

# History-based RAT selection for computation offloading in heterogeneous vehicular networks: an empirical approach

Afonso Azevedo

Co-author: Ana Aguiar

Rede Temática de Comunicações Móveis  
(RTCM)  
Porto 04/02/2022

Partners:  
Capgemini Engineering  
Altice Labs  
Instituto Superior de Engenharia do Porto  
Vortex  
Computer Science Department, CMU

U.PORTO



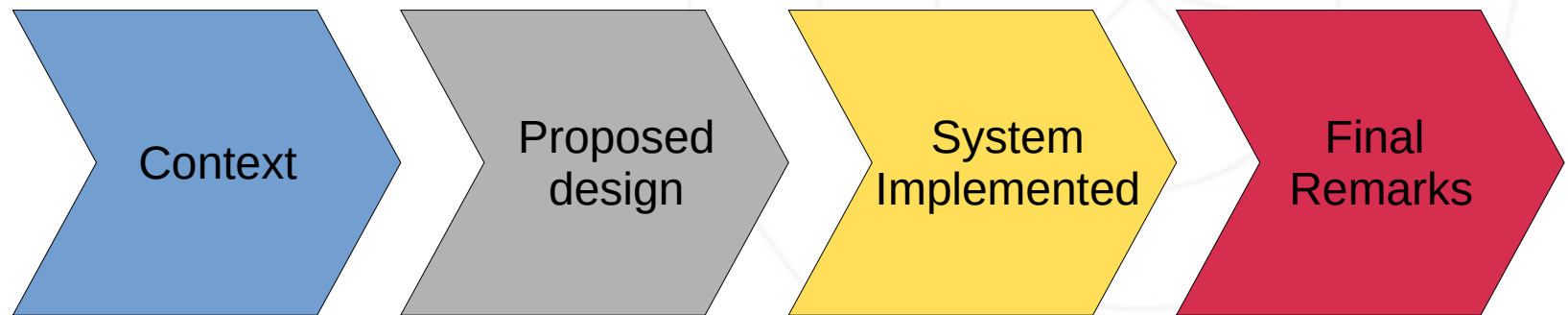
RTCM

Rede Temática de  
Comunicações Móveis



instituto de  
telecomunicações

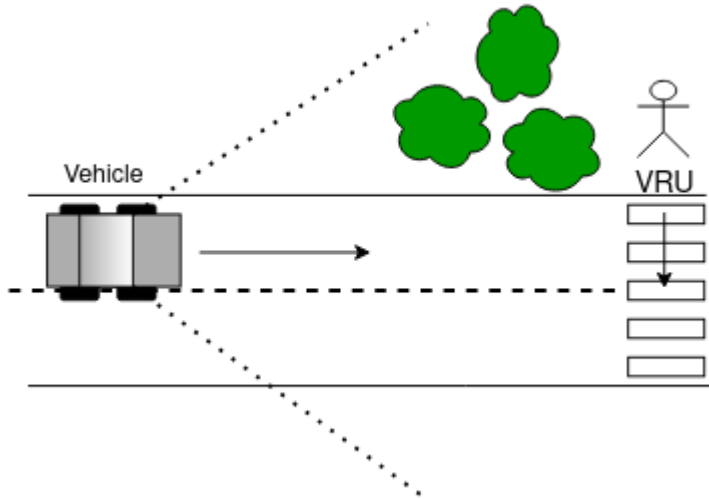
# Structure



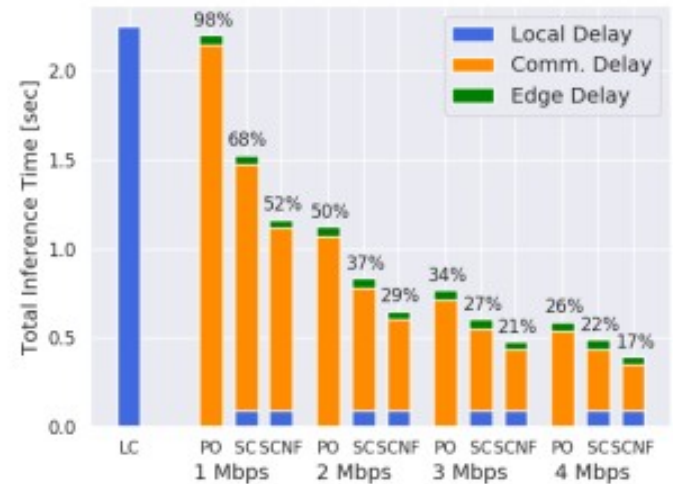
# Context

## VRU protection in vehicular networks

Hidden object detection

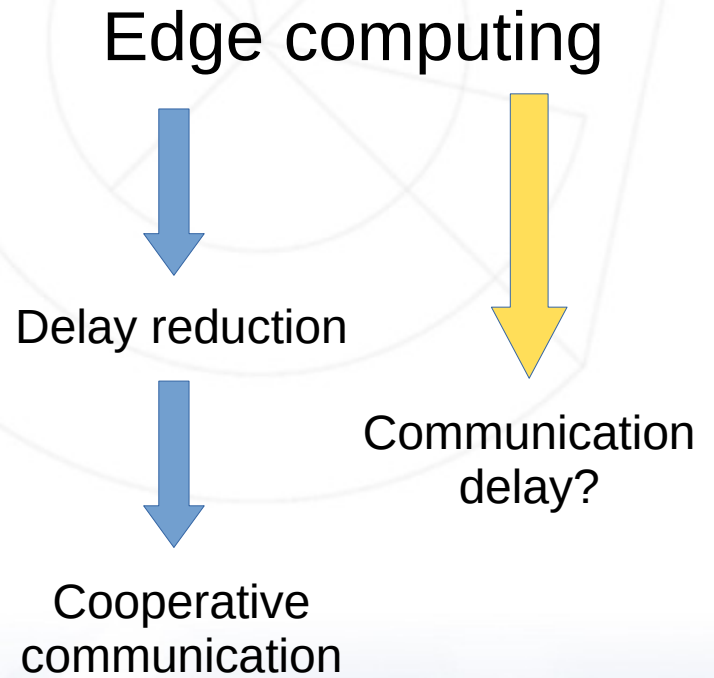
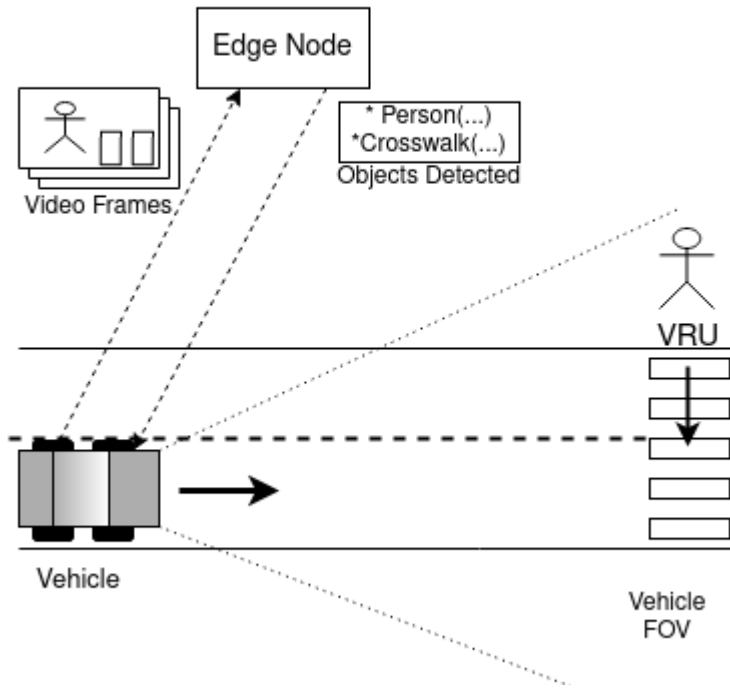


Object detection delay reduction

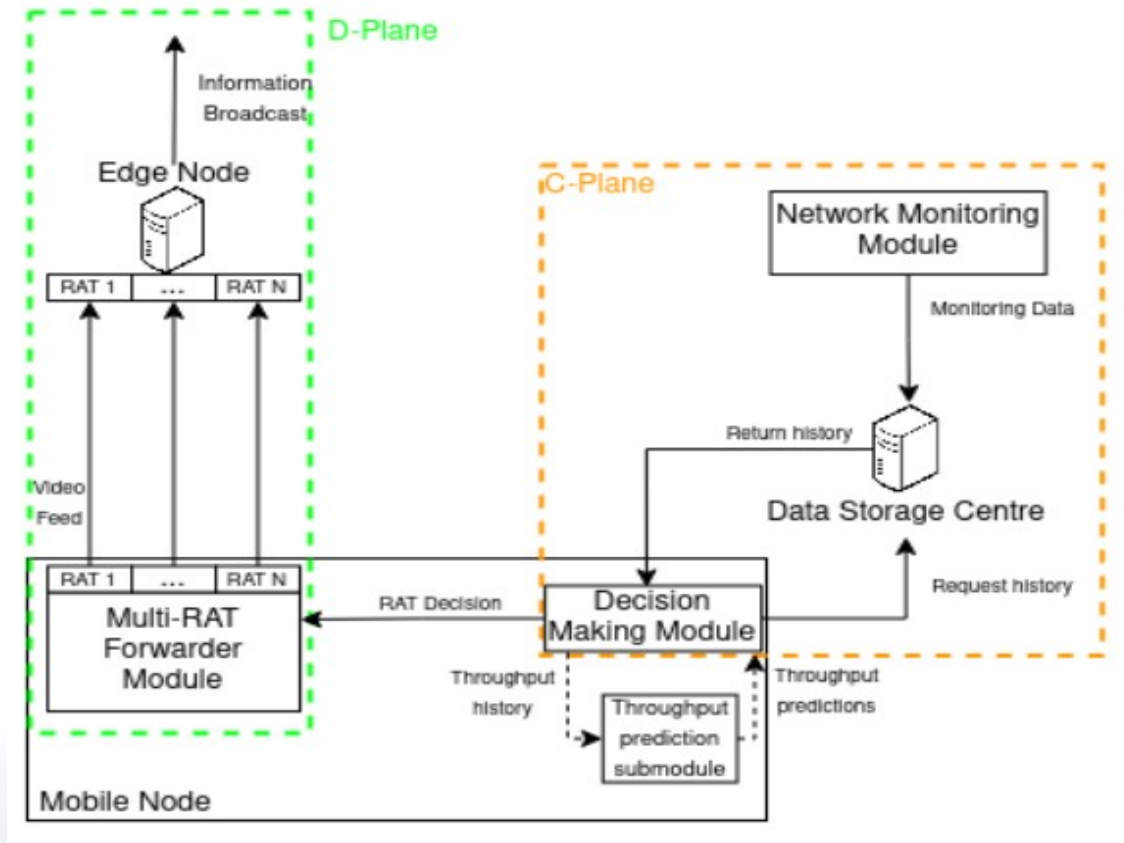


From [1]

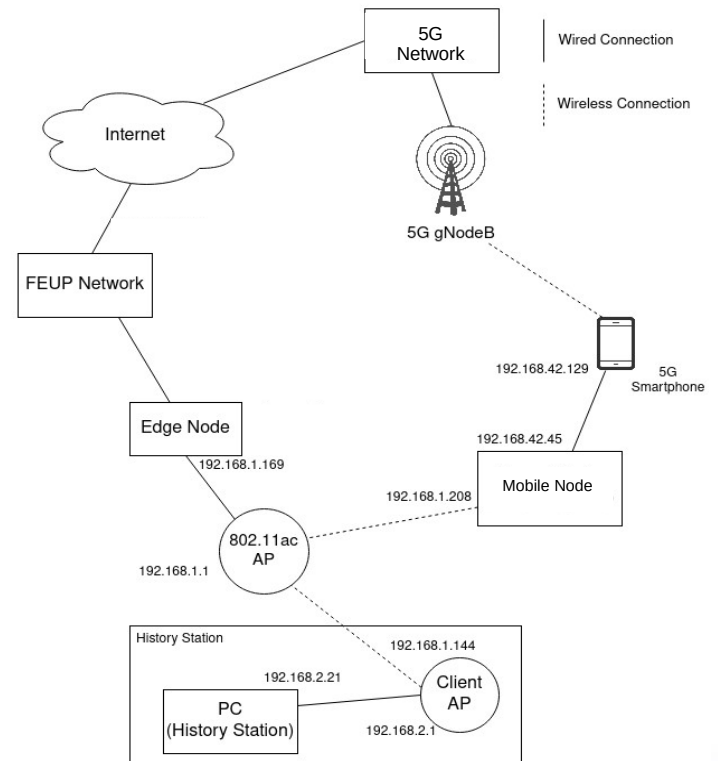
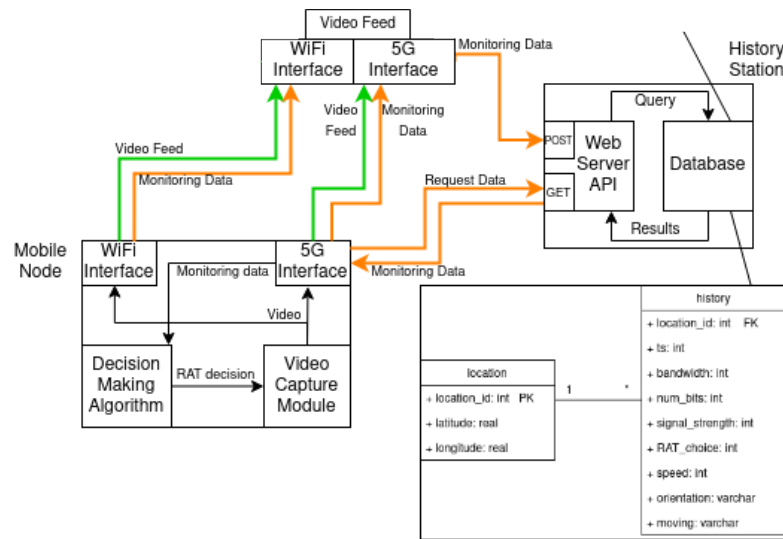
# Proposal



# System design



# Implementation of the system



# Results

## Experiments on the system:

- Validation requirements met
- Decision making module almost always makes the “correct” choice according to available data
- Frontier sections seem to confuse the module with neighboring regions





# Thank you!

Questions?



# References

[1] Yoshitomo Matsubara and Marco Levorato, 'Neural Compression and Filtering for Edge-Assisted Real-Time Object Detection in Challenged Networks', in 2020 25th International Conference on Pattern Recognition (ICPR), 2021, 2272–79, <https://doi.org/10.1109/ICPR48806.2021.9412388>.

[2] Alassane Samba et al., 'Instantaneous Throughput Prediction in Cellular Networks: Which Information Is Needed?', in 2017 IFIP/IEEE Symposium on Integrated Network and Service Management (IM), 2017, 624–27, <https://doi.org/10.23919/INM.2017.7987345>.

[3] Yan Liu and Jack Y. B. Lee, 'An Empirical Study of Throughput Prediction in Mobile Data Networks', in 2015 IEEE Global Communications Conference (GLOBECOM), 2015, 1–6, <https://doi.org/10.1109/GLOCOM.2015.7417858>.