



Reliability

News

TOP EVENTS:  [Singapore Seminar](#) -  [ASTR](#)  [print version](#)
Summer-Fall, 2007

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Theme this newsletter:

DATA COLLECTION TOOLS

COURSES and SEMINARS - CQE Certification

EVENTS - ASQ Statistics Society, Singapore Reliability Seminar, Applied Reliability Symposium (ARS) Asia, Accelerated Stress Testing and Reliability (ASTR) Workshop, Reliability and Maintainability Symposium (RAMS)

SPECIAL OFFERS - Free Admission to any upcoming Ops a La Carte event

NEWS - Singapore Seminar, 1000 Proposals, HALT and HASS Labs is Booming

FEATURED SERVICE - Test Data Collection and Management Tools

PROBLEM SOLVER - Reliability and Redundancy

ADVERTISEMENTS - SigmaQuest, LinkSV, and DfR Solutions

JOB OPENINGS - Abbreviated listings are shown. For full listing, click on Job Openings tab.

COURSES

- ▶ **Certified Quality Engineer (CQE) Preparation Course** (pdf) - **Oct 9-Nov 27, 2007**
To register, email us at CQECourse@opsalacarte.com
- ▶ For details see the [Ops A La Carte Schedule](#)

SEMINARS

- ▶ All our seminars, including those being offered during the symposium as well as those that are not, are offered as **in-house tailored** seminars. To view a list of all our seminars, go to [Ops A La Carte Course List](#)
- ▶ Inquire if interested at seminars@opsalacarte.com
- ▶ For details see the [Ops A La Carte Schedule](#)

EVENTS

- ▶ **Ops A La Carte Presenting at ASQ Statistics Society - September 12, 2007, 6-8pm**

Ops A La Carte is presenting at our local American Society of Quality (ASQ) Statistics Society. The topic of the presentation is Early Reliability Testing. See the [Summer 2007 Newsletter](#) for an abstract on this talk. For more details on this event, including location, please email us at events@opsalacarte.com.

- ▶ **Ops A La Carte Giving Webinar for QualMark - September 21, 2007, 8-9am Pacific Time (PST)**

Ops A La Carte is presenting a one hour webinar for QualMark. The topic of the presentation is Early Reliability Testing. See the [Summer 2007 Newsletter](#) for an abstract on this talk. Please email us at events@opsalacarte.com if you would like the link to this webinar.

- ▶ **Ops A La Carte Offers a 1/2 day Seminar in Singapore - October 18, 2007, 2-5pm**

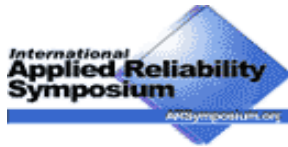
Ops A La Carte is partnering with SGS Singapore and RelPRO Pte Ltd. of Singapore to offer a 1/2 day seminar on Reliability. This seminar is being coordinated through the Singapore Manufacturers' Federation

(www.smafederation.org.sg). *Please tell all of your colleagues in Singapore about this event.* If you cannot find information about this on the SMA website, please email us at events@opsalacarte.com if you would like the link to this seminar or if you want a copy of the abstract for the seminar.



▶ **Applied Reliability Symposium (ARS) Asia in Singapore - October 25-26, 2007**

We are sponsoring this event by inviting 10 of our partner companies and customers as part of our expansion into the region. For more details, please go to <http://www.arsymposium.com/asia/index.htm>. Email us at events@opsalacarte.com for more information on this event.



▶ **Accelerated Stress Test Workshop - October 31, November 1-2, 2007, Washington DC**

Ops A La Carte is on the management committee for this year's AST Workshop being held at our nation's capital in Washington DC. We shall be presenting 3 presentations at this event:

- 1) *"Early Reliability Testing: Increasing the Effectiveness of a Reliability Program by Moving Reliability Testing Upstream"*, by Mike Silverman
- 2) *"Enhancing Accelerated Life Tests with Prognostics"*, by Arthur Zingher
- 3) *"HASS Profile Fine Tuning Using Field Data"*, by Mike Silverman

We shall also be exhibiting at this symposium so please come by our booth. For more details, please go to ASTR. Email us at events@opsalacarte.com for more information on this event (including a copy of the paper).



▶ **Reliability and Maintainability Symposium (RAMS) - January 28-31, 2008, Las Vegas**

Ops A La Carte is on the management committee for this year's symposium being held in Las Vegas. We shall be presenting 1 Tutorial and 3 Papers at this event.

Our Tutorial is entitled "Software Design for Reliability" by Mike Silverman and George de la Fuente

Our three papers are as follows:

- 1) *"How to Develop a Qualification Test Plan for RoHS Products"*, by Mike Silverman and Fred Schenkelberg
- 2) *"Competitive Analysis"*, by Mike Silverman and Doug Farel
- 3) *"Design for Warranty Cost Reduction"*, by Bob Mueller

We shall also be exhibiting at this symposium so please come by our booth. For more details, please go to [RAMS](#). Email us at events@opsalacarte.com for more information on this event (including a copy of the paper).



SPECIAL OFFERS

► **Free Admission** to our upcoming [Certified Quality Engineer \(CQE\) Preparation Course](#) OR any of our upcoming events we are sponsoring, including the [Applied Reliability Symposium Asia](#) in October, our [Singapore Reliability Seminar](#) in October, the [Accelerated Stress Test and Reliability \(ASTR\) Workshop](#) in November, or the [Reliability and Maintainability Symposium \(RAMS\)](#) in January *to the first individual that turns us onto a new consultant*. We are growing rapidly and are looking for the best technical operations' consultants out there. If you know of anyone, please pass their name to us at events@opsalacarte.com. **This is up to a \$1200 value.**

NEWS



- Sep 10, 2007

New Partner's Page Added to Website. We just updated our new partner's page to our website with many new partners and more information listed on existing partners.

Our customers come first and we will do everything we can to provide a full service solution to them. And rather than trying to become experts in every field, we recognize where there are already industry experts and we partner with them when the need arises.

Next to each link, we have listed our relationship with the company and how we partner with them. Go to [Partners](#) for more info.

- Sep 1, 2007

Singapore Seminar Set for October 18th. Ops A La Carte is partnering with SGS Singapore and RelPRO Consulting of Singapore to offer a 1/2 day seminar on Reliability. This seminar is being coordinated through the [Singapore Manufacturers' Federation](#). In addition to this, we shall be participating in the [Applied Reliability Symposium Asia](#) on October 25-26. Please email at news@opsalacarte.com for more information.

- Aug 23, 2007

In July, Ops A La Carte reached a milestone: Its 1000th client proposal, a goal reached in just over three years. This is a remarkable achievement for such a young company, and Ops A La Carte wishes to thank their clients for bringing us such success.

- Aug 15, 2007

HALT and HASS Labs Booming through the Summer. The normally slow summer months certainly hasn't hit our lab business this year. Our test lab HALT and HASS Labs kept a steady flow of business for most of 2007 and continues to remain busy through the summer. "This is a good sign that the economy in Silicon Valley is really picking up," says Managing Partner Mike Silverman. "Most of our work at the lab comes from development groups, and if there are a lot of products being developed, that sends a real positive note to the health of the economy." Ops A La Carte's other divisions - the consulting division, the contractor division, and the educational division, also showed health growth through the summer and throughout 2007.

- July 1, 2007

Applied Reliability Symposium San Diego was a big success. "We go to these events to meet new consultants as much as we do to meet customers," says Managing Partner Mike Silverman. "And using this as a measurement criteria, this was one of our best events ever. We met half a dozen really good consulting candidates and over 20 potential customers." Ops A La Carte has several other big events coming up throughout the rest of 2007. See the Events section of this newsletter for further details.

▶ **Presentations for some of the above events** are available for download on our [Resources Page](#).

▶ **For more information** on news, please visit our [News Page](#) or call (408) 472-3889.

FEATURED SERVICE



Test Data Collection and Management Tool: The Seven Common Pitfalls to Avoid

When it comes to the Test Data Collection and Management (TDCM) tools, what you see is not always what you get. While TDCM helps you categorize your test data files and index them, it may not be the right solution you desired. So what are the most common pitfalls as companies rush to acquire TDCM tools? What are the risks and how do they manifest themselves in a company's bottom line? This article will try to answer these critical questions, and provide a roadmap that companies can use in selecting the right solution for such important issue.

We have identified the seven most common pitfalls that can strongly impact your success or failure:

1. Some Assembly Required - TDCM requires software, hardware and IT support. First step is to purchase the TDCM software. Then you have to provide your own database (i.e., Oracle, MS Access, and MySQL) to store your data. Next you need analytical tools such as BI and SPC packages to generate charts and reports. Last but not least, you need to purchase hardware (PC or server) to run all this disparate software tools. You also need IT support for integration, database management, software patches/upgrades as well as hardware issues. Make sure you purchase a product not a project.

2. Scalability - One of the major drawbacks of TDCM is its scalability. Scalability can be looked at from 3 different angles; 1-Number of users: Most TDCMs are designed for an individual and does not necessarily work for larger organization. Is it truly a collaboration tool? Can it be accessed via web from anywhere by anyone at anytime with the right privileges? 2- Industry strength database: Test data will become the largest database in your organization. Can your TDCM database handle terabytes of data? Can it store (write) data while it is running many queries on the fly (read)? 3-Entire Ecosystem: Managing your test data is a good first step. Your system needs to also be able to provide access to your suppliers (management at the source), global factories/NPI, rework/repair as well as your RMA/Warranty data. Remember that "The Sum (AKA Sigma) is Larger Than its Parts."

3. Web-based - We all know that web has changed the way we communicate and do business. Web allows us to access the data from anywhere, anytime without any particular hardware or software. Most TDCM solutions were not written with web in mind. They are point tools which publish/paint your reports to a website. This is not sufficient as the process is batch oriented. Make sure the solution allows for real-time, interactive analysis and dashboarding as well as scheduling alarms/alerts. Such a system should allow you to automatically share reports/charts among your colleagues. For example a manufacturing team maybe interested to see the results of 1st pass yield and test station utilization while the test engineering team is analyzing parametric data and looking at SPC results simultaneously.



4. Product vs. Consulting-ware - Beware of consulting-ware' when selecting a TDCM tool. Consulting-ware requires customization and installation that you need on-site consultants to install it, at cost. Make sure you are buying a product not a project. Consulting-ware may be used as "Bait & Switch" tactic to get you to open the door to your organization. Given software is not the core business here, the goal of the vendor maybe to sell you test equipment, software and park a consultant on-site who can then charges you time-and-material. This is analogous to the financial advisor who is incentivized for recommending certain financial products. Watch out for "Bait & Switch!"

5. One Neck to Choke - Make sure you know who to call when you have a problem with your TDCM tool. Will you call the TDCM software provider or the database and/or SPC vendor? How about hardware issues? The benefit of one-stop shop is that there is one vendor to call and one neck to choke.

6. Total Cost of Ownership - TDCM looks cheap at first but Buyers beware! Make sure you understand all the hidden costs. How is this solution priced and how will it scale over time. Is the TDCM vendor charging you per number of users (concurrent or named), number of CPUs, number of test stations, database size, etc.? Make sure to add the cost of TDCM software, database and analytical package to the PC/server costs. Also

do not forget about your ongoing IT support, patches and annual maintenance.

7. Point Tool Software is Dead - The concept that you buy software, that you own and managing it has really come to the end of its life. It is being replaced by something that looks more like what we see today with major websites, like Yahoo and Google. Companies are able to run their businesses using a service delivered over the Internet (also known as on-demand or Software-as-a-Service) that looks like a mainstream website. Such systems have been designed from the ground up to be quick and easy, secure and fast to use, both for everyday users and for managers. By delivering the system as a hosted application over the web the burden of IT support is removed from the customer. By using one common database rather than multiple replicated databases, the distribution of applications and data to multiple offices and remote users needs no additional software. No software, no hardware and no IT.

Conclusion: TDCM is so "Nineties" - You can think of TDCM as an OLAP (On-Line Analytical Processing) solution. The term OLAP was invented in 1993 and is a category of applications and technologies for collecting, managing, processing and presenting multidimensional data for analysis and management purposes. If you need a global solution which can help you get to market fast with a better quality product than a low-performance database, charting and reporting is not sufficient. You need an enterprise solution which is scalable, accessible anytime/anywhere, and can be predictive of future trends by utilizing industry best practices as well as advanced algorithms to correlate, forecast and optimize. You need a Product Performance Intelligence solution.

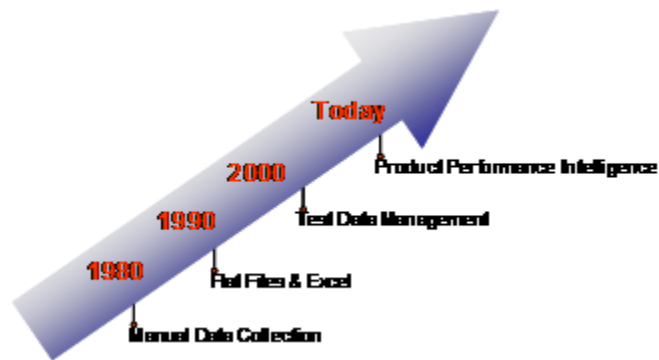


Fig1. Evolution of Product Performance Intelligence

Product Performance Intelligence enables companies to access, analyze, and share product performance information during the entire lifecycle; test results and parametric data generated during testing in the lab, through manufacturing, rework and in field repair/RMA centers - in order to understand and improve how products are performing to specification throughout the product lifecycle. It is the next step in the evolution of TDCM. Product Performance Intelligence solutions enable organizations to make business decisions related to product performance.

This article was written by SigmaQuest for Ops A La Carte. SigmaQuest offers a FREE half-day educational web-based workshop on "From Test Data to Actionable Information," which provides companies with the solutions and methodologies that they need to design, test, manufacture and service better products. You can attend these workshops using any computer with a web browser. To signup email info@sigmaquest.com.

Mention that you found SigmaQuest through this newsletter and receive 5% off any SigmaQuest purchase.

PROBLEM SOLVER

REDUNDANT RELIABILITY

An airline maintains a fleet of 4-engine aircraft. Its maintenance records show that on the average an engine fails 3 times in 10,000 operating hours with normal preventive maintenance. What is the Poisson distributed probability that 2 or more engines on an aircraft will fail during a typical flying period of 8 hours?

Send Responses to:

You can email us at events@opsalacarte.com. The first individual that emails us a correct solution shall receive **Free Admission** to our upcoming [Certified Quality Engineer \(CQE\) Preparation Course](#) OR to any upcoming event we are sponsoring. **This is up to an \$1195 value.**

Solution to Last Quarter's Problem of the Month on Prognostics:

PROBLEM:

Name three uses for prognostics in reliability testing and explain the methods on how to use to detect the onset of failure?

Background

Prognostics is the ability to detect a problem BEFORE a failure occurs. The "oil low" light on your car is a good example of prognostics. If we can predict failures before they happen and then schedule preventive maintenance to replace the item before an ultimate failure occurs, we can greatly improve the reliability of a product. Ops A La Carte is giving a presentation on "Enhancing Accelerated Life Tests with Prognostics" at the 2007 Accelerated Stress Testing and Reliability Workshop in October, 2007 in Washington DC. Call us for more information or look at the events section of this newsletter.

SOLUTION:

Here we were looking for any good method of prognostics and what the leading indicators are. In our "Enhancing Accelerated Life Tests with Prognostics" presentation, we offer three such cases:

- 1) In a ball bearing, we can monitor the vibration measurement with a piezoelectric sensor and spectrum analyzer, and an increase in vibration is an indicator of impending failure. Once this phenomenon begins, we can then predict how long before impending failure will occur.
- 2) In a synchronous timing belt with teeth, the internal strength fibers can fatigue and fail. For this failure mechanism, we can monitor longitudinal elasticity, deformation and damping. Also, internal cracking of the teeth is another mode for fatigue and failure. For this, there are good analytic models. Also monitoring of tooth vibration may become a useful prognostication monitor.
- 3) In a blower assembly, we can monitor the noise output with a sound meter. An increase in the decibel level is a good indication of impending failure.

ADVERTISEMENTS

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The dashboard features six charts with the following callout descriptions:

- Failure Rate:** Inspect your key supplier measurements at the source.
- ECO:** Measure the impact of Engineering Change Order (ECO) on your product quality.
- Product - Pie:** Access to real-time production & quality across your global organization.
- RMA:** Identify key defective products by customer, failure code, supplier, & return status.
- Returns Rate:** Automatically measure your key product returns & customer satisfaction.
- Pass/Fail:** Monitor your global test station health & utilization in real-time.



Link Silicon of Valley, LLC (LinkSV) is an online networking resource for researching, identifying and contacting the companies and people within the 6,000 plus active & inactive companies in the greater Bay Area. Our company records identify the senior team, board members, financing, key partners and customers. There are many features which allow you to view the information from different angles and "connect all the dots".

LinkSV helps you tap into previously scarce and extraordinarily hard-to-find information on early stage companies and the key people associated with them. This will improve your effectiveness without the hassle and time of trying to do it all on your own. LinkSV is ideally suited to help you quickly identify and leverage your own connections in career search, in identifying new business opportunities, new investors and Board members.



DfR Solutions has world-renowned expertise in applying the science of Reliability Physics to electrical and electronics technologies, and is a leading provider of quality, reliability, and durability (QRD) research and consulting for the electronics industry. The company's integrated use of Physics of Failure (PoF) and Best Practices provides crucial insights and solutions early in product design and development and throughout the product life cycle. DfR Solutions specializes in providing knowledge- and science-based solutions to maximize and accelerate the product integrity assurance activities of their clients in every marketplace for electronic technologies (consumer, industrial, automotive, medical, military, telecom, oil drilling, and throughout the electronic component and material supply chain). for more information visit www.dfrsolutions.com.

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JOB OPENINGS



Sr. Reliability Engineer



Senior Reliability Engineer



Senior Reliability Consultant

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