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Ephemeral Messaging, Deepfakes and Digital Forensics

Presented to:


The Institutes®
CPCU Society

Beyond Face Value:
What's Real in Insurance

November 3, 2022 | 8:15 AM CST

Three Gateway Center, 100 Mulberry Street, 15th Floor Newark, NJ 07102
New Jersey | New York | Pennsylvania

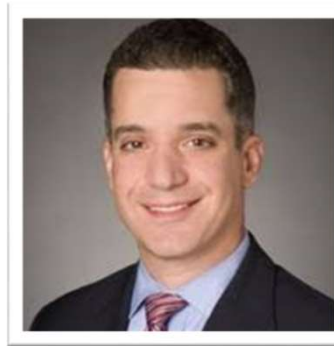
Ephemeral Messaging, Deepfakes and Digital Forensics

Presented By:



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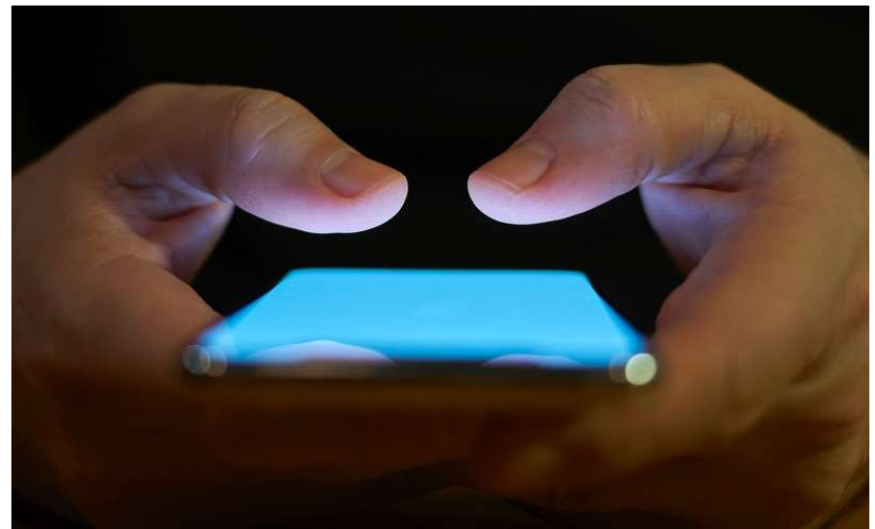
Agenda

- **Ephemeral Messaging**
 - What is the EM use case and what can be gleaned from judicial and administrative responses to EM?
- **Deepfakes**
 - AI-created fake images or videos – what could be the impact?
- **Digital Forensics**
 - What is the latest and on the horizon?

Ephemeral Messaging

What is Ephemeral Messaging?

- **Ephemeral: Something that lasts for a short time**
- **Ephemeral Messaging Products**
 - Feature some version of disappearing messages
 - Offer some degree of control
 - Represent somewhat of a seismic shift vs. traditional instant messaging



Ephemeral Messaging

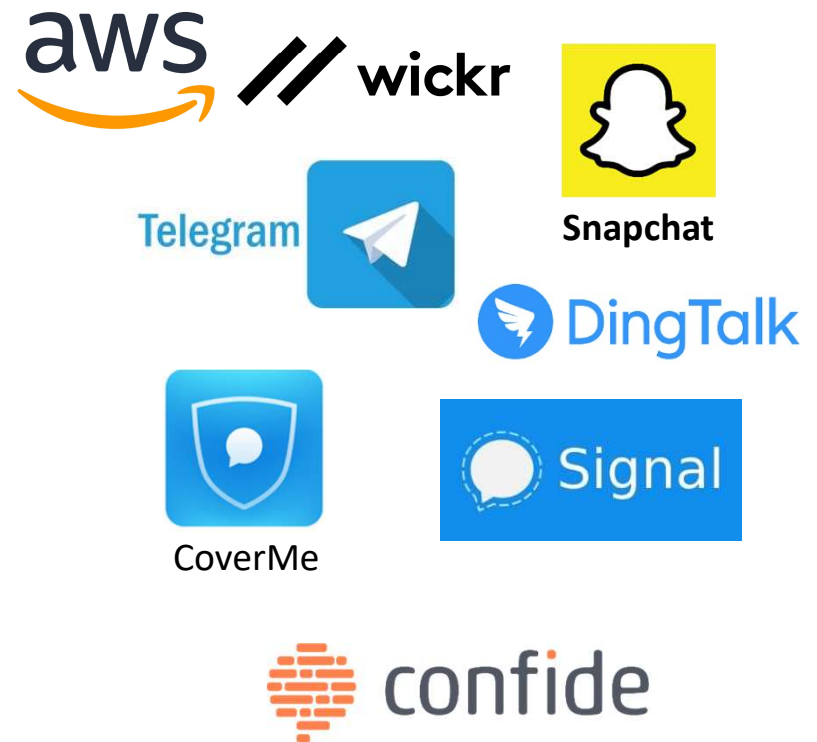
What is Ephemeral Messaging?



Ephemeral Messaging

Functionality

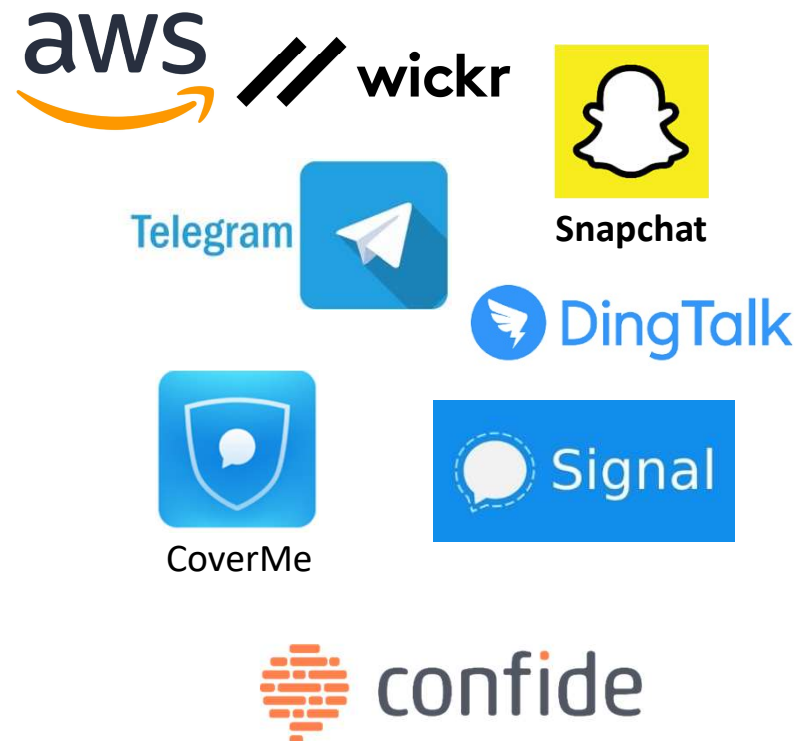
- From fun to serious business –
- e.g., Wickr, Snapchat, Telegram, Hash, Cover Me, Signal, Confide
 - All have consumer roots
 - Goal: Tech equivalent of a face-to-face conversation
- Delete communications after read or a specified time period, usually less than a year
- Some offer a high degree of security, i.e. encryption



Ephemeral Messaging

Functionality

- **Drivers for business use**
 - Early adopters, tip of spear users and use cases
 - Data retention is a key element of data security and privacy
 - Data retention and destruction policies are standards
 - Safer/cheaper/better to delete data you don't need
 - Ex: DNC/John Podesta



Ephemeral Messaging

Use Cases

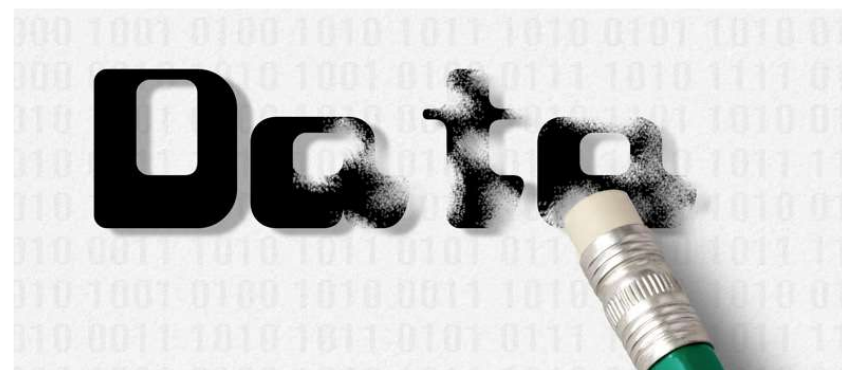
- Hacking and data breaches are inevitable
- End-point security techniques will likely not be successful
- Hence the need for secure and disappearing communications
- If the messages are gone, losses in a breach are minimized



Ephemeral Messaging

Product Variations – Technical Considerations

- Wide differences in forensic data recoverability from product to product
- Is data really gone:
 - From the device?
 - Can you access app data on the device?
 - Does the app use an encrypted container?
 - Assuming you can access device data
 - Are deleted messages actually deleted?
 - Are they forensically recoverable?
 - From the Server (Service)?
 - Does the service store message content?
 - Assuming yes – does it live beyond the time it autodeletes on user devices?



Ephemeral Messaging

Compliance Issues

- 2017 – DOJ’s policy pronouncement cast doubt on companies receiving cooperation credit which do not outright prohibit use of ephemeral messaging apps.
- 2019 – DOJ softened that policy, shifting from prohibition (for firms seeking to demonstrate cooperation) to requiring “appropriate guidance and controls on the use of personal communications and ephemeral messaging platforms.”
- September 15, 2022 – The “rise in use of ... ephemeral and encrypted messaging [apps] poses a [corporate compliance] challenge. *** Prosecutors should also consider whether a corporation seeking cooperation credit in connection with an investigation has instituted policies to ensure that it will be able to ***collect and provide to the government*** all non-privileged responsive documents ...”

Ephemeral Messaging

Compliance Issues

- **Organizations need to craft effective ephemeral messaging use policies:**
 - Choice of platform: does it offer compliance options?
 - Controls and policies:
 - dictate which categories of communications are appropriate for such platforms.
 - set guidelines for separating personal and business use of ephemeral messaging.
 - set message deletion or retention timings based on specific requirements.
 - have a plan in place to implement a litigation hold.
 - Enforcement practices: policies don't matter if they're not followed.
 - police whatever policy you implement.

Ephemeral Messaging

Compliance Issues

- Concerns from the federal bench on managing e-discovery
- 2020 Judicial Survey conducted by Exterro
 - 20 federal district and magistrate judges surveyed
 - 70% of respondents replied that, of all new data types, attorneys should be most concerned with ephemeral messaging apps



Ephemeral Messaging

Courts React



Waymo LLC v. Uber Technologies, Inc., 2018 WL 646701 (N.D. Cal. Jan. 30, 2018)

- Trade secret misappropriation case filed early 2017. Google's Waymo sued Uber over self-driving technology allegedly taken (downloaded) by non-party former Waymo employee Anthony Levandowski before his late 2015 abrupt departure from Waymo.
- In early 2016, Uber executives use Wickr to communicate internally during the period in which Uber was (i) deliberating about acquiring Levandowski's Ottomotto LLC (formed upon departure) and (ii) working with an outside law firm and digital forensic experts. Those messages were gone by the time of the litigation.

Ephemeral Messaging

Courts React



Waymo LLC v. Uber Technologies, Inc.

“Uber’s use of ephemeral messaging may ... explain gaps in Waymo’s proof that Uber misappropriated trade secrets or ... supply proof that is part of the res gestae of the case.”

“Waymo may adduce certain facts before the jury to show that Uber sought information about the technical details of Waymo’s self-driving technology, and that Uber sought to minimize its ‘paper trail’ by using ephemeral communications.”

Ephemeral Messaging

Courts React

Little v. JB Pritzker for Governor, et al., 2020 WL 13189999 (N.D. Ill. Mar. 26, 2020)

- **Plaintiffs are former campaign workers who alleged race discrimination and retaliation against the campaign. One of the plaintiffs resigned on February 18, 2018 and signed a separation agreement.**
- The campaign was using Wickr and did not change Wickr settings to stop auto-delete functions after the resignation in question.
- **The court:**
 - “[A]n employer’s request that an employee sign [a separation] agreement does not necessarily imply that litigation can be anticipated.”

Ephemeral Messaging

Courts React

FTC v. Noland, 2021 WL 3857413 (D. Ariz. Aug. 30, 2021)

- **FTC investigates a pyramid scheme. A bank mistakenly discloses to the targets/defendants that it had received a subpoena.** Defendants immediately switched to using Signal and cause others to do likewise, with auto-delete “on”.
- **The court granted an “adverse inference” sanction:**
“The most decisive factor is the timing of the installation and use of Signal and ProtonMail. The Individual Defendants installed these apps in late May 2019, one day after Noland discovered the FTC was investigating him and SBH.”

Ephemeral Messaging

Courts React

WeRide Corp. v. Kun Huang, 2020 WL 1967209 (N.D. Cal. Apr. 24, 2020)

- **In a case alleging trade secret misappropriation**, defendants began using ephemeral messaging platform DingTalk to communicate among themselves **well after the court had ordered documents be preserved**.
- **Defendants also actively destroyed, or allowed to be destroyed**, a significant amount of data, information, and hardware.
- **The court:**
 - used a multi-factor test to consider what sanctions would be appropriate;
 - decided defendants had shown a pattern of willful contempt for court orders and their actions had severely hampered the plaintiffs' ability to prove their case; and
 - entered a default judgment against the defendants, after finding that lesser sanctions would not suffice to render justice.

Ephemeral Messaging

Courts React

Herzig v. Ark. Foundation for Med. Care, 2019 WL 2870106 (W.D. Ark. July 3, 2019)

- **In age discrimination case, court orders production of certain text messages;** thereafter plaintiffs switch to Signal (auto-delete activated) continue to communicate with each other and with a non-party former employee fact witness.
- **The court:**
 - inferred that the Signal messages were responsive to requests for production based on the content of their previously produced text messages (and based on plaintiffs' prior reluctance to produce).
 - determined that conduct was intentional and in bad faith based on plaintiffs' IT sophistication and the manual configuration of Signal to delete messages.
- **Summary judgment granted so sanctions moot.**

Ephemeral Messaging

The Sedona Conference Analysis of Ephemeral Messaging

- **Ephemeral Messaging – Nature and Scope**
 - Automated Deletion
 - End to End Encryption
 - Other Considerations
- **Tensions Associated with Using Ephemeral Messaging**
 - Benefits of Ephemeral Messaging
 - For organizations or individual users
 - Risks of Ephemeral Messaging
 - Regulatory, operational, and legal risks

The Sedona Conference, *The Sedona Conference Commentary on Ephemeral Messaging*, The Sedona Conference Working Group Series, January 2021.

Ephemeral Messaging

The Sedona Conference Analysis of Ephemeral Messaging

EM is a form of *data minimization*

- Can help achieve GDPR, CCPA compliance
 - EU requires deletion of stale data, has fined companies following a breach releasing PII
 - CCPA incentivizes reduction of data footprint.
- NY State requires financial services companies to implement policies and procedures for the secure disposal of non-public information

The Sedona Conference, *The Sedona Conference Commentary on Ephemeral Messaging*, The Sedona Conference Working Group Series, January 2021.

Ephemeral Messaging

The Sedona Conference Guidelines for Ephemeral Messaging Use

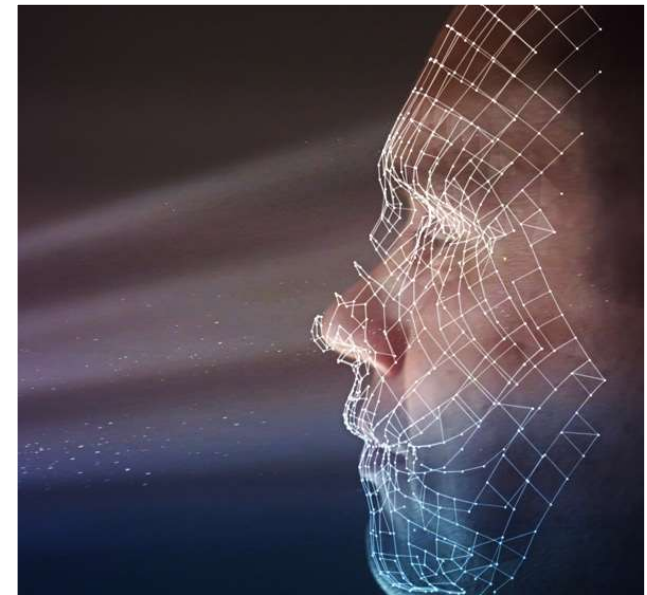
- **Guideline One:** Regulators and Courts Should Recognize that Ephemeral Messaging May Advance Key Business Objectives
- **Guideline Two:** Organizations Should Take Affirmative Steps to Manage Ephemeral Messaging Risks
- **Guideline Three:** Organizations Should Make Informed Choices and Develop Comprehensive Use Policies for Ephemeral Messaging Applications
- **Guideline Four:** Regulators, Courts, and Organizations Should Consider Practical Approaches, Including Comity and Interest Balancing, to Resolve Cross-Jurisdictional Conflicts over Ephemeral Messaging
- **Guideline Five:** Reasonableness and Proportionality Should Govern Discovery Obligations Relating to Ephemeral Messaging Data in U.S. Litigation

The Sedona Conference, *The Sedona Conference Commentary on Ephemeral Messaging*, The Sedona Conference Working Group Series, January 2021.

Deepfakes

An Arms Race

- A Deepfake uses AI-based facial and audio recognition and reconstruction technology.
- AI predicts facial movements and vocal sounds.
- Software uses machine learning to iteratively compare images.
- Software creates a substitute of the target image applied to the base image.
- AI can detect a deepfake.
- But it's an arms race, and a costly one.



Deepfakes

Pictures That Are Not Worth Anything



https://video-player.buzzfeed.com/embed?video_id=52602

Deepfakes

Possible Litigation Impacts

- A party to a lawsuit creates a video of a key expert saying something she/he never said. Winds up in social media. Then what?
- Courts may respond by imposing a chain of custody history for video evidence. Metadata would show that a video came from a particular server and was transmitted in a controlled manner.
- Could result in a mini-trial or a hearing among experts seeking to differentiate real from fake.
- Challenges place financial burden on litigants.
- Dystopian implications in which all evidence is deemed “fake”, and no one trusts anything.

Deepfakes

Authentication: U.S.



- **Rule 901(a)** “the item is what the proponent claims it is.”
- **(b)(1) “Testimony of a Witness with Knowledge”**
 - E.g., a witness who can testify that she sent or received a particular communication or posted or viewed a message or photo on social media.
- **(b)(3) “Comparison by an Expert Witness or the Trier of Fact”**
- **Seek to preclude self-authentication under Rule 902(13) or (14).**
- **Motion practice would be under Rule 104 – Preliminary Questions**
 - “The court must decide any preliminary question about whether a witness is qualified, a privilege exists, or evidence is admissible.”

Deepfakes

Litigation Impacts

Lots of Defendants argue: “It’s not me, its a deepfake!”

People v. Smith, 2021 WL 641725 (Mich. Ct. App. Feb. 18, 2021)

- During an assault trial, **four Facebook posts with photos and a Facebook Live video** were submitted as evidence. The court allowed these exhibits because they were **authenticated by the testimony of an expert**.
- The court warned: “[I]n the age of fake e social-media accounts, hacked accounts, and so-called deep fakes, a trial court faced with the question whether a social-media account is authentic must itself be mindful of these concerns.”
- This uncertainty may not initially affect the admissibility of such evidence, but it **may affect the jury’s assessment of its credibility**.

Deepfakes

Efforts at Self-Policing

- **Social media** companies are slowly trying to make headway in policing Deepfakes, but with limited effectiveness.
- **Google Play Store** banned apps that allow the deceptive manipulation of media.
- **Twitter** deletes or labels media which are “significantly and deceptively altered, manipulated, or fabricated.”
- **Facebook** “aims to remove” misleading videos that have been edited or manipulated using Deepfake technology, but the policy does not apply to media edited using less intrusive technology.



Deepfakes

Social Media Policies

- Twitter's [pre-Musk] policy uses a three-factor matrix to police manipulated media and is [was] quite robust.
- Reddit and YouTube both consider context and intent behind the distribution of manipulated media when determining content to disallow.
- Facebook's Deepfakes policy does not extend to content that it considers parody or satire.
- The issue of social media platforms deciding which Deepfakes to permit, label or prohibit therefore persists.



Digital Forensics



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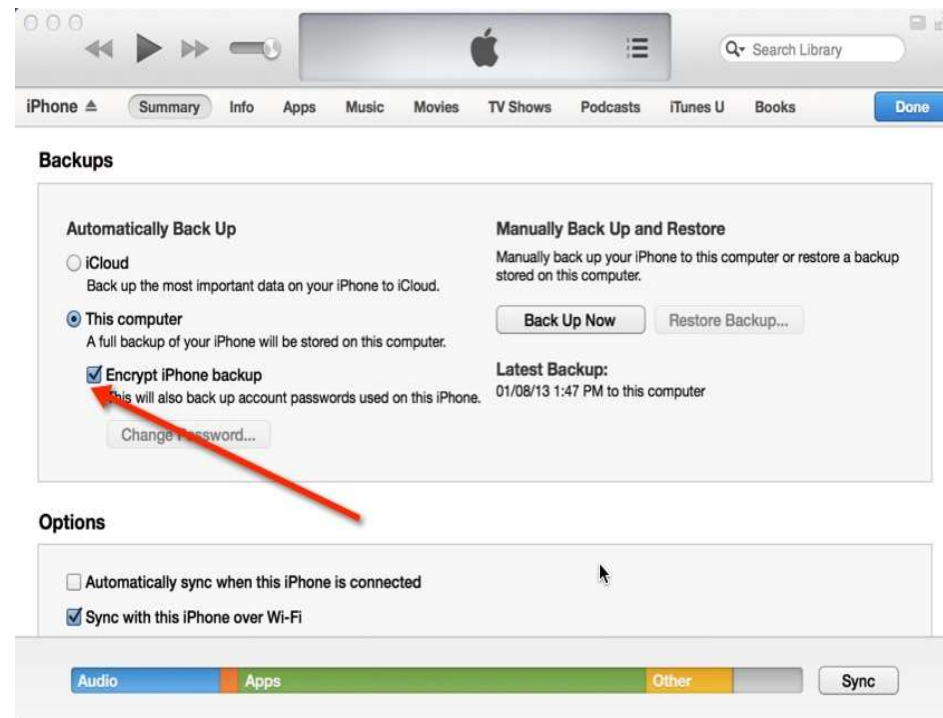
More and More Texting!



Digital Forensics

Apple Backup Encryption

- Challenge of accessing information with a court order
- Encrypted devices unusable without passwords
- Multiple password iterations create difficulties
- Unable to crack passwords using current vendor tools



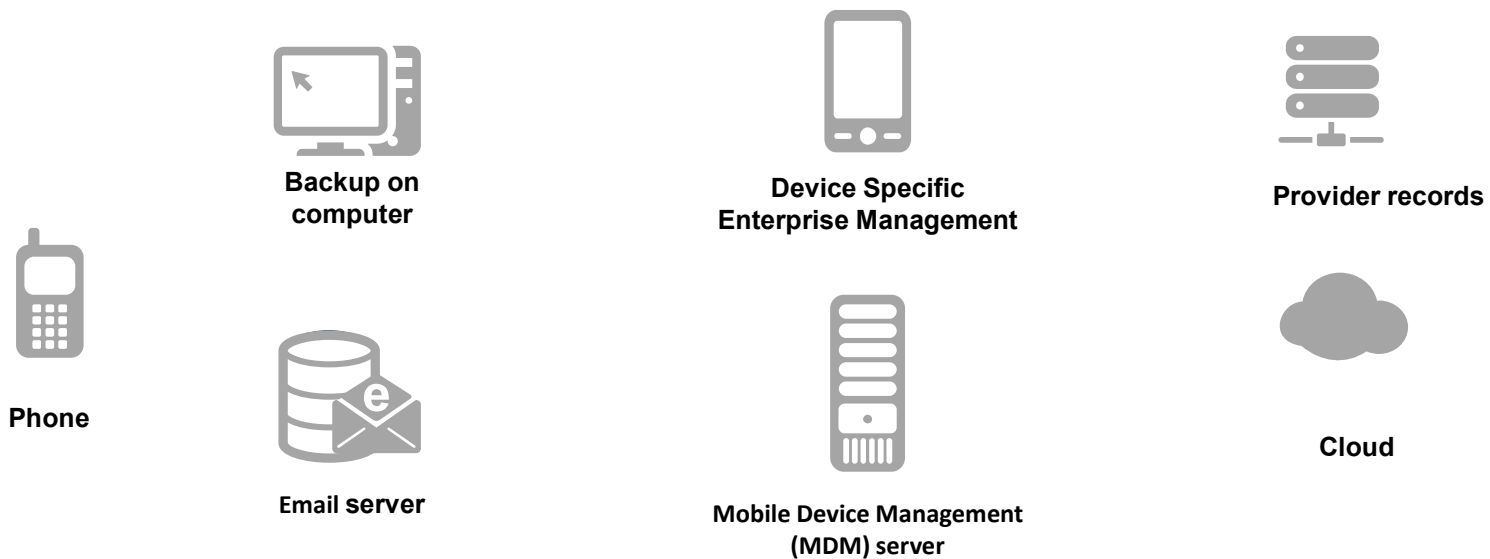
Digital Forensics



ELCOMSOFT
DESKTOP, MOBILE & CLOUD FORENSICS



Mobile Devices – Where is the Data?



Various Ways to Preserve/Collect iPhone Data

- Forensic Imaging of Actual Phone using Cellebrite
- Forensic Imaging of backup saved to iCloud
- Collection of additional iCloud backups
- Searching for Additional Synced Message data on iCloud
- Pulling additional messaging from third party apps (i.e., WhatsApp, WeChat, etc.)
 - Would need to have usernames and passwords



Text Message Review & Production Options

Participants (3)

Jimmy DeLocke +16154956320
Willie Steelum +19732206574
+16155079714

Conversation

Select/Deselect all 4 messages

From: Jimmy DeLocke
Add me on Snapchat! Username: jdelocke <http://snapchat.com/download?ref=a>
7/30/2013 3:06:31 PM(UTC-7)

From: Jimmy DeLocke
Hit me on my burner at +18327865698 if you want to connect! Get your own at <http://bmr.me/c4dK>
7/30/2013 3:09:35 PM(UTC-7)

To: Unknown
Add me on Snapchat! Username: owencash <http://snapchat.com/download?ref=a>
8/6/2013 9:12:34 AM(UTC-7)

To: Willie Steelum
Meet me downstairs. New plan.
8/6/2013 9:40:17 AM(UTC-7)

Return to document list

SMS-0000000015

Viewer Extracted Text

Basic Default

11 messages between Jan 31, 2019—Feb 2, 2019

Thursday, January 31, 2019

Mike, Jim, Vince, Karl 4:21 PM — 10:25 PM

Mike Saucedo 4:21 PM
Hey everyone is really excited about the Relativity Short Message feature

Jim Witte 10:25 PM
I received a ton of positive feedback at Legal Week. Customers love this new Relativity feature ❤️❤️❤️

Friday, February 1, 2019

Vince Raso 10:02 AM
Left the conversation
The team has been working great together to get this into Blazingstar

Karl Knoernschild 12:47 PM
Joined the conversation
The new dedicated reviewer for short message files is awesome. I love the participant pane, short message viewer, and timeline navigator

Mike Saucedo EDITED 6:53 PM
It has come a long way from the Fest demo.

Timeline: Jan 31 4 PM, 11 PM, 5 AM, 11 AM, 5 PM, Feb 1 11 PM, 5 AM, 11 AM, 4 PM

Hide Timeline



Producing Mobile Device Data

Some courts expect more from counsel:

- ***Edwards v. Junior Am. Found.***, No. 4:19-CV-140-SDJ, 2021 WL 1600282 (E.D. Tex. Apr. 23, 2021).
 - After failure to provide Facebook messages in requested format, court prohibited plaintiffs from admitting messages as screenshots.



Phone Apps

Apps and More Apps!

- The average user has about 70 installed apps on their device plus the ones that come with the phone.
- Each app has its own way of storing data and a database associated with them.
- Tools out there know how to identify less than 20 percent of app data.
- Some app data can't be encrypted, while some can.
- Apps change their code constantly.



App Store

Fitbits & Health Trackers

Plaintiff who alleges hip implant injuries must turn over Fitbit data, federal judge rules

BY DEBRA CASSENS WEISS

MAY 26, 2021, 10:49 AM CDT

- A federal court in Texas ruled in 2016 that a mobile app indicating that a plaintiff performs strenuous activities could be relevant to claims of injuries.
- A New York court ruled against a request for Fitbit records in 2020, when a defendant wanted to know how a plaintiff managed to lose 50 pounds, despite her car crash injuries.



Be on the Lookout for Spoliation



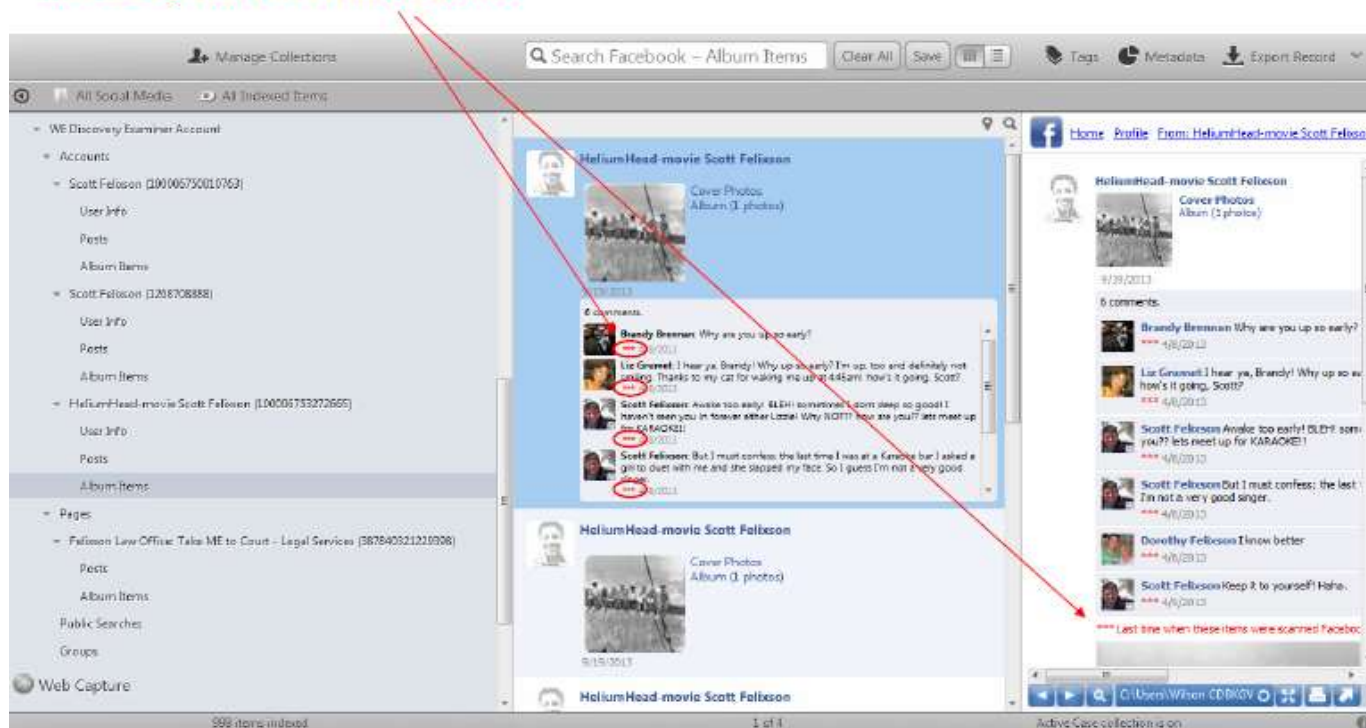
Mobile Devices in Litigation

“Every one of the custodians were asked the explicit question do they use these devices for personal use – for work-related use, and they disavowed it, some multiple times. . . . several high priority custodians [later confirmed though] that they used their personal mobile devices for work-related purposes.” *Small v. Univ. Med. Ctr. Of So. NV*, No. 2:13-cv-00298, *25 (D. Nev. Aug. 18, 2014)

In this case, the defendant admitted to “trashing” items from his iPad and later resetting the device, he argued that he did not realize that the software would automatically and permanently delete them. The Plaintiff’s expert outlined the many affirmative steps the defendant would have had to take to delete those items. The Court found default judgment was the only effective sanction to remedy these intentional discovery violations. *Atalian U.S. New England, LLC v. Navarro*, 2022 WL 2681297 (D.R.I. July 12, 2022).

Social Media Preservation Tools

INDICATION THAT PREVIOUSLY COLLECTED POSTS
WERE SUBSEQUENTLY DELETED BY PLAINTIFF.



Mobile Device Metadata – Tracking Location

Details

Events (0)



Name: FullSizeRender.jpg

Type: Images

Size (bytes): 2550777

Path: IGNATIUS's iPhone/var/mobile/Media/PhotoData/Mutations/DCIM/108APPLE/IMG_8932/Adjustments/FullSizeRender.jpg

Created: 4/7/2018 9:05:24 PM(UTC-4)

Accessed:

Modified: 4/7/2018 9:05:24 PM(UTC-4)

Deleted:

Extraction: Logical

MD5: 3420d5eb4619b32cabfc4f8877e05b2c

Metadata

Camera Make: Apple

Camera Model: iPhone 7

Capture Time: 4/7/2018 19:00

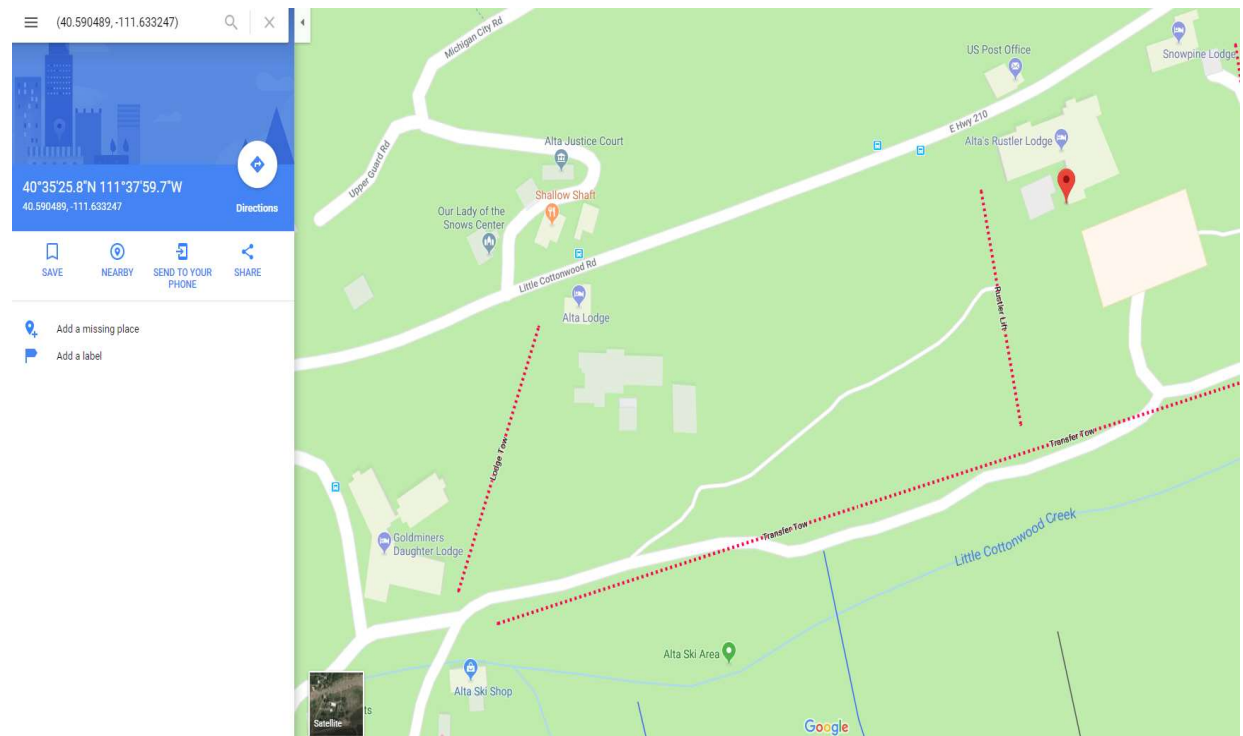
Pixel resolution: 3021x3729

Resolution: 72x72 (Unit: Inch)

Lat/Lon: 40.590489 / -111.633247

Map

Position: (40.590489, -111.633247)



Inadvertent Productions of Mobile Device Data



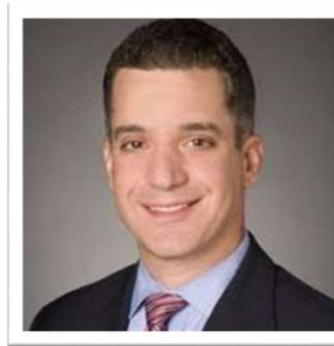
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