

Defeating Online Censorship with Collage

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Main Idea:

Hide censored files inside photos published on popular photo-sharing Web sites. Users download these photos to reveal content without the knowledge of the censor.

Motivation

Online Censorship is pervasive today:

- Youtube blocked in China
- Australia censors Wikileaks
- UK's controversial "Cleanfeed"

Existing systems for dealing with this:

- Are easy to block.
- Do not shield users from suspicion.

Collage is:

- Powered by **user-generated content**.
- **Deniable**, meaning its users are above suspicion from the censor.
- **Available** in the face of attacks.
- **Easily implemented** on top of existing infrastructure.

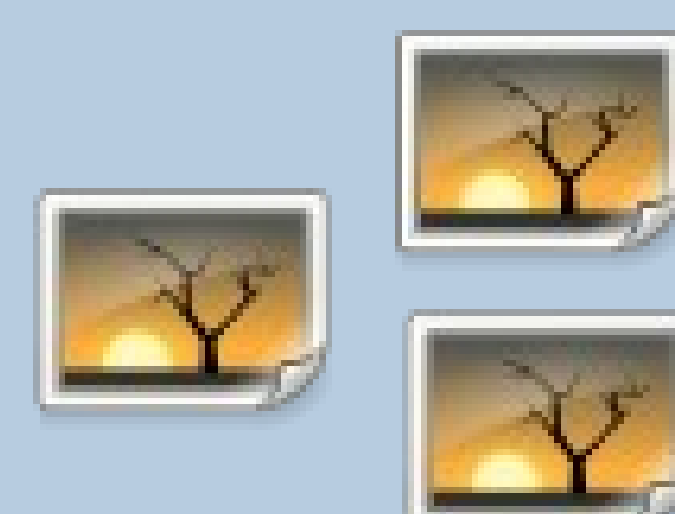
Publishing Content

Publishing content is broken into several steps:

- **Encrypt** the content,
- **Erase code** the encrypted file,
- **Steganographically embed** chunks of the coded file into photos,
- **Upload** these images to popular photo-sharing Web sites.



Step 1: Encode content



Step 2: Obtain cover material



Step 3: Embed content

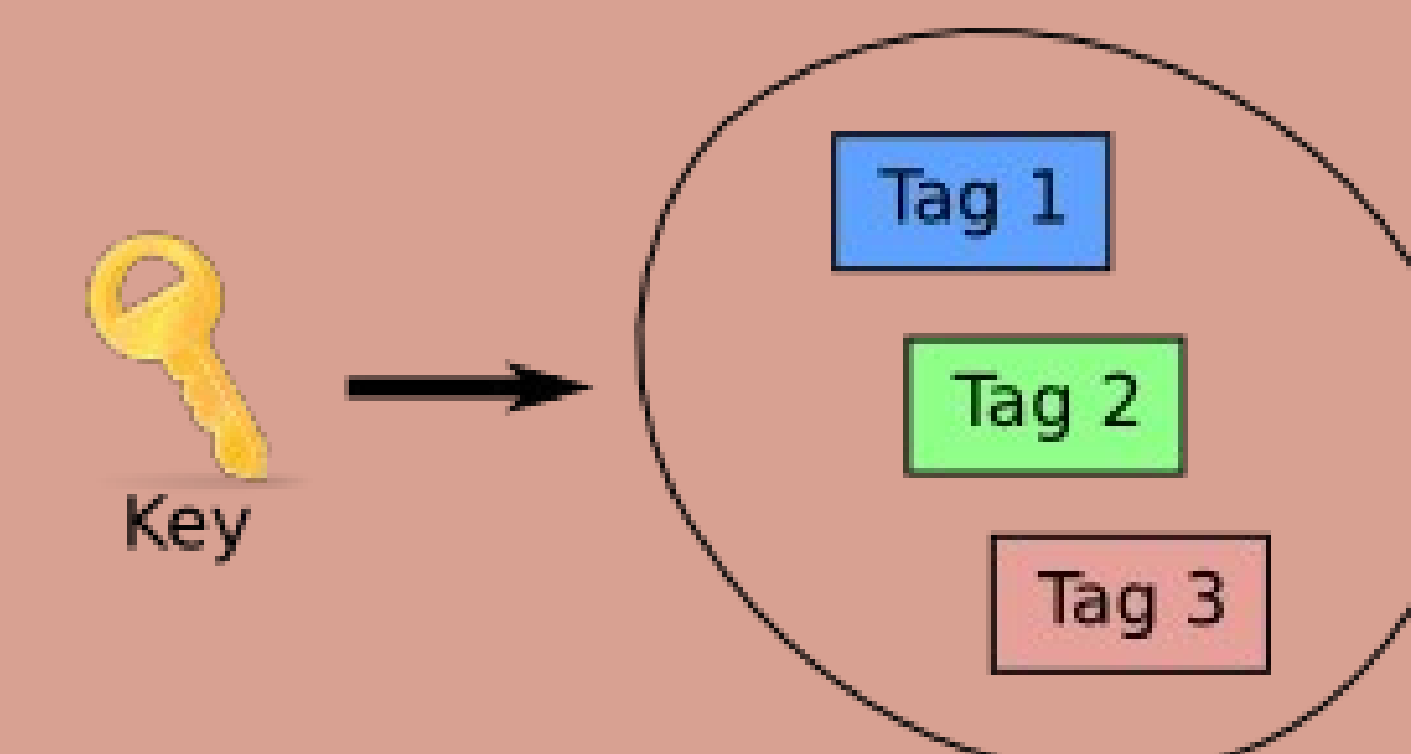


Step 4: Upload content

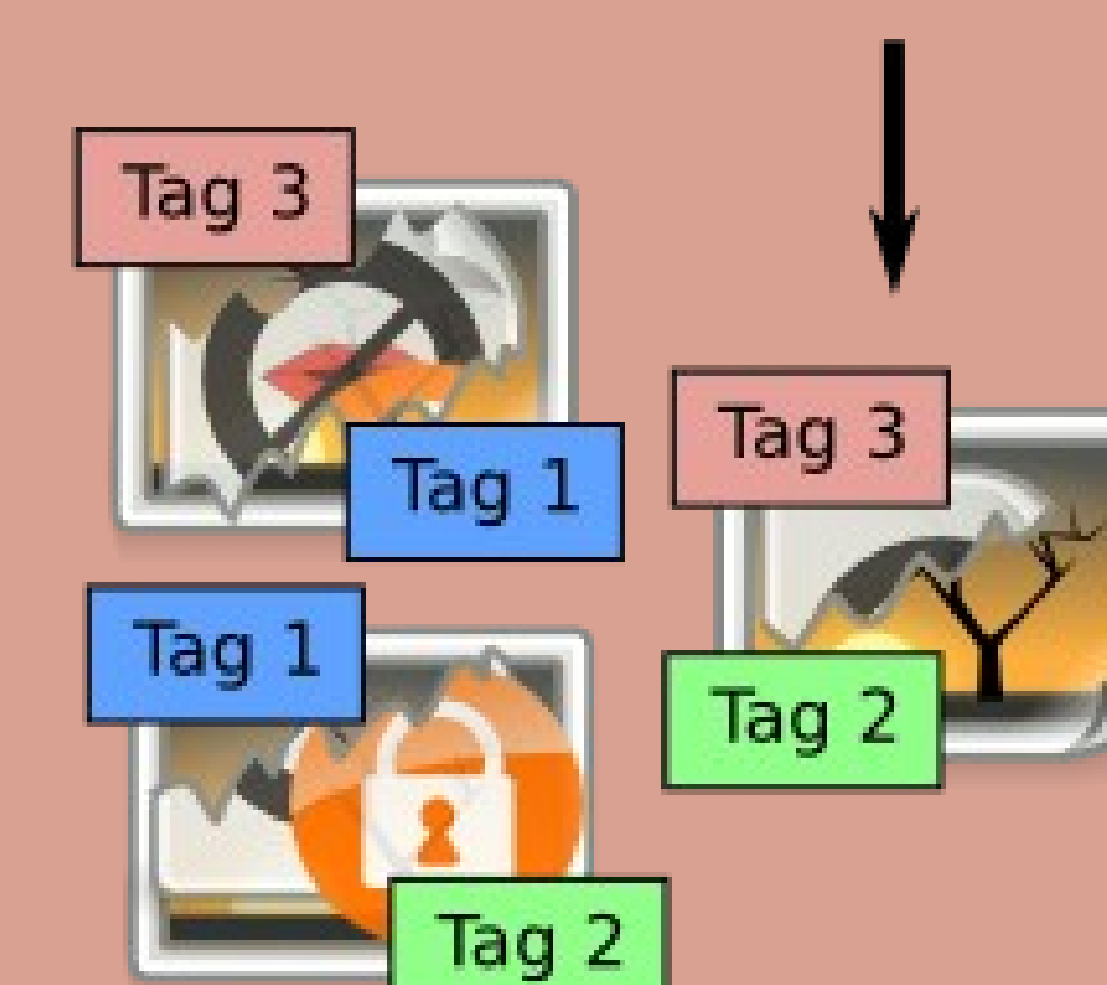
Fetching Content

To download censored content, the client uses the following algorithm:

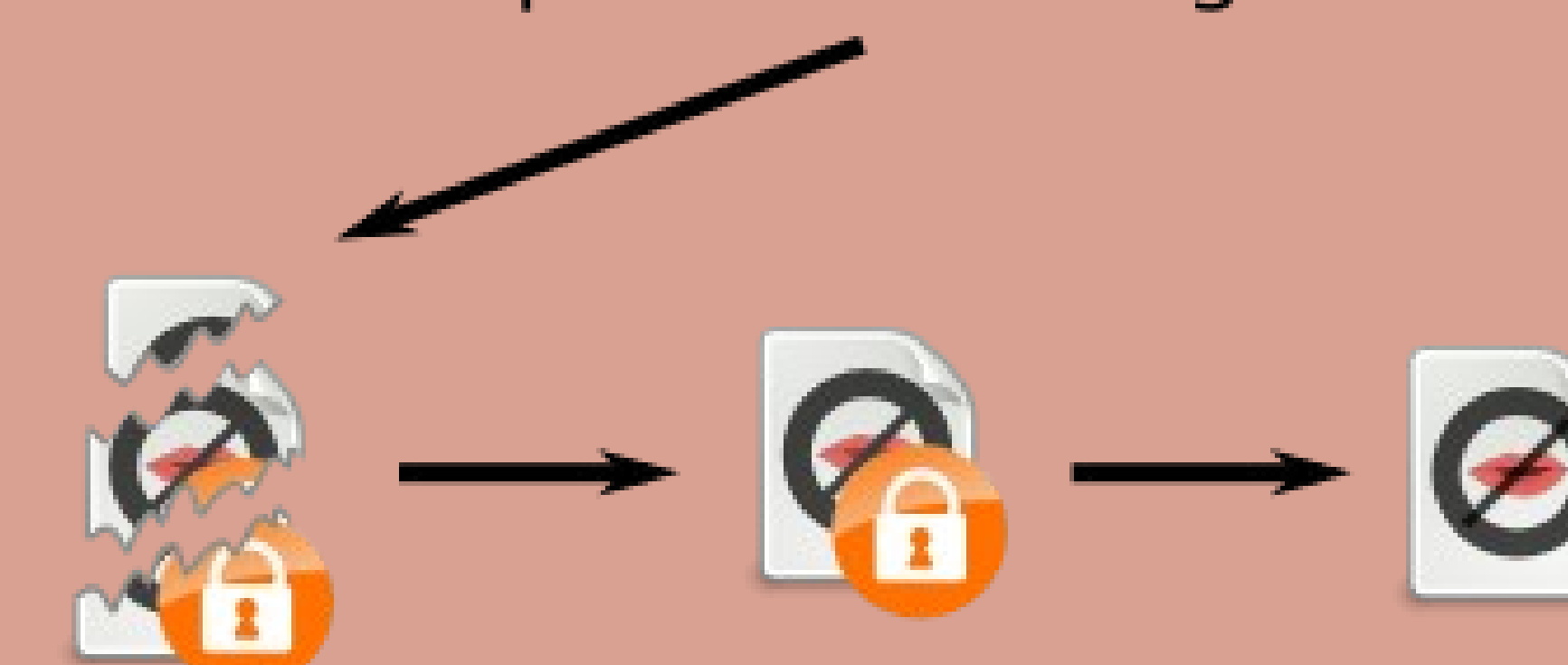
- **Calculate** where the content is published based on the key,
- **Browse** photos on photo-sharing sites, watching for photos containing content,
- **Collect** segments of the original message from photos,
- **Decode** the content using segments.



Step 1: Calculate Content Location



Step 2: Fetch Images



Step 3: Decode Message