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B.Eng. (Electrical Engineering), Faculty of Engineering, Mahidol University

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Thesis Title:

Protocol Engineering for Protection against Denial-of-Service Attacks

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Citation:

Denial-of-service attacks are a common security problem which prevents legitimate users from accessing network services. This research has developed new formal models for analysis of these attacks and designed new mechanisms resistant to denial of service. The focus of this research has been on cryptographic protocols for authentication and secure session establishment. In particular, we provide a new analysis of protocols that implement client puzzles to protect the server against resource exhaustion attacks and propose a new kind of client puzzle. We also extend formal analysis techniques to include DoS-resistance using Coloured Petri Nets as our formal tool.