

IST Project fact Sheet

Proposal Number : IST-1999-11557

Acronym : INTERVAL

Start: 01-March-2000

End: 01-March-2000

Title : Formal Design, Validation and Testing of Real-Time Telecommunications Systems

Key Action : KA IV

Research Area : 1.1.2

Action line : 1.1.2-4.2.2

ABSTRACT : The aim of the INTERVAL project is to take into account real-time requirements such as timing constraints, during the whole development process of real-time systems. The project will focus on defining timed extensions to existing standardised languages (SDL, MSC and TTCN). These timed extensions will be formalised and submitted to the standardisation bodies at ITU-T and ETSI. The tools necessary to support these extensions will be adapted, prototyped or extended by the technology developers. New functions will be provided for the specification, simulation, validation and testing of real-time systems. The technology will be validated and the impact of the timed extensions on quality and productivity will be evaluated on two telecom applications, provided by the end-user partners: an embedded MTP2 application and a Multicast Transfer Protocol. Dissemination of project results will be mainly through the submission of the extension proposals to standard bodies. An Interest Group will be set-up to support the project towards standardisation. Marketing of project technology will be undertaken by the tool vendors through providing extended or new functionalities in their commercial tools.

OBJECTIVES : The aim of the project is to prototype a complete software engineering tool set for the development of systems with real time constraints. This tool set will build upon existing tools, based on SDL (for system description), MSC (for behaviour analysis), TTCN (for testing), by defining the necessary language extensions and developing the tool support needed for dealing with real-time features of modern telecommunication systems. Currently there is no commercial tool providing such a technology capable of handling the various timing constraints present in these systems. The developed technology will be validated through application to industrial projects in the telecommunication domain provided by the user partners. An assessment will be conducted to identify further improvements. The timed extensions to the formalisms will be proposed for standardisation. The objectives of the project are the followings:

- Definition of timed extensions to SDL, MSC and TTCN
- Submission of languages extensions to standard bodies: ITU-T (SDL and MSC) and ETSI (TTCN)
- Adaptation of existing tools to support timed extensions of SDL, MSC and TTCN
- Development of new modules for the analysis and validation of real-time constraints
- Automated test case generation based on real-time requirements

MILESTONES :

- T0+6: M11 Specification of the tool set
M12 Preliminary specification of timed extensions
- T0+10: M21 Delivery of tool set prototype (v1) to project partners
- T0+12: M13 Complete specification of timed extensions
- T0+18: M31 Demonstration of tool set prototype (v1) on partners' applications
M22 Delivery of consolidated tool set (v2) to partners
- T0+24: M23, M32 Demonstration of consolidated tool set (v2) to Interest Group
M41 SDL, MSC, TTCN: Submission of language extensions to Standards Bodies (ITU-T and ETSI)

Principal Contractors :

		<u>Country</u>	<u>Role</u>
P1	ITM University of LUEBECK	D	Supplier
P2	VERILOG SA – now TELELOGIC Technology	F	Supplier
P3	SOLINET GmbH Telecommunications	D	Supplier
P4	ERICSSON Software Technology AB	S	User
P5	FRANCE TELECOM R&D – VERIMAG	F	User
P6	TELETEL SA. Telecoms Technology	GR	User