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REVIEW OF: Peter van der Linden. Not Just Java. Mountain View, CA: Sun Microsystems Press, 1997.

by Kevin Miles

Not Just Java is not a technical programming book; instead it's a successful history of Java and networks. The Internet is changing with the evolution, or revolution, of Java, and Peter van der Linden's very clear and understandable writing style is a good guide to that change. The book is intended for a wider audience than the author's companion book Just Java.

Anyone new to the Internet, to programming, or to administering a Web site would benefit from this book. With numerous examples, the author explains the seven-layer Open Systems Interconnection network model and how the TCP/IP protocol works. The first chapter explains the Internet and how it works.

The Java phenomenon made its debut in May 1995 with the software as a free download. This is part of the new paradigm that includes the popularization of the Internet; the blending of telecommunications, consumer electronics, and computer industries; the trend to "multimedia-izing" everything; a desire for independence from Microsoft and Intel; and a desire for improved software technologies.

A lot is said about the similarities and differences between C++ and Java, especially in terms of performance and object-oriented programming. Van der Linden even goes as far as quoting Bjarne Stroustrup (the Inventor/Father of C++) to demonstrate that C++ is complicated and that Java avoids the pitfalls of C++. This may be the intention of Java, but, since no language is perfect, I think that these claims are wishful thinking. As computer languages evolve, scripts develop that extend and complicate the original simplicity.

Throughout this book there are useful case studies that point to Java's acceptance indicated by its use by major organizations. Case study four describes how the U.S. Post Office is using Java to ease the completion of form PS3602-R. As in all of the case studies given, there is no depth--only one or two highlights. This treatment is still useful to illustrate the growing acceptance of Java in corporate America.

How important is Java? In August 1996 the venture capitalist firm of Kleiner Perkins Caufield and Byers in Menlo Park, California announced the Java Fund. Administered by Kleiner Perkins, this fund has a $100 million seed through contributions from eleven organizations: Kleiner Perkins contributed $30 million, Sun Microsystems contributed $15 million, and nine other companies contributed between $4 million and $7 million to the fund. These companies include Cisco Systems, Comcast, Compaq, IBM, Itochu, Netscape, Oracle, Tele-Communications, Inc., and U.S. West Media Group. The Java Fund has committed $4 million to Marimba. Java programmer certification is another supporting reason to believe that Java is important.

In conclusion, this book is not a complete vision of the Java world. It is a very useful, informative document of the context of Java from May 1995 until about December 1996. If you need something that will update your knowledge of the Internet since Ed Krol's book, the Whole Internet, then this is the book. Strongly recommended.

Kevin Miles (kam@texoma.net (mailto:kam@texoma.net)) is the Director of Member Information Services and Webmaster of the International Association for Human Resource Information Management, Inc.

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REVIEW OF: Jennifer Stone Gonzales. The 21st-Century Intranet. Upper Saddle River, NJ: Prentice-Hall, 1998.

by Ray Olszewski

In his science fiction novel David's Sling, Marc Stiegler has one of his characters make this observation: "We both know how easy it is to prove that a project is a failure--it's as easy as proving that a project is a success. To prove failure, list the weaknesses, without mentioning any strengths. To prove success, list the strengths without mentioning any weaknesses."

As I read The 21st-Century Intranet, I was continually reminded of this observation. In it, Gonzalez consistently praises a particular approach to using corporate computer networks by focusing on what it can do, never taking a dispassionate look at the technical limits of her favored choices. At the same time, she criticizes competing approaches based on their technical limitations and ascribes any problems with implementations of her preferred methods to inadequate funding, planning errors, or clashes with the corporate culture.

The term "intranet" is an imprecise one in the technical literature, referring to any of a host of approaches to networking within a corporation. Gonzalez avoids this vagueness, using the term to refer to what almost anyone other than ad agencies would acknowledge as the best meaning of "intranet": the adoption of Internet protocols (TCP/IP, Telnet, FTP, NFS, SMTP, HTTP, etc.) for intracorporate networking. In practice, Gonzalez' focus is even narrower, specific to the use of Web clients as front ends to server-based information and applications. The "21st-century" part of the title is at least a bit misleading, since she focuses mostly on the Web as it exists today, with Java and thin clients the most technologically adventurous components she discusses.

For the most part, her discussions of Web technology are kept general, recounting all the things the Web is capable of in broad terms. For example, she writes this praise of the Java language:

The applets are like just-in-time software that you can throw away after every use, and they don't take long to download. For example, prior to Java, if a person wanted to use a spreadsheet application, he/she either had to have the spreadsheet application loaded on their computer's hard drive, or they had to port over to another computer on the network where the application was loaded. Java enables a developer to write a small, useful spreadsheet applet that is executed by the web browser. (p. 47)

These generalities simply skip over all the problems with Java implementation, such as the actual size of a useful spreadsheet applet, how to deal with the (security) restriction that blocks applets from accessing a client's hard disk (how do you save your work?), and the fact that neither Microsoft's nor Netscape's Java Virtual Machines fully conform to Sun's Java specification. Moreover, since there are at least a half dozen actual Java spreadsheet products available, she could have made this example quite specific and convincing by discussing an actual product.

Although the author spends a lot of time exploring organizational reasons why intranet initiatives may fail, she spends almost none on the technical limitations of her approach. While the Web-client approach has many strengths, it is not without its inherent flaws, and Gonzalez simply ignores this side of the discussion. She may view the technical criticisms of the "thin-client" model as ill-informed, and if she does so, she wouldn't be alone. But the criticisms--the limitations of the Web-browser display; uncertainties about Java implementation; the inability of all but the most expensive servers to keep up with newer, high-speed LANs; and the new security problems the approach introduces--deserve mention (and rebuttal) in a book that otherwise works so hard to promote a particular approach to the development of corporate networks.

In contrast, she spends considerable time identifying technical limitations in two competing approaches: Lotus Notes and a vaguely-defined strategy based on use of Microsoft products. After acknowledging some strengths of Notes, for example--its "consistent user interface" and good applications development

environment--she criticizes it for removing development from the end user, forcing a particular configuration of administrative roles, and requiring user training. (p. 130-131) She then contrasts this with what Web-based systems can do, ignoring the reality that many of the limitations that she sees in Notes (such as the ones that derive from its security features) end up needing to be incorporated into the Web-centered intranets that actually get deployed.

Even more extreme is her criticism of Microsoft. In a chapter called "This Is Not Bill Gates' Playground," she begins: "Engaging with employees in intranet design and development seems like a very progressive, humane thing to do....What could possibly stand in the way of such an approach? The short answer: Bill Gates and the Technology Cold War' being fought behind information technology (IT) closed doors." (p. 227) After an amusing review of Microsoft's changing intranet strategies, she ends up rehashing the familiar complaint that Microsoft's applications are too big and too demanding of constant hardware upgrades. Although her examples are drawn from the desktop (Word and FrontPage), these criticisms get carried over to unnamed intranet software, where she says (without offering examples) that Microsoft's strategy is "not simply responding to an existing market of intranet developers who want better tools. It is putting its energies into creating a specific kind of intranet market--a very expensive intranet market." (p. 237)

Now, Microsoft bashing is nothing very novel, and only a fool would deny that Microsoft is motivated by a desire to make money. But the contrast between Gonzalez' mistrust of Microsoft and her naive faith in its competitors is striking. None of the key Microsoft opponents--Netscape, Sun, Oracle--get the same kind of skeptical look that dominates her discussion of Microsoft. Writing of Sun's network computer (NC) approach to thin clients, for example, she writes:

...conversion software from Sun will offer an incentive to corporations invested heavily in PCS to make the switch to server-centric NC architecture. By popping a disk into a machine you already own and typing in a single DOS command, the PC becomes an NC, but the user can still go back to Windows if he or she wants. (p. 247)

Here, in contrast, we get no questions about the cost of a "server-centric" system--Sun does make much of its money from selling servers, after all--like how well this vaporware product will work, how powerful a client it will require, or even when it will actually be available.

Again, my concern here is not that Gonzalez is critical of some products and companies; it is that her critical eye seems to open and close arbitrarily. Rather than getting an evenhanded evaluation of the alternatives, we end up seeing a prettified view of Web/Java/thin-client technologies but a more skeptical (and, overall, more convincing) look at the competition.

Much of the book is not directly about intranets at all. Instead, it is an exploration of the literature on management and corporate change, sometimes in general and other times as applied to intranet development. Here, Gonzalez shows an impressive familiarity with the scope of the literature. She cites all the classics here (Drucker, Whyte, and Peters are obvious examples), and she covers excellent newer writers as well (e.g., Orlilowski).

But she mixes citation of these and other excellent writers with a lot of twaddle. For example, she quotes Guy Kawasaki's nonsense about the role of "Macintosh evangelists" on the early success of the Macintosh (p. 211), a discussion that ignores the key role that the introduction of the Postscript printing language by Adobe played in this early success. Other less than insightful comments come from a variety of consultants and the marketing efforts of such companies as Sun, Oracle, and Netscape.

Gonzalez has at times the tendency to argue both sides of the same argument in different parts of the book. When she contrasts the "participatory" nature of intranets to Lotus Notes, for example, she writes:

With intranets, ownership of the "product" is much more distributed. Development tends to take place closer to the ground, and the workplace is the laboratory for development. Intranet technologies, particularly Java, are basically tools that let people build their own products. (p. 132)

Yet, when discussing the need for design standards, her enthusiasm for decentralization is considerably more tempered. She writes:

Many organizations have taken a grassroots approach to intranet development. Web site development is distributed across the organization, with no central "web authority" to oversee what's going on. That approach capitalizes on employees' enthusiasm and desire to use the medium for communication. However, as a consequence, some sites look fantastic. Others don't. Among the sites, there may be little consistency in design. Poor communication practices (grammar, syntax, punctuation) make the content difficult to read. Some sites are like mazes, difficult to navigate. Some sites feature the corporate logo, others don't." (p. 317)

My concern here is not that she recognizes both the strengths and limitations of intranet development--that she does so is praiseworthy. My concern is that when she contrasts her version of intranets to competing technologies, she ignores weak points that she acknowledges elsewhere in the discussion.

Aside from its content, this book presents itself unattractively. The processes of editing, proofreading, and fact checking were apparently neglected, resulting in a profusion of errors of detail--including both the sort that derive from the replacement of human proofreaders by spell checking software and the sorts of small technical errors that leave you wondering if the book is accurate when it discusses something you do not already know.

The book provides an amazing number of citations to the World Wide Web; the richness of these references is, in fact, the book's single greatest strength. Gonzalez cites everything she possibly can, and the URLs I checked were invariably accurate (a considerable accomplishment). But there is as yet no standard format for citing Web sources, and this book chooses the worst I have ever encountered. A reference with an associated Web site is identified by being underlined in the text, a visually jarring method. The actual URLs are collected in a "Hyperlinks" section at the back of the book, presented in order of citation but not numbered (beyond chapter headings) and hence hard to find. Even worse, the book's index does not include references to the Hyperlinks list, and the citations to conventional print sources are kept separately, in the form of end notes to each chapter. There is no unified bibliography, a sad omission given the unusually large number of literature citations in the book.

The book includes a CD-ROM with some demos of intranet products. Because of limitations of the computer equipment available in my home office, I did not test these demos. I was disappointed to note that Gonzalez chose not to include on the CD any material of her own. At the least, an HTML file with the URLs for all the Web sites she mentions in the book would have been handy.

One possibility, I must admit, is that the book may have strengths that I simply don't get. Gonzalez often expresses the view that young, Generation-X workers are a new breed. She writes, for example:

> Combine a Generation Xer, a seasoned executive, and a philosopher and we have our CEO or CIO for the 21st century. Such individuals exist, and some have risen so fast in this new economy that they are already VPs at age 30. However, they are not CEOs or CIOs at the moment. Our current CEOs and CIOs are still basically Newtonians at heart. Most still believe in the numbers, in cause and effect, in changing organizations by changing people's behaviors. (p. 353)

As an aging baby boomer who holds all those old-fashioned beliefs, I may just not have what it takes to appreciate Gonzalez' insights.

In the end, The 21st-Century Intranet is disappointing for several reasons. The book is mainly about organizational problems one might encounter in introducing Web- and Java-based applications in the near future. Its technical content is weak and has no real claim to applying to the next century. The discussion of organizational problems is generally unfocused; this book does little more than offer up a collection of rehashes of recent research on theories of organizational behavior, on software design, and on strategies for employee success in a world where long-term employment is a fantasy.

Some of the underlying work Gonzalez cites is good, and some of it is nonsense--but it is all summarized poorly and superficially. Similarly, the little discussion there is of actual intranet strategies--mainly in the case studies--is sketchy and unhelpful. The total absence of serious discussion of the concrete strengths and weaknesses of Web-based technologies is the worst deficiency.

Ray Olszewski (ray@comarre.com (mailto:ray@comarre.com)) is a consulting economist and statistician. He spent three years as Network Manager at The Nueva School, a private K-8 school in Hillsborough, California. His work includes development of custom Web-based software to support online research.

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REVIEW OF: Sara L. Randall, ed. Up and Running: Implementing Z39.50. Bethesda, MD: NISO Press, 1997.

by John Wynstra

Having attended the Z39.50 Symposium on November 26, 1996, hosted by the State Library of Iowa, I was pleased to see the proceedings of these meetings published in this handy 52-page booklet. The proceedings are well-written and accurately record the information that was presented at this event. The presenters were qualified individuals, delivering clear and relevant information concerning the Z39.50 standard and how it has begun to impact the delivery of electronic information in libraries and other information-related organizations.

The first section, "Z39.50: The Basics" by Fay Turner, is an excellent primer on the Z39.50 ANSI (American National Standards Institute) standard. She describes the history of this standard from its inception and explains how it evolved through the work of the National Information Standards Organization (NISO). In

describing the typical transaction between a Z39.50 client and a Z39.50 server, she lays a good foundation for understanding the inner workings of this standard. She includes some diagrams to illustrate her ideas and a short, but significant, list of Web sites dedicated to this topic.

The next section by Ray Denenberg, "A Technical Overview of Z39.50," reviews some of the material covered by Fay, but with a little more focus on technical details. He covers the historical context of this standard and explains the differences between version 2 and version 3 which are currently implemented and in use. The author uses many helpful diagrams to demonstrate and clarify what he is explaining and covers the features of this standard in depth.

Lawrence Woods' section "Z39.50 in the Virtual Electronic Library," provides an example of the various ways that Z39.50 has been implemented in the information infrastructure at University of Iowa Libraries and the role that it is playing in the creation of the Virtual Electronic Library (VEL)--a project developed by the Committee on Institutional Cooperation (CIC). The VEL is a Z39.50 implementation on a very large scale, consisting of the electronic resources of the "Big Ten" Universities. "When the VEL is fully implemented, CIC anticipates that there will be a seamless library across all 13 institutions. This virtual library will have about 58 million volumes and 500,000 serial titles (not all unique)." (p. 33)

"The Virtual Union Catalog: A Cautionary Note," by Ralph Levan, raises the possibility that the success of the virtual union catalog described by Lawrence Woods does not necessarily translate into a successful model for other Z39.50 implementations. He attributes the success of the CIC implementation to the similarity of the institutions involved. His main concern in this section is that smaller libraries and/or organizations may not have the ability to partner with considerably larger organizations because they may be unable to support the technology in the manner in which users at large institutions have come to expect.

"Implementing Z39.50: The SILO Experience," by Elizabeth Forney, is an example of a state-wide implementation of this standard. SILO (State of Iowa Libraries Online) came about as the result of a Title II-B grant from the U.S. Department of Education in 1995. "The SILO Z39.50 project has 31 participating libraries. At this moment we have 23 sites online and operational with 25 different databases. These 23 sites represent 7 different library automation vendors, a myriad of hardware platforms, as well as operating systems." (p. 37) Her personal experiences in this project provide valuable guidance to anyone in the beginning stages of setting up Z39.50 connections to other institutions. She shares her insight on what to look for in a client and demonstrates the SILO user interface which provides access to all of the participating libraries.

The last presentation "Where Do We Go From Here?" is a motivational section by Jim Michaels, laced with humorous anecdotes and interesting facts. Convinced that a dramatic information revolution is going on around us, the presenter strives to rally the troops around broad principles driving the technological revolution. The presenter expresses concern that libraries and librarians may become victims of the revolution if they do not begin to think and act differently--to take on a new role as information specialists.

Included at the end of this booklet is a section summarizing a vendor panel discussion that took place at the end of the Symposium. The panel consisted of library automation vendors and focused mainly on current implementations of Z39.50 and how the audience hoped vendors would develop their products.

While it still has a long way to go, Z39.50 has great potential to simplify access to the myriad electronic resources available in libraries today. I would highly recommend this booklet to the library community as a general primer on Z39.50.

John Wynstra (wynstra@uni.edu (mailto:wynstra@uni.edu)) is the Library Systems Project Manager at the University of Northern Iowa.

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