



Evidence Solutions, Inc.

And the

Texas Trial Lawyers Association

Present:

Trucking Case Digital Evidence & Manipulation

May 14, 2020

Online

Austin Texas

Presented by:

Scott Greene, SCFE, CEO

Evidence Solutions, Inc.

A Digital Forensics Company:

Car and Truck Black Boxes

Electronic Logging Devices / ELDs

Cell Phones

Infotainment Systems

Global Positioning Systems / GPS

Airbag Modules / EDRs

Telematic Systems (Telematics)

866-795-7166

Scott@EvidenceSolutions.com



Biography

Scott Greene

Scott is the CEO of Evidence Solutions, Inc. Scott Greene has been doing Data Recovery, Computer, Technology and Digital Forensics, and EDiscovery work for over 35 years.

Directly out of high school, Scott went to work for IBM as a programmer.

In 2008 he created Evidence Solutions, Inc., a full service Computer, Technology & Digital Forensics firm, from the Technology Forensics department of Great Scott Enterprises.

Scott has developed and presented strategic planning seminars, taught numerous classes in database design & optimization, cyber security and technology forensics. Scott's extensive knowledge draws clients to him from all over the United States as well as Internationally for consulting and expert witness services in the field of Technology, Computer & Digital Forensics. His extensive and diverse experience allows him to be an expert in many facets of computer & digital technology.

Scott and Evidence Solutions have been involved in Civil & Criminal Cases, for Plaintiff, Defense and Special Master in Justice, Superior & District Courts as well as Internationally.

He is a sought after speaker and educator and travels throughout the country presenting to local, regional, national and International organizations.

Computer, Technology, and Digital Forensics for Over 35 Years.

www.EvidenceSolutions.com

Scott@EvidenceSolutions.com

Case Studies in
Trucking Case
Digital Evidence
& Manipulation

Faculty:
Scott Greene

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Electronic Logging Devices
(ELDs)

- ELDs must be installed and in use by the December 16, 2017 deadline which is two years after the publication date. The mandate applies to all drivers who are required to keep records of duty status, except commercial drivers who 1) drive eight or fewer days out of every 30 working days; 2) drivers in drive-away and towing operations and 3) operators who are driving vehicles older than model year 2000.

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Electronic Logging Devices (ELDs)

- ELDs must be able to automatically record date, time and location information. Location will generally be in the form of GPS coordinates, but GPS is not required. It also must record engine hours which must be synchronized from the engine on and off time. Finally, the vehicle miles and driver identification information must be logged.

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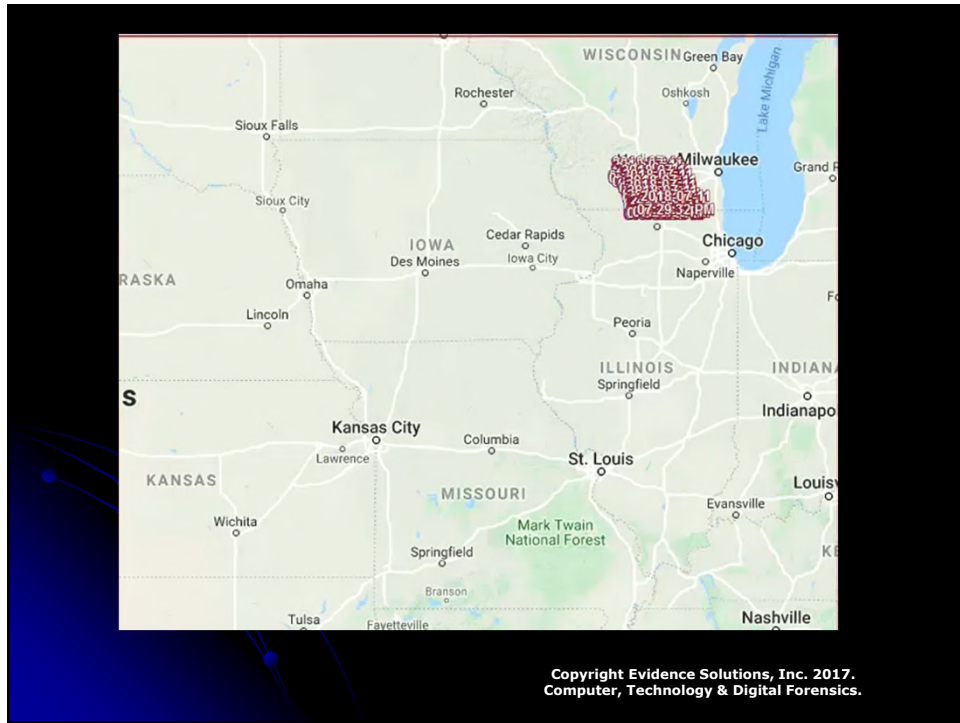
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Trucks & Hyperspace

- Some 18 wheelers now have the ability to make hyperspace jumps.

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5



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- This driver disrupted his Omnitrac's Device from recording his location and drove more than 2 hours without being logged.
- I thought his company was in collusion with him, but it turns out, while they should have known, they didn't know.
- Always ask for the GPS Coordinates in electronic / digital form (Excel CSV files)

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Bytes Per Minute Analysis

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8

1329977.002
06/12/2013
SCAMP

MOBILITY USAGE

Run Date: 06/12/2013
Run Time: 17:41:35
Voice Usage For: (480) [REDACTED]
Account Number: 81342 [REDACTED]

Item	Conn. Date	Conn. Time	Seizure Time	Originating Number	Terminating Number	Elapsed Time	Number Dialed	IMSI	IMSI	Description
1	01/01/11	05:36A	0:22	[REDACTED]	[REDACTED]	0:00	[REDACTED]	35349104165148	310410366057466	m2M_DIR
2	01/01/11	05:37A	0:02	[REDACTED]	[REDACTED]	0:06	[REDACTED]		310410366057466	M2m
3	01/01/11	05:37A	0:27	[REDACTED]	[REDACTED]	0:06	[REDACTED]		310410366057466	m2M
4	01/01/11	09:09A	0:10	[REDACTED]	[REDACTED]	4:42	[REDACTED]	35349104165148	310410366057466	m2M_DIR
5	01/01/11	09:31A	0:08	[REDACTED]	[REDACTED]	3:22	[REDACTED]	35349104165148	310410366057466	m2M_DIR
6	01/01/11	09:35A	0:05	[REDACTED]	[REDACTED]	1:05	[REDACTED]	35349104165148	310410366057466	M2O_DIR
7	01/01/11	09:38A	0:05	[REDACTED]	[REDACTED]	0:47	[REDACTED]	35349104165148	310410366057466	M2O_DIR
8	01/01/11	09:40A	0:23	[REDACTED]	[REDACTED]	0:06	[REDACTED]	35349104165148	310410366057466	M2O_DIR
9	01/01/11	09:42A	0:08	[REDACTED]	[REDACTED]	0:31	[REDACTED]	35349104165148	310410366057466	M2O_DIR
10	01/01/11	09:45A	0:01	[REDACTED]	[REDACTED]	0:00	[REDACTED]	35349104165148	310410366057466	M2O_DIR

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9

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3	01/01/11	05:37A	0:27	[REDACTED]	[REDACTED]	0:06	[REDACTED]
4	01/01/11	09:09A	0:10	[REDACTED]	[REDACTED]	4:42	[REDACTED]
5	01/01/11	09:31A	0:08	[REDACTED]	[REDACTED]	3:22	[REDACTED]
6	01/01/11	09:35A	0:05	[REDACTED]	[REDACTED]	1:05	[REDACTED]
7	01/01/11	09:38A	0:05	[REDACTED]	[REDACTED]	0:47	[REDACTED]
8	01/01/11	09:40A	0:23	[REDACTED]	[REDACTED]	0:06	[REDACTED]
9	01/01/11	09:42A	0:08	[REDACTED]	[REDACTED]	0:31	[REDACTED]
10	01/01/11	09:45A	0:01	[REDACTED]	[REDACTED]	0:00	[REDACTED]

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10

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SCAMP

MOBILITY USAGE

Run Date: 06/12/2013
Run Time: 17:42:47
Data Usage For: (480) [REDACTED]
Account Number: 81342 [REDACTED]

Item	Conn. Date	Conn. Time	Originating Number	Elapsed Time	Bytes Up	Bytes Dn	IMEI	IMSI	Access Pt	Description
6374	05/26/11	10:00A	[REDACTED]	13:13	6677	111991	3534910416514804	310410366057466	acds.voicemai	_MOBILE_DATA_1
6375	05/26/11	10:14A	[REDACTED]	5:08	0	0	3534910416514804	310410366057466	acds.voicemai	_MOBILE_DATA_1
6376	05/26/11	10:31A	[REDACTED]	13:14	9271	49317	3534910416514804	310410366057466	BLACKBERRY.NE	_MOBILE_DATA_T
6377	05/26/11	10:31A	[REDACTED]	2:13	2639	8417	3534910416514804	310410366057466	WAP.CINGULAR	_MOBILE_DATA_
6378	05/26/11	10:44A	[REDACTED]	0:24	553	571	3534910416514804	310410366057466	BLACKBERRY.NE	_MOBILE_DATA_

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11

1329977.002
06/12/2013
SCAMP

Run Date: 06/12/2013
Run Time: 17:42:47
Data Usage For: (480) [REDACTED]
Account Number: 81342 [REDACTED]

Item	Conn. Date	Conn. Time	Originating Number	Elapsed Time	Bytes Up	Bytes Dn
6374	05/26/11	10:00A	[REDACTED]	13:13	6677	111991
6375	05/26/11	10:14A	[REDACTED]	5:08	0	0
6376	05/26/11	10:31A	[REDACTED]	13:14	9271	49317
6377	05/26/11	10:31A	[REDACTED]	2:13	2639	8417
6378	05/26/11	10:44A	[REDACTED]	0:24	553	571

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1329977.002
06/12/2013
SCAMP

MOBILITY USAGE

Run Date: 06/12/2013
Run Time: 17:44:11
SMS Usage For: (480) [REDACTED]
Account Number: 81342 [REDACTED]

Item	Conn. Date	Conn. Time	Originating Number	Terminating Number	IMEI	IMSI	Description
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914	01/14/11	09:37P	[REDACTED] 5660	[REDACTED] 3109	35349104165148	310410366057466	OUT
915	01/14/11	09:41P	[REDACTED] 3109	[REDACTED] 5660	35349104165148	310410366057466	IN
916	01/15/11	08:06A	[REDACTED] 5660	[REDACTED] 3587	35349104165148	310410366057466	OUT
917	01/15/11	08:16A	[REDACTED] 3587	[REDACTED] 5660	35349104165148	310410366057466	IN
918	01/15/11	08:32A	[REDACTED] 5660	[REDACTED] 3587	35349104165148	310410366057466	OUT
919	01/15/11	08:32A	[REDACTED] 3587	[REDACTED] 5660	35349104165148	310410366057466	IN

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13

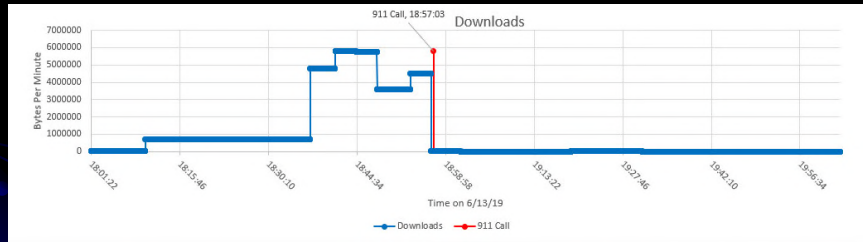
When You Only Have CDRs for Data

- Data from the cell phone is the best thing to look at for cell phone data activity.
- However that's not always possible.

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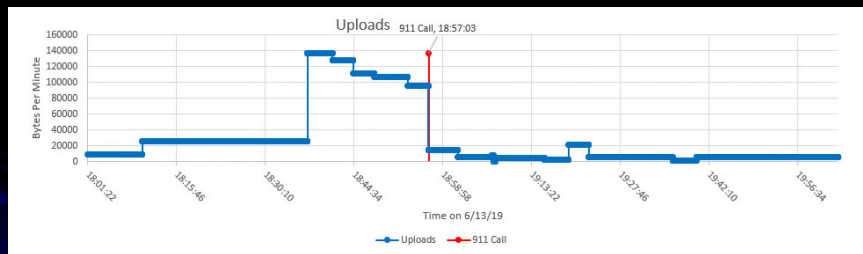
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When You Only Have CDRs for Data



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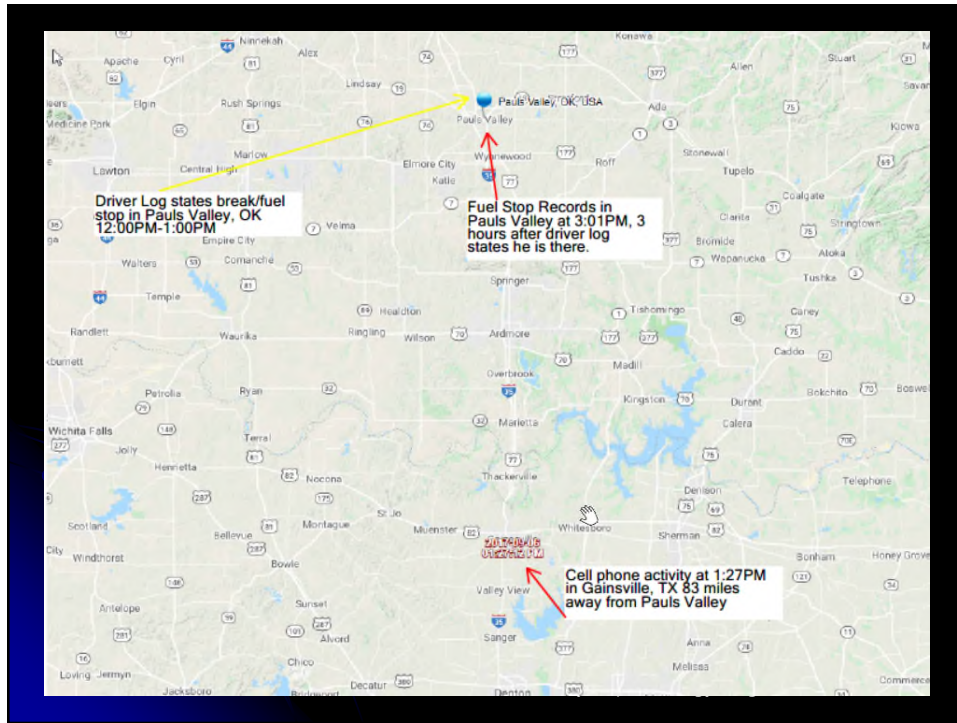
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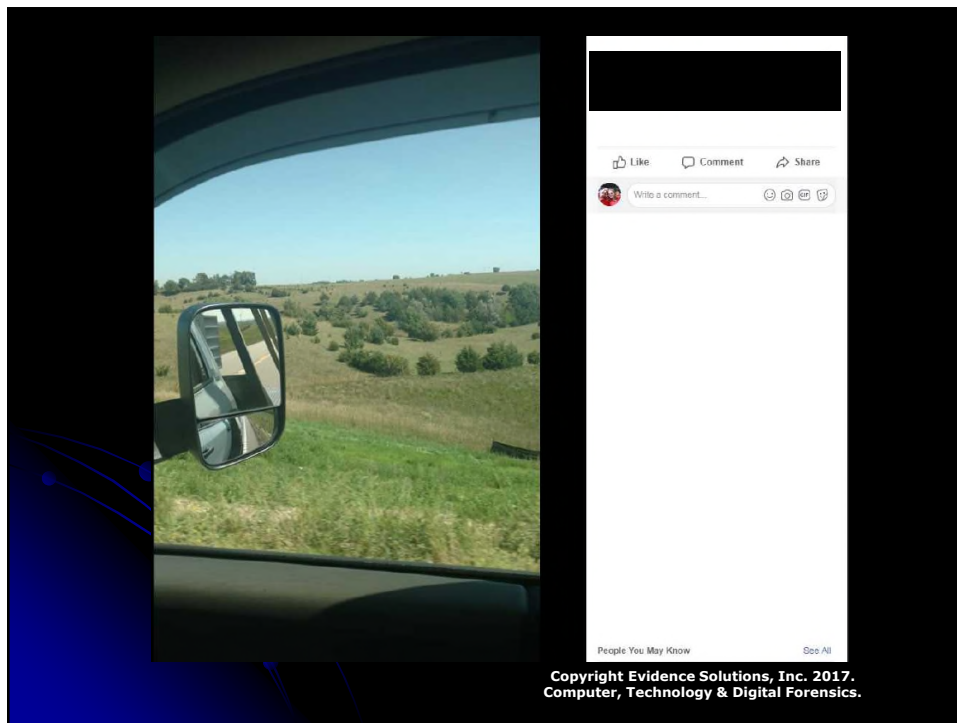
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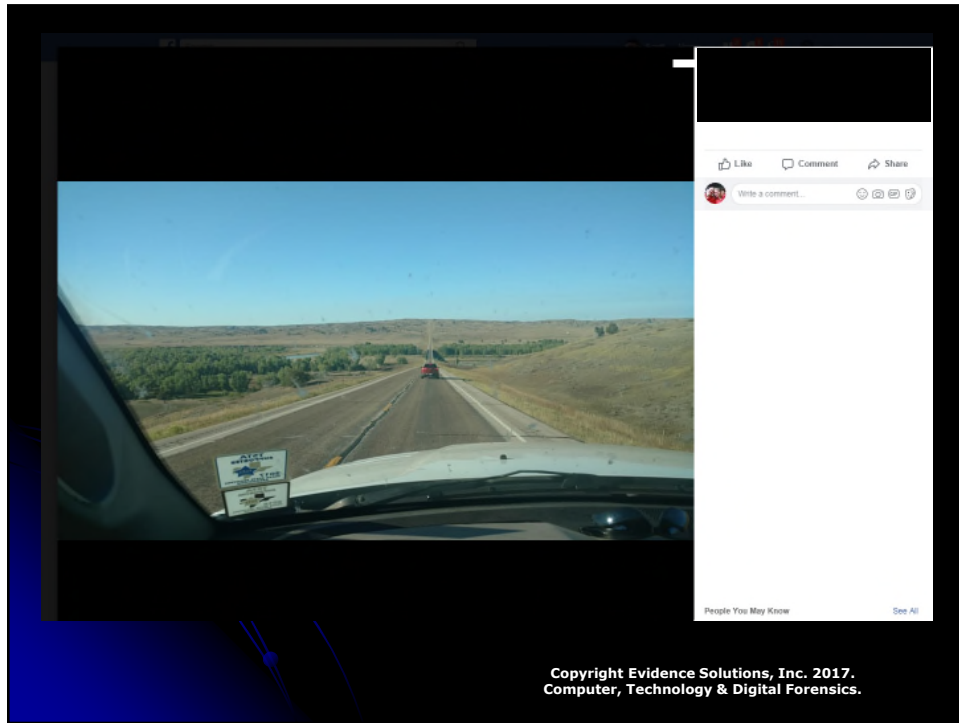
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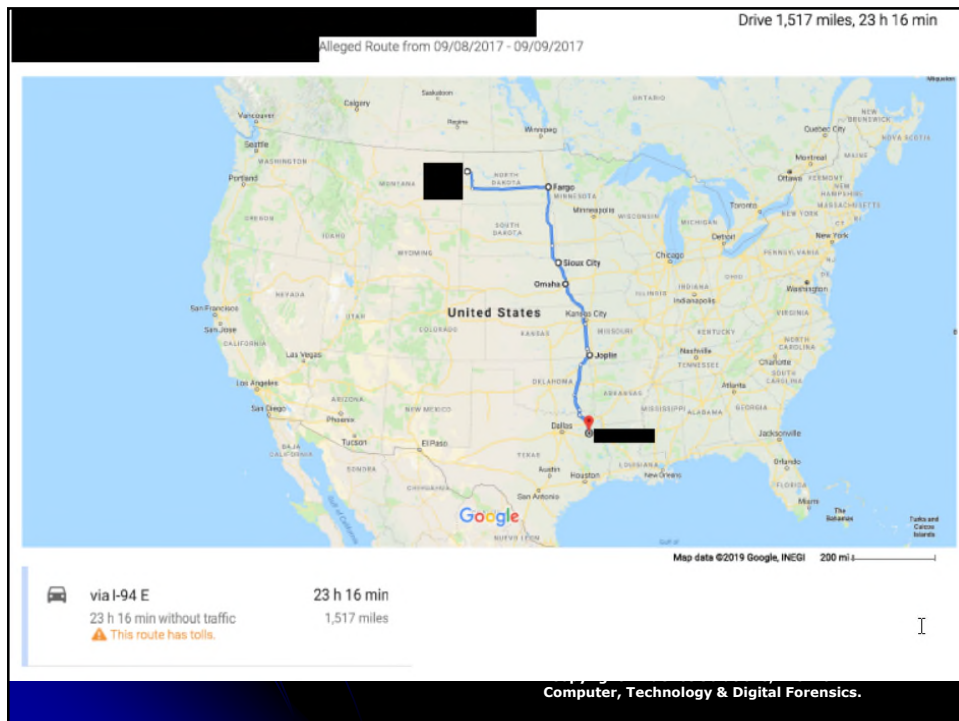
19



20



21



22

Black Boxes

- Airbag Control Module
 - Airbag Control Unit
- Event Data Recorder
 - AKA
- Car Black Box

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Black Boxes / EDR



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Black Boxes / EDR

- **Automobile Black Boxes**
 - Nearly all vehicles with an air bag have a crash recorder.
 - GM was the first to allow access to EDR data
 - GM vehicles after model year 1990 will become harvestable.
 - In 2002 Ford followed suit by allowing access to some models
 - Other manufacturers also have black boxes capable of recording crash data but have not yet provided the codes needed to interpret the information.

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Black Boxes / EDR

- **What data can Automobile Black Boxes collect?**
- **Seconds Vehicle Engine Percent Brake Switch**
- **Before Deployment Speed (mph) Speed (RPM) Throttle Circuit Status**

Seconds	Speed	RPM	Throttle	Brake
-5	57	4032	100	OFF
-4	65	4160	70	OFF
-3	62	2304	2	ON
-2	55	1088	2	ON
-1	47	896	2	ON

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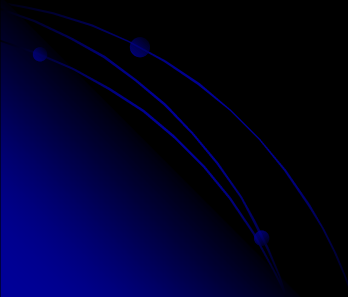
26

Event Data (Event Record 1)	
Event Recording Complete	Yes
Event Record Type	Deployment
Crash Record Locked	Yes
OnStar Deployment Status Data Sent	Yes
OnStar SDM Recorded Vehicle Velocity Change Data Sent	Yes
Deployment Event Counter	1
Event Counter	1
OnStar Notification Event Counter	1
Algorithm Active: Rear	No
Algorithm Active: Rollover	No
Algorithm Active: Side	Yes
Algorithm Active: Frontal	Yes
Ignition Cycles At Event	5080
Time Between Events (sec)	Data Not Available
Concurrent Event Flag Set	No
Event Severity Status: Rollover	No
Event Severity Status: Rear	No
Event Severity Status: Right Side	No
Event Severity Status: Left Side	No
Event Severity Status: Frontal Stage 2	Yes
Event Severity Status: Frontal Stage 1	Yes
Event Severity Status: Frontal Pretensioner	Yes
Driver 1st Stage Deployment Loop Commanded	Yes
Passenger 1st Stage Deployment Loop Commanded	Yes
Driver 2nd Stage Deployment Loop Commanded	Yes
Passenger 2nd Stage Deployment Loop Commanded	Yes
Driver Pretensioner Deployment Loop #1 Commanded	Yes

27

Infotainment Systems

- Infotainment Systems are collectable and have tremendous amounts of data stored in them.



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Infotainment Systems

- Location / GPS
- Automated functions
 - Lane keeping
 - AEB – Automatic Emergency Braking
- Communications Data
 - SMS / Text Messages
 - Email
 - Call Logs

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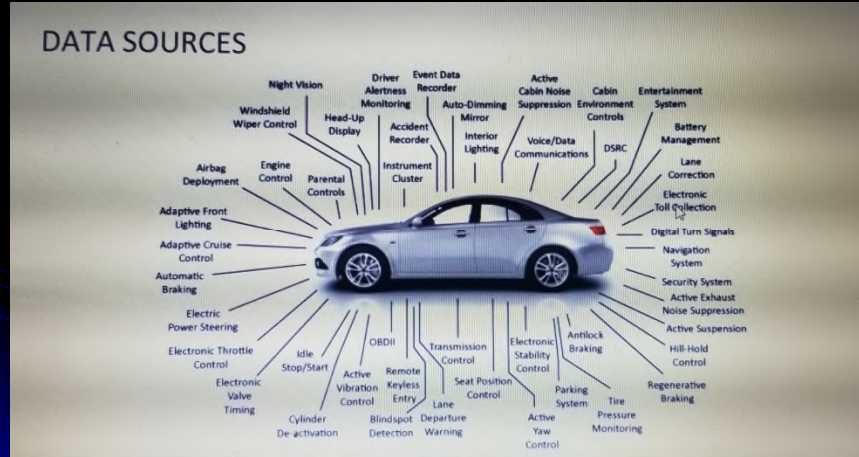
Infotainment Systems

- Radio
 - Station
 - Volume
 - Etc
- Lights
 - Interior
 - Exterior
- Parental and Valet Controls

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Infotainment Systems



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Truck Black Boxes

- AKA:
 - Electronic Control Unit (ECU)
 - Engine Control Module (ECM)
 - Black Box

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Truck Black Boxes

- Truck Black boxes have become increasingly sophisticated over time. Newer modern devices have a tremendous amount of memory.

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Truck Case Examples

- Commercial Truck Driver
- Driving in the oil fields in Texas
- On for an hour off for an hour

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Sample Truck Data

Top Gear - 1		Fan On Time	
Time	6:38:00	Total Time	1:57:06
Percent	4.58 %	Engine System	0:00:00
Distance	368.2 mi	Manual	0:00:00
Fuel	80.63 gal	A/C	1:57:06
		DPF Fan Time	0:00:00
Cruise		Engine Utilization	46.74 %
Time	98:00:48	Vehicle Utilization	43.11 %
Percent	67.68 %	DPF Regeneration	
Distance	6301.5 mi	Parked Completed	0
Fuel	857.50 gal	Driving Completed	2
Top Gear Cruise		Parked Regen Fuel	0.00 gal
Time	94:54:36	Driving Regen Fuel	3.67 gal
Percent	65.54 %	Diesel Exhaust Fluid (DEF)	
Distance	6127.7 mi	Trip Fluid	29.26 gal
Fuel	815.75 gal	Trip Percent	2.40 %
Speeding A (>=66 mph and <71 mph)		Trip Economy	299.65 mpg
Count	3215	Driving Fluid	29.02 gal
Time	14:39:41	Driving Economy	302.11 mpg
Percent	10.12 %	Optimized Idle Time	
Speeding B (>=71 mph)		Active	0:00:00
Count	188	Run	0:00:00
Time	0:48:08	Battery	0:00:00
Percent	0.55 %	Engine Temp.	0:00:00
Highest Speed		Thermostat	0:00:00
Occurred	10/13/10 22:32:30 (EST)	Extended Idle	0:00:00
Coasting Time		Continuous	0:00:00
Coasting Time	0:00:00		
Coasting Percent	0.00 %		

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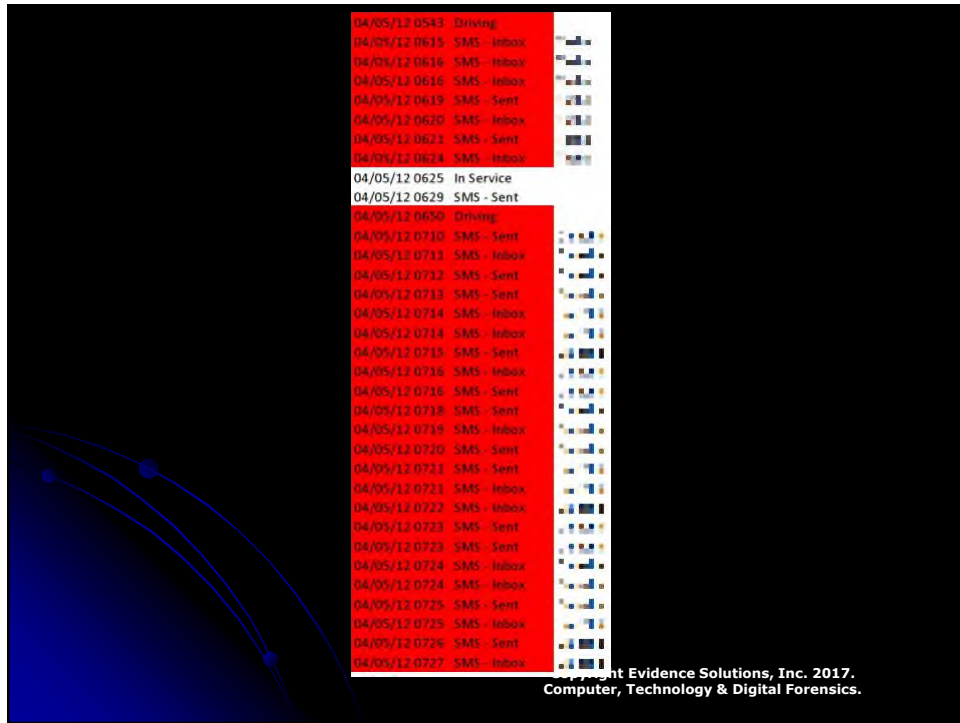
35

Driver Miles Today:	374.7	Driver Name:	[REDACTED]
Co-Driver Miles Today:	0.0	Co-Driver Name:	[REDACTED]
Vehicle Miles Today:	374.7		
Carrier:	[REDACTED]	Fleet:	[REDACTED]

Remarks	Time	Status	Description	Inspect
PRE-TRIP @ 1:07a 00:05	12:00a	OFF	(500) [REDACTED]	
VEHICLE: 303	01:07a	DUTY	(500) [REDACTED]	
ROUTE: 0301120109	01:12a		State: TX	
POST-TRIP @ 1:31p 00:05	01:12a		Driver Join(500) [REDACTED]	
	01:12a	DUTY	(500) [REDACTED]	
	01:14a	DRIVE	(500) Odessa Yard [REDACTED]	
	02:00a	DUTY	(TX-2083) [REDACTED]	
	02:33a	DRIVE	(TX-2083) [REDACTED]	
	03:14a	DUTY	(295) C/P [REDACTED]	
	03:38a	DRIVE	(295) C/P GOLDSMITH [REDACTED]	

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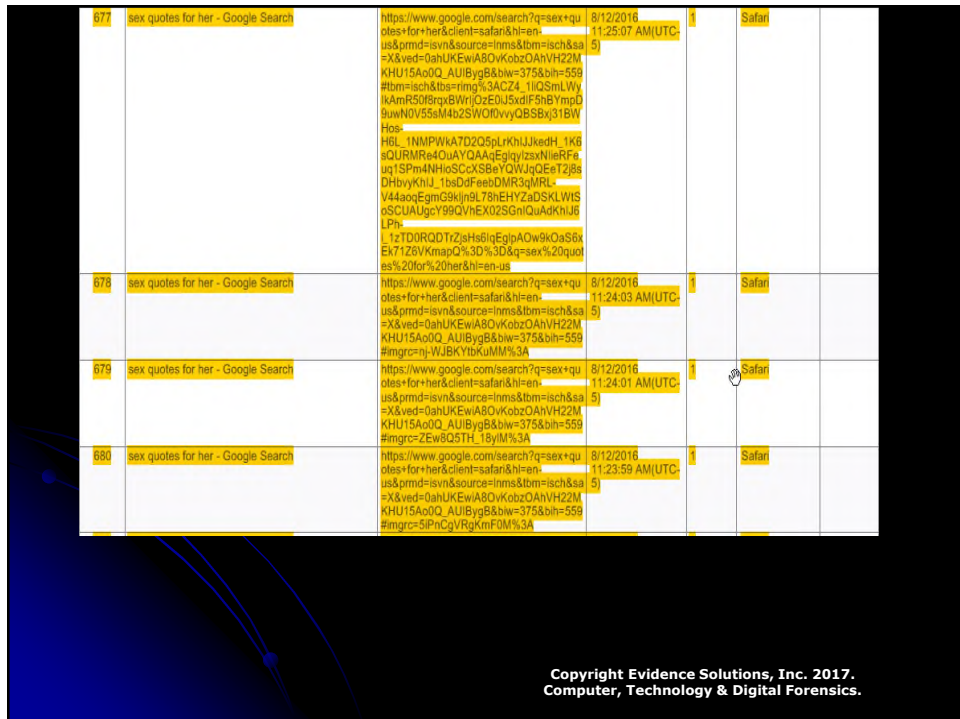
36



04/05/12 0543	Driving	
04/05/12 0615	SMS - Inbox	
04/05/12 0616	SMS - Inbox	
04/05/12 0616	SMS - Inbox	
04/05/12 0619	SMS - Sent	
04/05/12 0620	SMS - Inbox	
04/05/12 0623	SMS - Sent	
04/05/12 0624	SMS - Inbox	
04/05/12 0625	In Service	
04/05/12 0629	SMS - Sent	
04/05/12 0650	Driving	
04/05/12 0710	SMS - Sent	
04/05/12 0711	SMS - Inbox	
04/05/12 0712	SMS - Sent	
04/05/12 0713	SMS - Sent	
04/05/12 0714	SMS - Inbox	
04/05/12 0714	SMS - Inbox	
04/05/12 0715	SMS - Sent	
04/05/12 0716	SMS - Inbox	
04/05/12 0718	SMS - Sent	
04/05/12 0718	SMS - Sent	
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04/05/12 0727	SMS - Inbox	

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37



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38

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39

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Senior Technology Examiner*
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40