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Subject:

Scenarios Designed for the Verification of Mobile IPv6 Enabling Technologies

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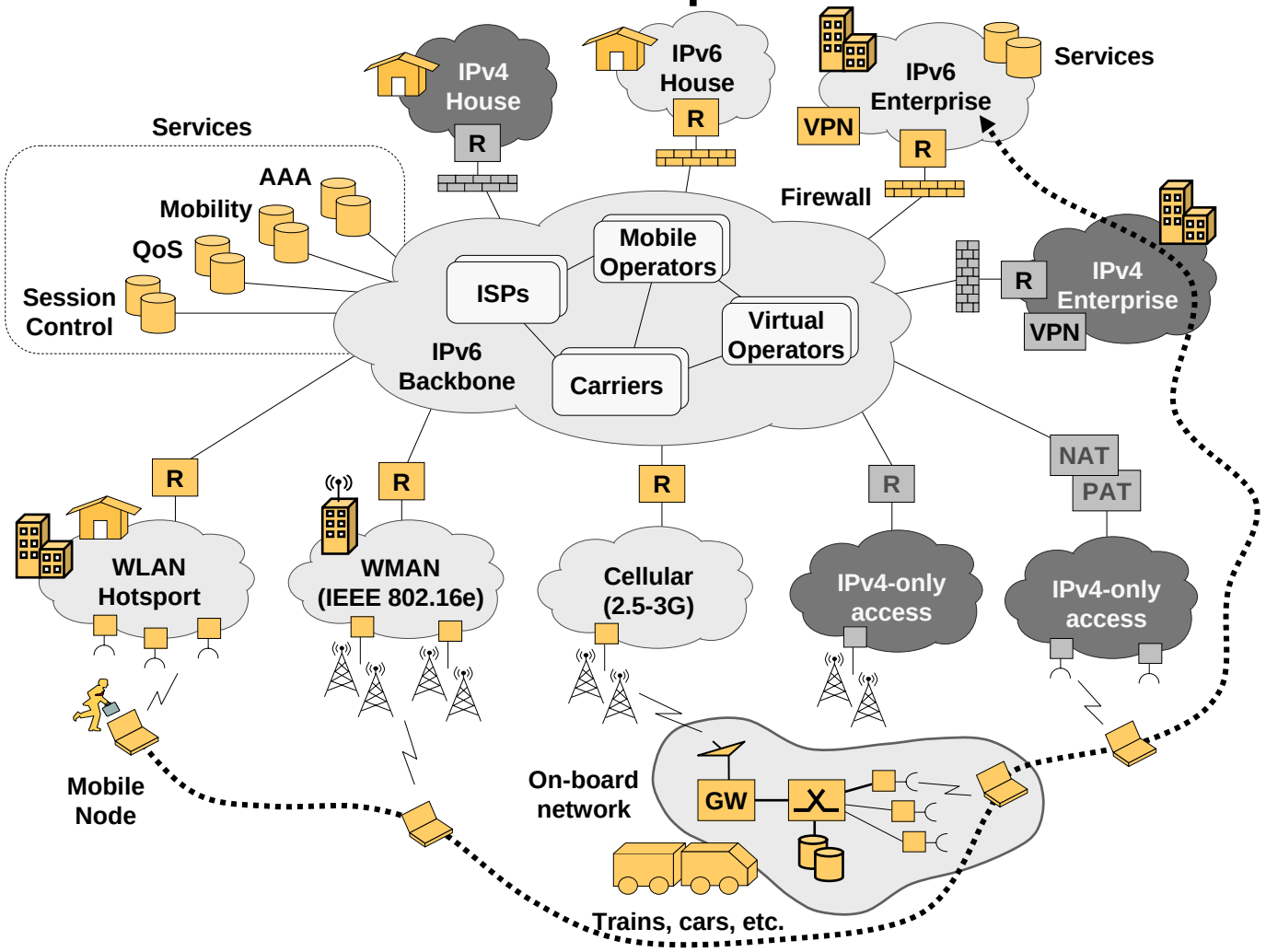
Agenda:

- Future Multi-access / Multi-provider market
- Long term vision for a Mobility Service
- Mobile IPv6 Enabling Technologies
- Dynamic provisioning of configuration data (Bootstrapping)
- Mobile IPv6 Search & Rescue Deployment Scenarios
- Conclusion

Multi-access and Multi-provider market:



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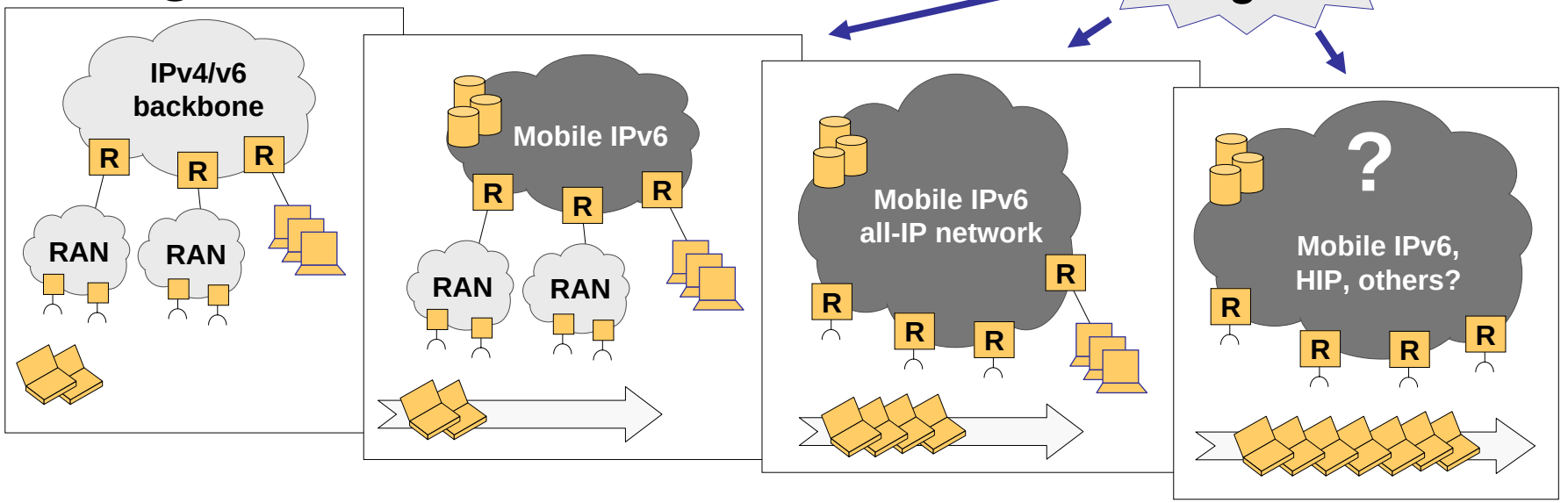
Long Term Vision:



Today

Dedicated RANs optimized for specific services

- cellular (2.5-3G)
- Wireless LAN
- WMAN (WiMAX)

Step 1

Integration of heterogeneous RANs to offer efficient and cost-effective ubiquitous mobility

- MIPv6 is the key

Step 2

Smooth migration to an all-IP network architecture

- all services over IP
- MIPv6 with fast handover support

Step 3

Fully mobile Internet

- tremendous growth in the number of terminals
- MIPv6 might suffer its age

Mobile IPv6 Enabling Technologies:

- Improvement of Mobile IPv6 scalability
  - Dynamic provisioning of configuration data on terminals and HAs (Bootstrapping)
- Improvement of reliability
  - Load-sharing across HAs
  - Solutions for HA failover (no single point of failure)
- Control of mobility service
  - Service authorization based on a AAA infrastructure

Mobile IPv6 Enabling Technologies:

- Enable offering of “premium” network features
  - On-demand and secure activation of fast handovers, QoS, etc.
- Integration of Mobile IPv6 in real-life environments
  - Coexistence with middle-boxes (firewalls, VPN concentrators, etc.)
  - Deployment of Mobile IPv6 in IPv4-only accesses
- Analysis of protocols and architectures for long-term network evolution
  - Host Identity Protocol (HIP)
  - IKEv2 Mobility and Multihoming (MOBIKE)
  - Proxy Mobile IPv6 (PMIPv6)

Bootstrapping:

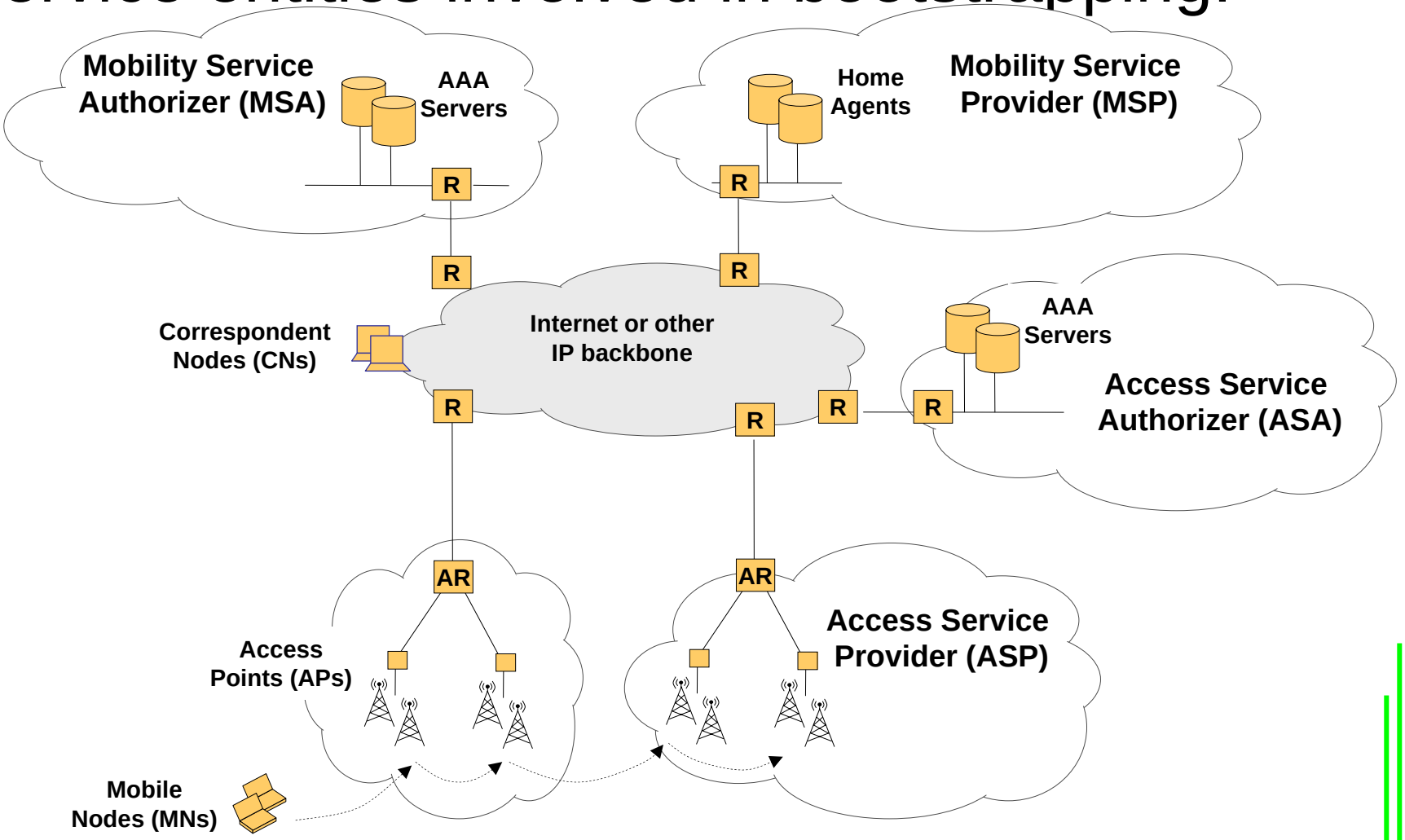
Goal

Addressing the operational requirement for dynamic provisioning of configuration data on terminals and HAs and MIPv6 service authorization.

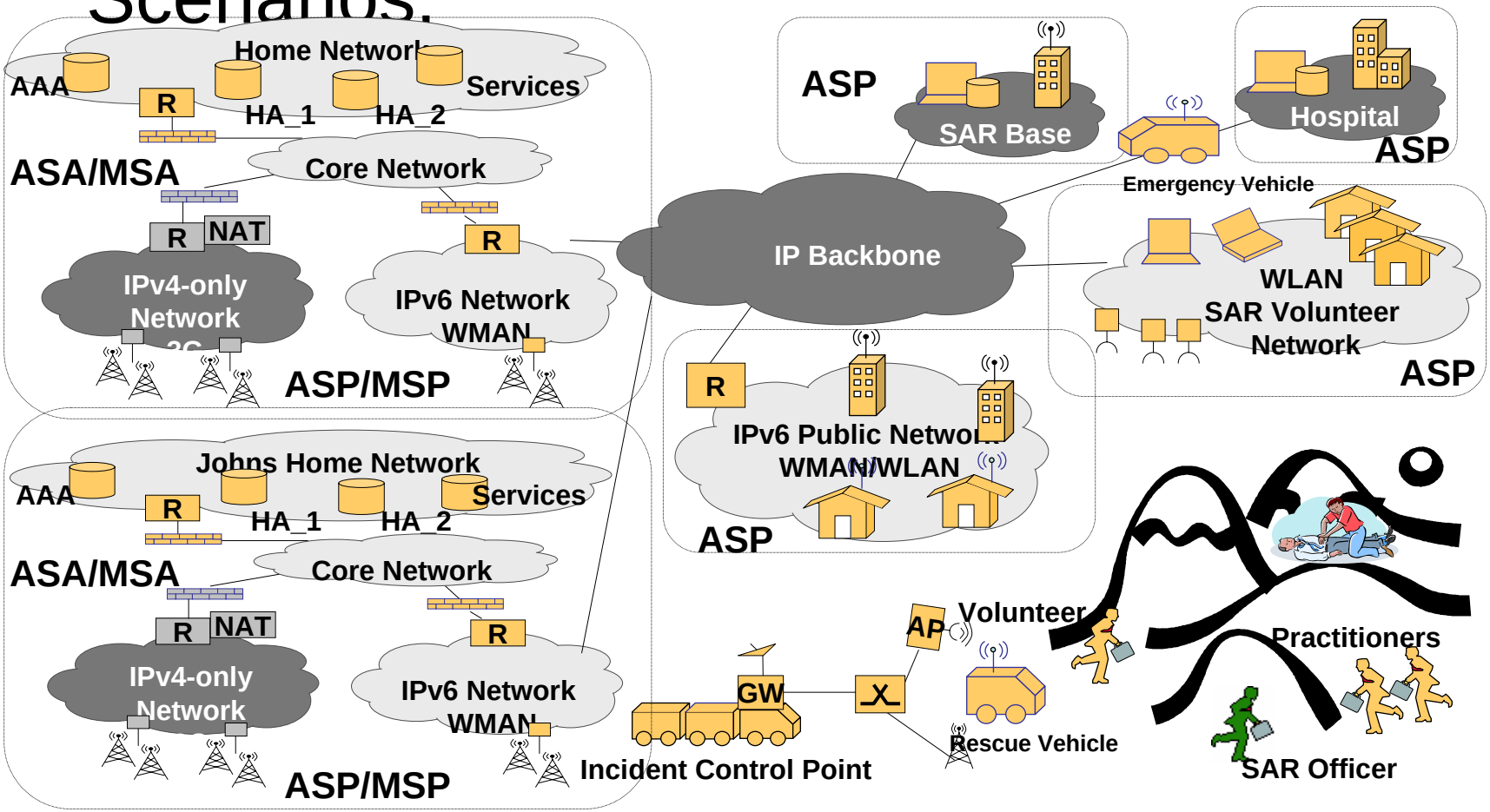
Configuration data

- HA address
  - Required on MN
  - Used for registering Binding Updates with HA
- MN‘s Home Address
  - Required on MN
  - Used for communication with other nodes
  - Could change if home network will be renumbered
- Keying Material
  - Required on MN and HA
  - Used to set up a security association (IPsec) between MN and HA

Service entities involved in bootstrapping:



Mobile IPv6 Search & Rescue Deployment Scenarios:



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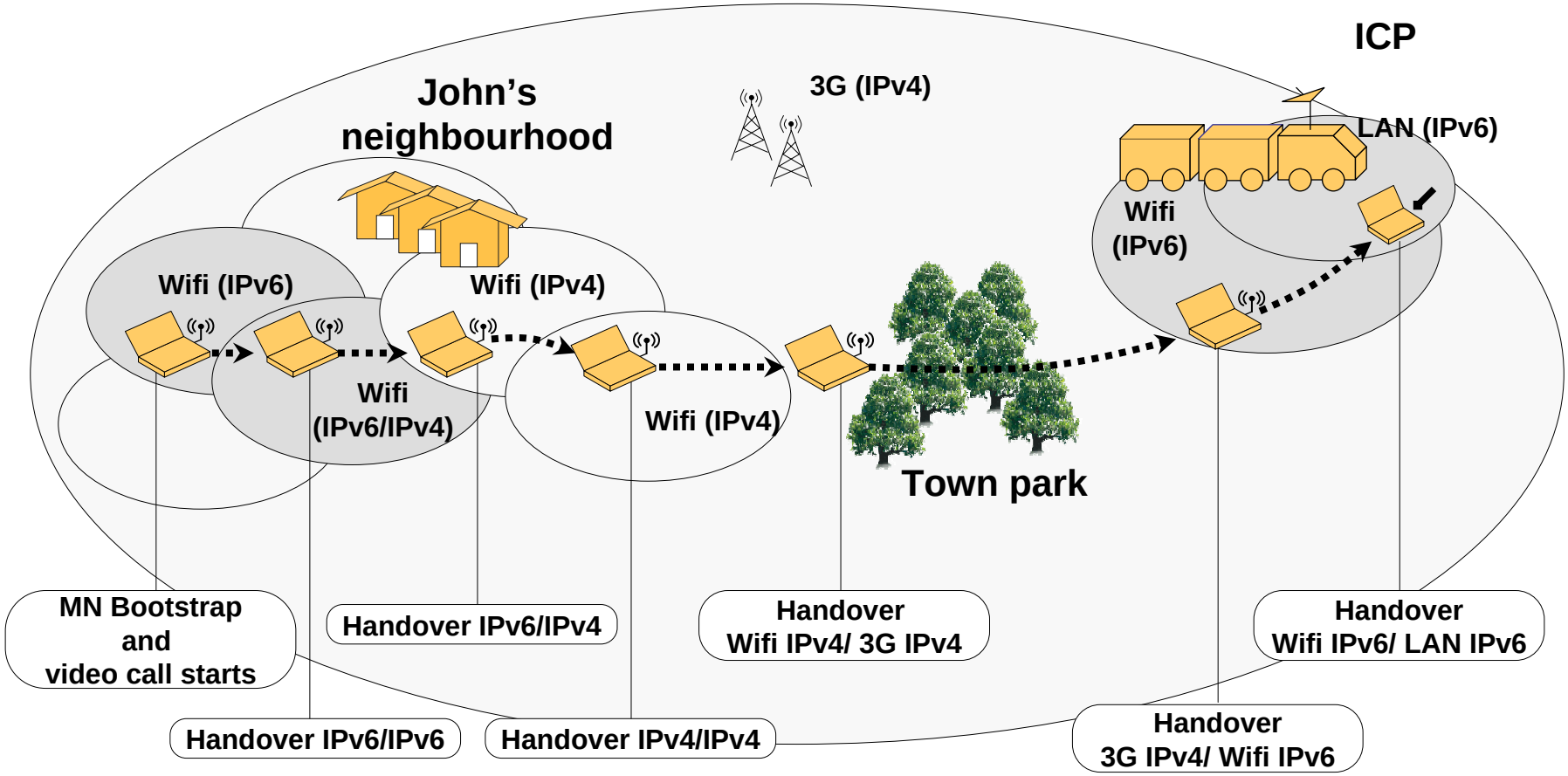
Mobile IPv6 Search & Rescue Deployment Scenarios:



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Conclusion:

Overview of components being developed to facilitate the efficient and operational mobility in large heterogeneous IP networks

- EAP-based MIPv6 bootstrapping (with and with-out MIPv6 DHCPv6 extensions and DNS/IKEv2).

Overview of Search & Rescue scenes which provide specific application case studies which we believe are flexible enough to support the verification of the technical and business requirements of a Mobile IPv6 service environment.

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