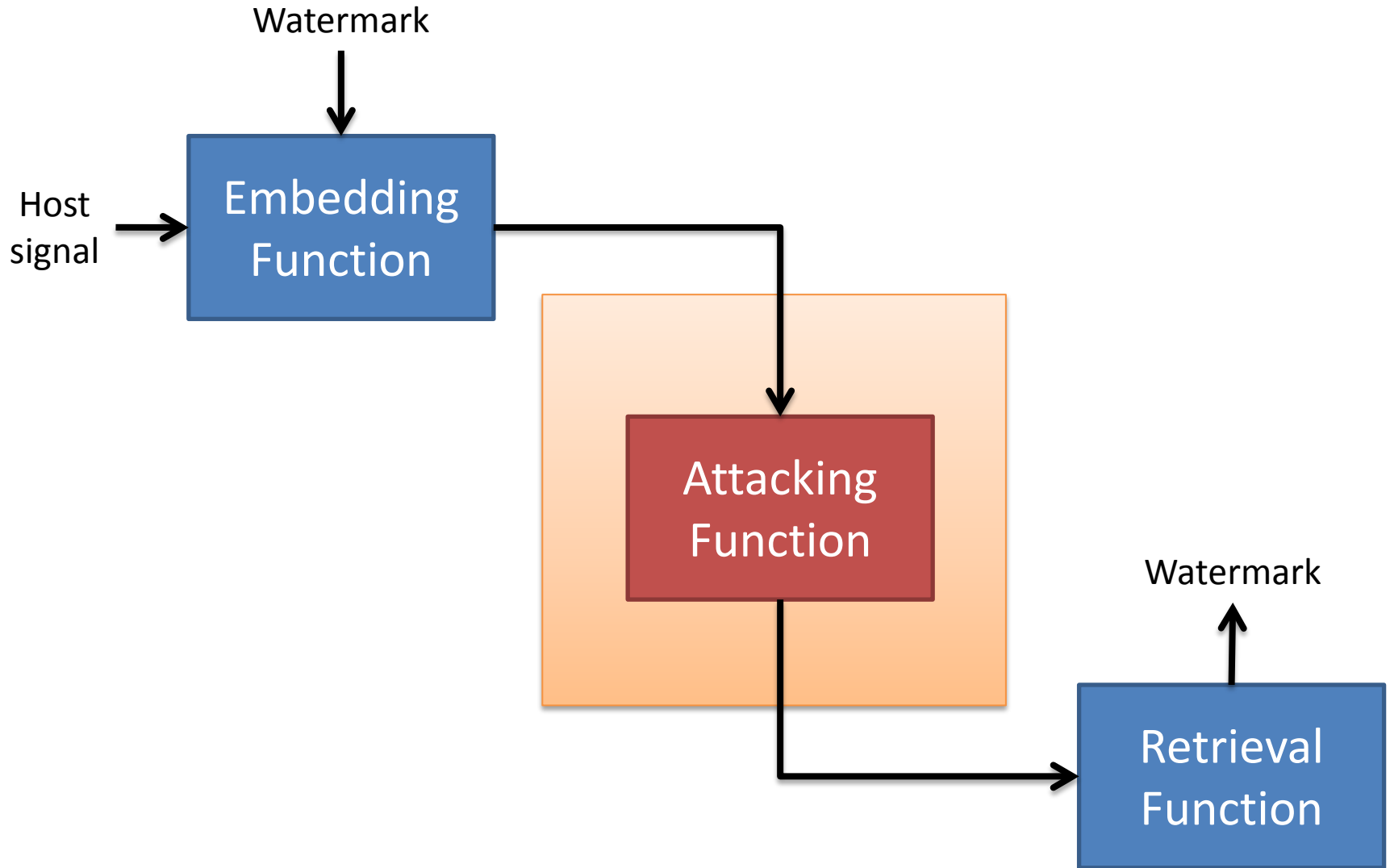# Digital Watermarking

Digital Watermarking

- Technique to add a "secret" message into a cover message:
    cover=movie, secret=copyright msg
- can be hidden or open
- **Objective**: should not be able to remove
- Usually: goal is to detect if there
- Use cases
    - Copyright protection
    - Fingerprinting: different marks for different users
    - Broadcast monitoring: watermarked video

Watermarking

Watermarking

Watermark

Host signal

Embedding Function

Watermarking Function

Watermark

Retrieval Function

- Embed a structure W into a program P s.t.
  - W can reliably be located and extracted from P even after P has been subjected to **code transformations** (translation, optimization, obfuscation)
  - Discourages intellectual property theft
- Challenge: Movie released. You transcode it so that you can watch in the phone. Watermark should still be there but *not* affect image quality.