

# LISP for the Mobile Network

*draft-farinacci-lisp-mobile-network-01*

***IETF LISP WG Singapore***

November 2017

*Dino Farinacci, Padma Pillay-Esnault, Uma Chunduri*

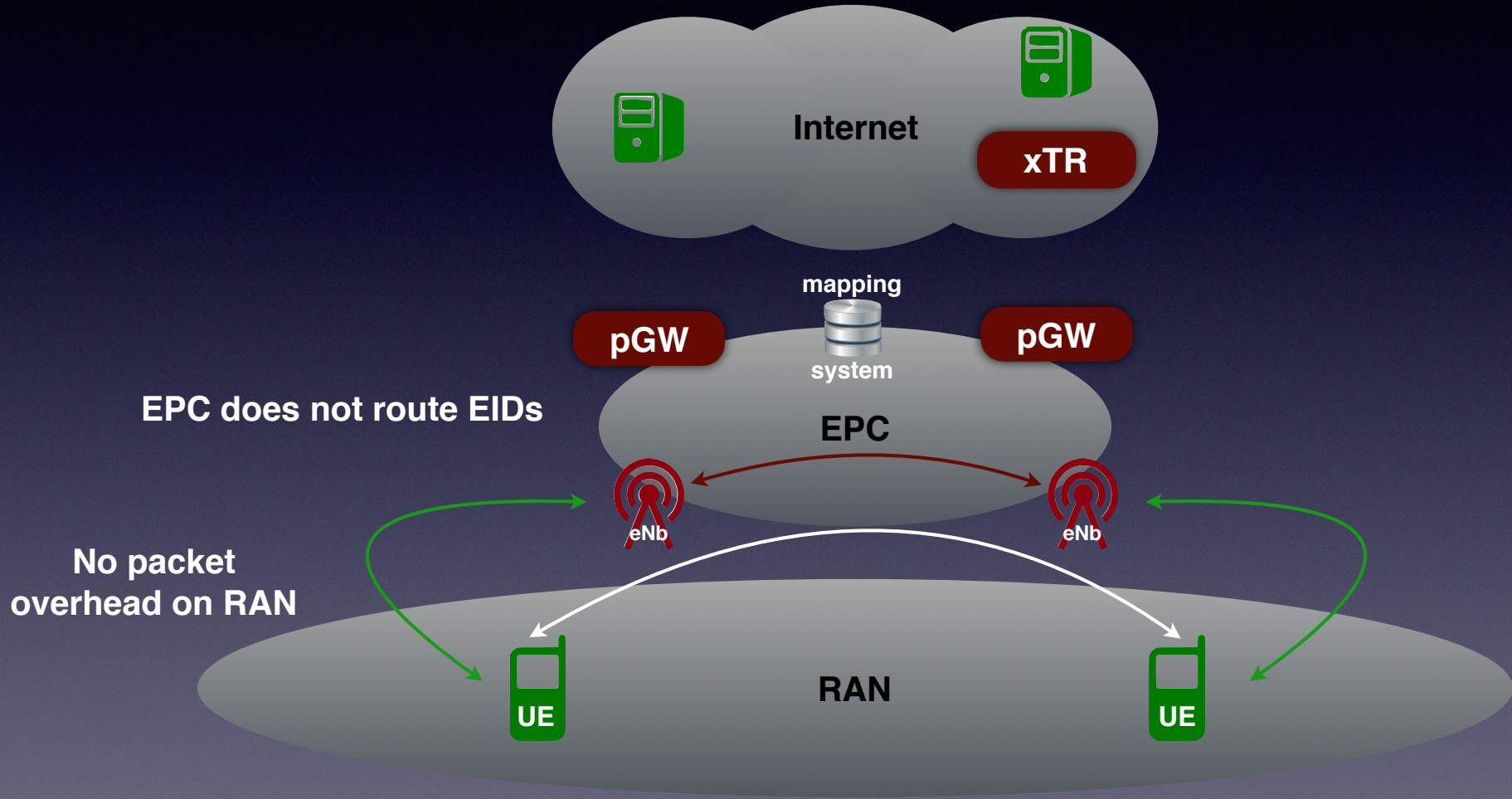
# High-Level Goals

- Greatly **Simplify** the Mobile Network:
  - To meet new latency and bandwidth demands (*VR/AR*)
  - To address newer and more demanding applications (*IoT*)
- Pull Based Mapping Database System **Control-Plane**:
  - To Scale and Secure Mobility
  - To Reduce OpEx through Incremental Deployability
- Dynamic Encapsulating Overlay Based **Data-Plane**:
  - Address Management greatly simplified
  - Fast Mobility Handoffs
  - Roaming across Mobile Networks and WiFi

# How it Works

- UEs are assigned EID addresses
- eNodeBs and pGWs are LISP xTRs with RLOC addresses
- LISP Mapping System runs anywhere in EPC
- Encapsulation occurs over EPC and not the RAN
- Encapsulation format is GTP or LISP but real-time setup (not static)
- The Underlay is the existing or next-gen EPC core IP network
- The Overlay runs over the EPC and the Internet

# Example Packet Flow

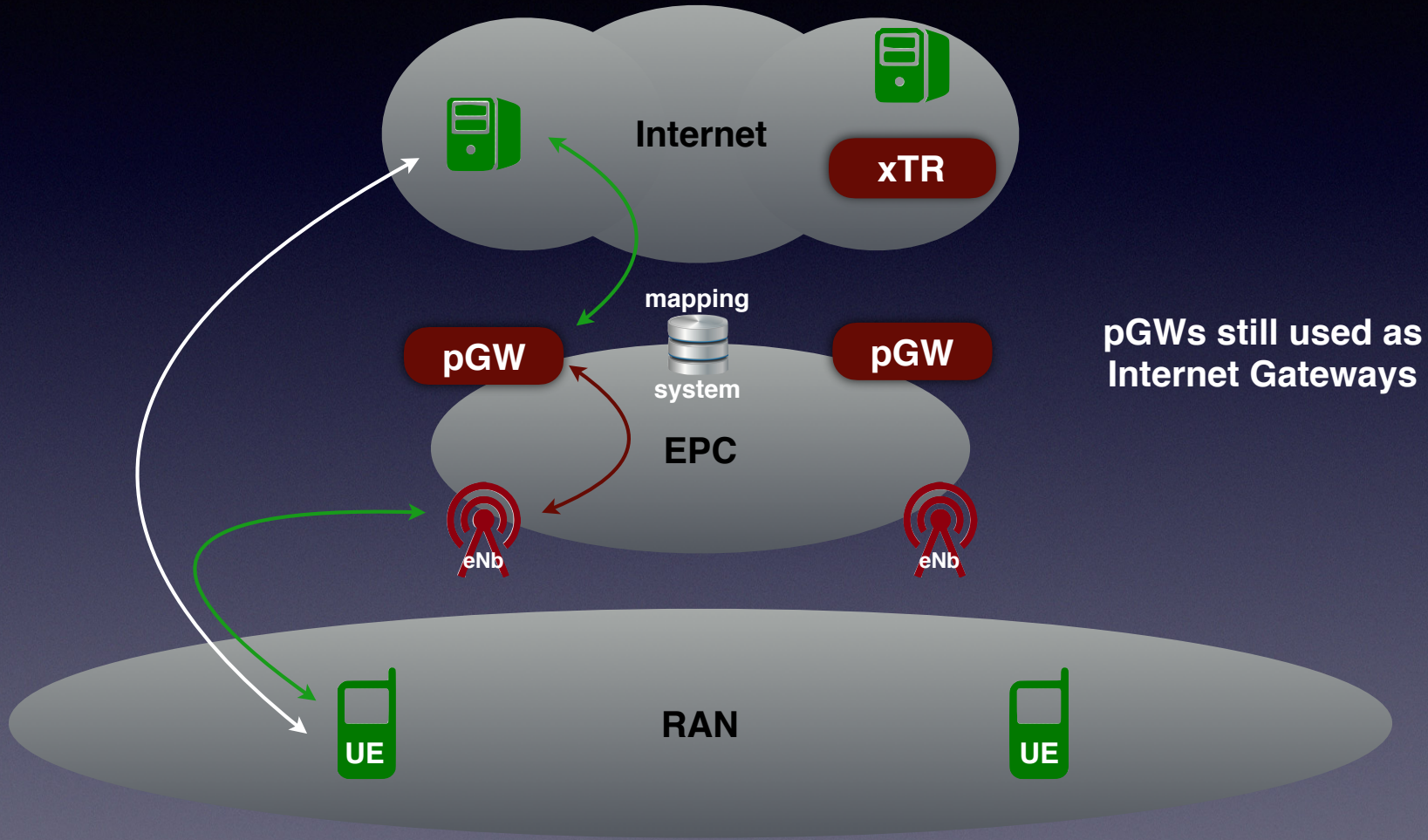


Green = EIDs  
 Green Node = Unmodified Host  
 Green Arrow = Not Encapsulated

UE to UE

Red = RLOCs  
 Red Node = LISP xTR  
 Red Arrow = Encapsulated

# Example Packet Flow



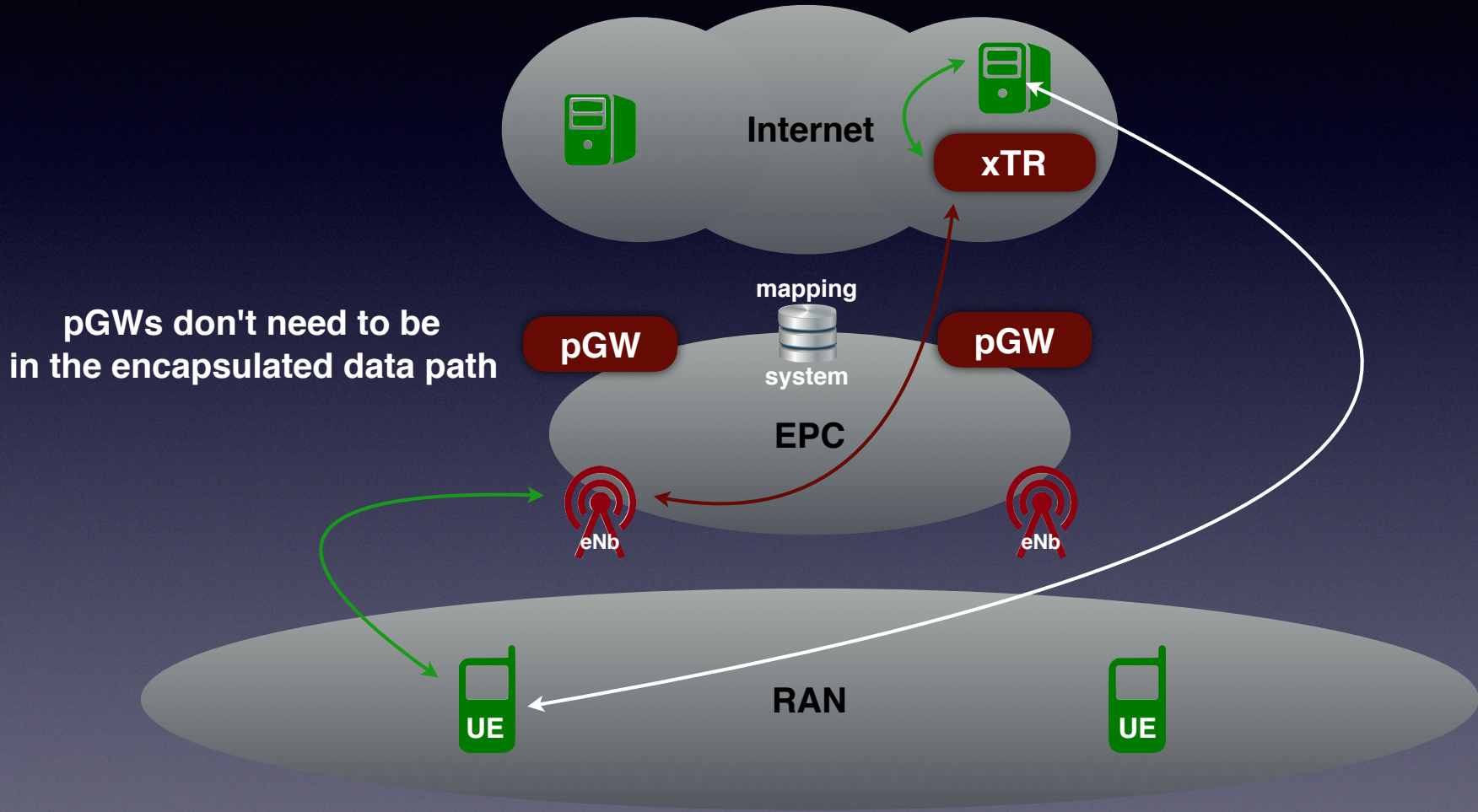
pGWs still used as Internet Gateways

UE to non-EID Server

Green = EIDs  
 Green Node = Unmodified Host  
 Green Arrow = Not Encapsulated

Red = RLOCs  
 Red Node = LISP xTR  
 Red Arrow = Encapsulated

# Example Packet Flow



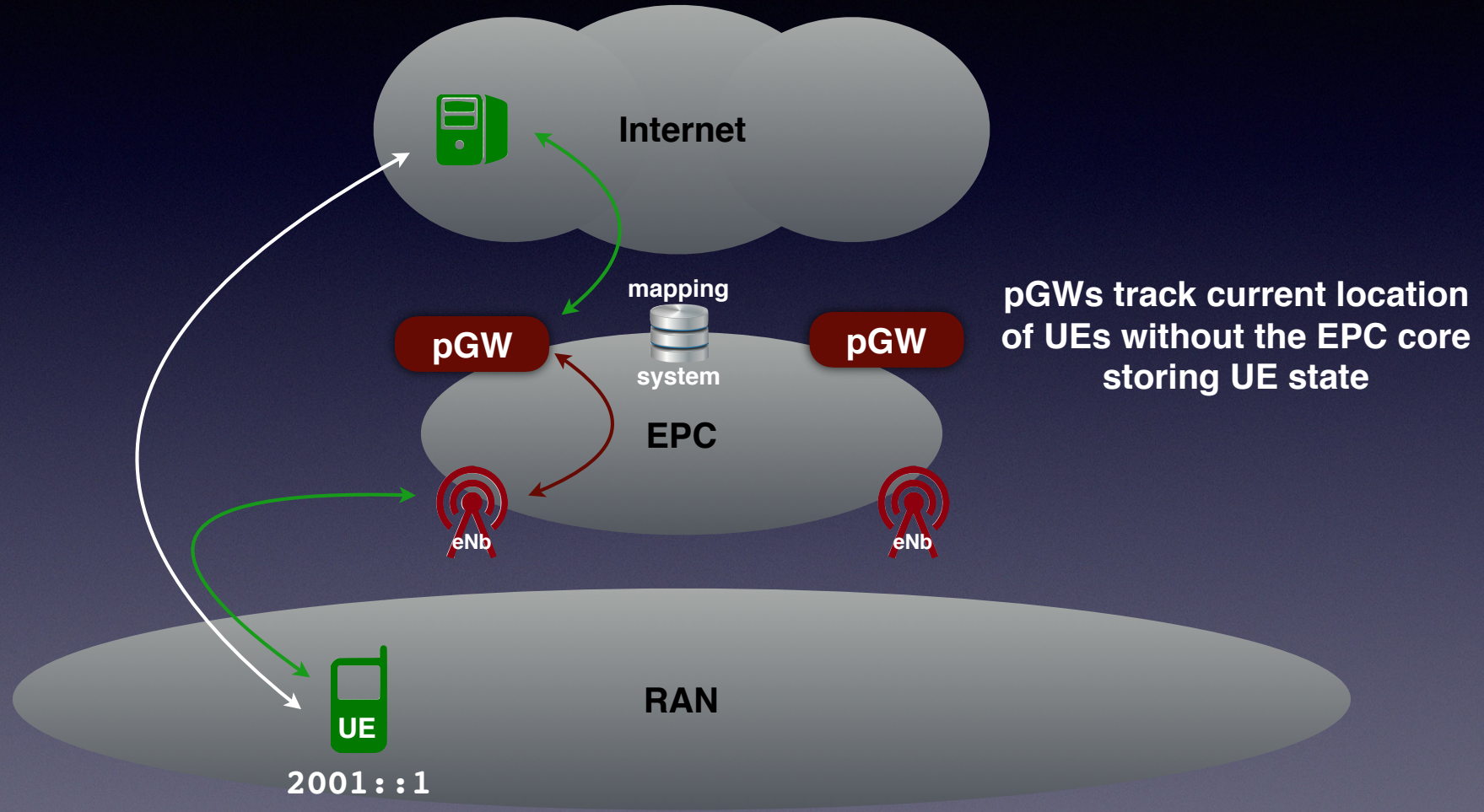
pGWs don't need to be in the encapsulated data path

UE to EID Server

Green = EIDs  
Green Node = Unmodified Host  
Green Arrow = Not Encapsulated

Red = RLOCs  
Red Node = LISP xTR  
Red Arrow = Encapsulated

# Mobility Example

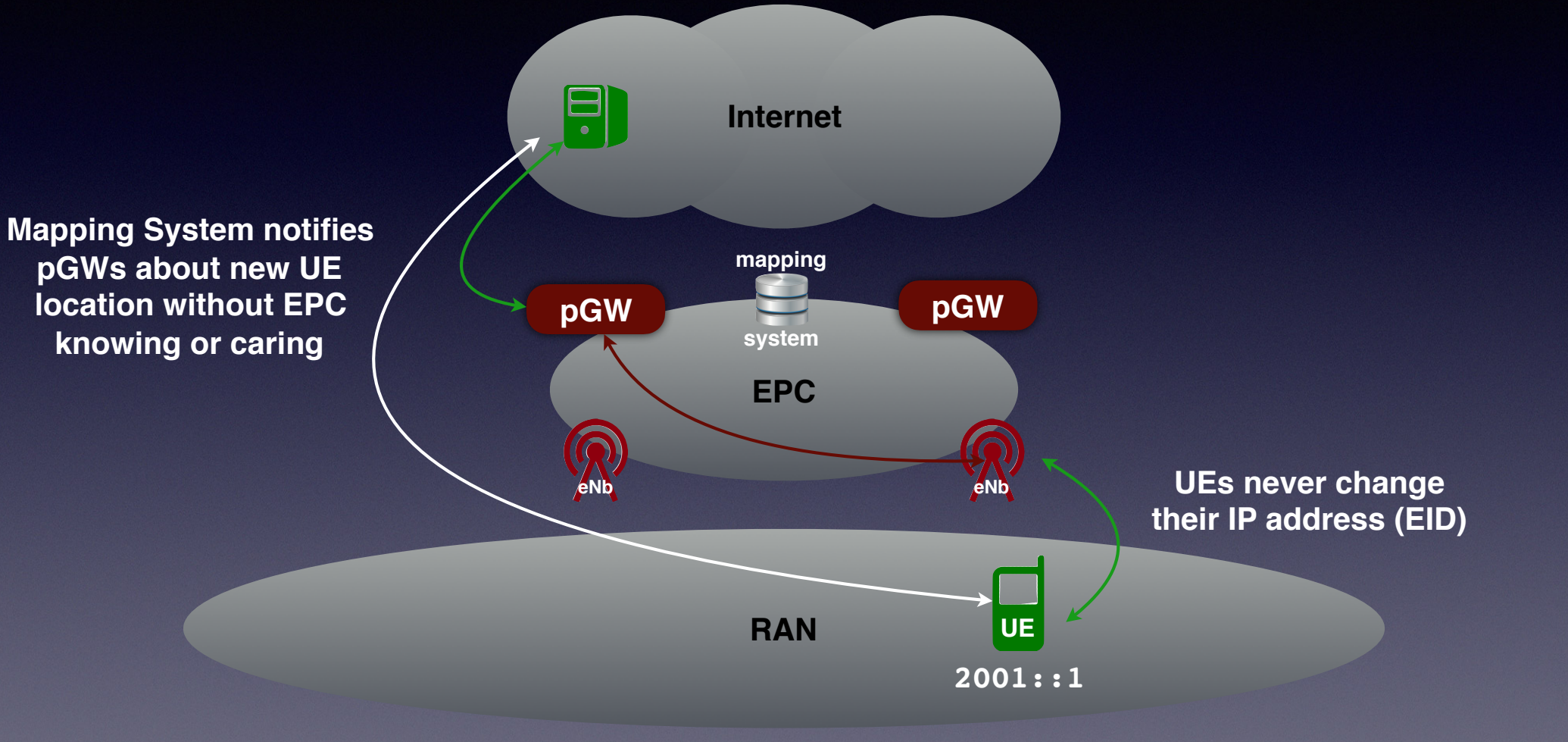


Green = EIDs  
 Green Node = Unmodified Host  
 Green Arrow = Not Encapsulated

UE roams to eNodeB

Red = RLOCs  
 Red Node = LISP xTR  
 Red Arrow = Encapsulated

# Mobility Example



Green = EIDs  
 Green Node = Unmodified Host  
 Green Arrow = Not Encapsulated

UE roams to eNodeB

Red = RLOCs  
 Red Node = LISP xTR  
 Red Arrow = Encapsulated



# IETF and SDOs

Network Working Group  
Internet-Draft  
Intended status: Experimental  
Expires: March 8, 2018

D. Farinacci  
lispers.net  
P. Pillay-Esnault  
U. Chunduri  
Huawei Technologies  
September 4, 2017

LISP for the Mobile Network  
draft-farinacci-lisp-mobile-network-01

## Abstract

This specification describes how the LISP architecture and protocols can be used in a LTE/5G mobile network to support session survivable EID mobility. A recommendation is provided to SDOs on how to integrate LISP into the mobile network.

<https://datatracker.ietf.org/doc/draft-farinacci-lisp-mobile-network/>

# Kudos

## Appendix A. Acknowledgments

The authors would like to thank Gerry Foster and Peter Ashwood Smith for their expertise with 3GPP mobile networks and for their early review and contributions. The authors would also like to thank Fabio Maino, Malcolm Smith, and Marc Portoles for their expertise in both 5G and LISP as well as for their early review comments.

The authors would like to give a special thank you to Ryosuke Kurebayashi from NTT Docomo for his operational and practical commentary.

*Plan is to evolve this design in 3GPP, IETF, ETSI and ITU at the same time!*