



# Mobile Traffic Steering

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Marco Liebsch, Jari Mutikainen, Zhaohui (Jeffrey) Zhang, Tianji Jiang

IETF#121 – Dublin, Ireland

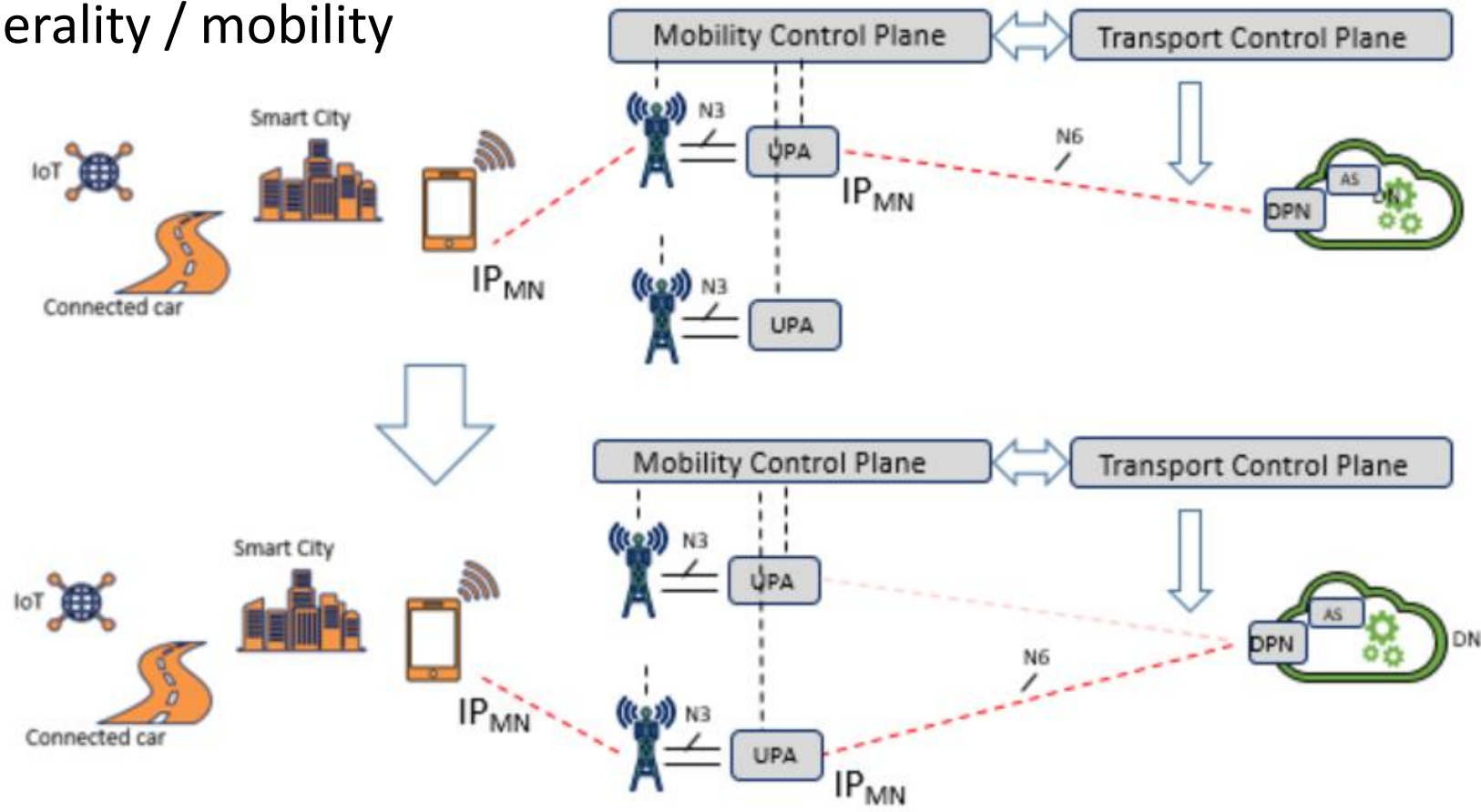
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# Topic Background & past activity

- Mobile traffic steering in advanced mobile scenarios discussed @ IETF116
  - Applicable solution drafts from past DMM activity summarized
- Room for documentation & standardization further elaborated
- Public side meeting @IETF117, resulting in...
  - Set of good use cases
  - Fair comments about applicability and limitations
  - List of challenges and topics to look at
  - Converged on value and scope of documentation
- Growing interest and more discussion
- Documentation of use cases, architecture options and info model (this draft)

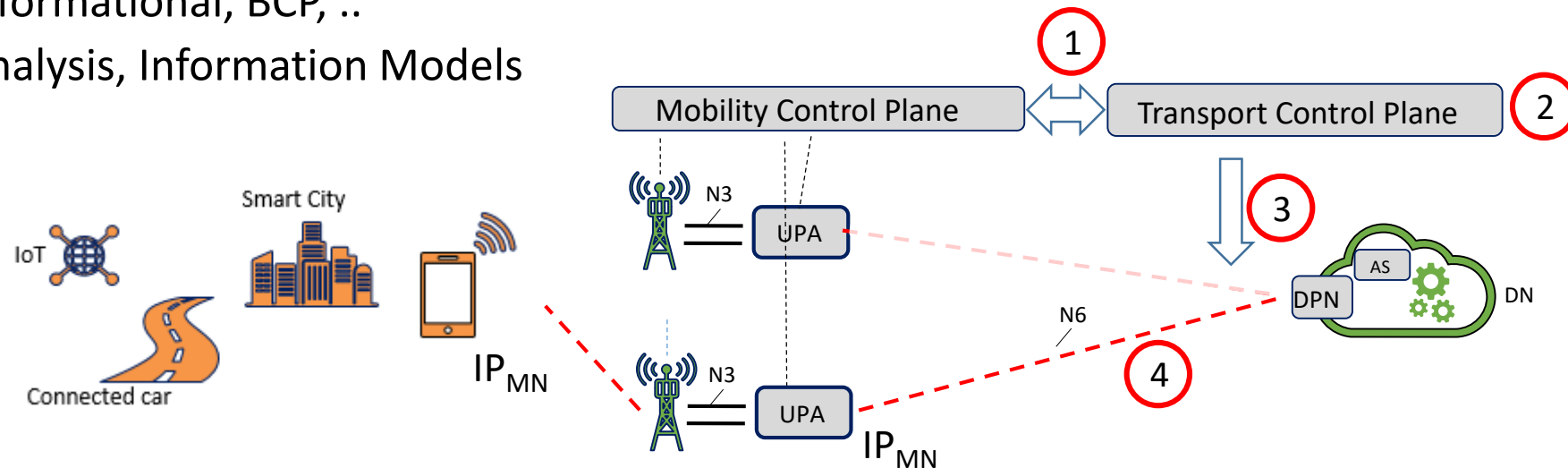
# Basic scenarios comprise...

- De-coupling of a mobile node's IP address from a topologically matching User Plane Anchor (UPA)
- Traffic steering of non-routable IP
- Network Function ephemerality / mobility



# Past Discussion & Status

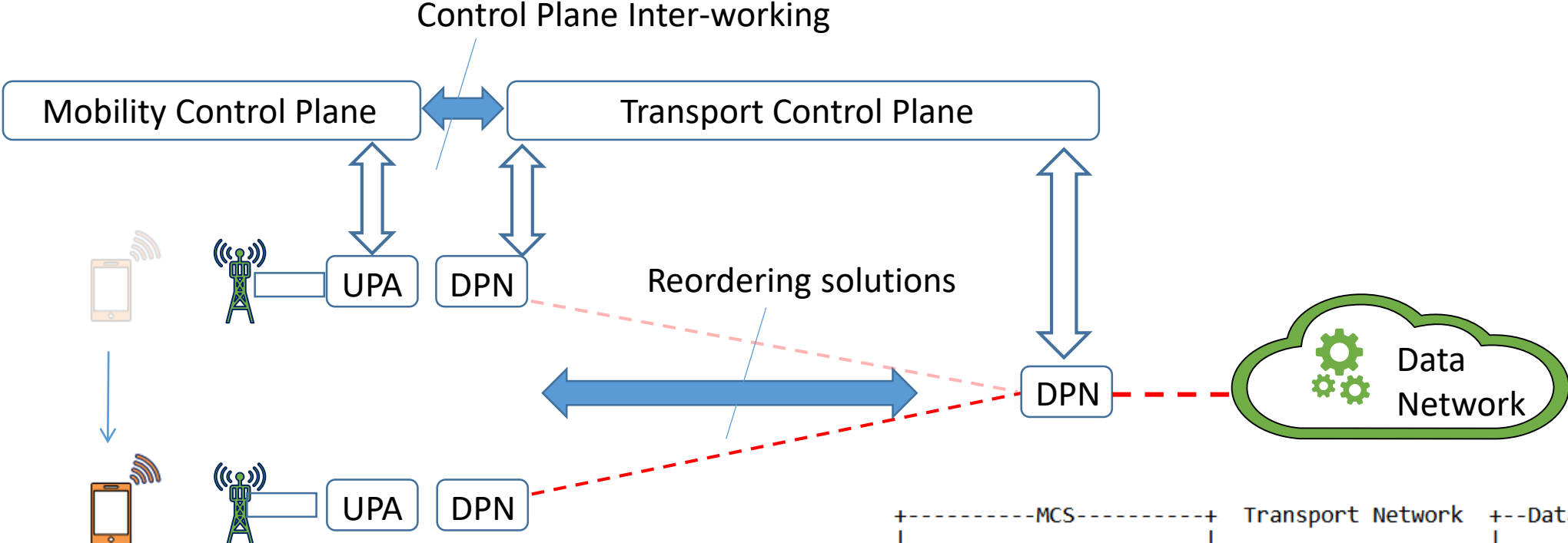
- Interest in such work ? ✓
- Value and relevance of such work ? ✓
- Technical scope of the work ?
  - Semantics and information model to/from Transport Control Plane ① ✓
  - Transport Control Plane ② and Control-/Data Plane interface semantics ③
  - Forwarding Plane ④ ✓
- Intended status and type ?
  - Informational, BCP, ..
  - Analysis, Information Models



# Use Cases in an evolved system

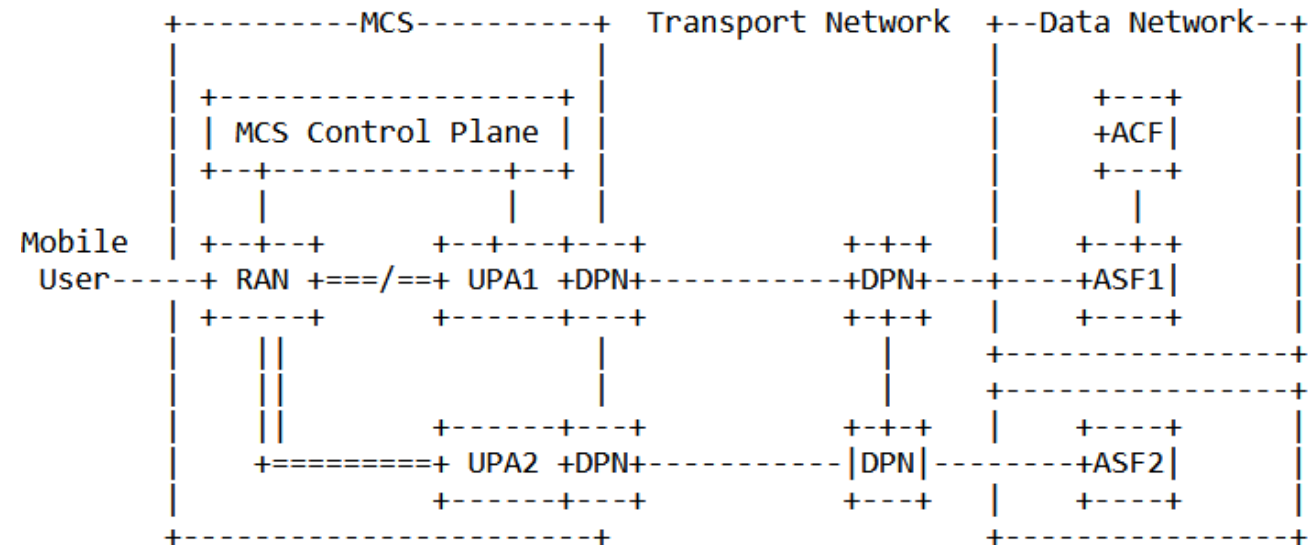
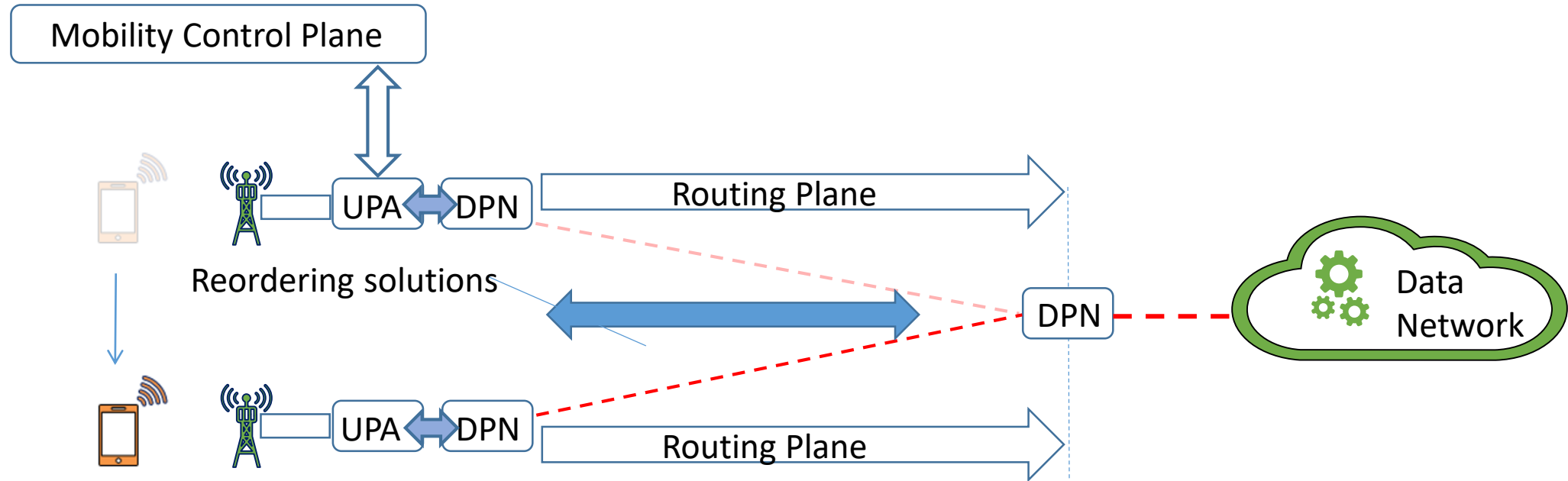
- User Plane Anchor (UPA) re-location – proactive / reactive
  - Mobile device mobility, load balancing, failover
- Multiple UPAs serving a mobile device
- Node ephemerality – May apply to UPA, Data Plane Node (DPN), Data Network (DN)
  - Energy saving schedule, mobile functions / resources (non-terrestrial or vehicular networks)
- Route optimization and control between UPAs
- End-to-end QoS – Alignment between mobile communication system and network up to DN

# Deployment option – Controller-based architecture



	MCS		Transport Network		Data Network
	MCS Control Plane		MTS Control		ACF
			TN Controller		
Mobile User	RAN	UPA1	DPN	DPN	ASF1
		UPA2	DPN	DPN	ASF2

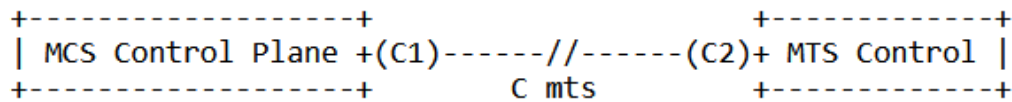
# Deployment option – Architecture with distributed routing plane



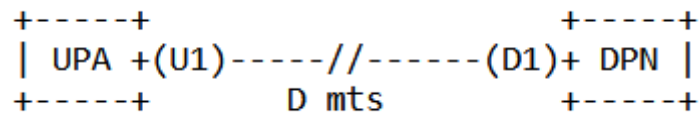
# Reference points and Information model

- Going beyond mobile device IP/Prefix and traffic classifiers
- Drafted IEs for UPA, DPN and DN

## Reference Point between MCS and MTS Control



## Reference Point between MCS's UPA and associated DPN



IE	Description	Note about Use/Format
DPN_ID	Identifier of the DPN	String or numerical ID
DPN_CP_URI	Control Plane API for the identified DPN	MCS control plane access API or DPN control API
DPN_SUPPL_URI	API to retrieve supplementary information about DPN	Source of suppl. info, e.g. map service, mobility pattern, etc.
DPN_FWD_IP	IP address of a DPN	DPN next hop IP to be used by UPAs and DPNs
DPN_FWD_MAC	MAC address of a DPN	DPN next hop MAC to be used by UPAs and DPNs
DPN_FWD_ID	Lower layer ID for Forwarding	Label or segment ID, type/format
DPN_GEO_LOC	DPN geographic locator	
DPN_TOPO_LOC	DPN topological locator	
DPN_TOPO_MAP	Reference to topology map	Can be map of physical or virtual topology
DPN_ADJ_TYPE	Adjacency={UPA adj.,UPA attached, DN adj. }	Candidate router for UPA, DN/PE next hop
DPN_STAT_INF	Status info incl. load, expected changes	

Figure 9: DPN Information Elements



# Draft structure

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## Next

- Detail operation of involved functions for different use cases
- Confirm and extend Information model
- Group interest ... ?