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The immense growth of the Internet has brought a number of subjects to the attention of the general public. Most frequently mentioned are aspects of the new mobile society and as one of its major components, security or security technology. At the same time, upper management pay stronger attention to these issues, regardless of the business area. Recent surveys indicate that a considerable share of IT investments – drastically enlarged over previous years – scheduled for the upcoming two years will be dedicated to the areas of IT security and document management systems. While the market yields a variety of individual component-based products (secure email, smart card based authentication etc.), current research has adopted a more comprehensive approach. Security is not only a separate aspect or an individual integral element of the different IT components. More than that we need complete solutions where puzzle pieces of security mechanisms communicate with one another and provide a strong and reliable basis for our everyday operations.

With this year's CeBIT edition of the COMPUTER GRAPHIK topics, we not only present our exhibits CIPRESS but also other security solutions that are subject of current research of the Security group at Fraunhofer IGD. The second focus of this topics edition is mobile society, presenting the CeBIT exhibits for learning technologies, usability testing environments and XyberScout.

One of the most frequently named aspects of security technology is confidential information and, closely related to it, the pro-

tection of sensitive personal (i.e. privacy protection) or business data from unauthorized access. The need for protecting data is evident, as is the economic imperative to protect confidential data and its integrity. Unauthorized individuals or organizations should not be able to gain access to such data, and misuse by authorized personnel if not prevented in the first place should at least be traceable. The CIPRESS project with its ReEncryption™ technology provides a unique approach to improve encryption and thus prevent data diffusion by insiders.

Conventional mechanisms such as visual assurance or voice recognition are usually not available when communicating over the Internet. Nevertheless, biometric authentication systems are widely considered for verification of primary access to the IT infrastructure nowadays. While the immediate advantages are obvious – biometric features can neither be lost nor forgotten – we should be concerned about the overall security implications of such systems. The Biometric Evaluation Center at Fraunhofer IGD analyzes the security level of marketed biometric access control systems. Here, aspects such as susceptibility to forged biometric features are investigated and evaluated.

One of the prime technologies for future e-commerce applications will be the emerging agent technology. Agents are software components which operate on behalf of their owner on the Internet. The agents act independently and are not bound to the owner's computer. This facilitates new mechanisms for electronic commerce but also contains a number

of security risks which need to be addressed. The agent's code base itself or the data collected by the agent also need to be protected against unauthorized access; servers e.g. must be prevented from causing an agent to issue more than one payment. On the other hand, the servers must be protected against manipulation attempts by the agents.

Information technology has caused a shift towards digitizing conventional media such as images, sound, and video data. This fact opens new creative possibilities, simplifies archiving and opens up novel marketing and distribution patterns such as using the Internet. It also incurs several drawbacks in the security area that are particularly significant in the intellectual property and usage rights domains. These rights are especially at risk because digitized imaging material or excerpts can be copied easily and without loss of quality. Researchers from the security group at Fraunhofer IGD were among the pioneers in setting up countermeasures through digital watermarking technology and they have now widened their scope of work. Our real time video watermarking is available as a commercial solution by ThomCast (THALES). Moreover, we can now provide mechanisms for audio watermarking, protection of music scores and geometric models. Information about this research work can be found on our Watermarking Server.

We hope that we will give you a broad overview of our activities with this edition's topics. You are invited to visit us at CeBIT in hall 16, stand B23/2. For post-CeBIT questions please do not hesitate