Lecture Notes in Computer Science 1675
Edited by G. Goos, J. Hartmanis and J. van Leeuwen

Springer
Berlin
Heidelberg
New York
Barcelona
Hong Kong
London
Milan
Paris
Singapore
Tokyo

Jacky Estublier (Ed.)

System Configuration Management

9th International Symposium, SCM-9
Toulouse, France, September 5-7, 1999
Proceedings

Springer

Series Editors

Gerhard Goos, Karlsruhe University, Germany
Juris Hartmanis, Cornell University, NY, USA
Jan van Leeuwen, Utrecht University, The Netherlands

Volume Editor

Jacky Estublier
Laboratoire Dasault Systèmes/LSR
Actimart, 2, Allée de Roumanie, 36610 Gieres, France
E-mail: jacky.estublier@imag.fr

Cataloging-in-Publication data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

System configuration management : 9th international symposium / SCM-9, Toulouse, France, September 5 - 7, 1999. Jacky Estublier (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ; London ; Milan ; Paris ; Singapore ; Tokyo : Springer, 1999
(Lecture notes in computer science ; Vol. 1675)
ISBN 3-540-66484-X

CR Subject Classification (1998): D.2, K.6, K.4.3

ISSN 0302-9743
ISBN 3-540-66484-X Springer-Verlag Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable for prosecution under the German Copyright Law.

© Springer-Verlag Berlin Heidelberg 1999
Printed in Germany

Typesetting: Camera-ready by author
SPIN 10704193 06/3142 – 5 4 3 2 1 0 Printed on acid-free paper

Preface

This workshop series is now over ten years old, which is a pretty long time for a very focussed topic: Configuration Management. The first conference took place in 1988 (Grassau, Germany) and the topics were focussed on version control and rebuilding.

Many people consider that SCM is one of the few areas of software engineering that can be considered to be really successful. Products, that more or less fulfill their purpose, exist, and everybody agrees that they are now mandatory for a successful software project.

Indeed, during the second half of the nineties, SCM has entered a maturation phase, in which good commercial products have been incorporating many of the features designed and discussed at previous conferences of this workshop. With the generalization of commercial products, the question now is: What are the objectives of a scientific workshop on this topic? Is there any more research to be done in SCM today?

This ninth volume in the series reflects pretty well the current state and mood in the CM community. There are an unprecedented number of papers discussing the current state of the art and trying to identify research directions (session 6). On some core topics, like versioning (session 3), and following SCM8 tracks, papers present work on unified models. Versioning models, after years of raging discussions, now seem to have found a consensus.

Nevertheless, SCM is facing new challenges, and new solutions are required to manage systems consisting of tightly integrated hardware and software, dynamic systems that change at run-time, or non-traditional artifacts such as Web sites. Moreover, new solutions are required to deploy complex systems within large organizations, to support development teams from multiple disciplines, located in different settings, and constrained by important quality and time objectives.

The following papers do not propose new solutions to all these issues (session 5), but at least make an effort to identify the new needs and challenges of SCM in such a context (sessions 1 & 3). We believe there are still many aspects to be addressed and enhancements to be made in the area of System Configuration Management.

June 1999

Jacky Estublier
General Chair

CONTENTS

1. WEB AND DISTRIBUTION
Chair: Ian Sommerville

Content Change Management: Problems for Web Systems 1
S. Dart

Experiences: Distributed Development and Software Configuration Management 17
U. Asklund, B. Magnusson, A. Persson

Applying Software Configuration Management in Web Sites Development: A Case Study 34
M. Leoni, M. Trainotti, A. Valerio

2. EXPERIENCE AND TOOLS
Chair: Reidar Conradi

Software Configuration Management Risk Analysis before Relocating the Porting of Productís Family 38
M. Simoni c , J.Gy ˆ rk ˆ s, I. Rozman

Why Do Some Mature Organizations Not Use Mature CM Tools? 50
I. Crnkovic

An Experience in Configuration Management in SODALIA 66
M. Banzi, , F. Macugli, S. Borion, G. La Commare,

3. VERSIONING AND MODELS
Chair: AndrÈvan der Hoek

A Branching/Merging Strategy for Parallel Software Development 86
J. Buffenbarger, K. Gruell

The Unified Extensional Versioning Model 100
U. Asklund, L. Bendix, H.B. Christensen, B. Magnusson

4. WEB AND DISTRIBUTION
Chair: Susan Dart

Deployment Descriptions in a World of COTS and Open Source 123
W.J. Hansen

VTML for Fine-Grained Change Tracking in Editing Structured Documents 139
L. Bendix, F. Vitaly

Global Names: Support for Managing Software in a World of Virtual Organizations 157
M.L. Van De Vanter, T. Murer

5. NEW DEVELOPMENTS
Chair: Geoff Clemm

Distributed Objects for Concurrent Engineering 172
J. Estublier

Goals for a Configuration Management Network Protocol 186
J. Whitehead, Jr.

CM Strategies for RAD 204
D. W. Weber

6. RESEARCH STATUS AND FUTURE DIRECTIONS
Chair: Boris Magnusson

Software Configuration Management: State of the Art, State of the Practice 217
K. Fr¸hauf, A. Zeller

SCM: Status and Future Challenges 228
R. Conradi, B. Westfechtel

New Challenges for Configuration Management 232
M. Larsson, I. Crnkovic

TUTORIAL
Chair: Annita Persson

The Three SCM Implementation Levels 244
M.E. Moreira

AUTHOR INDEX 255