

Security of the data streaming over Internet becomes a challenge if requirements such as post-quantum-capable cryptography and complete decentralisation must be addressed. This thesis develops a connection-less, re-broadcastable data streaming protocol that allows a wholly decentralised, petname-based quantum-robust authentication of streaming sources based solely on the post-quantum hash-based few-time signature schemes. As the main contribution, the thesis benchmarks various trade-offs given by the problematic ephemeral nature of identities based on the few-time signature schemes and by the desired networking properties of the streaming protocol. The benchmarks show that the schemes are practically extensible to realistic use cases, with only minor overhead. The proof-of-concept protocol implementation is provided as a Rust library, together with the example application for live audio broadcasting.