A Vocabulary of Path Properties

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03.06.2020
Entities may have **different visibility** of paths and treat paths at **different levels of abstraction**.

Paths can be:

- A sequence of physical nodes and links
- A sequence of logical nodes (e.g., ASes)
- Detailed down to physical layer technologies
- Expressed as just a combination of source and destination
Add the notion of a reverse path:
- A path used by a remote node in the context of bidirectional communication.
Rework of the Use Case Section

- “Path Selection”: Textual changes
- “Performance Monitoring and Enhancement”: Removed
- “Traffic Configuration”: Split into
  - “Protocol Selection”: Entities select appropriate protocols or configure protocol parameters
  - “Service Invocation”: Entities invoke additional functions influencing on-path nodes (e.g., 0-RTT Transport Converter to enable MPTCP or TCPinc capabilities)
New Path Properties

- **“Transparency”:** A node is transparent with respect to a protocol if it does not modify headers of this protocol and it processes packets independently of protocol-specific meta-information (e.g., an IP router could be transparent to transport protocols, while a NAT actively modifies TCP and UDP headers).

- **“Symmetric Path”:** Two paths are symmetric if a path and its reverse path consist of the same path elements, but in reverse order.
Security-related Properties

We do not define specific security-related path properties, instead, we discuss security-related properties in the Security Considerations.

- Difficult to characterize (threat model?)
- Security-related properties are typically orthogonal to the path properties defined in this document.
  - Path properties describe what function the network applies to packets
  - Confidentiality and integrity describe what function the communicating parties apply to packets
Minor Modifications

- “Access Technology”: Emphasize focus on physical and link layer
- “Service Function”: Add note that service functions may require symmetric paths
Questions/Comments?

In particular, what do you think about:

▶ Transparency Property
▶ New Security Considerations content