The Software Quality Advisor Online

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October 2001 Newsletter

Preparing for the Unpredictable

by Randy Rice, CQA, CSTE

Abstract

With the tragic events of the past month, people have been shaken out of comfort zones of the past. Many companies are now wondering about what kind of similar horrible events are on the horizon and in many ways this questioning is contributing to a national sense of uncertainty. Even aside from disasters, we are also living in uncertain business and technology times as well. With the recent dot-com boom and bust, people are still struggling to respond in a now sluggish economy.

There are lessons to be learned in experiencing unpredictable events and basic principles to which we can return. The purpose of this article is not to add another perspective just to have something timely to say. How we respond as a country and as IT professionals could have profound implications for the future of our country and our profession.

During preparations for Y2K, people in all walks of life became aware, at least intellectually, of how dependent we are on technology and IT systems worldwide. Contingency planning and testing found new believers. However, human nature being as it is, most people after Y2K gravitated back into old pre-Y2K habits.

As someone who has had the dubious distinction in being close (too close in some cases) to some major disasters, I have been able to see some common threads in how people have prepared for and responded to the unexpected. It is in this context that I humbly add my thoughts on the topic.

Introduction

I, like most others, realized by noon on September 11th that we are living in a different world than just hours earlier. This is a profound realization in itself. Our nice and comfortable sense of security in the US was rocked in the span of less than an hour. Much like a kick in the stomach from a schoolyard bully, we doubled over as a nation to catch our breath. The impact of the surprise attack was devastating.

Last week I had the unexpected pleasure of hearing Ed Yourdon speak at the New York City SPIN chapter meeting on the topic of "Change Spotting." In his talk, he mentioned the challenge of trying to prepare for the unexpected by trying to spot leading indicators. There are known types of events, such as earthquakes, tornados and plane crashes that happen at unexpected times. These events typically have patterns of occurrence that at least give us some trends and basic ways to prepare and respond. However, it is the events like occurred on September 11th that come not only at unexpected times, but in unexpected ways. These are the events that require on the spot response, based in clear thinking, experience and wisdom.

What Does This Have to Do With Software Quality?

One of the interesting aspects of the software quality profession is that in doing the job of assuring the quality of systems we deliver, we find ourselves in the roles of preparation, planning and evaluation. We are called many times to ask the questions that other groups don't have the time or perspective to ask. Software quality professionals may find themselves as a bridge between the business and technical sides of the house. The more we think through the issues of preparing for business and personal contingencies, the better prepared we will be to act when our businesses and clients need quick assurance that the solutions we help deliver will work, even under emergency conditions.

In effect, what I am addressing in this article is a test of your ability to deal with the unexpected. Because these events are unexpected, we don't have the luxury of exact planning. Furthermore, we often have to do a lot of improvising. Unfortunately, for many organizations these kinds of tests are not drills, but "live" tests with the future of the organization and its customers on the line.

A Personal Case Study

At the risk of making this article seem totally about natural disasters, which is not my desire, I can draw on an event from my own recent past that illustrates the complexity and challenges of dealing with the unpredictable.

On May 3, 1999, a tornado with the highest sustained winds ever measured on the face of the earth (318 miles per hour before the meter reached its peak) roared within a mile of my home. Forty-four people were killed. This tornado was unlike any other ever seen before. It stayed on the ground for over 4 hours and traveled from southwestern Oklahoma to Northeastern Oklahoma.

We had plenty of warning. For over 2 hours we watched full TV coverage by helicopter of the twister. Since my experience with these things told me that they only stay on the ground 30 minutes or so, I just kept grilling the steaks. It wasn't until the tornado crossed the river 10 miles southwest of us that we ducked for cover in our bathtub with a mattress on top. Had the tornado hit our house, we probably would not have survived. Although the tornado passed by our house, it continued a half-mile path of destruction headed directly for where our son was working. The tornado narrowly missed his building as well. Just about every car in the parking lot was totaled, but the people were all OK.

After this close call, I swore we would never be sitting ducks like that again. We knew many people that got in their cars and drove out. I had wished we had done the same, although this is exactly what the experts tell you not to do. However, when all the options are bad, you sometimes just pick one and pray.

Last week (October 9, 2001) , we had an evening where we saw several tornados in October, which is a very unusual occurrence. Some of the twisters touched down, others stayed in the clouds. However, one major area of circulation[1] came directly over our house. So, when the sirens started blowing, my wife and I (and the dogs) got in the car and headed due north out of the path of the twisters. I knew from the radar that was being shown on TV that just a mile or so north would be safe from the tornados. What I didn't fully realize was that there was also hail and flooding due north. Plus, there was another area of circulation about 20 minutes behind the one I was trying to miss. That greatly increased the complexity of the situation.

We eventually returned home and waited out the second one, which dissipated just before it reached us.

The point of this tale is that a course of action that is reasonable in one unpredictable event may not work at all a future similar type of event. The correct response from the first event would have been to have an underground shelter installed. We would have then been prepared for the recent tornados. We're going to work on that.

Other Examples

One of the greatest examples of a seeming correct, yet disastrous, response was that of the Titanic. Although the tremendous loss of life was the result of many bad decisions, one the findings that has emerged is that the collision with the iceberg would have probably less devastating had the crew just hit the iceberg head-on instead of trying to steer around it. By steering around the iceberg, the hull was ripped in so many places along the side that even the containment system failed. A direct hit would have kept the water trapped in the forward sections of the hull.

The recent tragedy at the World Trade Center is an example of people taking the right action at the right time. The death toll could have been much higher had the occupants of the buildings tried to wait it out inside the building. The collapse of the twin towers was unexpected. The people who got out and got away from the vicinity of the buildings soon were the ones that survived.

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[1] Circulation means that there is a rotation in the clouds that could easily form into a tornado on the ground.

I think the recent economic boom and bust is another case in point. Two years ago, the Federal Reserve was concerned that the economy was growing too fast, so they raised interest rates. When many of the dot coms started to fail due to flawed business plans and other reasons, their stocks fell sharply, investors got scared and all of a sudden the economy didn't look so good. Then, it started looking even worse. So, the Federal Reserve started lowering interest rates to revive the economy. The only problem is that an interest rate of 8% vs. 8.5% isn't going to cause a person who is fearful of losing their job to buy a house or a car. To me, the lesson in this situation is that you can't correct some problems simply by reversing the previous actions.

Guidelines and Ideas

Enough of the gloom and doom. What can you do to prepare for the unexpected?

I don't have any firm answers because each situation is different. Unpredictable events are often complex and fluid in nature. But with that said, here are some ideas.

Think of people first

People require great care in times of great change and unpredictable events. In times of dealing with upheaval, people rightly need time to focus on immediate concerns of family and friends. People also need time to process what is going on and how it affects them.

Unfortunately, some managers in their zeal to "do their duty and get the job done" fail to see past getting the job done to taking care of the people. The exception to this is when your job is to take care of the people, such as healthcare, fire, police and other first responder professionals.

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As Sue Shellenbarger writes, "Handling the aftermath of the terrorist attacks posed an acid test for employers, often fundamentally changing the employer-employee relationship. The mass emotions aroused by the tragedy were so primal – fear, grief, anger and the drive to protect loved ones – that any managerial missteps took on larger-than-life importance."[2]

In my son's case in the May 3rd tornado, while people were looking outside of the office in the aftermath of destruction, some seeing their neighborhoods destroyed and their only means of transportation gone, the manager on duty instructed them to "get back to work. We have pizzas to sell." Shortly thereafter, the kids were allowed to go home. The manager was counseled about the lack of judgment the next day.

If you are a trainer conducting a session, you need to keep in mind that your students' safety and well-being are your primary concerns. When a fire alarm sounds, immediately instruct people to gather their immediate belongings and evacuate the building. If there really is a fire, move away from the building. If there is a local disaster, such as earthquake or tornado, know the local procedures and follow them immediately. I personally keep a small battery powered radio in my computer bag. If the weather starts looking bad, I check the status of the weather on breaks, and more frequently if necessary.

Try to regain focus as quickly as possible

This applies to any unpredictable event - natural disaster, personal crisis, or business event. There will be many thing happening at the same time that can confuse the few core issues. Your challenge is to separate the trivial from the few critical priorities. The faster you do this, the better your chances of successfully identifying the best course of action.

Time is your friend one day and your enemy the next

When used for the purpose of preparation, time can be an ally. However, never lose sight of the fact that time is a non-restorable commodity. Once a day, an hour, or a month has passed, you can never get it back. On the other hand, once you recognize a window of opportunity and act on it to prepare for a contingency, you gain a measure of preparation.

During and after an unexpected event, time becomes your enemy. You only have a fixed amount of time and it goes by incredibly fast. Mistakes you make early in a

[2] Sue Shellenbarger, *Some Bosses, Fumbling in Crisis, Have Bruised Loyalty of Employees*, Wall Street Journal, Wednesday, October 17, 2001

situation can have huge consequences because you have little time to recover from them.

Communication is essential

People must know what is happening during a situation, in both the personal and corporate sense. Lack of communication breeds confusion and fear. One of the things that emerged from my experiences and the WTC tragedy is that people communicated with each other via cell phones, air phones, e-mail and networks of personal contacts. This type of communication allowed people outside of the event to offer guidance and support, as well as letting loved ones know of their status. In the case of United flight 93, it allowed an opportunity for the passengers on that flight to be part of an effort to successfully thwart the terrorists' attempt to fly the plane into another target.

In the systems world, communications is critical to getting up and running again. Every IT organization should know how to reach everyone in the organization in a priority sequence. The network of communication should be wider than deep to minimize the impact of a broken link in the chain of contact. You can also use the buddy system to provide a very basic level of communication. Each person in the organization is paired with someone else to be in contact with during an unexpected event. Another method is that of a cell group to be comprised of people with related tasks. Every member of the cell group is responsible to get in contact with the leader to confirm their status.

Some questions to ask:

Do you know how to contact each member of your staff in at least three ways?
Do you know current home phone numbers and addresses of each of your staff?
Do your staff know the procedure of who to call and where to report in the event of a disaster?
Have you defined who is considered "essential personnel" in your organization?
Do you carry this information in your wallet or purse?
Do you carry important personal phone numbers in your purse or wallet? *(Keep in mind that in a crisis, your memory can go blank and that someone else may need to know this information to help you!)*
Do you have any alternate means of communications, such as two-way radios and extra batteries?

Make use of every tool you have and be ready to improvise

Chances are, you won't have everything you need to tackle the problem (a mattress and a bathtub in the tornado case study). You just have to improvise and do the best you can with the tools you have at hand. This has been documented in case after case of people surviving in extreme circumstances.

Plan for logistical contingencies

I know that this will sound like a bunker mentality, but I have known situations when these things have been life savers. These include considerations of storage of food, water and the ability to sleep staff on-site (and in alternate off-site locations), if needed. These items can be needed in extreme weather conditions as well as natural disasters and terrorist attacks.

Another consideration would be to have the ability to perform and/or support processing from an off-site location. An IT director friend of mine recently stated to me that he sees anything less than a hot site for disaster recovery unworkable. The reason is simple. If the emergency affects both your main facility and a shared contingency location, your processing immediately falls to the lowest priority.

You have to think of these types of expenditures as investments and insurance. You also have to periodically rotate supplies and test the ability for people to use the contingencies.

Defined processes help maintain continuity if people understand them beforehand

One of the great benefits of defined processes is that they document operational practices for someone else to perform *if they are easily followed and make sense.* To clarify this and to drive the point home, this means that over-defined processes and those that are outdated will be too cumbersome and confusing to be of use. Hint – try to streamline your processes to the point they can be followed correctly by a novice as described on a single page.

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Your response in one event may not be the same for a similar future event

As in the tornado case study, don't limit yourself to a single response. Instead, have a procedure in place to make a quick decision as the events dictate. However, there's a caveat with this guideline – that is, you may not have time to poll the team or perform the process, you must act immediately. I refer you back to guideline #1 – people first.

Define who exactly are "essential personnel"

When local and federal emergency officials ask organizations for "essential" personnel only to report to work, it is good to know who those people are. Each organization will likely have its own criteria for "essential."

Questions to ask:

Who has the most knowledge about the most systems?
Who lives in the closest proximity?
Who works best under pressure?
Who has the most lines of human communication established in the organization?
Who has the most lines of human communication established with other organizations?

Stay in contact with clients and customers

This will vary in relation to your mission and business. This is more than just a courtesy, it is an essential point of contact with other people who may need your help. Even if people are doing alright soon after an event, it is good for them to know that your organization is up and functioning to help them if they need it.

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Life is not linear

This is one of the great truths I have learned in life and I was struck by the profundity of it when I heard a gentleman by the name of Chuck Missler teaching on this topic. Although life unfolds one day at a time, just because yesterday was one way, doesn't mean that today or tomorrow will track along the same lines. You can see this principle at work in any of the disasters we have discussed in this article. This doesn't mean that we have to live with a foreboding sense of the unknown hanging over us, but we do need to live in the reality that life is fragile and complex.

Finally, perception is reality until reality changes your perception

This is an insight I stumbled upon during my years in the IT profession and in life in general. Truly, we tend to see reality through our own perceptions. However, just because we believe something is true doesn't necessarily make it so. Sometimes things happen that show that the true reality may be in conflict with our perceived reality. This is a very important point, especially for those who feel no need to prepare for contingencies. I've been saying this to IT managers for over 10 years, so to me this is not just a crisis mentality. It's all about risk!

You can also use this perspective to guide your quality improvement efforts. There are many organizations who have significant quality problems that are apparent to many people in the organization and to the customers. However, the higher you go in the organizational structure, the more pressure there is to see things better than they really are. I was recently impressed in one sense and dismayed in another when Oklahoma governor Frank Keating participated in a national drill to simulate a bio-terrorism attack and gave the assessment that we (the federal and state governments) aren't prepared yet. Sure, I would have felt better had he assured us that the drill went well and things are ready. However, I appreciate the truth even more.

Conclusion

Whether it is a terrorist action, natural disaster, severe system outage, business downturns or any number of unusual and predictable events, we need to be aware of the risks and know how to respond. This is not just a matter of being able to respond because we ought to be able to respond, but rather to keep the national IT infrastructure and the people we serve secure.

Book Review

★★★★★

The Science of Debugging
By Matt Telles and Yuan Hsieh
Format: Paperback, 512pp.
ISBN: 1576109178
Publisher: Coriolis Group
Pub. Date: April 2001

I came across this book while doing research for our new training course on ***Debugging Applications*** and was very impressed with the treatment of the subject matter of finding and fixing software defects. I discovered in my search for books on debugging that there aren't many books devoted to the topic, especially in the older languages such as COBOL. However, the thing I really liked about this book was that it laid out the process of debugging in a clear manner. As both a developer and a tester, I appreciated the analogy of being a bug detective.

I think the chapter on "A Bug Taxonomy" was worth the price of the book. Software developers will be the best audience for this book, although testers will find it to be a great study in the nature and background of defects. The *Science of Debugging* is not specific to any language or technology, but it does use VB, C++ and Java as the basis for the examples in the book.

This book also serves to draw the distinction between testing (the finding of defects) and debugging (the removal or fixing of defects). You will notice that in this review I call defects as such, although I really can't hold anything against the authors for using the term "bug" as the primary term in the book, since the common term "debugging" is widely used in the industry for defect removal. There is a valid argument for distinguishing between "bugs" and "defects," as "bugs" seem to convey a random occurrence. The reader will need to keep in mind that whether they are called "bugs" or "defects," these problems are serious and not casual. The authors make this point clear as they discuss some of the more notorious histories of software defects.

QA professionals and testers will probably detect the misuse of the term "QA" is in the chapter on testing, when used in "QA testing." The only reason I raise this observation is that a lot of QA people are not testers, but quality managers. QA is the management of quality and the prevention of defects, while QC is the defection of defects, or bugs, for the purpose of correction. QA makes sure QC is being performed correctly. However, I did not feel that the use of the term "QA testing" took away from the techniques discussed in the testing chapters.

I highly recommend this book for all software developers, no matter which languages or technologies they deal with. Testers and QA professionals will also find this a very helpful book.

Scoring

Readability - 5
Breadth of coverage – 5
Depth of discussion – 5
Accuracy – 4.5 (Just on minor points of terminology.)
Credibility – 5 (Each author has a highly qualified background)
Organization - 5
Overall Score – 5

You can read a sample chapter (Chapter 2 – Case Studies of Famous and Not so Famous Bugs) at http://www.coriolis.com/samples/1576109178sc2.htm

Chapter Topics

1 – Introduction to Debugging
2 – Case Studies of Famous (and Not So Famous) Bugs
3 – What are Bugs?
4 – The Life Cycle of a Bug
5 – A Bug Taxonomy
6 – Detective Work
7 – Debugging Tools and When to Use Them
8 – The General Process of Debugging
9 – Debugging Techniques
10 – Debugging Different Application Types
11 – Post Debugging
12 – Prebugging
13 – Testing
14 – Maintenance
15 – Debugging as a Profession

Frequently Asked Questions
by Randy Rice, CQA, CSTE

Q: *I found your glossary very helpful to me. Thanks. I want to know the definition of the terms "test bed" and "test environment" and know how are they different from each other. I cannot found them in the books I have. My workmates are using them but they cannot distinguish them clearly either.*

A: A test bed is simply a collection of test data that is used for repeated testing, such as regression testing. Back in the olden days, these were also called "test decks" because they were contained on punched cards.

A test environment is a place where testing is performed and consists of hardware, software, test data (test beds), networks, and procedures. Software can include many things, such as the operating systems, DBMS, application software, component libraries and test tools.

Q: *Can you please let me know what the differences are between a bug and a defect? I would like to have some examples.*

A: The original term "bug" came to be many years ago when a moth was found lodged between relay contacts in one of the earliest computers. As legend has it, the late Grace Hopper, the creator of the COBOL language, was the one who finally crawled into the computer and found the bug. She removed it and taped the bug in the computer log book and wrote beside it, "Today we found a bug in the computer." The term "bug" stuck - literally and figuratively. In that case, the introduction of the bug was accidental and unpredictable.

Today, people still use the term "bug" to mean any computer problem - hardware and software. However, these problems are actually defects as they are the result of incorrect implementations of software and hardware design requirements. In other words, today's defects are more due to neglect or assumption than accident.

Also, to know if something is a defect, you need to know the producer's specifications AND the customer/user expectation. Since many people don't really do a good job at defining either one of these things, people just tent to lump everything together as "bugs."

For the cultural issues, "bugs" sound less threatening and negative than "defects." Therefore, developers might be less offended to hear that they have a "bug" rather than a "defect" in their work. I think this is the main reason why people use the term "bug."

My view is that if you use the term "bug" versus "defect", few people will draw the distinction. However, personally, I use the term "defect" because defects are serious business to everyone affected by the project. "Bug" is a casual term that can often (not always) lead to a casual attitude toward software quality. I'm sure you can supply your examples as a user of various products. As for the cultural implications, people need to be educated that defects are not negative if caught in time. People are human - they will make mistakes. The question is, "what will we do with the defect information we have?" Will we learn from it, or place blame? Management needs to build a culture of prevention and improvement, not fear and blame.

Finally, let me point you to an article by Watts Humphrey of SEI that hits this point head-on. You can read it at:

http://interactive.sei.cmu.edu/news@sei/columns/watts_new/1999/March/watts-mar99.htm

Q: I have taken a job with a small, relatively new company. We are in the process of developing an application. I am not a computer person nor have I ever worked for a computer company. They hired me to sell our services. Part of my learning process is to write the implementation plan. The user acceptance testing is in a couple of weeks. But I have to have a draft implementation plan ready soon. Do you have or know where I might get my hands on an example of one? I have never seen one nor done one. Thanks for any help you might be able to offer.

A: Check out this link. By following the hyperlinks you can see the details. This might be something close to what you are looking for.

http://www.state.mo.us/mo/samii/projinfo/implement/hrplan/

Links…

A comparison of the most common and popular automated tool sets by Ray Robinson. A great resource if you are involved in a tool search.

http://www.qadownloads.com/ftp/misc/papers/toolcomparison.doc

Macro Scheduler 6.2 - cheapware

http://www.mjtnet.com/index.mv?main.html

XSLT Test Tool - Free

http://www.netcrucible.com/xslt/xslt-tool.htm

ExamDiff Comparison Tool - Free

http://www.prestosoft.com/examdiff/examdiff.htm

Reviews - Walkthroughs and Inspections

by Carl Chandler

Reviews are simply a verification of interim project deliverables such as:

- Requirements
- Design Documents
- Models
- Test Plans
- Use Cases

Anything produced on a project should be reviewed for; correctness, usability, consistency, and other quality factors. Types of review activities include:

- Walkthrough – informal, 2-3 people
- Inspection – formal and planned, 3-7 people
- Check Points – walkthroughs and inspections at predetermined times in a project. For example, a good place for a checkpoint would be at the completion of each deliverable in the development process.

What is a Walkthrough?

- An informal verification of a deliverable
- Little preplanning
- Small number of participants (2-3)
- Normally short in duration
- Informal follow-up

Keys to the Success of a Walkthrough:

- Keep it short and simple
- Take action on recommendations
- Show appreciation to participants

What is an Inspection?

- Formal verification of a deliverable
- Well planned in advance
- 3-7 participants with assigned roles
- 2 hours in duration
- Formal follow-up

Keys to the Success of an Inspection:

- Management support is critical
- Follow the process
- Train the participants
- Allow time in the project for inspections
- Evaluate the inspection results

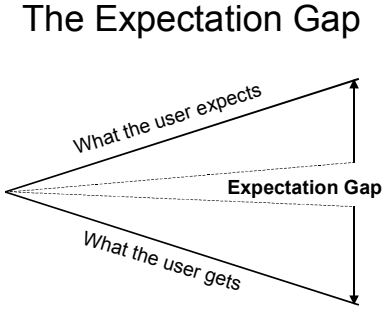
What are Checkpoints?

Project/Deliverable assessments at predefined project checkpoints such as:

- Requirements
- Design
- Construction
- Prototyping
- Testing
- Implementation

The process is conducted in two phases – the planning phase and the review phase. The planning phase is performed only once, while the review process occurs in cycles throughout the process at critical checkpoints.

The importance of reviews is to minimize defects and is done by looking at deliverables early and often. Verification of these deliverables can be effective in producing a quality product. It is also important in managing the expectation gap:



Some critical success factors in the review process are:

- Management buy-in
- A culture of trust
- A non-blaming culture
- An effective process

With all of the critical success facts in place, a review can be an effective tool.

Rice Consulting Services' Consulting Offerings:

Testing Assessments

Rice Consulting Services' testing assessment is a quick and effective way for an organization to determine where they are in terms of software testing maturity. The assessment looks at three areas that are critical to testing:

• **Test organization** - Who performs testing, what levels of experience are present, and when testing is performed in the development/maintenance life cycle.

• **Test process maturity** - How well-defined, well-deployed, and repeatable the test process is, and whether it incorporates good testing management, practices, tools, and techniques.

• **Readiness** - An assessment of the organization's readiness to improve the testing process. This involves an assessment of the staff's testing awareness, testing skills, and motivation to change current practices. The deliverable is a report detailing the assessment's findings, a recommended quality improvement strategy, and a plan for addressing the improvement needs identified. If the assessment uncovers the need for in-house skills training and consulting, we will include proposed training and consulting plans in the report. The report is typically about 15 pages in length.

Rice Consulting Services' Course Offerings:

If you would like to learn more about the information covered in Randy and Carl's articles or the web courses to be held in Oklahoma City in January 2002 we at Rice Consulting Services, Inc. offer excellent courses to enhance your company's software quality process.

Becoming an Effective Test Team Leader
2 days

This two-day session is designed for test leaders and test managers, people who expect to be in a test leadership role, or people who lead other test managers and test leaders. The main objective of this session is to teach you how to be the very best test manager and leader. This course also answers the question, "What does it mean to be the best?" There are many people functioning as test managers, but how many are really leading the team? In leading a test team, you must not only understand the basics of software testing, but you must also understand your own organizational culture. Once you understand your organizational culture, you might find that testers have a less than positive image. This session will discuss how to transform the image of testers from one of police to one of team members.

You will learn the terminology, process, and challenges of testing in the real world. Team-based exercises reinforce the concepts of facilitating team activities and performing leadership activities.

As a result of attending this seminar, you should have a good working knowledge of software testing and what it takes to design and conduct an effective test of software, regardless of the technology.

Becoming an Effective Test Team Leader will help you become more comfortable and confident in leading the testing effort in your organization. You will emerge from this two-day session knowing how to develop test cases and test plans. You will also leave with a knowledge of how tools can help you perform testing.

Sometimes people feel intimidated by the technical aspects of software testing and lack the confidence they need to be credible test leaders in their organization. Learn the issues and processes for effectively testing software by attending this hands-on course.

Walkthroughs, Reviews, and Inspections
1 day

This is a practical team-based seminar to show how to perform effective walkthroughs and reviews of project deliverables. Your instructor will be Randy Rice, a recognized authority in the QA and testing field. You will learn the terminology, the unique issues, and the process for performing walkthroughs and inspections. As a result of attending this seminar, you should have a good working knowledge of what it takes to perform reviews of project deliverables

This course will help you become more comfortable and confident in performing reviews. You will emerge from

this one-day session knowing how to plan and conduct a walkthrough or review.

Walkthroughs and reviews are powerful techniques that allow people to find defects early in a project before the defects become more difficult and expensive to fix later in the project.

Each module is divided into two parts: the process (walkthroughs, reviews, and inspections) and team-based exercises to review documents using the processes taught in the module.

As a result of attending this seminar, you should have a good working knowledge of three types of reviews: walkthroughs, project reviews, and technical inspections, and what it takes to design and conduct an effective review of software deliverables, regardless of the technology.

A Web-Based Testing Overview
1 day

This is a practical computer-based interactive seminar designed to provide a quick start in testing web-based applications. You will learn the terminology, the unique issues, and the process for testing web-based applications. As a result of attending this seminar, you should be able to understand web-based testing and have an increased comfort level in testing web-based applications.

A Web-Based Testing Overview will help you become more comfortable and confident in dealing with web-based testing issues. You will emerge from this one-day session knowing how to develop a web-based test strategy and plan. You will also have a working knowledge of how to perform a test of a web-based application.

Internet technology is a revolutionary resource that has the power to transform organizations, giving them a competitive advantage in today's global marketplace. E-commerce can help your company become more competitive and ultimately, more profitable.

E-Commerce and Security Testing
1 day

This is a practical hands-on seminar to explore the deeper issues of testing e-commerce applications. A major aspect of testing e-commerce is security, so significant time is devoted to security testing. You will learn the terminology, the unique issues, and the process for testing e-commerce applications. As a result of attending this seminar, you should be able to understand e-commerce and security testing and have a working knowledge of designing and performing test cases for e-commerce.

E-commerce and Security Testing will help you become more comfortable and confident in dealing with e-commerce testing issues. You will emerge from this one-day session knowing how to develop a e-commerce application test strategy and plan. You will also have a working knowledge of how to perform a test of an e-commerce application.

Internet technology is a revolutionary resource that has the power to transform organizations, giving them a competitive advantage in today's global marketplace. E-commerce can help your company become more competitive and ultimately, more profitable. Learn the issues and processes for effectively testing this dynamic and profitable technology by attending this hands-on course.

Testing Web Technology
1 day

This is a practical hands-on seminar to explore the deeper issues of testing web-based applications. This course deals with many of the structural issues in terms of web-oriented languages and architecture. You will learn the terminology, the unique issues, and the process for testing web-based applications at a structural level. As a result of attending this seminar, you should have a good working knowledge of what it takes to test the inner workings of web-based applications.

Testing Web Technology will help you become more comfortable and confident in structurally testing web-based applications. You will emerge from this one-day session knowing how to develop test cases and test plans for languages such as Java and XML. You will also have a working knowledge of how to perform a test of web architecture, such as databases and servers.

Internet technology is a revolutionary resource that has the power to transform organizations, giving them a competitive advantage in today's global marketplace. E-commerce can help your company become more competitive and ultimately, more profitable. Learn the issues and processes for effectively testing the nuts and bolts of this dynamic and profitable technology by attending this hands-on course.

For more information on these courses or one of our many other offerings please contact Carl Chandler at (405) 414-6759

Rice Consulting Services, Inc.
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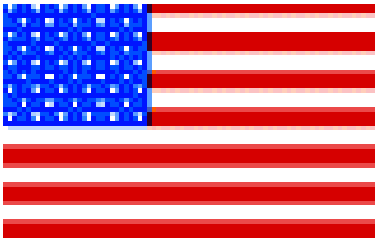
Oklahoma City – Web Testing Courses!
January 15-17, 2002



God bless America.

Notable Quotes…

"It's kind of fun to do the impossible."
-Walt Disney

"If you want to make an apple pie from scratch, you must first create the universe."
-Carl Sagan

"I have not failed. I've just found 10,000 ways that don't work."
-Thomas Alva Edison

"Leadership is the art of getting someone else to do something you want done because he wants to do it."
-Dwight D Eisenhower

"When your work speaks for itself, don't interrupt."
-Henry J. Kaiser

"Give instruction to a wise man and he will be yet wiser: teach a just man, and he will increase in learning."
-Holy Bible, Proverbs

On the Lighter Side…

My Way vs. Martha's Way
Taken from an e-mail I received. There may be some thoughts on process optimization in here!

Martha's way #1: Stuff a miniature marshmallow in the bottom of a sugar cone to prevent ice cream drips.
My way: Just suck the ice cream out of the bottom of the cone, for Pete's sake, you are probably lying on the couch with your feet up eating it anyway.
****
Martha's way #2: Use a meat baster to "squeeze" your pancake batter onto the hot griddle and you'll get perfectly shaped pancakes every time.
My way: Buy the precooked kind you nuke in the microwave for 30 seconds. The hard part is getting them out of the plastic bag.
****
Martha's way #3: To keep potatoes from budding, place an apple in the bag with the potatoes.
My way: Buy Hungry Jack mashed potato mix and keep it in the pantry for up to a year.
****
Martha's way #4: To prevent egg shells from cracking, add a pinch of salt to the water before hard boiling.
My way: Who cares if they crack, aren't you going to take the shells off anyway?
****
Martha's way #5: To get the most juice out of fresh lemons, bring them to room temperature and roll them under your palm against the kitchen counter before squeezing.
My way: Sleep with the lemons in between the mattress and box springs.
****
Martha's way #6: To easily remove burnt-on food from your skillet, simply add a drop or two of dish soap and enough water to cover bottom of pan, and bring to a boil on stovetop.
My way: Eat at Chili's every night and avoid cooking.
****
Martha's way #7: When a cake recipe calls for flouring the baking pan, use a bit of the dry cake mix instead and there won't be any white mess on the outside of the cake.
My way: Go to the bakery. They'll even decorate it for you.
****
Martha's way #8: Wrap celery in aluminum foil when putting in the refrigerator and it will keep for weeks.
My way: Celery? Never heard of the stuff.
****
Martha's way #9: Brush some beaten egg white over pie crust before baking to yield a beautiful glossy finish.
My way: The Mrs. Smith frozen pie directions do not include brushing egg whites over the crust and so I don't do it.
****
Martha's way #10: Place a slice of apple in hardened brown sugar to soften it.
My Way: Brown sugar is supposed to be "soft"?

November 2001 Issue:

- **The Threat of Cyber-terrorism**
  by Randy Rice, CQA, CSTE
- **Internal Certification Programs**
  by Carl Chandler

Oklahoma City!

January 15-17, 2002

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