

Discussion of MIF API

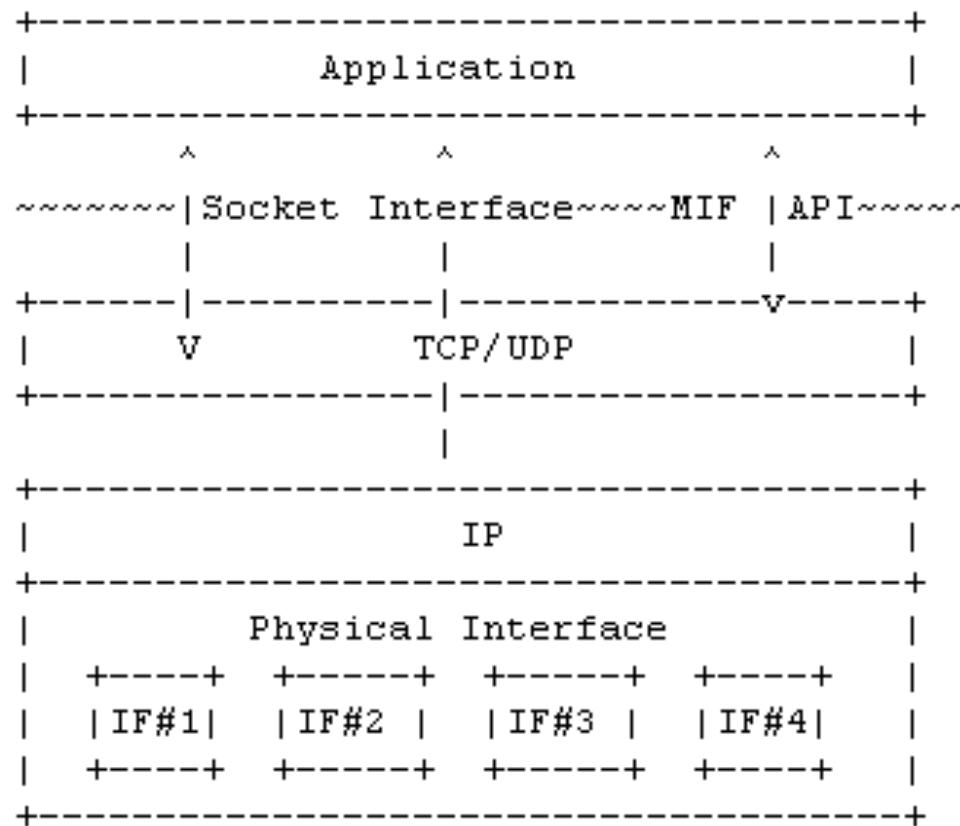
draft-liu-mif-api-extension-04

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MIF API Concept



Abstract MIF API:

- Advanced MIF API for app developer.
- Describe the abstract function of MIF API.

MIF API definition

- Address selection API
- Routing selection API
- Interface selection API
- Interface information API
- DNS selection API
- Notification API

1. Address Selection API

- **int setsockopt (int socket, int level, int option_name, const void *option_value, socklen_t option_len);**
 - The setsockopt() function shall set the option specified by the **option_name** argument, at the protocol level specified by the **level** argument, to the value pointed to by the **option_value** argument for the socket associated with the file descriptor specified by the **socket** argument.
Examples of option: SO_DEBUG, SO_DONTROUTE, SO_SNDBUF...
 - Extend new option type used for address selection: **SO_ADDR**.
 - When setsockopt() set this parameter, the application will use the IP address specified by option_value as the source IP address.

2. Route selection API

- Extend new option type parameter for setsockopt() function:
- **SO_FSTHOP**: When this option is set, the packet will send via the gateway that specified by option_value.

3. Interface selection API

- Extend new option type parameter for setsockopt() function:
- **SO_INF**: When this option is set, the interface that specified by option_value is used.
- Discussion: Do we need to include the interface selection API in the draft?

4. Interface Information API

- Get Interface status/configuration API
- `getInterfaceInfo()`
 - get all interface's information and configuration
 - Need to define new structure, e.g.:

```
Struct InterfaceInfo{  
    char * name;      /*Interface name*/  
    struct parameter; /*IP, MAC, addr Scope, Type...*/  
    unit32_t status;}
```

- Discussion:
- Do we need the `setInterfaceInfo()` API?

5. DNS selection API

- Current version of gethostbyname()/gethostbyaddr() has the following definition:

```
struct hostent *gethostbyname(const char *name)
```

- Propose to extend:

```
struct hostent *gethostbyname(const char *name, struct sockaddr  
*DNS_addr)
```

DNS_addr is used to specify which DNS server the application want to use for the DNS query.

- Discussion: Do we need the DNS selection API?

6. Notification API

- Sometimes, application need to know physical interfaces changing event.
 - For example: Apple platform provide mechanism that application can re-connect using new interface when a new interface is up and obtaining an IP address.
- Standardize those implementation in MIF API.
 - Example: new notification API to notify the event of interfaces changing.
- Discussion: Do we need to include this notification API in the draft?

Q & A