# Archangel protocol for pedestrian to vehicle communication via 5G networks

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# Overview

# Introduction

- Autonomous driving has a growing interest
  - More self-driving cars
  - Less human control
- Pedestrians are the potential victims
  - Exposed to traffic dangers
  - No protection
- Smartphones
  - Share location
  - Increase safety
- Huge amount of data
  - 5G networks

# State of the art

- Lorem ipsum dolor sit amet, consectetur adipiscing elit
- Aliquam blandit faucibus nisi, sit amet dapibus enim tempus eu
- Nulla commodo, erat quis gravida posuere, elit lacus lobortis est, quis porttitor odio mauris at libero
- Nam cursus est eget velit posuere pellentesque
- Vestibulum faucibus velit a augue condimentum quis convallis nulla gravida

# The Archangel protocol

## Block 1

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer lectus nisl, ultricies in feugiat rutrum, porttitor sit amet augue. Aliquam ut tortor mauris. Sed volutpat ante purus, quis accumsan dolor.

## Block 2

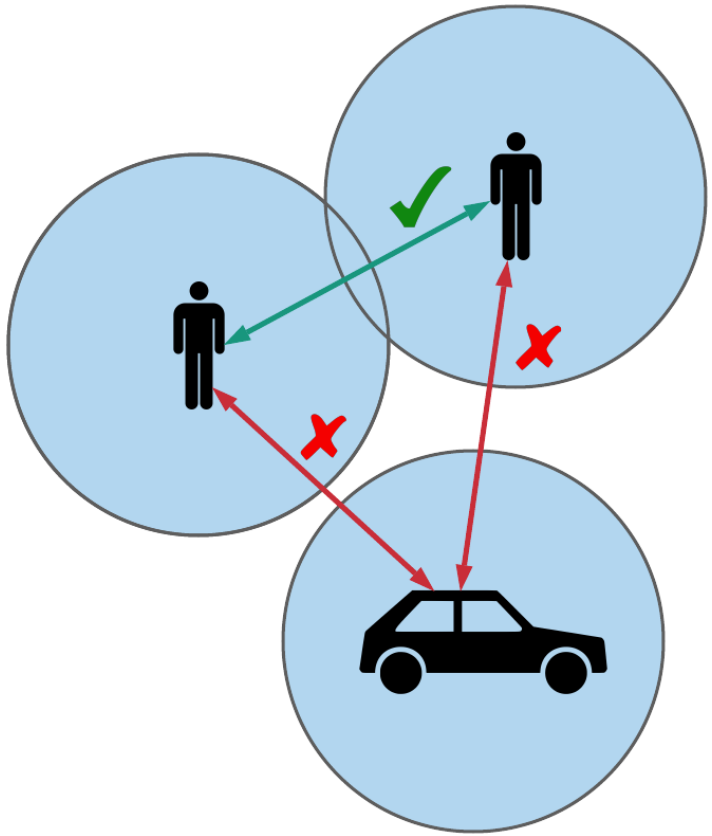
Pellentesque sed tellus purus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vestibulum quis magna at risus dictum tempor eu vitae velit.

## Block 3

Suspendisse tincidunt sagittis gravida. Curabitur condimentum, enim sed venenatis rutrum, ipsum neque consectetur orci, sed blandit justo nisi ac lacus.

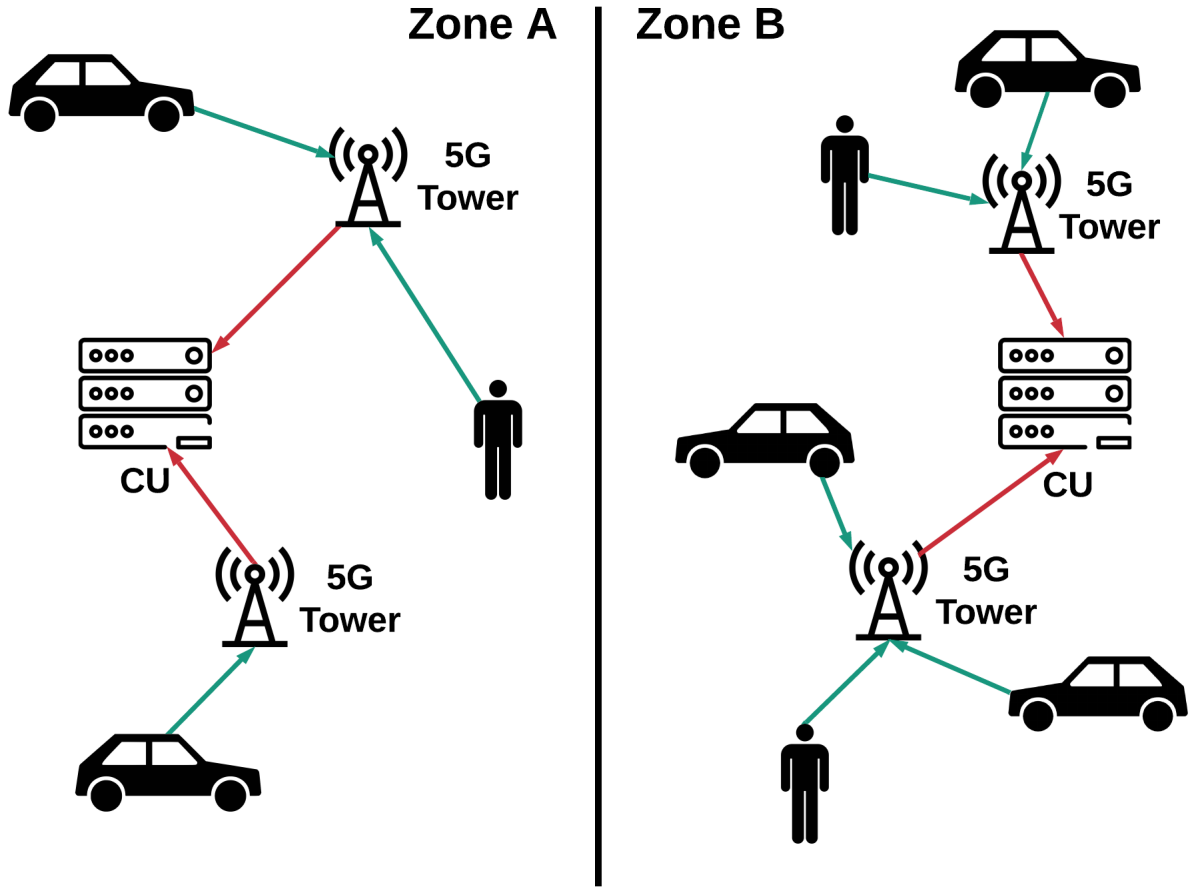
# Computational units

- Endpoints cannot process large amount of data
- Border coverage is needed
- Centralized points
- High computing capacity
- Computations within critical time constraints
- Precision



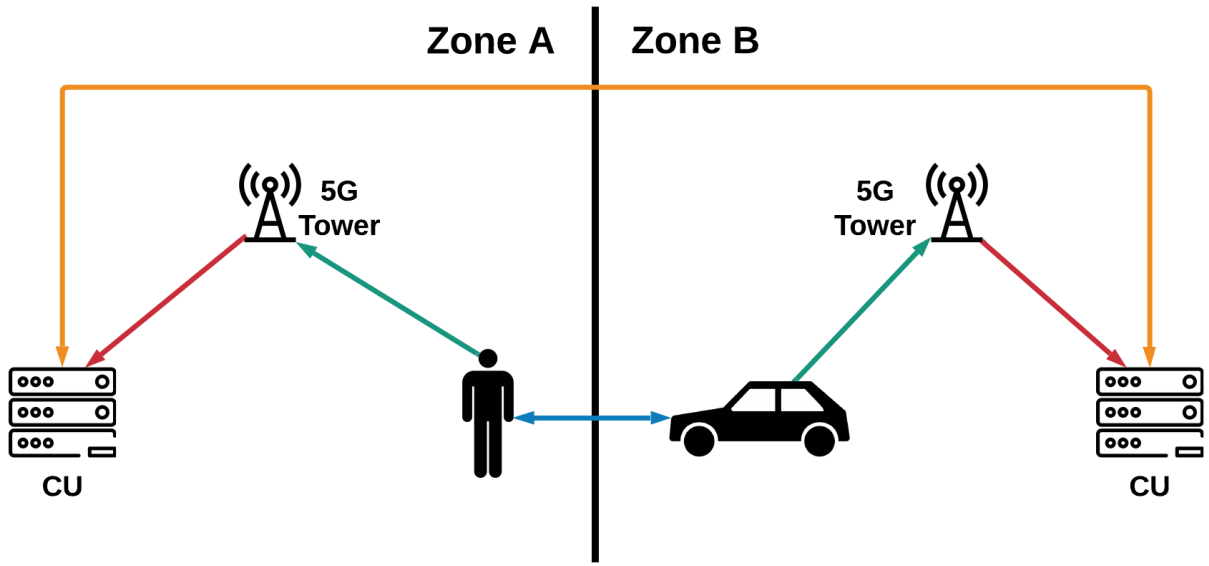
# Communication

- Node $\rightarrow$ 5G Tower $\rightarrow$ Computational unit
- Area described by a given computational unit is a zone



# Edge case

- Pedestrian and a car in a separate computational zone
- The car's computational unit needs to know the pedestrian's data
- Which of the two CUs should calculate the data for the car?
  1. Optimal case → The CU which is in the zone of the car
  2. Network round trip to save time in case when the car's CU is already critically loaded



# Scoring system

| Treatments | Response 1 | Response 2 |
|---|---|---|
| Treatment 1 | 0.0003262 | 0.562 |
| Treatment 2 | 0.0015681 | 0.910 |
| Treatment 3 | 0.0009271 | 0.296 |

Table: Table caption

# Package structure

**Theorem (Mass–energy equivalence)**

$E = mc^2$

# Figure

Uncomment the code on this slide to include your own image from the same directory as the template .TeX file.

# Citation

An example of the `\cite` command to cite within the presentation:

This statement requires citation [Smith, 2012].

# References

John Smith (2012)

Title of the publication

*Journal Name* 12(3), 45 – 678.

# The End