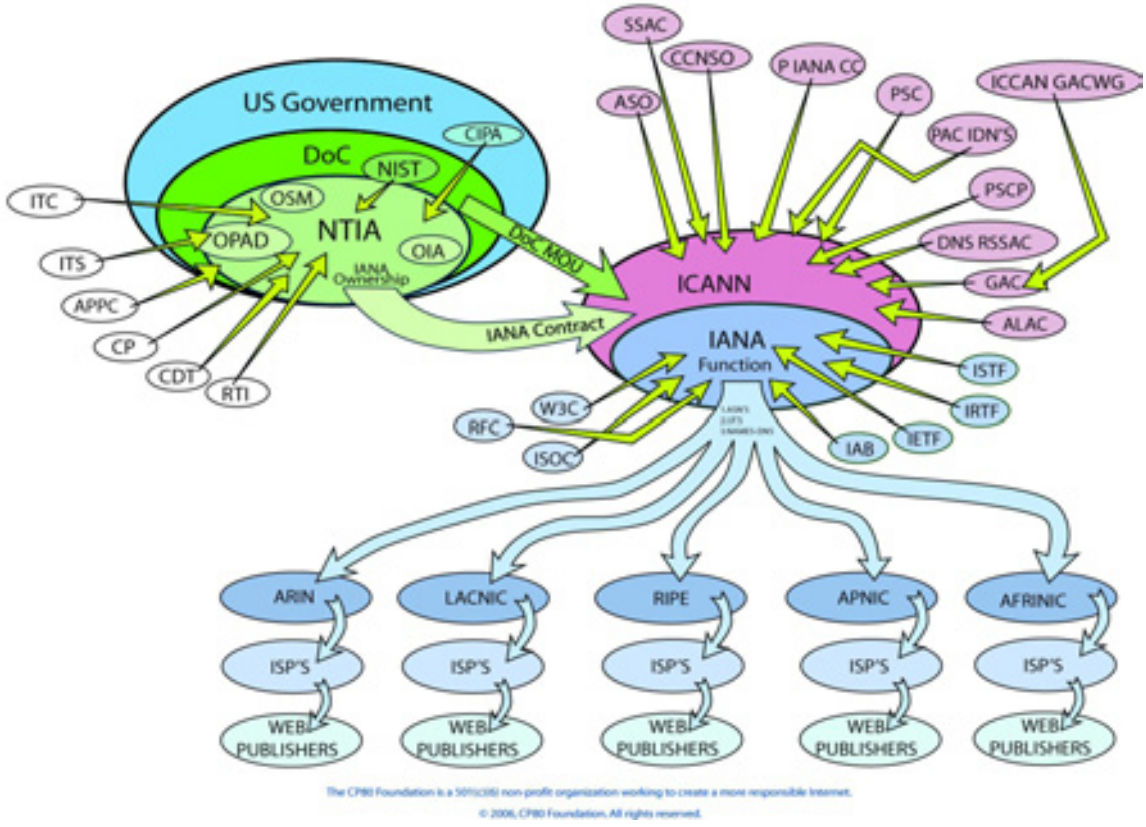

Figure 10

Currently, the control of the Internet lies with the National Telecommunications and Information Administration (NTIA), a division within the United States

Department of Commerce. The NTIA website lists the following priorities in regards to the Internet:

- **Internet Protocol version 6 (IPv6)**
- **Internet Governance**
- **Protecting Children On-line**
- **Voice Over Internet Protocol (VOIP)**

The NTIA has recently renewed a contract with Internet Corporation for Assigned Names and Numbers (ICANN) for the fulfillment of these priorities.

ICANN, a California based, non-profit organization, is responsible for the global coordination of the Internet's system of unique identifiers. These include domain names as well as the addresses used in a variety of Internet protocols. Careful management of these resources is vital to the Internet's operation, so ICANN's global stakeholders meet regularly to develop policies that ensure the Internet's ongoing security and stability (**See figure 11**).

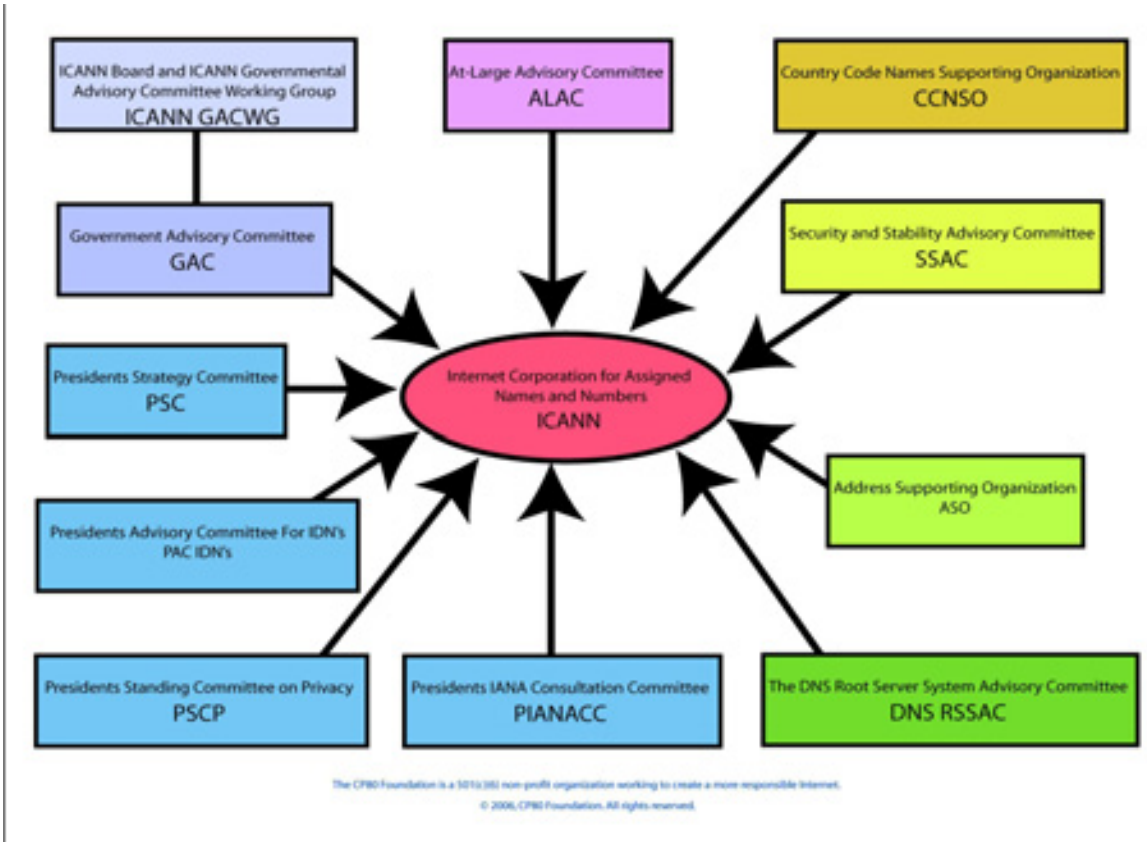

Figure 11

A division of ICANN, the Internet Assigned Numbers Authority (IANA) is the entity that controls the IP address services for the Regional Internet Registrars (RIR) in the five world regions (North America - ARIN, Central & South America -LACNIC, Asia Pacific - APNIC, Africa - AfriNIC and Europe/Middle East – RIPE) – (**See figure 12**).

Figure 12

Each of these regions controls the allocation of IP Address blocks. These blocks of IP Addresses are assigned to individual entities or ISPs within these regions.

Applying Internet Governance Policy for Compliance

With a basic understanding of the current Internet governance hierarchy, it is easy to see how this policy would be implemented worldwide. Each entity depicted in the chart below (**see figure 13**) is accountable to a supervising body and should be free from conflicted interests and be accountable to the global Internet population.

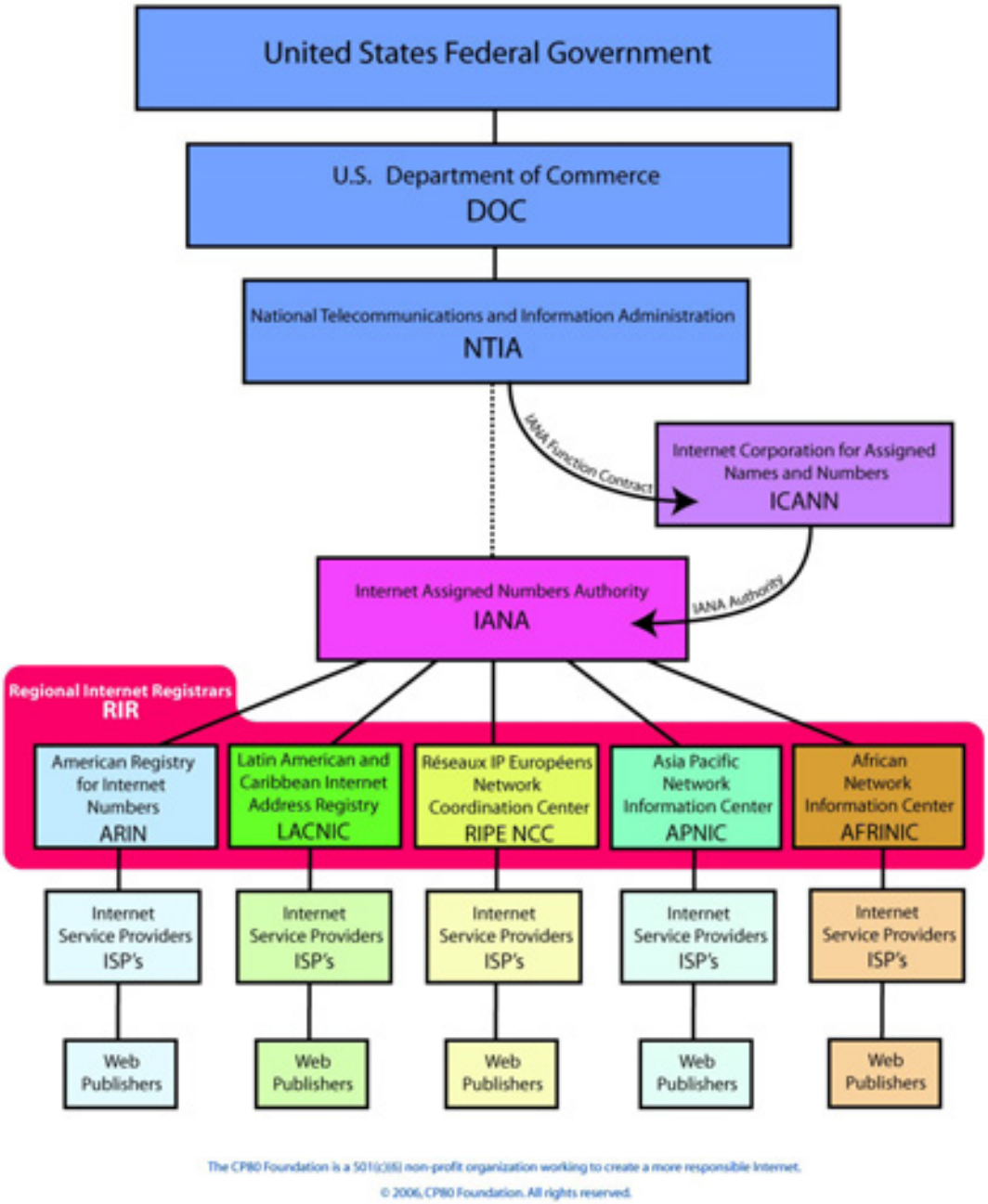

Figure 13

Each Regional Internet Registrar (RIR) and National Internet Registrar (NIR) is a key entity for the successful implementation of the compliance policies. For example, the publisher of inappropriate material on the Community Ports and

their Internet Service Provider (ISP) will be put on notice of a violation of policy and potentially a violation of local law. Once notified, a violating publisher must comply within the appropriate time frame to move the content to the Open Ports. Failure to do so or repeatedly violating policy will result in a publisher being subject to penalties which may include loss of Internet names and numbers. The ISP will also play a key role and ensuring compliance to content publication requirements and may be subject to the same penalties. The RIR or NIR now becomes the authority for compliance for their respective regions and are represented by and accountable to the regions that they serve.

With a new commitment to protecting children with appropriate Internet governance, a greater level of accountability is achieved. No longer can irresponsible pornographers seek out and trap children in an anonymous manner without facing the consequences because the owner of the IP address is known and will be held accountable.

Summary

Content could and should be easily zoned using the existing, available ports to allow users to access what they want and avoid what they do not want. The solution is very simple. Distinguish between ports for family, education and business and ports open for all other legal content. Such a system leverages existing infrastructure and available technologies to create space for those who value the freedom to avoid unwanted intrusions into their businesses, homes, and minds.

The implementation could be equally simple. An Internet governing body, accountable to the general world public, can designate content specific ports and appropriate penalties to ensure compliance. Furthermore, individual governments are free to implement additional laws as appropriate for their citizens to enhance the adoption and enforcement of this approach.

The CP80 foundation is pursuing both options by explaining these concepts to the appropriate Internet governing bodies, by introducing legislative concepts like the Internet Community Port Act (ICPA) in the United States Congress, and consulting with governments, professionals and concerned coalitions worldwide. The ICPA honors and supports the principles and tradition of the U.S. Constitution’s protections for freedom of expression.

The Internet Zoning Initiative is a real solution.