In This Issue

society for technical communication

June's Meeting: A Case Study in Usability

Barbara Herbert
Vice President

Last month, Mic Vandersluis of Parker Compumotor (where our monthly meetings are held, incidentally) summarized several years of his efforts to include usability in his company's products. He shared several insights into why it is so crucial for us to take up the mantle of usability in our own organizations, as well as guidelines on how best to do so successfully. Mic gave a thorough and inspiring presentation.

Introduction

Compumotor produces hardware and firmware embedded in motion-control devices, such as those that

She tried everything, including the manual

Editorial: Times Never Better

John Dibs
President

NorthBay STC chapter membership has reached 74, an all-time high. No surprise, since the demand for writers in the North Bay is also at an all-time high. A number of companies in Marin and Sonoma counties already have sizable technical publications departments. Others are discovering more and more that the duties of technical communication can and should be assigned to professionals who are both interested in and capable of delivering quality work.

Not only are more job opportunities available, but there are also more opportunities than ever to learn (for an announcement of CSU Hayward's online certificate program in technical and professional communication, see page 8). The value of an organization such as STC is immediately apparent in an environment such as this. The networking among like souls builds a sense of community and adds confidence to our desire for recognition.

At last month's meeting we heard from senior member Mic Vanderslius about the world of usability. Passionate about his topic, but far from tooting his own horn, Mic gave us a

submitting articles and ads
We welcome articles, advertising, and news about meetings, workshops, and courses that pertain to technical communication. Please email simple text to the editor at jdibs@earthlink.net
For our current advertising rates, please email or phone the editor.

STC Mission Statement
The mission of the Society for Technical Communication is to improve the quality and effectiveness of technical communication for audiences worldwide.

This Month's Meeting
Thursday, July 20, 2000
"Bandwidth to Burn"

- Brief history of data communications
- Impacts of regulation
- Technology
- Applications that drive bandwidth
- Where we are today
- Technology in the Future
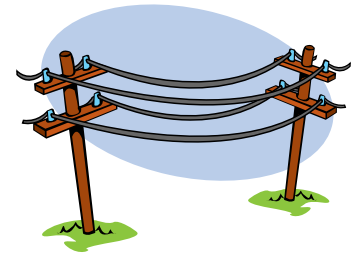
Paul Kaldunski has been actively working telecommunications for over 30 years. His first 26 years were with Pacific Bell working in outside plant, 4-wire and special services installation and maintenance. His last six years with Pacific Bell were as a System Design Consultant building digital data networks and integrating LANs for large multi-media corporations and Internet service providers. Paul is currently a Director of Sales Engineering for Next Level Communications, focusing primarily on both DLC and broadband DSL deployment.

Meeting Time & Schedule

Date: Thursday, July 20, 2000
Location:: Parker Compumotor, 5500 Labath Dr., Rohnert Park

Time:
5:30–6:30	Networking, Show and Tell
6:30–6:45	Introductions, Announcements
6:45–7:45	Program
8:00–8:30 …	More Conversation, Idea Swapping

JavaServer Pages for Technical Writers

by David Castro

This article describes what technical writers can do with JavaServer Pages (JSP). If you want to learn how to use JSP, I recommend that you check out the book *Web Development with JavaServer Pages,* offered at www.taglib.com/wdjsp.jsp. You can download and read the first and sixth chapters of the book from this site for free.

Have you ever wondered how to create documentation that is easy to maintain, that allows users to make changes that won't be overwritten, that is customized for each individual user, and that doesn't require creating more than one version of the doc or plug-ins? Well, JSP does it all.

What is JSP?

JSP is a relatively new technology introduced by Sun. Similar to Active Server Pages (ASP) from Microsoft, JSP enables you to create dynamic HTML pages. In JSP terminology, this type of dynamic HTML is not the same as "Dynamic HTML." Rather, it refers to the ability to customize individual pages by incorporating information from other pages, database queries, user input, calculations, custom tags, and so on.

What is Needed to use JSP?

If your documentation resides on your Web server, and your server supports JSP (most, with the exception of Microsoft's IIS, do), or you can convince your IS department to switch to a server that supports JSP (Apache, Java Web Server, and other high-quality free Web servers support JSP), then you are set up to use JavaServer Pages.

If you deliver your documentation to the client as compiled HTML help, or as HTML-based help that resides on client machines, then JSP has some limitations.

You can use it as a way to produce the HTML that you deliver (much as you would use conditional tags in FrameMaker

Have you ever wondered how to create documentation that is easy to maintain, allows users to make changes that won't be overwritten, that is customized..., and that doesn't require creating more than one version of the doc...? Well, JSP does it all.

to create different versions of a PDF), but you can't make the documentation user-configurable on-the-fly.

JSP vs. ASP

JSP allows you to separate the Web site functionality from Web site content. When you use all of what JSP has to offer, you do not have to embed code into your HTML pages, as you do with ASP. This allows each person to work on the the part of a part of the project that he or she knows about. Java programmers can focus on the Java functionality, and writers can focus on content. Of course, if you happen to both be a writer and a Java developer,

you can do both, but being both coder and writer isn't mandated by the technology.

JSP differs from ASP in many ways, such as performance (JSP is precompiled, while ASP is compiled each time the page is requested) and portability (Java is write-once-run-anywhere). For writers, however, the most important difference is the separation of Web site functionality from Web site content.

Customizing Content Without Embedding Java Code

JSP supports a powerful feature called tag libraries. Tag libraries allow you to package Java programming functionality into HTML tags that you can then use in your HTML files. These tags are read by the Web server that sends the page to the user. Your HTML tags can then perform different functions, such as in the following list.

- import an external page into the current page (boilerplating)
- make a call to a database to retrieve information specific to the current user
- check to make sure that the user has logged in before presenting the page
- filter the content so that only the information that is appropriate for this particular user is displayed
- display the results of a calculation based on information the user has entered

For example, I am using JSP in the documentation for an Application Service Provider. This particular application provides Web-based scheduling functionality to medical facilities. There are three roles that a user might perform in the application: scheduling appointments, registering patients, or administering the system. Some users perform more than one of these roles. In the section of the documentation that explains registering patients, there is a

link to a topic that explains how to set up address types. If a user performs both registration and administration roles, this link would be helpful. But if the user is only a registrar, then this link is distracting.

So, I created a tag in the tag library that filters the content based on the roles that the user performs. In our case, we created a tag that lets you specify that content is included or excluded based on whether the reader is a scheduler, a registrar, or an administrator. The HTML that uses these tags looks like this:

```
<%@ taglib uri="/scheduling"
prefix="sched" %>
<HTML>
<BODY>
...
<P>Select an address type from
the list. <sched:Role
type="administrator"
action="include">
You set up address types using
<a href="Code_files.htm">code
files</a>.</sched:Role></P>
...
</BODY>
</HTML>
```

There are two important parts of this code segment. The first line specifies that the JSP file uses a custom tag library. The Universal Resource Indicator (URI) indicates where to look for the configuration file for the library, and the prefix indicates how the HTML tags that use the tag library will appear in the HTML file. The tag that begins <sched:Role... uses the tag named "Role" in the custom tag library. The Role tag looks to see what kind of user is requesting the page (this information was collected when the user originally logged into the system), and displays the link only if the user is an administrator.

If the user is an administrator, this is the HTML that is sent to her browser:

```
<HTML>
<BODY>
...
<P>Select an address type
from the list. You set up
address types using <a
```

```
href="Code_files.htm">
code files</a>.</P>
...
</BODY>
</HTML>
```

If the user is not an administrator, this is the HTML that is sent:

```
<HTML>
<BODY>
...
<P>Select an address
type from the list.</P>
...
</BODY>
</HTML>
```

Processing Happens at the Server

One beneficial side effect of the way JSP works is that standard HTML code is sent to the browser. You don't have issues with browser compatibility, as you do when using JavaScript or DHTML. Also, the user can't look in the HTML page's source to find the information that she isn't supposed to see. The filtering happens at the Web server.

Make Your Documentation a Profit Center!

Some customers like to make modifications to the documentation their employees use. Medical facilities, for example, often have regulations that contradict what the documentation for a product says. For instance, if the topic covering patient registration says that you can enter a patient with nothing more than the patient's last name, but the medical facility requires full name, insurance information, contact information, and so on, your client will want to make modifications to the documentation. If you handle these modifications with a custom tag (one that filters the content so that it is displayed only if the user is from the facility that made the changes), then

the changes ;your client makes get carried forward with future versions of the application. No more requiring your customer to make the same changes release after release. This labor savings for your customer can turn into a way for your company to make money. Charge a per-word, per-page, or per-hour fee for making these changes. You can even set

Modifying a JSP application for the lizard community is a cinch.

up an interactive form on your site to make it easier for your customer to get those pages incorporated.

More Information

More and more Web sites discussing this technology are popping up every day. Some of the more well-known sites include the following:
- www.java.sun.com/products/jsp/
- www.jspin.com/
- www.jsptags.com/

There is also a mailing list that covers this subject. You can read more about the mailing list and search its archives at
- www.jsp-interest.com/

Check out the following for some FAQs on the subject:
- java.sun.com/products/jsp/faq.html
- www.esperanto.org.nz/jsp/jspfaq.html
- www.jguru.com/jguru/faq/faqpage.jsp?name=JSP

If you have questions that these resources don't answer, feel free to contact me at thetechwriter@yahoo.com.

A Case Study in Usability
Continued from page 1

tell assembly-line equipment where and when to move. The firm also develops software that their customers use to program the controls.

Mic has been a technical communicator and "one-stop doc shop" for 13 years, and has been with Compumotor for 11 years. This last fact is important, as Mic made it very clear that bringing usability into a company's processes requires lots of patience, along

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Users aren't interested in your product — they're interested in achieving a goal. Your product simply provides them a means to perform tasks that help them reach that goal.

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with a commitment to being in it for the long haul. As you will see, understanding the interpersonal or political aspects of incorporating usability into a product are at least as important as understanding the technical aspects.

One of Mic's key points regarding usability is that users aren't interested in your product – they're interested in achieving a goal. Your product simply provides them a means to perform tasks that help them reach that goal. In addition, your product should perform as

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Ten Usability Heuristics
http://www.useit.com/papers/heuristic/heuristic_list.html

Visibility of system status
The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world
The system should speak the users' language, with words, phrases, and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Consistency and standards
Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention
Even better than good error messages is a careful design that prevents a problem from occurring in the first place.

Recognition rather than recall
Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue box to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use
Accelerators — unseen by the novice user — may often speed up the interaction for the expert user in such a way that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and minimalist design
Dialogues should not contain information that is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors
Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation
Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, be focused on the user's task, list concrete steps to be carried out, and not be too large.

I originally developed the heuristics for heuristic evaluation in collaboration with Rolf Molich in 1990 [Molich and Nielsen 1990; Nielsen and Molich 1990]. I since refined the heuristics based on a factor analysis of 249 usability problems [Nielsen 1994a] to derive a set of heuristics with maximum explanatory power, resulting in this revised set of heuristics [Nielsen 1994b].

A Case Study in Usability
Continued from page 4

many low-level tasks as possible, so users can focus on the high-level tasks. By understanding the mental model and motivations of those who use your product, you can begin to understand how to make your product meet the users' needs, and not just the requirements of your company's developers or marketers.

Definition of Terms

To give us a common vocabulary for use throughout his talk, Mic defined usability as "the degree to which a user can use the product to accomplish tasks with minimum stress and maximum efficiency." The following facets of a product contribute to usability.

- Learnability: Can users readily discern how to use the product? If there is a learning curve, is the curve smooth and navigable?
- Efficiency: Can software users get their tasks accomplished without a lot of false starts or jumping between screens (or for hardware buttons and switches)? If they make a mistake, can they recover gracefully without having to redo a lot of what they have already done?
- Attitude: Is the product likeable? Does it make the user feel competent and satisfied rather than stupid and frustrated?

Usability also overlaps with requirements of functionality, reliability, and performance. If a product doesn't meet user standards in these areas, it will never be considered usable, even if all of the other attributes are present.

To design usable products, Mic recommends working towards a process of user-centered design (UCD). The primary tenets of UCD include:

- Early focus on users and tasks (these drive the design)

- Usability testing early in the process, using prototypes and actual users, to provide behavioral measurements of ease of learning and ease of use
- Successive refinement (iterative design) in response to usability test results, to shape the product to the users' needs as you discover them over time

The Way Things Were

The core of Mic's talk was a chronology of how he and others have worked over the years to bring usability into the product development process at Compumotor.

In 1992, Mic, was invited to join a committee to review, document, and improve the product design process.

The result of user-centered design

Playing the role as user advocate, Mic pressed for a systematic approach to beginning the product design process with research data about the intended users and the tasks that the products are to facilitate. However, at the time, he didn't have the expertise to fully articulate his viewpoints and was not able to persuade Compumotor's staff to adopt this basic UCD principle. Consequently, the idea was dropped.

In 1994 and 1995, usability became a

hot topic in STC publications and elsewhere. Mic was particularly intrigued by the articles heralding the new migration path from technical writer to usability professional. This is when Mic began to deepen his understanding of usability and the benefits that UCD has to offer to a company such as Compumotor. At the WinHelp Conference in early 1995, Mic was further inspired when he heard some rousing and motivational talks by Jared Spool, founder of User Interface Engineering (UIE) (For contact information, see Other Resources on page 8). At a breakfast with Jared, Mic gained further insights on how to begin making usability a higher priority at Compumotor.

Selling Usability

For the next few years, Mic became an effective usability evangelist. He realized that the only way to "sell" usability was to show that it could improve the bottom line. He talked up usability benefits to co-workers at every corporate level, always focusing on ways usability could reduce costs or increase sales. Some of the benefits he cited are listed below.

- Reduced costs for technical support
- Reduced costs for design, tech writing, and especially for redesign after initial product release
- Increased customer satisfaction, which would lead to repeat sales from existing customers
- Increased sales from new customers, who heard about Compumotor's easy-to-use products from industry word-of-mouth and from Compumotor's own salespeople
- Increased job fulfillment for everyone at Compumotor, but especially for engineers, who like to know that the products they are developing are used and appreciated

Unfortunately, usability was a hard

A Case Study in Usability
Continued from page 6

sell. The Quality Manager at Compumotor was strongly supportive, and Compumotor paid to have Jared Spool come and give two talks on UCD, but barriers remained. Some engineers believed that arguing for more usable products implied that they weren't doing a good job, so their pride was wounded. Other people balked because "we've never done it that way before." Also, bigger fires (i.e., crisis management) repeatedly pushed discussions of usability out of the picture. However, Mic continued to educate his co-workers about usability whenever he could, winning allies among engineers and managers while waiting patiently for the seeds he was sowing to sprout.

Pilot Project

By 1997, based on complaints that their programming interface had become too complex, Compumotor realized they needed to redesign the interface. In early 1998, after the initial redesign work, Mic

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Usability is "the degree to which a user can use the product to accomplish tasks with minimum stress and maximum efficiency."

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convinced Compumotor to perform low-cost usability tests on the new interface. Using in-house novice and experienced employees as test subjects, Mic and the product programmer and the product

planner set up a small test station and simply watched them as they tried to use the new software. The programmer and the product planner were amazed by the problems that were quickly uncovered. Helped by detailed pre- and post-questionnaires and test reports prepared by Mic, they immediately began making design modifications based on these initial tests.

Sadly, usability activities suddenly stalled when external factors put serious pressures on the company. An international downturn in the semi-conductor industry, coupled with economic havoc in the Pacific Rim, led to several Compumotor layoffs, including the only other tech writer. With everyone now having to spend more time just keeping up with current requirements, there was little time left over to focus on usability. But, as Mic pointed out, the seeds had been planted, and now they had been watered. It was only a matter of time.

New Millennium, New Hope

In early 2000, as the economy recovered, product usability started to gain visibility. Compumotor had been experiencing a high number of product returns due to usability problems, and the voices of customers complaining about the complex programming language became louder. The Quality Manager produced a compelling report on the cause of these problems and on the importance of incorporating UCD to prevent their continued occurrence.

Both the Product Planning and the Engineering manager positions were filled by strong, staff-level advocates of UCD, so usability gained a clout greater than Mic's lone voice in the wilderness. With this help, the rest of upper management was beginning to recognize the need for adopting UCD practices. In fact, as these changes began to take place, management turned to Mic for help. Mic

was only too happy to oblige with recommendations for starting with usability tests and customer visits. As his 1998 pilot project proved, you don't always have to spend a lot of money to get good information.
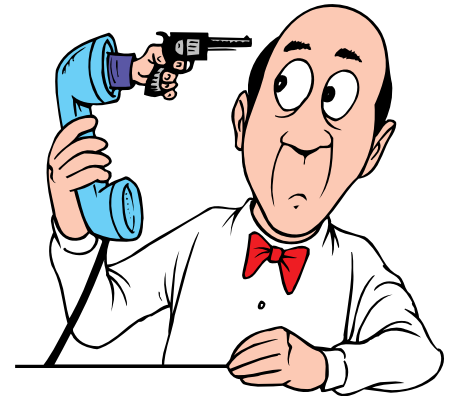
When usability issues finally become crisis management

The future of usability at Compumotor holds more types of usability tests (including feature inspections, walkthroughs with customers, and a usability lab). The design process for next-generation products is already starting to include greater focus on users and tasks, rather than on just features and operability. Also on the horizon is a more systematic means of collecting information from and about users, through customer site visits, surveys, and analyses of support calls and product returns.

Now It's Your Turn

Based on his experiences, Mic advises that when you're ready to become the usability maven in your company, you should focus on these activities:
• Make political allies; work from the bottom and from the top.
• Be a personable advocate who clearly cares about the bottom line.
• Do everything you can to get involved

early in the design and development cycle.

• Reduce the potential for overwhelming co-workers ("Oh, no! We have to redesign the whole product!") by narrowing the focus (start small, with specific activities, and then branch out as appropriate).

• Provide immediate results after any usability evaluation, through the use of detailed yet well-organized reports to management and engineers.

• BE PATIENT!

Resources

STC Resources

• Usability SIG: www.stc.org/pics/ usability/TechComm conference (7/ 15-19): www.techcomm2000.com/

• Andrea Ames on documentation usability: www.verbal-imagery.com/ matls/doc-usability/usability-testing-concepts_files/frame.htm *(Ed. Note: When I tried to access this page, it wanted to download a plug-in that caused my computer to crash. You may want to view it without downloading the plug-in.)*

Other Organizations

Usability Professionals Association (UPA): www.upassoc.org (upcoming conference 8/1418: www.upassoc.org/ conf2000)

ACM/SIGCHI (computer/human interaction SIG): www.acm.org/sigchi

Human Factors & Ergonomics Society: www.hfes.org

User Interface Engineering: www.uie.com

Books

Cost-Justifying Usability by Randolph Bias & Deborah Mayhew

Usability Engineering by Jakob Nielsen

Usability Inspection Methods by Jakob Nielsen & Robert Mac

Jakob Nielsen's 10 Usability Heuristics: www.useit.com/papers/heuristic/ heuristic_list.html

Handbook of Usability Testing by Jeffrey Rubin

CSU Hayward Online Certificate in Technical and Professional Communication

www.online.csuhayward.edu/ TechWriting/index.htm

According to the Bureau of Labor Statistics, "employment of writers and editors is expected to increase faster than the average for all occupations through the year 2008." The Bureau report goes on to assert that "demand for technical writers is expected to increase because of the continuing expansion of scientific and technical information and the need to communicate it to others" (www.stats.bls.gov/oco/ocos089.htm).

You can command a higher salary and distinguish yourself in this competitive job market with a Certificate in Technical and Professional Communication from Cal State University, Hayward. Technical and professional communicators work in diverse fields, yet require a common expertise: the use of written materials to help examine, explain, understand, and address complex problems.

California State University at Hayward offers an online Certificate Program in Technical and Professional Communication. Benefits to you:

• Complete your work online in your own time and from any location that provides an Internet connection.

• Complete the program in just four quarters.

• Build a professional portfolio to offer prospective employers.

• Work in an interactive learning community with experienced and diverse instructors.

• Take college courses from an accredited university.

• Receive guidance on looking for and applying for technical writing and editing positions.

Classes for the Fall 2000 academic quarter begin September 21, and registration will be available in August. Visit the CSU Hayward Web site below for detailed information about the program along with instructions on how to register. If you have questions about the program, you can also contact Angeline Silva-Netto at 510.885.2828 or e-mail: techwr@csuhayward.edu

Editorial
Continued from page 1

transparent look into his experience and the organization he serves. This month we'll hear a telecom topic, the second presentation organized and delivered by Next Level Communications in Rohnert Park, and the third in a series of presentations about telecommunications technology. As always, there is a lot of information to learn and absorb, but fear not; lots of information translates into job security.

I am fortunate this year to have a team of dedicated volunteers to work with as NorthBay chapter president. The officers and newsletter staff make each monthly meeting and newsletter issue a reality. Be assured that when things seem to go smoothly on the surface, it's a result of the brass tack efforts of chapter volunteers. It takes persistent interest and sweat to see things through and to pull off an idea or event successfully. Please consider assisting this year in projects that will benefit you and to your fellow chapter members.

Senior and Intermediate Level Technical Writers Needed

Fair, Isaac in San Rafael is looking for experienced software technical writers with knowledge of FrameMaker, RoboHELP, HTML and solid writing skills. We develop statistical analysis, strategy, and decisioning systems in a variety of environments and for a variety of industries, notably finance, insurance, healthcare, and telecommunications. The Technical Publications department is growing to cover existing products as well as new web-based ASP initiatives using XML, and offers a friendly, team-oriented workplace, the latest tools, and private offices. Excellent salary and benefits, some telecommuting, ongoing educational and professional growth opportunities.

Send your resume in Word, PDF, or HTML to MaryRaeg@FairIsaac.com with STC Tech Writer in the subject line.

Help Wanted!!

Technical Writer Opening in Petaluma

Cisco Systems has an opening for a Senior Technical Writer at their Engineering Development facility in Petaluma. This is a salaried career position.

Typically requires BA/BS or equivalent experience, and minimum of 10 years of related experience. Degree in Technical Writing, English, Journalism, Computer Science, or Electrical Engineering, or a related field. Experience in technical writing for datacom, telecom, or network products companies desired for this position. Works with minimal supervision. Independently identifies complex issues and resolves complex problems. Technical knowledge. Partnership. Industry Knowledge. Champion Improvements. Think Globally. Exercise independent judgment in selecting methods, techniques, and evaluation criteria for group projects. Work is reviewed for accomplishment of objectives. Ability to work in complex, often undefined situations and develop innovative solutions that obtain results in all affected areas.

For a more detailed job description, or consideration, please contact or send resume to: David Scardifield, Cisco Employment — Technical Recruiter Petaluma. 707-285-5350; 707-285-5411 fax. Email: dscardif@cisco.com "Empowering the Internet Generation"

South Bay Openings

Lead Tech Writer, Redwood Shores

5+ years experience in documenting a range of software products. Experience with FrameMaker and producing Online Help; Familiarity with Java, NT, UNIX and relational databases a plus.

San Jose, Team player, can telecommute after initial indoctrination.

Must have end-user documentation exp., 3-5 yrs experience, 2 yrs working with a team. PhotoShop/Illustrator exp. HTML, Do not need to be very technical; This is writing for an end user audience that is nontechnical (user guides, help systems, Web content for professional graphics and publishing products.

Technical Writer, Redwood City

Create white papers for end user and System Admin. Document Architect capacity and planning with Network Architects. Understanding of HTML, networking, capacity & planning; FrameMaker/Visio, Project Mgt., Exp. 4 yrs. exp with cross-functional tech environment.

Contact: Kyle Hensley, People On Site, Inc., 370 Bridge Parkway, Redwood Shores, CA 94064. Ph. (650) 595-7070
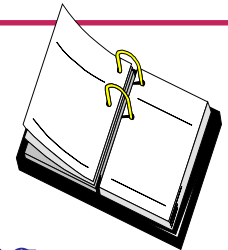
Coming Soon!

Aug. 27 to Sept. 1, 2000

Seybold Conference 2000 Moscone Center, San Francisco

Geared for web and print publishing professionals, Seybold features seminars on such topics as XML, PDF, and E-Books, and tutorials on Photoshop, Acrobat, XML, writing for the Web, and graphic design for the Web. The exposition (free admission) runs from 8/29 to 8/31 and is a golden opportunity to see the latest publishing tools and technology (and pick up some fun freebies too!). www.key3media.com/ seyboldseminars/sf2000
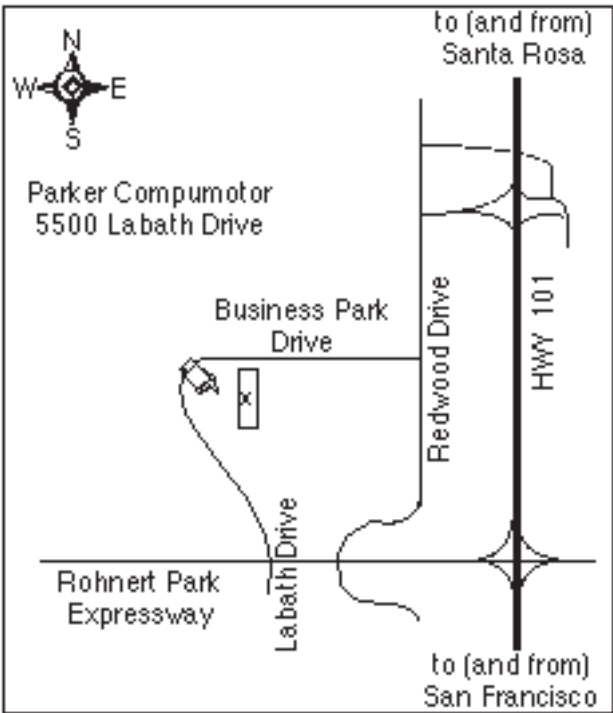
October 19-21, 2000

STC Regions 7 and 8 Pan-Pacific Conference in Hawaii

For late-breaking information, see www.pan-pacific.org, and Jack Molisani's articles there.

We meet on the third
Thursday of each month

Our August Meeting

**Thursday, August 16
To be announced.**

Parker Compumotor
5500 Labath Drive
Rohnert Park
stc.org/region8/nbc/www/

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