TEN ODD STRATEGIES FOR PICKING NUMERICAL VALUES FOR YOUR TRAFFIC SHAPER

When it comes to picking numerical values for use in traffic shaper policies, some people may find it hard to decide on an actual value. The following considerations are designed to provide you with some possible starting points.

1) Consider natural units that users or networking staff may already be familiar with, e.g., T1 (1.5Mbps), typical DSL speed (256Kbps) or "dialup modem speed" (56Kbps). Using a natural unit is a lot easier for folks to comprehend than some "arbitrary" value like 2.4Mbps, 400Kbps or 30Kbps.

2) Take the total available amount ("We have 21 Mbps worth of commodity transit bandwidth") and divide that amount by the number of users ("We have 18,000 users") to get a per-user amount, then multiply by the number of users in a given category to get the "fair share" of the total that should be allocated to that group.

3) Compare proposed levels to levels which have been demonstrated to work in other contexts. ("We will give our 3000 users 6Mbps to work with, which is twice as much bandwidth as entity X, which is comparably sized, provides for its users.")

4) Look for natural upper and lower bounds. For example, if you are trying to curtail use of a particular application, and that application is demonstrably unusable at dialup rates, but works fine at DSL speeds, you know that the value you'll need exists somewhere in the 56Kbps -- 256Kbps interval.

5) Figure you're going to be doing some negotiating before you arrive at a final value for some policy numbers. Don't go into initial policy discussions with your absolute most-liberal/worst-case values already on the table -- you may need to meet someone halfway to get buy in and the ability to proceed. Allow a cushion for adjustments.

6) Survey what the rest of the world is doing. Doing what has already been proven to work at other institutions can be a compelling approach (and bureaucratically low risk).

7) Do a statistical study of empircal usage, and determine the 95th service level. Set the threshold at which you're going to trim extreme outliers at a round value close to that level. If nothing changes, at least you will only expect 5% of people to be unhappy with you.

8) Take current levels, and drop them by some articulable amount ("we're cutting the amount of traffic games have available in half").

9) Tie provisioned levels to financial contributions ("$2.00/month/person is provided to fund bandwidth; at our current costs, that allows us to deliver...")

10) Start high, and work gradually downwards. When complaints begin, or performance improves, give that level a shot.

Other thoughts...

— remember, you can set both per user and per class bandwidth limits -- if you can't get the number you need in one of those categories, a suitable number for the other limit may still let you get where you need to be

— you have the option of setting hard or burstable limits; choose wisely.

— inclusion (or exclusion) of on-campus traffic can affect the amount of traffic in a class tremendously

— watch out for aggregate classes that contain everything and the kitchen sink; keep distinct applications distinct

— if you can't get metric values you want, see if you can get rank ordered priorities, and then let the good traffic squeeze the lower priority traffic if/when it needs to

— people may want to set different limits for commodity transit, Internet2, peerage, etc. -- be careful you don't agree to something you can't implement (most shapers aren't able to look at next hop AS information in formulating policies, for example)

— people may want to try to set time phased policies ("nobody's using the network at night, let us run our P2P apps wide open then..."); but that may not be true in fact, and time phasing may both complicate your policies and leave you with awkward questions such as "How do I handle carry over processes still running when policy epochs change?" -- try to keep it simple and run the same policy 24x7