Overview

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PANRG Overview

The scope of work within the RG includes, but is not strictly limited to:

- communication and discovery of information about the properties of a path on local networks and in internetworks, exploration of trust and risk models associated with this information, and algorithms for path selection at endpoints based on this information.
- algorithms for making transport-layer scheduling decisions based on information about path properties.
- algorithms for reconciling path selection at endpoints with widely deployed routing protocols and network operations best practices.
Work Items: Current Open Questions in PAN

1. how are path properties defined and represented?
   a. See draft-irtf-panrg-path-properties

2. how do endpoints get access to trustworthy path properties?

3. how can endpoints select paths to use for traffic in a way that can be trusted by the both the network and the endpoints?

4. how can interfaces to the transport and application layers support the use of path awareness?
Open questions (2)

5. how should transport-layer and higher layer protocols be redesigned to work most effectively over a path-aware networking layer?

6. how is path awareness (in terms of vocabulary and interfaces) different when applied to tunnel and overlay endpoints?

7. how can a path aware network in a path aware internetwork be effectively operated, given control inputs from the network administrator as well as from the endpoints?

8. how can the incentives of network operators and end-users be aligned to realize the vision of path aware networking, and how can the transition from current ("path-oblivious") to path-aware networking be managed?
RFC9049: Obstacles to Deployment (A Bestiary of Roads Not Taken)

- Catalogs historical “obstacles to deployment” for “path-aware” IETF protocols over several decades
- Informed the development of “open questions” for the research group, as listed on previous slides
- Does not catalog every “path-aware” IETF protocol, only protocols necessary to explain the obstacles
- **Key takeaway for ALTO fans** - these obstacles seem to be persistent. Keep your eyes open!
RFC9049 (2): Key Pointers

- **Summary of Lessons Learned**
  - High-level summaries for each lesson
  - With pointers to protocols behind each lesson

- **Applying the Lessons We've Learned**
  - Especially Table 1
  - “Invariant”, “Variable”, “Not Now” categories
  - Some obstacles are immutable, other obstacles might be overcome by engineering analysis, and yet other obstacles are “still research”.
How PANRG Could Help

From the ALTO proposed charter:

- Provide a place to collect implementation deployment and experience.
  - PANRG would love to hear about ALTO deployments. What worked, what did not, why?
- Perform protocol maintenance for the existing published protocol.
- Develop operational support tools for the ALTO protocol.
  - High-level discussion on operational experience and tools is welcome in PANRG.
  - YANG might not be so...
- Support for modern transport protocols.
- Future use cases.
  - Most definitely in scope for PANRG