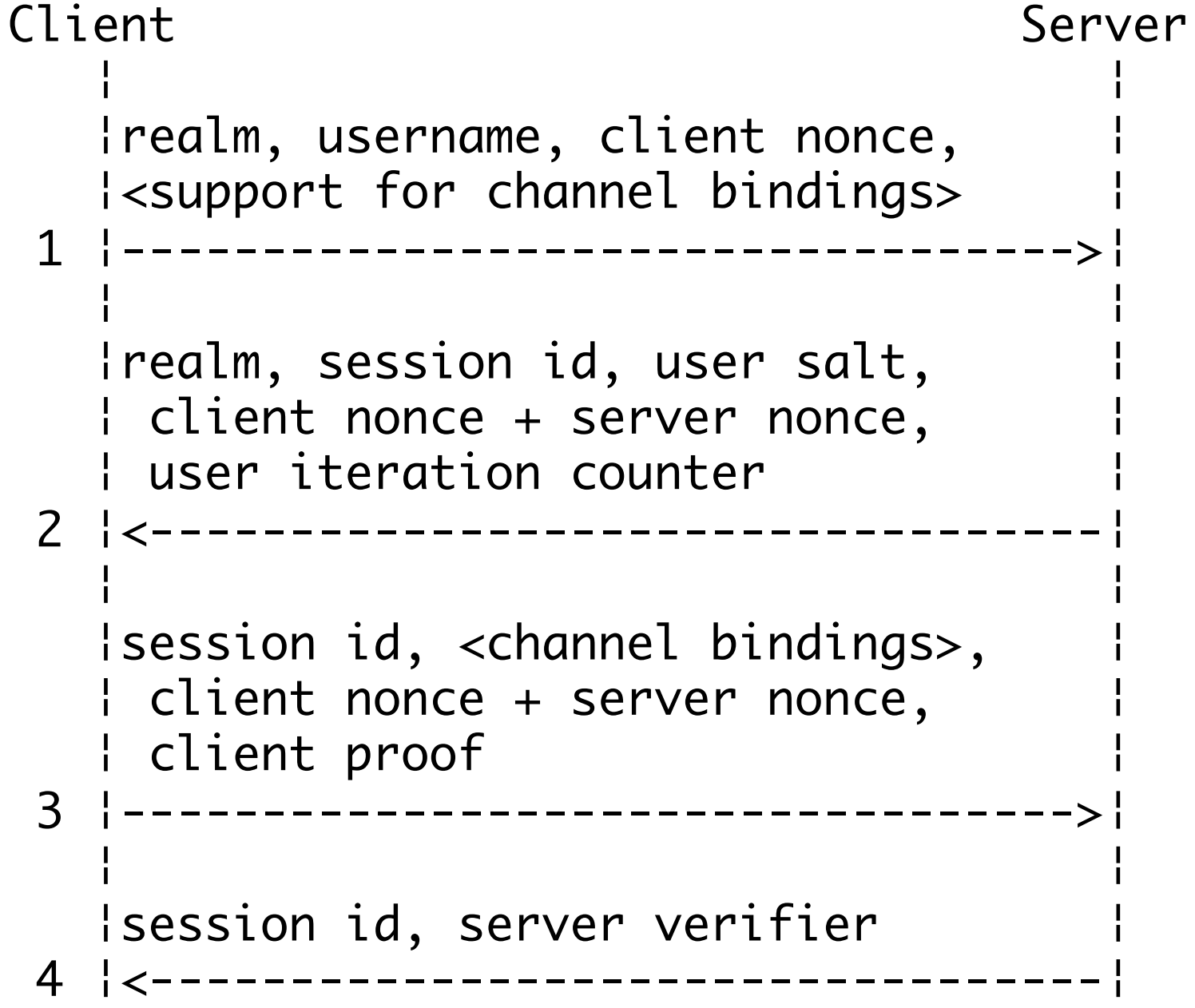
Salted Challenge Response (SCRAM) HTTP Authentication Mechanism

draft-melnikov-httpbis-scram-auth-00

Alexey Melnikov <alexey.melnikov@isode.com>

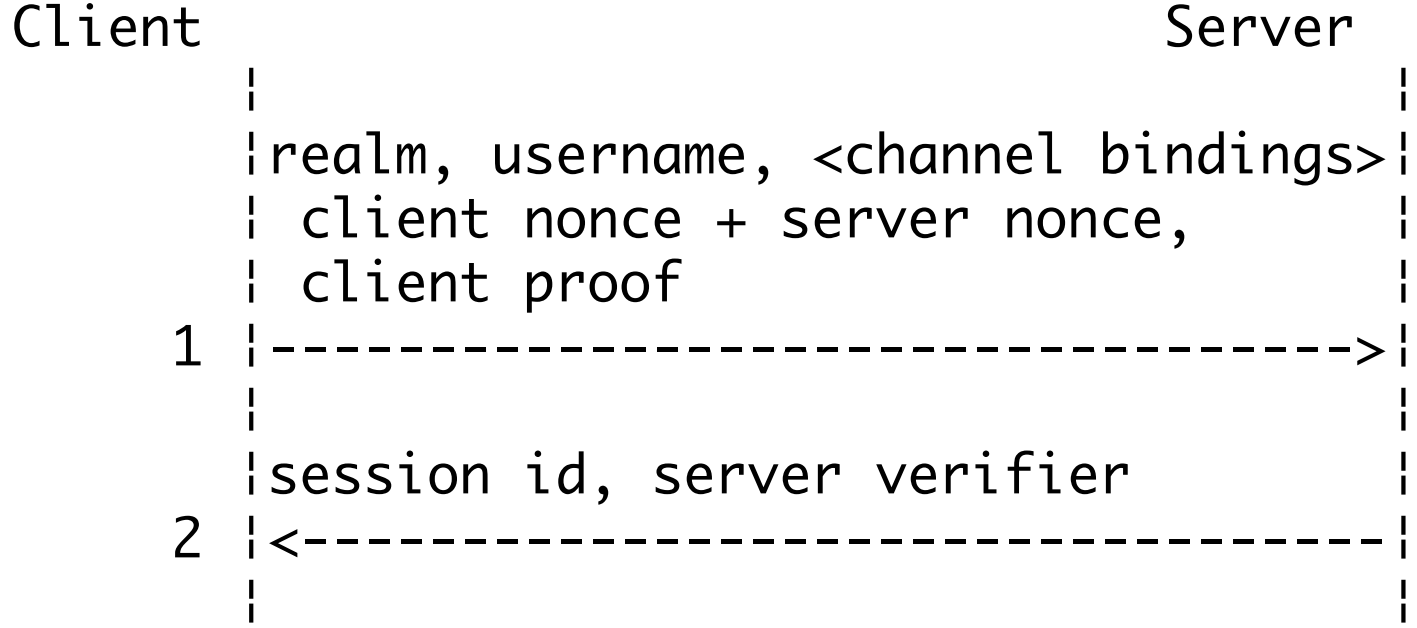
- Based on SASL SCRAM (RFC 5802), which is used by XMPP, email protocols (IMAP/SMTP), LDAP, etc.
- Provides functionality comparable to HTTP Digest, but
  - simpler to implement (based on experience of implementing HTTP Digest),
  - uses more modern crypto,
  - addresses some defects in HTTP Digest design (e.g. protects the whole authentication exchange, username change doesn't require secret update)
  - speed of authentication (and thus resistence to offline brute force attacks) can be controlled by changing the per user iteration count.
- (see RFC 6331 for more details)


Client
Server
realm, username, client nonce,
<support for channel bindings>
1
realm, session id, user salt,
client nonce + server nonce,
user iteration counter
2
session id, <channel bindings>,
client nonce + server nonce,
client proof
3
session id, server verifier
4

Protocol Features

- Mutual authentication is supported, but only the client is named (i.e., the server has no name).
- Server can store salted SCRAM hash or cleartext password
- The salting prevents a pre-stored dictionary attack if the database is stolen.

Open Issue



Q: Can the number of round trips be reduced for reauthentication (similar to HTTP Digest reauthentication).

A: Yes, but the draft doesn't currently show how.