



The Revere research infrastructure and SAFER's AD projects

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Revere lab: Industry and academia in close cooperation

- Autonomous driving, Active Safety and Vehicle dynamics
- Providing platforms for advanced vehicle research
- Meeting place for interaction and cooperation

Host organizations



Regional financial support



Research collaboration and resources



Research collaboration



Revere Research platforms and equipment



Volvo XC90



Volvo FH16



Parator dolly with steerable axles



Rescue Jetski (prototype)



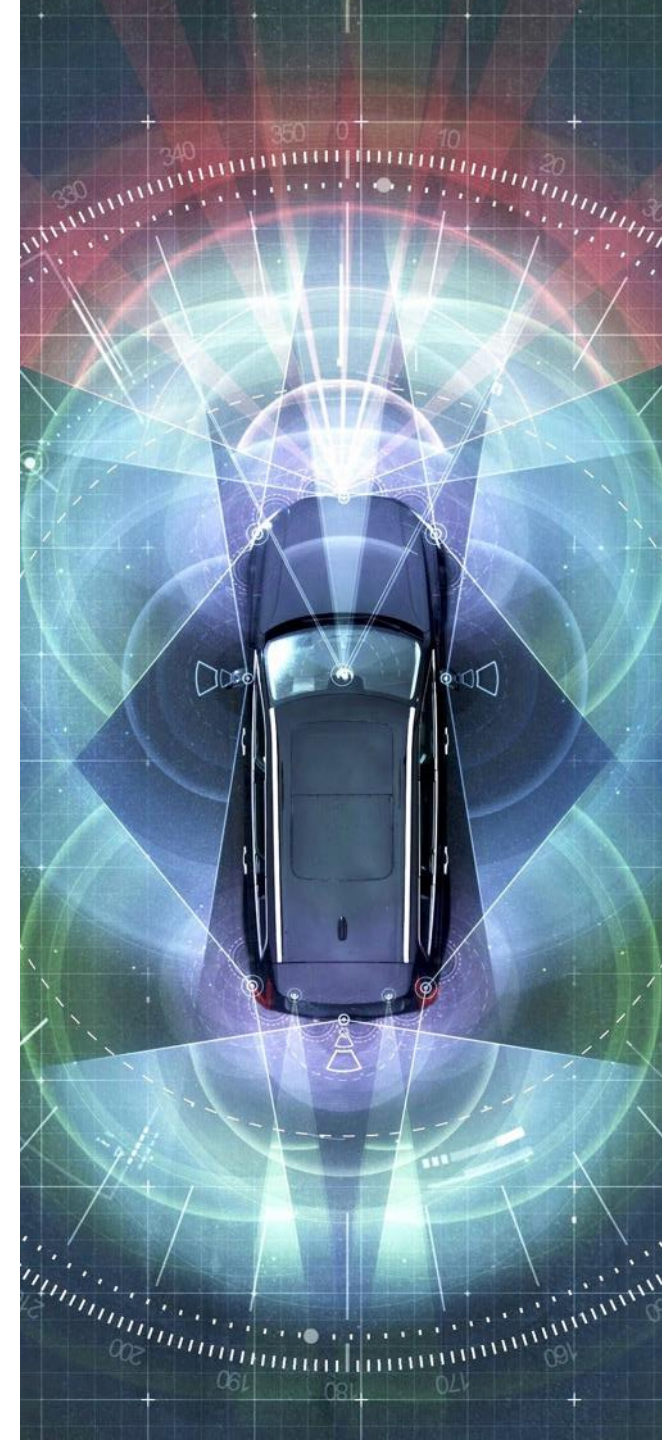
Chalmers Formula Student Driverless



Husqvarna 430X robot lawn mower

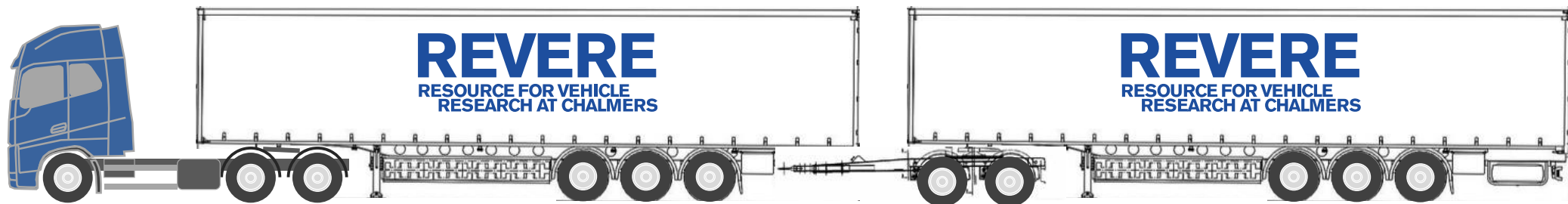
The software platform - OpenDLV

- Specifically adapted for autonomous vehicles
- Open source software
- Easy to install and configure
- Simulation environment
- Interfaces for a large number of sensors
- Interfaces for ROS, MatLab etc
- Open data sets



The AutoFreight project

- Automation of long vehicle combinations
 - Approx 32 meters long, 80 tonnes total weight
- Use case: Containers from Gothenburg harbor to Viared, Borås
 - Mainly rural roads and highway
- Challenges: Situation awareness, localization and decision making



VOLVO



TRAFIKVERKET



SPEED
GROUP

KERRY
LOGISTICS

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

CHALMERS



BORÅS STAD

ellos

COMBITECH

AutoFreight: Main project components

Simulation

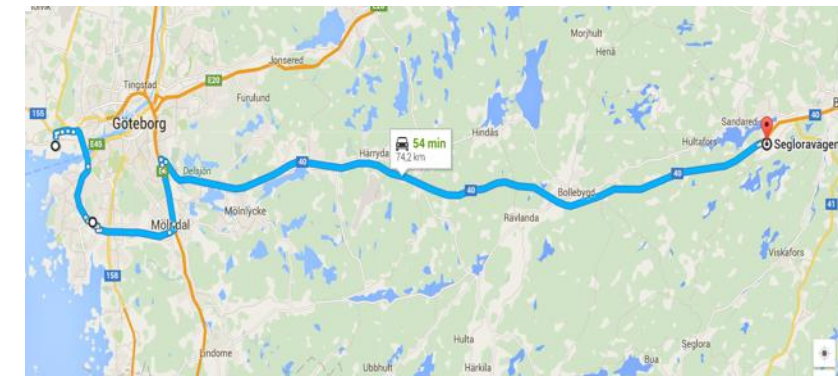
Virtual vehicle models
Virtual roads

Research vehicle

Research platform
Test track
Fully sensor equipped
Full actuation

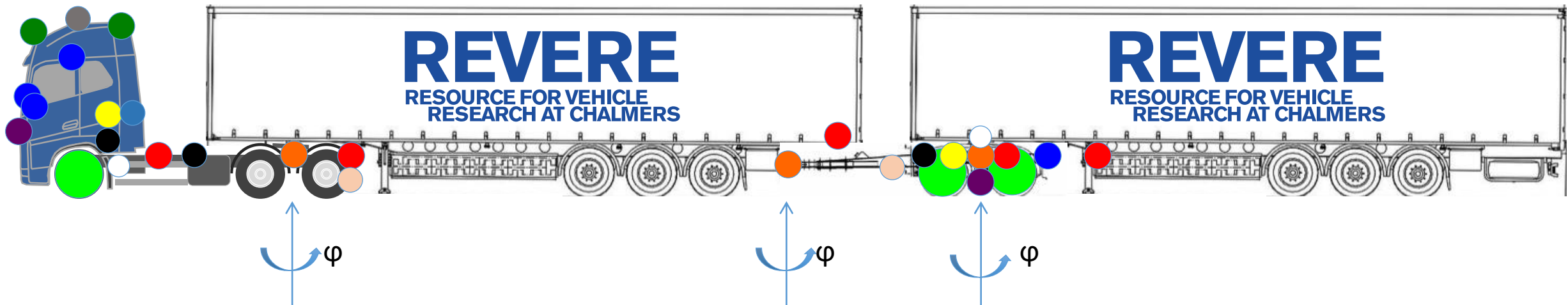
Logistics vehicle

Daily operation
Public roads
Subset of sensors
Data collection



AutoFreight: Research vehicle sensors

- Large number of sensors, several computers
- OpenDLV software connecting all nodes (including AutoBox and ROS)
- Volvo Trucks and Combitech providing specific functions



The Copplar project

- Autonomous driving in city traffic
- Cooperative driving



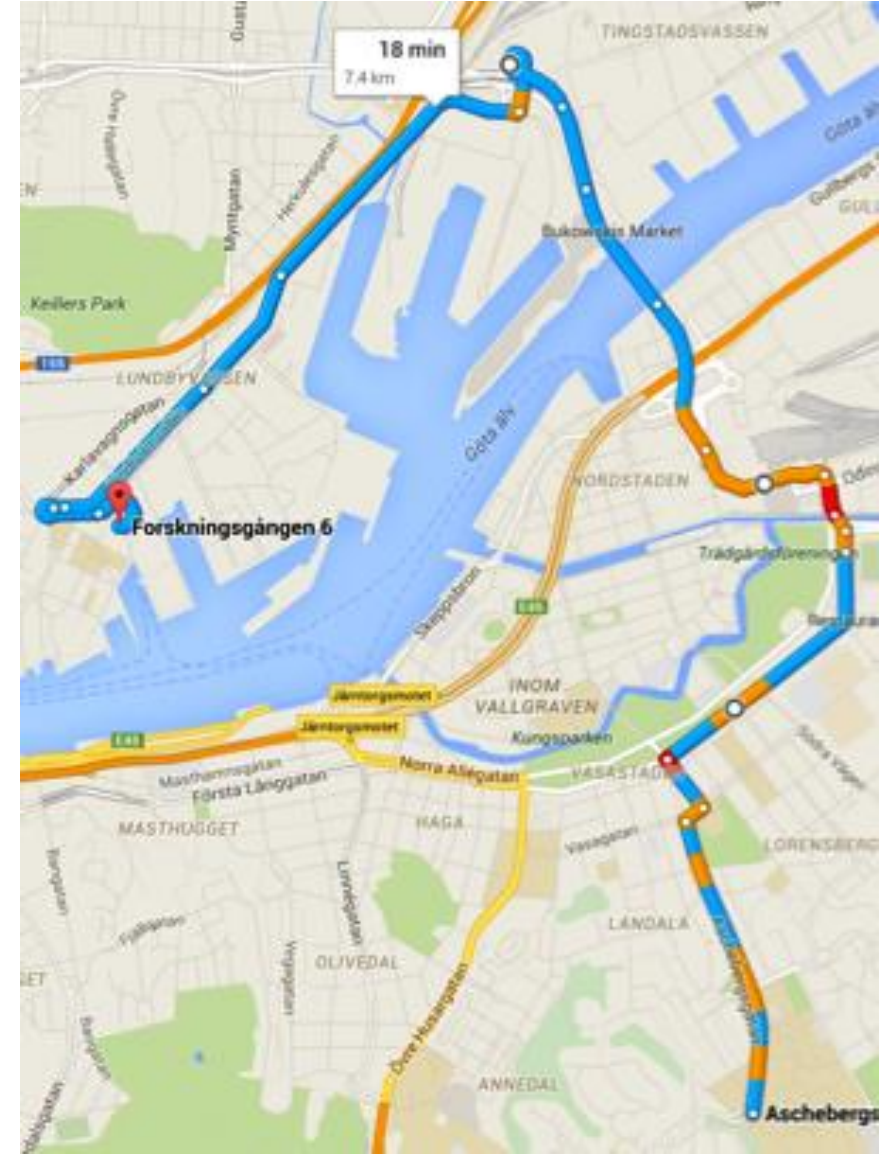
Copplar project vision

Drive autonomously between Chalmers' two campuses in Gothenburg

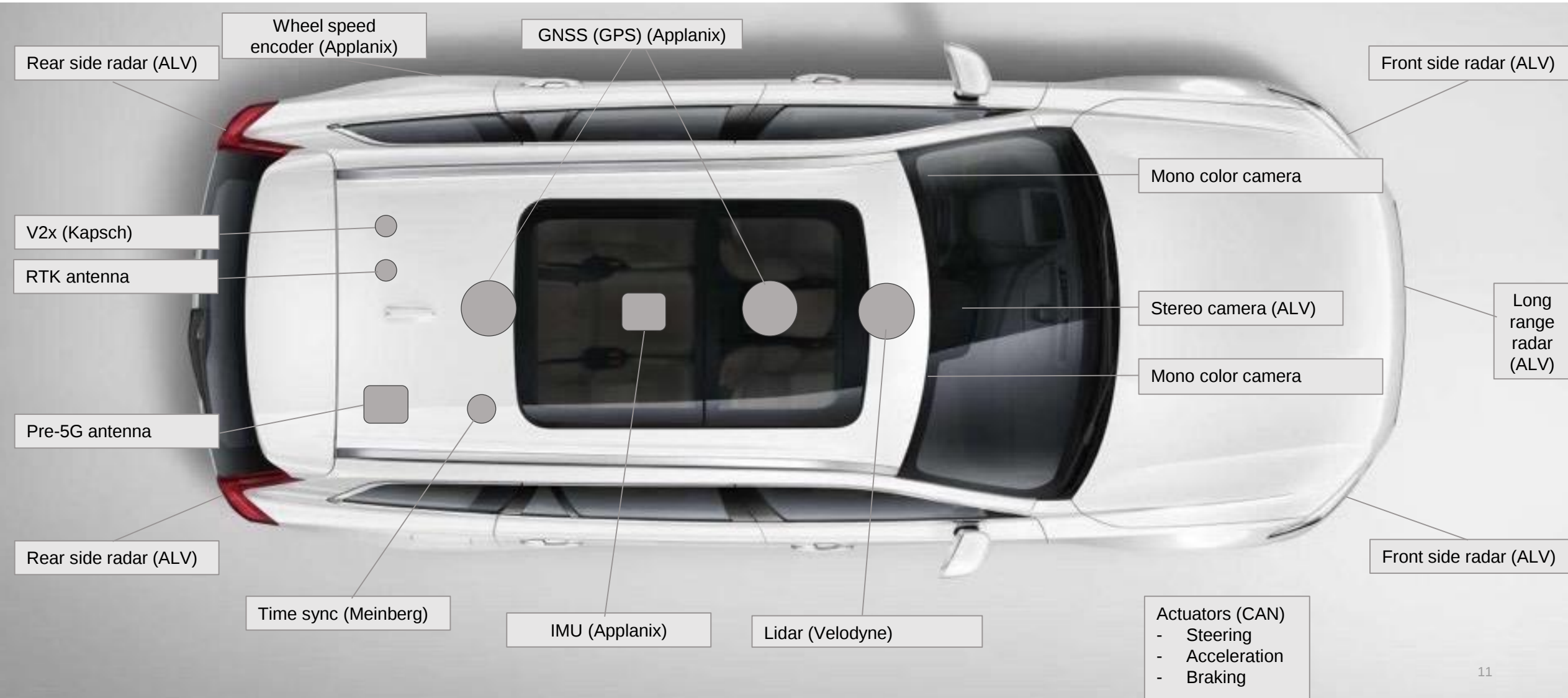
- Multi-lane traffic
- Pedestrian / cyclist crossings
- Complex intersections and roundabouts
- Merging / crossing with trams and buses

Envisioned solution

- Cooperative with other vehicles and infrastructure
- Robust against changes in the environment
- Handle the Gothenburg weather



Copplar project: Sensors



The RealSIM4AD project

- Realistic simulation for safer, more robust and less expensive development of autonomous vehicles
- Real data + Machine Learning
- Reduce need for annotation
- Generation of training data
- Reverse performing data collection

ASTAZERO
ACTIVE SAFETY TEST AREA

 **Machine Intelligence**

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

CHALMERS

VOLVO

 **wiretronic**



Thank you!

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