iPhone Forensics

An Update on Capabilities

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Sensei Enterprises, Inc.

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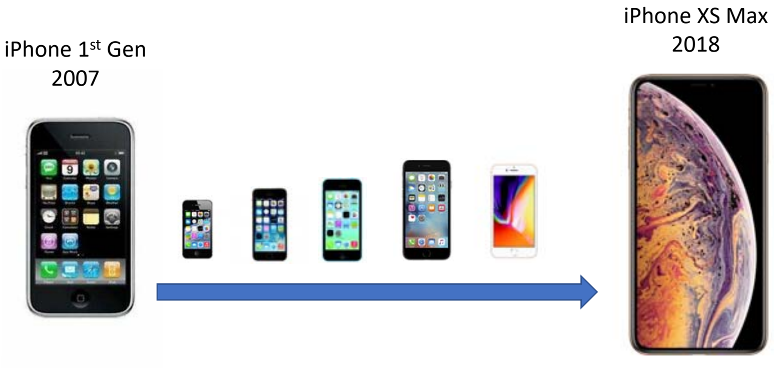
iPhone Forensics

iPhone Basics

- Introduced June of 2007 from Apple
- To date, more than 20 models released



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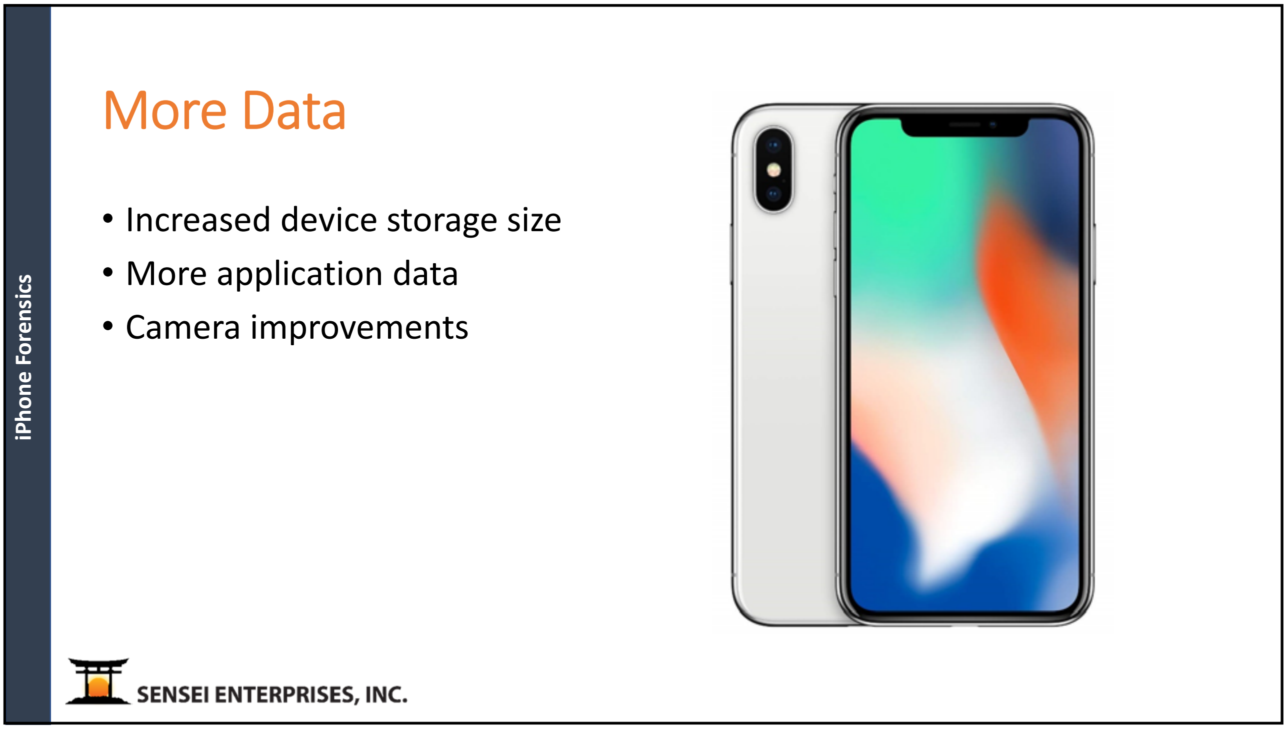

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More Data

- Increased device storage size
- More application data
- Camera improvements

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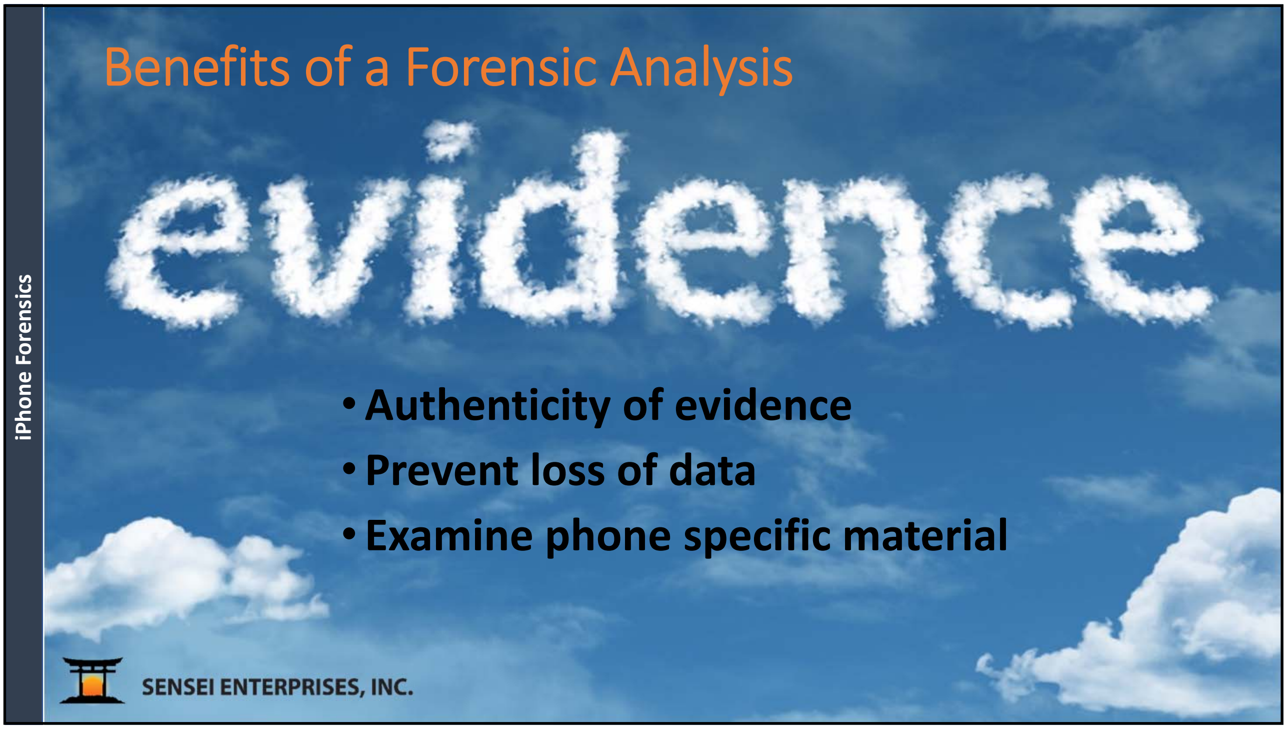

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Benefits of a Forensic Analysis

- **Authenticity of evidence**
- **Prevent loss of data**
- **Examine phone specific material**

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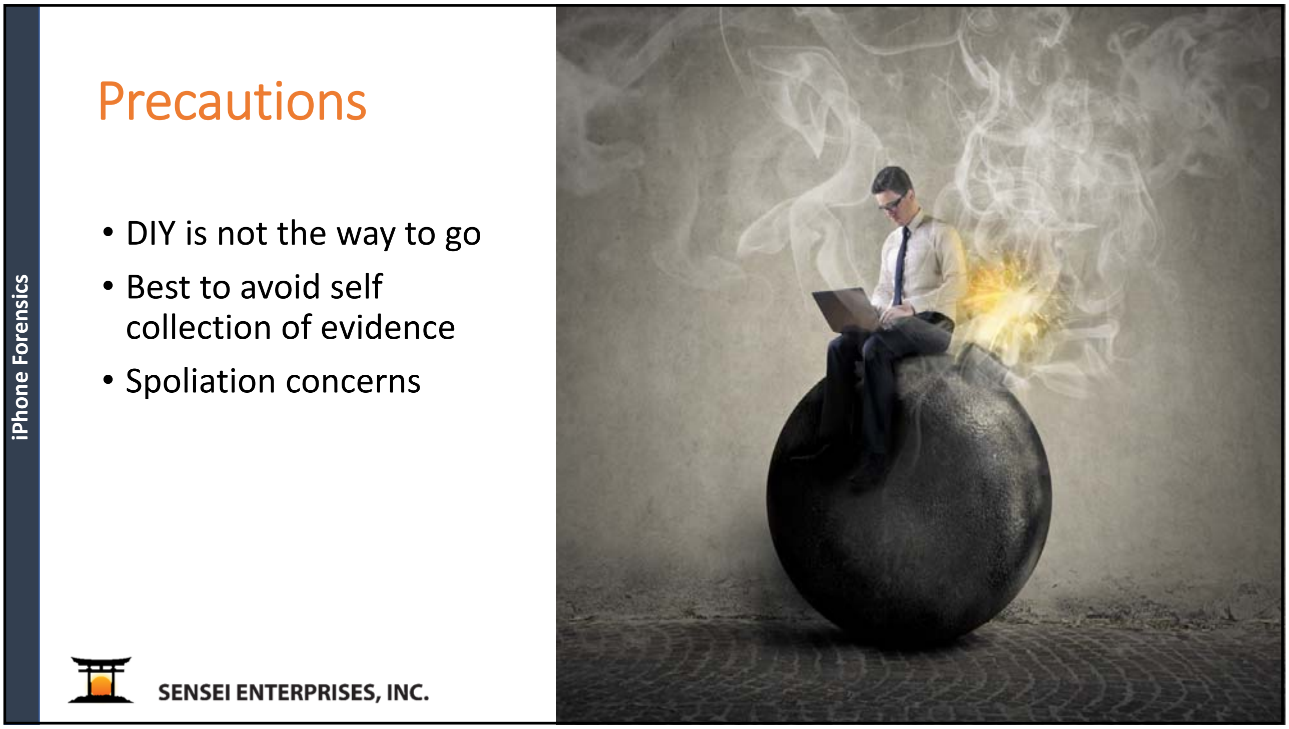

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Precautions

- DIY is not the way to go
- Best to avoid self collection of evidence
- Spoliation concerns

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Steps in a iPhone Analysis

Consultation

Preservation

Analysis

Findings

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Pre-Analysis

- Follow best practices before analysis
- Information is constantly being sent and received
- Best to turn off device, or place in airplane mode to preserve the integrity of evidence
- Ensures data does not change

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Proper Handling

- Documentation
- Photographs
- Protection against Remote Wiping
  - Ex: Airplane Mode, Faraday Technology
- Data Preservation
  - Ex: Creation of a forensic image

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Retaining an Expert

What to look for:

- Experience with mobile forensics
- Utilizing industry standard software
- Mobile device certifications

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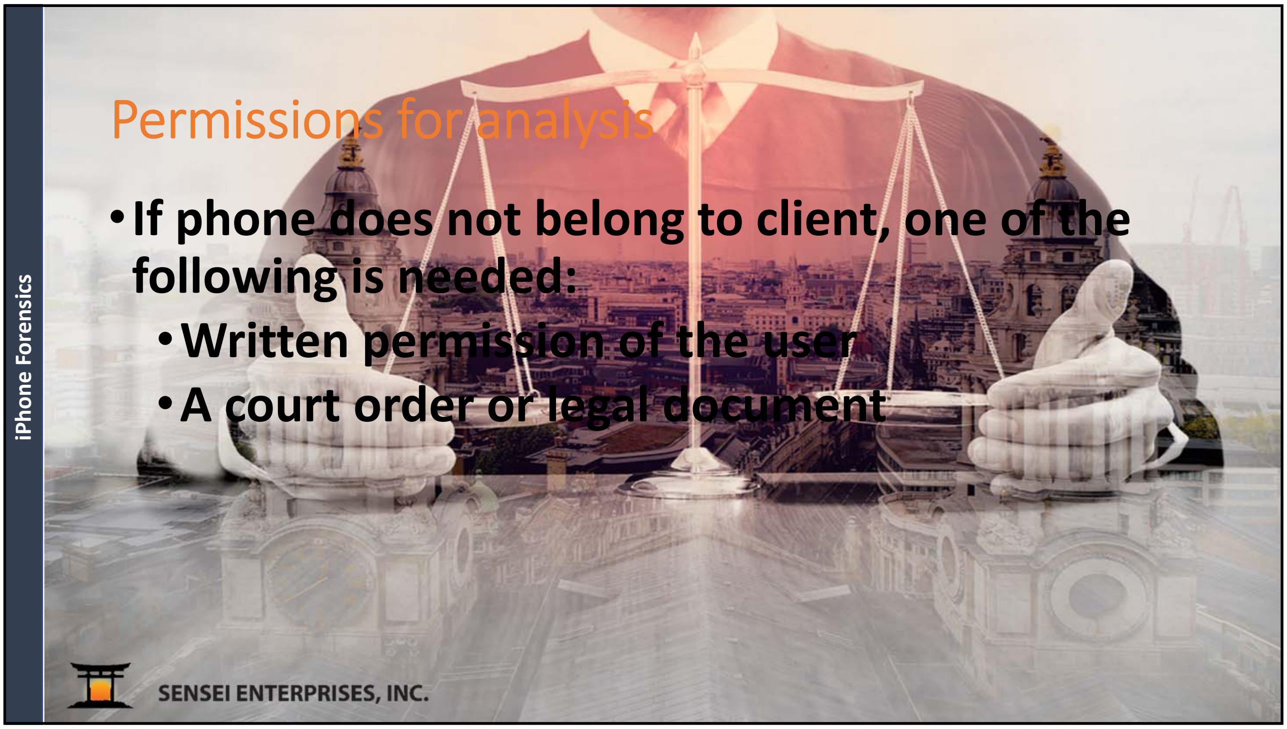

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Permissions for analysis

- If phone does not belong to client, one of the following is needed:
  - Written permission of the user
  - A court order or legal document

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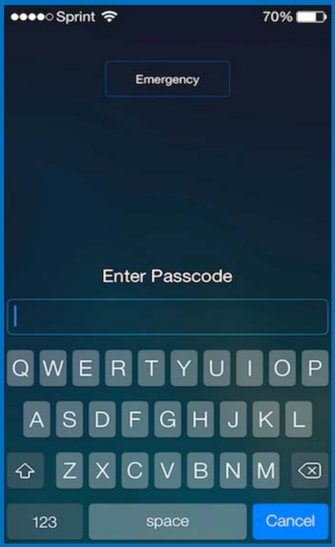
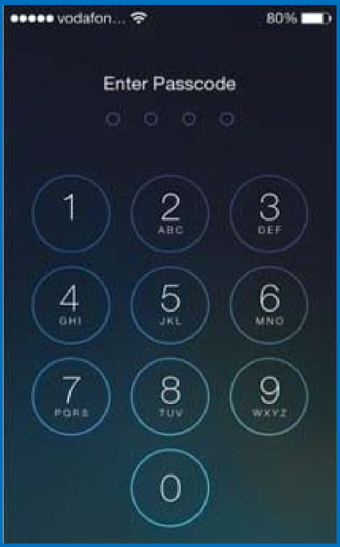
- An encrypted device prevents analysis
- Password for iPhone must be known in order to perform an examination

Passwords



Alphanumeric



Passcode

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Unlocking Features

Face ID
Touch ID

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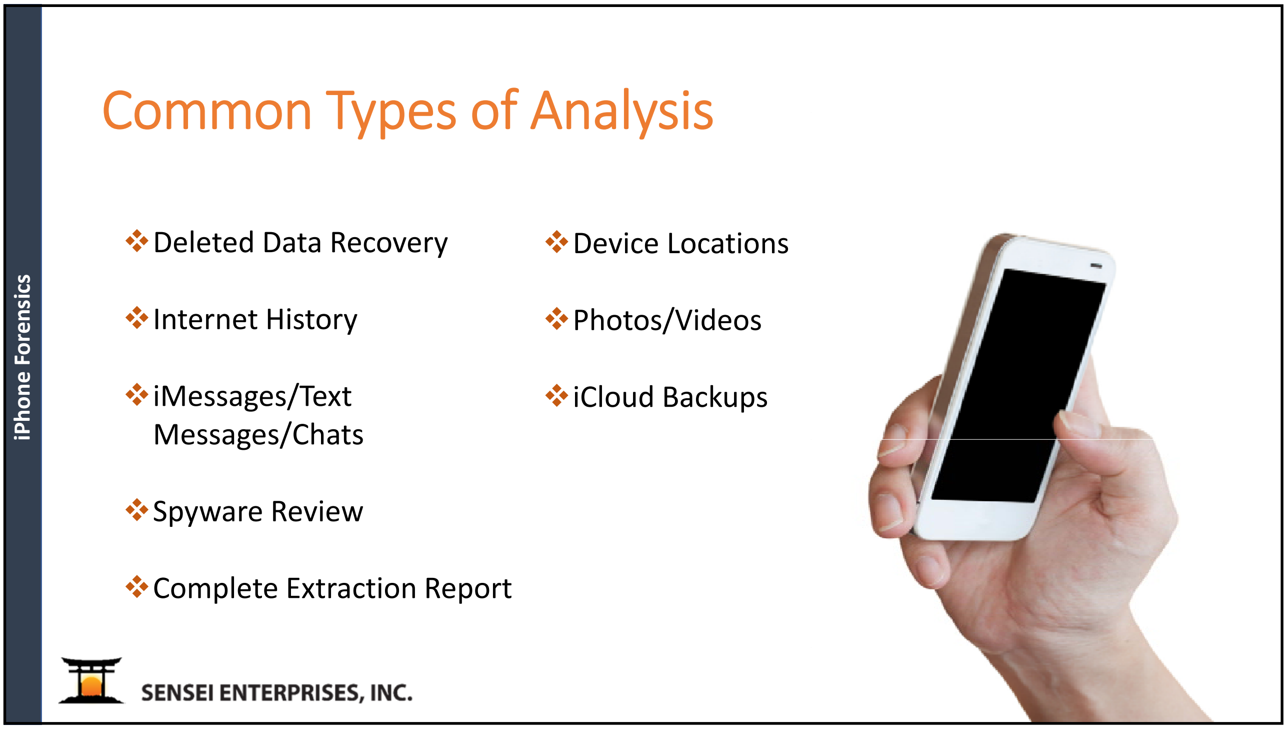

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Common Types of Analysis

- ❖ Deleted Data Recovery
- ❖ Internet History
- ❖ iMessages/Text Messages/Chats
- ❖ Spyware Review
- ❖ Complete Extraction Report
- ❖ Device Locations
- ❖ Photos/Videos
- ❖ iCloud Backups

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Deleted Data Recovery

- Regularly recovered data:
  - Communications (text messages, iMessages, instant messages, call logs, voicemails)
  - Internet History (websites visited, search terms, bookmarks)
  - Deleted images and videos
    - Not likely retained when deleted, possibly contained in backups

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Factors that affect recoverability

- Length of time that has passed since deletion
- Amount of new device activity

Overwritten data is unrecoverable

Welcome to the DMV License line! You're currently 16th in line, and your estimated wait is 54 minutes. We'll text when you reach the front of the line.

Your estimated wait is now 15 min. Please head to the Murdock Office. Need more time? Reply with "M".

You have reached the front of the License line! Please proceed to Window 7. Thanks for waiting!

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iCloud Backups

iCloud

- Service tasked with backing up information stored on Apple devices
- If enabled, may contain information that has since been deleted from the iPhone
- To verify if backups are present, use Apple ID credentials
- Cannot get if two-factor authentication is enabled, which is now by default

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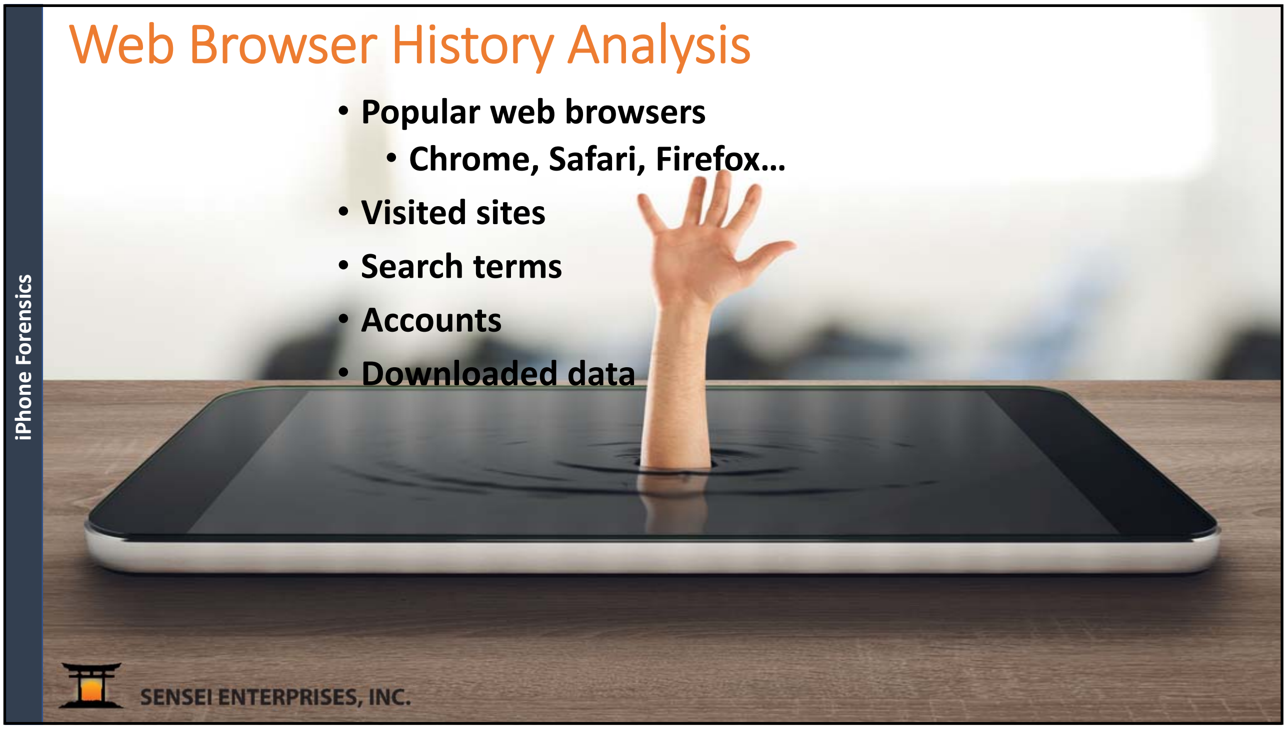
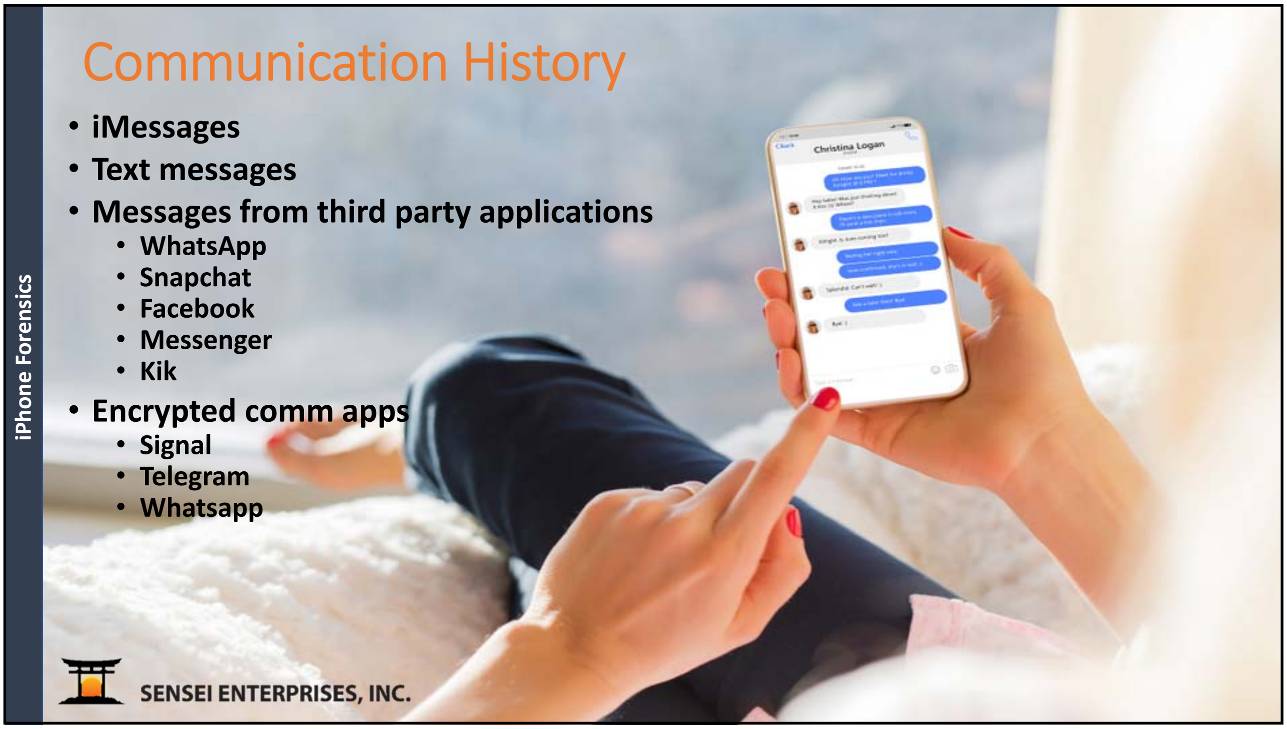
Web Browser History Analysis



- Popular web browsers
  - Chrome, Safari, Firefox…
- Visited sites
- Search terms
- Accounts
- Downloaded data



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Communication History

- iMessages
- Text messages
- Messages from third party applications
  - WhatsApp
  - Snapchat
  - Facebook
  - Messenger
  - Kik
- Encrypted comm apps
  - Signal
  - Telegram
  - Whatsapp

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