

Towards Energy-Efficient Privacy-Preserving Active Authentication of Smartphone Users

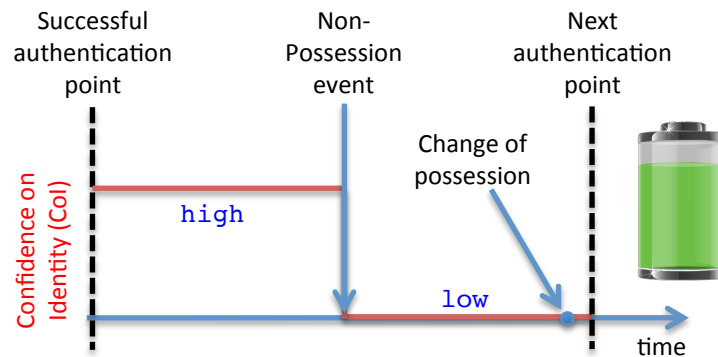
Challenge:

- Behavioral authentication on smartphones raises security and privacy problems
- Privacy-preserving authentication protocols address these problems, but are too expensive for smartphones

Solution:

- Reshape protocols for energy efficiency
- Run them only when necessary: detect events that require authentication
- Securely offload computation to untrusted third parties

Most privacy-preserving protocols focus on performance and communication overhead instead of energy



Our focus: minimize energy, offload computation, run protocols only when needed



Scientific Impact:

- Focus on energy and network diversity optimizations
- Focus on determining how to authenticate without using user-specific data
- Efficient outsourcing protocols secure against strong adversaries

Broader Impact:

- Secure continuous authentication on smartphones becomes feasible
- Outreach efforts to K-12, undergraduates, and to industry through workshops and panels at security conferences