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QoS Architecture Based on Differentiated Services for Next Generation Wireless IP Networks

<draft-itsumo-wireless-diffserv-00.txt>

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QoS Requirements

- **Must support mobility efficiently**
- **Must be able to change the SLS (Service Level Specification) dynamically**

- **Must** support tight end-to-end QoS guarantees
- **Must** support QoS for multiple classes of traffic
- **Must** be interoperable and administrable between different service providers and with legacy networks
- **Must** be scalable

- **Should** support multicast
- **Should** be simple
- **Should Not** incur too much overhead
- **Should** interoperate with other IETF protocols

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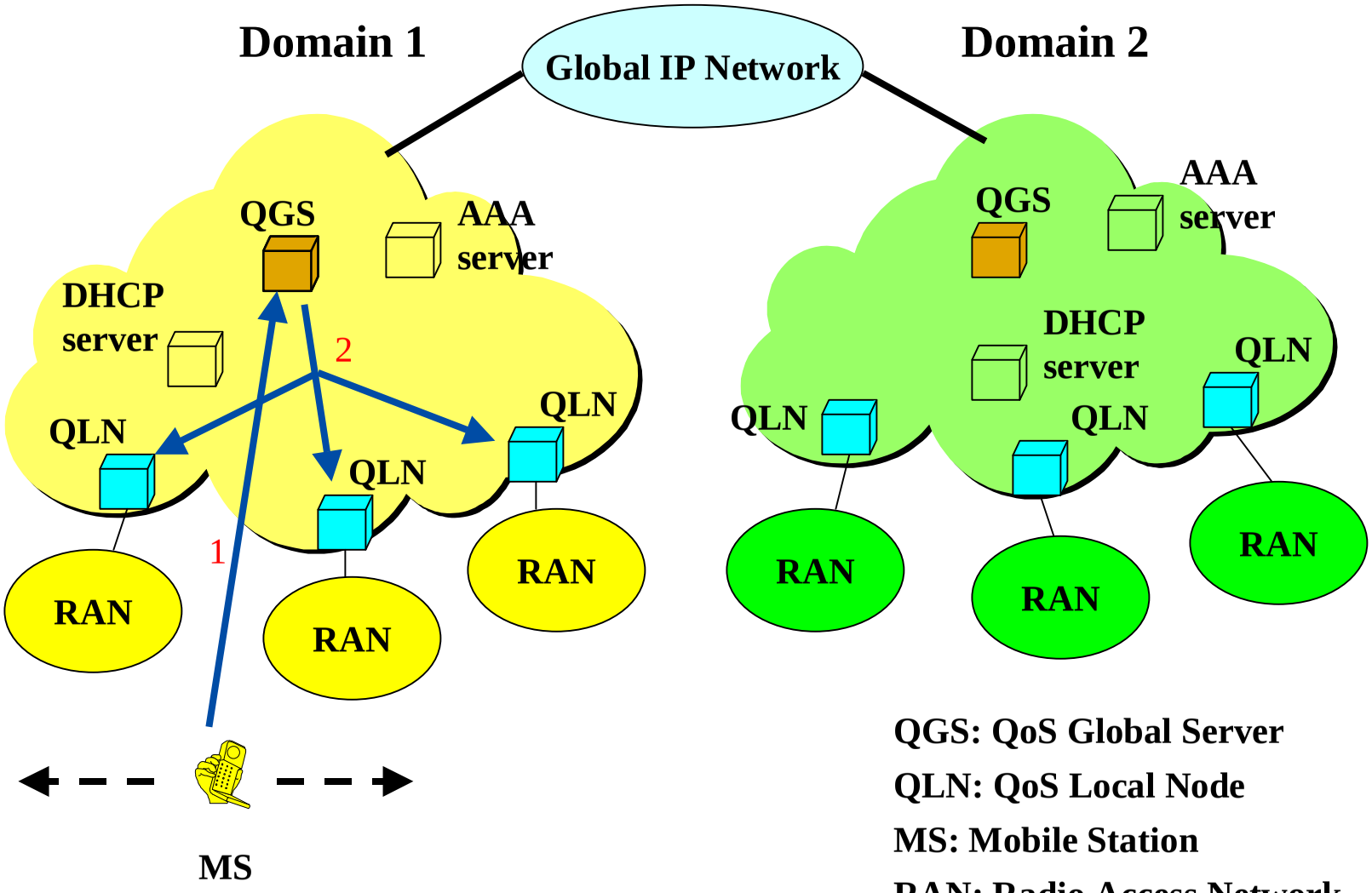
Architecture



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Architecture Framework

- Use **diffserv as the foundation** in the backbone
  - Diffserv could potentially meet many QoS requirements
- Major components
  - QGS (QoS Global Server)
    - Retain global information of the whole domain
    - Make QoS related decision and instruct QLNs what to do
  - QLN (QoS Local Node)
    - Retain local information of the resource available in the local domain
    - Ingress node of the diffserv domain
- Architecture characteristics:
  - A central authority per domain with global information, and several local ingress nodes with local information
  - QoS signaling and transport are separated
    - Central server deals with the QoS signaling
    - Local nodes handle the actual transport traffic

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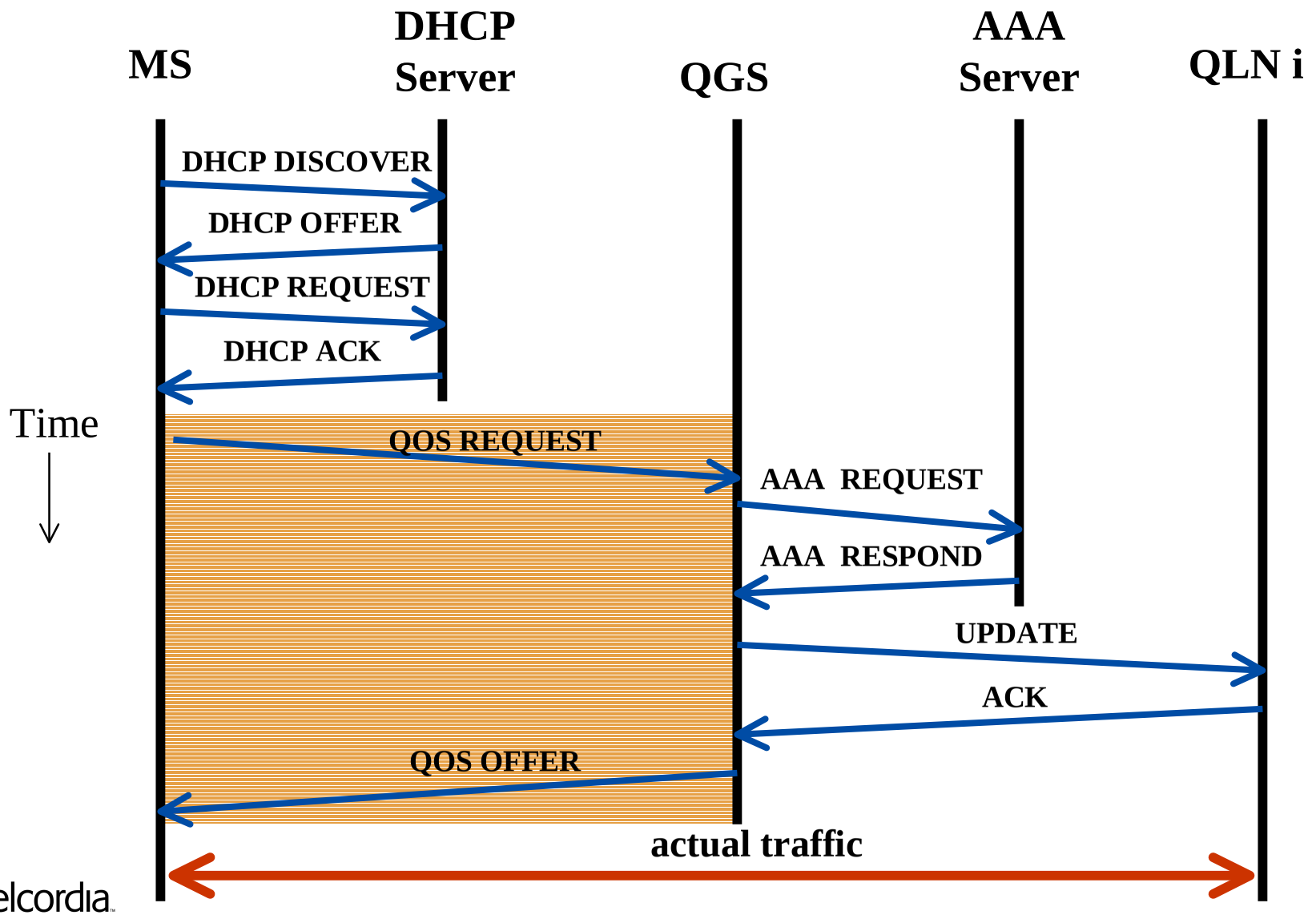
Initial Setup



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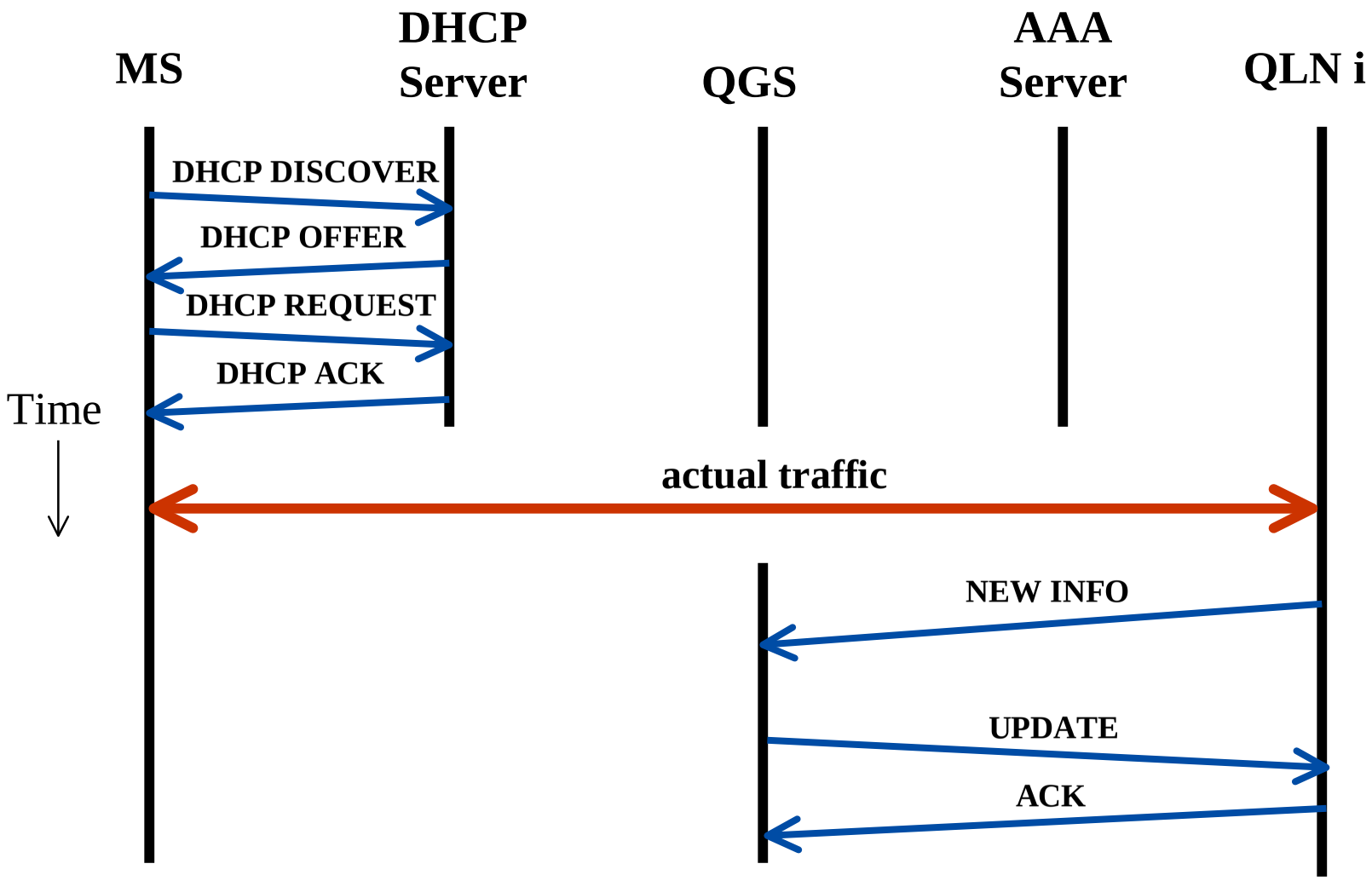
Roaming within Domain



No QoS control message over wireless link

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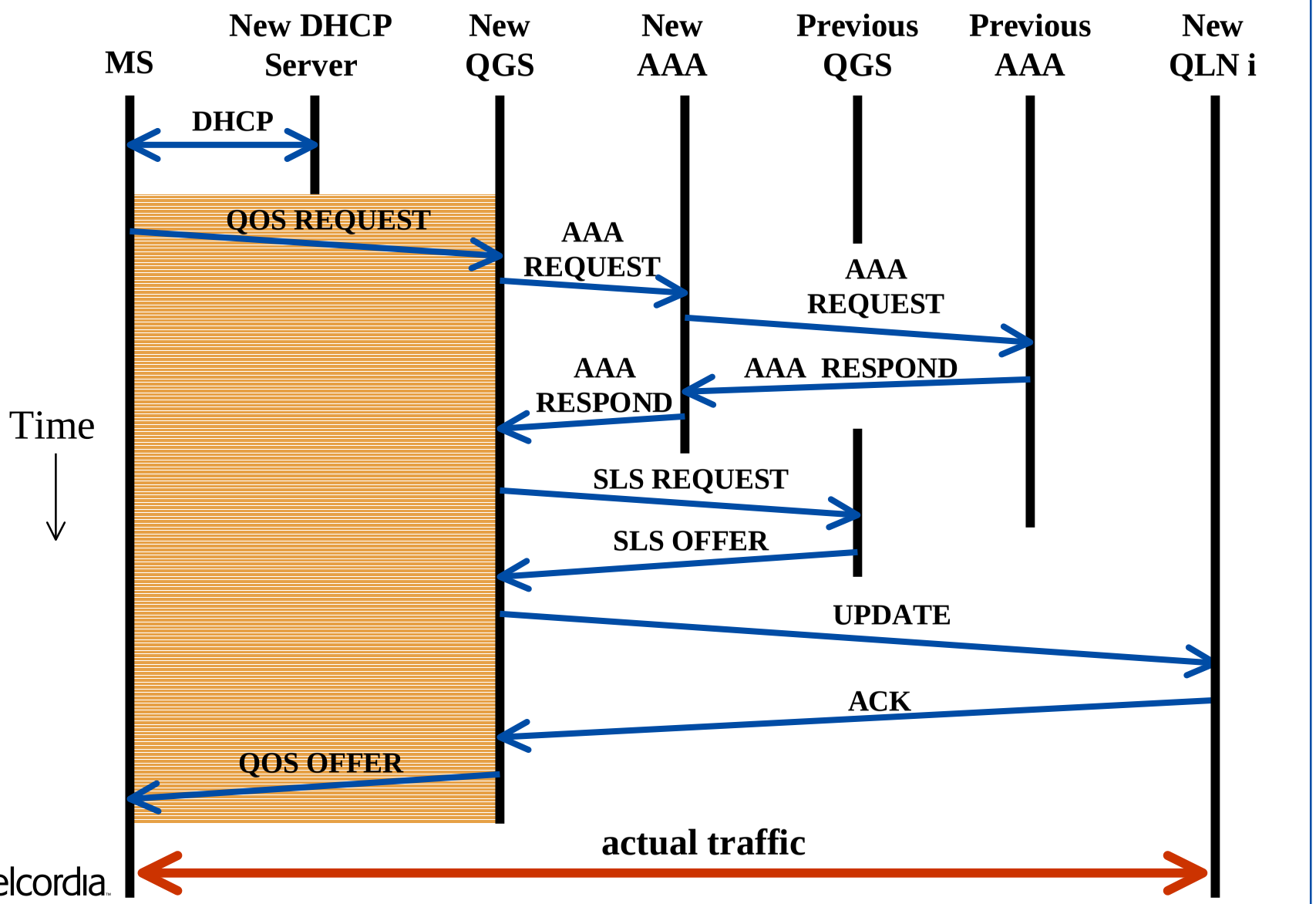
Roaming to a New Domain



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Work in Progress

- Detailed protocol specification and packet format
- Multicast support
- Implementation in a wireless testbed

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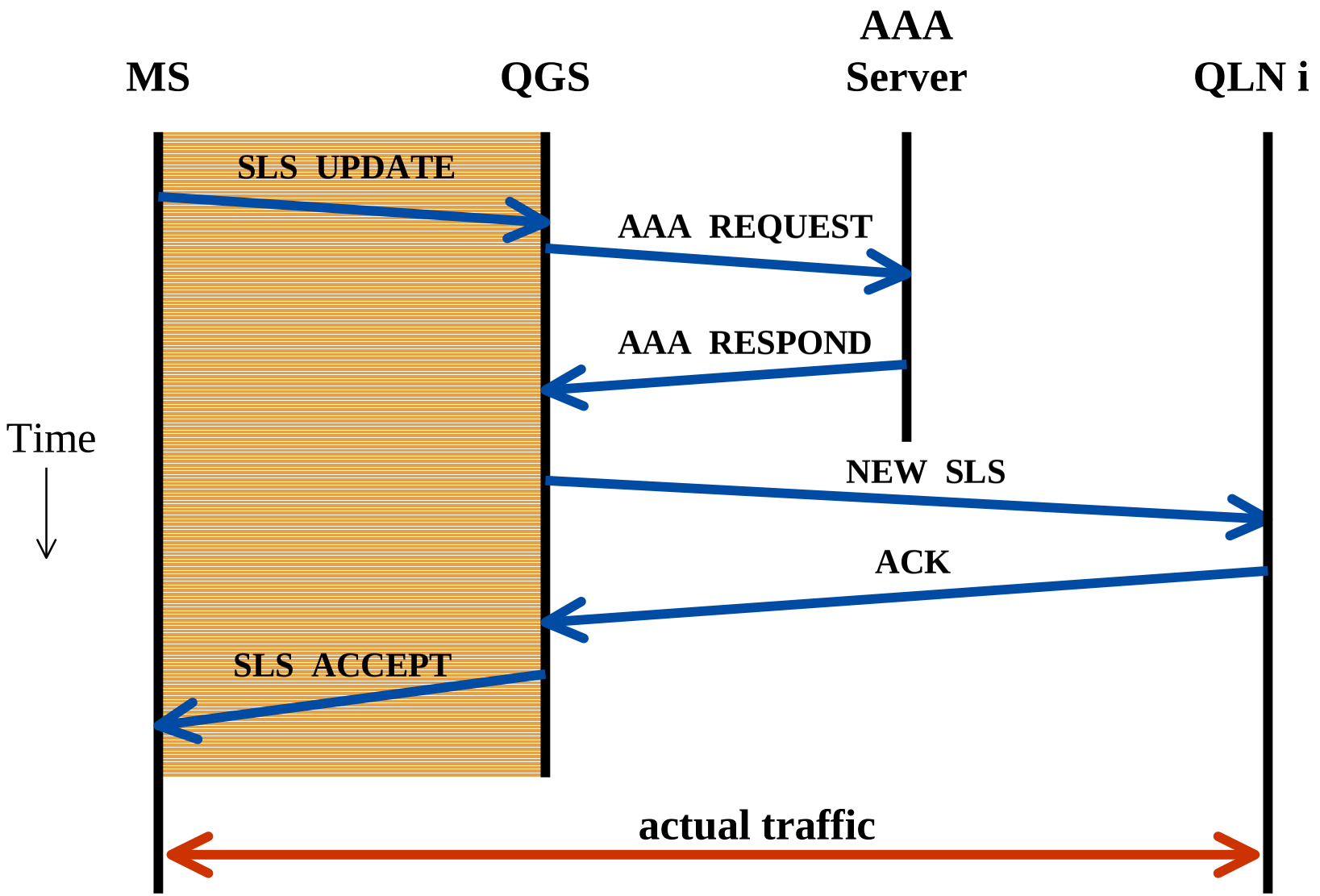
Dynamic SLS



QLNi: i = 1, ..., N, where N is the total number of QLNs in the domain

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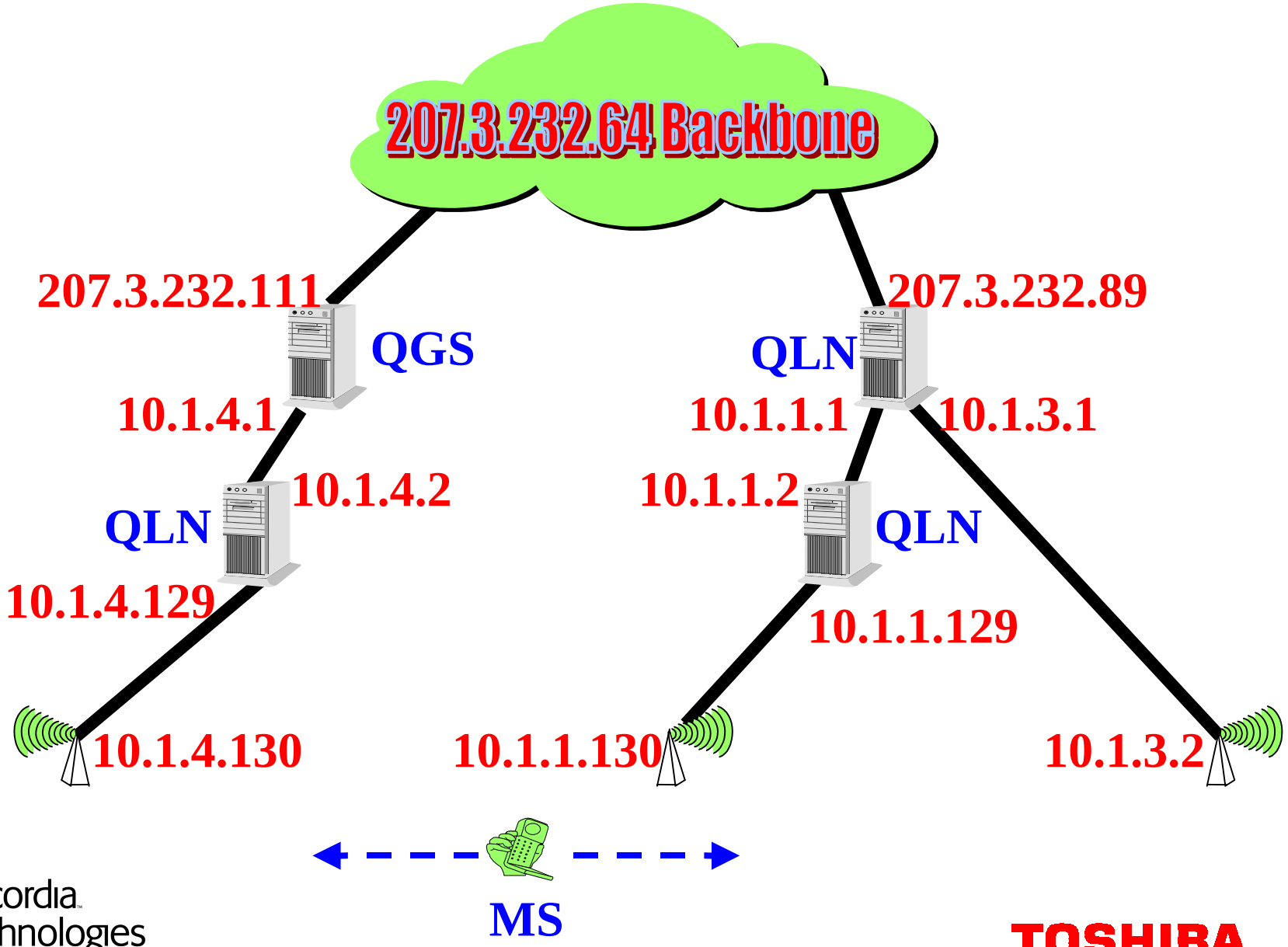
Testbed Architecture



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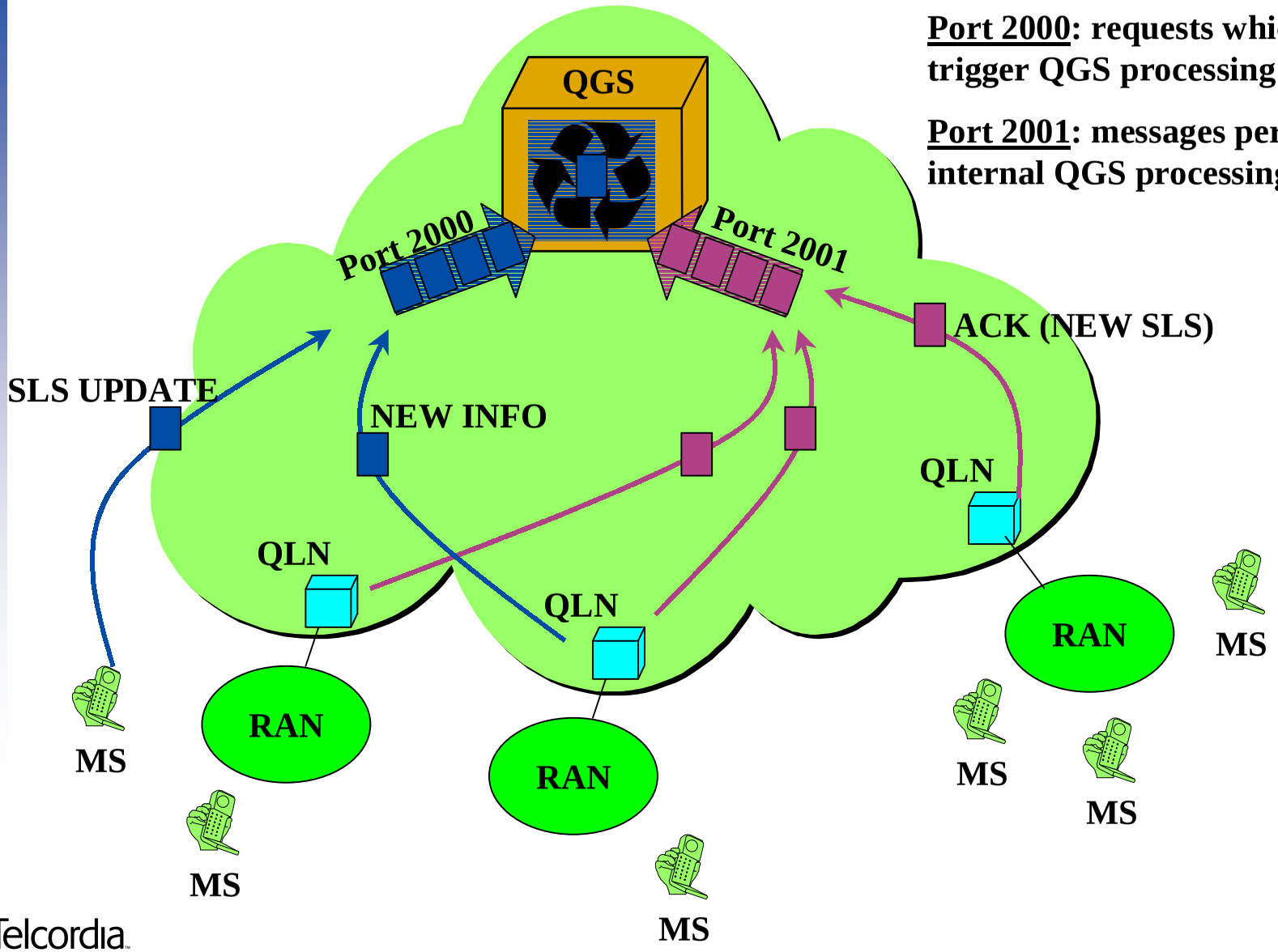
QGS Request Management



Port 2000: requests which trigger QGS processing

Port 2001: messages pertain to internal QGS processing

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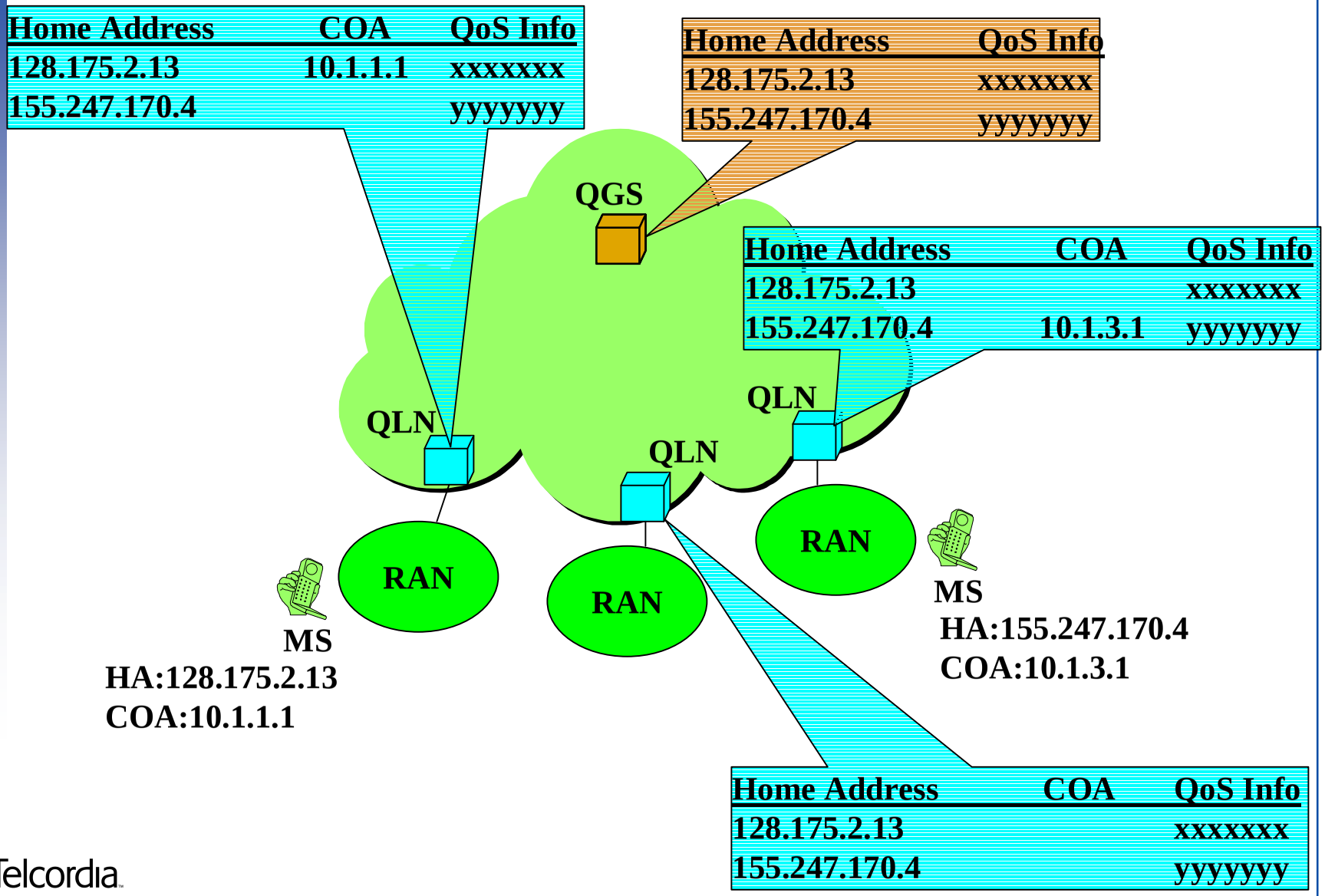
MS Care-of-Address Management



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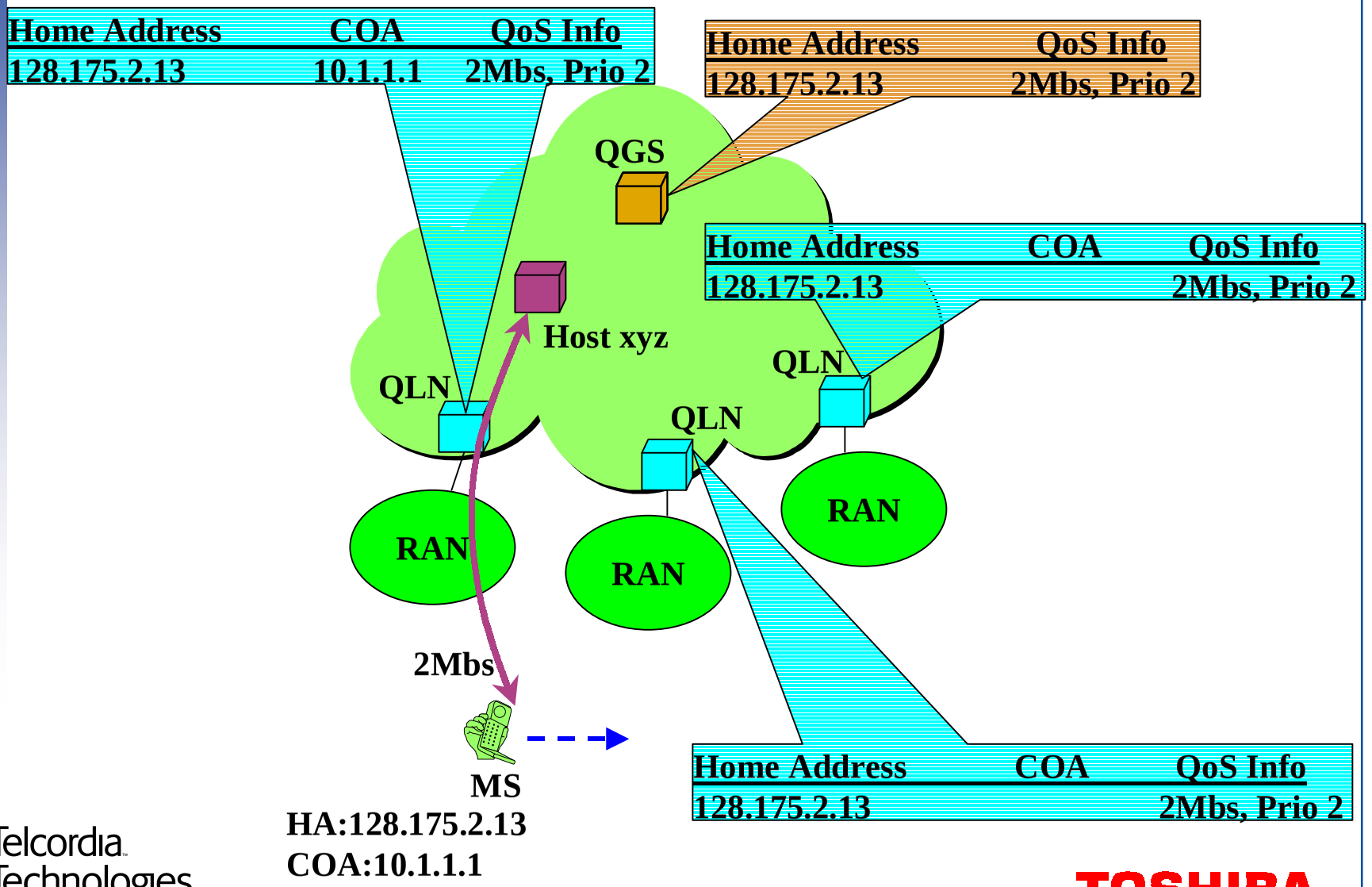

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