Open Mobile LAN Infrastructure

- A Proposal for Supporting Ethernet Mobility –

(see also, http://www.ieee802.org/1/files/public/docs2006/avb-cho-Tbridge-ETRI-060504.pdf)

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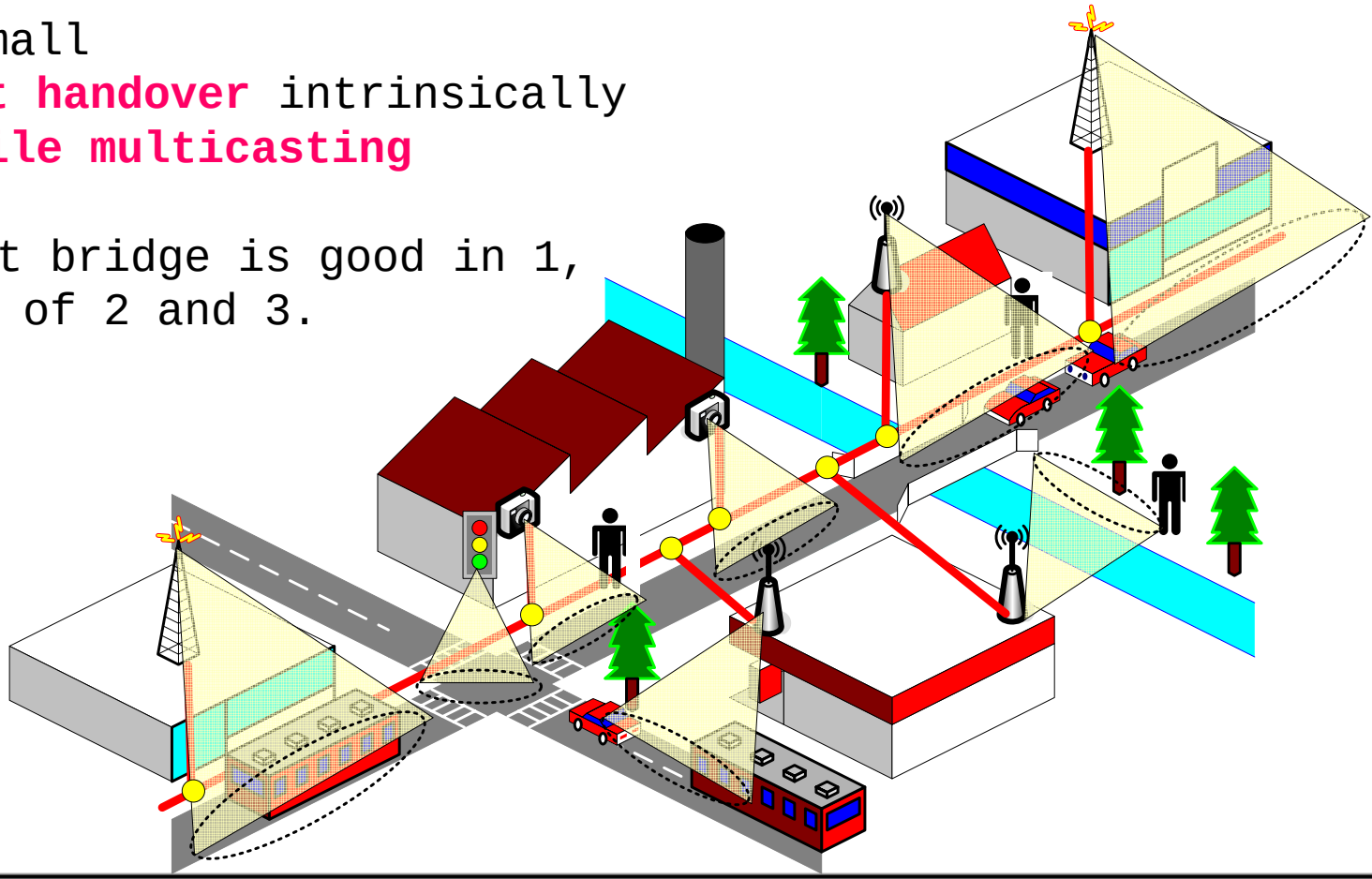
Massive Networking in Ubiquitous Society

In Ubiquitous Environment, massive networking is required for connecting numerous devices hidden in everywhere - walls, streets, trees, buildings, etc.

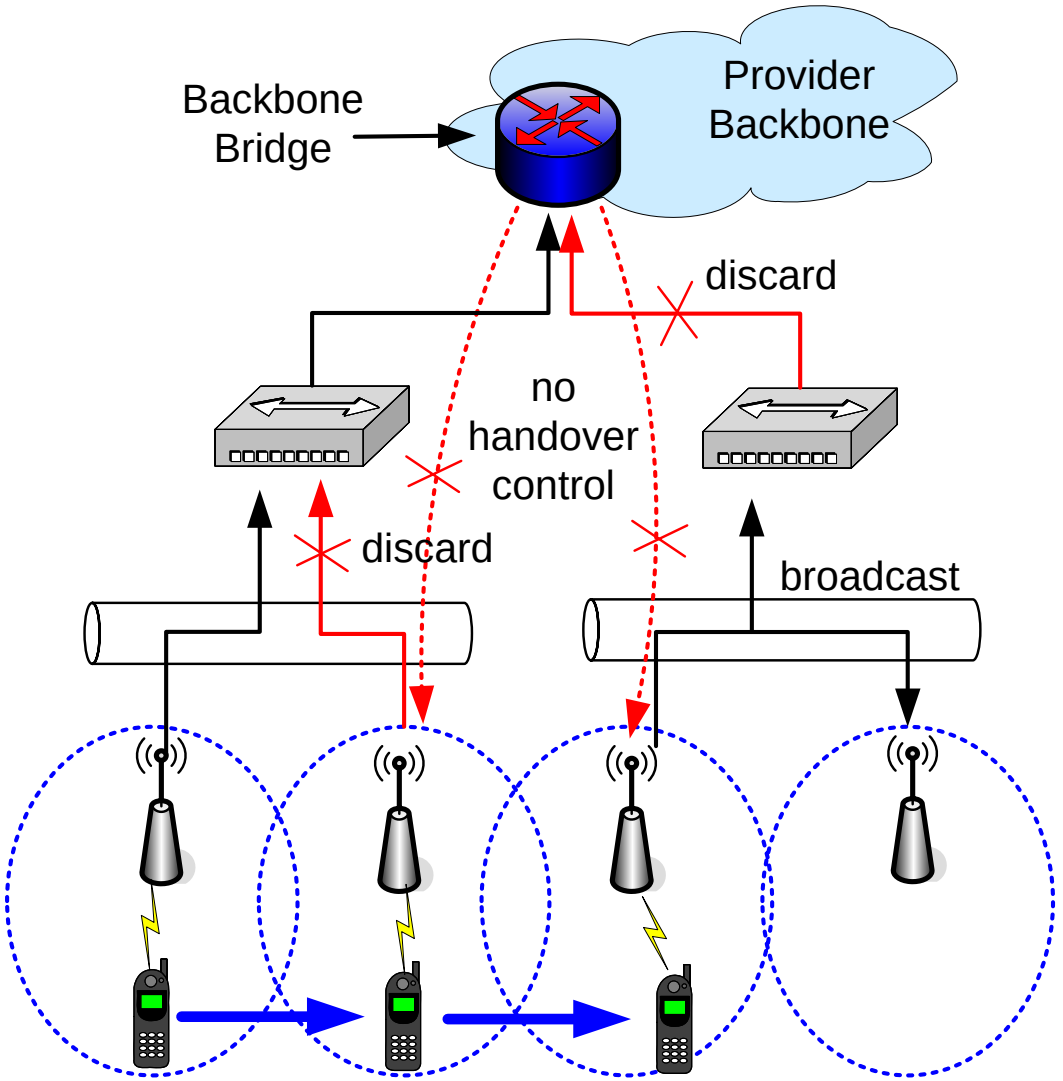
The ubiquitous networking switch need to be ..

- Cheap and small
- Support **fast handover** intrinsically
- Support **mobile multicasting**

Today's Ethernet bridge is good in 1, but not capable of 2 and 3.



Absence of Mobility Control in Bridged Network

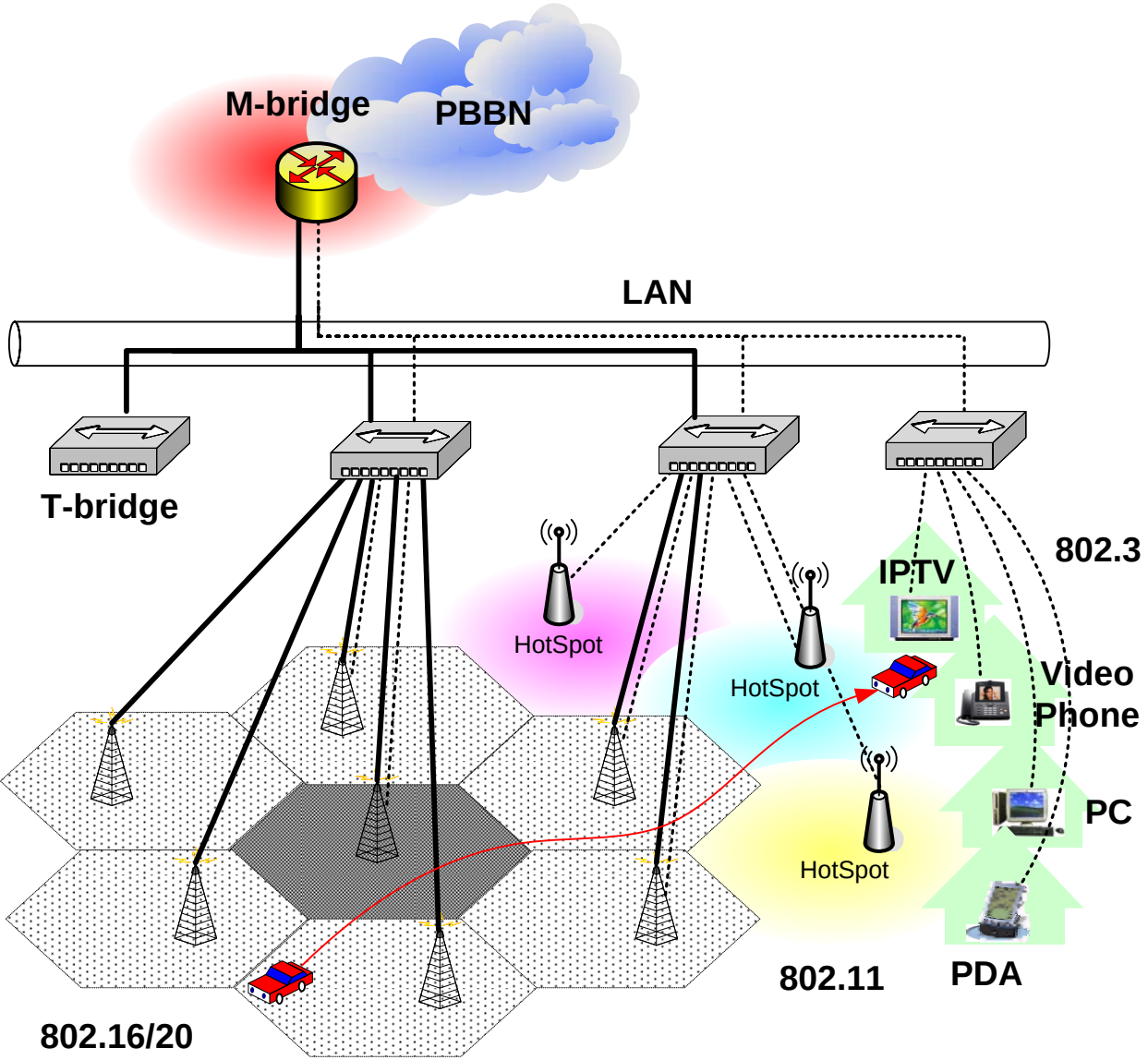


1. Data from fast moving terminal may cause frequent broadcast, and bridges may discard it as duplicated frames.

2. There’s no mobility management in backbone bridges.

% currently, MIH is the only solution if IP mobile agents are used.

What is Open Mobile LAN Infrastructure ?



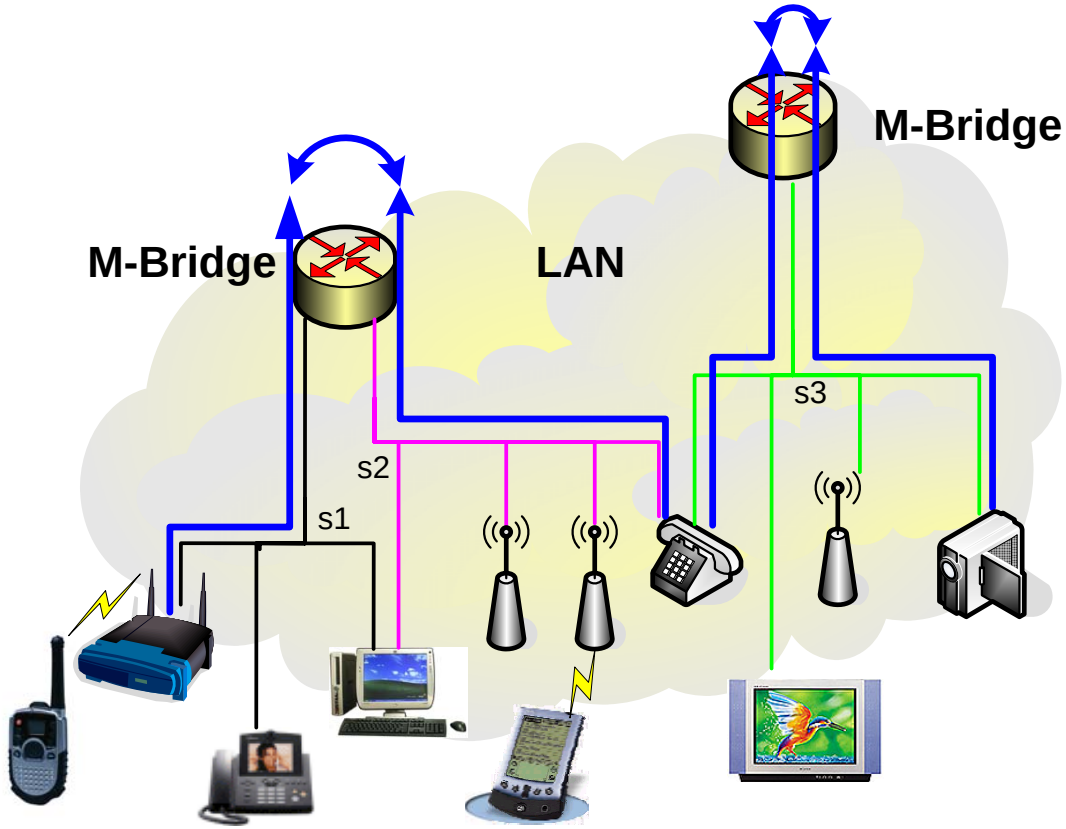
- Provides common LAN infrastructure for efficient handover for various wireless media types (e.g. 802.11/16/20..)
- Supports media broadcasting (e.g IPTV on air) for group of wireless users

% Note:

1. The area of interest doesn't include wireless protocols or mediation between layered protocols (such as MIH)

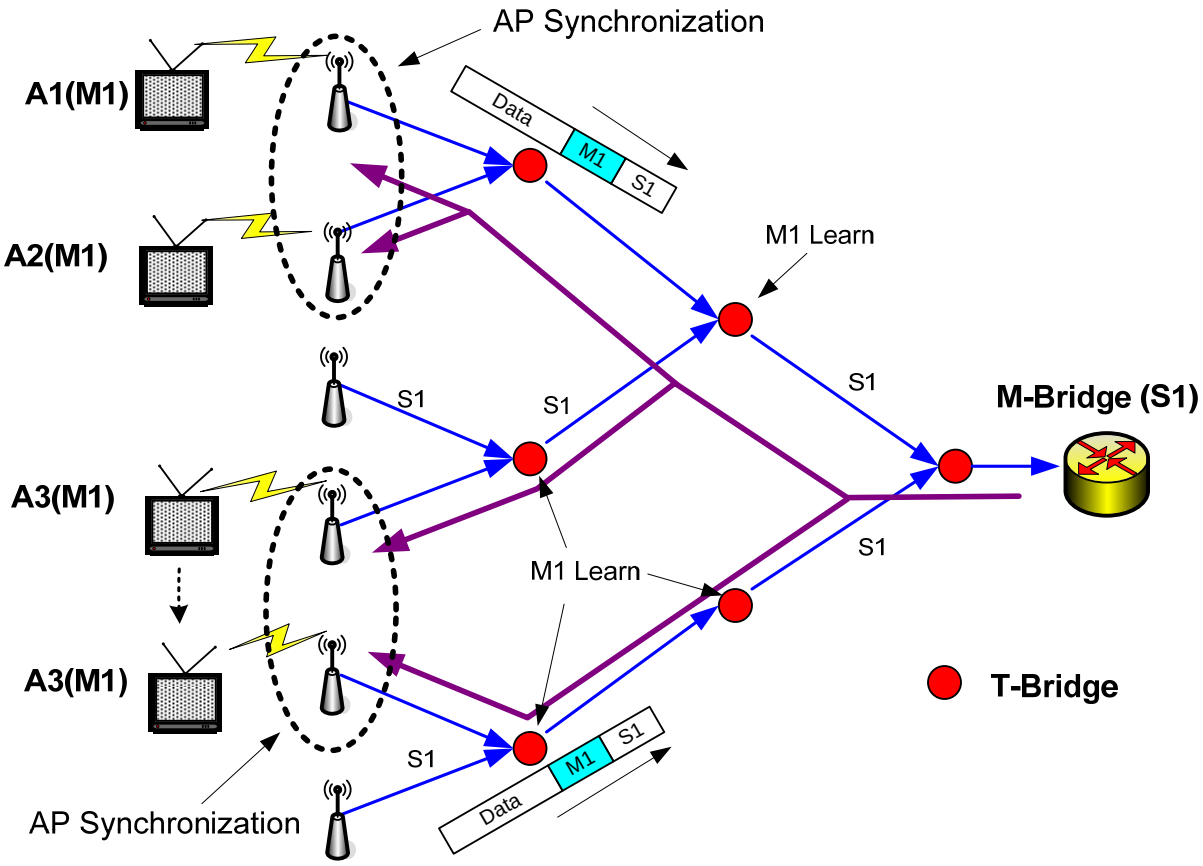
2. It focuses only on Bridge extension

The Role of Mobile Agent Bridge (M-Bridge)



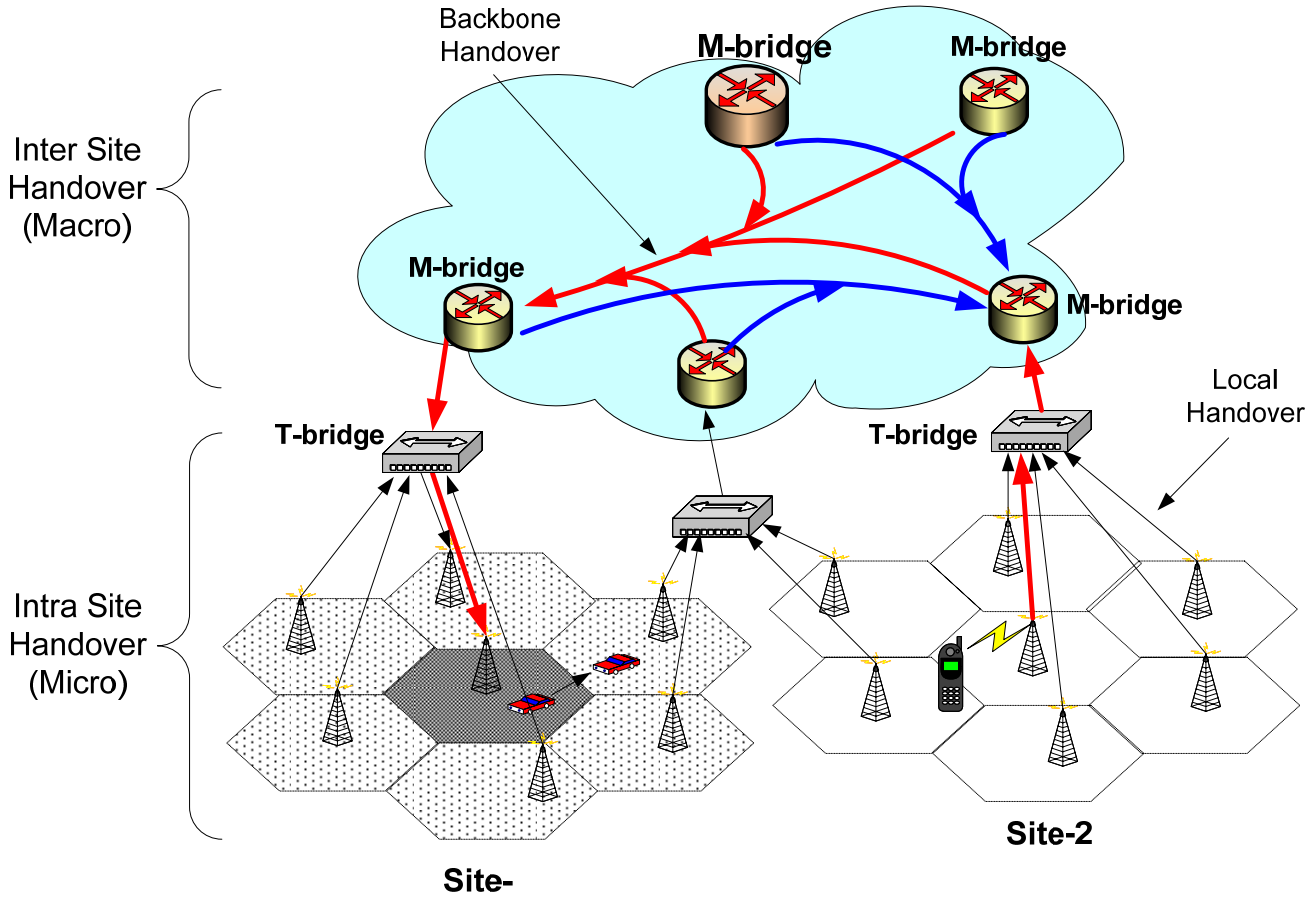
- M-bridge is the central core that relays data frames between mobile nodes
  - → The role is similar to mobile IP agent, but it works on local/provider LAN
  - → Fast MAC learning & update will be a key solution

Wireless Media Broadcast using T-Bridges & M-Bridges



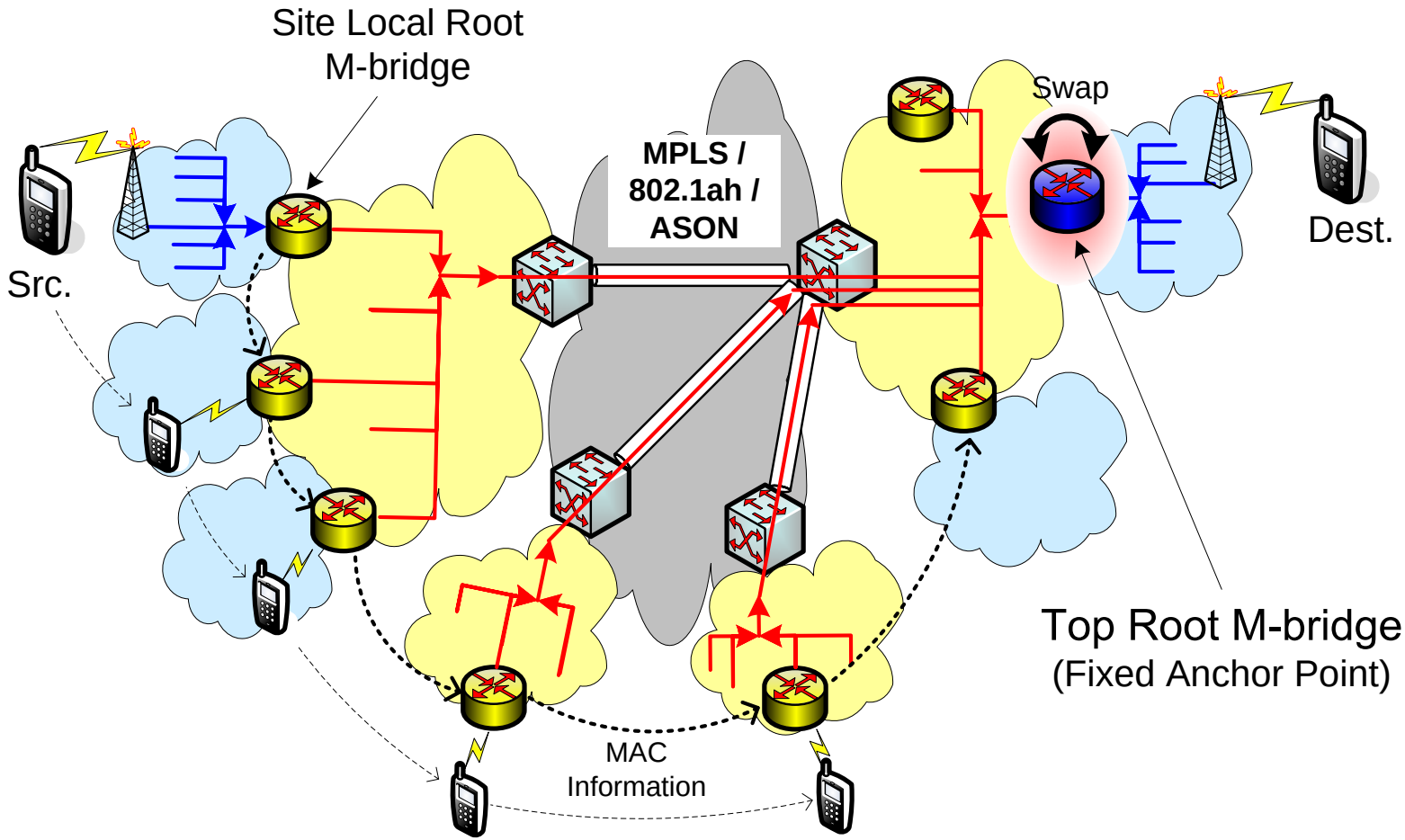
- Combination of T-bridges and M-bridge may support efficient media broadcasting for both fixed and wireless users
- Group Address Learning & Multicasting will be a key solution (see, http://www.ieee802.org/1/files/public/docs2006/avb-cho-Tbridge-ETRI-060504.pdf for detail of T-bridge proposal)

Large Scale Handover Hierarchy



- Large scale mobile LAN provider may build network in hierarchy of local handover LANs and backbone handover LAN
  - Fast Backbone-MAC learning & update will be a key solution

Inter-Site Roaming



- If M-bridges cooperatively provide a view of single connected LAN, mobile stations may roam across different sites without MAC address change.

A Mobile Bridge Standard is Necessary

- A mobile LAN infrastructure needs to …
  - Minimize latency and overhead for handover.
  - Provide connectivity for both fixed and mobile stations.
  - Support multicasting for both fixed and mobile stations.
  - Interoperable with multiple types of wireless access points, such as 802.11/16/20.
  - Efficient for transmitting streaming data.
  - May support synchronized data transmission over wireless media.

- There have been some known solutions.
  It is time we need to work on it…