Opportunistic Encryption of Email and Messaging

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p≡p

Privacy by Default.

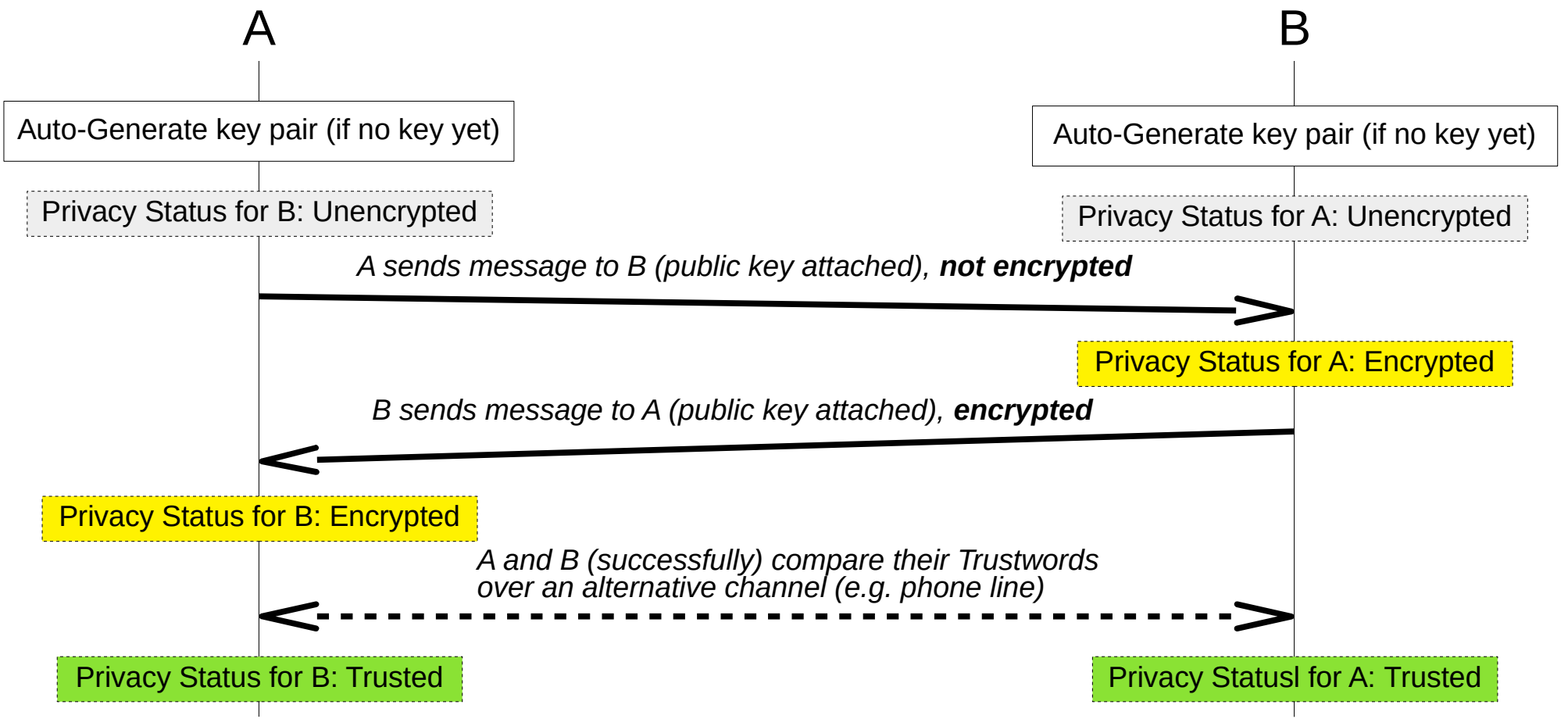
Background

- We aim to make text communications (i.e. email, chat, ...) **private by default**
- “Good” tools for privacy already exist (e.g. PGP/OpenPGP)
- **However:**
  - Most users are unable to use existing encryption tools like GnuPG (properly)
- Need to fix this usability challenge by automation
- Not just “good”, but **easy** privacy

pEp – pretty Easy privacy

- The pEp architecture consists of several building blocks
- Existing RFCs are used whenever available (and usable)
- Some pieces are currently missing (or incomplete)
- We intend to document the missing pieces in the IETF

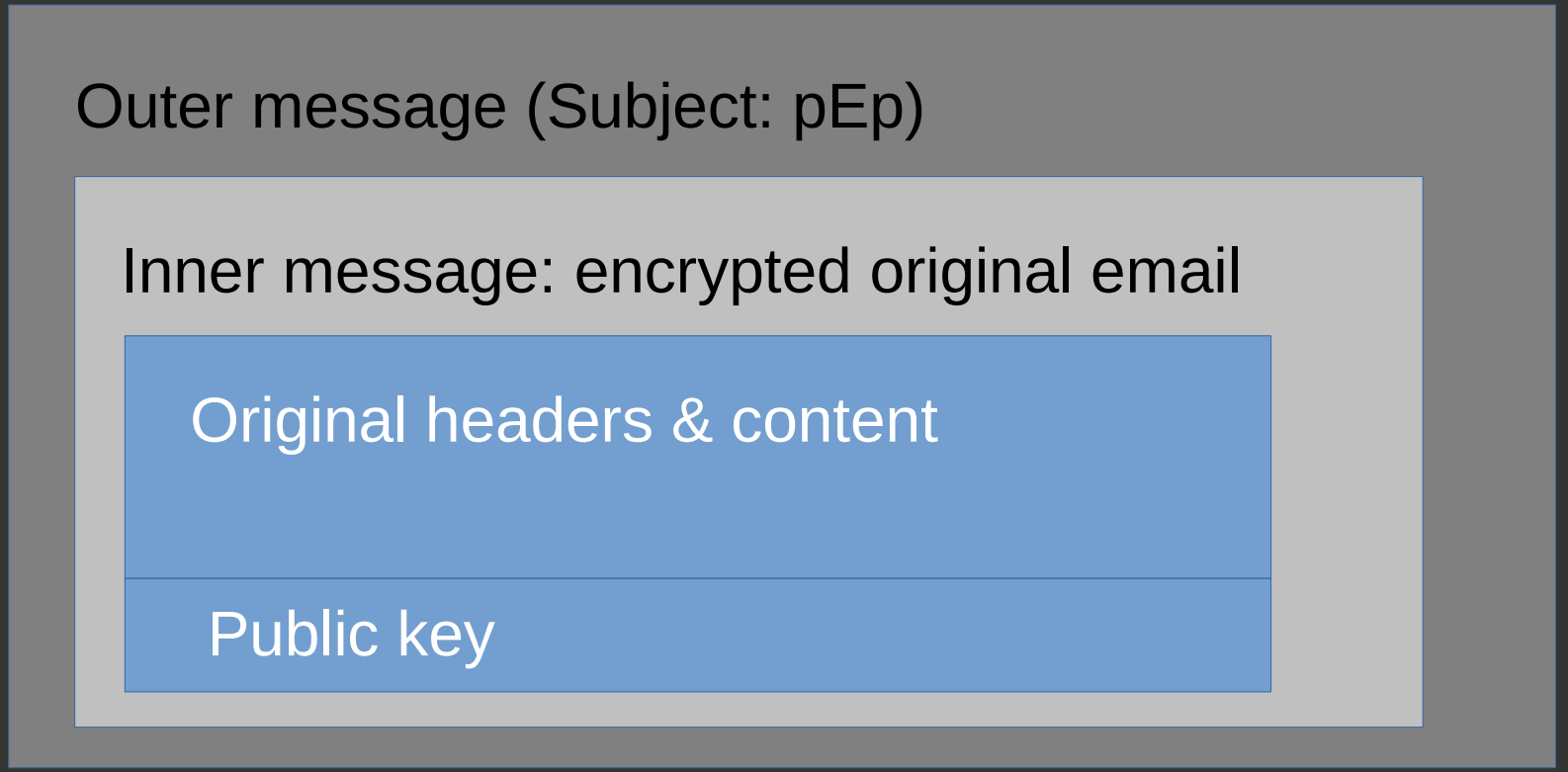
Example Msg. flow (simplified)



draft-marques-pep-email

- Goal
  - Define missing pieces for email
- Motivation
  - Current systems do not encrypt all privacy-sensitive information (e.g. subject)
- Main use-case
  - Automatically encrypted email in opportunistic encryption scenarios
- Method
  - Strict message formats for privacy and integrity
  - Automatic key generation, distribution, and import

pEp Email Format 2



draft-marques-pep-rating

- Goal
  - Easy understandable representation of Privacy Status
- Motivation
  - Reveal Privacy Status of a communication to users
- Main use-case
  - Presentation of Privacy Status between users
  - Presentation of Privacy Status of particular messages
- Method
  - Defining different Privacy Ratings
  - Mapping Privacy Ratings to colors (traffic light semantics)

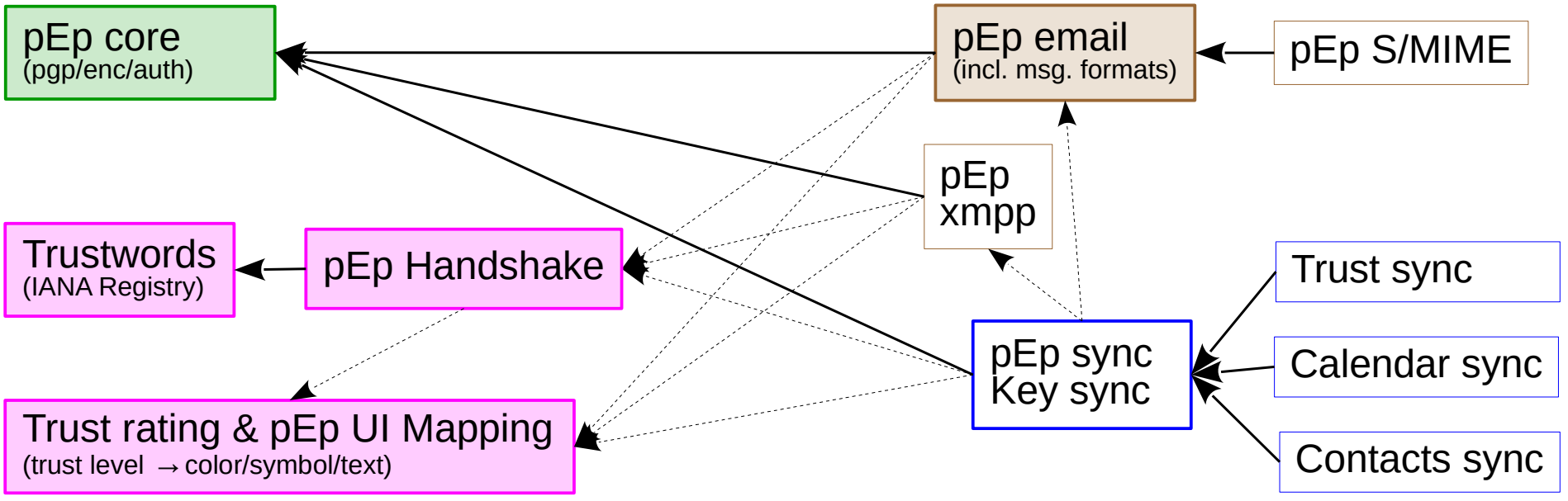
draft-marques-pep-handshake

- Goal
  - Define easy authentication process for communication partners
- Motivation
  - For most users current authentication methods are too cumbersome and therefore rarely (correctly) applied
- Main use-case
  - Process to establish trust between communication partners
- Method:
  - Mapping of combined fingerprints to human readable output using Trustwords

draft-birk-pep-trustwords

- Goal
  - Mapping of hexadecimal stings to natural language words
  - Public registration of Trustwords in different languages
- Motivation
  - Word lists need to be the same for every implementation
- Main use-case
  - Easy comparison of fingerprints or handshake results to establish a trust relationship
- Method
  - Create IANA registry

pEp I-Ds Dependency Graph



Legend:

core

Establishing trust relationship / visualizing trust levels

Secure and decentralized synchronization

pEp Applications

depends on

uses

I-D exists

I-D coming soon

Running Code: www.pep.software

- p≡p for Outlook (release: add-on)
- p≡p for Android (release: app)
- p≡p for Thunderbird (release: as Enigmail 2.0 add-on with p≡p integration)
- p≡p for iOS (internal beta)

Where can IETF help?

- Improve compatibility to what's out in the wild
- MIME-based message formats
- Define missing URI schemes
- IANA registry to support trust establishment
- Private Key Synchronization
  - to fit multi-device scenarios;
    in email via ActiveSync/IMAP
- ...

Places to touch base / join in

- Mailinglist discussion:
  - dispatch@ietf.org
- Other communication channels:
  - IRC: irc.freenode.net (#PrettyEasyPrivacy)
  - Web forum: https://pep.community/
- Contact us directly:
  - hernani@pep.foundation / bernie@ucom.ch

Questions / Discussion