

MIF Charter update proposal

MIF WG Charter update proposal summary

<http://www.ietf.org/mail-archive/web/mif/current/msg02125.html>

Specific deliverables listed

- MPVD architecture document
- Requirement for protocol changes to support the MPVD architecture
- MIF API to assist advanced applications in selection of network configuration
- Guidelines to applications on MIF API usage to enable better connectivity experience in MPVD environments

+ significant wording changes in the header of the charter

Full proposed charter text – part 1

Nodes attached to multiple networks may encounter problems due to conflict of network configuration information and/or simultaneous use of the multiple available networks. This can happen over multiple physical network interfaces, a combination of physical and virtual interfaces (VPNs or tunnels), or even indirectly through multiple default routers being on the same link. For instance, current laptops and smartphones typically have multiple access network interfaces.

The MIF problem statement document [RFC6418] enumerates the problems into 3 categories:

1. Lack of consistent and distinctive management of configuration elements, associated with different networks.
2. Inappropriate mixed use of configuration elements, associated with different networks, in the course of a particular network activity / connection.
3. Use of a particular network, not consistent with the intent of the scenario / involved parties, leading to connectivity failure and / or other undesired consequences.

Full proposed charter text – part 2

The purpose of the MIF working group is to describe the architecture detailing how devices attach to and operate in multiple networks. The group shall also analyze how applications can be influenced by these existing mechanisms. The WG shall employ and refer to existing IETF work in this area, including, for instance, strong/weak models (RFC 1122), default address selection (RFC 6724), ICE and other mechanisms higher layers can use for address selection, DHCP mechanisms, Router Advertisement mechanisms, and DNS recommendations. The focus of the working group should be on documenting the system level effects to host IP stacks and identification of gaps between the existing IETF recommendations and existing practice. After completing some of its initial goals the group is also developing the following:

1. An incrementally deployable architecture, defining a consistent approach and recommended practices for handling sets of network configuration objects by hosts, attached to multiple networks, which enable hosts to improve network connectivity for the host's applications and users.
2. A set of requirements for changes to protocols, used to provide network configuration information, to enable improved handling of multiple sets of network configuration in networks and hosts. For example, requirements for DHCPv6 options, Neighbor Discovery options etc. to communicate association of the configuration information with particular networks.

Full proposed charter text – part 3

3. A MIF API: While no changes are required for applications to run on multiple interface hosts, a new API could provide additional services to applications running on hosts attached to multiple networks. For instance, these services could assist advanced applications in having greater control over first-hop, source address and/or DNS resolver, interface and other network configuration element selection. This API will be defined as an abstract interface specification, i.e., specific details about mapping to operating system primitives or programming languages will be left out. In addition to the new API, the behavior of existing APIs may be changed to improve the behavior of unmodified applications.

4. Guidelines to applications on MIF API usage, to provide an improved connectivity experience when the host is attached to multiple networks or there is a change in the set of networks the host is attached to.

Network discovery and selection on lower layers as defined by RFC 5113 is out of scope. With the exception of identifying requirements for additional DHCPv6 and/or ND options, as well as requirements for possible related changes in these protocols, the group shall not assume any software beyond basic IP protocol support on its peers or in network hosts. No work will be done to enable traffic flows to move from one interface to another. The group recognizes existing work on mechanisms that require peer or network support for moving traffic flows such as RFC 5206, RFC 4980 and the use of multiple care-of addresses in Mobile IPv6. This group does not work on or impact such mechanisms. Future work in this area requires rechartering the working group or asking other, specialized working groups (such as DHC or 6MAN) to deal with specific issues.

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