# Service Discovery with HIP
# draft-jokela-hip-service-discovery-00

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# General

- HIP aware Middle-boxes / other nodes providing services for HIP nodes
  - How the HIP node gets the service information?
    - E.g. MN moving behind a HIP Mobile Router
- Possibly could be used like old BOS packet
  - Detecting other HIP nodes in the local network
- Service registration after detection
  - draft-ietf-hip-registration-02
  - Signaling optimized: detection combined with HIP negotiation / registration

# New HIP packets

- Service Discovery packet
  - For detecting services
- Service Announcement packet
  - For sending information about services

# New packet: Service Discovery

- Sent by the MN for active Service Discovery

- May contain info about requested services

  – Optional

- Packet structure

  – HIP header: src HIT sender, dst HIT zero

  – Optional REG_INFO (if searching for a specific service)

# New packet: Service Announcement

- Service Announcement Packet
  - Sent by the service providing node
  - May contain R1 parameters for quick HIP negotiation with the MN and service registration
- Packet structure
  - HIP Header: HIT of server, HIT of requesting node
  - Optional: R1 parameters
  - REG_INFO: provided services

# Active Service Discovery

- When the MN is trying to find out Service Providing nodes

  – In some region or on-path towards a peer node

- The MN creates an SD Packet and sends it

  – In a region (broadcast) or towards a peer node (on-path)

    - On-path: Start with TTL = 1 and increase its value

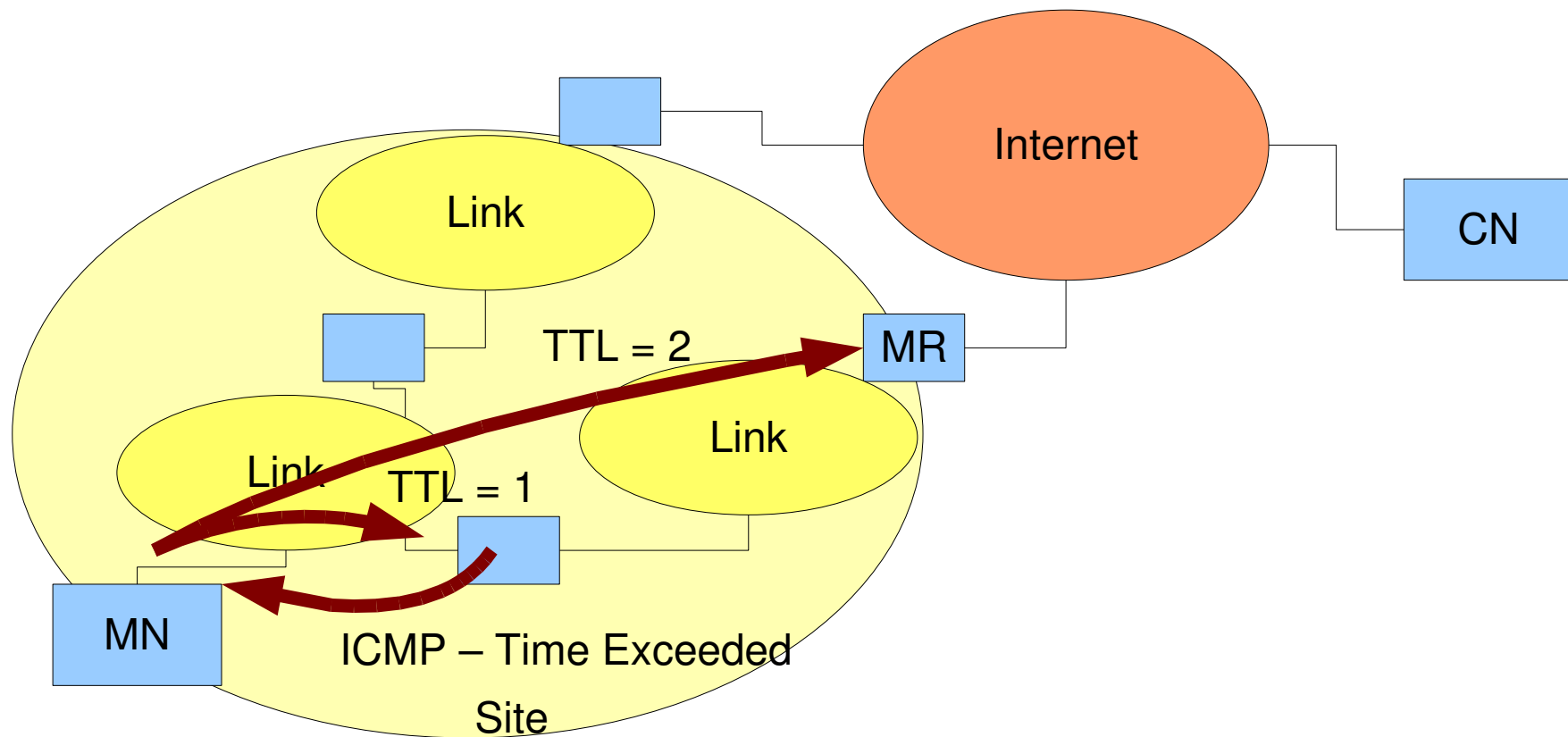  – Service Providing nodes respond with an SA packet

# Active Service Discovery
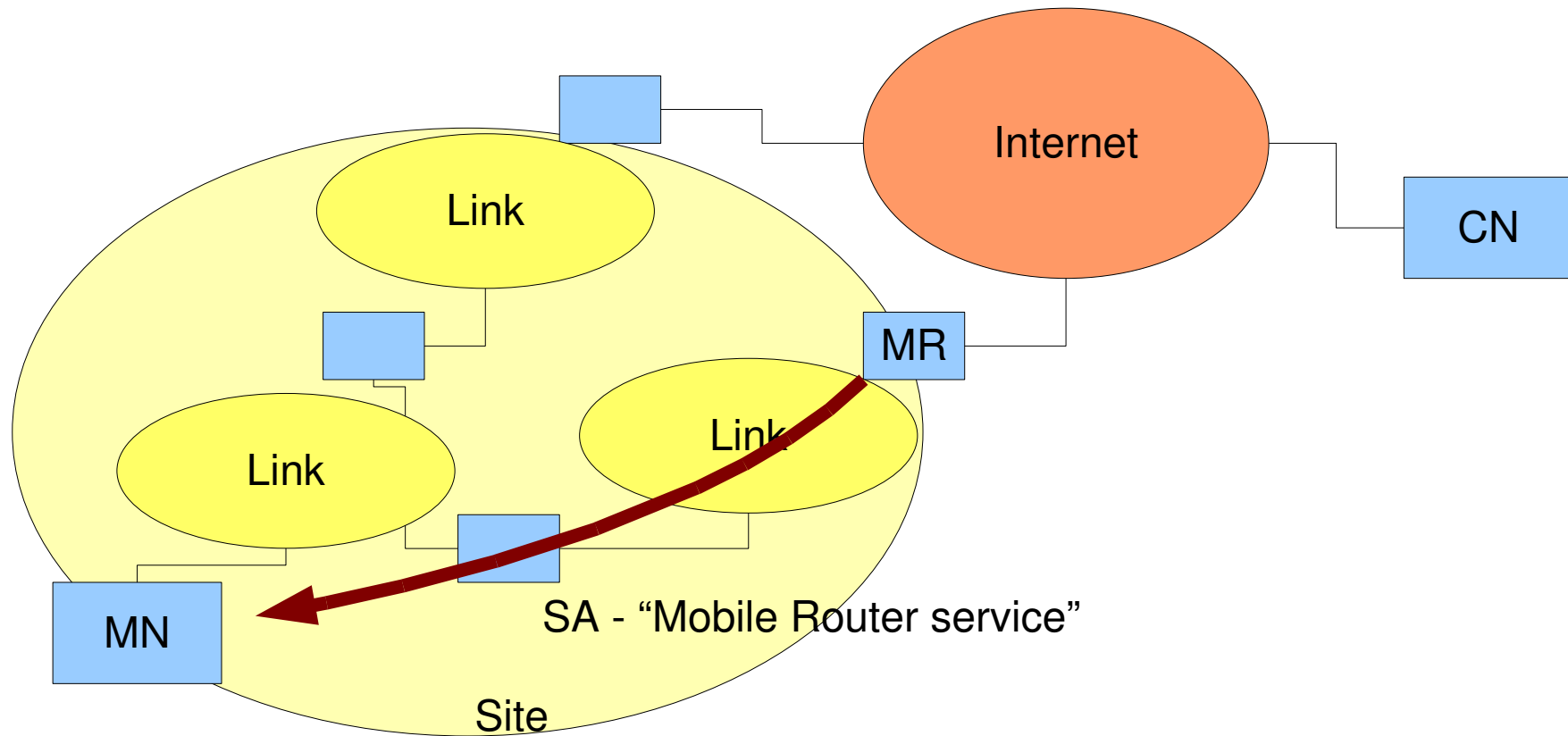
MN attaching a Mobile Network
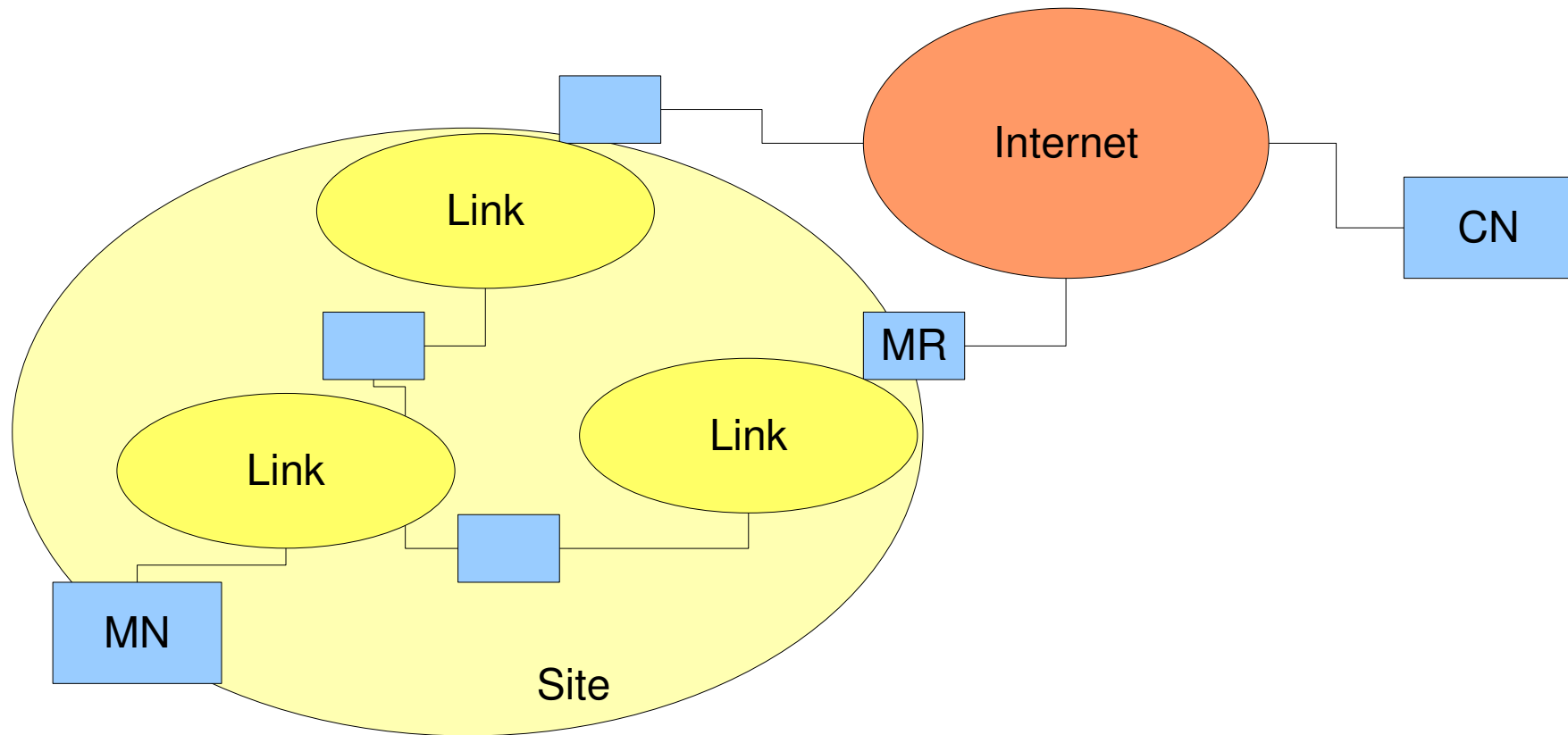
# Active Service Discovery
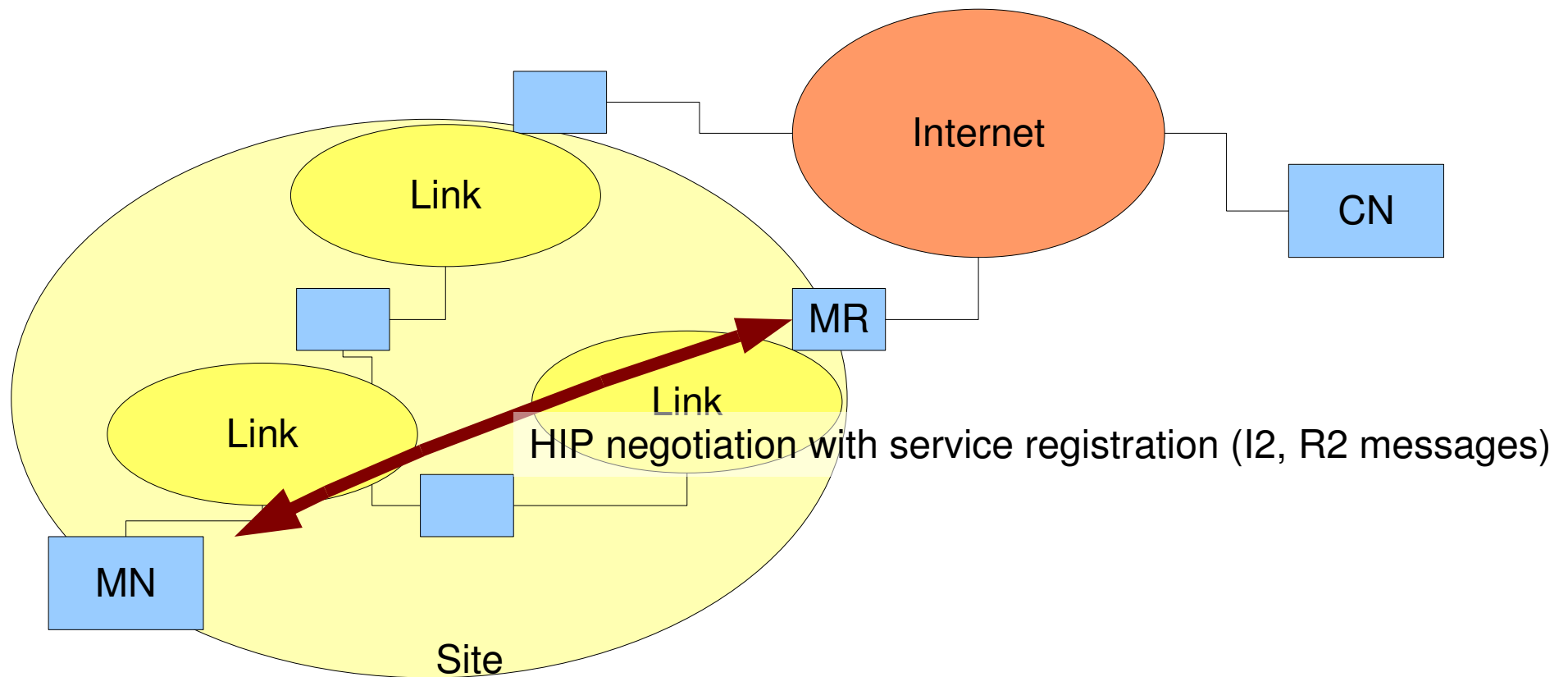## MN sending Service Discovery (On-path) messages

# Active Service Discovery

MN gets an answer from a Mobile Router



Internet

CN

Link

Link

Link

MR

MN

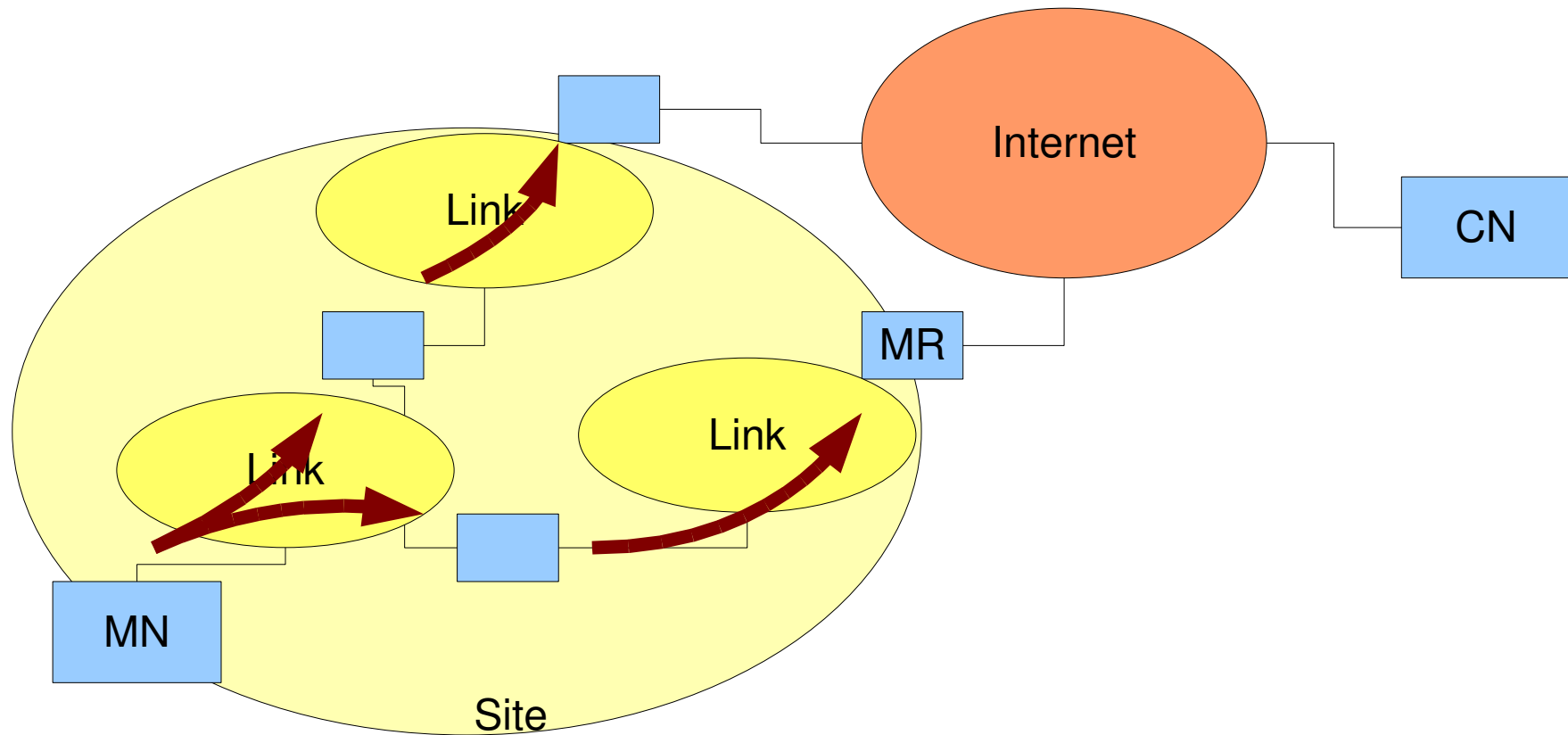SA - "Mobile Router service"

Site

# Active Service Discovery
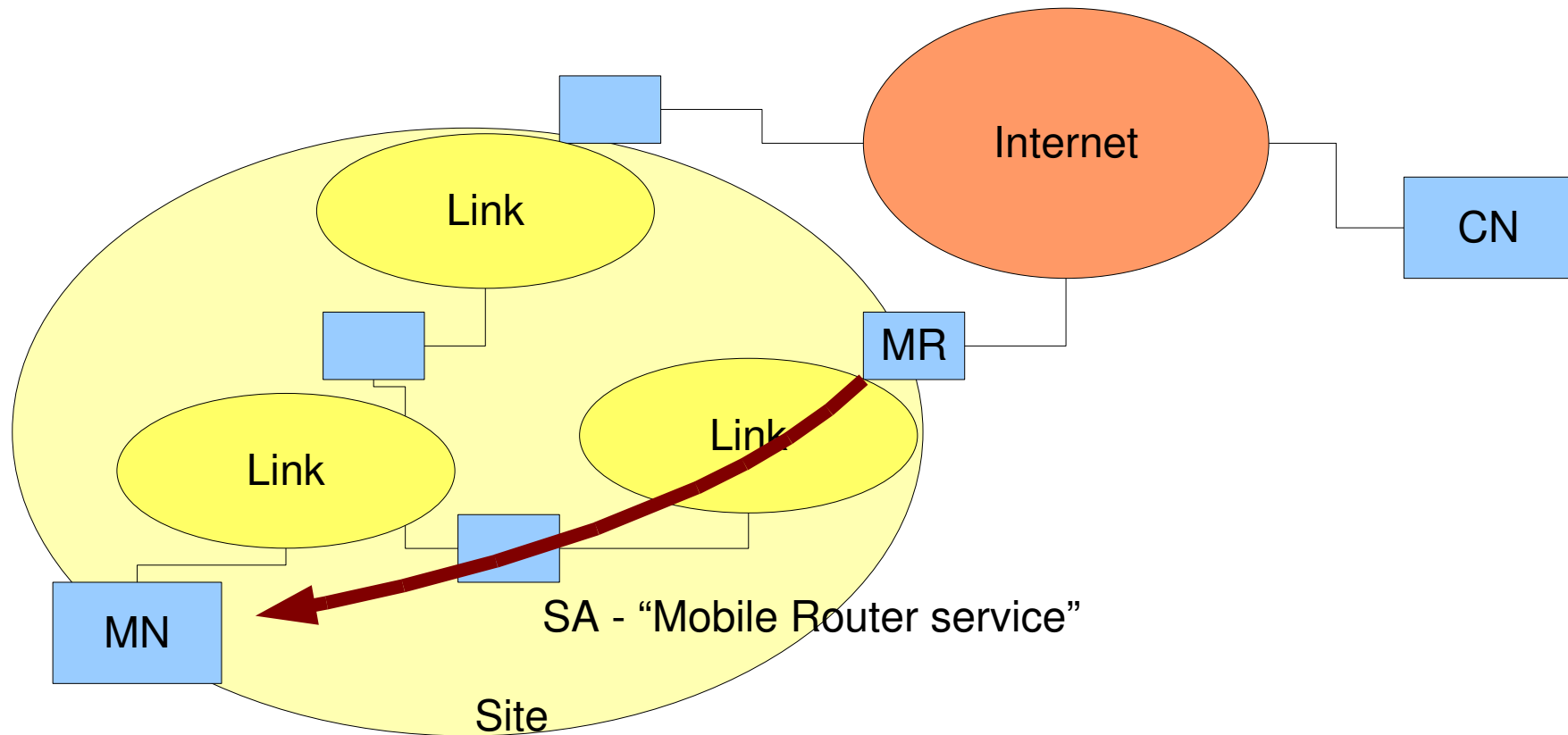## HIP negotiation with service registration

# Active Service Discovery

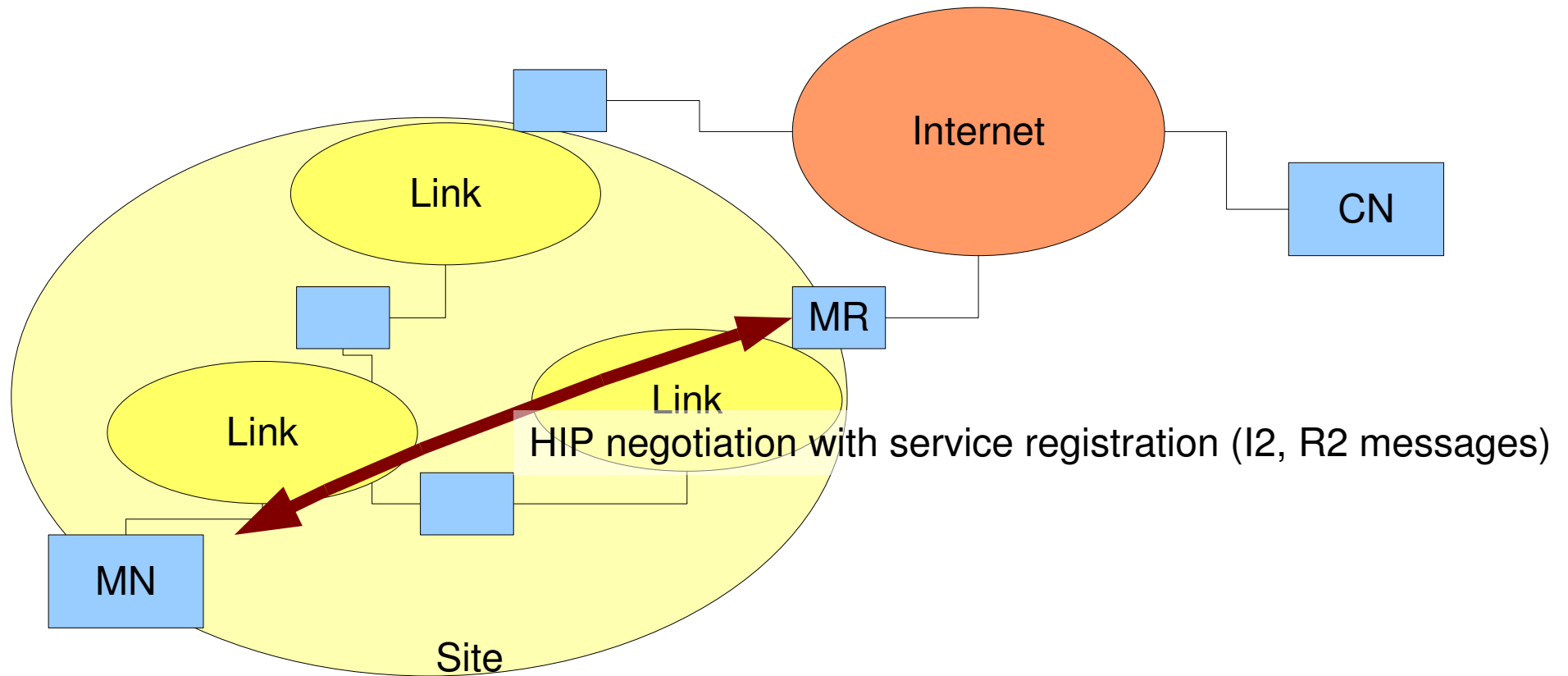Regional: the Service Discovery is broadcasted in the local network

# Active Service Discovery

MN gets an answer from a Mobile Router

# Active Service Discovery
## HIP negotiation with service registration



Internet

CN

Link

Link

Link

MR

HIP negotiation with service registration (I2, R2 messages)
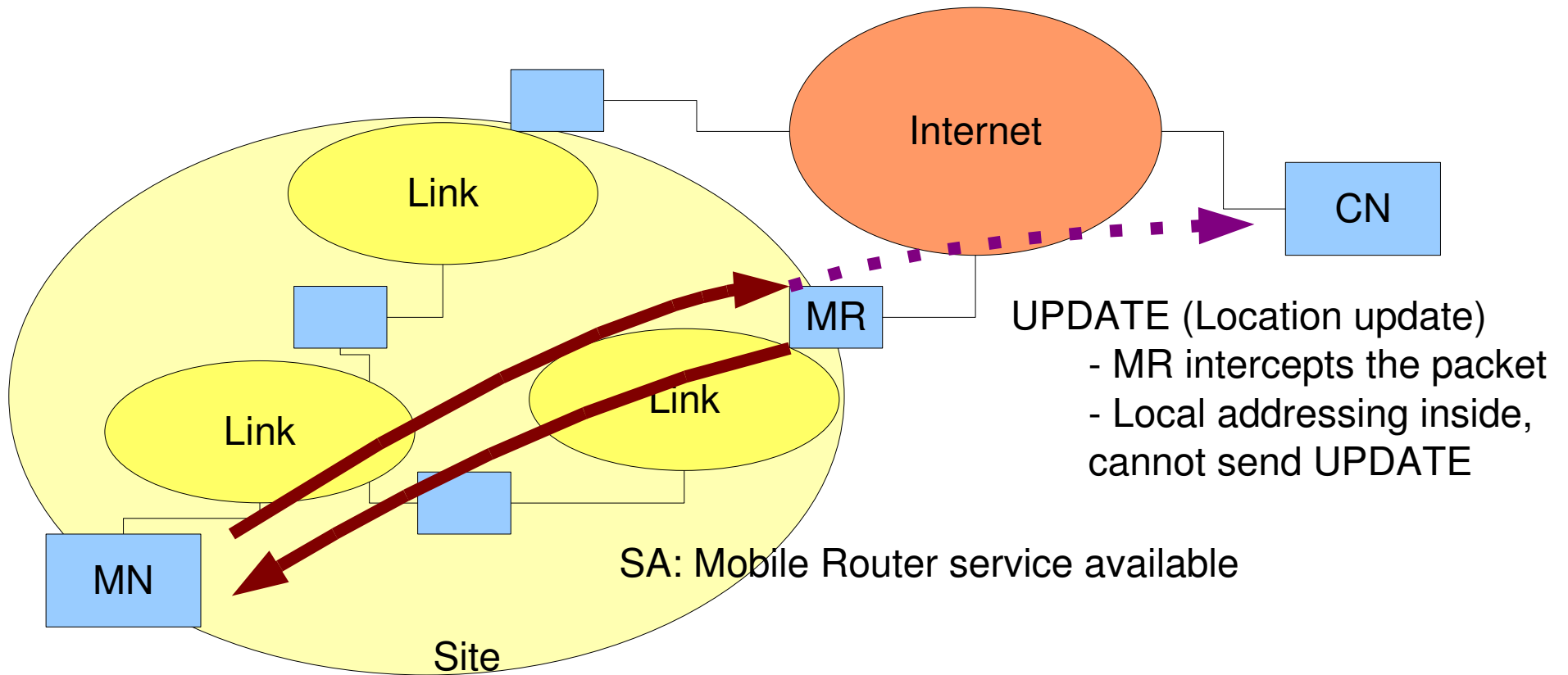
MN

Site

# Passive Service Discovery

- HIP node sends HIP packets
  - e.g. I1, UPDATE
  - No active Service Discovery

- The Middle-box reacts to passing by HIP packets
  - e.g. I1, UPDATE from the MN to the CN
  - ==> Middle-box sends a Service Announcement packet to the MN

# Passive Service Discovery

## MN sending HIP message to the CN



Internet

CN

Link

MR

UPDATE (Location update)
- MR intercepts the packet
- Local addressing inside, cannot send UPDATE

Link

Link

SA: Mobile Router service available

MN

Site

# Active Service Discovery

MN sending Service Discovery (On-path) messages



I2, R2: HIP negotiation, service registration
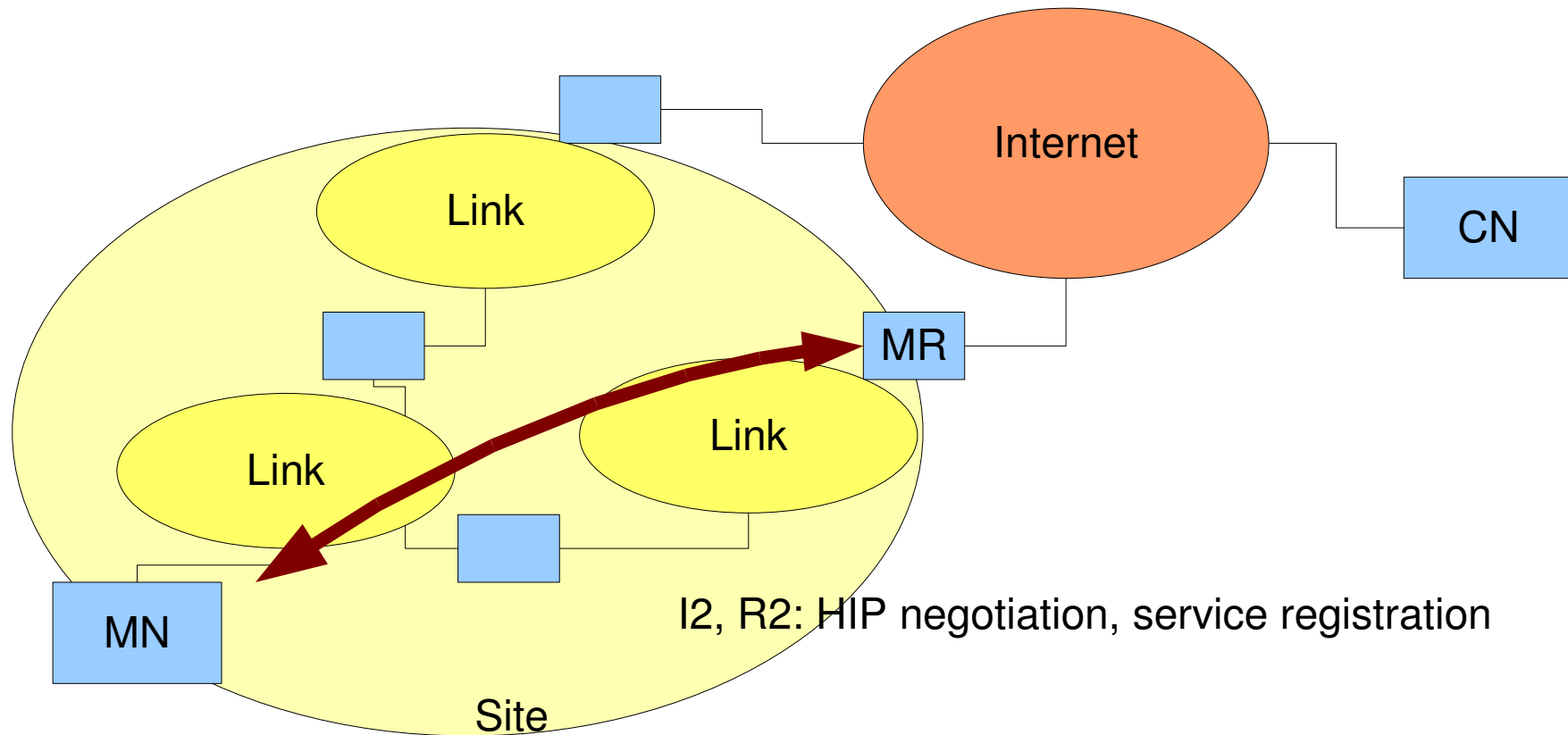
# Implementations

- On-path discovery implemented

- Regional discovery will be implemented during fall

# Future

- Existing Service Discovery protocols
  - How they can be utilized (requires some additional HIP support)

- Extending the description to cover old BOS

- ...

- HIP RG item?