Mobile IP
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- IP address unique
- point of attachment changes \( \rightarrow \) IP address changes
- alternative: host-specific routes
- goal: maintain transport and higher-layer connections

RFC 2002
Mobile IP

- link-layer mobility: bridging (spanning trees) faster
- no changes to non-mobile nodes
- change < 1/second
- entities: mobile node, home agent, foreign agent,
Mobile IP Entities

**mobile node:** wireless, laptop plug-in (MH)

**home agent (HA):** router on mobile’s home network which tunnels datagrams for delivery to the mobile node when it is away from home, and maintains current location information for the mobile node

**foreign agent (FA):** A router on a mobile node’s visited network which provides routing services to the mobile node while registered. The foreign agent detunnels and delivers datagrams to the mobile node that were tunneled by the mobile node’s home agent. For datagrams sent by a mobile node, the foreign agent may serve as a default router for registered mobile nodes.
Mobile IP Terminology

**Care-of Address:** termination point of a tunnel toward a mobile node: FA or “co-located care-of-address”

**Correspondent Node:** peer with which a mobile node is communicating.

**Home address:** remains unchanged regardless of where the node is attached to the Internet.

**Home network:** network, possibly virtual, having a network prefix matching that of a mobile node’s home address.

**Virtual Network:** network with no physical instantiation beyond a router.
Mobile IP Operation

- MH may solicit advertisements (multicast)
- FA, HA advertise via *agent advertisement messages* (ICMP to 224.0.0.1)
- deregister with HA on returning home: Registration Request/Reply (UDP)
- visiting get care-of address (FA or DHCP for co-located), register
- datagrams sent to home address intercepted by HA: proxy, gratuitous ARP
- tunnel to care-of address at FA
- FA then sends directly on link layer to MH
- reverse: standard IP forwarding, with home address