Traceroute and Ping Message Extension

draft-shen-traceroute-ping-ext-00
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Motivation

• Allow authentication in traceroute and ping probe packets (the sender side)
• Allow sender to request specific information to be returned
• Supports UDP, TCP and ICMP messages
  – Evolved from UDP Traceroute Extension
• Backwards Compatible with existing applications
  – And forward compatible with new ones
Extension Overview

• src sends traceroute probe packets through the network with this extension (optional)
  – With authentication signature
  – With request of specific information
  – Probe can be UDP, TCP or ICMP

• Routers and host may verify the signature and reply with specific info in ICMP
  – Information could be mpls, interface, address, nexthop, routing instance, device role

• Both traceroute and ping
Extension Format

• Common header
  – Version, Length, Checksum, Magic-number

• Probe Authentication TLV
  – Type: 1
  – Auth Type, Key ID, Auth Data Len, Auth Data

• Probe Information-Request TLV
  – Type 2
  – Bits for specific information: MPLS, Interface, Address, Routing Instance, Nexthop, Device Role, etc
Extension Offset Field

• For receiver to locate this extension in the probe
  – Destination port is not well-known
  – Private application data at the beginning of data field

• Ext-Off format
  – 4 bits out of a 16 bit field
  – Represent start location of Extension in user data field
  – src-port in UDP and TCP, id field in ICMP type 8 in traceroute probe

• This 16 bit field usually is used for process-id
UDP Probe Example

- Ext-Off in UDP source-port lowest 4 bits

- Ext-Off points to the location of this extension data
- Application may use the 12-bits for process-id
- Application private data (such as timestamp) is not touched

- Similar in TCP and ICMP
To intarea WG

• We took input from intarea that resulted in this new document
• Please comment
• Interest in advancing this draft, in the future?