

Traceroute and Ping Message Extension

draft-shen-traceroute-ping-ext-00

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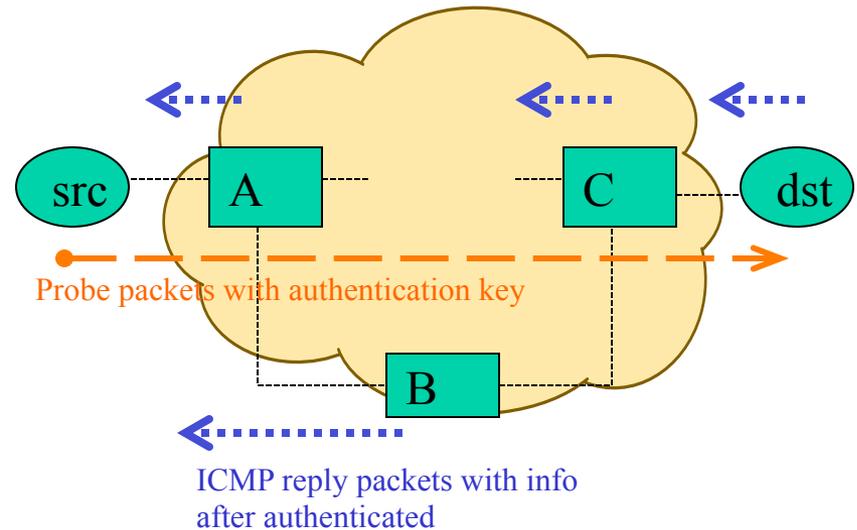
IETF 79, Beijing

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



src: sends traceroute/ping with extension
router/host: replies with ICMP information

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

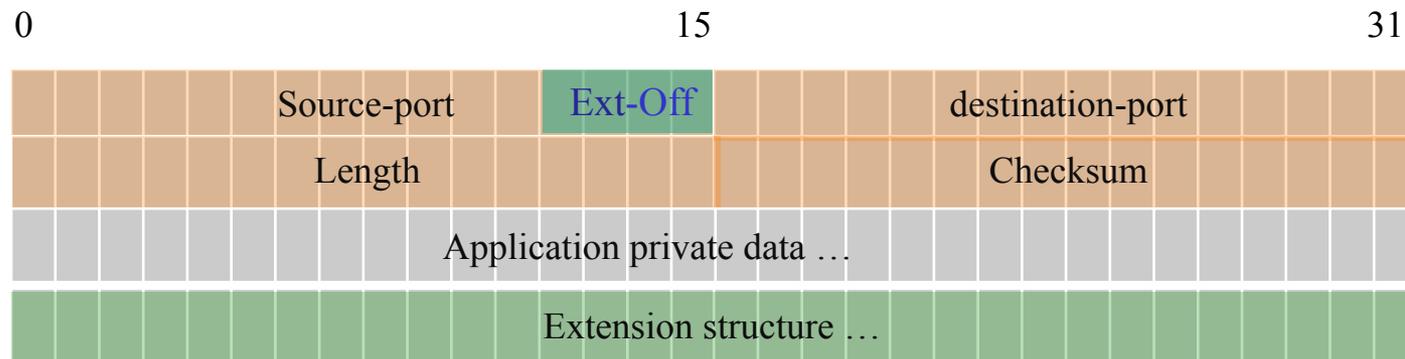
- Ext-Off format



- 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?