

Criteria (1)

- much more multihoming
- lots of *VPNs and internal routes
- don't force ISPs to reveal topology
- economics rules
 - make "bad" behavior obviously unrewarding
 - need incentives for those who have to act
 - level playing field
- renumbering (esp. large sites) SHOULD be avoided / site reconfiguration driven by the routing system SHOULD be minimized
- e2e stability good enough for VoIP
 - convergence issues kept under the covers

Criteria (2)

- industry assumes cheap & cheerful price/performance
 - don't overheat core routers
 - don't overheat border routers
 - don't overheat server CPUs or offload processors
- don't know timescale but we have to start now
 - constraint: we need stuff (specification?) that can happen in 1 - 2 years

Criteria (3)

- Are the things we're going to have to give up OK?
- There is no free lunch
 - if we want to reduce or stop the growth in the Internet routing table, we will need to give something up
 - if we want to let the routing table keep growing, some and eventually all currently deployed equipment will need hardware and software upgrade (or replacement).
- It has to be deployable by real people
 - to make any significant change we need either
 - (i) very strong consensus; and/or
 - (ii) an overwhelming need (ie, impending disaster)
 - (iii) real benefits for real people

Criteria (4)

- It has to work
- Routing system must scale
 - Function of DFZ Internet routing table
 - Function of internal routes
 - Function of 2547 VRF routes
 - Hardware upgrade treadmill
 - Can hardware keep up at a reasonable cost
 - FIB scaling becomes non linear
 - 5 year depreciation cycle
 - 2 year certification / deployment cycle
 - Health of the Internet
- If Tier 1 ISPs melt down, other people inherit the problem
- (shrink the above later)

Criteria (5)

- Business cases require TE
 - Apparently hard to define
 - Capacity planning is place circuits where the traffic is
 - TE is pushing traffic where capacity is
 - TE is pushing specific traffic on specific links as required by policy / business constraints
 - End site TE
 - Small ISP to transit provider TE
 - Need locator mapping available to transit routers
 - Large ISP TE
 - Need locator mapping available to transit routers
- Solution **SHOULD** allow scalable TE, either inside or outside the actual routing protocol

Criteria (6)

- Security is important, but working in the first place is even more important
 - Consider security from the start
 - Don't make security of the routing system any worse
 - Can we also make it more difficult to inject false routing information
 - (Identifier/locator separation needs new mapping service)
 - Can we make it easier to filter DoS traffic
 - Id transparent to transit routers
 - Unlike NAT / proxies

Criteria (7)

- Chances of success higher with fewer changes
- No flag day: there needs to be a deployment model
 - progressive stack & upper layer updates
 - legacy IPv6 is shipped code (and required to get certain business)
 - changing IPv4 is even harder
- Backwards compatibility
 - Means: work with incremental change from the current Internet
 - routing will use BGP, OSPF, and IS-IS (possibly with enhancements)
 - the data path will be IPv4 and/or IPv6
 - Find the right solution
 - See if it can easily be made backwards compatible
 - See what trade offs we lose for backwards compatible
- Need to address both IPv4 and IPv6
 - is slowing down IPv4 table growth enough?