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IT SECURITY: THE NEED FOR INTERNATIONAL COOPERATION

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PREFACE

The papers contained in this volume represent the proceedings of IFIP/Sec '92, Eighth International Conference on Information Security, held in Singapore 27-29 May 1992 and organised under the auspices of the IFIP Technical Committee 11 with the cooperation of the Singapore Computer Society.

These proceedings include 5 keynote papers, 2 invited papers, 30 refereed papers and the opening speech by Dr. Tay Eng Soon, Singapore's Senior Minister of State for Education and Chairman of the Singapore National Information Technology Committee. For ease of reference, the papers are organised in the sequence of their presentation on each of the three days of the conference. Keynote and Invited papers are included at the beginning of each day, regardless of the timing of their presentation on the day.

The original title of the conference, "From Small Systems to Large," was chosen, not to de-emphasize the continuing importance of security in large computer systems, but to direct attention to the increasing importance of smaller computer systems and their related security and control concerns. Trends contributing to the increased importance of small systems include: downsizing - the replacement of large central systems with smaller distributed systems, increasingly powerful microcomputers, the increasing sophistication and acceptance of LANs, end-user computing, and the devolution of IS management to functional management. Papers with relevance to the "small systems" theme include those by Beatson, Bachelor and Kingston, McLean, Capiteijns and Angerfelt.

The final title of these proceedings derives from what became the central topic of discussion at the conference. Papers that are directly relevant to the apparent, urgent need for international cooperation on IT security standards, legislation and research include those by Madsen, Parker, Hoving, Abrams, Overbeek and Jones.

The program was designed to offer something to both the managerially, as well as the technically inclined. Sessions with relatively greater managerial content include: Security Management (2 sessions), IS Audit, and Computer Crime. The more technical sessions include: Database Security, Access Control and Detection, UNIX Security, Network Security, and Cryptography. Most papers have managerial, organisational and technical dimensions, and thus dependent upon the readers proclivities, any or all of the papers may be of interest.

We warmly thank all those who participated in the conference, and in particular the members of the organising and program committees for their significant efforts. We would also like to thank members of the International Papers Evaluation Panel, Conference Sponsors, and the IFIP TC11 Executive for their invaluable support. Special thanks to the regional papers coordinators, John Beatson, James Clark, Bertil Fortrie, Harold Highland and Basie S.H. von Solms. Special thanks also to Professor Yuen Chung Kwong, Ms. Ho Siew Foong, and Ms. Loo Line Fong, for the clerical support of the Department of Information Systems and Computer Science, National University of Singapore.

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[**] *The opening speech, keynote papers and invited papers are published as presented. All other papers were refereed once locally and once internationally.*

Speech by Dr. Tay Eng Soon, Senior Minister of State for Education and Chairman of the National Information Technology Committee, at the Opening of IFIP/SEC '92 on Wednesday, 27 May 1992 at 8.45 am at the Raffles City Convention Centre

Good morning distinguished guests, ladies and gentlemen.

It is my pleasure to be here today to officiate at the opening of the 1992 International Conference on Information Systems Security. I am pleased to learn that this is the first time that this Security Conference is being held in Asia. May I congratulate the Singapore Computer Society for having made it possible for the conference to be held in Singapore.

To all of you who have come from overseas, may I extend a very warm welcome to Singapore. I hope you will have an opportunity to see our city while you are here.

Hosting the Security Conference 92 in Singapore is timely. In October last year, Singapore's national information technology masterplan called IT2000 was unveiled by the Prime Minister. The goal of IT2000 is to develop Singapore into an intelligent island – where the benefits of information technology (IT) can be extended to the society at large.

Through IT2000, we envisage that Singapore will have an advanced nation-wide information infrastructure. This infrastructure will be a public utility. It will provide the means for inter-connecting computers and multi-media terminals in homes, offices, schools and factories. Members of the public will be able to use this utility to access information or to carry out transactions. This brings us to the subject of today's conference - Security and Control: From Small Systems to Large.

In the not too distant future, people will be able to make use of electronic means to perform the everyday functions like banking, shopping and application of permits and licences. The importance of availability, integrity and confidentiality of information in such a network cannot be over-emphasised. Users need to have confidence and trust that these systems will not let them down. All organizations, big and small, will need to put in place reliable systems of security if they are to earn the confidence of the users.

In this respect, Singapore organizations appear to be taking computer security issues to heart. According to a recent corporate security and contingency planning study conducted by a public accounting firm, 62% of Singapore organizations have included computer security into the organization's overall corporate security policy. The same study showed that 57% in Australia and 60% in New Zealand have done likewise.

According to the study, many Singapore organizations have security awareness training programmes for their staff. Singapore organizations are also likely to employ security professionals to organize their security systems and procedures. Of those surveyed, few Singaporean organizations seemed to have experienced disruption to key services or computer systems - a good indication of adequate security and control.

The findings of the study are reassuring. However, there is still a need for the newer IT users, especially the smaller ones to pay attention to the issue of security.

No company is too small to implement security and control measures, so long as the success of their business depends on IT. Also, I would like to add that security should not be viewed just as a technical issue. It is much more a management issue. Today, there are many security solutions available in the market. There are also widely accepted security standards available. One of the better known of these is the US Department of Defence's Trusted Computer System Evaluation Criteria (TCSEC), commonly referred to as the "Orange Book". Similarly, experts in Germany, United Kingdom, France and Netherlands, have put together and published Europe's "White Book", also known as the Information Technology Security Evaluation Criteria (ITSEC).

Within the government, computer security is already an important component of our IT framework. This is especially important as the civil service departments and the public sector are highly computerized today. The NCB has drawn up security standards for compliance in the entire public sector. These standards cover hardware and software security, physical and communication security and include computer disaster recovery. Encryption devices are used for cases where secure information is involved. Exercises are periodically conducted to test the recovery of our computer operations in the event of a major breakdown. The NCB and the Auditor General's Office conduct regular audits to check compliance with the NCB Information System Security Standards.

In the implementation of IT2000 projects, Information System Security will be an important issue. Emerging technologies like biometrics for establishing the identity of the user will be explored. This is particularly pertinent because in future, we will see single point access systems, in which a user can have access into many systems from his own workstation in the home or office. In that situation, we may need more secure means of identifying the users than just a user ID or password. This is one of the areas the NCB is actively looking into as part of its efforts to upgrade its present set of Information System Security Standards to meet IT2000 needs.

Finally, I understand that distinguished experts from more than 25 countries have spent the last two days discussing security issues and common standards for information security in Singapore. The wealth of experience which they have brought with them will be especially valuable to us for improving information security not just in Singapore, but in the whole region.

It is my pleasure now to declare the Security Conference 92 open. I wish you a fruitful conference. Thank you.

Response to the Minister's speech by Professor William J. Caelli, Chairman of IFIP Technical Committee 11

Minister - Distinguished Guests - Fellow Computer Professionals - Ladies and Gentlemen.

As we move to the 21st century, enterprises, public and private, large and small, have become dependent upon information systems and the underlying information technology. Indeed, it is now recognized that information workers and professionals now comprise over half the work-force in the U.S.A. Minister, you have clearly perceived this future here in Singapore and with your IT2000 programme are providing an international lead in the development and use of this technology to all our advantage.

Your attention to the concerns of control, management, availability and security of information systems in this new environment is particularly welcomed by my IFIP committee.

Along with international concerns in areas of software quality and evaluation of the security of systems, these broad areas of systems management represent an area where we in South East Asia and Australia/New Zealand can take a lead. Our area can become pre-eminent in development and marketing of information technology products and services related to the control, management and security of information systems. In particular, we must pay special attention to small systems and the needs and concerns of small business, families and individuals.

The 1980's became the decade of the personal computer while the 1990s are seen as the decade of interconnection. With your assistance, Minister, and that of your government, in the 1990s we may learn how to effectively control and manage this technology, and its associated data and telecommunications systems and services.

In this way the true benefits of information technology may be realized in a safe and secure manner to further enhance human creativity. Indeed, reference has already been made to the need for us to supply a safe and dependable information working environment to all users, as now happens in transport, manufacturing and other industries.

Minister, thank you for your words this morning and I am sure that over the next few days the interest you have shown in security and control in an IT2000 environment will be well and truly discussed here in Singapore.