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Host Mobility Management Protocol (HMMP)

Extending SIP to 3G-IP Networks

<draft-itsumo-hmmp-00.txt>

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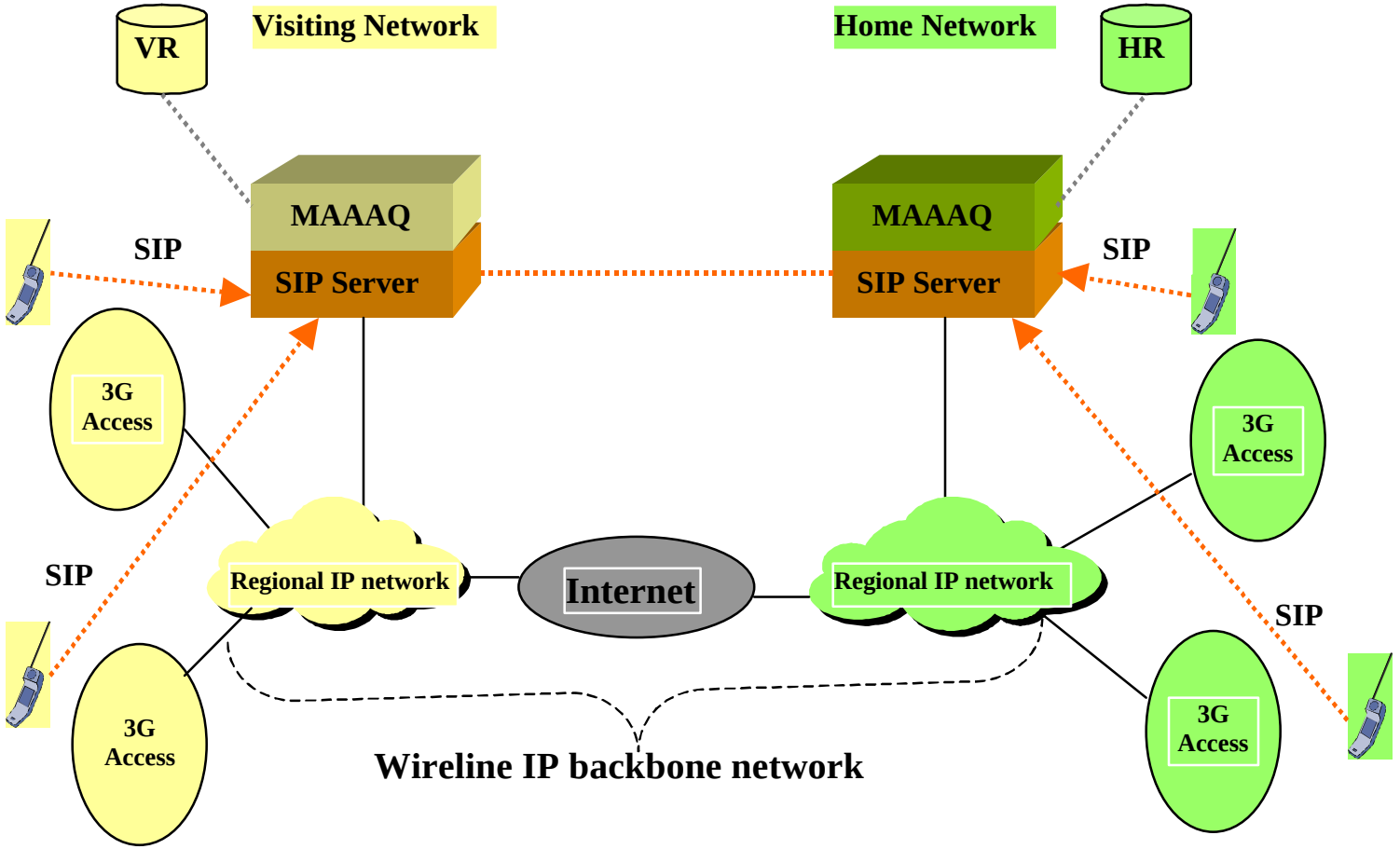
Objectives

- Present preliminary specifications of HMMP.
- Propose necessary extensions to ensure that SIP can support roaming users.
- Propose HMMP as a basis for specifications of a protocol for supporting mobility with SIP.

3G-IP Network and Signaling Architecture
Assumptions



- *SIP UA in mobiles and hosts.*

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What is HMMP?

- A protocol for supporting real-time and non-real-time multimedia applications on mobile terminals of 3G-IP networks.
- Is built on top of Session Initiation Protocol (SIP).
- Supports
  - domain hand-off (*i.e.,* roaming) and
  - subnet hand-off (*i.e.,* macro mobility), and
  - leaves the cell hand-off (*i.e.,* micro mobility) for the link layer.
    - Its details are technology dependent.
- Spoofs constant endpoints for TCP applications of roaming users and supports TCP as is.

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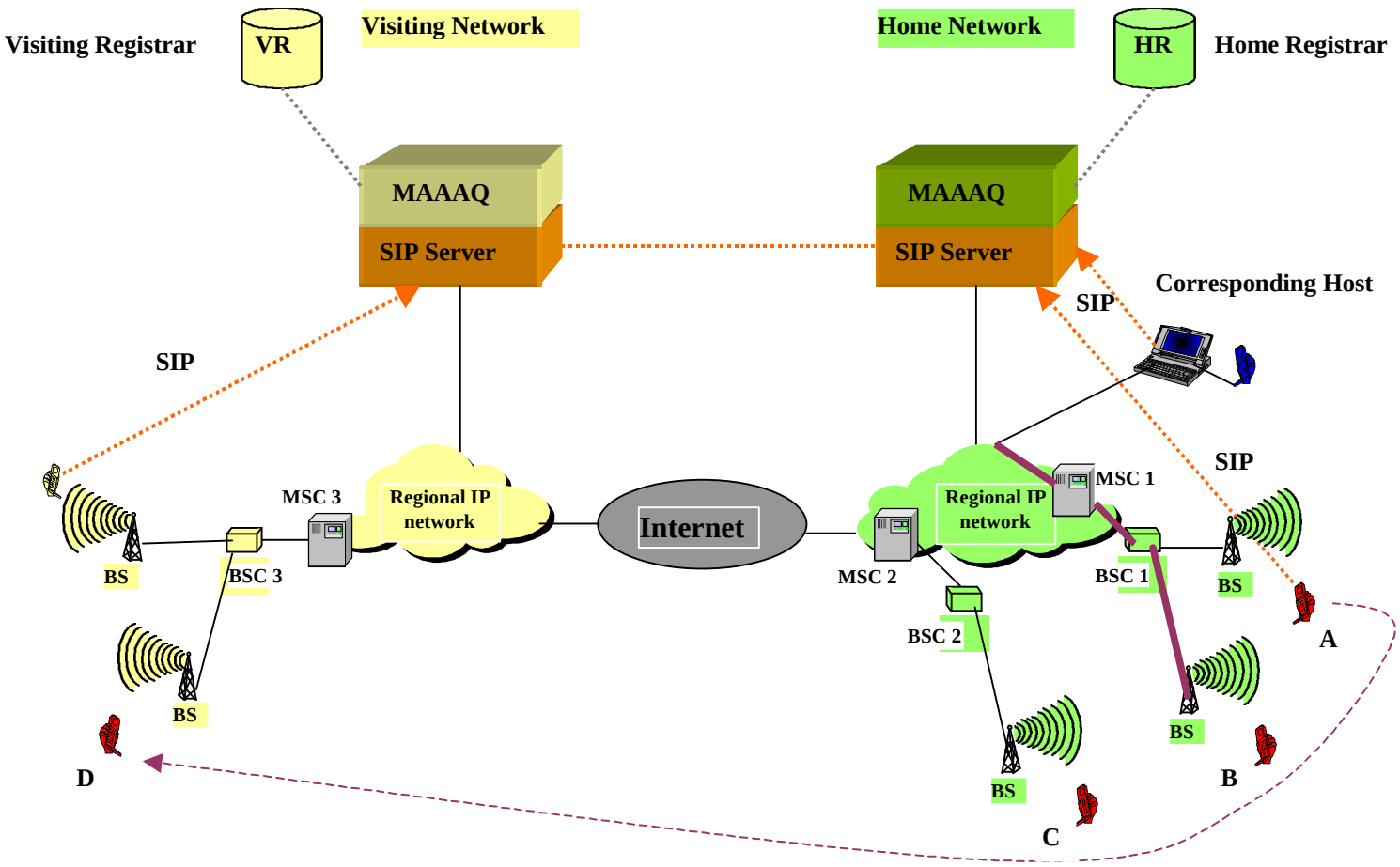
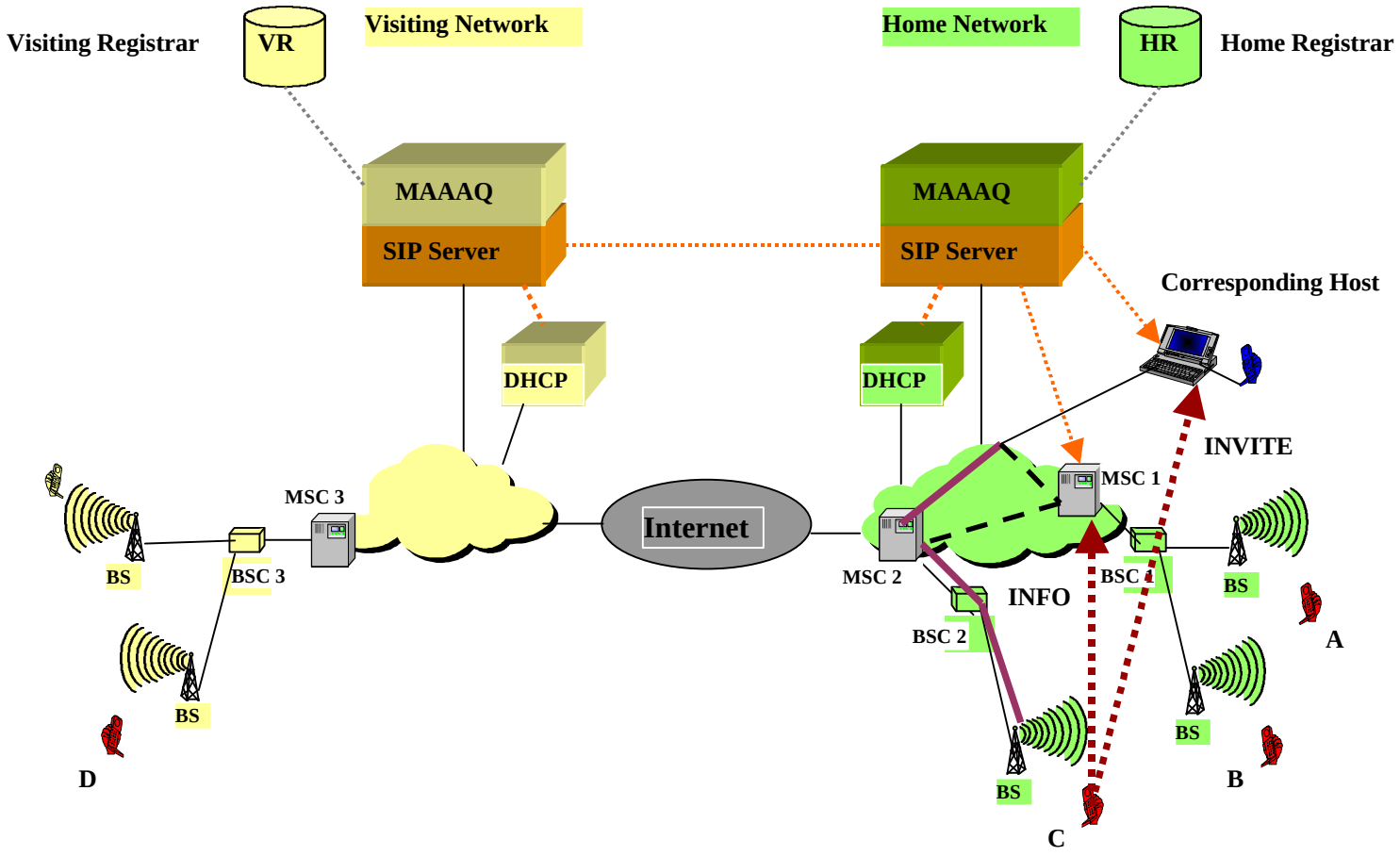
HMMP Overview: *Cell hand-off (A --> B)*



- ***Depends on the link layer technology.***

HMMP Overview: *Subnet hand-off (B --> C)*



- *INFO method for address binding.*
- *DHCP updates the DNS.*

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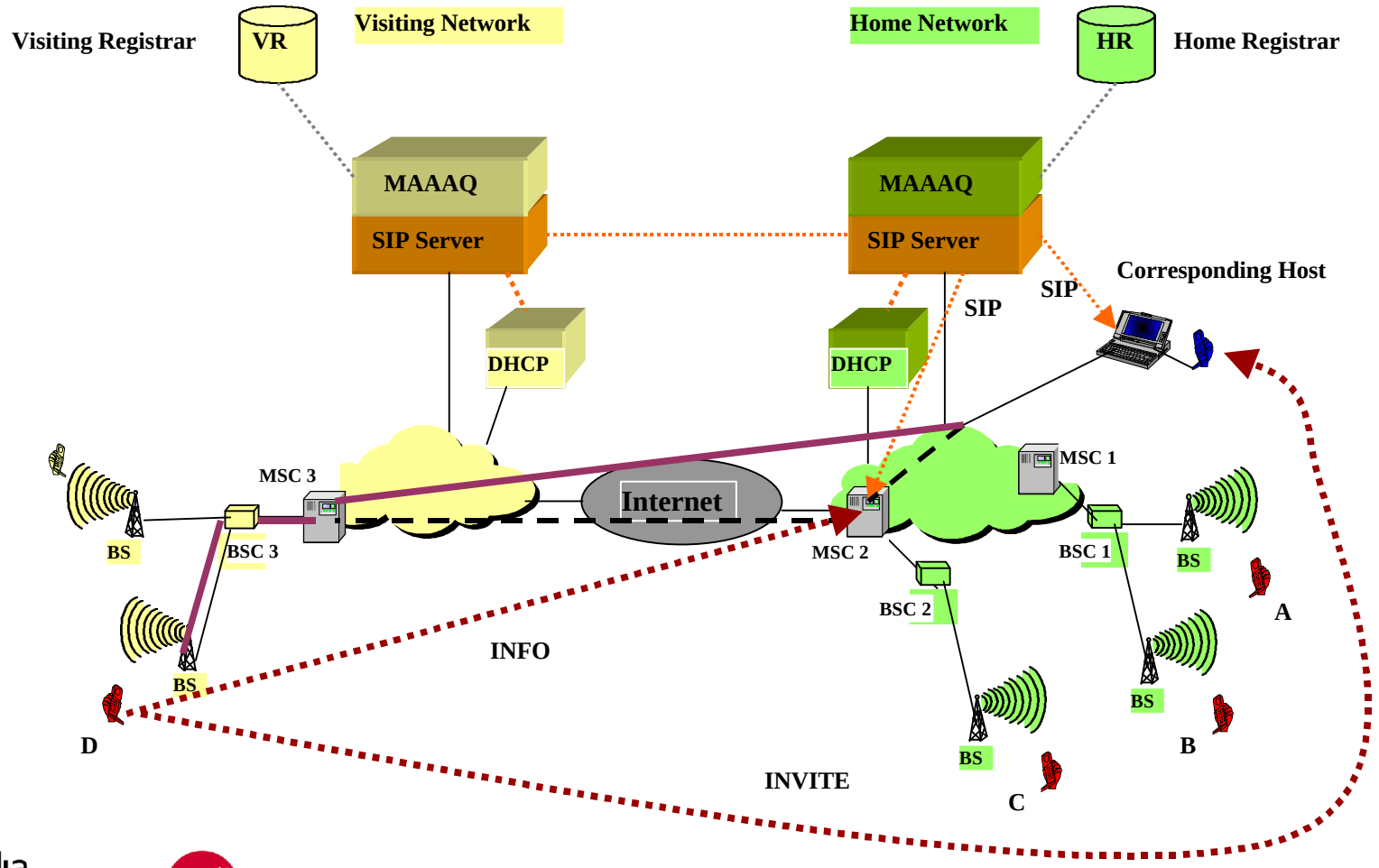
HMMP Overview: *Roaming (C --> D)*



- ***Designate "RHO" CONTACT in REGISTER method.***

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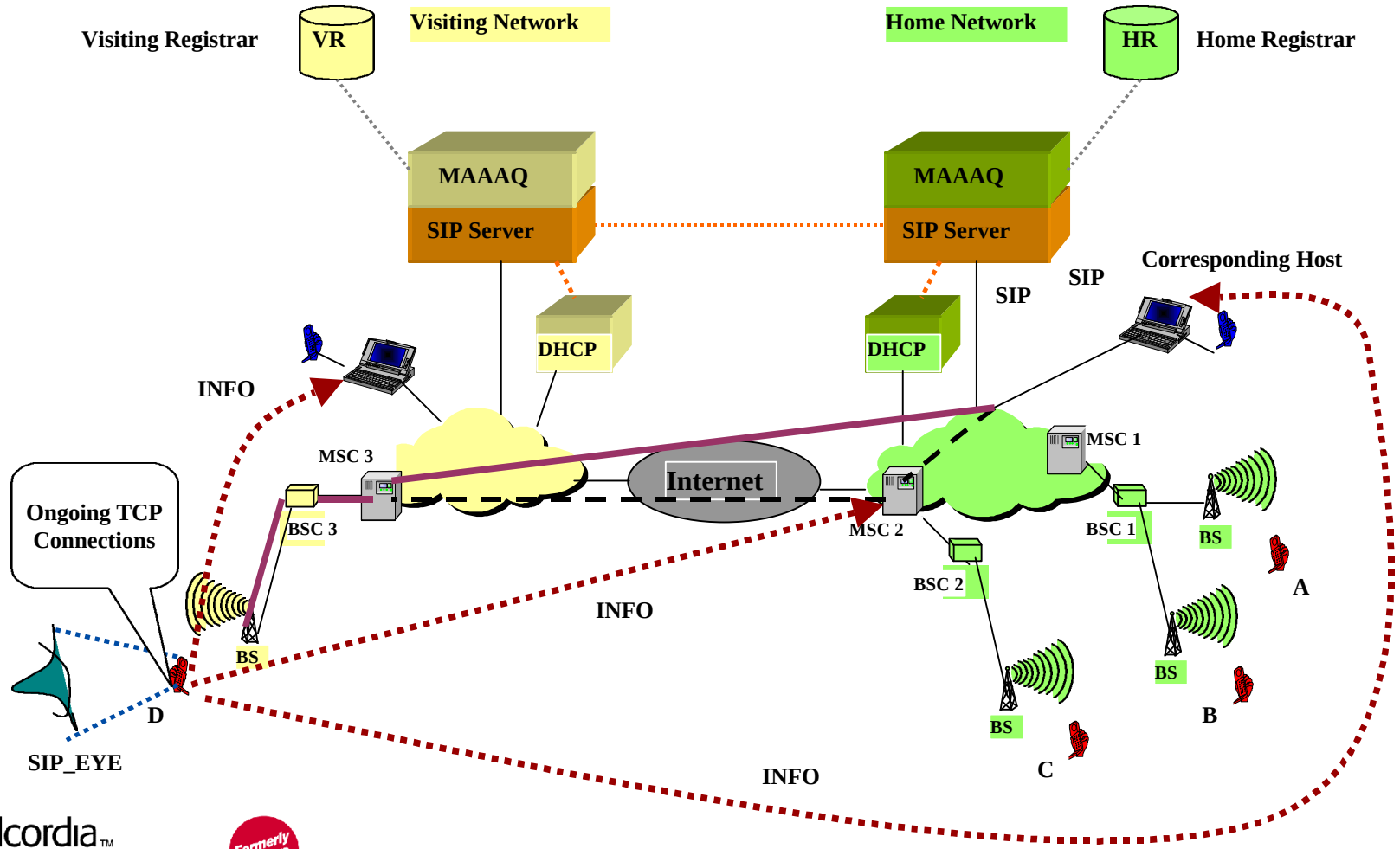
Supporting TCP Applications with HMMP



- *Equip SIP-UA with SIP_EYE.*

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Why HMMP?
Pros & Cons

Pros	• No triangular routing of information, i.e., lower delay. • Supports real-time and non-real-time applications. - Needs a faster dynamic host configuration protocol. • Minimizes the loss of transient data using short-lived tunnels. • In principle, it requires no state in the network, though is flexible enough to allow the network operator to determine whether to maintain any state in the network. • Supports TCP as is.
Cons	• Requires modification of the IP stack at hosts, MSs, and routers for encapsulation. • All hosts, MSs, and MSCs shall have SIP UA. • More complex SIP UA.

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What more do we expect from SIP?

- It is desirable that
  - the SIP INFO method provides the means of profile verification and/or replication, and address binding,
  - the SIP REGISTER method designates a "RHO" CONTACT that allows the registrar to obtain a new address from the DHCP on behalf of the mobile,
  - the SIP user agent is equipped with a SIP_EYE agent that maintains a record of ongoing TCP connections of the mobile, and
  - the SIP user agent understands address binding INFO messages and takes necessary actions,
- Either
  - the DHCP interacts with the DNS and updates it dynamically, or
  - a new protocol is developed to allow applications to use SIP registrar for name to address and address to name mappings.