

## REFERENCES

- [1] Gregory D. Abowd, “Programming Environments … Literally: Ubicomp’s Grand Challenge for Software Engineering,” *ACM SIGSOFT*, ACM Press, 2002; [www.cra.org/Activities/grand.challenges/abowd.pdf](http://www.cra.org/Activities/grand.challenges/abowd.pdf).
- [2] Bowen Alpern, Anthony Cocchi, Stephen Fink, David Grove, and Derek Lieber, “Efficient Implementation of Java Interfaces: Invokeinterface Considered Harmless,” in *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 2001.
- [3] Yariv Aridor, Michael Factor, and Avi Teperman, “CJVM: a Single System Image of a JVM on a Cluster,” in *International Conference on Parallel Processing (ICPP)*, 1999.
- [4] Yaviv Aridor, Michael Factor, Avi Teperman, Tamar Eilam, and Assaf Schuster, “A high Performance Cluster JVM Presenting a Pure Single System Image,” In *ACM JavaGrande 2000*, 2000.
- [5] Henri E. Bal, Raoul Bhoedjang, Rutger Hofman, Ceriel Jacobs, Koen Langendoen, Tim Ruhl, and M. Frans Kaashoek, “Performance Evaluation of the Orca Shared-Object System,” *ACM Trans. on Computer Systems*, 16(1):1-40, February 1998.
- [6] Henri E. Bal and M. Frans Kaashoek, “Object Distribution in Orca Using Compile-Time and Run-Time Techniques,” in *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 1993.
- [7] John K. Bennett, “The Design and Implementation of Distributed Smalltalk,” in *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 1987, volume 22 of SIGPLAN Notices, pages 318-330, 1987. Also available as Technical Report 87-04-02, University of Washington, Seattle, April 1987.
- [8] Anasua Bhowmik and William Pugh, “A Secure Implementation of Java Inner Classes,” *PLDI 99 poster session*.

- [9] Robert Bialek, Eric Jul, Jean-Guy Schneider, and Yan Jin, "Partitioning of Java Applications to Support Dynamic Updates," *11th Asia-Pacific Software Engineering Conference (APSEC)*, 2004.
- [10] Andrew D. Birrell and Bruce Jay Nelson, "Implementing Remote Procedure Calls," *ACM Trans. CS*, 2(1):39{59}, February 1984.
- [11] Andrew Black, Norman Hutchinson, Eric Jul, Henry Levy, and Larry Carter, "Distribution and Abstract Types in Emerald," in *IEEE Trans. Softw. Eng.*, 13(1):65-76, 1987.
- [12] Kumar Brahnmath, Nathaniel Nystrom, Antony Hosking and Quintin Cutts, "Swizzle Barrier Optimizations for Orthogonal Persistence in Java," proc. *8th International Workshop on Persistent Object Systems (POS8) and 3rd International Workshop on Persistence and Java (PJW3)*, 1998.
- [13] Jon Byous, "Opportunities Everywhere," See [http://java.sun.com/javaone/general\\_sessions1.html](http://java.sun.com/javaone/general_sessions1.html).
- [14] John B. Carter, John K. Bennett, and Willy Zwaenepoel, "Implementation and performance of Munin," in *13th ACM Symposium on Operating Systems Principles (SOSP)*, pp. 152-164, October 1991.
- [15] Arun Chatterjee, "The Class is an Abstract Behaviour Type for Resource Allocation of Distributed Object-Oriented Programs"; unpublished paper presented at the *OLDA-2 workshop at OOPSLA-92* (briefly described in the workshop report "Objects in Large Distributed Applications II" by Peter Dickman, ACM SIGPLAN OOPS Messenger, Vol 4 #2, (Addendum to the proceedings of *OOPSLA 1992*), pp 63--69, ACM Press).
- [16] S.E. Chidamber and C.F. Kemerer, "A MetricsSuite for Object-Oriented Design," *IEEE Transactions on Software Engineering*, 20(6):476–493, 1994.
- [17] Gary Craig, Umesh Bellur, Kevin Shank, and Doug Lea, "Clusters: A Pragmatic Approach Towards Supporting a Fine Grained Active Object Model in Distributed Systems," in *the 9th International Conference on Systems Engineering*, Las Vegas, 1993.

- [18] Markus Dahm, “Byte Code Engineering,” *JIT* 1999.
- [19] Markus Dahm, “Doorastha—a step towards distribution transparency,” *JIT* 2000. See <http://www.inf.fu-berlin.de/~dahm/doorastha/>.
- [20] Edsger W. Dijkstra, “On the role of scientific thought,” EWD 447, August 1974. Also in *Selected Writings on Computing: A Personal Perspective*, Springer-Verlag, 1982.
- [21] Michael Factor, Assaf Schuster and Konstantin Shagin, “JavaSplit: A Runtime for Execution of Monolithic Java Programs on Heterogeneous Collections of Commodity Workstations,” *2003 International Conference on Cluster Computing (CLUSTER)*, 2003.
- [22] Michael Factor, Assaf Schuster and Konstantin Shagin, “Instrumentation of Standard Libraries in Object-Oriented Languages: the Twin Class Hierarchy Approach,” *Object-Oriented Programming Systems Languages and Applications (OOPSLA)*, 2004.
- [23] Mohammad M. Fuad and Michael J. Oudshoorn, “AdJava—Automatic Distribution of Java Applications,” in *the 25th Australasian Computer Science Conference (ACSC)*, 2002.
- [24] Michael Garey and David Johnson, *Computers and Intractability—A Guide to the Theory of NP-Completeness*, W.H. Freeman, New York, 1979.
- [25] James Gosling, Bill Joy, Guy Steele, and Gilad Bracha, *The Java Language Specification*, Second Edition, Addison Wesley, 2000.
- [26] Jeff Gray, “A Java-based Approach for Teaching Principles of Adaptive and Evolvable Software,” *Science of Computer Programming*, special issue on Practice and Experience with Java in Education (Qusay Mahmoud, ed.), 2004.
- [27] Steven A. Guccione, Delon Levi and Prasanna Sundararajan, “JBits: A Java-based Interface for Reconfigurable Computing,” in *the 2nd Annual Military and Aerospace Applications of Programmable Devices and Technologies Conference (MAPLD)*, 1999. See also <http://www.xilinx.com/products/jbits/>.

- [28] M.H. Halstead, *Elements of Software Science*, Elsevier, 1977.
- [29] W. Harrison and H. Ossher, “Subject-Oriented Programming (A Critique of Pure Objects),” in *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 1993.
- [30] Bernhard Haumacher, Thomas Moschny, Jürgen Reuter, and Walter F. Tichy, “Transparent Distributed Threads for Java,” in *the 5th International Workshop on Java for Parallel and Distributed Computing in conjunction with the International Parallel and Distributed Processing Symposium (IPDPS 2003)*, Nice, France, April, 2003.
- [31] Bernhard Haumacher, Jürgen Reuter, and Michael Philippse, “JavaParty: A distributed companion to Java,”  
<http://wwwipd.ira.uka.de/JavaParty/>
- [32] Ophir Holder, Israel Ben-Shaul, and Hovav Gazit, “Dynamic Layout of Distributed Applications in FarGo,” in *Int. Conf. on Softw. Engineering (ICSE)* 1999.
- [33] Jarle Hulaas and Walter Binder, “Program Transformations for Portable CPU Accounting and Control in Java,” *Partial Evaluation and Semantics-Based Program Manipulation (PEPM)*, 2004.
- [34] Galen C. Hunt, and Michael L. Scott, “The Coign Automatic Distributed Partitioning System,” *3rd Symposium on Operating System Design and Implementation (OSDI’99)*, pp. 187-200, New Orleans, 1999.
- [35] Jarminator: Free software application. From <http://www.javasvet.net/prj/jarminator/>
- [36] JNotepad: Free software application. From <http://www.pscode.com/>
- [37] JSR 220: Enterprise JavaBeans™ 3.0, <http://jcp.org/en/jsr/detail?id=220>.
- [38] JStyle 5: Automated Java Source Code Metrics Analysis Application, Codework Inc., <http://www.codework.com/JStyle/product.html>.

- [39] Eric Jul, Henry Levy, Norman Hutchinson, and Andrew Black, “Fine-Grained Mobility in the Emerald System,” *ACM Trans. on Computer Systems*, 6(1):109-133, February 1988.
- [40] Gregor Kiczales, John Lamping, Anurag Mendhekar, Chris Maeda, Cristina Videira Lopes, Jean-Marc Loingtier and John Irwin, “Aspect-Oriented Programming,” in *European Conference on Object-Oriented Programming (ECOOP)*, 1997.
- [41] Gregor Kiczales, Erik Hilsdale, Jim Hugunin, Mik Kersten, Jeffrey Palm and William G. Griswold, “An Overview of AspectJ,” in *European Conference on Object-Oriented Programming (ECOOP)*, 2001.
- [42] Thilo Kielmann, Philip Hatcher, Luc Boug<sup>l</sup>e, and Henri E. Bal, “Enabling Java for High Performance Computing: Exploiting Distributed Shared Memory and Remote Method Invocation,” *Communications of the ACM*, 44(10):110-117, 2001.
- [43] Joerg Kienzle and Rachid Guerraoui, “AOP: Does It Make Sense? The Case of Concurrency and Failures,” in *European Conference on Object-Oriented Programming (ECOOP)*, 2002.
- [44] Nelson King, “Partitioning Applications,” DBMS and Internet Systems Magazine, May 1997. See <http://www.dbmsmag.com/9705d13.html>.
- [45] Vijaykumar Krishnaswamy, Dan Walther, Sumeer Bhola, Ethendranath Bommaiah, George Riley, Brad Topol, Mustaque Ahamed, “Efficient Implementations of Java Remote Method Invocation (RMI),” in *Proc. of Usenix Conference on Object-Oriented Technologies and Systems (COOTS’98)*, 1998.
- [46] Gordon Landis, Charles Lamb, Tim Blackman, Sam Haradhvala, Mark Noyes, and Dan Weinreb, “ObjectStore/PSE: a Persistent Storage Engine for Java,” proc. *2nd International Workshop on Persistence and Java (PJW2)*, p. 129-137, 1997.
- [47] Doug Lea, “Concurrent Programming in Java -- Design Principles and Patterns,” Addison-Wesley, Reading, Mass., 1996.

- [48] Han B. Lee and Benjamin G. Zorn, "Bytecode Instrumentation as an Aid in Understanding the Behavior of Java Persistent Stores," *OOPSLA 1997 Workshop on Garbage Collection and Memory Management*.
- [49] Tobin J. Lehman, Alex Cozzi, Yuhong Xiong, Jonathan Gottschalk, Venu Vasudevan, Sean Landis, Pace Davis, Bruce Khavar, and Paul Bowman, "Hitting the Distributed Computing Sweet Spot with TSpaces," *Computer Networks*, 35(4): 457–472, 2001.
- [50] C. Lengauer, D. Batory, C. Consel, and M. Odersky (eds.), *Domain-Specific Program Generation*, Lecture Notes in Computer Science(LNCS) 3016, Springer-Verlag, 2004.
- [51] Nikitas Liogkas, Blair MacIntyre, Elizabeth D. Mynatt, Yannis Smaragdakis, Eli Tilevich, and Stephen Voida, "Automatic Partitioning: Prototyping Ubiquitous-Computing Applications," *IEEE Pervasive Computing*, 3(3):40-47, July-September 2004.
- [52] Cristina Videira Lopes and Gregor Kiczales, "D: A Language Framework for Distributed Programming," PARC Technical report, February 97, SPL97-010 P9710047.
- [53] Jason Maassen, Rob van Nieuwpoort, Ronald Veldema, Henri E. Bal, Aske Plaat, "An Efficient Implementation of Java's Remote Method Invocation," in *Proc. of ACM Symposium on Principles and Practice of Parallel Programming, Atlanta, GA May 1999*.
- [54] Jason Maassen, Rob van Nieuwpoort, Ronald Veldema, Henri E. Bal, Thilo Kielmann, Ceriel Jacobs, and Rutger Hofman, "Efficient Java RMI for Parallel Programming," *ACM Transactions on Programming Languages and Systems (TOPLAS)*, 23(6):747-775, November 2001.
- [55] Blair MacIntyre, Elizabeth Mynatt, Stephen Voida, Klaus Hansen, Joe Tullio, and Gregory Corso, "Support for multitasking and background awareness using interactive peripheral displays," in *ACM Symposium on User Interface Software and Technology (UIST)*, 2001.
- [56] Alan Messer, Ira Greenberg, Philippe Bernadat, Dejan Milojicic, Deqing Chen, T.J. Giuli, Xiaohui Gu, "Towards a Distributed Platform for Resource-Constrained

- Devices," in *International Conference on Distributed Computing Systems (ICDCS)*, 2002.
- [57] Nataraj Nagaratnam, Arvind Srinivasan, and Doug Lea, "Remote objects in Java," in *Proceedings of IASTED '96, International Conference on Networks*, 1996.
- [58] Christian Nester, Michael Phillipsen, and Bernhard Haumacher, "A More Efficient RMI for Java," in *ACM Java Grande Conference*, 1999.
- [59] Rob van Nieuwpoort, Jason Maassen, Henri E. Bal, Thilo Kielmann, and Ronald Veldema, "Wide-Area Parallel Programming using the RemoteMethod Invocation Model," *Concurrency: Practice and Experience*, 12(8):643–666, 2000.
- [60] ObjectDesign Inc., *ObjectStore PSE/PSE Pro for Java API User Guide*, 1999.
- [61] Object Management Group, *The Common Object Request Broker: Architecture and Specification*, Revision 2.5, September 2001.
- [62] Object Management Group, Objects by Value Specification,  
<http://www.omg.org/cgi-bin/doc?orbos/98-01-18.pdf>, January 1998.
- [63] The Open Group. DCE 1.1 RPC Specification, 1997.  
<http://www.opengroup.org/onlinepubs/009629399/>
- [64] Harold Ossher and Peri L. Tarr, "Using Multidimensional Separation of Concerns to (re)shape Evolving Software," *Communications of the ACM*, 44(10):43-50, 2001.
- [65] Michael Philippsen, Bernhard Haumacher, and Christian Nester, "More Efficient Serialization and RMI for Java," *Concurrency: Practice & Experience*, 12(7):495-518, May 2000.
- [66] Michael Philippsen and Matthias Zenger, "JavaParty - Transparent Remote Objects in Java," *Concurrency: Practice and Experience*, 9(11):1125-1242, 1997.
- [67] Ingo Rammer, "Advanced .NET Remoting," *APress*, 2002.

- [68] Francisco Reverbel and Marc Fleury, “The JBoss Extensible Server,” in *ACM Middleware 2003 Conference*, 2003.
- [69] Tristan Richardson, Quentin Stafford-Fraser, Kenneth R. Wood and Andy Hopper, “Virtual Network Computing,” *IEEE Internet Computing*, 2(1):33-38, 1998.
- [70] Robert W. Scheifler, and Jim Gettys, “The X Window System,” *ACM Transactions on Graphics*, 5(2): 79-109, April 1986.
- [71] Robert W. Scheifler, “X Window System Protocol, Version 11,” *Network Working Group RFC 1013*, April 1987.
- [72] D. Schmidt, M. Stal, H. Rohnert, and F. Buschmann, *Pattern-Oriented Software Architecture: Patterns for Concurrent and Networked Objects*, Wiley, 2000.
- [73] Sergio Soares, Eduardo Laureano, Paulo Borba, “Implementing Distribution and Persistence Aspects with AspectJ,” in *Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 2002.
- [74] Andre Spiegel, *Automatic Distribution of Object-Oriented Programs*, Ph.D. Thesis. FU Berlin, FB Mathematik und Informatik, December 2002.
- [75] Andre Spiegel, “Automatic Distribution in Pangaea,” in *CBS 2000*, Berlin, April 2000. See also <http://www.inf.fu-berlin.de/~spiegel/pangaea/>
- [76] Andre Spiegel, “Pangaea: An Automatic Distribution Front-End for Java”, in *4th IEEE Workshop on High-Level Parallel Programming Models and Supportive Environments (HIPS '99)*, 1999.
- [77] Sun Microsystems. Enterprise JavaBeans (EJB) Specification. Version 2.0. 2001. <http://java.sun.com/products/ejb/>.
- [78] Sun Microsystems. Java 2 Enterprise Edition. <http://java.sun.com/j2ee/>.

- [79] Sun Microsystems, Java Object Serialization Specification,  
<ftp://ftp.java.sun.com/docs/j2se1.4/serial-spec.ps>, 2001.
- [80] Sun Microsystems, Remote Method Invocation Specification,  
<http://java.sun.com/products/jdk/rmi/>, 1997.
- [81] Sun Microsystems, The Java Tutorial, "How to Use Threads,"  
<http://java.sun.com/docs/books/tutorial/uiswing/misc/threads.html# SwingWorker>.
- [82] Andrew S. Tanenbaum, *Distributed Operating Systems*, Prentice-Hall, 1995.
- [83] Andrew S. Tanenbaum and Maarten van Steen, *Distributed Systems: Principles and Paradigms*, Prentice-Hall, 2002.
- [84] Michiaki Tatsubori, Toshiyuki Sasaki, Shigeru Chiba, and Kozo Itano, "A Bytecode Translator for Distributed Execution of 'Legacy' Java Software," in *European Conference on Object-Oriented Programming (ECOOP)*, Budapest, June 2001.
- [85] George K. Thiruvathukal, Lovely S. Thomas, and Andy T. Korczynski. "Reflective remote method invocation," *Concurrency: Practice and Experience*, 10(11-13):911-926, September-November 1998.
- [86] Eli Tilevich and Yannis Smaragdakis, "Automatic Application Partitioning: The J-Orchestra Approach," in *8th ECOOP Workshop on Mobile Object Systems*, 2002.
- [87] Eli Tilevich and Yannis Smaragdakis, "J-Orchestra: Automatic Java Application Partitioning," in *European Conference on Object-Oriented Programming (ECOOP)*, 2002.
- [88] Eli Tilevich and Yannis Smaragdakis, "NRMI: Natural and Efficient Middleware," in *International Conference on Distributed Computer Systems (ICDCS)*, 2003.  
 Extended version available from <http://www.cc.gatech.edu/~yannis>.

- [89] Eli Tilevich, Stephan Urbanski, Yannis Smaragdakis, and Marc Fleury, “Aspectizing Server-Side Distribution,” in *Automated Software Engineering (ASE)*, Montreal, October 2003.
- [90] Eli Tilevich and Yannis Smaragdakis, "Portable and Efficient Distributed Threads for Java", in *ACM/IFIP/USENIX 5th International Middleware Conference (Middleware)*, 2004.
- [91] Eli Tilevich, Yannis Smaragdakis, and Marcus Handte, “Appletizing: Running Legacy Java Code Remotely From a Web Browser,” *IEEE International Conference on Software Maintenance (ICSM)*, 2005.
- [92] Eli Tilevich and Yannis Smaragdakis, “Binary Refactoring: Improving Code Behind the Scenes,” *International Conference on Software Engineering (ICSE)*, 2005.
- [93] Unknown, “Distributed Computing Systems course notes,”  
<http://www.cs.wpi.edu/~cs4513/b01/week3-comm/week3-comm.html>.
- [94] Ronald Veldema, Rutger F.H. Hofman, Raoul A.F. Bhoedjang, and Henri E. Bal, “Runtime Optimizations for a Java DSM Implementation,” in *Joint ACM JavaGrande - ISCOPE 2001 Conference*, June 2001.
- [95] Ronald Veldema, Rutger F.H. Hofman, Raoul A.F. Bhoedjang, Ceriel J.H. Jacobs, and Henri E. Bal, “Jackal: A Compiler-Supported Distributed Shared Memory Implementation of Java,” in *Eighth ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP'01)*, June 2001. Also under the title: Source-Level Global Optimizations for Fine- Grain Distributed Shared Memory Systems.
- [96] Jim Waldo, Geoff Wyant, Ann Wollrath, and Sam Kendall, “A note on distributed computing,” Technical Report, Sun Microsystems Laboratories, SMLI TR-94-29, Nov. 1994.
- [97] Mark Weiser, “The Computer for the 21st Century,” *Scientific American*, 265(3):94-104, Sep. 1991.

- [98] Danny Weyns, Eddy Truyen, and Pierre Verbaeten, "Distributed Threads in Java," in *The International Symposium on Distributed and Parallel Computing (ISDPC)*, 2002.
- [99] Danny Weyns, Eddy Truyen and Pierre Verbaeten, "Serialization of Distributed Threads in Java," *Special Issue of the International Journal on Parallel and Distributed Computing Practice, (PDCP)*, vol. 6(1), 2004.
- [100] Paul R. Wilson, "Uniprocessor Garbage Collection Techniques," in *International Workshop on Memory Management*, St. Malo, France, September 1992.
- [101] Ann Wollrath, Roger Riggs, and Jim Waldo, "A Distributed Object Model for the Java System," in *USENIX 1996 Conference on Object-Oriented Technologies*, pages 219-232, Toronto, Ontario, Canada, June 1996.
- [102] Weimin Yu, and Alan Cox, "Java/DSM: A Platform for Heterogeneous Computing," *Concurrency: Practice and Experience*, 9(11):1213-1224, 1997.
- [103] XDoclet, <http://xdoclet.codehaus.org/> .
- [104] Steve Zdancewic, Lantian Zheng, Nathaniel Nystrom, and Andrew C. Myers, "Untrusted Hosts and Confidentiality: Secure Program Partitioning," *the 18th ACM Symposium on Operating Systems Principles (SOSP)*, 2001.
- [105] Dong Zhou, Santosh Pande, Karsten Schwan, "Method Partitioning - Runtime Customization of Pervasive Programs without Design-time Application Knowledge," in *International Conference on Distributed Computer Systems (ICDCS)*, 2003.
- [106] Dong Zhou and Karsten Schwan, ``JECho - Supporting Distributed High Performance Applications with Java Event Channels," *International Parallel and Distributed Processing Symposium (IPDPS)*, May 2001.
- [107] David Zook, Shan Shan Huang, and Yannis Smaragdakis, "Generating AspectJ Programs with Meta-AspectJ," *Generative Programming and Component Engineering Conference (GPCE)*, 2004 .