Logical Interface Support for IP Hosts

Sri Gundavelli
Telemaco Melia
Carlos Jesus Bernardos Cano, Antonio De la Oliva,
Yong-Geun Hong, Kent Leung, Tran Minh Trung, Hidetoshi Yokota, Juan Carlos Zuniga

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Open Issues

- Issue-1: Behavior of ND

- Issue-3: Use of the Virtual LLID

- Issue-4: Point-to-Point Links

- Issue-5: Multicast Traffic

- Issue-6: MTU Issues

- Issue-7: UL/DL Packet Processing

Issue-3: Behaviour of ND

- ## Text in Section 6.5:

- Any Neighbor Discovery messages, such as Router Solicitation, Neighbor Solicitation messages that the host sends to a multicast destination address of link-local scope such as, all-nodes, all-routers, solicited-node multicast group addresses, using either an unspecified (::) source address, or a link-local address configured on the logical interface will be replicated and forwarded on each of the sub-interfaces under that logical interface. However, if the destination address is a unicast address and if that target is known to exist on a specific sub-interface, the message will be forwarded only on that specific sub-interface.

- Any Neighbor Discovery messages, such as Router Advertisement, that the host receives from any of its sub-interfaces, will be associated with the logical interface, i.e., in some implementations the message will appear on the input interface of the logical interface.

- When using Stateless Address Autoconfig for generating IPv6 address configuration on the logical interface, the host may use any of the IPv6 prefixes received from the Router Advertisement messages that it received from any of its sub-interfaces.

Issue-1: Link-layer Id of the Logical Interface

- Text in Section 6.4:

- The logical Interface may or may not use the link-layer identifier from one of its sub-interfaces. Following are the considerations.

- In access architectures where it is possible to adopt a virtual link-layer identifier and use it for layer-2 communications in any of the access networks, a virtual identifier (VLL-Id) may be used. The specifics on how that identifier is chosen is out side the scope of this document. This identifier may be used for all link- layer communications. This identifier may also be used for generating IPv6 global or link-local addresses on that interface.

- In access architectures, where the link-layer identifier is associated with a specific access technology, it will not be possible for the logical interface to adopt a virtual identifier and it use it across different access networks. In such networks, the logical interface must adopt the identifier of the respective sub-interface through which a packet is being transmitted.

Issue-4: Point to Point Links

- Text in Section 6.3:

- The sub-interfaces of a logical interface can be bound to point-to-point links over any access technology. Shared media (e.g., IEEE 802.11) are supported as long as they provide a point-to-point link [rfc4861] as required by the Proxy Mobile IPv6 specification [RFC-5213]. The details of how a shared media provides a point to point link are link layer specific and/or operational matters that are out of scope of this document. For example IEEE 802.11 media can provide a point-to-point link Ex:, via the appropriate use of IEEE 802.1Q VLAN header where a distinct VLAN is configured between the MAG and each of the mobile node.

- The logical interface appears as a shared-link to the applications, and adapts to the link model of the sub-interface for packet communication.

Issue-5: Multicast Traffic

- Text in Section 6.5: Need to generalize this ND specific text and cover for all multicast cases.

- Any Neighbor Discovery messages, such as Router Solicitation, Neighbor Solicitation messages that the host sends to a multicast destination address of link-local scope such as, all-nodes, all-routers, solicited-node multicast group addresses, using either an unspecified (::) source address, or a link-local address configured on the logical interface will be replicated and forwarded on each of the sub-interfaces under that logical interface. However, if the destination address is a unicast address and if that target is known to exist on a specific sub-interface, the message will be forwarded only on that specific sub-interface.

- Any Neighbor Discovery messages, such as Router Advertisement, that the host receives from any of its sub-interfaces, will be associated with the logical interface, i.e., in some implementations the message will appear on the input interface of the logical interface.

Issue-6: MTU Considerations for the LI

- Text in Section 6.2:

- MTU considerations   The link MTU (maximum transmission unit) value configured on a   logical interface should be the lowest of the MTU values supported   across any of the physical interfaces that are part of that logical   interface construct. The MTU value should be configured as part of   the logical interface creation on the host.

- Furthermore, this value must be updated any time there is a change to   the logical interface construct, such as when interfaces are added or   deleted from the logical interface setup. Any time there is an   inter-technology handover between two access technologies, the   applications on the host bound to the IP address configuration on the   logical interface will not detect the change and will continue to use   the MTU value of the logical interface for the outbound packets,   which is never greater than the MTU value on that supported access   network. However, the access network may continue to deliver the   packets conforming to the MTU value supported on that access   technology and the logical interface should be able to receive those packets from the physical interface attached to that network.

Issue-7: UL/DL Packet Processing

- ## Text in Section 6.6:

- The LIF table maintains the mapping between the LIF and each PIF associated to the LIF (see P3). For each PIF entry the table should   store the associated Routing Policies, the Home Network Prefix   received during the SLAAC procedure, the configured Link Layer   Address (as described above) and the Status of the PIF (e.g. active,   not active).

- The method by which the Routing Policies are configured in the UE is   out of scope of this document. It is however assumed that this   method is in place and that these policies are configured in the LIF   TABLE.

- The FLOW table allows a LIF to properly route each IP flow to the right interface (see P6). The LIF can identify flows arriving on its PIFs and can map them accordingly for transmitting the corresponding   packets. For locally generated traffic (e.g. unidirectional outgoing   flows, mobile initiated traffic, etc.), the LIF should perform   interface selection based on the Flow Routing Policies.

Thank You