WhatsApp Backdoor (/Bug?)

Another reason for not trusting closed-source crypto

WhatsApp

- 1 billion monthly active users (February 2016)
  - 1/7 of world population
- end-to-end encryption “completely” implemented April 2016
- Implements the Signal protocol

Signal Private Messenger

The Backdoor

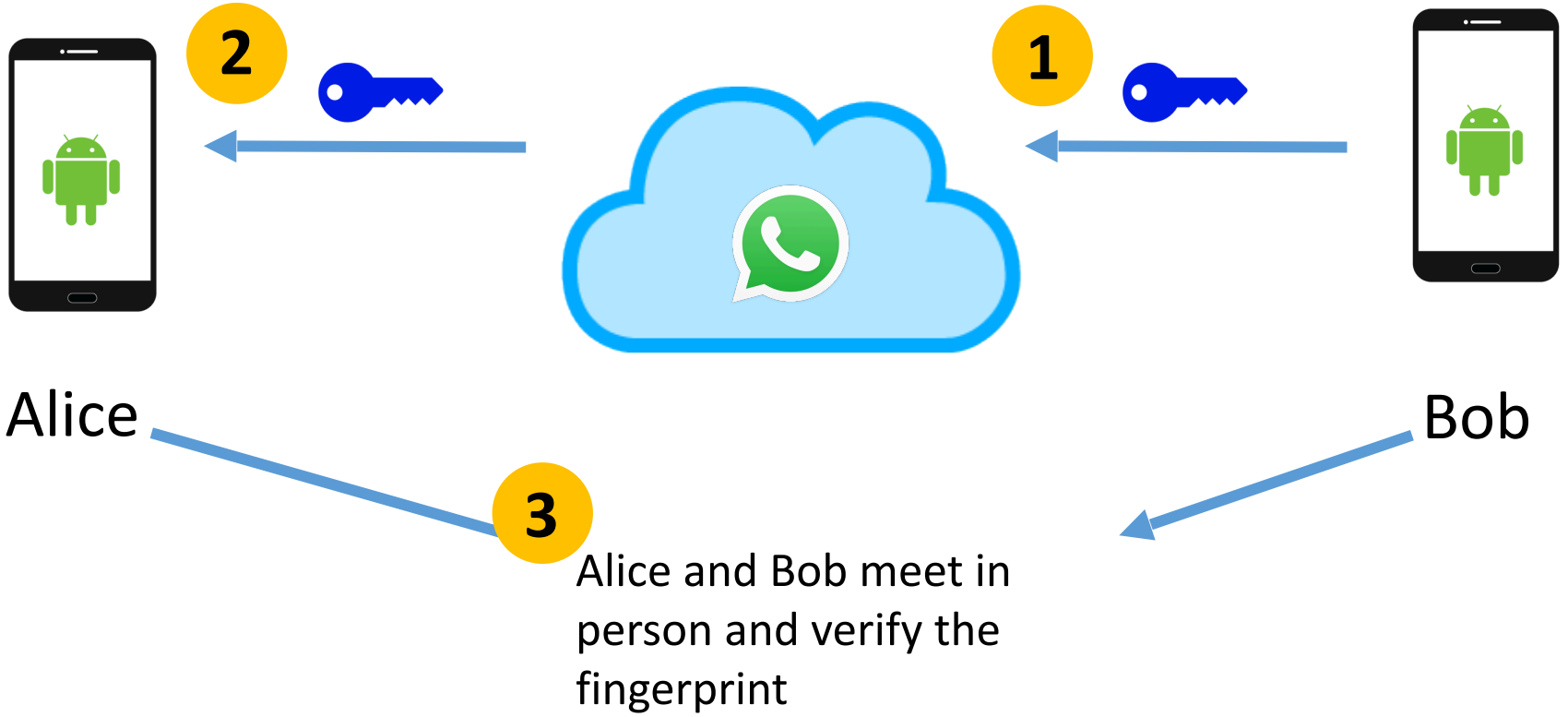
Alice

Bob

The Backdoor

The Backdoor

The Backdoor



The Backdoor

Alice

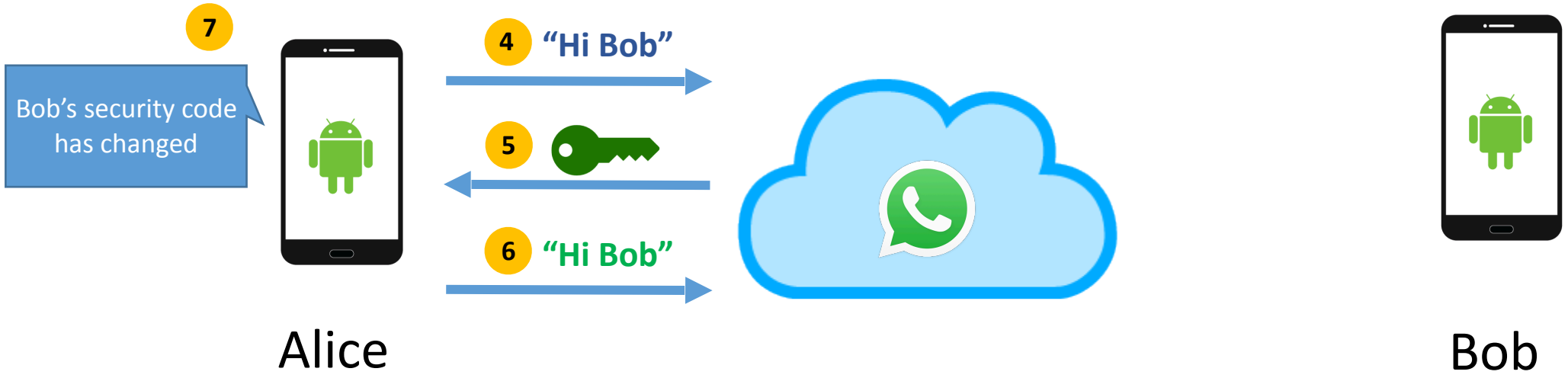
Bob

The Backdoor

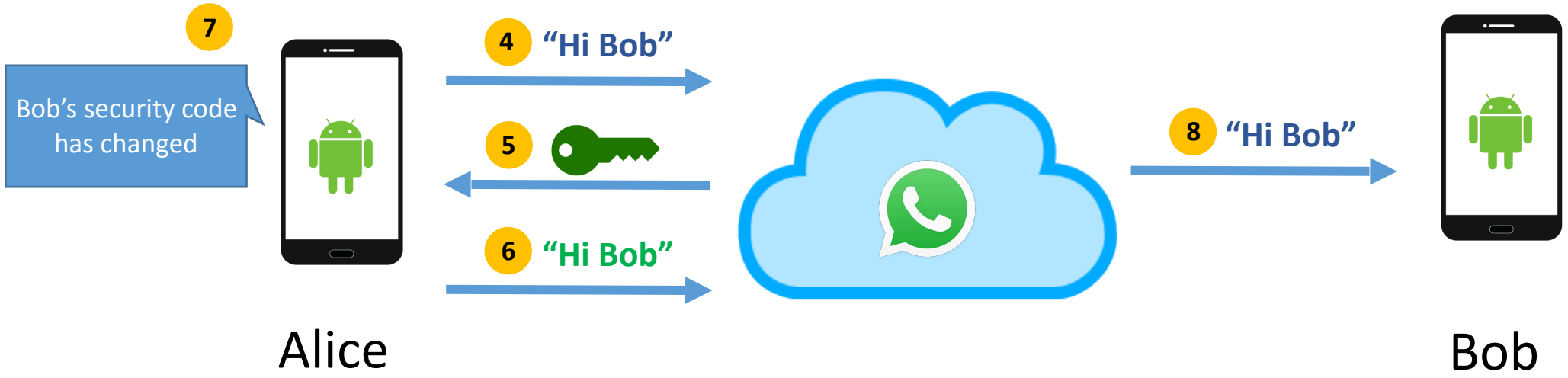
The Backdoor

The Backdoor

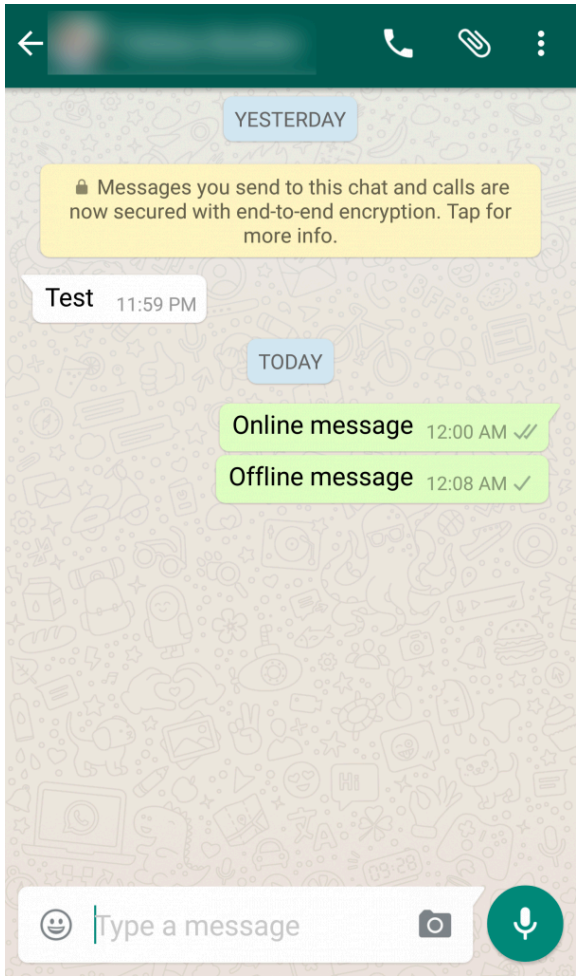
The Backdoor



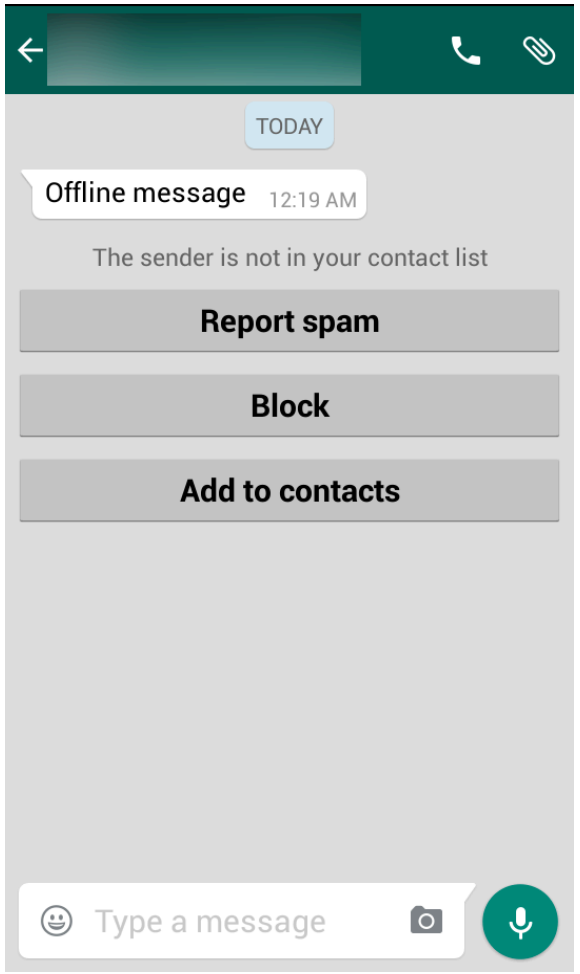
The Backdoor



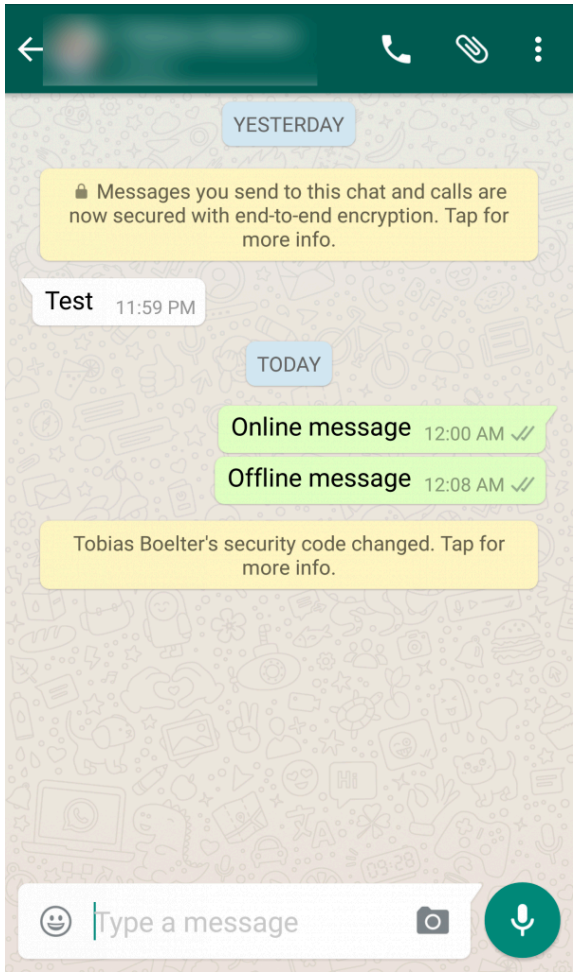
Alice’s Phone



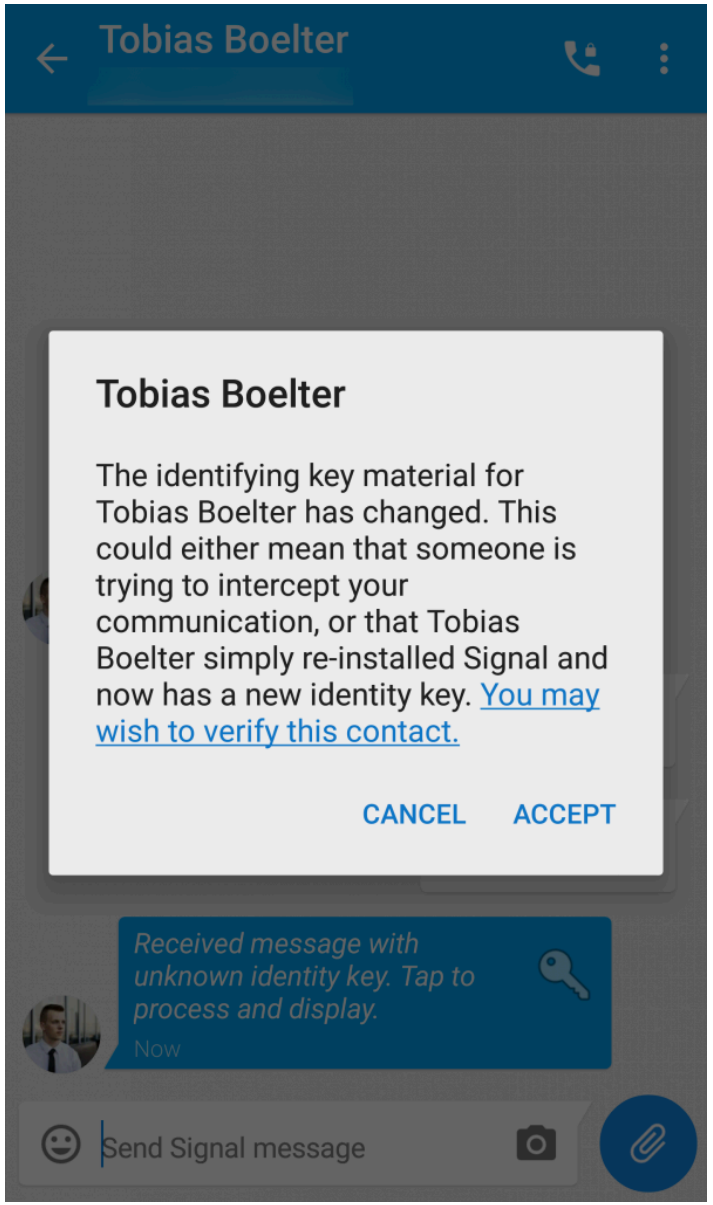
Attacker



Alice’s Phone



https://tobi.rocks/



Signal is doing it right

- The warning is displayed
- The message is never retransmitted

Disclosure Timeline

Disclosure Timeline

- Whitehat report on April 10

Disclosure Timeline

- Whitehat report on April 10
- Facebook, May 25: “This is expected behavior”

Disclosure Timeline

- Whitehat report on April 10
- Facebook, May 25: “This is expected behavior”
- Me: “This should not be expected behavior. “

Disclosure Timeline

- Whitehat report on April 10
- Facebook, May 25: “This is expected behavior”
- Me: “This should not be expected behavior. “
- Facebook, May 31: “We were previously aware of the issue […] for now it's not something we're actively working on changing”

Disclosure Timeline

- Whitehat report on April 10
- Facebook, May 25: “This is expected behavior”
- Me: “This should not be expected behavior. “
- Facebook, May 31: “We were previously aware of the issue […] for now it's not something we're actively working on changing”
- Status (December 28): Not fixed

More reasons to use Signal

- Signal is open source
- Signal has mostly reproducible builds
- WhatsApp may store Metadata (according to privacy policy)
  - time stamp information
  - success of message delivery
  - phone numbers of sender and recipient
  - contact lists
  - “other information”
- Signal stores less:
  - last day a user connected
  - contact lists are not stored on signal servers