Extended Ping (EPING)
draft-bonica-intarea-eping-01

Ron Bonica & Reji Thomas
Juniper Networks
Motivation

• An operator deploys a router with
  • An unnumbered IPv4 interface
  • An IPv4 interface numbered from RFC 1918 address space
  • An IPv6 interface whose only interface is link-local
• Sadly, these interfaces cannot be pinged from all points on the Internet
• EPING to the rescue!
EPING 101

• EPING is an application
  • Very similar to traditional PING
  • Sends a probe message, waits for a reply

• EPING probe distinguishes between
  • The destination interface (i.e., the interface to which the probe is sent)
  • The probed interface (i.e., the interface whose status is being queried)

• The two interfaces are typically different from one another
  • But can be the same

• The destination interface must be identified by a reachable IP address

• The probed interface can be identified by
  • ifName, ifIndex, address (reachable or unreachable)
reji@R11_re0:~ # eping -I ge-0/0/0.0 10.10.10.2
PING 10.10.10.2 (10.10.10.2): 56 data bytes
8 bytes from 10.10.10.2 via ge-0/0/0.0: icmp_seq=0 ttl=64
Extended Ping Results
Queried for status of Interface name : ge-0/0/0.0
Status: IPv4 ACTIVE
IPv6 ACTIVE

--- 10.10.10.2 ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
EPING: User View by IPv6 Link-local Address

reji@R11_re0:~ # eping -l fe80::1 10.10.10.2
PING 10.10.10.2 (10.10.10.2): 56 data bytes
8 bytes from 10.10.10.2 via ge-0/0/0.0: icmp_seq=0 ttl=64
Extended Ping Results
Queried for status of Interface name : ge-0/0/0.0
Status: IPv4 ACTIVE
IPv6 ACTIVE

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EPING: Internal View

• EPING relies on two new ICMP messages
  • ICMP Extended Echo
  • ICMP Extended Echo Reply

• ICMP Extended Echo Message
  • Very similar to existing ICMP Echo message
  • Destination address represents the destination interface
    • Message is delivered to destination interface
    • ICMP Extension identifies probed interface

• ICMP Extended Echo Reply message
  • Very similar to existing ICMP Echo Reply message
  • Optional ICMP Extension provides additional details regarding probed interface
Comments Received From Mailing List

- Modify ICMP extension so that probed interface can be identified by MAC address
- Various editorial comments
- New version will be posted after IETF
Next Steps

• Update Draft
• Call for adoption