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President's Message

Dear Reliability Society Colleagues:

In this message, I wish to update you on the "State of the Society" since my last message in January.

As I stated in the last message, our Society is doing everything possible to reduce costs and generate additional revenue. This situation is not unique to us, but is being required of all societies by the IEEE Institute. So far, I am pleased to announce that in 2004, we expect, given the current budget projections that we have turned into the Institute, to end 2004 with approximately \$100K in surplus. That is a huge change from the loss of approximately \$250K that we suffered in 2002. Also, we are working with Matt Loeb at IEEE Headquarters on formulating a new initiative that offers better access to electronic information related to the fields of reliability and security. If funded, this initiative will allow the Reliability Society to offer technical information to members and non-members, even if IEEE does not own the copyright to that information. This is a new business model for IEEE, and our Society will be the first Society to try this "virtual shopping mall" model out.

The benefit of attempting such a project is three-fold: (1) All costs incurred to build this virtual mall are covered by the Institute and not our Society, (2) It allows our Society to broaden its scope from being viewed as a narrowly focused organization on reliability to being viewed as a society that also has offerings in the security arena, and (3) It offers our Society the opportunity to create a new product line without having to go through the usual process of getting new publications approved or creating new conferences. In short, while there is no guarantee that this model will boost our revenue, I am pleased that our Society will be the first one to offer this specific product line in this form of delivery.

Other news that I'd like share with you is that our next ADCOM meeting will be in late July in Manchester, New Hampshire. We will hold an EXCOM meeting on Friday the 24th, our ADCOM meeting will be on Saturday the 25th, and our Chapters Congress will be on Sunday the 26th. I have personally invited two guests to the ADCOM meeting, Matt Loeb, from IEEE Headquarters, and Jack Burns. Jack Burns attended our ADCOM meeting (approximately a year ago) to discuss the formation of a new IEEE society devoted to product safety. Last week in Nashville at the TAB caucus, the Product Safety Society was officially voted into existence, and Jack will be attending to request that one member of our ADCOM sit on the interim Board of Directors of this newly formed IEEE society. While some in our Society may feel that this new society is a competitor of the Reliability Society, I believe that we can synergistically work together to benefit both parties via joint offerings, conferences, and joint membership discounts.



continued on page 3

Editor:
Dave Franklin
Associate Editor:
John Healy
Business Manager:
Bob Gauger

President's Message Continued

In closing, I'd like to leave you with a little information concerning the demographics of our Society. This is information that IEEE is tracking across all societies more vigorously as IEEE attempts to get a better feel as to who joins IEEE and its societies and why they do so. As you may know, IEEE membership has been on a slow decline, and therefore the Institute is attempting to attract new members, create new product lines, new pricing models, etc. And to do so, accu-

rate demographic information is very important to achieve those goals.

According to the Institute (as of March 27, 2003), we have 2,196 members of all grades. (That number is a little low since some folks are slow to get their annual renewals turned in.) The average age of a member of our Society is 49.8 years of age. 62.1% of all members are in the United States, and 11.4% of our members are life members and 8.8% are senior members. Student members are only 4.8%, which clearly provides an opportunity for growth.

Most of our members stay with our Society for a long time: 16.9 years. 28% of our members belong only to the Reliability Society, 29.1% belong to two societies, and 16.1% belong to 3 societies. And 9% of our members belong to more than 6 societies. (I have no idea when they find the time to read all of that mail they must receive.) We are 92.3% male, 6.6% female, and 1.1% unidentified.

Have a terrific summer '03!

Jeffrey Voas
President

Chapter Activities

Chapters News

Baltimore

Walter E Willing

Binghamton

Jefferson D Bronfeld

Boston

The Boston Chapter held three meetings since our last report in January's Newsletter.

In February, Professor Nasser Fard of Northeastern University presented his work in the area of "Reliability Evaluation of Multistage Interconnection Networks (MINs)." MINs are one class of interconnection networks that can support large-scale parallelism by connecting input devices to output devices through a number of switch stages, where each switch is a crossbar network. The number of stages and the connection patterns between stages determine the routing capabilities of the networks. Professor Fard reviewed the different types of MINs, discussed several approaches for evaluating their reliability, and proposed ways of making them more reliable.

In March, Victor Avelar of American Power Conversion (APC) gave a talk on "Understanding Reliability and Availability." An overview of the high reliability/availability industry through the eyes of an uninterruptible power supply manufacturer was provided. The basic elements behind reliability and availability, including the analysis methodology employed by APC's Availability

Science Center, were discussed. Victor concluded his presentation by describing practical data center imperatives and design practices.

In April, we held a Spring Lecture Series on "Design for Reliability (DfR) – Confidently." During the first lecture, Dana Crowe of M/A-Com (Tyco Electronics) discussed the bridge between DfR and Six Sigma, focusing on accelerating business goals and improving customer communications. During the second and third lectures, Joe Dzekevich of Raytheon and Gene Bridgers of Sycamore Networks discussed the application of statistical confidence to a wide range of DfR tasks. They used many practical examples to illustrate both good and bad implementations, and demonstrated several software tools.

For more information on Boston Chapter activities, please visit our web site at <http://www.channell.com/users/ieee/home.html>.

Jeff Clark, Avici Systems
Boston Chapter Chair
jaclark@ieee.org

Central New England

See Boston Chapter activities.

Jeffery A Clark

Chicago

Frank D Straka

Cleveland Chapter

The Cleveland Chapter had four meetings in this period.

PAST MEETINGS

For the October meeting, Jeff Haas, Chief of the Research Testing Division and a long-time member of the Supervisors Club, presented a summary of the Engineering and Technical Services Directorate realignment. E&TSD (7000) is the organization that most of the current Supervisors Club members reside in. It is also the organization that a large number of the retired members worked in during their careers. Jeff provided the background of why the Directorate was going through reorganization, presented a comparison of the old organizational structure to the new one, and finished the presentation with a summary of key issues that the Directorate will be dealing with over the next several years.

Our November meeting presentation, "Behind the Scenes of Local Television News," was given by CSU Communication Professor Michael Rand. Surveys indicate more than 80 percent of Americans now rely on local television news as their primary source of news. But, not many of us actually know how decisions are made as to what we see and who are the people who make those choices, unless you attended this meeting. Prof. Rand, who produced newscasts in Cleveland and Kansas City and TV magazine shows in Tampa, Dayton and Richmond, explained who the players are and how decisions are made. What often appears as bias is merely incompetence according to Prof. Rand. He also showed a video produced by CSU students about directing television newscasts. The video was from

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Philadelphia Chapter

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Santa Clara Valley

After being dormant for a few years, the Santa Clara Valley Chapter began having chapter meetings in 2002. Presentations were made on reliability best practices, IEEE 1413 reliability prediction guide, accelerated testing, software reliability, and monitoring IC degradation.

Our 2003 meetings began with panel discussions on conference papers. In January we had a panel discussion of papers from the 28th International Symposium for Testing and Failure Analysis (ISTFA) led by Art Rawers and Don Staab. In February Fred Schenkelberg coordinated a panel discussion of papers from RAMS. At our March meeting, Jon Elerath will make a presentation on disk drive reliability. We have scheduled future meetings on reliability activities throughout the product life cycle, design for testability, soft errors, and life-cycle cost models.

For more information on Santa Clara Valley Chapter activities, please visit our web page at <http://www.ieee.org/scv/rs>.

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Kenneth P La Sala

ADCOM Meeting

IEEE Reliability Society AdCom Agenda Tampa Florida January 25-26, 2003

Attendees

Sam Keene, Jeff Voas, Lon Chase, Marty Shooman, Ted Freeman, Bob Gauger, Bill Tonti, Loretta Arellano, Richard Kowalski, Ken LaSala, Dennis Hoffman, John Healy, Bob Loomis, Dick Doyle, Shuichi Fukuda, Scott Abrams, Christian Hansen, Alan Street, Ann Campbell, Marsha Abramo, Dave Franklin, Joe Fragola, Takehisa Kohda.

Call to Order - D. Hoffman

Introduce new AdCom members and new officers - D. Hoffman, and AdCom Appointment Concurrence - J. Voas. The agenda and the October minutes were approved and reviewed for action items.

October minutes approved with the condition that the pubs submittal was completed (done).

The chief mandate of this meeting was to develop revenue and cost objectives that would allow RS to break even financially by 2004. This goal was achieved through several initiatives, especially those brought forth by Ann Campbell and Bob Loomis. Collectively, these initiatives were:

1. The number of AdCom meetings will be reduced to 3 in 2003 (January, March and July) - <17K savings> An alternative: 2 meetings per year .
2. Eliminate the annual Tech Ops meeting and replace with monthly teleconferences <6K savings>
3. Investigate eliminating the annual Editors meeting <6K savings>
4. Marsha will investigate the return of 50% of TSM revenues and whether

this will continue if RS unbundles their publication

5. Increase dues to \$30/year was approved
6. Unbundled publications. Put newsletter on web page, TREL accessible via IEEE Explore F. Possibly print hard copies for those without Internet access. Christian will investigate.
7. Unbundle RAMS and IRPS proceedings
8. Increase the transactions page count by 16 pages publishing more articles and letting them run longer .
9. Offer a public class in software reliability in September/October in Seattle. Ann M to put together with tech ops review. Jeff will contact Microsoft to support the course. John H will proof read course material.

This budget will be presented to the IEEE Fincom in February and will be formally presented to the IEEE on May 2003.

This Newsletter needs more technical content. All Tech Ops chairs should submit a technical article due March 1. The newsletter should advantageously move to look more like a magazine in its contents. The newsletter could have links to stories and to venter ads and their web pages.

Managing Editor position

Ralph Evans Managing Editor's Contract will be extended one more time for two years ending December 2004. Christian will initiate a search committee, chartered to identify a replacement for Ralph, who has served the Reliability Society in such a distinguished fashion for many years now. Bob Loomis will serve on that committee also. It was suggested to ask Ralph to participate also since he knows the job best. The committee needs to develop selection criteria immediately. The publication of the transactions should move to electronic delivery and take advantage of the latest desktop publishing technology.

Meetings:

Friday March 28 Excom in Dallas, Saturday March 29 Adcom Dallas

Friday July 25 Excom New England, Saturday July 26 AdCom New England, A Chapters Congress will be held in conjunction with the July AdCom meeting Sunday July

AdCom approved RS support of reciprocal advertising space for Reliability Society booth at EOSED (Las Vegas) and ISSRE (Dallas). Marsha will represent RS at the PACE meeting in Seattle March 27-29, 2003. Subject is "building skills for technical principles and managers".

Video Marketing

Sam Keene will explore marketing RS tapes through various vendors and also pursue Anthony Chan's offer to provide RS with a course he teaches in Statistics and Decision Analysis.

Short course direction

1. Could tailgate on conferences
2. Package entire product line (all videos, multiple dates, multiple offerings, multiple locations)

3. 2 to 3 days is best duration for maximizing return over cost

Open Questions

1. Should RS consider a new name (branding change)?
2. Should RS participate with the Computer Society on the new transactions on "Dependability"?
3. The newsletter could have embedded abstracts and active links to full stories if it were delivered on line. Advertisers could also have links to their web pages.
4. We would need paper copies of transactions for libraries and the APP.
5. Should RS start its own conference and own it totally?
6. How do we handle receipts? Credit card purchases?

Savings Summary

Unbundled Transactions and newsletter \$70K, Unbundled RAMS and IRPS 27.5K, 16 Extra pages of Rel Transactions 22K, Eliminate 1 AdCom Meeting per year 17K, Eliminate Editors and Tech Ops meetings 8.5K for a Total of \$145K.

The meeting was adjourned.

IEEE Reliability Society AdCom Agenda March 29, 2003

Approval of TAMPA'03 Minutes (Sam Keene)

President's Report – TAB Update (Jeff Voas)

- Proposed Product Safety Society
- Outcome of fincom presentation
- \$22.5K vs. \$11 page count discussion for '04
- Board of Governors decision on long investments (Bears vs. Bulls)
- Subsequent discussions with Communications Society, Computer Society (Trans. On Dependability with Carl Chang and Willis King), Division XIII Director, Jim Isackk, etc.)
- Joint Society Grand Challenge for DARPA
- Competitive bids for conferences
- DoD 30-40K seminar on software reliability
- Problem with the current Fellow Nomination Process?

Special HQ Guest

- How to get HQ to help us start new initiatives (Matt Loeb)

Treasurer's Report (Dick Kowalski)

- Finals from 2002
- Current spreadsheet projections for '03 post TAMPA'03
- Initial Budgeting for '04

VP Meetings Report

- End of year EXCOM meeting discussion? Need one?
- Conference Closeouts (Ann Miller)
- Overall success of RAMS'03 (open)
- Action Item Updates (Ann Miller)
- ITS Council (Ted Freeman)
- IRPS'03 Preview (Ann Campbell or Bill Tonti)
- Need for a letter from VP Pubs to financially sponsored conferences requesting proof of surplus?

VP TechOps Report

- Action Item Updates (Bill Tonti)
- ATR (Bill Tonti or Christian Hansen)

VP Publications Report

- Updates TBD (Christian Hansen)
- Action Item Updates (Christian Hansen)
- Ralph Evans (Christian Hansen)
- Newsletter (Dave Franklin)
- Transactions (Way Kuo)

VP Membership Report

- Updates TBD (Ann Campbell)

New Motions:

- Limiting travel reimbursement requests motion

Sr. Past Pres. Report (Ken LaSala)

- Content TBD

Jr. Past Pres. Report (Dennis Hoffman)

- Content TBD

Chapters Congress Update (Loretta Arellano)

New/Old Business (Revenue Generation and Cost Savings)

- Val Monshaw's suggestions for additional cost/revenue savings
- Generating a computer/security offering
- Creating new ad hoc exploratory committees focused on specific types of revenue generation
- Acceptable approaches to funding new initiatives with a negative '03 budget projection, given IEEE rules for tapping your surplus

TechOps

William R. Tonti VP

Please Respond

WANTED— Short Courses or Tutorials in our Fields of Interest

Have you ever thought of presenting a short course or tutorial that is related to reliability, safety, fault tolerance, testing, or other approaches to quality through the auspices of your Reliability Society? Presently the Society is looking for experts in these fields who are willing to develop such material, or already have it at their disposal. The Society plans to offer educational seminars where you would present your material under our auspices. We are seeking education training materials for all levels of attendee expertise, and our target audiences for these courses ranges from highly technical personnel to senior and mid-level managers. We will cover your expenses and a stipend if your tutorial is accepted and successfully marketed. Please send your ideas to the VP of Technical Operations, William Tonti, at wtonti@ieee.org. Bill will act upon each response received.

The IEEE Reliability Society would like to sponsor and promote your conference:

Do you know of a conference the Reliability Society should sponsor based either on your knowledge as a conference attendee, or as a member of the conference technical or management committees? The Reliability Society is interested in partnering with the organizations that organize and sponsor the conferences that you support, and we are also looking at financing new conferences that you may want to organize but not have the resources to kick-start. We want to be synergistic with all of our members who have many diverse areas of reliability-related expertise, and thus play a role in the conferences, meetings and workshops that meet your professional and educational needs worldwide. As you are already aware, the society's technical expertise can be categorized by the following Reliability Areas, but is not limited to only these.

Standards and Definitions

- Software Reliability
- Industrial Systems
- Reliability Design
- Information Technology & Communications

- CAD, Concurrent Engineering, and Expert Systems
- Computers, Information Systems, & Telecommunications
- Emerging (New) Technologies
- Energy Systems Reliability & Energy Technology Assessments
- MicroElectronic Technologies
- Medical Systems
- Human Interface Technology
- International Reliability
- Maintainability
- Consumer Electronics
- Aerospace & Defense Systems
- Reliability
- Mechanical Reliability
- Nuclear Reliability
- Quality Assurance Technology
- Warranty
- Systems Screening and Testing
- System safety
- Sensors
- Total Quality Management (TQM) & Process Reliability
- Vehicular Technology & Transportation Systems

However we are aware that the technology space is an ever expanding and adapting arena, and we want to ensure that our offerings that relate to meetings, conferences, seminars, and workshops are continuing to keep up to that trend.

If we sparked an interest, please send an email to the IEEE Reliability Society Meetings Vice President, Ann Miller at annmiller@ieee.org.

Relex 7.6 Raises the Bar on Modeling Product Reliability

Greensburg, PA, February 14, 2003 — Relex Software Corporation, the worldwide leader in reliability analysis software, today announced the general availability of Version 7.6 of the Relex Reliability Software Suite, a comprehensive collection of analysis tools for evaluating and improving product reliability. In addition to introducing two new reliability prediction standards and providing numerous other enhancements to its many software modules, Relex 7.6 offers a brand new System Optimization and Simulation (OpSim) module for modeling very complex, real-life maintenance scenarios.

“With Relex OpSim, you can provide corrective, preventive, and inspection maintenance information, sparing data for both onsite and offsite component spares, and repair data for failed components fixed at a repair shop,” said Kevin Van Fleet, Vice President of Relex Software Corporation. “Because Relex OpSim includes the concepts of capacity, age adjustments for standby and spare components, renewal percentages for imperfect repair, and discard, repair, and replacement percentages, our users can strengthen their existing system analyses and determine how best to improve reliability and availability while minimizing downtime and total costs.”

Based on parameters that can even include transportation times, storage and transportation costs, and replenishment levels for spares, Relex OpSim is able to calculate the optimal number of onsite and offsite spares for each system component. According to certified reliability engineers at Relex Software Corporation, Relex OpSim is the only advanced modeling tool that calculates results and performs optimizations for not only a specified point in time but also for the steady state. While competing tools always use simulation to model system performance, Relex OpSim uses the provided component data to determine whether to use analytical analysis or simulation.

When Relex OpSim is used to optimize the number of onsite and offsite spares, you can either select the traditional goal of minimizing total system cost or choose instead to maximize reliability, mean availability, or mean capacity. In addition to providing these several different goals for spares optimizations, Relex OpSim is unique in that it supports additional constraints upon the selected goal. For example, you can specify a maximum available budget and a minimum desired capacity, availability, and mean capacity to be factored into the spares optimization process.

“Relex OpSim also provides for optimizing preventive and inspection maintenance intervals, regardless as to whether maintenance plans are based on calendar days or operating times,” said Van Fleet. “The goal for an interval optimization can either be to minimize total system

cost or maximize system availability. Specified system constraints are also factored into interval optimizations.” Additional Relex OpSim features include the ability to define common spares pools, repair resources, repair teams, and alternative repair resources, such as independent contractors who can perform maintenance tasks when primary repair resources are not available. “The new Relex OpSim module allows our customers to effectively and realistically model very complex system maintenance activities,” added Van Fleet. “Customers who lack confidence in their own ability to set up such complex maintenance models themselves can turn to Relex OpSim consulting services for expert advice.”

Enhancements to the Relex Reliability Prediction module include the incorpora-

tion of the 299B Parts Count model and the RDF 2000 model. The 299B Parts Count method is a companion to the 299B Parts Stress method for the Chinese Standard GJB/z299B. RDF 2000 is a newer version of the CNET 93 standard. It uses cycling profiles and their applicable phases to provide a completely different basis for failure rate calculations. Additionally, the Relex PRISM reliability calculation model now supports the updated Process Grades files in version 1.4 of RAC PRISM, a product of the Reliability Analysis Center (RAC).

Additionally, enhancements were made to the Relex RBD and Relex FMEA/FMECA modules. In Relex RBD, an improved interface for entering RBD figure calculation properties was implemented to ease data entry, and the

Monte Carlo simulation engine was modified to improve calculation performance. In Relex FMEA/FMECA, support was added for both RAC FMD-97 and HAZOP (Hazard and Operability) data. Supplied by the Reliability Analysis Center, FMD-97 data specifies component failure modes and the percentages of time that these modes are responsible for a failure. HAZOP is a method for identifying potential hazards and operability problems caused by deviations from the design intent of both new and existing processes.

For more information on Relex Software Corporation, an ISO 9001-certified and TickIT 2000-certified company, call 724.836.8800 or visit www.relexsoftware.com.

Call for Participation

ASTR 2003

The IEEE /CPMT Accelerated Stress Testing & Reliability (ASTR) 2003 Committee invites you to plan ahead and considering participating in the 2003 ASTR Workshop to be held Oct. 1-3, 2003 at the Seattle Hilton.

If you are interested in preparing and presenting a paper and/or tutorial please contact one of the committee members identified below.

Over the last few years, Accelerated Stress Testing (AST) has been embraced by an ever-widening array of worldwide companies seeking to reconcile the need for the highest quality product with the necessary push for early time-to-market. The purpose of the AST Workshop is to

share ideas on better ways of accelerating and detecting hidden defects, flaws, and weaknesses in electronic and electro-mechanical hardware that would result in failures during usage. These techniques are focused on testing electronic hardware to destruction limits and root cause investigation to determine the physics-of-failure. The goal of AST is to produce mature products at market introduction and, in making it robust; the product can be screened for manufacturing defects with high combined stresses (beyond end-use specifications) for shorter lengths of time.

TUTORIALS: The all day tutorial program will be held on the first day of the Workshop and features well-re-

spected experts sharing their experiences and hard-learned lessons. Two parallel sessions, Basic AST and Advanced AST Subjects, will ensure that experienced practitioners as well as those who are just entering the field will find useful and interesting presentations.

TECHNICAL SESSIONS: The two-day workshop program will present new and innovative Accelerated Stress Testing techniques in use today. Past workshops featured speakers discussing their accomplishments in providing accelerated reliability testing for a wide range of products as well as failure analysis techniques and data analysis.

General Chairman, Mark Gibbel, NASA/JPL.gibbel@cox.net



item

S o f t w a r e

YOU ASKED, AND WE LISTENED

PUTTING THE PIECES OF RELIABILITY, AVAILABILITY,
MAINTAINABILITY, SAFETY AND QUALITY ASSURANCE TOGETHER

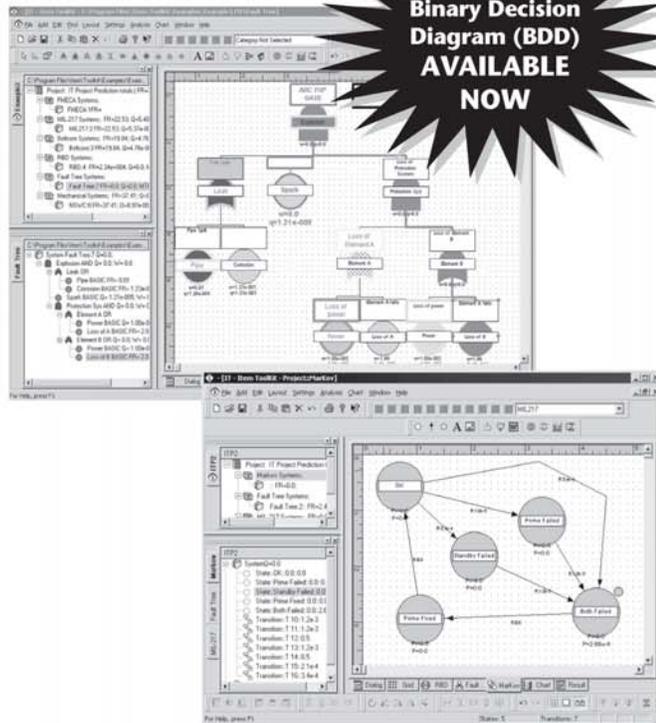
New Fault Tree Analysis Engine!

ITEM TOOLKIT MODULES

- MIL-217 Reliability Prediction
- Bellcore/Telcordia Reliability Prediction
- 299B Reliability Prediction
- RDF Reliability Prediction
- NSWC Mechanical Reliability Prediction
- Maintainability Analysis
- Failure Mode, Effects and Criticality Analysis
- Reliability Block Diagram
- Fault Tree Analysis
- Markov Analysis
- SpareCost Analysis

ITEM QA MODULES

- Design FMEA
- Process FMEA
- Control Plan
- Document Control and Audit (DCA)
- Calibration Analysis
- Concern and Corrective Action Management (CCAR)
- Statistical Process Control (SPC)



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Visit our Web site at www.itemsoft.com,
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Reliability Analysis Center

RAC

Total Solutions

RAC is ready to provide total, turn-key solutions including training, data, consulting services, information and support for both government and commercial businesses.



training

implementation

reliability

data collection

consultation

software

publications

experience

The Reliability Analysis Center (RAC) is a Department of Defense (DoD) Information Analysis Center operated by IITRI for more than 33 years. The DoD has chartered RAC as a Center of Excellence and a scientific and technical resource for information, data, analysis, analytical tools, training and technical assistance in the broadly defined fields of Reliability, Maintainability, Supportability and Quality. Our **60+ local engineers** are backed by IITRI resources at 15 IITRI locations with over 1300 employees of various technical backgrounds and expertise.

training

Learn from the experts with RAC's world-renowned professional reliability training program. Courses are taught by practicing professionals using relevant experience and real-world examples. To learn at your own pace, **RAC's distance learning** available on CD-ROM is structured for all individuals working in the reliability engineering realm.

At your service ...

RAC provides a host of services free of charge at our web site: <http://rac.iitri.org>.

- Bibliographic Searches
- Industry Software Directory
- R&M Standards Directory
- Related Web Sites Directory
- Industry Calendar
- PRISM Software Demo
- Downloadable Publications
- Industry Discussion Forum
- RAC Quarterly Technical Journal
- Up to 8 Hours Engineering Support

If you can't find what you are looking for on-line contact RAC.

consultation and implementation

RAC's technical staff is ready to provide support at all levels and in all areas of reliability. Organizations which already have relatively mature reliability programs have RAC work on very specific problems or issues. Others have no formal reliability program and RAC provides a wider range of support beginning with an assessment of the organization's reliability needs. Depending on a customer's needs, RAC will provide short-term, quick responses to immediate needs, or long-term studies and independent analysis. **Our philosophy is to bring the customer's level of knowledge and experience to a point where the customer can independently and successfully implement the reliability program for the long term.**

reliability data publications and software

As the **central resource for DoD and industry reliability data**, RAC offers the data that's important to your business, and we integrate this information into our products, including our publications and software. Our extensive line of reliability publications offers something for everyone: managers achieve a high-level understanding of the relationship between reliability and the bottom line, design engineers receive support for design trade-off analyses and decisions, and reliability practitioners will find practical application and how-to guides. **RAC's PRISM® software** sets a new standard in reliability prediction as a comprehensive resource that includes next generation component failure rate models, searchable failure rate databases, software reliability predictions and operating and non-operating failure rates.



RAC

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RAC is a DoD Information Analysis Center Operated by IIT Research Institute



Canadian Reliability and Maintainability Symposium

Ottawa, Ontario, Canada
October 16 - 17, 2003

New technologies for engineering, manufacturing and testing are rapidly developing, changing and expanding. Products must meet all customer expectations for the product manufacturer and distributor to penetrate the market and retain or increase their market share. To facilitate this, cost effective techniques and innovations to assure a high quality product that is reliable and maintainable are more essential than ever. Just meeting basic engineering and manufacturing requirements does not provide the competitive edge needed today. To survive in this market, managers and engineers must sharpen their competitive edge through the cost effective application of reliability and maintainability techniques.

The Canadian Reliability & Maintainability Symposium (CRMS) provides a forum to share experiences and to network with leading R&M professionals, your colleagues, industry and government leaders, and academia.

Papers

Success stories and new tools shared in 30-minute summary presentations on the following:

- R&M Standards and Requirements
- Modeling and Prediction
- Life Cycle Cost
- System Components & Root Cause Analysis
- Software Reliability
- Reliability Centred Maintenance
- Design RCM versus In-Service RCM
- Testability and Fault Coverage
- Verification Methodologies

Tutorials (Concurrent with the paper sessions)

60-minute tutorials, with the theme, "Achieving Reliability & Maintainability: Best Practices from the Electronics Sector," on the following:

- Standards
- Requirements
- Modeling
- Prediction
- Devices
- Failure Analysis
- Testability
- FTA, FMEA
- Programming Practices
- Metrics
- Qualifications
- Demonstration

Submission & Registration Details

Visit www.crms2003.ca

(Abstract deadline: March 15, 2003)

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Relex® Adds New Capabilities!



Relex Software Corporation has long been a worldwide leading source for reliability analysis software. Whether your needs are Reliability and Maintainability Prediction analyses, complex RBD simulations, Fault Tree analyses, FMEAs, Weibull or Markov analyses, or Life Cycle Cost projections, Relex Software provides you with the tools you need to get the job done. No other reliability software supplies such extensive features and integrated analysis modules wrapped in a user-friendly interface. We've recently added a wealth of new capabilities.

Relex FRACAS Management System™

The new Relex FRACAS Management System combines the traditional functionality of a Failure Reporting, Analysis, and Corrective Action System (FRACAS) with our signature reliability analysis capabilities to provide an innovative business solution like no other. This closed-loop analysis system will revolutionize your incident tracking and analysis processes, maximize your product reliability, and directly impact your bottom line.

- Closed-Loop Corrective Action System
- Central Data Repository
- Analytics to Aid in Making Informed Decisions
- Company-Wide Collaboration
- Customizable to Your Requirements
- Implementation Services Available



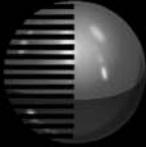
Relex 7.6

VISUAL RELIABILITY SOFTWARE

Relex 7.6 represents the pinnacle of reliability analysis software! This newest release of the Relex Reliability Software Suite contains even more features, capabilities, and enhancements in the industry-recognized user-friendly Relex environment.

- Enhanced Spares Optimization
- Preventive Maintenance and Inspection Intervals with Repair Teams
- RDF 2000
- 299B Parts Count
- FMD-97 Failure Modes
- HAZOP Capabilities

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Relex  Software
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