

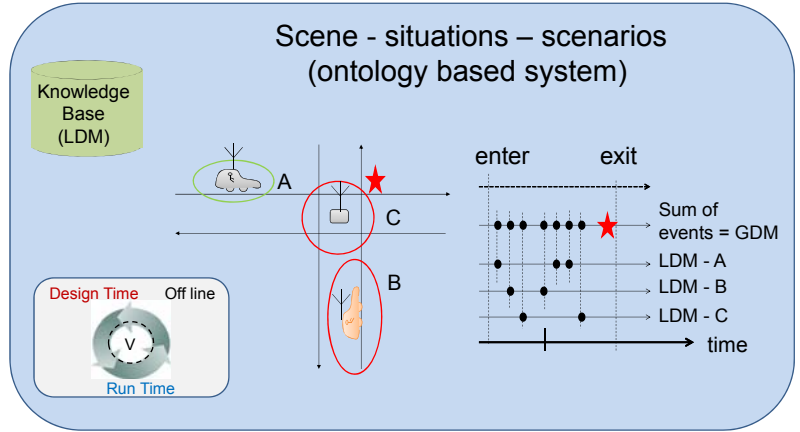
## KARYON instantiated in an ITS-Station The safety loop

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### Motivation

#### The safety loop

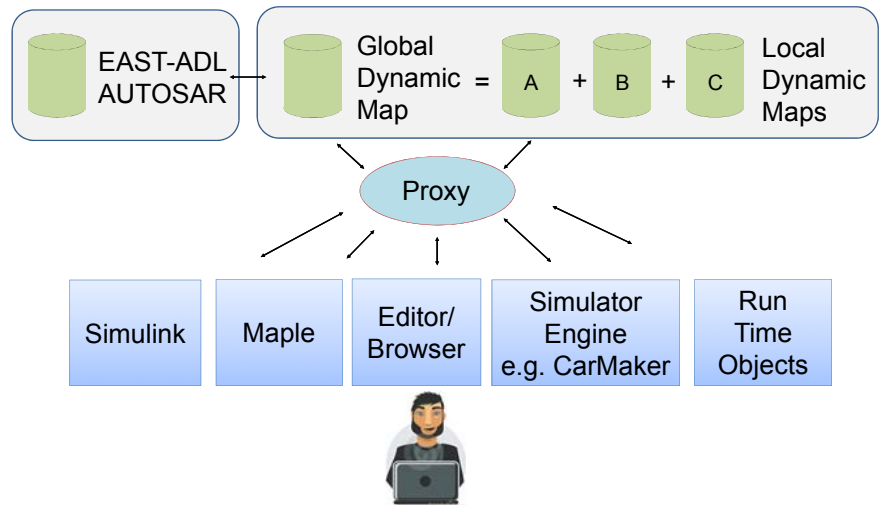
- **Design time - pre-crash**  
Scene and scenario simulations & analysis are performed to evaluate operational situations and safety rules.
- **Run time - near / crash**  
Dynamic risk assessment is performed at run time and diagnostics are logged.
- **Off-line - post-crash**  
Traffic patterns are analyzed off-line.



### Concept

#### A fast formal ontology based simulation architecture

- **Design time - pre-crash**
  - GDM real
  - LDMs virtual
- **Run time - near / crash**
  - LDMs real
  - GDM virtual (cloud)
- **Off-line - post-crash**
  - Compare GDM real <-> GDM cloud estimation <-> reality



### Results

#### An ITS-Station architecture for autonomous driving guided by a knowledge based system.

- **ETSI ITS-Station as a KARYON design**
  - LDM enhanced to a knowledge based system (KBS)
- **KBS**
  - An ontology is a formal, explicit specification of a shared conceptualization.
- **ITS-Station will enable Vision Zero.**
  - The same KBS is used in all phases.

