ZRTP and Zfone

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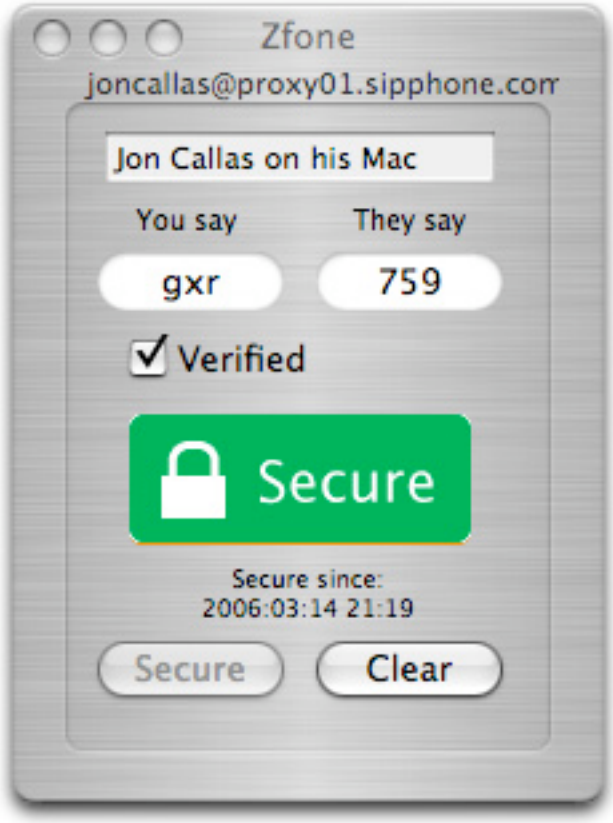
Overview

- ZRTP is the protocol for Phil Zimmermann's Zfone
  - http://www.ietf.org/internet-drafts/draft-zimmermann-avt-zrtp-01.txt
- Further documentation at http://www.philzimmermann.com/

Zfone

- Beta software available
  - www.philzimmermann.com
- Functions as a “bump in the cord” for SIP-VOIP clients
  - Supports Gizmo, eyeBeam, etc.
- Intercepts RTP stream, and converts to ZRTP
- Modeled after PGPfone, Eric Blossom’s COMSEC phone, AT&T 3600



ZRTP

- Protocol that implements Zfone
- Needs no PKI
  - Conceptually similar to SSH
  - Uses AES + 3kbit Diffie-Hellman Exchange
  - Hash commitment + chain of retained shared secrets
    - Allows voice-based Man-in-the-Middle rejection
    - Creates continuity between endpoints
- Independent of signaling layer
  - Can operate with other VOIP systems

Advantages

- Simple media encryption
- Well-tested components
  - SRTP, DH, hash commitment
- Layers with other security
- Even with no user-level MitM protection, protocol has endpoint continuity
  - MitM needs to be on first call, and stay in all calls to avoid detection
    - Note -- in some cases can force shared secret loss

What ZRTP does not do

- Identify your endpoint
  - How do you know this is Jon Callas?
  - PKI doesn't solve this, either.
- Upper-level VOIP security
  - CallerID protection, etc.
- Protect against attackers with arbitrarily large powers
  - "Rich Little" attack
  - "Court Reporter" attack
  - Interpolation of hash secrets in milliseconds
  - Mental Telepathy, etc.

What does ZRTP do?

- Secures media from one endpoint to another
- Allows end-users to use DH materiel to thwart MitM
- Without end-user participation, validates that the endpoint is the same
- Creates very high bar for potential MitM

Questions?