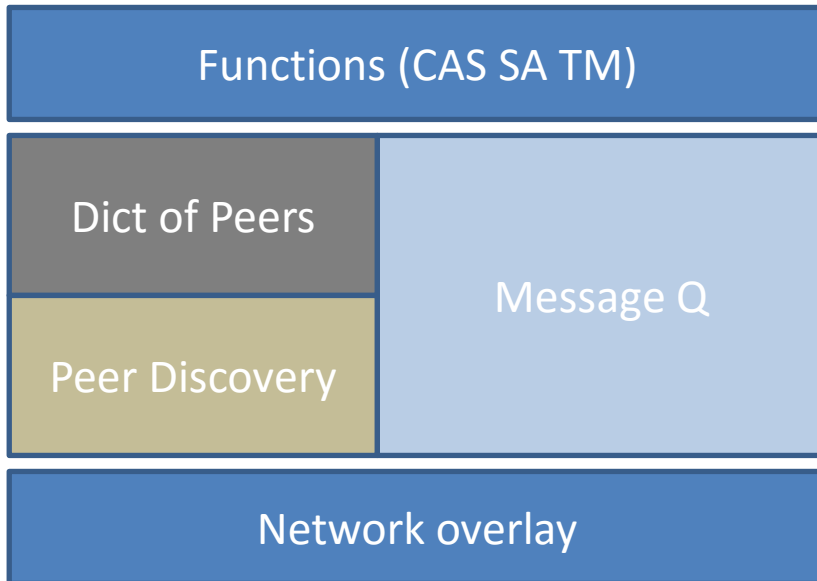


# Communications Stack



## Peer Discovery

SCTP broadcast of basic data, with multi-homing.

## Dict of Peers

Store of all known peers and latest basic data.

## Message Q

Passes messages and data between Functions and know peers, based on unique Dict of Peers content.

## Functions

- CAS -Collision Avoidance System
- SA - Situational Awareness
- TM - Traffic Management

## Basic data in Peer Discovery

Time, PeerID, Location,  $\overline{\text{Velocity}}$



From Header

## Dict of Peers

Provides dictionary of known peers and basic data.

Basic data is used directly by higher functions

Known PeerID's are used to address Message Q request

## MessageQ Messages:

Req. Data (Pull or sub? To new peers)

'Hash of unique Peer Dict keys'

Response Req. Data (Push or pub to requestor?)

{Last node vertex, Next node vertex, Destination node vertex,  
Probable next nodes exit1, Probable next nodes exit2, Probable  
next nodes exit3, Hash of unique Peer Dict keys}

Update (Push to all known peers)

Any changes in Response Req. Data since last transmission.

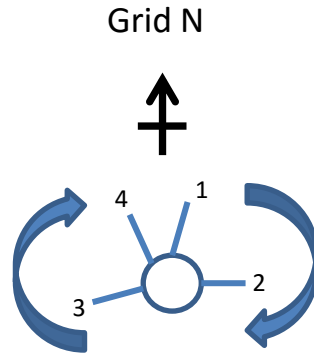
Interaction Notification Offer (Push to potential interacting peers)

To be determined

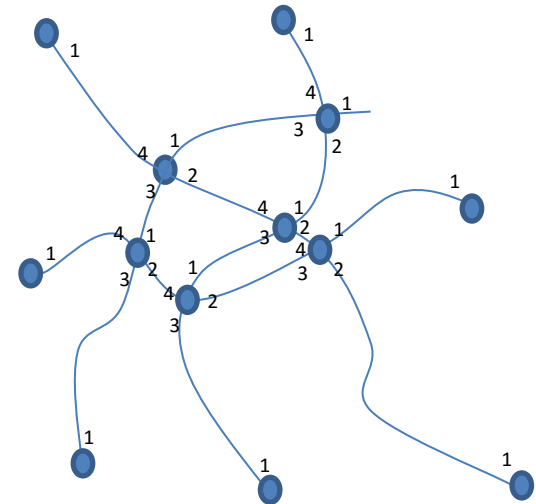
Interaction Notification Response (Push to potential interacting peers)

To be determined

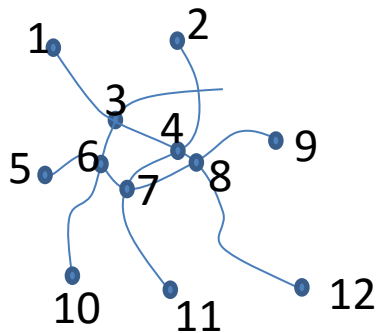
# NODES



Node exits labelled clockwise from grid North.



Nodes identified by lat, long.  
Can be mapped to numbers.



## Response Req. Data

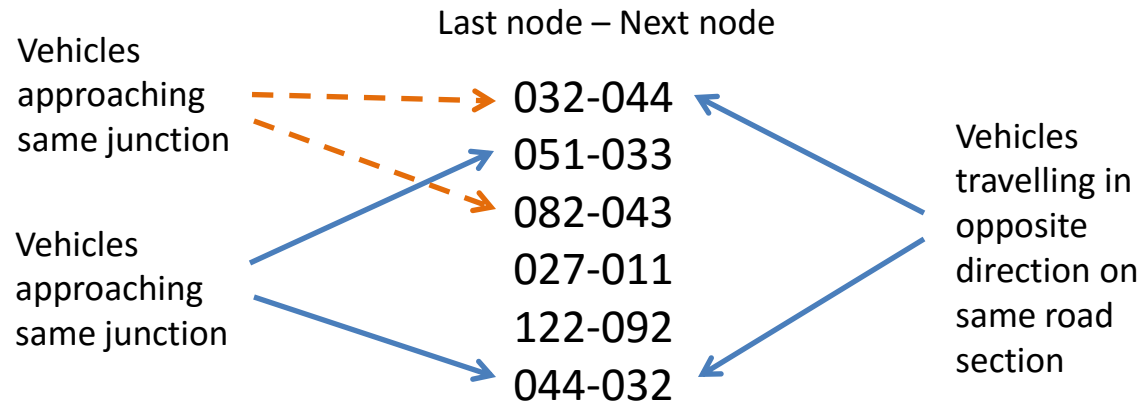
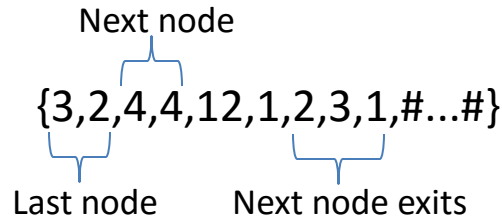
{Last node vertex, Next node vertex, Destination node vertex, Probable next nodes exit1, Probable next nodes exit2, Probable next nodes exit3, Hash of unique Peer Dict keys}



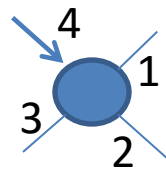
{3,2,4,4,12,1,2,3,1,#...#}

I am travelling from node 3 exit 2 to node 4 exit 4, final destination node 12 exit 1, my probably exit from the next node is exit2 , less likely exit 3 and improbably exit 1, do you know anyone I don't?

# Usage of last node, next node & node exit



Next node exits



231 = probably going straight ahead, may turn left ,unlikely right.  
 321 = probably turn left, may go straight ahead, unlikely right.  
 123 = probably turn right, may go straight ahead, unlikely left.  
 120 = probably going straight ahead, may turn left.

...