Reidar Conradi (Ed.)

Software Configuration Management

7th International Workshop, SCM7
Boston, USA, May 18-19, 1997
Proceedings
Preface

Software Configuration Management (SCM) is the discipline of managing the evolution of software systems. It involves supporting the versioning, composition, and generation of all relevant software items, as well as supporting related team activities. It is central to any large software engineering project and requires significant system support. SCM takes advantage of advances in various fields such as system modeling, distributed databases, software process technology, software engineering environments, and tool integration and interoperability.

This workshop is the 7th in the series, and will take place just before the main ICSE’97 conference, as it did the last three times. Previous workshops were held in Grassau (Germany, 1988), Princeton (USA, 1989), Trondheim (Norway, 1991), Baltimore (USA, 1993), Seattle (USA, 1995), and Berlin (Germany, 1996). The goal of the workshop series is to merge the work of researchers, vendors, and practitioners in an attempt to discuss and establish concepts and techniques, and to gather experiences in the SCM field.

The goal of the workshop was to discuss the state-of-the-art and state-of-the-practice in SCM, as well as challenges for the future. Leading-edge research in SCM was discussed, as well as how current research might lead to improved SCM products, and the requirements of industry for SCM solutions.

The workshop particularly requested papers presenting advances and experiences on the following topics: use of SCM tools and methods, industrial requirements for SCM, versioning models and version selection, access, sharing and visibility models, data modeling and data management for SCM, software process modeling for SCM, team support and distributed, cooperative work, software building and rebuilding, tool integration and interoperability, and any other topic related with SCM.

The workshop attracted 49 papers, including 11 short position papers – the greatest number since 1991. Of these papers, 16 were selected for publication in Springer Verlag’s LNCS series. All remaining 33 papers were distributed at the workshop in a separate printing. Invited workshop participants were all those with submitted papers. The workshop was organized in seven sessions: versioning models, reuse and system models, process aspects, distributed SCM, SCM on the web, industrial experiences, and sum-up and future directions (no papers on the last session).

March 1997

Reidar Conradi
# Table of Contents

**Session 1: “Versioning Models”,**  
Chair: G. Clemm.

Towards a Uniform Version Model for  
Software Configuration Management  
R. Conradi and B. Westfechtel  

What Have You Done for Me Lately?  
(Branches, Merges, and Change Logs)  
J. Buffenbarger and K. Gruell  

Change Sets Versus Change Packages:  
Comparing Implementations of Change-Based SCM  
D. W. Weber  

**Session 2: “Reuse and System Models”,**  
Chair: J. Estublier.

Constructing a Large Product with Jam  
L. Wingerd and C. Seiwald  

Versioning and Consistency for Dynamically  
Composed Configurations  
B. R. Schmerl and C. D. Marlin  

**Session 3: “Process Aspects”,**  
Chair: S. A. Dart.

Managing the Software Development Process with ClearGuide  
D. B. Leblang  

High Level Process Modeling for SCM Systems  
J. Estublier, S. Dami, and M. Amiour  

**Session 4: “Distributed SCM”,**  
Chair: A. van der Hoek.

Distributed Source Control System  
B. Milewski  

---

1. Towards a Uniform Version Model for Software Configuration Management  
2. What Have You Done for Me Lately? (Branches, Merges, and Change Logs)  
3. Change Sets Versus Change Packages: Comparing Implementations of Change-Based SCM  
4. Constructing a Large Product with Jam  
5. Versioning and Consistency for Dynamically Composed Configurations  
7. High Level Process Modeling for SCM Systems  
8. Distributed Source Control System
ScmEngine: A Distributed Software Configuration Management Environment on X.500
J. X. Gi, M. Poonawala, W. Tsai, A. K. Onoma, and H. Suganuma ... 108

COO-Transaction: Supporting Cooperative Work
P. Molli .......................................................... 128

Supporting Distributed Configuration Management
in Virtual Enterprises
J. Noll and W. Scacchi ........................................ 142

Session 5: "SCM on the Web",
Chair: I. Sommerville.

Distributed Configuration Management via Java and the World Wide Web
J. J. Hunt, F. Lamers, J. Reuter, and W. F. Tichy ............... 161

WebRC: Configuration Management for a Cooperation Tool
P. Fröhlich and W. Nejdl ......................................... 175

Session 6: "Industrial Experiences",
Chair: A. Persson.

Product Management Requirements for SCM Discipline
T. Kilpi .......................................................... 186

A Case-Study of Configuration Management with ClearCase in an Industrial Environment
U. Asklund and B. Magnusson ................................. 201

Experience with Change-Oriented SCM Tools
I. Crnkovic ......................................................... 222

This article was processed using the L\TeX macro package with LLNCS style