



SOFTWARE CENTER WORKSHOP

PROJECT: QUASAR@CAR

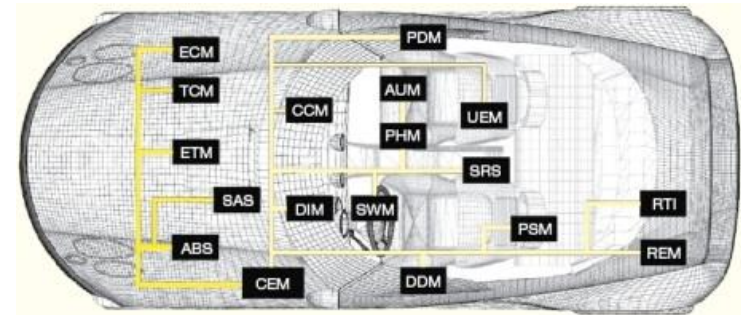
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PROJECT DESCRIPTION



- **Goal:** Efficiently manage the evolution of large software systems based on the evolution of domain-specific meta-models (AUTOSAR meta-model).
- We plan to achieve this by developing methods and tools for automated
 - analysis of the domain-specific meta-model changes for different roles,
 - estimation of cost and time to adopt the changes and new features and
 - prediction of the impact of the changes to the existing requirements.



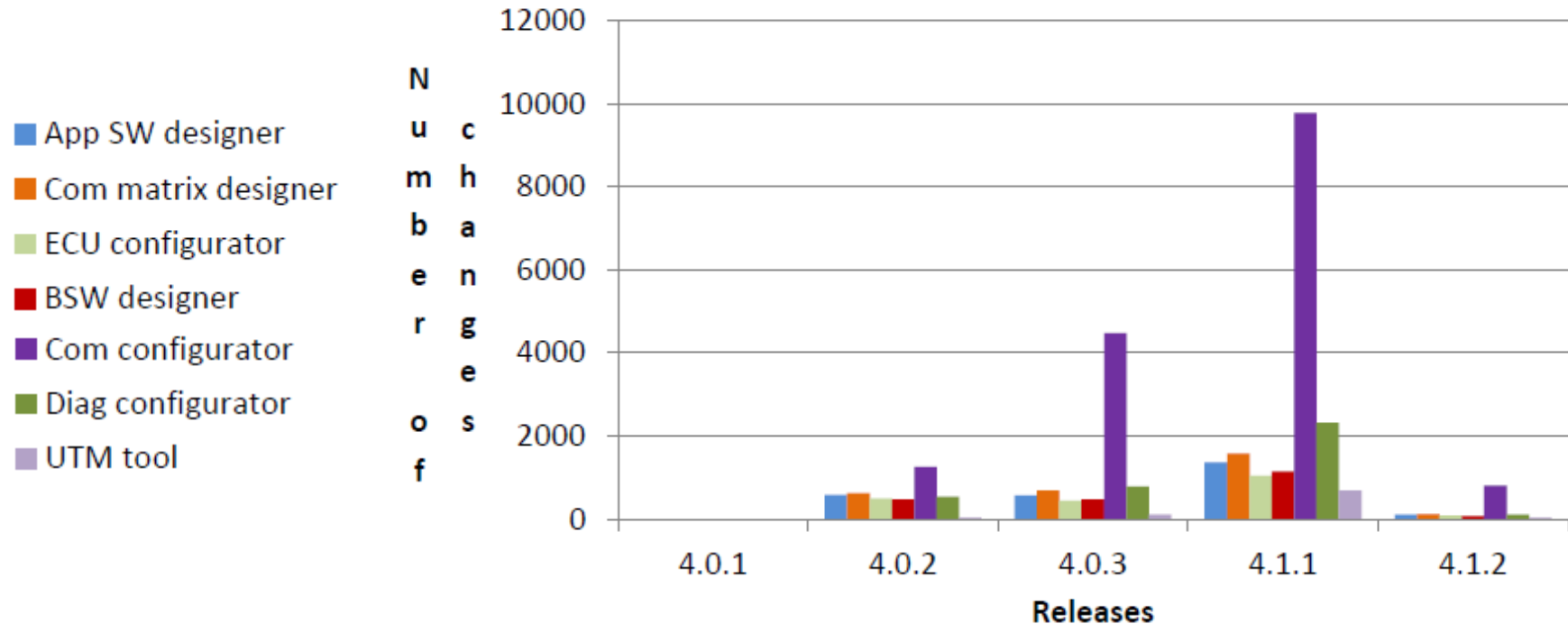
1. IDENTIFICATION OF THE MOST IMPORTANT ROLES



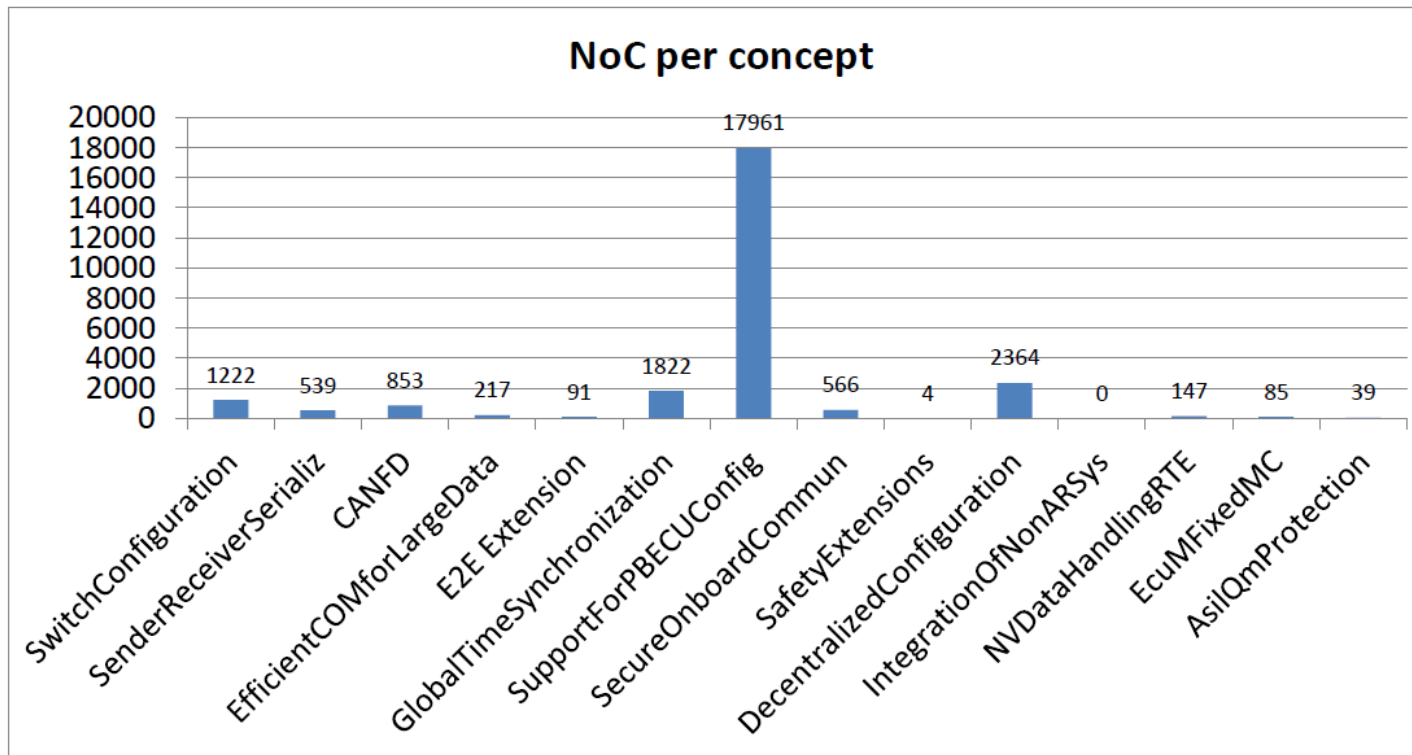
1. Application software designers
2. ECU communication designers
3. ECU basic software configurators
4. Basic software designers
5. ECU communication configurators
6. Diagnostics configurators
7. Upstream mapping tool developers

Meta-Model	Part of the meta-model	App. SW Designers	ECU Com. Designers	ECU Basic SW Conf.	Basic SW Designers	ECU Com. Config.	Diag Configurators	UTM Tool Developers
AR M2	GenericStructure	X	X	X	X			
	CommonStructure	X	X	X	X			
	SWComponentTemplate	X						
	SystemTemplate		X					X
	ECUCParameterDefTemplate			X				
	ECUCDescriptionTemplate			X				
	BswModuleTemplate				X			
AR M1	COM-Stack					X		X
	Mode_Mgm					X		X
	Services (only diagnostic)						X	

2. DEFINITION OF THE MEASURE OF META-MODEL CHANGE



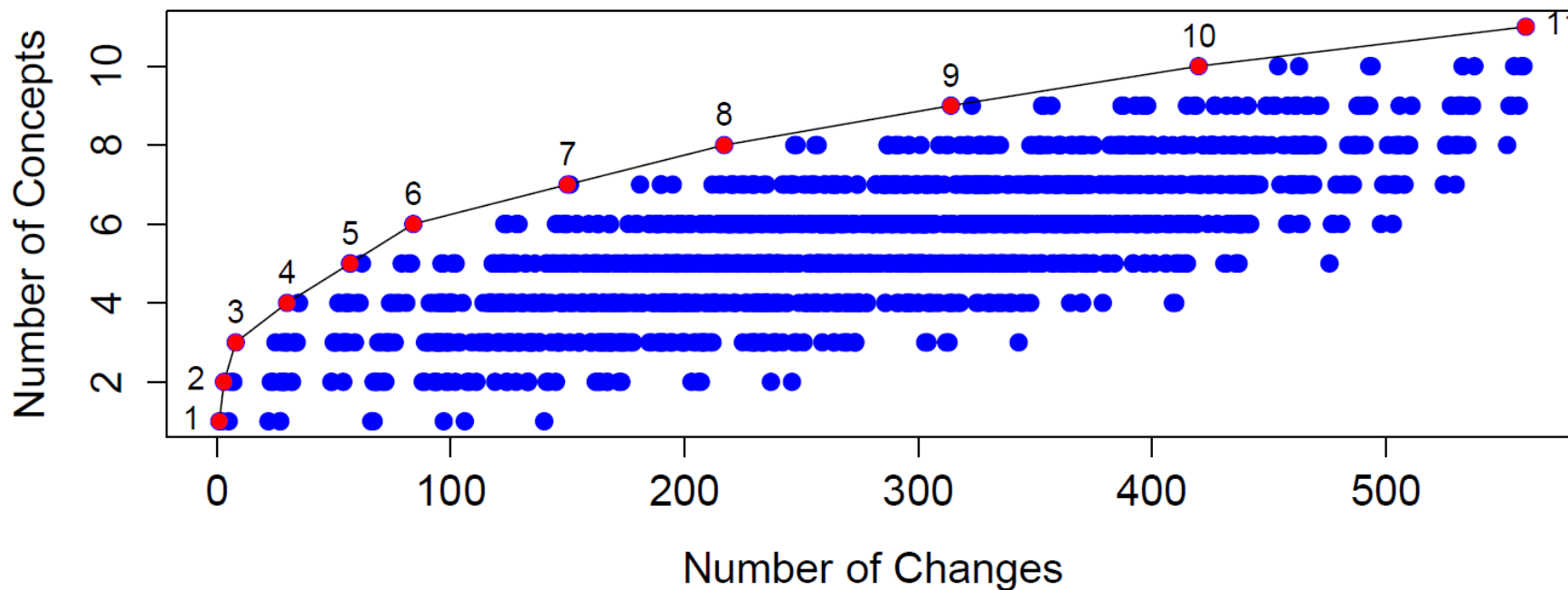
3. FEATURE-BASED ANALYSIS OF META-MODEL CHANGES



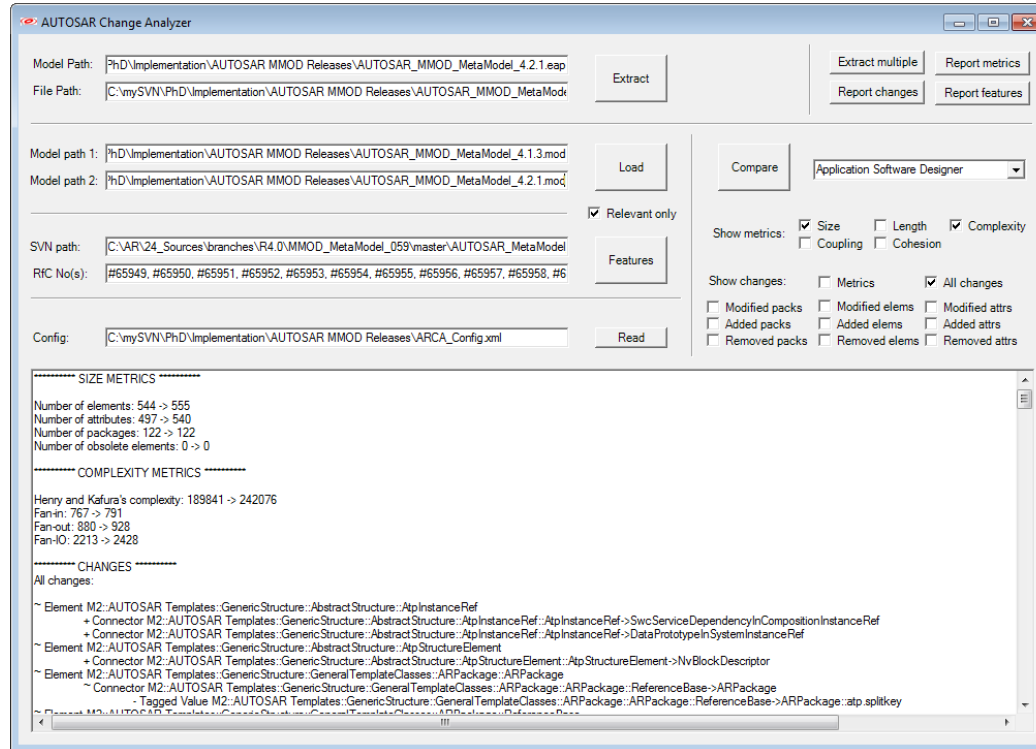
4. DEFINITION OF THE MEFIA METHOD



Optimization



5. IMPLEMENTATION OF THE ARCA TOOL



NEXT STEPS



1. Validation of the NoC metric

- Correlation of the measurement results with the actual effort needed to update the tools

2. Application of the developed methods on other meta-models

- Industrial domain-specific meta-model used by other companies
- General purpose meta-models (e.g. UML)

3. Co-evolution of several artefacts in the development

- Domain specific meta-model and tool-specific meta-models
- Domain-specific meta-models and industrial models and requirements

QUESTIONS AND ANSWERS



- QuaSAR@car project is funded by Volvo Cars and Swedish Governmental Agency for Innovation Systems (VINNOVA), grant no. 2013-02630.

