Introduction to MIF

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Multiple Interfaces (mif) WG

- MIF is a WG in the Internet Area focused on hosts with multiple network interfaces
- Deals with problems for hosts with multiple interfaces attached to multiple administrative domains
  - Separate/conflicting configuration information
  - Source address/outbound interface selection
    - Should be consistent with DNS Server used
  - Enable upper layers to make intelligent choices

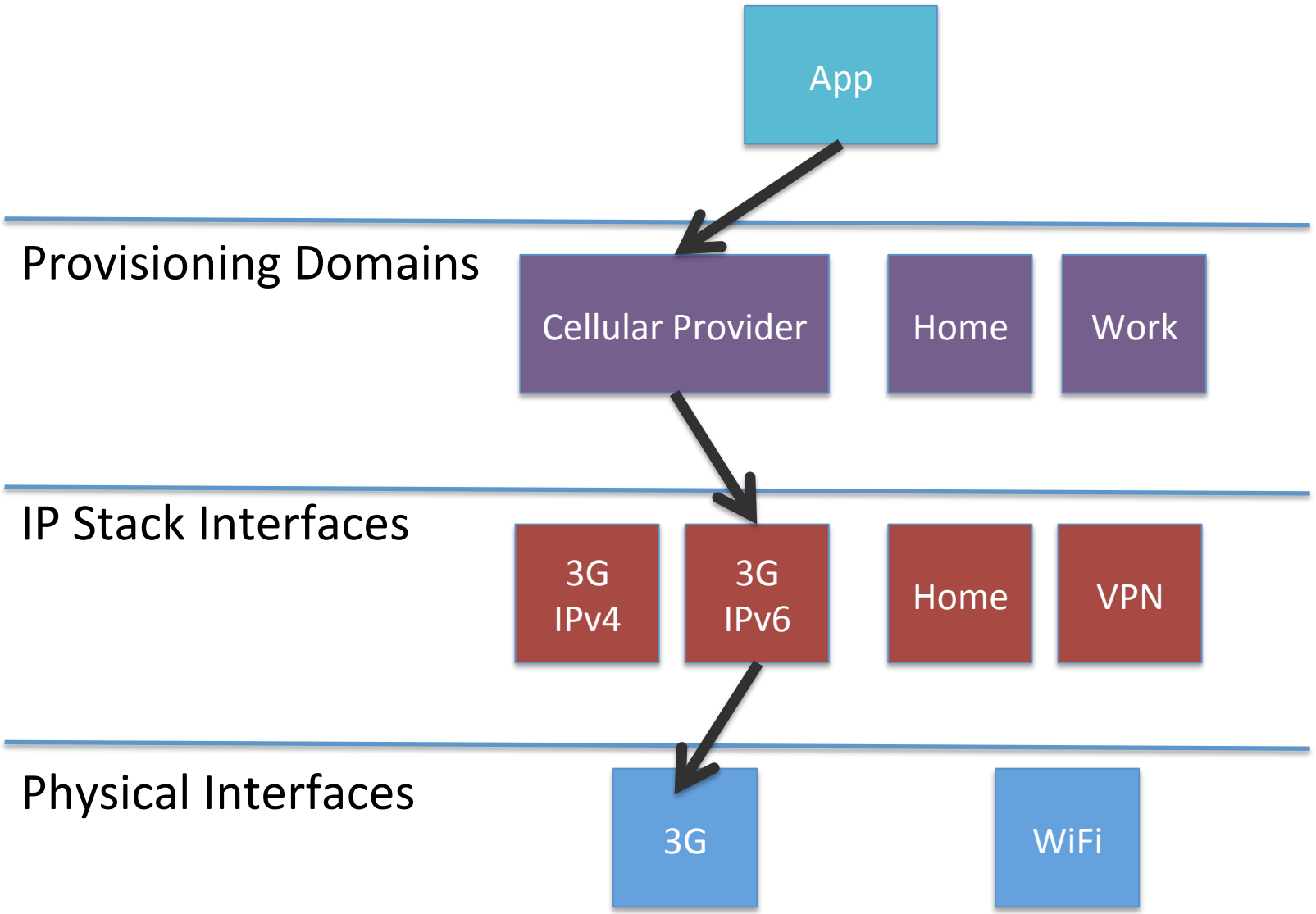
Problem Statement

- Nodes connected to two networks often receive inconsistent sets of configuration information
  - Multiple DNS Server lists, default gateways, etc.
  - Potentially overlapping network prefixes (net 10)
  - No easy way for apps to coordinate DNS server and outgoing interface selection
- Examples:
  - When I am on my VPN, why can't I use the printer on my home network?
  - I want to download my podcasts over wi-fi when available, but never over my cellular link
- RFC 6418: Multiple Interfaces and Provisioning Domains Problem Statement

Provisioning Domains (PVDs)

- New architectural concept defined by the MIF Architecture Design Team
- Defined in draft-ietf-mif-mpvd-arch-00.txt

Provisioning Domains



PVD Definition

- A consistent set of network configuration information.
- Typically, configuration available on a single interface is provided by a single source and can be treated as a single PVD
- Multihoming can result in more than one PVD on a single link.
- It is also possible for a PVD to span multiple links.

Implicit & Explicit PVDs

- DHCP or IPv6 ND may explicitly indicate which interface(s) are assigned to which PVD(s)
  - Requires DHCP & ND options not yet defined
- In absence of explicit information, PVD-aware nodes will implicitly define one PVD per IP stack interface

MIF API

- Defined in draft-ietf-mif-api-extension-05.txt
- Provides upper layers with methods to
  - Identify the PVDs in use on this node
  - Map PVD to physical interfaces
  - Query the properties of a PVD
  - Select a PVD for outgoing connections

Relation to TAPS

- Applications may want to choose a PVD for an outgoing connection
  - E.g. May want to constrain multipath TCP to interfaces from a specific (set of) PVD(s)
  - May want to select an interface or PVD based on attributes of that interface or PVD such as:
    - IPv4 vs. IPv6
    - Direct Internet vs. private address space
    - Specific domain for domain-specific services on VPN or “walled garden”

Any Questions?

Feedback to mif@ietf.org