

Internet Number Resource Policy

The Need for Higher Education Participation

In an article in the current issue of the “Educause Review” entitled “The Internet at Risk: The need for Higher Education Advocacy.”¹ The author, James Dempsy, suggests that the following are “qualities” of the Internet:

- 1) “The Internet offers a high degree of equality. Any item of data is as accessible as any other item of data, and all points on the network are equally accessible from every other point.”
- 2) “The Internet, by contrast, can accommodate an essentially unlimited number of points of entry and an essentially unlimited number of speakers.”

Historically these are held to be essential characteristics of the Internet and his discussion of these qualities centers on topics like net neutrality, CALEA, privacy and protection from on-line abuse. And certainly these are important issues to be discussed. However he does not touch on another area that will potentially have a greater impact on these qualities. That area is Number Resource Policy, which governs the allocation of IP addresses and other number resources necessary for the operation of the Internet.

While there are multiple organizations worldwide involved in these policies, within the US the American Registry for Internet Numbers (ARIN) is the organization that both formulates policy, via member input, and then implements that policy. If our institutions wish to obtain any number resources in the future we will have to work through ARIN and be subject to its policies. As early adopters of the Internet most of us (the US Research and Education community) obtained our Number Resources prior to the formation of ARIN. We are certainly not the only ones who were able to do this, but it is true of a substantial number of our institutions and the regional networks who serve us. As a result of this many of our institutions have not entered into a member relationship with ARIN. Some of us who obtained address space after the formation of ARIN perhaps have become members, but historically have not chosen to participate in many of the policy discussions. The consequence of this is that our R&E community has not had as much impact as it might have on the formulation of policies related to Number Resource Allocation.

In the past this has not been as significant an issue as it will be in the future. ARIN has stated publicly and repeatedly that the available IPv4 address space is nearing exhaustion.² There are credible projections that this resource will be gone in 3-5 years.³ What this practically means is that at some point in the next few years the likelihood is

¹ *EDUCAUSE Review*, vol. 42, no. 6 (November/December 2007): 72–83
<http://www.educause.edu/apps/er/erm07/erm0763.asp>

² *ARIN Board Advises Internet Community on Migration to IPv6*, Press Release, May 21, 2007
<http://www.arin.net/announcements/archives/20070521.html>

³ Geoff Huston, IPv4 Address Space Report,
<http://ipv4.potaroo.net/>

that requests for number space will be highly scrutinized and not infrequently denied. This is of course of considerable concern to everyone who is concerned with the Internet either as an education resource or a business.

Consider some of Mr. Dempsey's statements in the light of these facts. "Any item of data is as accessible as any other item of data ...". That belief is predicated on the premise that the machines where that data resides are publicly available. In a world where there is no available address space that void will be filled by the increased use for instance of NAT type devices. And while these have been shown to work reasonably well on a small scale it is not clear that they will continue to work when massively deployed in multiple layers. Similarly in a world where there are no available public addresses there are potential effects on how ISP's will choose to carry routes which may well effect the accessibility of data. He also states that the Internet can accommodate "an essentially unlimited number of speakers". In a world where there are no more addresses that is simply not going to be the case.

Within the R&E community we need to be concerned with the policy space that will govern the allocation of the remainder of the address space available to ARIN. If this role is abrogated totally to the ISP community the policies that are developed will most certainly not fully take our needs and desires into consideration. And this is not just about the use of IPv4 address space. At the same time ARIN is grappling with what should be the policies for the allocation of IPv6 address space. Here again it is certainly in our communities interest to participate in these policy discussions.

The Internet has become so vital to the operation of our institutions, from basic business functions though to the fundamental missions of education, outreach, and research, that we genuinely jeopardize our futures by ignoring these Number Resource Policy discussions.

What is being suggested here is only that within your institution you take notice of what is being discussed on the ARIN public policy mailing list. Take some time to consider if those policies will impact your institutions operational integrity or your growth potential. You may find that there is no real problem or you may find that some proposed policies do have an impact on your operations that go beyond anything the author intended. If that is the case that point of view needs to be represented to the ARIN Advisory Council so they can take it into consideration in their deliberations. Consider whether it is to the advantage of your institution and to our community as a whole for us all to be members of ARIN and thus be able to vote on who sits on the various councils and thus makes the final decision on which policies are implemented.

Currently there is a proposal within ARIN for all legacy address holders, those are any institutions that obtained addresses prior to 1997, to sign an agreement called the Legacy RSA⁴. Anyone who is a legacy holder should go to the ARIN website and determine if they believe the Legacy RSA as proposed is acceptable. If this review

⁴ *ARIN Legacy Registration Services Agreement*
<http://www.arin.net/registration/legacy/index.html>

suggests problems ARIN needs to be made aware of the issues. They are willing to work with the community to resolve those problems. This is just one example of why it is critical for our community participate in Number Resource Policy activities.

The next several years are going to be a period of further growth and expansion of the Internet, both in size and in significance. At the same time the Internet is going to be faced with an unprecedented crisis of resources. One part of how this conflict resolves will be determined by the policies of ARIN, the other Registries and the other organization that govern the Number Resources. It certainly seems it is in the interest of R&E to participate actively in those discussions.