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Connected Vehicles

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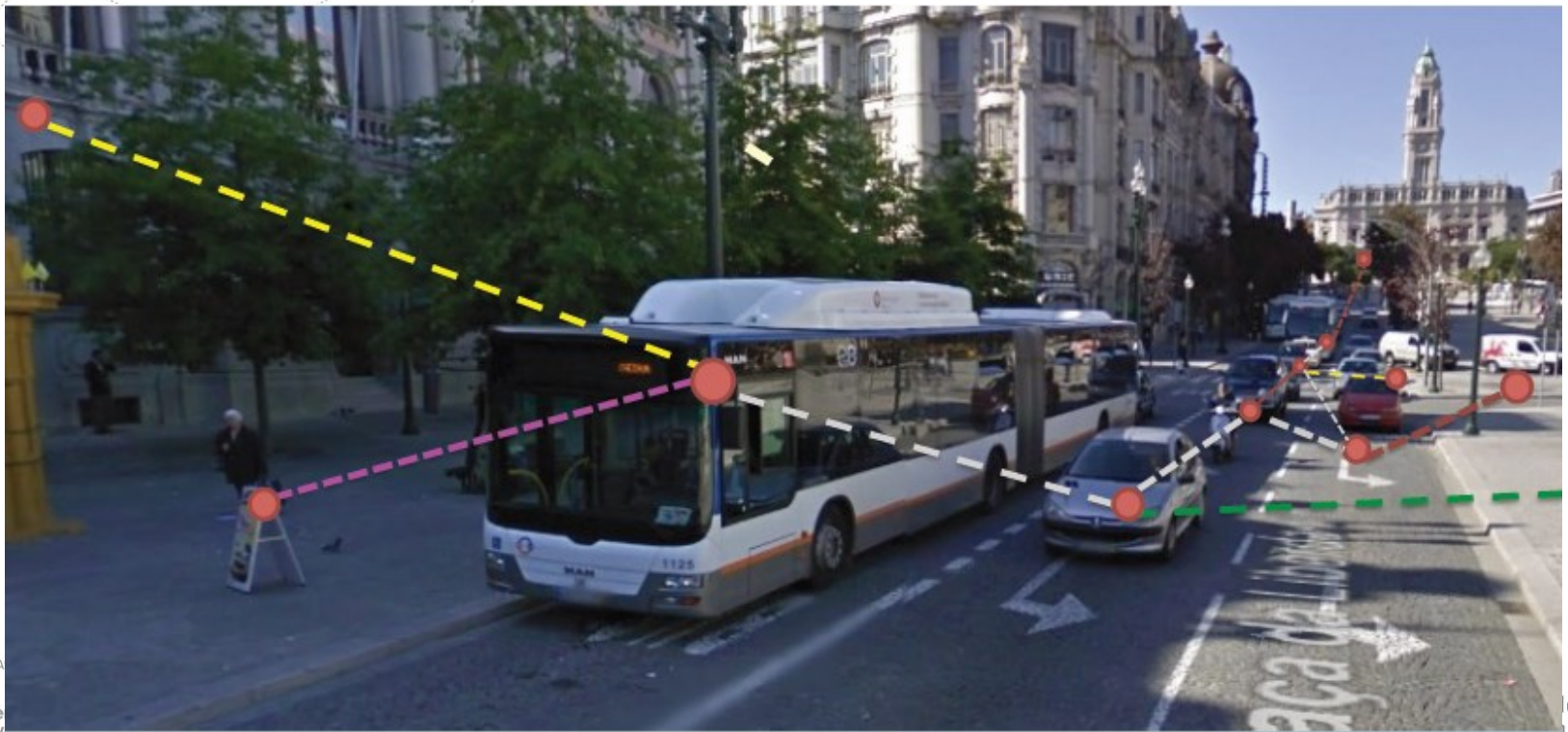
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Vehicular Networks: What?

Equip every vehicle with a radio communication system for vehicle-to-vehicle and vehicle-to-roadside communication





<https://drive.google.com/file/d/0B8OMXEOcxpSvclh2ZC12MzRTVGs/view>

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How?

Turn cars, buses, boats and trucks into mobile WiFi hotspots.

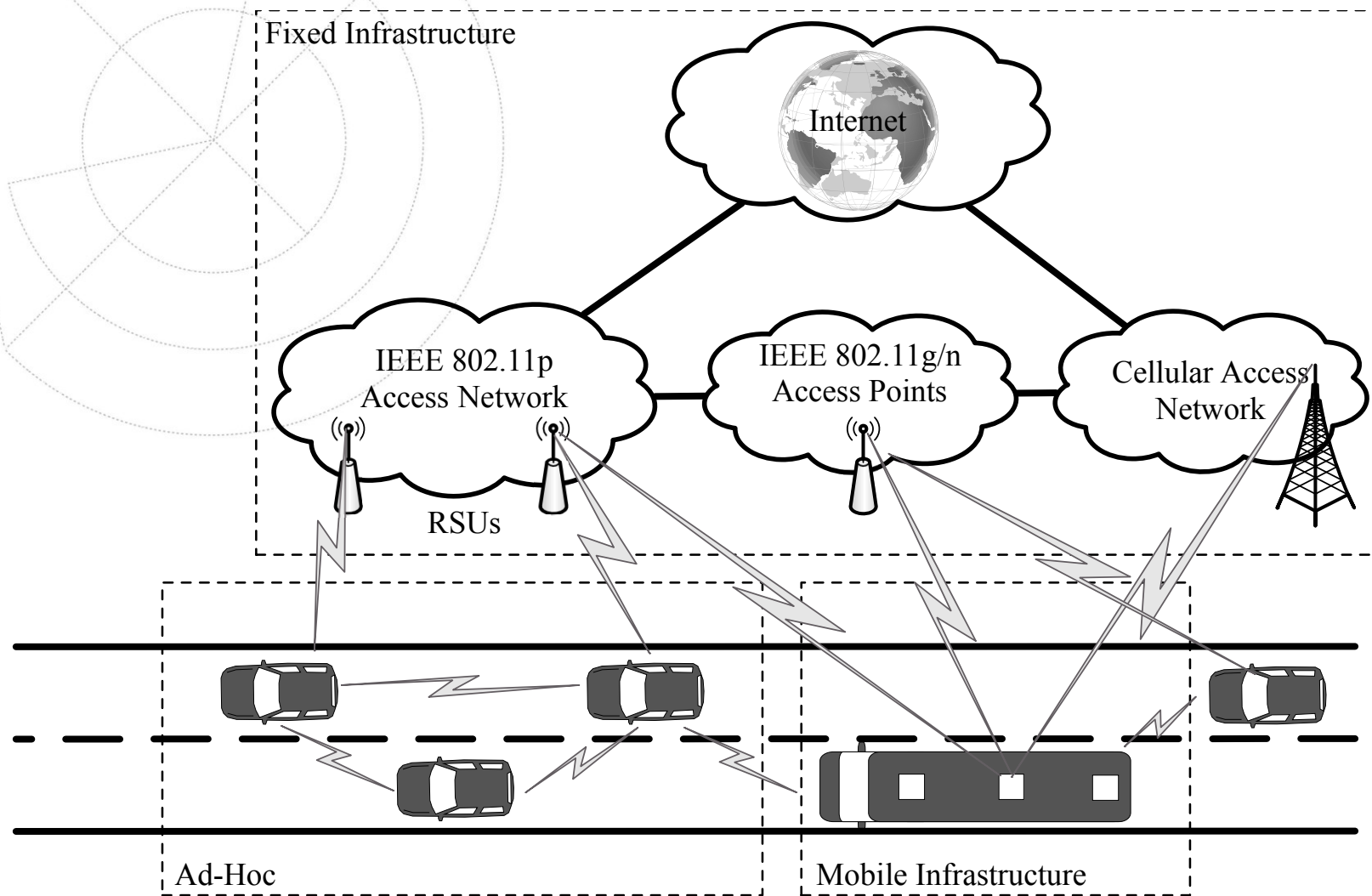
Vehicles are the network elements and build the moving network

Manage real-time and delay-tolerant data in a smart way



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Vehicular Networks: How?



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Network Mechanisms

- GPS + 802.11p + WiFi + GPRS + 3G/4G
- Smart connection manager for heterogeneous networks
- Seamless handovers
- Multi-hop vehicular mesh networking
- M2M Delay tolerant data management
- Security mechanisms for connected vehicles.



What we achieved: city network!

A network of connected vehicles:

- Secure, reliable and **low-cost** way to **expand wireless coverage** for everyone: Internet access in the STCP buses
- Enable the **Internet of Things** and **improve urban life**: transmission of information from sensors in the street, garbage containers, cameras

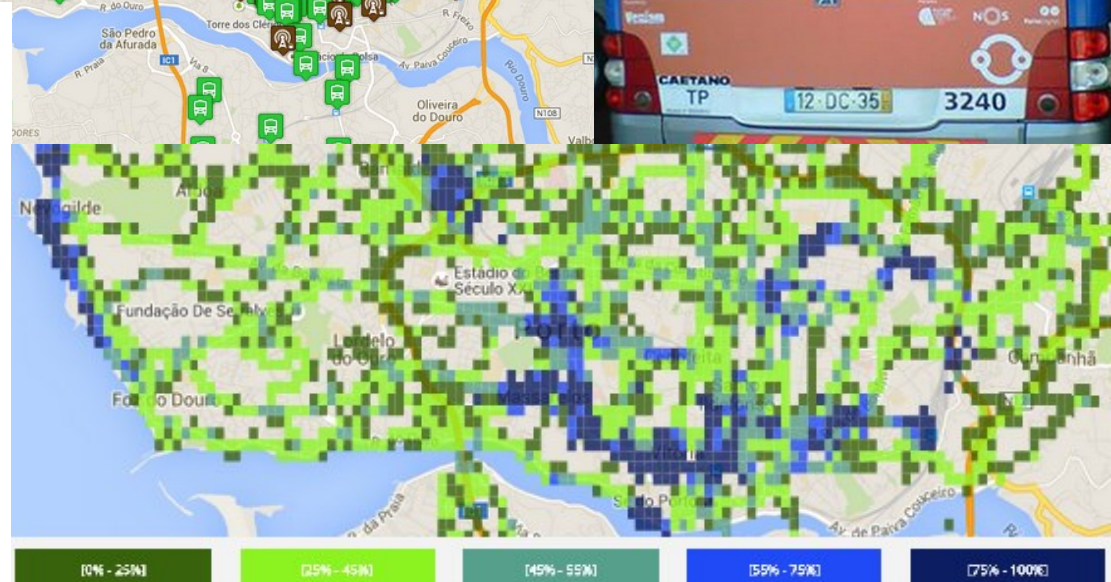
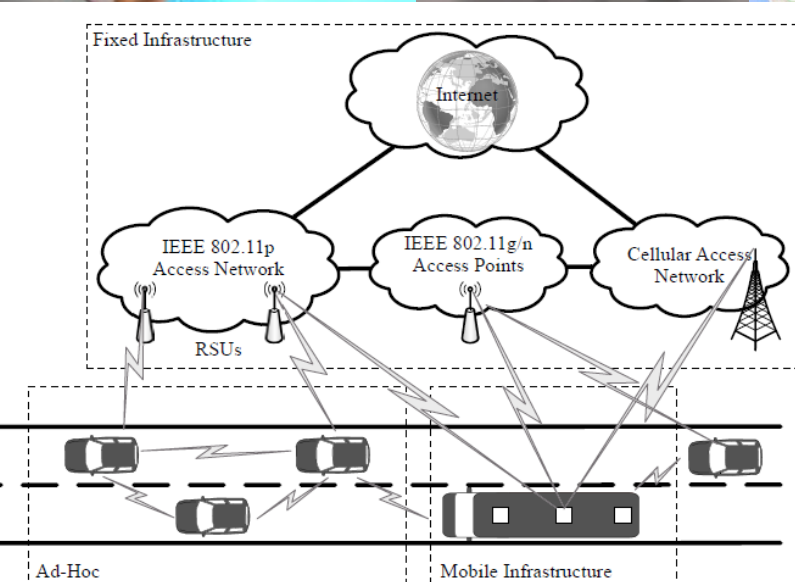
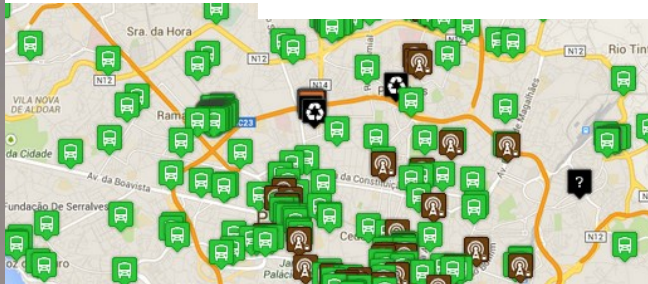


CityNet

WiFi Internet access in urban transport

Acquire real-time data from WiFi sensors
(e.g. traffic, pollution, waste collection, etc.)

600+ vehicles



City Pilot: results

608 vehicles

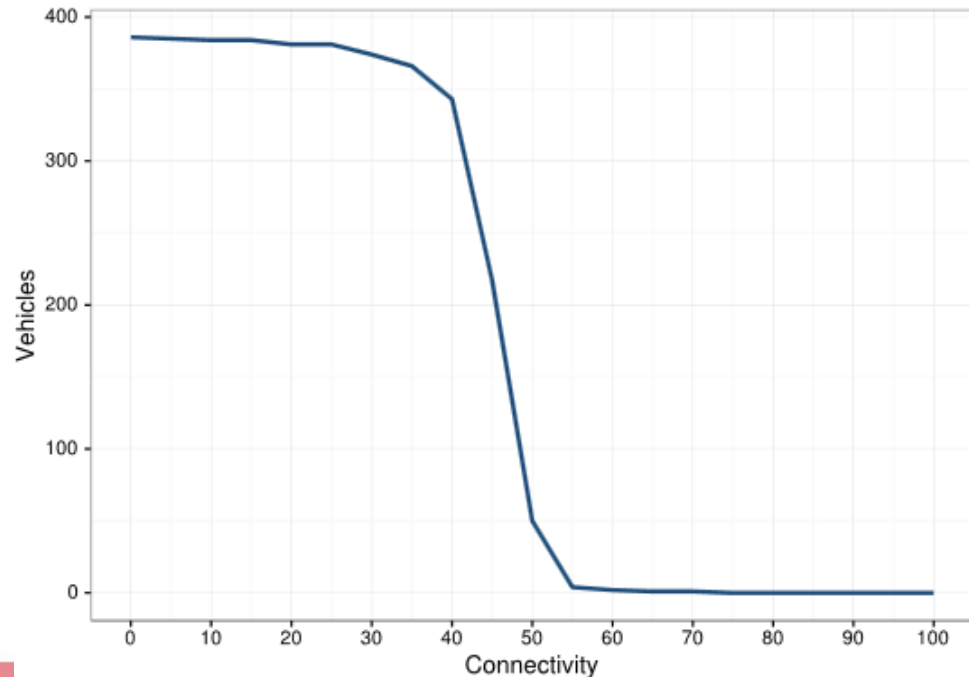
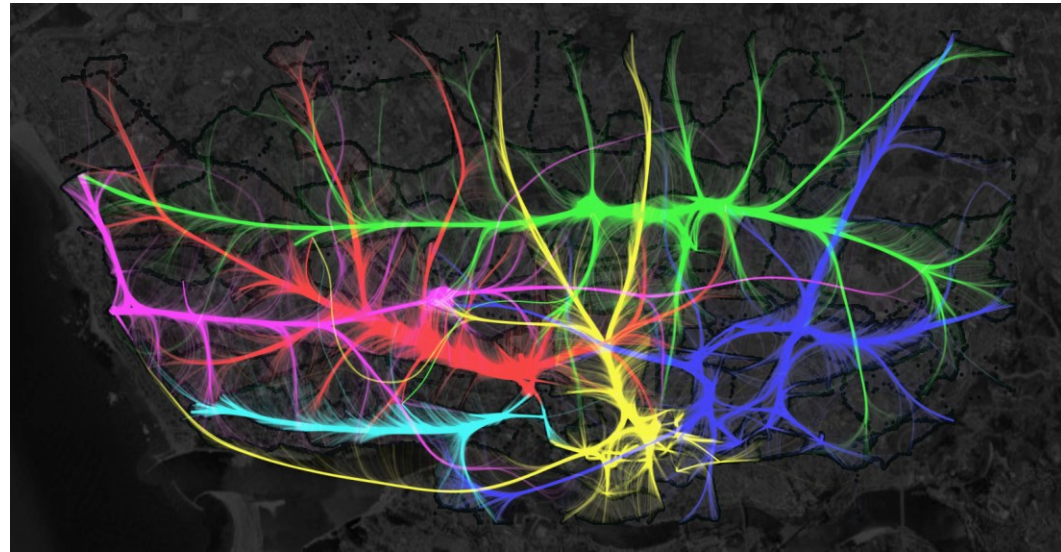
57 road side access points

371,000+ unique WiFi users

4,000,000+ internet sessions

2.5 TB of internet traffic per month

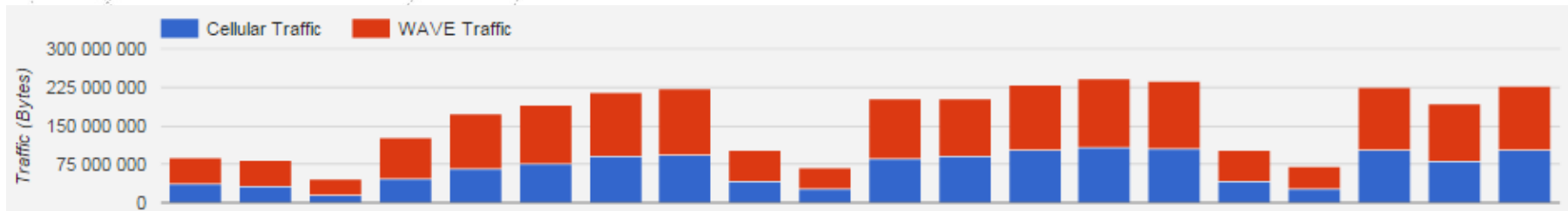
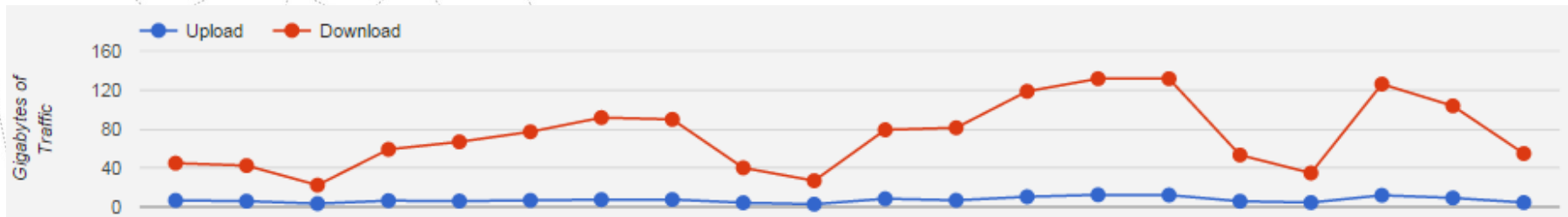
1.3 M hours of Internet surfing



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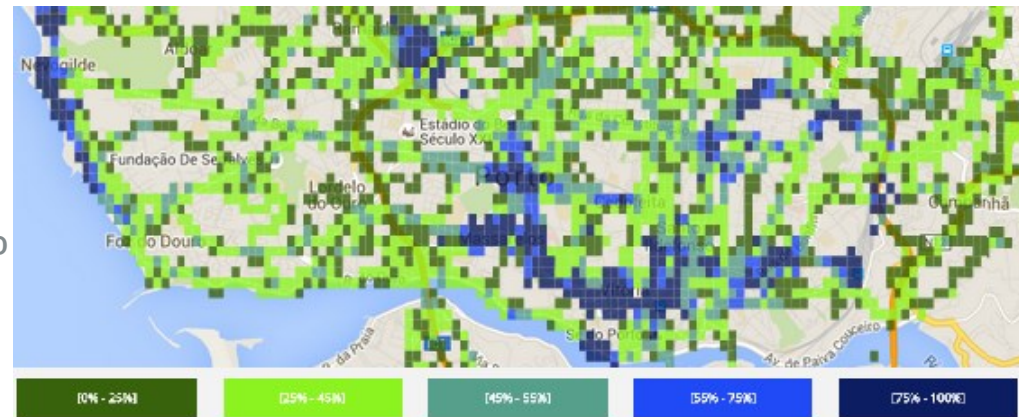


City Pilot: Internet and network results



45% average offload

City center with more than 70% traffic offload



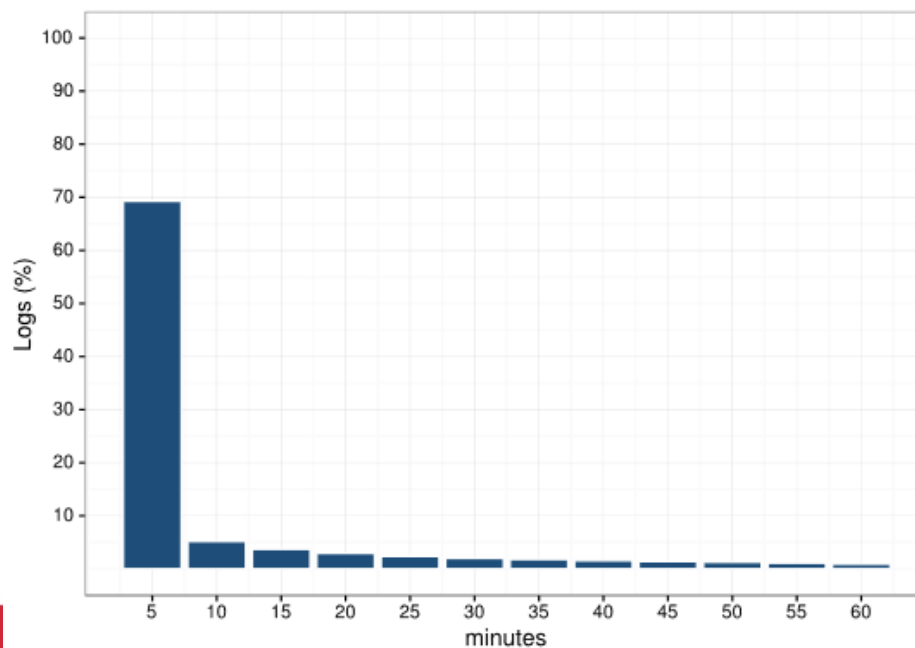
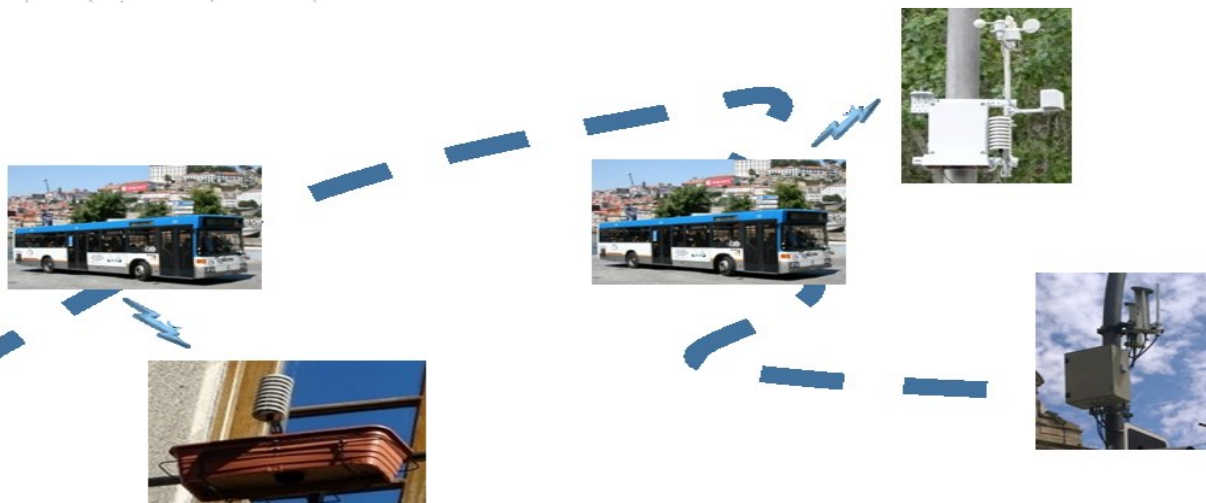
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City Pilot: IoT network results



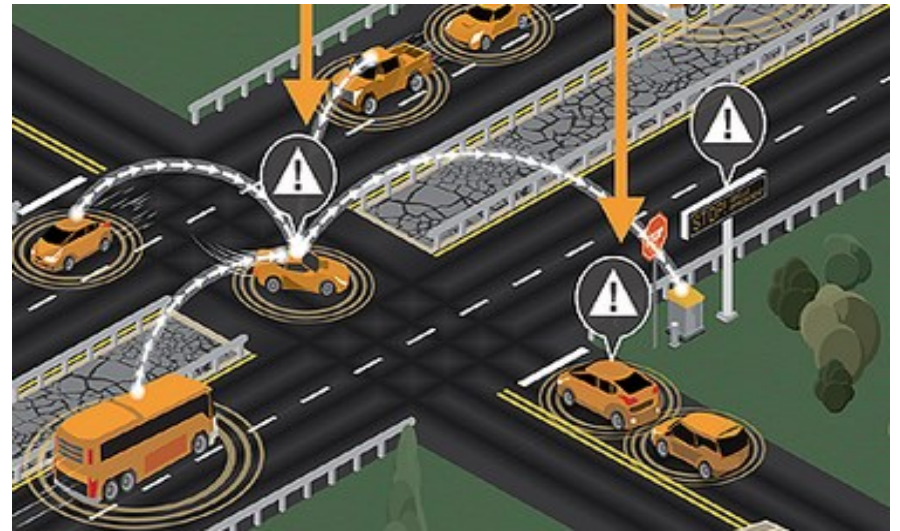
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What's Next?





Thanks!

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