SYNOPSIS

HyVar addresses continuous software evolution in distributed systems by proposing a framework for hybrid variability which can be integrated into existing software development processes.

The framework combines:

- Domain specific variability language to describe evolution as software product line.
- Scalable cloud infrastructure for monitoring and individualized customization of software upgrades for the remote devices.
- Over-the-air upgrade technologies.

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Scalable Hybrid Variability for Distributed Evolving Software Systems

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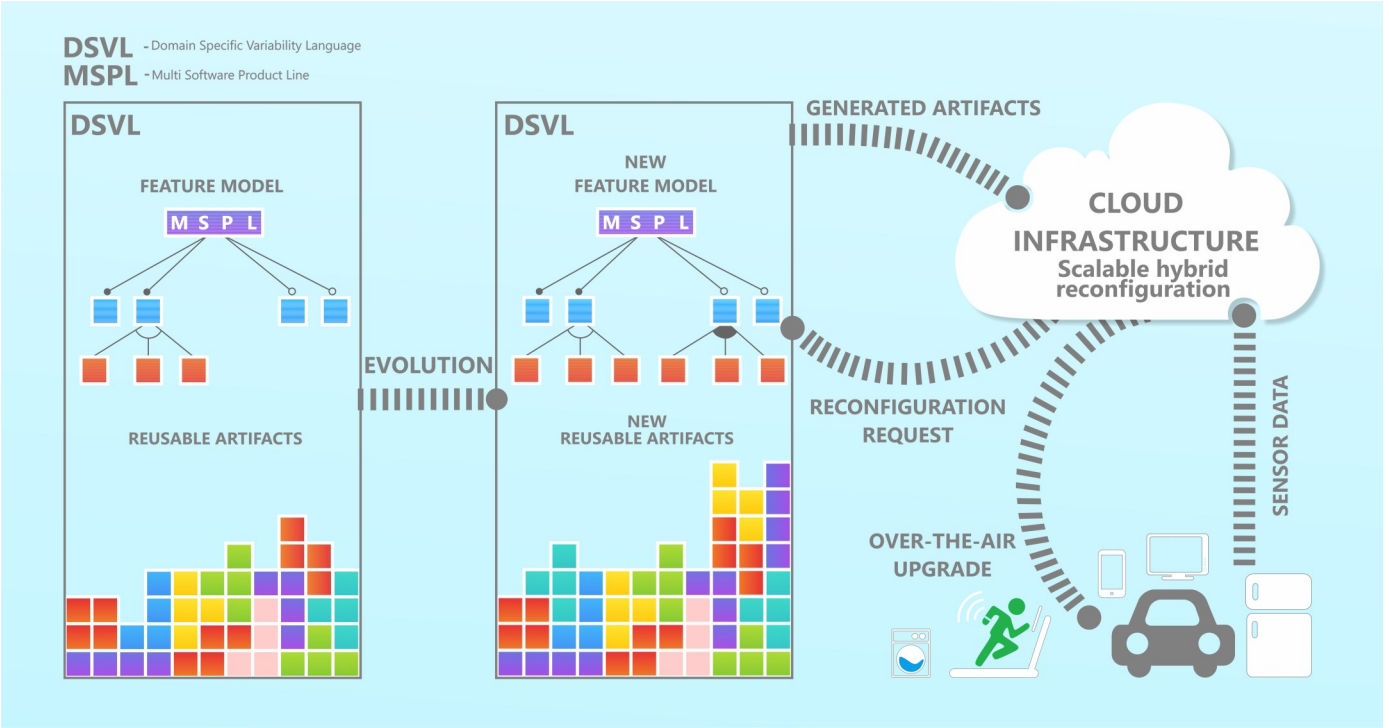
CONTEXT AND VISION

The goal of HyVar is a development framework for continuous and highly individualized evolution of distributed software applications. The aim is to support the enterprises that manufacture, operate or maintain those systems to efficiently manage frequent and sudden varying events and situations, such as frequently changing designs and software patches to a configuration, where agility is required. Our vision is that state-of-the-art structuring concepts for variability from research on software product lines can be combined with cutting edge industrial technology for software evolution and incremental analysis techniques from research on formal methods.

HyVar goes beyond the state-of-the-art by proposing hybrid variability; i.e., the automatic generation and deployment of software updates combines the variability model describing possible software configurations with sensor data collected from the device. HyVar's scalable cloud infrastructure will elastically support monitoring and customization for numerous application instances. Software analysis will exploit the structure of the variability models.



HYVAR SOLUTION AND IMPACT

By mastering distributed software variability in connection with virtualization and evolution in the engineering of applications, HyVar has the potential to significantly improve the growth and competitiveness of the European industry and to encourage faster product innovation cycles. In HyVar, this technology push from European research meets a user pull from industry. In particular the HyVar approach aims at remarkably decrease the maintenance costs of software enabling remote patching and updating of highly distributed software applications currently impossible to address with conventional techniques. The demonstration will be executed on the real-world scenario of connected car, challenging the tool onto a secure, reliable and efficient adaptation of software toward highly distributed onboard systems. The results can be then applied also to other sectors such as home automation, environmental control remote healthcare devices and many more.