

Current State of the RG and where to go from here

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Challenges down the Road

- a challenge with existing VN systems
 - development of incompatible or competing networking techniques
 - causing deployment issues in the future (or even now).
- numerous ways to virtualize routers and their internal resources and to virtualize core networks
 - e.g., multiple, isolated routing and forwarding tables
 - e.g. MPLS, LISP
- end host virtualization has not been addressed
 - (e.g., beyond the need for virtual interfaces).
- Few systems allow a particular virtual machine in an end host to control its attachment to a specific private network.
- End host virtualization architecture determines whether virtualization is per virtual machine, per process, or per connection
- Similar issues arise for virtual services, virtual links, etc

Some Discussion Items

- at what level is the VN virtualization?
 - per virtual virtual machine
 - per process group or process
 - per connection or socket
- can a single process be a member of more than one VN?
 - i.e., can a process be a gateway between two different VNs?
- can different processes be members of a single VN?
 - i.e., can the host participate more than once in a single VN
- how do you distinguish between VNs?
 - i.e., how does a virt machine/process/socket indicate which VN it wants to associate with?
- your view of host virtualization issues anything you want to add that isn't covered in the list above

Starting questions

- how do you define VNs?
 - what are the key components?
 - what is the relationship between these components?
 - what is the characteristic behavior/capability of the resulting system?
- what are VNs used for?
- what are they key challenges?
- for each challenge:
 - define the challenge explain why it is hard
 - provide some references to those working on solutions

Acid Tests/Definitions

- Trying to flesh out some common definitions
 - See draft-jeong-vnrg-virtual-networks-ps
 - See http://trac.tools.ietf.org/group/irtf/trac/wiki/vnrg/vn_properties
- Trying to specify some acid tests for net technologies
 - See http://trac.tools.ietf.org/group/irtf/trac/wiki/vnrg/vn_acid_tests

Initial set of Work Items

- concepts/background/terminology
- common problems/challenges in VN
- common parts of VN architectures
- descriptions of appropriate uses
- some solutions (per-problem perhaps)

What are challenges for this RG?

- Observations:
 - General good interest in meetings
 - Discussions on the mailing list spike at some times
 - Low level for most of the times
 - Low progress on work items
- Potential reasons for this
 - Lack of community interest?
 - RG is overtaken by events?
 - Wrong operational model?
 - People have interest but no time?!
 - Scope unclear or too broad?

The VNRG

- Meeting point to progress VN field
 - forum for VNs researchers
 - considering today's Internet and beyond
- Identify architectural challenges
 - integration, not just technique X in special case Y
 - implications for control, management, and security planes
 - implications for the future: identify emerging technological and implementation issues
- Catalyze a common understanding
 - what issues are VNs addressing
 - how are they addressing the issues
 - which existing technologies can be more widely used/applied
 - is there a need to change/fix/invent a technology

“Operational Model” of the VNRG

- Open email discussions between the meetings
- Meet at IETF meetings
 - Done several times
- Can meet at conferences or workshops
 - Not done yet
- Meetings are done in a workshop style
 - few presentations
 - presentations focus prior defined issues
 - time for open discussion
 - Chairs check and discuss slides in advance