PhotoEncryptor

By Marcos Barbieri

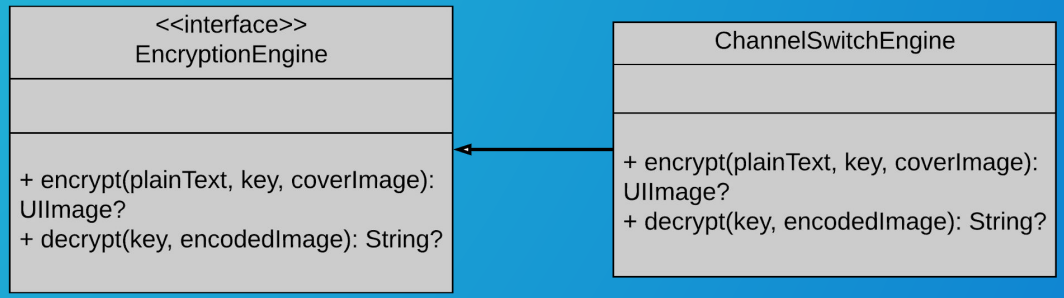
Project Background

- Platform: **iOS**
- **Language: Swift**
- Implementation:
  - ~Image Steganography
  - ~Least Significant Bit (LSB)

Channel Switching Encryption

- Red Green Blue Alpha (RGBA)
  - #00FF06 FF
- Switching channels creates diffusion
- Which channel?
  - $\{ B_i \mid i = c_j \% k \}$
  - B represents the set of channels (4)
  - c represents the character at position j
  - k represents the total number of channels

Implementation



Implementation (continued)

- Memory Access High Level Languages
  - Swift doesn't want you to access the individual pixels

```
UnsafeMutableRawPointer
?
```

```
guard let context = CGContext(data: nil,
                              width: width,
                              height: height,
                              bitsPerComponent: bitsPerComponent,
                              bytesPerRow: bytesPerRow,
                              space: colorSpace,
                              bitmapInfo: bitmapInfo) else {
    print("[ERROR] Unable to create context")
    return nil
}
context.draw(inputCGImage, in: CGRect(x: 0, y: 0, width: width, height: height))

guard let buffer = context.data else {
    print("[ERROR] Unable to extract buffer.")
    return nil
}

let pixelBuffer = buffer.bindMemory(to: RGBA32.self, capacity: width * height)
```

Things to Consider

- High level languages sometimes abstract too much
- Be mindful of the type of image that you are encrypting
- Be aware of what encoding you are using

DEMO