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Dependable Computing – EDCC-3

Third European Dependable Computing Conference
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Foreword

The idea of creating the European Dependable Computing Conference (EDCC) was born at the moment when the Iron Curtain fell. A group of enthusiasts, who were previously involved in research and teaching in the field of fault-tolerant computing in different European countries, agreed that there is no longer any point in keeping previously independent activities apart and created a steering committee which took the responsibility for preparing the EDCC calendar and appointing the chairs for the individual conferences. There is no single European or global professional organization that took over the responsibility for this conference, but there are three national interest groups that sent delegates to the steering committee and support its activities, especially by promoting the conference materials. As can be seen from these materials, they are the SEE Working Group "Dependable Computing" (which is a successor organization of AFCET) in France, the GI/ITG/GMA Technical Committee on Dependability and Fault Tolerance in Germany, and the AICA Working Group "Dependability of Computer Systems" in Italy. In addition, committees of several global professional organizations, such as IEEE and IFIP, support this conference.

Prague has been selected as a conference venue for several reasons. It is an easily accessible location that may attract many visitors by its beauty and that has a tradition in organizing international events of this kind (one of the last FTSD conferences took place here). However, there is one other fact, which may not be known by the general public, that makes Prague a special place for organizing a conference on dependable computing. It was here in 1957 that the first fault-tolerant computer in the world was set into operation. It was a relay computer SAPO that had three ALUs working in the TMR mode. The machine was designed by Professor Antonin Svoboda at the Institute of Mathematical Machines, which he founded and managed for some time. Thus this conference can be seen as a way in which the Czech Technical University pays tribute to this great man of science.

Preparing an international conference is always a question of teamwork and I was lucky to have the opportunity to work with an excellent team. Availability of modern means of communication, especially the Internet, made it relatively easy to form such a team across several borders and to coordinate its activities during the last two years. It is impossible to name all those who contributed to the success of the EDCC-3. Let me mention at least some of them.

The main load of responsibility naturally lay on the shoulders of the conference chairs. Each of them, being responsible for his or her sector, invested much effort and did an excellent job. In addition to three face-to-face meetings they exchanged thousands of e-mails, phone calls, and written messages while fine-tuning the final image of the conference. At this point it should be mentioned that each of the program co-chairs established a team within his own workplace and received very important support from his host institution. These institutions, namely, the Medical University of Lübeck in Germany and the Technical University of Budapest in Hungary, deserve our sincere

thanks, because without their generous support the conference would hardly be what it is now.

The Czech Technical University, as the main organizer of this year's conference, offered us the services of its CTU Congress Agency. In cooperation with the finance and local arrangements chair, this agency arranged the conference venue, accommodations, and social program, and handled registration. Its staff worked very efficiently and helped to keep the conference budget within reasonable limits.

The list of those who contributed to the success of the conference would be incomplete without our sponsors. Six local companies responded to our call and helped us to create a fund from which we could finance the participation of students and active participants from countries having restricted access to freely convertible currency.

Finally, I can conclude that it was a pleasure to work with people who are so dedicated to their jobs and so dependable (no pun intended!) in their activities. I can only wish that the conference participants enjoy both the technical and social program of the conference as much as we enjoyed preparing it.

Prague, June 1999

Jan Hlavička
EDCC-3 General Chair

Preface

The Third European Dependable Computing Conference can already rely on the traditions defined by the previous two conferences in this series. EDCC-1 was held in Berlin, on 4-6 October, 1994; and EDCC-2 in Taormina, on 2-4 October, 1996.

Originating from two former conference series – the "International Conference on Fault-Tolerant Computing Systems" and the "International Conference on Fault-Tolerant Systems and Diagnostics," EDCC was one of the pioneers in the unification of scientific life in the two parts of Europe after the political barriers had vanished.

The main focus of the conference reflects the changes in the rapidly growing and ever more extensive field of computer applications. In addition to the traditional topics in dependable computing, such as testing, general hardware and software reliability, safety and security, the rapid development of the infrastructural background of research and of practical applications triggered a shift in the main topics during the last decade.

The growing importance of the field of dependability both in technology and in everyday life is prominently indicated by the fact that the European Community defined, in its 1999 Workprogramme of the 5th Framework Programme on Information Society Technologies, an autonomous Cross-Programme Action under the title "Dependability in services and technologies."

This action defines the main objective of forthcoming European research: "To develop technologies, methods and tools that will meet the emerging generic dependability requirements in the information society, stemming both from the ubiquity and volume of embedded and networked systems and services as well as from the global and complex nature of large-scale information and communication infrastructures, from citizens (especially with respect to enhancing privacy), administrations and business in terms of technologies (hardware and software), tools, systems, applications and services. The work must reflect the wide scalability and heterogeneity of requirements and operating environments. There will be an emphasis on risk and incident management tools as well as on privacy enhancing technologies. The scope includes self-monitoring, self-healing infrastructures and services."

We hope that our conference will contribute to these goals. Fortunately, the conference received a large number of submissions. All papers were sent to four reviewers, two program committee (PC) or steering committee members and two external experts. No paper was processed with less than three reviews returned to the PC.

The PC held a two-day meeting in Budapest, as the final phase of decision making, after receiving the reviews. The basic principle adopted by the PC was to "discuss until consensus is reached." According to this principle, whenever a remarkable difference was detected between the reviews, a new PC member was assigned to consider the paper and all previous reviews. If there was a difference of opinion between the PC members familiar with the candidate's paper, a new PC member was assigned to lead a consensus discussion among them. Any PC member with a conflict of interest was excluded from the discussion of the corresponding paper. Finally, after four rounds of discussion, the

PC selected 26 papers (3 of them for the industrial track) out of the 71 submissions from 25 countries.

In order to facilitate fast feedback from the international scientific community, the organizers decided to follow the successful pattern of other conferences, such as that of IEEE FTCS, and introduced the Fast Abstract Session for the presentation of results from work in progress. Twenty submissions were selected by the program co-chairs for presentation in this form.

In addition to our regular scientific program, a Dinner Speech is delivered by Prof. Dr. Winfried Görke from the University of Karlsruhe, Germany. Prof. Görke is a very well-known European pioneer in the fields of testing and fault-tolerant computing. He played an important and outstanding role in establishing connections between researchers in Western and Eastern Europe in the difficult times of the Iron Curtain and is one of the founders of the German Special Interest Group of Fault-Tolerant Computing. In his speech in the historic environment of the Bethlehem's Chapel in Prague he talks about the history of fault-tolerant computing in Europe.

The Conference was organized by

– SEE Working Group "Dependable Computing," France
– GI/ITG/GMA TC on Dependability and Fault Tolerance, Germany
– AICA Working Group "Dependability of Computer Systems," Italy

under the auspices of the Council of European Professional Informatics Societies (CEPIS), and in cooperation with

– Czech Technical University in Prague
– IFIP Working Group 10.4 "Dependable Computing and Fault-Tolerance"
– IEEE TC on Fault-Tolerant Computing
– EWICS Technical Committee on Safety, Reliability and Security (TC7).

The organizers gratefully acknowledge the help of all reviewers, the staff at the Medical University of Lübeck, the Czech Technical University in Prague and the Technical University of Budapest. The organizers express their thanks to Ram Chillarege at IBM for supporting the review process by making available to them the electronic reviewing system originally prepared for FTCS-28.

A few days before our PC meeting the sad news reached us that Dr. Flaviu Cristian from UC San Diego, USA, had passed away on Tuesday, April 27, after a long and courageous battle with cancer. Being a leading expert in the field of distributed fault-tolerant systems we had also asked him to review some papers, which he, however, could not complete because of his illness. Flaviu Cristian was born in Romania in 1951, and moved to France in 1971 to study computer science. He received his Ph. D. from the University of Grenoble, France in 1979, where he carried out research in operating systems and programming methodology. He went on to the University of Newcastle upon Tyne, UK and worked in the area of specification, design, and verification of fault-tolerant software. In 1982 he joined IBM Almaden Research Center. While at IBM, he received the Corporate Award, IBM's highest technical award, for his work on the Advanced Automation System for air traffic control. Subsequently he joined UC San

Diego as professor in the Department of Computer Science and Engineering in 1991. He was elected a Fellow of the Institute for Electrical and Electronic Engineers in 1998 for his contributions to the theory and practice of dependable systems. Flaviu Cristian's work on the design and analysis of fault-tolerant distributed systems was fundamental, and he was widely regarded as one of the technical leaders in his field. The impact of his work was felt both in the theory and in the practice of fault-tolerance.

We express our gratitude to Springer Verlag for publishing the proceedings of the conference. This year two important changes were made for additional distribution of information:

- Springer will offer, in addition to the print version, an electronic form of the proceedings.
- Similarly, the final text of the fast abstracts will be made available via the web at the URL: http://www.inf.mit.bme.hu/edcc3/ .

July 1999

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