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Schemes

2.3.4 Block-free Group Key Management 2.3.4.1 BF-TGDH; 2.3.5 Secure Dynamic Conferencing; 2.3.5.1 KTDCKM-SDC; 2.3.5.2 Other Proposed Schemes; 2.4 Conclusion; 3. Cryptography based Access Control; 3.1 Overview of Access Control in Collaborative Computing; 3.2 An Efficient Differential Access Control (DIF-AC) Scheme; 3.2.1 System Description and Initialization; 3.2.2 System Dynamics and Maintenance; 3.2.3 Discussion; 3.3 Cryptographic Hierarchical Access Control (CHAC) Schemes; 3.3.1 HACModel; 3.3.2 Directly Dependent Key Schemes; 3.3.3 Indirectly Dependent Key Schemes 3.3.4 Polynomial and Interpolation based Schemes 3.3.5 An Efficient CHAC Scheme with Locality; 3.4 A Uniform CHAC Scheme Based on Access Polynomials; 3.4.1 Principle; 3.4.2 Key Computation/Derivation; 3.4.3 Node/Vertex Level Dynamics; 3.4.4 User Level Dynamics; 3.4.5 Security and Performance Analysis; 3.4.5.1 Security Analysis; 3.4.5.2 Performance Analysis; 3.4.6 An Illustrative Example and Experiment Results; 3.4.7 Discussion; 3.4.7.1 Enforcement of Other Access Models; 3.5 Conclusion; 4. Intrusion Detection and Defense; 4.1 Overview of Intrusion Detection and Defense; 4.2 Intruding Attacks 4.3 Intrusion Detection Models 4.3.1 Anomaly Modeling; 4.3.2 Misuse Modeling; 4.3.3 Specification Modeling; 4.4 Intrusion Response; 4.5 DoS/DDoS Attacks ; 4.5.1 Typical DoS Attacks; 4.5.1.1 DoS Flooding Attacks; 4.5.1.2 Redirection Attacks; 4.5.1.3 Service Exploits; 4.5.2 Distributed Denial of Service (DDoS) Attacks; 4.5.2.1 DDoS Attack Steps; 4.5.2.2 DDoS Tools; 4.6 Typical DoS/DDoS Defense Mechanisms; 4.6.1 Single-node Defending Method; 4.6.2 Multiple-node Defending Methods; 4.6.2.1 Path Identification; 4.6.3 Honeypot; 4.7 Defending against DoS/DDoS Attacks-Traceback; 4.7.1 ICMP Traceback. 4.7.2 (Probabilistic) IP Packet Marking

Sommario/riassunto

Computer networks are compromised by various unpredictable factors, such as hackers, viruses, spam, faults, and system failures, hindering the full utilization of computer systems for collaborative computing - one of the objectives for the next generation of the Internet. It includes the functions of data communication, resource sharing, group cooperation, and task allocation. One popular example of collaborative computing is grid computing. This monograph considers the latest efforts to develop a trusted environment with the high security and reliability needed for collaborative computing.
