



# **Council Meeting – User Experience**

June 14 2018

# Agenda

- › Impact of UX on Advertiser ROI – Dave Sebag, Yieldmo
- › Measuring Ad Experience – Paul Roy, Microsoft
- › Ad Recovery and More – Michael Yeon, Admiral
- › News from Tech Lab – Dennis Buchheim, IAB Tech Lab
- › Compliance Programs – Yashica Wilson, IAB Tech Lab
- › Consumer UX: GDPR and LEAN – Brendan, IAB Tech Lab

# Impact of UX on Advertiser ROI

*Dave Sebag, Yieldmo*

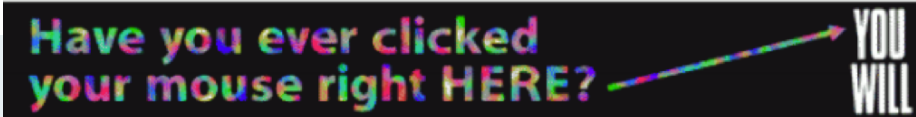


Dave Sebag  
VP, New Ad Products

## **THE ROI OF CONSUMER EXPERIENCE**

# DRAMATIC SHIFTS IN CONSUMER ENGAGEMENT

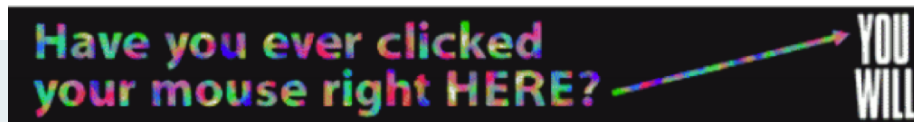
1994



CTR: 44%

# DRAMATIC SHIFTS IN CONSUMER ENGAGEMENT

1994



CTR: 44%

NOW



CTR: .08%

# WE FACE A HUGE ENGAGEMENT GAP

# 100-300

*Average number of times we check our phones each day\**

# CAN WE GO DEEPER THAN “DON’T BE INTRUSIVE?”



## Search Engine Land

Google confirms rolling out the mobile intrusive interstitials penalty yesterday



January 2017



Rising Star No More: IAB To Sunset Intrusive Ads

Share:

No more unwanted sound. Less autoplay. And say goodbye to expanding ads, Rising Stars, 300x250s and 728x90s.

The IAB is tackling cross-screen advertising and intrusive formats in its first set of standard ad units released since 2012. The public can comment on the proposed new portfolio over the next two months.

"Technology and the user experience is changing, and we are reacting to the needs of the market [to make ads] cross-screen, holistic and adaptive," said Alanna Gombert, GM of the IAB Tech Lab.

Working groups have been mulling over these changes for the past

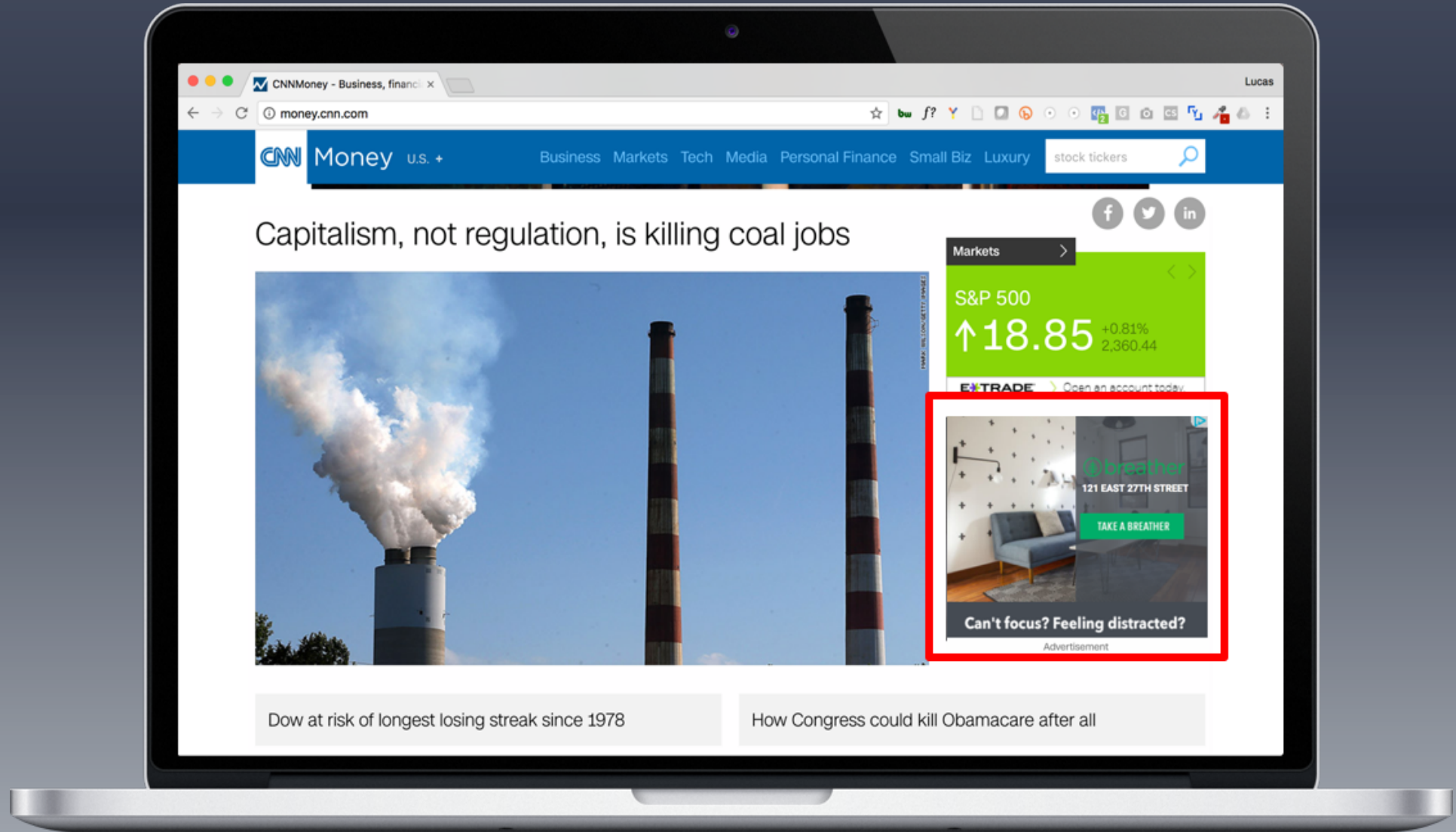


Calmer Ads Ahead?

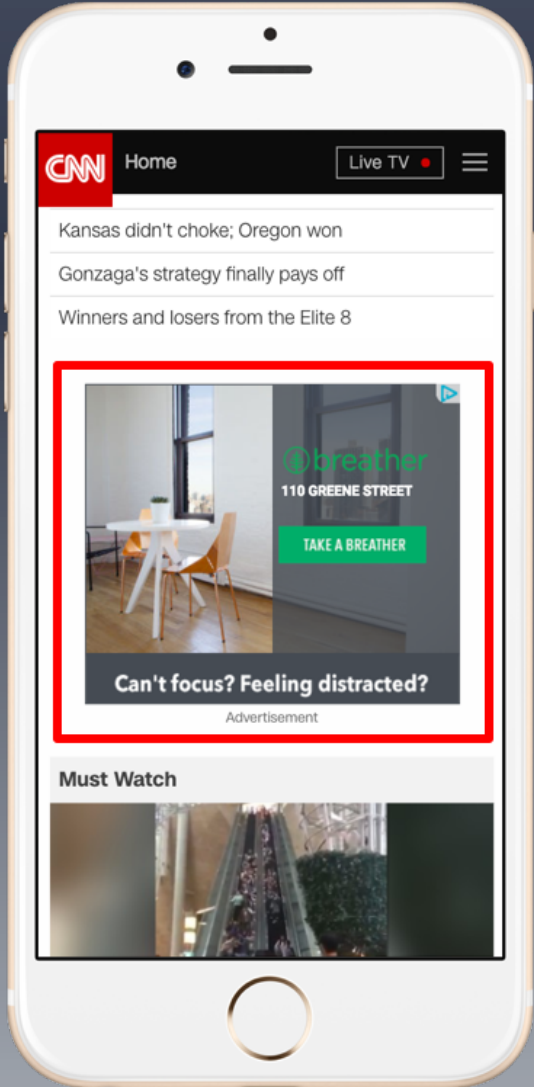
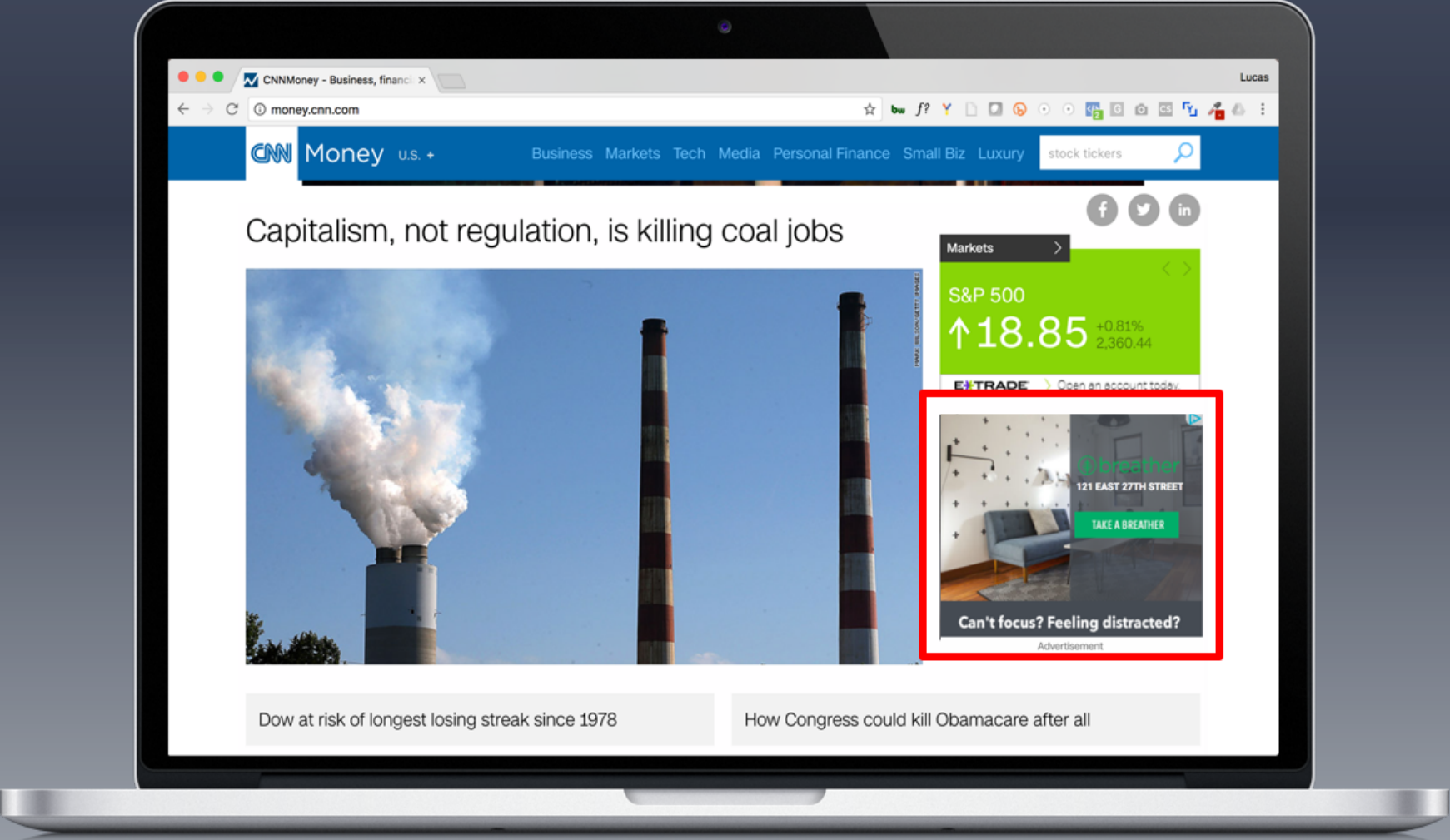
September 2016



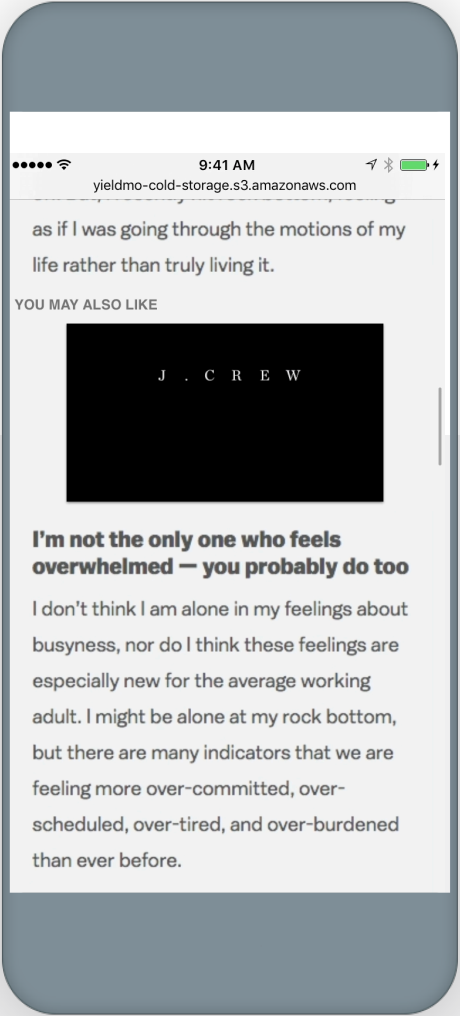
# THE THUMB IS MIGHTIER THAN THE MOUSE



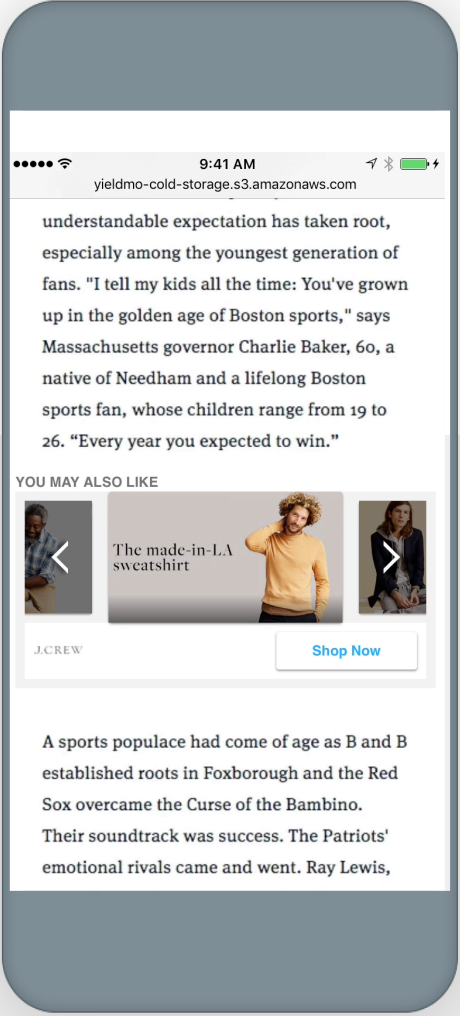
# THE THUMB IS MIGHTIER THAN THE MOUSE



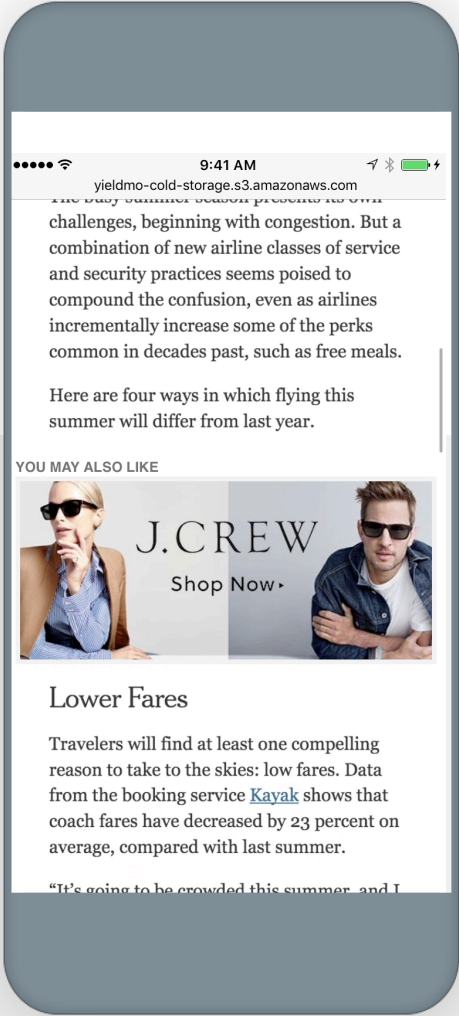
# BUILD ON NEW NATURAL INTERACTIONS



*Scrolls*



*Swipes*



*Tilts*

# EARLY ROI OF DEEPER CONSUMER EXPERIENCE FOCUS



**66%**

of US consumers prefer Yieldmo mobile ads vs. standard mobile ads



**31%**

higher unaided brand recall from Yieldmo mobile ads vs. standard mobile ads.

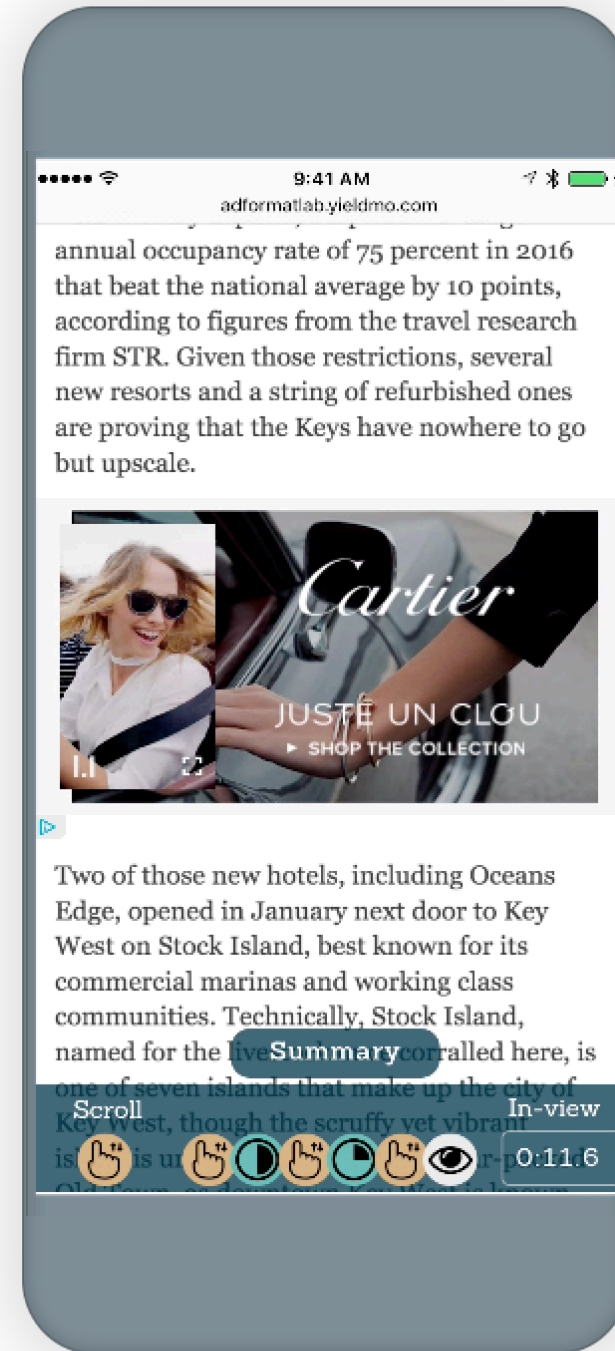


**93%**

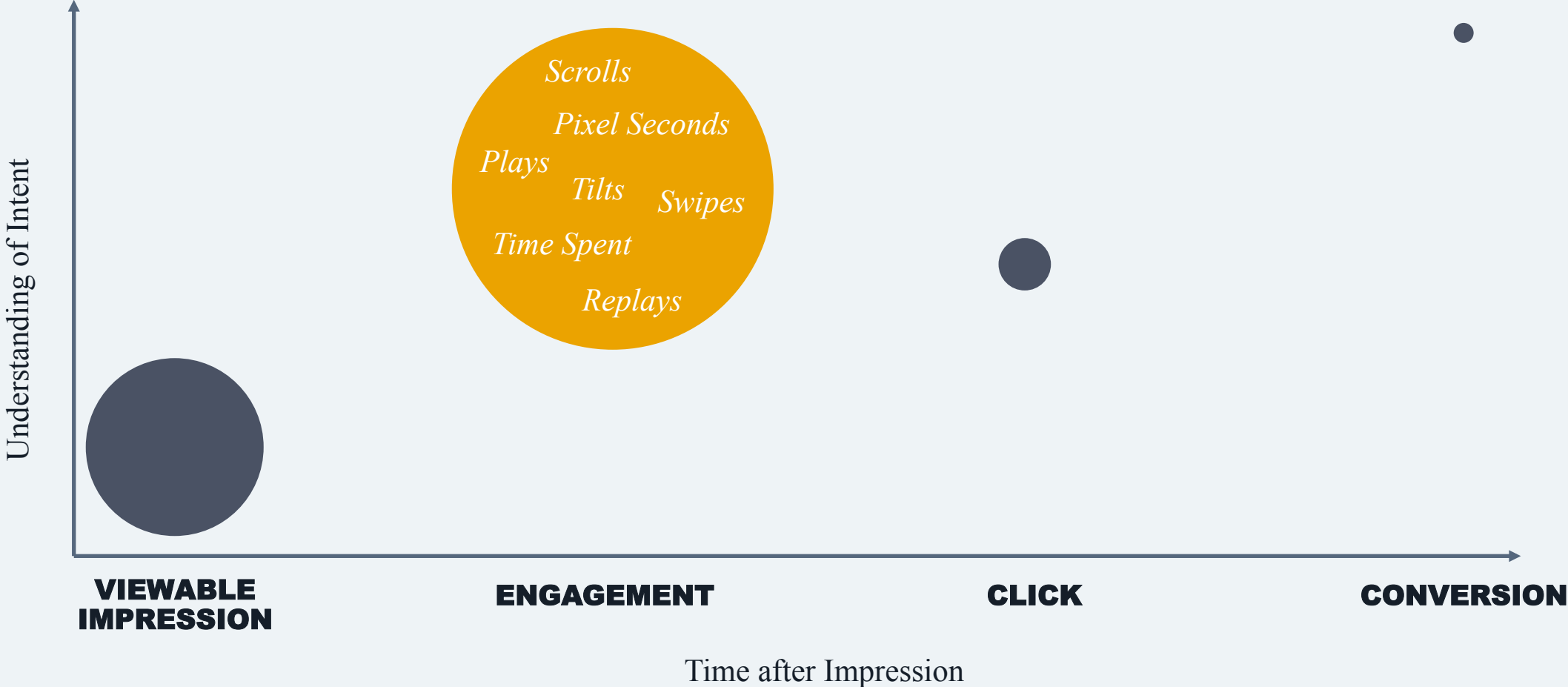
higher increase in publisher favorability from Yieldmo mobile ads vs. standard mobile ads.

# LONG TERM ROI:

*Detailed insights into consumer behavior*



# SIGNALS OF INTENT BEYOND CLICKS AND VIEWS



# HOW ENGAGEMENT CAN DRIVE LIFT: THE HUMAN-CENTRIC APPROACH

*Two consumers:  
Same ad, same time spent, both clicked.*

*Why did only one transact?*



**TIME SPENT:** 1.3 seconds

**CLICKED?** Yes

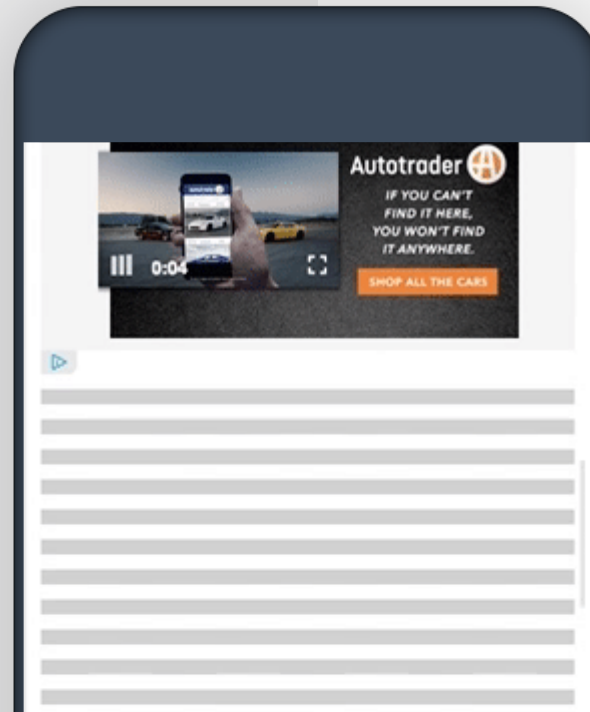
**SIGNED UP?** Yes



**TIME SPENT:** 1.3 seconds

**CLICKED?** Yes

**SIGNED UP?** No



# HOW ENGAGEMENT CAN DRIVE LIFT: THE HUMAN-CENTRIC APPROACH



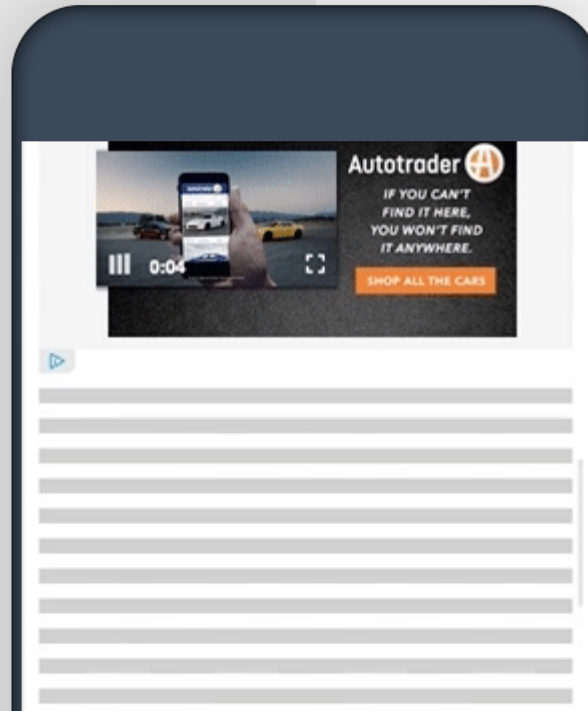
*Industry-standard metrics provide an aerial view.*

*Engagement metrics deliver a birds' eye view into digital body language; translated, and at scale.*



**TIME SPENT:** 1.3 seconds  
**CLICKED?** Yes  
**SIGNED UP?** Yes

**SCROLL DIRECTION CHANGE:** Yes  
**%PIXELS IN VIEW:** 84  
**"AT-REST" IN-VIEW TIME:** .53 s  
**TILTS:** 3  
**CONNECTION SPEED:** Wi-Fi

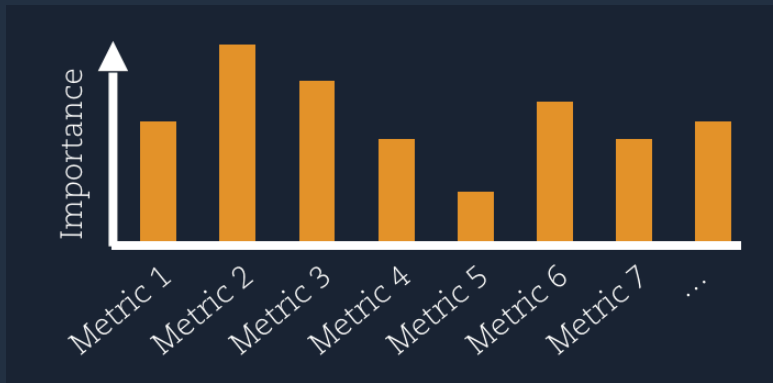


**TIME SPENT:** 1.3 seconds  
**CLICKED?** Yes  
**SIGNED UP?** No

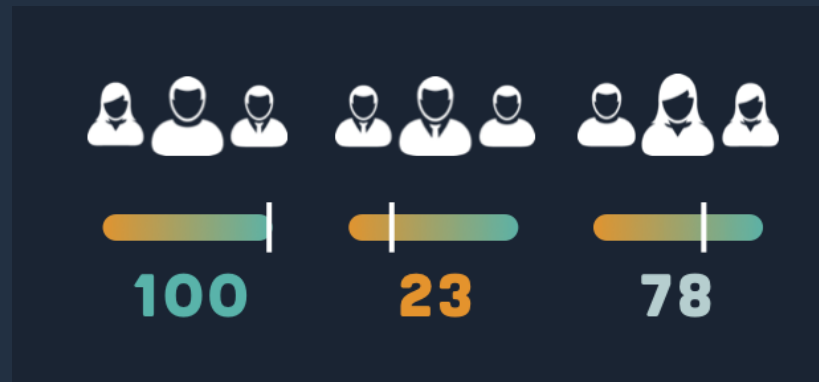
**SCROLL DIRECTION CHANGE:** No  
**%PIXELS IN VIEW:** 46  
**"AT-REST" IN-VIEW TIME:** 0 s  
**TILTS:** 0  
**CONNECTION SPEED:** Cellular



# HOW ENGAGEMENT CAN DRIVE ROI: THE HARD DATA SCIENCE



1. Machine learning assigns value to each micro engagement



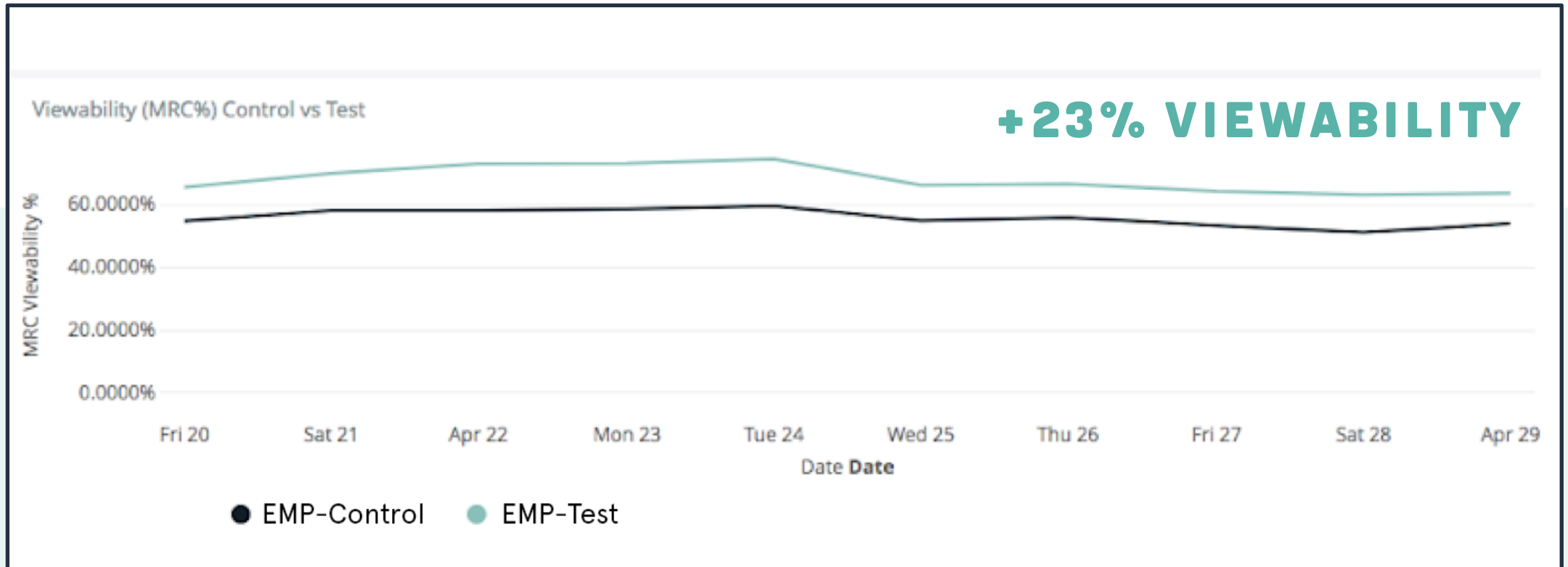
2. Scores assigned to audience segments



3. Score is put to work optimizing a campaign

**MACHINE LEARNING ALSO TUNES VARIABLE WEIGHTS;  
CAMPAIGN-BY-CAMPAIGN - CREATIVE-BY-CREATIVE.**

# EXPERIENCE DRIVEN ENGAGEMENT HAS TANGIBLE ROI





# THANK YOU!

*Dave Sebag*

*VP, New Ad Products*

*sebag@yieldmo.com*

# Measuring Ad Experience

*Paul Roy, Microsoft*

# **A Closer Look at the 'L' Word**

Exploring 'Lightweight' in the IAB LEAN Standard

Paul Roy, Performance Engineering Manager

[pjr@microsoft.com](mailto:pjr@microsoft.com)

Microsoft

June 2018

# Context

From IAB New Standard Ad Unit Portfolio, July 2017:

## Executive Summary

This document, providing the guidelines for the IAB New Standard Ad Unit Portfolio, has been developed by the IAB Tech Lab Flex Ads Committee after review of all feedback received on the draft for public comment document published in September 2016.

These guidelines are comprehensive recommendations of advertising experiences across diverse digital landscape including websites, mobile apps, social media, communication, and messaging experiences as well as new digital experiences like virtual reality and augmented reality.

The IAB New Standard Ad Unit Portfolio (“IAB New Ad Portfolio”) is comprised of display ads, native ads, and new content experiences like emoji ads, 360-degree image and video ads, virtual reality ads, and augmented reality ads.

The display ad guidelines have been updated to incorporate LEAN principles of **lightweight**, encrypted, AdChoices supported, and non-invasive advertising, within all of its mobile, display, video, and native ad formats. The new ad units recognize consumer’s diverse media consumption, especially with touch screen mobile devices, and introduces flexible ad sizing so the ads can adjust to various device screen sizes.

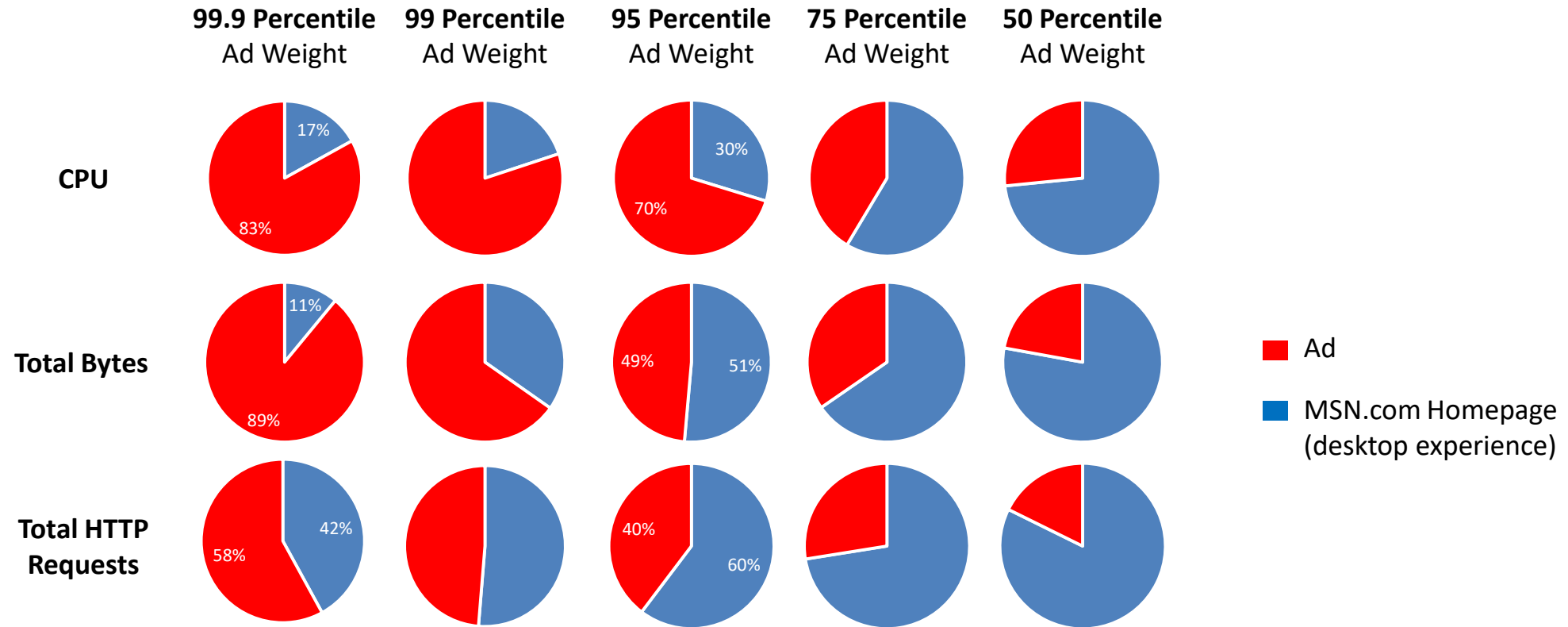
At Microsoft, we’ve been exploring the weight of display ads.

# Why?

- Many display ads are heavy and degrade the user experience
  1. Rendering delays – slow rendering of page content (and slow rendering of ads themselves)
  2. Interactivity delays – screen freezes when scrolling, jerky animations, click delays, char echo delays in search box / forms, etc.
- These problems are bad for the ecosystem
  - User frustration
  - Loss of publisher \$\$ – decrease in user engagement, satisfaction, loyalty
  - Loss of advertiser \$\$ – ads not becoming quickly viewable
  - Loss of vendor trust – 3<sup>rd</sup> party pixels weighing ads down

# Case Study: Ad Weight vs. MSN.com Homepage

Analysis of 90,000 ads on MSN during May 2018



At high percentiles, weight of a single ad dominates weight of entire rest of MSN.com Homepage

- Worst 0.1% are 5x heavier in CPU and 8x heavier in Bytes
- Worst 5% are 2x heavier in CPU



# Step One – A Repeatable, Scalable Measurement Platform

We built a system called ADA (Ad Analyzer) to measure the weight of display ads

ADA's goal is to empower publishers, advertisers, and 3<sup>rd</sup> party vendors in the ad tech industry to drive better performing ads for better advertiser ROI, user engagement, and publisher performance.

How does ADA work?

- Each ad analyzed in isolation in a highly controlled environment
- Measure impact on network (# bytes, # requests)
- Measure impact on interactivity (client CPU consumption and long frames)
- Capture diagnostics that reveal specific problem areas
  - Network waterfall details
  - CPU trace, incl. JavaScript call stacks
  - Large # of secondary metrics that assist in root cause analysis
- Robust, scalable system built on Microsoft Azure

} Key innovations  
from ADA

At Microsoft, everyday ADA analyzes 1000's of ads and blocks the heaviest ones.

## Run Test

App Nexus

Oath

Creative Id to test



Friendly Test Name (Optional)

▶ Run Test

### Asynchronous API – two steps:

- 1: AnalyzeAdPerformance (ad provider, creative id) -> results token
- 2: GetResults (results token)

# ADA Batch Report

Sorted by Total HTTP Requests



Ad/Page Info					Primary Metrics					Diagnostics		Secondary Metrics										
Creative	Advertiser	Dim	Mkt	Vert	WW Impr #	Result Status	CPU ms	Total KB	Total Reqs	Network Waterfall	CPU Trace	LFS	Frames >10s	Frames >5s	Frames >2s	Has Flash	HTML KB	JS KB	CSS KB	Image KB	Video KB	Flash KB
<a href="#">100054585</a>	Feministica	728 X 90	en-us	homepage	527925	Fail	18314	3268	1702	<a href="#">Link</a>	<a href="#">Link</a>	319	0	1	3	Y	134	2184	0	153	0	90
<a href="#">98671549</a>	Air France KLM	728 X 90	en-gb	homepage	108278	Fail	25592	4186	972	<a href="#">Link</a>	<a href="#">Link</a>	NA	0	0	0	Y	478	1923	0	259	0	992
<a href="#">101157013</a>	American Internation	728 X 90	en-ca	homepage	7954	Fail	25842	3001	966	<a href="#">Link</a>	<a href="#">Link</a>	534	0	0	4	Y	65	1824	0	227	0	258
<a href="#">100528244</a>	Tripadvisor	728 X 90	en-ca	homepage	198788	Fail	25396	3676	933	<a href="#">Link</a>	<a href="#">Link</a>	NA	0	0	0	Y	108	2033	0	330	0	697
<a href="#">98671547</a>	United Airlines	728 X 90	de-de	homepage	260918	Fail	23960	4575	629	<a href="#">Link</a>	<a href="#">Link</a>	524	0	0	1	Y	958	1771	0	221	0	906
<a href="#">98384821</a>	Air France KLM	728 X 90	en-ca	homepage	84889	Fail	25035	3307	581	<a href="#">Link</a>	<a href="#">Link</a>	518	0	0	2	Y	900	1722	0	318	0	86
<a href="#">98886679</a>	Ad Council	300 X 250	en-ca	homepage	5216076	Fail	25884	3108	529	<a href="#">Link</a>	<a href="#">Link</a>	476	0	0	2	Y	553	2000	0	333	0	5
<a href="#">98886687</a>	Thrive Market	728 X 90	en-us	homepage	591718	Fail	25234	1629	468	<a href="#">Link</a>	<a href="#">Link</a>	484	0	0	0	Y	21	1093	0	292	0	6
<a href="#">100213756</a>	Long and Foster Real	300 X 250	en-us	homepage	4016	Fail	26928	2278	447	<a href="#">Link</a>	<a href="#">Link</a>	529	1	1	1	N	8	434	15	1687	0	0
<a href="#">95696101</a>	L'Oreal	300 X 250	en-us	homepage	1326	Fail	27266	963	138	<a href="#">Link</a>	<a href="#">Link</a>	352	0	0	0	N	48	657	0	273	0	0
<a href="#">95695819</a>	L'Oreal	728 X 90	en-us	homepage	2916	Fail	27158	960	137	<a href="#">Link</a>	<a href="#">Link</a>	302	0	0	1	N	49	676	0	254	0	0
<a href="#">97649549</a>	PartyCity	300 X 250	en-us	homepage	922	Fail	1421	248	135	<a href="#">Link</a>	<a href="#">Link</a>	10	0	0	0	N	9	218	2	46	0	0
<a href="#">93756407</a>	Merck and Company	300 X 250	en-us	homepage	4212	Fail	13412	695	127	<a href="#">Link</a>	<a href="#">Link</a>	110	0	0	1	N	41	572	7	104	0	0
<a href="#">93751854</a>	Merck and Company	300 X 250	en-us	homepage	2871	Fail	13445	698	126	<a href="#">Link</a>	<a href="#">Link</a>	113	0	0	1	N	41	573	7	103	0	0
<a href="#">93758180</a>	Merck and Company	300 X 600	en-us	homepage	1089	Fail	13007	672	125	<a href="#">Link</a>	<a href="#">Link</a>	104	0	0	0	N	41	553	7	98	0	0
<a href="#">93762504</a>	Merck and Company	300 X 600	en-us	homepage	2575	Fail	12711	689	123	<a href="#">Link</a>	<a href="#">Link</a>	99	0	0	1	N	40	573	7	98	0	0
<a href="#">93163764</a>	Merck and Company	728 X 90	en-us	homepage	1275	Fail	6210	551	120	<a href="#">Link</a>	<a href="#">Link</a>	48	0	0	0	N	22	434	3	121	0	0
<a href="#">97372574</a>	Ford Motors	300 X 250	es-es	homepage	3982	Fail	14181	450	120	<a href="#">Link</a>	<a href="#">Link</a>	42	0	0	0	N	13	308	3	169	0	0
<a href="#">97372539</a>	Ford Motors	728 X 90	es-es	homepage	2773	Fail	7936	493	117	<a href="#">Link</a>	<a href="#">Link</a>	38	0	0	0	N	13	308	3	213	0	0
<a href="#">85781846</a>	Merck and Company	300 X 250	en-us	homepage	982	Fail	8523	652	116	<a href="#">Link</a>	<a href="#">Link</a>	64	0	0	0	N	24	540	3	114	0	0
<a href="#">94296754</a>	Crucial	300 X 250	it-it	homepage	1129	Fail	6406	498	115	<a href="#">Link</a>	<a href="#">Link</a>	69	0	0	0	N	30	362	0	137	0	0
<a href="#">95520844</a>	Micron Technology	300 X 250	de-de	homepage	7146	Fail	7015	466	112	<a href="#">Link</a>	<a href="#">Link</a>	71	0	0	0	N	31	333	0	133	0	0
<a href="#">100642609</a>	Nestle	300 X 250	es-es	homepage	2767	Fail	7212	1343	111	<a href="#">Link</a>	<a href="#">Link</a>	32	0	0	0	N	15	341	0	1018	0	0
<a href="#">88612907</a>	Chrysler: Jeep	300 X 250	en-ca	homepage	2978	Fail	10492	507	111	<a href="#">Link</a>	<a href="#">Link</a>	93	0	0	1	N	54	369	2	113	0	0
<a href="#">87364875</a>	BMW	728 X 90	en-us	homepage	2244	Fail	6939	482	111	<a href="#">Link</a>	<a href="#">Link</a>	77	0	0	0	N	25	425	4	60	0	0
<a href="#">85364799</a>	BMW	728 X 90	en-us	homepage	2339	Fail	6028	470	111	<a href="#">Link</a>	<a href="#">Link</a>	66	0	0	0	N	27	405	4	65	0	0
<a href="#">85303912</a>	Comcast	728 X 90	en-us	homepage	4685	Fail	4246	628	110	<a href="#">Link</a>	<a href="#">Link</a>	39	0	0	0	N	18	284	1	336	0	0
<a href="#">94663281</a>	Burlington Coat Facto	300 X 250	en-us	homepage	11618	Fail	15818	587	110	<a href="#">Link</a>	<a href="#">Link</a>	125	0	0	0	N	30	346	1	241	0	0
<a href="#">94663281</a>	Burlington Coat Facto	300 X 250	en-us	homepage	33513	Fail	15987	584	110	<a href="#">Link</a>	<a href="#">Link</a>	128	0	0	0	N	30	344	1	241	0	0
<a href="#">87347590</a>	BMW	300 X 600	en-us	homepage	856	Fail	6241	466	110	<a href="#">Link</a>	<a href="#">Link</a>	64	0	0	0	N	28	402	4	63	0	0
<a href="#">85304349</a>	Comcast	300 X 250	en-us	homepage	3596	Fail	4283	771	109	<a href="#">Link</a>	<a href="#">Link</a>	37	0	0	0	N	18	283	1	480	0	0

# ADA Batch Report

Sorted by Total Bytes (KB) – *excluding ads w/ video*



Ad/Page Info					Primary Metrics					Diagnostics			Secondary Metrics									
Creative	Advertiser	Dim	Mkt	Vert	WW Impr #	Result Status	CPU ms	Total KB	Total Reqs	Network Waterfall	CPU Trace	LFS	Frames >10s	Frames >5s	Frames >2s	Has Flash	HTML KB	JS KB	CSS KB	Image KB	Video KB	Flash KB
<a href="#">96829676</a>	GlaxoSmithKline	300 X 600	en-gb	homepage	2514	Fail	4172	10540	38	<a href="#">Link</a>	<a href="#">Link</a>	28	0	0	0	N	18	261	0	10293	0	0
<a href="#">96827186</a>	GlaxoSmithKline	300 X 600	en-gb	homepage	2524	Fail	4904	9437	32	<a href="#">Link</a>	<a href="#">Link</a>	17	0	0	0	N	18	282	0	9170	0	0
<a href="#">64391095</a>	LastPass	300 X 600	en-us	homepage	7033	Fail	980	9329	13	<a href="#">Link</a>	<a href="#">Link</a>	2	0	0	0	N	7	56	2	9300	0	0
<a href="#">64914226</a>	LastPass	300 X 600	en-us	homepage	2380	Fail	1199	9328	12	<a href="#">Link</a>	<a href="#">Link</a>	4	0	0	0	N	7	55	2	9300	0	0
<a href="#">89759062</a>	Emporium Merkator	970 X 250	de-de	homepage	496	Fail	6366	8166	46	<a href="#">Link</a>	<a href="#">Link</a>	111	0	0	1	N	75	27	0	8094	0	0
<a href="#">97772922</a>	Petco	728 X 90	en-us	homepage	1780	Fail	1302	6658	11	<a href="#">Link</a>	<a href="#">Link</a>	6	0	0	0	N	12	97	0	6580	0	0
<a href="#">100993767</a>	Premiere	300 X 250	pt-br	homepage	801	Fail	11893	6220	13	<a href="#">Link</a>	<a href="#">Link</a>	166	0	0	0	N	12	111	0	6128	0	0
<a href="#">26354008</a>	Melvin and Hamilton	300 X 600	fr-fr	homepage	1719	Fail	6447	5663	48	<a href="#">Link</a>	<a href="#">Link</a>	117	0	0	1	N	60	28	0	5606	0	0
<a href="#">79531750</a>	NoLimits Sportswear	970 X 250	en-us	homepage	42454	Fail	9945	5655	47	<a href="#">Link</a>	<a href="#">Link</a>	193	0	0	1	N	62	27	0	5597	0	0
<a href="#">96691372</a>	GlaxoSmithKline	970 X 250	en-gb	homepage	1657	Fail	3942	5534	58	<a href="#">Link</a>	<a href="#">Link</a>	17	0	0	0	N	18	258	0	5290	0	0
<a href="#">96426981</a>	Orient Watch USA	970 X 250	en-us	homepage	563	Fail	15649	5485	50	<a href="#">Link</a>	<a href="#">Link</a>	311	0	0	3	N	56	33	1	5258	0	0
<a href="#">64914246</a>	LastPass	300 X 250	en-us	homepage	1739	Fail	960	5440	12	<a href="#">Link</a>	<a href="#">Link</a>	2	0	0	0	N	7	55	2	5411	0	0
<a href="#">89759062</a>	Emporium Merkator	970 X 250	de-de	homepage	460	Fail	3180	5224	33	<a href="#">Link</a>	<a href="#">Link</a>	39	0	0	0	N	46	28	0	5180	0	0
<a href="#">100993777</a>	Premiere	728 X 90	pt-br	homepage	264	Fail	1852	4835	13	<a href="#">Link</a>	<a href="#">Link</a>	11	0	0	0	N	12	111	0	4743	0	0
<a href="#">94097117</a>	VisitGuernsey	300 X 600	en-gb	homepage	1703	Fail	22227	4830	31	<a href="#">Link</a>	<a href="#">Link</a>	246	0	0	0	N	15	407	1	4438	0	0
<a href="#">88701031</a>	Fond of Bags	300 X 600	de-de	homepage	399	Fail	3548	4665	38	<a href="#">Link</a>	<a href="#">Link</a>	22	0	0	0	N	30	327	3	4335	0	0
<a href="#">96826490</a>	GlaxoSmithKline	300 X 250	en-gb	homepage	7809	Fail	5697	4606	30	<a href="#">Link</a>	<a href="#">Link</a>	16	0	0	0	N	18	284	0	4336	0	0
<a href="#">83006111</a>	VF: Nautica	300 X 250	en-us	homepage	1764	Fail	2630	4602	35	<a href="#">Link</a>	<a href="#">Link</a>	23	0	0	0	N	8	124	0	4501	0	0
<a href="#">98671547</a>	United Airlines	728 X 90	en-us	homepage	260918	Fail	23960	4575	629	<a href="#">Link</a>	<a href="#">Link</a>	524	0	0	1	Y	958	1771	0	221	0	906
<a href="#">97928513</a>	Microsoft	300 X 250	en-ca	homepage	17883	Fail	3286	4556	28	<a href="#">Link</a>	<a href="#">Link</a>	20	0	0	0	N	13	219	2	4352	0	0
<a href="#">97928506</a>	Microsoft	300 X 250	en-ca	homepage	22915	Fail	3487	4555	28	<a href="#">Link</a>	<a href="#">Link</a>	20	0	0	0	N	13	219	1	4352	0	0
<a href="#">56418751</a>	Body Attack Sports N	970 X 250	de-de	homepage	528	Fail	4048	4553	46	<a href="#">Link</a>	<a href="#">Link</a>	63	0	0	0	N	64	28	0	4492	0	0
<a href="#">76423411</a>	Hyundai Motor Group	300 X 250	en-us	homepage	709	Fail	3831	4453	30	<a href="#">Link</a>	<a href="#">Link</a>	4	0	0	0	N	12	268	1	4202	0	0
<a href="#">76423528</a>	Vonage	300 X 250	en-us	homepage	803	Fail	3864	4453	30	<a href="#">Link</a>	<a href="#">Link</a>	5	0	0	0	N	12	268	1	4202	0	0
<a href="#">76423531</a>	Vonage	300 X 250	en-us	homepage	9099	Fail	3886	4451	31	<a href="#">Link</a>	<a href="#">Link</a>	4	0	0	0	N	12	268	1	4199	0	0
<a href="#">96587811</a>	Alltricks Bike Shop	300 X 250	es-es	homepage	190	Fail	1182	4302	38	<a href="#">Link</a>	<a href="#">Link</a>	5	0	0	0	N	3	85	0	4245	0	0
<a href="#">83006112</a>	VF: Nautica	300 X 250	en-us	homepage	1473	Fail	2782	4287	35	<a href="#">Link</a>	<a href="#">Link</a>	22	0	0	0	N	8	123	0	4186	0	0
<a href="#">100226920</a>	Game Retail Limited	300 X 600	en-gb	homepage	2965	Fail	10322	4273	77	<a href="#">Link</a>	<a href="#">Link</a>	44	0	0	0	N	15	375	3	3911	0	0
<a href="#">92825572</a>	Cote Cloture	970 X 250	fr-fr	homepage	2503	Fail	28965	4256	49	<a href="#">Link</a>	<a href="#">Link</a>	291	1	1	1	N	73	33	1	4129	0	0
<a href="#">100226916</a>	Square Enix	300 X 600	en-gb	homepage	4008	Fail	9572	4251	75	<a href="#">Link</a>	<a href="#">Link</a>	31	0	0	0	N	15	353	3	3910	0	0
<a href="#">98671549</a>	Air France KLM	728 X 90	en-gb	homepage	108278	Fail	25592	4186	972	<a href="#">Link</a>	<a href="#">Link</a>	NA	0	0	0	Y	478	1923	0	259	0	992

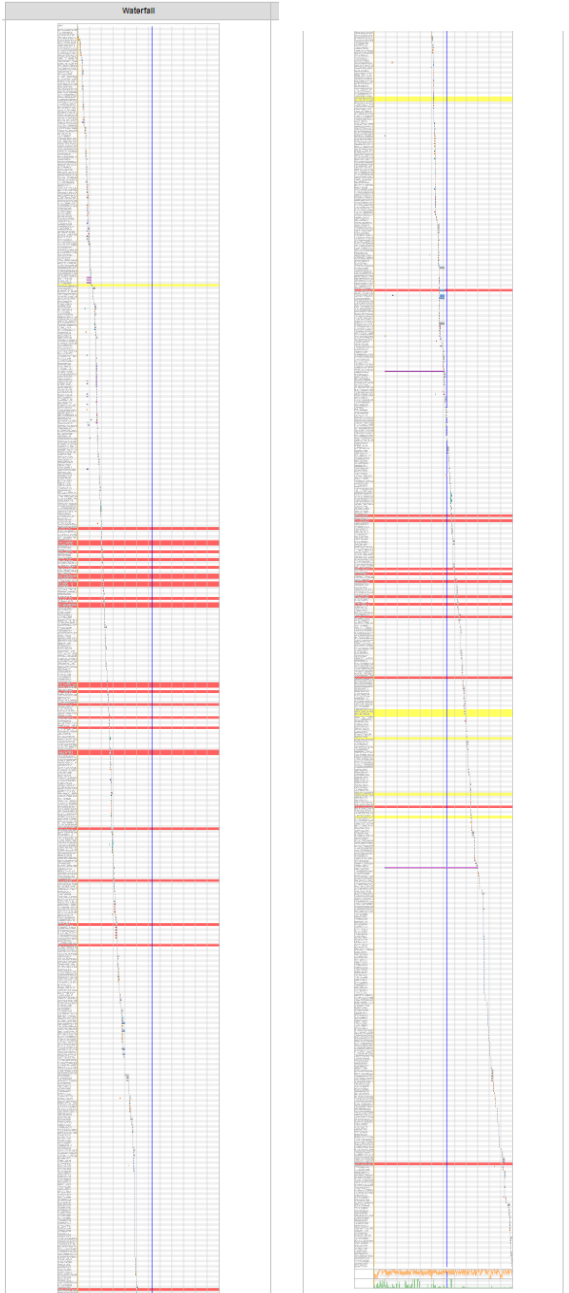
# ADA Batch Report

Sorted by Total Bytes (KB) – including ads w/ video



Ad/Page Info					Primary Metrics					Diagnostics			Secondary Metrics									
Creative	Advertiser	Dim	Mkt	Vert	WW All Impr #	Result Status	CPU ms	Total KB	Total Reqs	Network Waterfall	CPU Trace	LFS	Frames >10s	Frames >5s	Frames >2s	Has Flash	HTML KB	JS KB	CSS KB	Image KB	Video KB	Flash KB
<a href="#">97755328</a>	SiliconANGLE Media	970 X 250	pt-br	homepage	6420	Fail	20336	52273	98	<a href="#">Link</a>	<a href="#">Link</a>	230	0	0	1	N	33	344	35	166	49855	0
<a href="#">97758303</a>	SiliconANGLE Media	970 X 250	it-it	homepage	1008	Fail	22936	37451	98	<a href="#">Link</a>	<a href="#">Link</a>	275	0	0	1	N	33	344	35	169	36894	0
<a href="#">97758463</a>	SiliconANGLE Media	970 X 250	pt-br	homepage	1165	Fail	21917	28776	85	<a href="#">Link</a>	<a href="#">Link</a>	227	0	0	1	N	33	344	35	169	28220	0
<a href="#">98809707</a>	Quimica Amparo	300 X 250	pt-br	homepage	1416	Fail	15919	19174	32	<a href="#">Link</a>	<a href="#">Link</a>	113	0	0	0	N	18	215	2	77	18895	0
<a href="#">98809703</a>	Quimica Amparo	300 X 250	pt-br	homepage	21930	Fail	15350	19171	32	<a href="#">Link</a>	<a href="#">Link</a>	119	0	0	0	N	18	211	2	77	18895	0
<a href="#">97527283</a>	Colegio Master	300 X 250	pt-br	homepage	252	Fail	16067	19074	34	<a href="#">Link</a>	<a href="#">Link</a>	131	0	0	0	N	18	215	2	83	18789	0
<a href="#">99229058</a>	Camil	300 X 250	pt-br	homepage	953	Fail	16583	19039	32	<a href="#">Link</a>	<a href="#">Link</a>	169	0	0	0	N	18	214	2	81	18755	0
<a href="#">99195548</a>	Vigor	300 X 250	pt-br	homepage	42819	Fail	13982	18642	34	<a href="#">Link</a>	<a href="#">Link</a>	98	0	0	0	N	18	215	2	87	18353	0
<a href="#">97548672</a>	Colegio Master	300 X 250	pt-br	homepage	847	Fail	16062	18247	34	<a href="#">Link</a>	<a href="#">Link</a>	143	0	0	0	N	18	215	2	82	17962	0
<a href="#">97548655</a>	Colegio Master	300 X 250	pt-br	homepage	295	Fail	15887	18025	33	<a href="#">Link</a>	<a href="#">Link</a>	135	0	0	0	N	18	215	2	83	17739	0
<a href="#">99084917</a>	Tiffany and Co	300 X 250	pt-br	homepage	3020	Fail	16416	17771	32	<a href="#">Link</a>	<a href="#">Link</a>	139	0	0	0	N	18	215	2	76	17496	0
<a href="#">97608886</a>	Panasonic	300 X 250	pt-br	homepage	12050	Fail	16102	17335	32	<a href="#">Link</a>	<a href="#">Link</a>	126	0	0	0	N	18	214	2	75	17057	0
<a href="#">98783763</a>	PepsiCo	300 X 250	pt-br	homepage	2924	Fail	17389	17319	32	<a href="#">Link</a>	<a href="#">Link</a>	150	0	0	0	N	18	214	2	79	17038	0
<a href="#">98783760</a>	PepsiCo	300 X 250	pt-br	homepage	25295	Fail	17272	17319	32	<a href="#">Link</a>	<a href="#">Link</a>	133	0	0	0	N	18	215	2	79	17038	0
<a href="#">97608888</a>	Panasonic	300 X 250	pt-br	homepage	11864	Fail	18000	17140	32	<a href="#">Link</a>	<a href="#">Link</a>	135	0	0	0	N	18	214	2	75	16863	0
<a href="#">97716491</a>	Samsung	300 X 250	pt-br	homepage	7555	Fail	22925	17086	39	<a href="#">Link</a>	<a href="#">Link</a>	277	0	0	0	N	20	217	2	81	16798	0
<a href="#">97716494</a>	Samsung	300 X 250	pt-br	homepage	25624	Fail	17596	17086	39	<a href="#">Link</a>	<a href="#">Link</a>	165	0	0	0	N	20	217	2	81	16798	0
<a href="#">95452472</a>	Tiffany and Co	300 X 250	pt-br	homepage	5293	Fail	16531	16446	32	<a href="#">Link</a>	<a href="#">Link</a>	149	0	0	0	N	18	214	2	78	16166	0
<a href="#">98402008</a>	Estacio	300 X 250	pt-br	homepage	613	Fail	17803	16345	32	<a href="#">Link</a>	<a href="#">Link</a>	178	0	0	0	N	18	214	2	80	16063	0
<a href="#">99320265</a>	Ibmec	300 X 250	pt-br	homepage	451	Fail	21716	16277	32	<a href="#">Link</a>	<a href="#">Link</a>	198	0	0	0	N	18	215	2	162	15912	0
<a href="#">97789199</a>	Ibmec	300 X 250	pt-br	homepage	451	Fail	21578	16277	32	<a href="#">Link</a>	<a href="#">Link</a>	218	0	0	0	N	18	215	2	162	15912	0
<a href="#">98419928</a>	Federal Pharmacy Cou	300 X 250	pt-br	homepage	1755	Fail	18347	15028	32	<a href="#">Link</a>	<a href="#">Link</a>	125	0	0	0	N	18	215	2	80	14746	0
<a href="#">101232113</a>	Boehringer Ingelheim	300 X 250	pt-br	homepage	19287	Fail	19652	12677	34	<a href="#">Link</a>	<a href="#">Link</a>	110	0	0	0	N	18	212	2	74	12404	0
<a href="#">100054592</a>	Feministica	300 X 250	en-us	homepage	522895	Fail	18399	11626	1411	<a href="#">Link</a>	<a href="#">Link</a>	370	0	1	2	Y	74	3209	0	296	6913	5
<a href="#">101040243</a>	Vigor Alimentos	300 X 250	pt-br	homepage	10863	Fail	15185	11315	34	<a href="#">Link</a>	<a href="#">Link</a>	108	0	0	0	N	17	214	2	79	11034	0
<a href="#">96829676</a>	GlaxoSmithKline	300 X 600	en-gb	homepage	2514	Fail	4172	10540	38	<a href="#">Link</a>	<a href="#">Link</a>	28	0	0	0	N	18	261	0	10293	0	0
<a href="#">87752840</a>	The New York Racing A	300 X 250	en-us	homepage	809	Fail	3858	10509	68	<a href="#">Link</a>	<a href="#">Link</a>	22	0	0	0	N	14	341	1	49	10135	0
<a href="#">64391095</a>	LastPass	300 X 600	en-us	homepage	7033	Fail	980	9329	13	<a href="#">Link</a>	<a href="#">Link</a>	2	0	0	0	N	7	56	2	9300	0	0
<a href="#">98279477</a>	Danubio	300 X 250	pt-br	homepage	7224	Fail	11512	9054	33	<a href="#">Link</a>	<a href="#">Link</a>	80	0	0	0	N	18	214	2	83	8771	0
<a href="#">98944483</a>	Governo do Estado do	300 X 250	pt-br	homepage	34769	Fail	16743	8418	32	<a href="#">Link</a>	<a href="#">Link</a>	138	0	0	0	N	18	215	2	79	8137	0
<a href="#">99916900</a>	Ford Motors	300 X 250	pt-br	homepage	5064	Fail	20229	7907	34	<a href="#">Link</a>	<a href="#">Link</a>	136	0	0	0	N	18	215	2	81	7624	0

# ADA Diagnostics – Network Waterfall Details



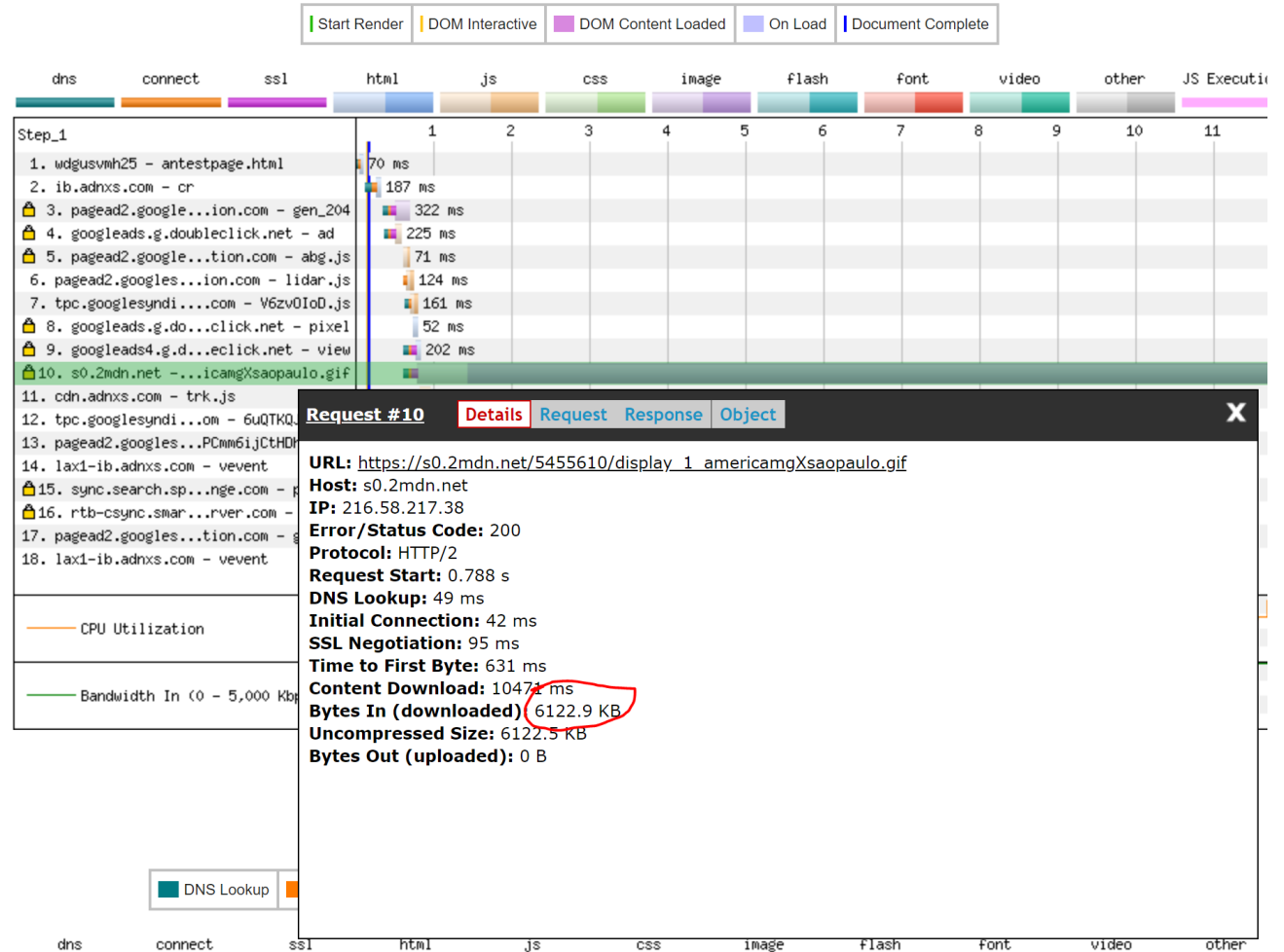
Ad with 600+ HTTP Requests

Issue: crazy beacon looping behavior

Ad with 6 MB animated gif

Issue: should be mp4 instead (would reduce size to 360 KB)

## Waterfall View



# ADA Batch Report

Sorted by CPU (ms) – amount of CPU consumed over 30s period on main browser thread



Ad/Page Info							Primary Metrics			Diagnostics				Secondary Metrics									
Creative	Advertiser	Dim	Mkt	Vert	WW Impr #	Result Status	CPU ms	Total KB	Total Reqs	Network Waterfall	CPU Trace	LFS	Frames >10s	Frames >5s	Frames >2s	Has Flash	HTML KB	JS KB	CSS KB	Image KB	Video KB	Flash KB	
<a href="#">87433561</a>	Rocky Brands	970 X 250	en-us	homepage	8817	Fail	29377	812	48	<a href="#">Link</a>	<a href="#">Link</a>	9	0	0	0	N	73	33	1	650	0	0	
<a href="#">78737887</a>	Williamson Dickie	970 X 250	en-us	homepage	15251	Fail	29289	649	49	<a href="#">Link</a>	<a href="#">Link</a>	6	0	0	0	N	78	38	1	517	0	0	
<a href="#">96153081</a>	Inked Shop	970 X 250	en-us	homepage	939	Fail	29262	1044	50	<a href="#">Link</a>	<a href="#">Link</a>	6	0	0	0	N	78	34	1	871	0	0	
<a href="#">100378972</a>	Elevate Style Corpora	970 X 250	en-us	homepage	884	Fail	29242	1301	53	<a href="#">Link</a>	<a href="#">Link</a>	333	1	1	1	N	76	34	1	1010	0	0	
<a href="#">95941490</a>	Karsten	1272 X 328	pt-br	homepage	467	Fail	29181	1150	49	<a href="#">Link</a>	<a href="#">Link</a>	353	1	1	1	N	84	33	1	885	0	0	
<a href="#">87106927</a>	Bungalow	970 X 250	en-us	homepage	1112	Fail	29130	1209	48	<a href="#">Link</a>	<a href="#">Link</a>	225	0	1	1	N	64	33	1	1036	0	0	
<a href="#">90401395</a>	Olivela	970 X 250	en-us	homepage	2175	Fail	29080	3904	50	<a href="#">Link</a>	<a href="#">Link</a>	304	1	1	1	N	74	33	1	3632	0	0	
<a href="#">87433561</a>	Rocky Brands	970 X 250	en-us	homepage	6926	Fail	29057	917	48	<a href="#">Link</a>	<a href="#">Link</a>	351	1	1	1	N	71	33	1	756	0	0	
<a href="#">97524384</a>	Avianca	728 X 90	es-es	homepage	14139	Fail	29056	136	6	<a href="#">Link</a>	<a href="#">Link</a>	8	0	0	0	N	6	119	1	40	0	0	
<a href="#">97985226</a>	Michigan Lottery	300 X 250	en-us	homepage	1093	Fail	29019	200	13	<a href="#">Link</a>	<a href="#">Link</a>	0	0	0	0	N	17	204	0	0	0	0	
<a href="#">95128618</a>	Forevermark	728 X 90	en-us	homepage	9737	Fail	28990	342	39	<a href="#">Link</a>	<a href="#">Link</a>	14	0	0	0	N	13	259	0	103	0	0	
<a href="#">92825572</a>	Cote Cloture	970 X 250	fr-fr	homepage	2503	Fail	28965	4256	49	<a href="#">Link</a>	<a href="#">Link</a>	291	1	1	1	N	73	33	1	4129	0	0	
<a href="#">97951356</a>	Panera	300 X 600	es-es	homepage	11934	Fail	28929	255	13	<a href="#">Link</a>	<a href="#">Link</a>	0	0	0	0	N	32	211	0	8	0	0	
<a href="#">99159302</a>	Vpn Autos	970 X 250	fr-fr	homepage	1519	Fail	28905	1104	49	<a href="#">Link</a>	<a href="#">Link</a>	325	1	1	1	N	68	33	1	929	0	0	
<a href="#">97950867</a>	Panera	300 X 250	en-us	homepage	205781	Fail	28881	259	17	<a href="#">Link</a>	<a href="#">Link</a>	0	0	0	0	N	32	209	0	14	0	0	
<a href="#">84150253</a>	ticketmaster	300 X 250	en-us	homepage	6314	Fail	28861	136	12	<a href="#">Link</a>	<a href="#">Link</a>	0	0	0	0	N	6	154	0	0	0	0	
<a href="#">68056668</a>	Jungheinrich	970 X 250	de-de	homepage	6926	Fail	28845	870	49	<a href="#">Link</a>	<a href="#">Link</a>	395	1	1	1	N	63	33	1	626	0	0	
<a href="#">56636966</a>	M Asam	970 X 250	de-de	homepage	3221	Fail	28839	641	50	<a href="#">Link</a>	<a href="#">Link</a>	367	1	1	1	N	67	33	1	483	0	0	
<a href="#">96952001</a>	JP Morgan Chase	728 X 90	en-us	homepage	843	Fail	28826	657	32	<a href="#">Link</a>	<a href="#">Link</a>	484	0	0	0	N	14	612	0	61	0	0	
<a href="#">91683685</a>	Peach and Lily	970 X 250	en-us	homepage	1249	Fail	28818	1227	51	<a href="#">Link</a>	<a href="#">Link</a>	316	1	1	1	N	72	33	1	769	0	0	
<a href="#">83093560</a>	Reishunger	970 X 250	de-de	homepage	1412	Fail	28805	937	48	<a href="#">Link</a>	<a href="#">Link</a>	348	1	1	1	N	87	34	1	801	0	0	
<a href="#">96996603</a>	JP Morgan Chase	300 X 250	en-us	homepage	277	Fail	28774	741	34	<a href="#">Link</a>	<a href="#">Link</a>	464	0	0	0	N	14	608	0	149	0	0	
<a href="#">59803081</a>	Roast Market	970 X 250	de-de	homepage	476	Fail	28773	831	48	<a href="#">Link</a>	<a href="#">Link</a>	375	1	1	1	N	60	34	1	655	0	0	
<a href="#">88653607</a>	Proshop	970 X 250	fr-fr	homepage	1581	Fail	28765	797	46	<a href="#">Link</a>	<a href="#">Link</a>	372	1	1	1	N	74	33	0	720	0	0	
<a href="#">58538616</a>	Jura kowalschik	970 X 250	de-de	homepage	428	Fail	28757	665	40	<a href="#">Link</a>	<a href="#">Link</a>	343	1	1	1	N	58	33	1	573	0	0	
<a href="#">56636966</a>	M Asam	970 X 250	de-de	homepage	3470	Fail	28755	703	50	<a href="#">Link</a>	<a href="#">Link</a>	388	1	1	1	N	67	34	1	544	0	0	
<a href="#">58492991</a>	Accor Hotels	970 X 250	de-de	homepage	1448	Fail	28726	2407	49	<a href="#">Link</a>	<a href="#">Link</a>	486	1	2	2	N	63	33	1	2130	0	0	
<a href="#">97716297</a>	Mizkan Americas	300 X 250	en-us	homepage	3743	Fail	28708	286	26	<a href="#">Link</a>	<a href="#">Link</a>	1	0	0	0	N	14	261	0	48	0	0	
<a href="#">86506506</a>	United Continental H	728 X 90	en-us	homepage	2265	Fail	28707	247	38	<a href="#">Link</a>	<a href="#">Link</a>	1	0	0	0	N	14	240	3	16	0	0	
<a href="#">92234088</a>	SlamJam	970 X 250	de-de	homepage	122	Fail	28685	635	47	<a href="#">Link</a>	<a href="#">Link</a>	294	1	1	1	N	74	33	0	544	0	0	
<a href="#">97233355</a>	Marriott	970 X 250	en-gb	homepage	8375	Fail	28683	248	30	<a href="#">Link</a>	<a href="#">Link</a>	0	0	0	0	N	43	192	0	10	0	0	

# ADA Batch Report

Sorted by LFS (Long Frame Score)



Ad/Page Info					Primary Metrics					Diagnostics		Secondary Metrics										
Creative	Advertiser	Dim	Mkt	Vert	WW Impr #	Result Status	CPU ms	Total KB	Total Reqs	Network Waterfall	CPU Trace	LFS	Frames >10s	Frames >5s	Frames >2s	Has Flash	HTML KB	JS KB	CSS KB	Image KB	Video KB	Flash KB
<a href="#">68271314</a>	Pillashop	970 X 250	de-de	homepage	185	Fail	28564	893	50	<a href="#">Link</a>	<a href="#">Link</a>	573	1	2	2	N	62	33	1	743	0	0
<a href="#">68056668</a>	Jungheinrich	970 X 250	de-de	homepage	10678	Fail	28378	871	49	<a href="#">Link</a>	<a href="#">Link</a>	573	1	2	2	N	66	34	1	623	0	0
<a href="#">68271423</a>	Haka Kunz	970 X 250	de-de	homepage	1268	Fail	28585	1231	49	<a href="#">Link</a>	<a href="#">Link</a>	570	1	3	3	N	61	33	1	752	0	0
<a href="#">74081902</a>	Michael Page Interna	970 X 250	de-de	homepage	8229	Fail	27693	789	48	<a href="#">Link</a>	<a href="#">Link</a>	570	1	2	2	N	77	34	0	630	0	0
<a href="#">99159399</a>	Cash Piscines	970 X 250	fr-fr	homepage	6635	Fail	28432	1210	50	<a href="#">Link</a>	<a href="#">Link</a>	569	2	2	2	N	68	34	1	880	0	0
<a href="#">85206947</a>	Mister Babyfoot	970 X 250	fr-fr	homepage	1353	Fail	28259	941	48	<a href="#">Link</a>	<a href="#">Link</a>	564	1	3	3	N	61	34	1	791	0	0
<a href="#">68271423</a>	Haka Kunz	970 X 250	de-de	homepage	1331	Fail	28576	1648	49	<a href="#">Link</a>	<a href="#">Link</a>	561	1	2	3	N	61	33	1	1169	0	0
<a href="#">59863550</a>	Hofstein	970 X 250	de-de	homepage	790	Fail	27708	659	49	<a href="#">Link</a>	<a href="#">Link</a>	561	1	2	2	N	61	33	1	506	0	0
<a href="#">95941711</a>	Lojas Donna	1272 X 328	pt-br	homepage	266	Fail	27043	1392	51	<a href="#">Link</a>	<a href="#">Link</a>	555	0	3	3	N	82	33	1	1128	0	0
<a href="#">69820036</a>	Helm Express	970 X 250	de-de	homepage	1218	Fail	27777	774	48	<a href="#">Link</a>	<a href="#">Link</a>	552	1	2	3	N	63	33	1	683	0	0
<a href="#">94731838</a>	Welkit	970 X 250	fr-fr	homepage	1863	Fail	27412	724	48	<a href="#">Link</a>	<a href="#">Link</a>	548	1	2	2	N	69	33	1	605	0	0
<a href="#">94355465</a>	ICON Meals	970 X 250	en-us	homepage	1758	Fail	27818	1952	48	<a href="#">Link</a>	<a href="#">Link</a>	543	2	2	2	N	74	33	1	1776	0	0
<a href="#">96759527</a>	Francois Nature	970 X 250	fr-fr	homepage	2041	Fail	27001	895	49	<a href="#">Link</a>	<a href="#">Link</a>	538	1	2	2	N	71	33	1	643	0	0
<a href="#">68299906</a>	Notenversand Kurt M	970 X 250	de-de	homepage	582	Fail	27819	1096	48	<a href="#">Link</a>	<a href="#">Link</a>	534	1	2	3	N	64	33	1	878	0	0
<a href="#">101157013</a>	American Internation	728 X 90	en-ca	homepage	7954	Fail	25842	3001	966	<a href="#">Link</a>	<a href="#">Link</a>	534	0	0	4	Y	65	1824	0	227	0	258
<a href="#">64617178</a>	Asgoodasnew	970 X 250	de-de	homepage	645	Fail	26700	780	49	<a href="#">Link</a>	<a href="#">Link</a>	532	1	2	2	N	66	33	1	625	0	0
<a href="#">100213756</a>	Long and Foster Real	300 X 250	en-us	homepage	4016	Fail	26928	2278	447	<a href="#">Link</a>	<a href="#">Link</a>	529	1	1	1	N	8	434	15	1687	0	0
<a href="#">98355263</a>	Swisscom	970 X 250	de-de	homepage	1969	Fail	28486	352	22	<a href="#">Link</a>	<a href="#">Link</a>	524	0	0	0	N	14	279	0	91	0	0
<a href="#">98671547</a>	United Airlines	728 X 90	en-us	homepage	260918	Fail	23960	4575	629	<a href="#">Link</a>	<a href="#">Link</a>	524	0	0	1	Y	958	1771	0	221	0	906
<a href="#">80549683</a>	LivingSocial	970 X 250	en-us	homepage	1326	Fail	25552	1979	48	<a href="#">Link</a>	<a href="#">Link</a>	522	0	3	3	N	85	33	0	1840	0	0
<a href="#">64617178</a>	Asgoodasnew	970 X 250	de-de	homepage	370	Fail	26105	756	49	<a href="#">Link</a>	<a href="#">Link</a>	521	1	2	2	N	66	33	1	602	0	0
<a href="#">92825572</a>	Cote Cloture	970 X 250	fr-fr	homepage	2845	Fail	25948	4104	50	<a href="#">Link</a>	<a href="#">Link</a>	520	1	2	2	N	70	33	1	3980	0	0
<a href="#">96602219</a>	Honda Motor Compa	300 X 600	en-us	homepage	1434	Fail	28327	470	39	<a href="#">Link</a>	<a href="#">Link</a>	507	0	0	0	N	27	423	0	48	0	0
<a href="#">64617178</a>	Asgoodasnew	970 X 250	de-de	homepage	1698	Fail	25362	687	49	<a href="#">Link</a>	<a href="#">Link</a>	507	1	2	2	N	68	33	1	532	0	0
<a href="#">68070683</a>	Null Leasing	970 X 250	de-de	homepage	618	Fail	28484	619	48	<a href="#">Link</a>	<a href="#">Link</a>	503	2	2	2	N	61	33	1	524	0	0
<a href="#">85986315</a>	Merck and Company	300 X 250	en-us	homepage	778	Fail	27906	662	99	<a href="#">Link</a>	<a href="#">Link</a>	499	0	0	0	N	21	577	0	90	0	0
<a href="#">93189702</a>	Merck and Company	300 X 250	en-us	homepage	598	Fail	27770	660	97	<a href="#">Link</a>	<a href="#">Link</a>	499	0	0	0	N	21	577	0	91	0	0
<a href="#">85983971</a>	Merck and Company	728 X 90	en-us	homepage	765	Fail	27671	693	96	<a href="#">Link</a>	<a href="#">Link</a>	499	0	0	0	N	21	563	0	135	0	0
<a href="#">96602193</a>	Honda Motor Compa	728 X 90	en-us	homepage	4618	Fail	28305	483	43	<a href="#">Link</a>	<a href="#">Link</a>	498	0	0	0	N	27	414	0	71	0	0
<a href="#">95941408</a>	Uncle K	1272 X 328	pt-br	homepage	115	Fail	24809	771	50	<a href="#">Link</a>	<a href="#">Link</a>	495	1	1	3	N	89	33	1	468	0	0
<a href="#">96985304</a>	JP Morgan Chase	300 X 250	en-us	homepage	12632	Fail	28649	502	32	<a href="#">Link</a>	<a href="#">Link</a>	492	0	0	1	N	14	506	0	12	0	0





# Weight Statistics

Statistics from analysis of 90,000 ads on MSN during May 2018

## Metric combinations

Combination	% Exceed
CPU > 5s or Bytes > 600 KB or Requests > 25	54.0%
CPU > 5s or Bytes > 600 KB or Requests > 50	29.0%
CPU > 5s or Bytes > 800 KB or Requests > 50	28.1%
CPU > 5s or Bytes > 1.2 MB or Requests > 50	27.5%
CPU > 5s or Bytes > 1.2 MB or Requests > 100	23.9%
CPU > 9s or Bytes > 600 KB or Requests > 25	52.6%
CPU > 9s or Bytes > 600 KB or Requests > 50	22.0%
CPU > 9s or Bytes > 800 KB or Requests > 50	20.8%
CPU > 9s or Bytes > 1.2 MB or Requests > 50	20.1%
CPU > 9s or Bytes > 1.2 MB or Requests > 100	13.0%
CPU > 12s or Bytes > 600 KB or Requests > 25	52.0%
CPU > 12s or Bytes > 600 KB or Requests > 50	19.3%
CPU > 12s or Bytes > 800 KB or Requests > 50	18.0%
CPU > 12s or Bytes > 1.2 MB or Requests > 50	17.3%
CPU > 12s or Bytes > 1.2 MB or Requests > 100	9.0%

Conservative assessment:  
20-30% of ads on MSN are  
too heavy

## Individual Metrics

CPU	% Exceed
>5s	23.4%
>9s	12.0%
>12s	7.9%
>24s	1.1%

Total Bytes	% Exceed
>600 KB	6.1%
>800 KB	3.0%
>1.2 MB	1.1%
>2.0 MB	0.5%

Total HTTP Requests	% Exceed
>25	50.1%
>50	11.1%
>100	0.5%
>200	0.01%

## Methodology:

- Total Bytes and Total HTTP Requests represent all requests over-the-wire (excludes user-initiated requests)
- CPU is the amount of CPU consumed by the main browser thread in IE11 from t=0 to t=30s during ad load
- CPU is measured on a server-class 2.0 Ghz processor (Intel(R) Xeon(R) CPU E5-2430L) throttled to better represent the real user population

# Case Study: Major DSP Findings

## Problem Summary

- We analyzed the heavyweight ads from one major DSP
- Common technical problems existed across the set
- Fixing a small number of problems slimmed down the majority of them

## Problems related to image weight

- Many large PNG images
  - Each exceeding 300-500 KB
  - Action: switched to JPEG or smaller PNG
- Extra images downloaded
  - 40+ images downloaded but only a few displayed
  - Action: only downloaded the images needed for that impression
- Lack of image resizing
  - Unoptimized images 50-60 KB each (optimized ~5-15 KB)
  - Action: delivered images with proper dimensions

## Problems related to CPU consumption and long frames

- Excessive JS looping behavior consuming >95% of CPU
  - Ads stuck in excessively long loops
  - Some frames exceed 10s (other UI activities blocked during this time)
  - Action: fixed bug causing long loops

### Takeaways:

- A small set of fixes resulted in a significantly higher % of ads passing the LEAN guidelines
- This exemplifies our experience with other ads too. Slimming down ads is not rocket science.

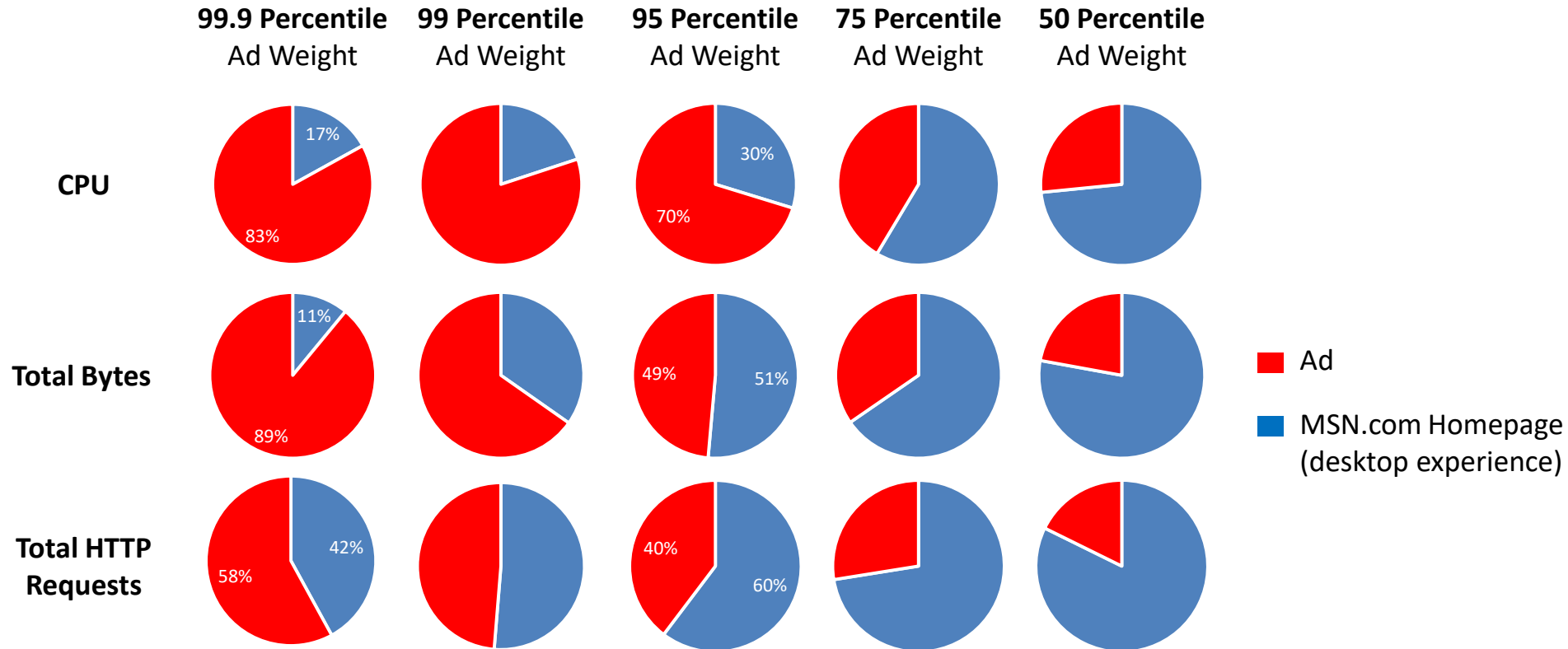
# Call to Action

- Industry needs to come together to alleviate the user frustration and loss of \$\$ in the ad ecosystem that result from heavy display ads
  - Slim down existing ads
  - Better Dev practices when building ads (and beacons trackers)
- Lack of standardized measurement is a problem
  - If you can't measure something you won't get the desired result
  - Need to standardize on a 'L' Score: scale of lightweight <-> heavyweight
  - Need to standardize on measurement technology for the L Score
  - Revisit parts of the IAB LEAN standard to ensure all user-impacting weight factors are accounted for (currently beacons/trackers are excluded)
- At Microsoft, we are happy to discuss how ADA can help the industry
  - E.g., run ADA as a service for general use, open source model, etc.
  - We're also looking to partner with ad developers to slim down existing ads

Contact: [pjr@microsoft.com](mailto:pjr@microsoft.com)

# Appendix

# Appendix: Ad Weight on MSN (Methodology)



	P99.9		P99		P95		P75		P50	
	Ad	MSN	Ad	MSN	Ad	MSN	Ad	MSN	Ad	MSN
<b>CPU (s)</b>	28.4	5.8	23.3	5.8	13.7	5.8	4.1	5.8	2.1	5.8
<b>Bytes (KB)</b>	4731	584	1097	584	552	584	309	584	166	584
<b>HTTP Reqs</b>	109	79	75	79	52	79	30	79	17	79

## Methodology:

- Ad weight percentiles calculated from 88,000 ads on MSN Homepages (9 markets) during May 2018
- MSN Homepage weight includes 1<sup>st</sup> party HTML, CSS, JS, Images (excludes ads and sponsored content)
- Total Bytes and Total HTTP Requests represent all requests over-the-wire (excludes user-initiated requests)
- CPU is the amount of CPU consumed by the main browser thread in IE11 from t=0 to t=30s during ad load
- CPU is measured on a server-class 2.0 Ghz processor (Intel(R) Xeon(R) CPU E5-2430L) throttled to better represent the real user population

# ADA Azure-Based Architecture

## Analyze performance (ad hosted on dummy page)

- Controller/agent architecture (scalable)
- Highly controlled environment (low variance)
- CPU trace generation (F12-compatible)
- Async results pingback to processing service on test completion

## Process results

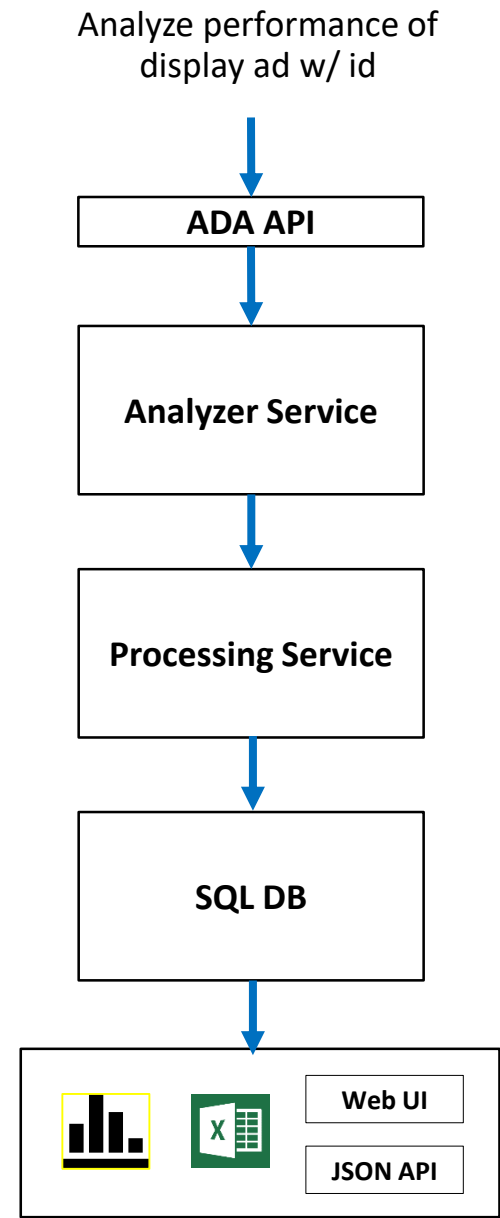
- Azure service behind load balancer
- Performs extended processing including CPU and frame length calculations

## Store results

- SQL hosted on Azure (IAAS)
- Contains result metrics & diagnostic details

## Results consumption

- Metrics: Bytes, Requests, CPU, Long Frame Score, add'l secondary metrics
- Diagnostics: network waterfall, CPU trace



# Ad Recovery and More

*Michael Yeon, Admiral*





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TECH LAB

IAB Tech Lab Council Q2 Meeting:  
Consumer Experience

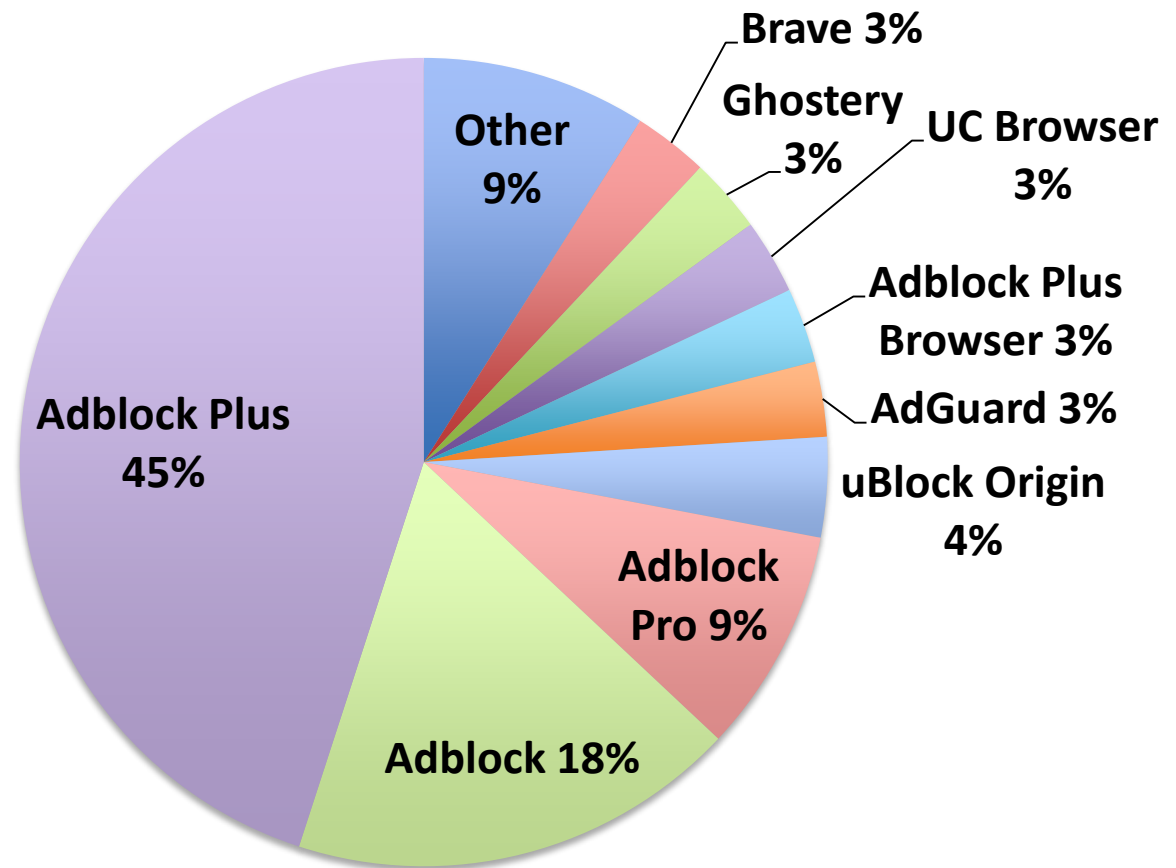
Thursday June 14<sup>th</sup>, 2018

# Admiral Helps Publishers Build & Manage Better Relationships With Their Consumers

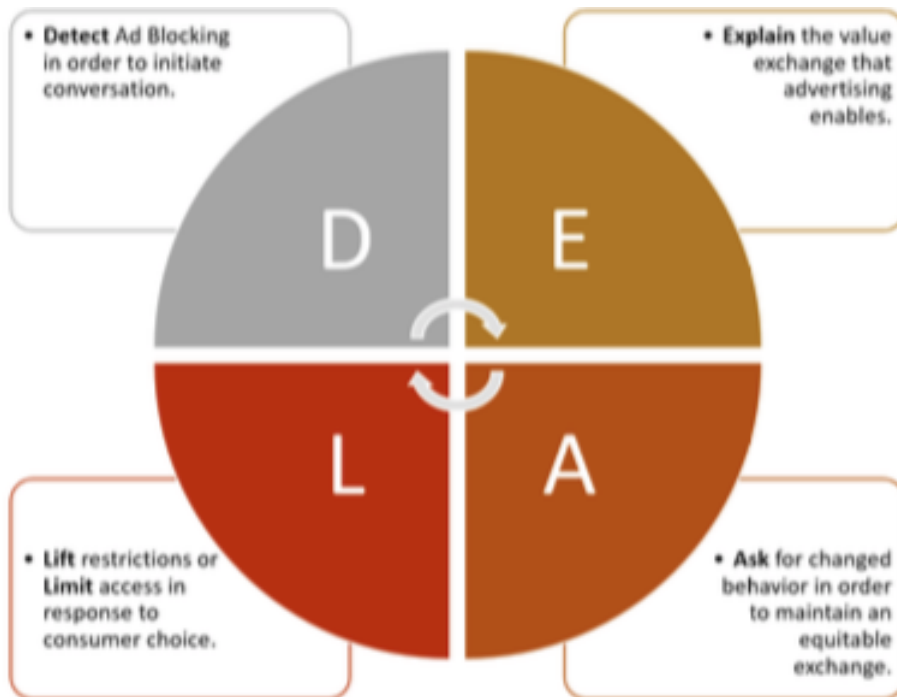
- Venture backed enterprise SaaS company founded in 2015/launched in 2016 to provide a solution for revenue losses sustained by publishers due to adblockers
- Install base of 14,000+ publishers, sites, and networks worldwide
- Industry presence: IAB/IAB Tech Lab, Coalition For Better Ads

# Adblock Usage is On The Rise, GDPR Won't Make it Go Away, and We Need to Deal With It

- **End of 2018:**
  - **76mm internet users in the U.S. (27%) will be using an adblocker**



# Tactics: IAB DEAL Framework Based Solution



- **Detect: Measure**
  - Adblock analytics
- **Explain/Ask: Engage + Consent**
  - Access control
  - Consent
- **Lift: Transact**
  - Redefine the value exchange
  - Alternative revenue

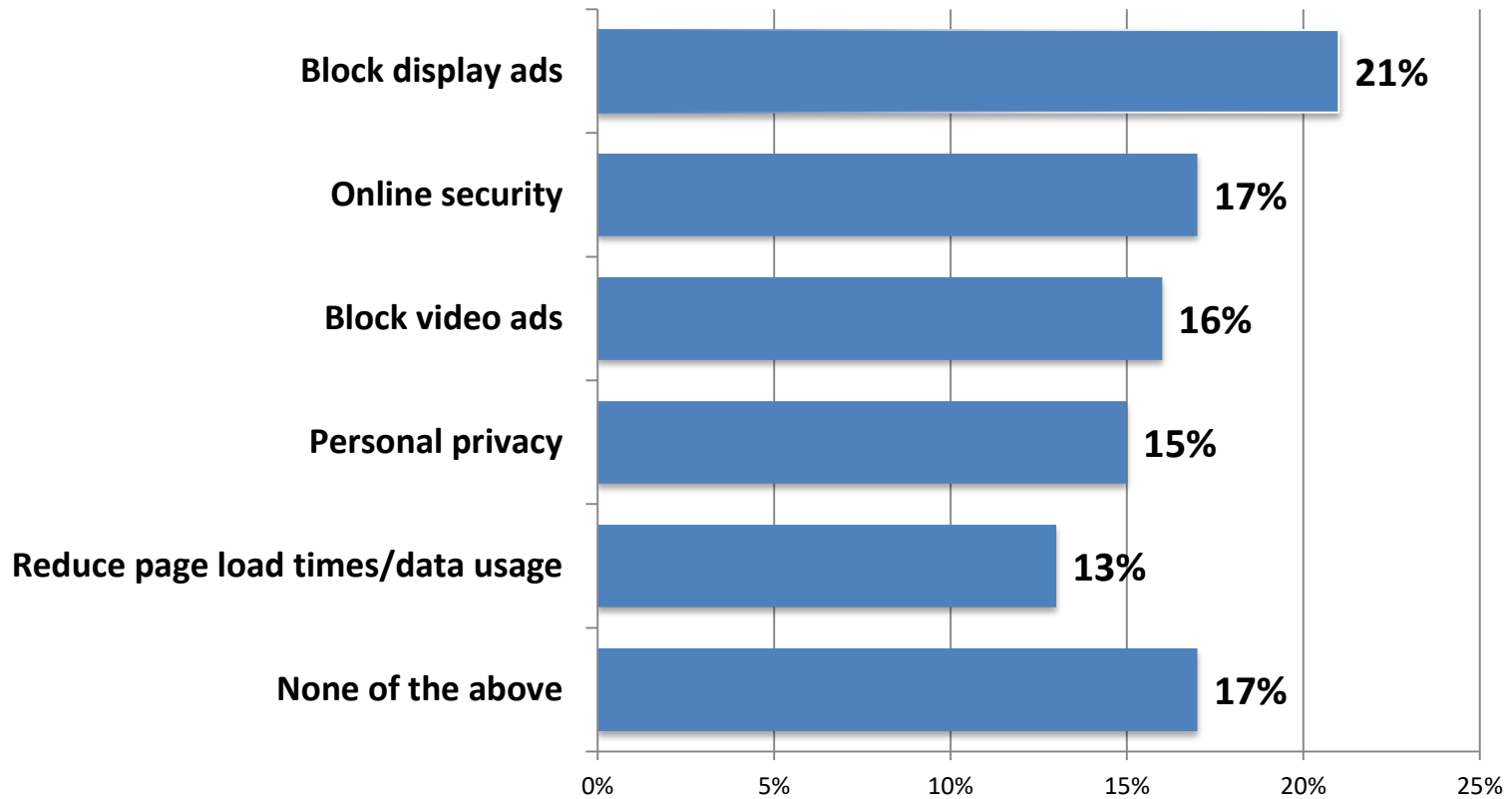
# Admiral's Solutions & Product Evolution Is Powered By Data

## Methodology

- Constantly collecting data via surveys served across Admiral's network of publishers (U.S., APAC, EU, and MENA)
- 23K+ qualified adblock users voluntarily responded to multiple questions over the course of 8-months (Nov 2017 – June 2018)
- Share your opinion CTA (not incentivized)
- Each question is replaced/refreshed with a new question once it receives 1,000+ responses

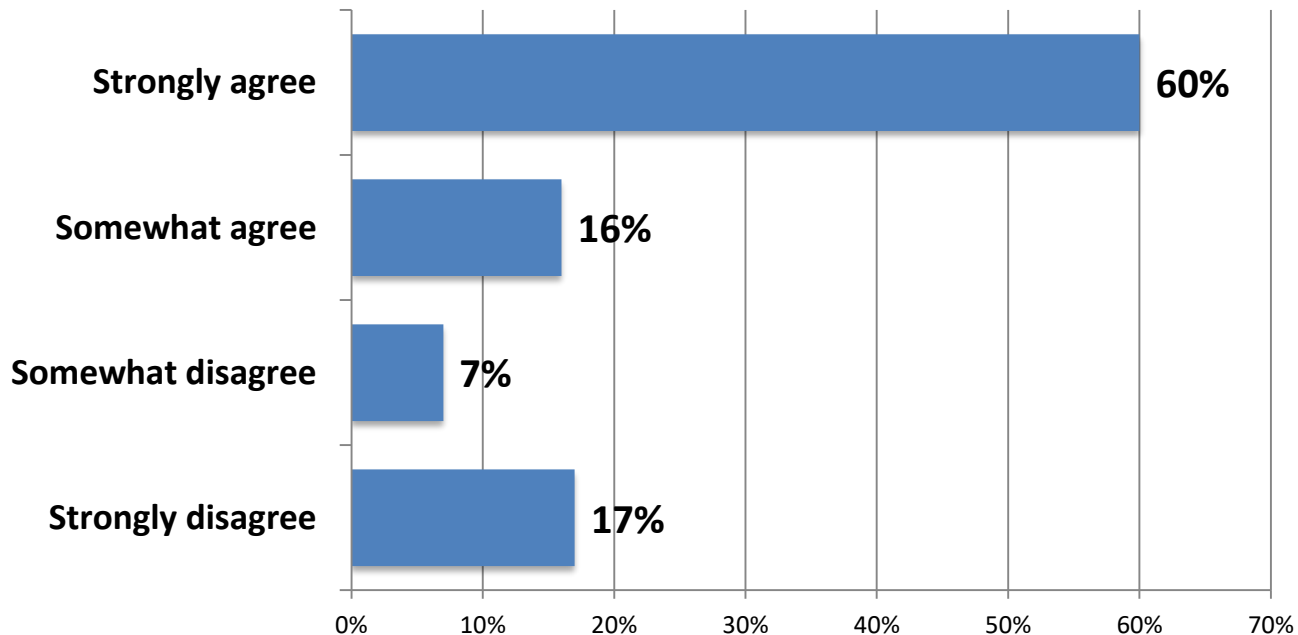
# Why Are They Using Adblockers?

Q: What is the PRIMARY reason you're using an adblocker?



# The Majority (76%) of Adblock Users Agree That Publishers Have the Right to Earn Revenue to Support the Content They Publish

Q: Do you agree or disagree with the following statement: “Websites like the one I just came from have the right to earn revenue from advertising to help pay for the content that they create/publish.”



# Engage: Access Control/Visitor Relationship Management

## Features

- Highly configurable access control:
  - **Soft:** Persistent messaging/does not block site access/view
  - **Hard:** full-screen or modal, access to your content is locked until the adblock user disables their adblocker or whitelists your site
  - **Gated:** full-screen or modal, high-impact engagement upon entry like Hard Engage, but includes an option for adblock users to proceed
- Fully customizable messaging
- Frequency settings
- A/B Testing
- Segmentation



# Detect, Engage, Ask For Consent

The image shows a screenshot of the PGA TOUR website's navigation bar and a central light box notification. The navigation bar includes the PGA TOUR logo, a menu icon, and links for LEADERBOARD, SCHEDULE, PLAYERS, FEDEXCUP, VIDEO, NEWS, STATS, FANTASY, TICKETS, SHOP, TEE OFF.com, a globe icon, TOURS, LOGIN, and a search icon. Below the navigation bar, a section titled 'PGA TOUR U.S. Open' features a 'TEE TIMES' tab and a list of players with their tee times: H. Varner III (6:45 am), S. Piercy (6:45 am), M. Pavon (6:45 am), S. Stallings (6:45 am), and S. Muñoz (6:45 am). The light box notification is centered on the page and contains the PGA TOUR logo, the text 'Looks like you're using an adblocker', a message 'Help us keep producing great free content — please turn off your adblocker on our website', a 'Here's How' button, and the text 'Or continue without disabling'. The background of the website shows a large image of a golfer in a white cap and a smaller image of a golfer in a white shirt. A 'FEEDBACK' button is visible on the right side of the page.

Light Box Gated Engage: Average whitelist rate of 15 – 25%

# Detect, Engage, Ask For Consent

Pittsburgh Post-Gazette

It looks like you currently have an ad blocker installed.

If you are not a subscriber, please disable your ad blocker or white list the Post-Gazette. If you are an active subscriber, [log-in](#) with your subscription or [activate](#) your digital access.

Whitelist Post-Gazette

POWERED BY  Admiral

Full Screen Hard Engage: Average whitelist rate of 50 – 85%

# Detect, Engage, Ask For Consent

## We care about your privacy.

In order to run a successful website, we and certain third parties are setting cookies and accessing and storing information on your device for various purposes. Various third parties are also collecting data to show you personalized content and ads. Some third parties require your consent to collect data to serve you personalized content and ads.

Update Privacy Settings

Sounds Good, Thanks

Not Now

E3



Admiral Consent CMP Light Box Modal

# Detect, Engage, Ask For Consent

## Latest from Computerworld UK

## Promoted



IT BUSINESS

### GE Digital CEO explains strategic 'pivot' following difficult year

Bill Ruh is laying the digital foundations on which General Electric can build a road to recovering the billions it lost in 2017



CLOUD COMPUTING

### How Cloud RAN is essential for faster 5G deployment

Mobile tech company Mavenir explains the need for Cloud RAN to drive 5G evolution



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Show you content and ads that are relevant to you.

[Cookie Policy](#)

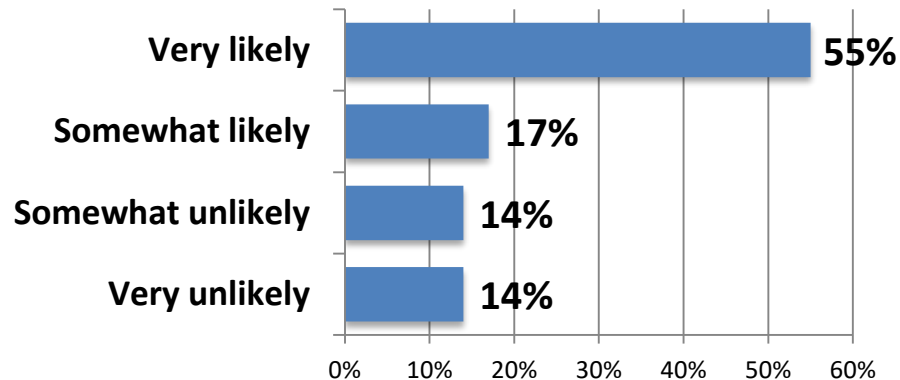
Manage Preferences

Accept

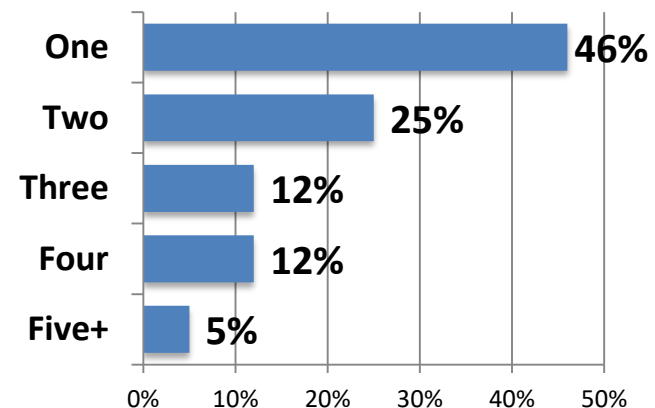
Admiral Consent CMP Soft Engage: 90% Accept Rate (50% Ignore Rate)

# A Better Ad Experience Will Help Publishers Drive Whitelisting of Their Site

Q: The IAB (Interactive Advertising Bureau) actively works with digital publishers and advertisers to set and enforce non-intrusive, beneficial advertising standards for consumers like you. Would you be more likely to whitelist a website in your adblocker if you knew the website adhered to the IAB's LEAN Ads standards?



Q: How many ads per page would you consider an "ad-lite" experience?



# Permission Based Ad Reinsertion

THE DENVER POST

**Help us serve you better**

Advertising revenue allows us to bring you the most relevant and current news about Denver, Colorado on any platform you choose, any time you want, for free. We strive to not interrupt your visit with intrusive advertisements. Support us by disabling your adblocker. Thank you!

**Browse with ads for free**  
Support The Denver Post by disabling your adblocker

Disable adblocker

**Browse with Ad-Lite experience**  
Directly support our content and browse with an ad-free experience

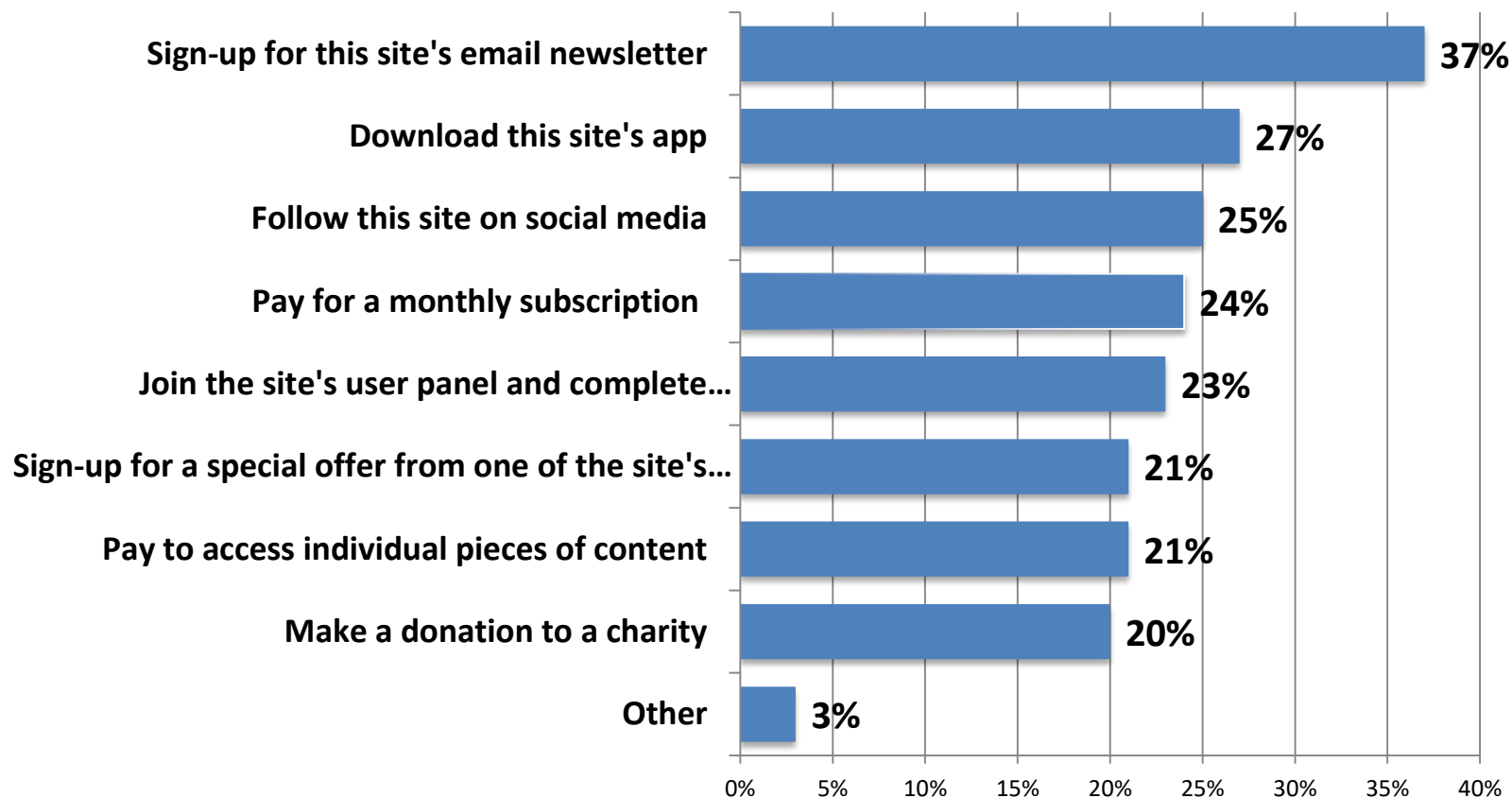
Continue with ads

Already a subscriber? [Login here](#)

Admiral Recover Works With Publishers to Implement an Ad-Lite Experience Based on IAB's LEAN Ads Standards

# Adblock users are willing to offer alternative value for an ad-free experience from the sites they visit

Q: Which of the following would you be willing to do for an ad-free experience on this site? Please check your top 3 choices.



# Redefine The Value Exchange

The Washington Times

Please choose one of the following.

Ads help support The Washington Times and keeps our content free. We strive to keep our ads non-intrusive and are asking for your support. Please be aware that running an ad blocker can break functionality on parts of The Washington Times website including comments, polls and quizzes.

<p><b>Whitelist Washington Times</b></p> <p>This will only whitelist our site and allow ads to support us for the content you read.</p> <p><b>Allow Ads on The Washington Times</b></p>	<p><b>Subscribe to our newsletter</b></p> <p>You can subscribe to the Washington Times newsletter and browse ad-free for 30-days!</p> <p>Email Address <input type="text"/></p> <p>Submit</p>
---	---

[Not this time](#)

[Already have a subscription? Login](#)

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Admiral Engage w/Email Collection




# Redefine The Value Exchange



It looks like you're using an adblocker.

We use ads to keep our content free. Please support us by turning off your adblocker. You can also subscribe to our Twitter and YouTube channel. Thank you! Your friends at HanCinema

[Disable my adblocker](#)

 HanCinema [Subscribe](#) 1.2K

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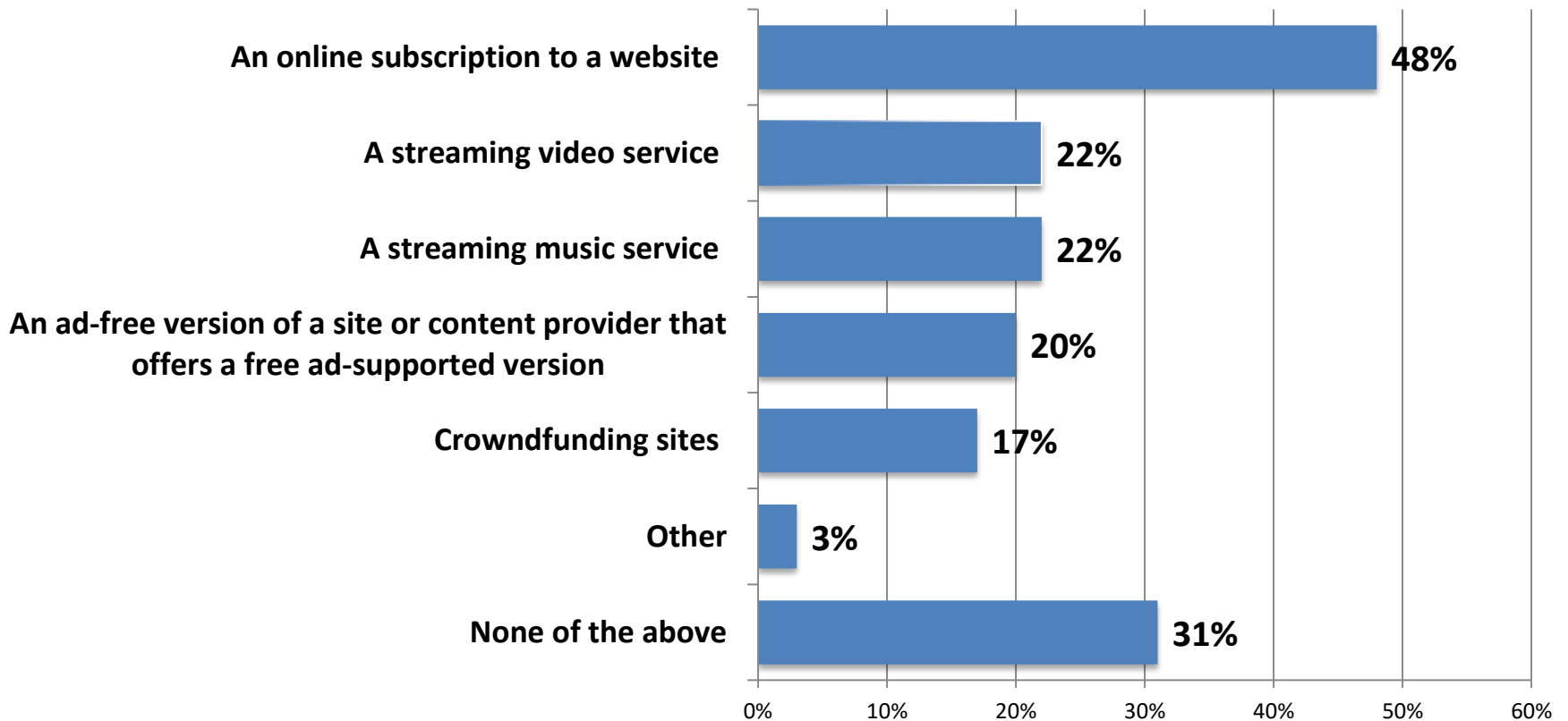
[New Episodes](#) [Popular Today](#) [Top News](#) [Drama of the Week](#) [Start](#)

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Admiral Engage w/Social Activation

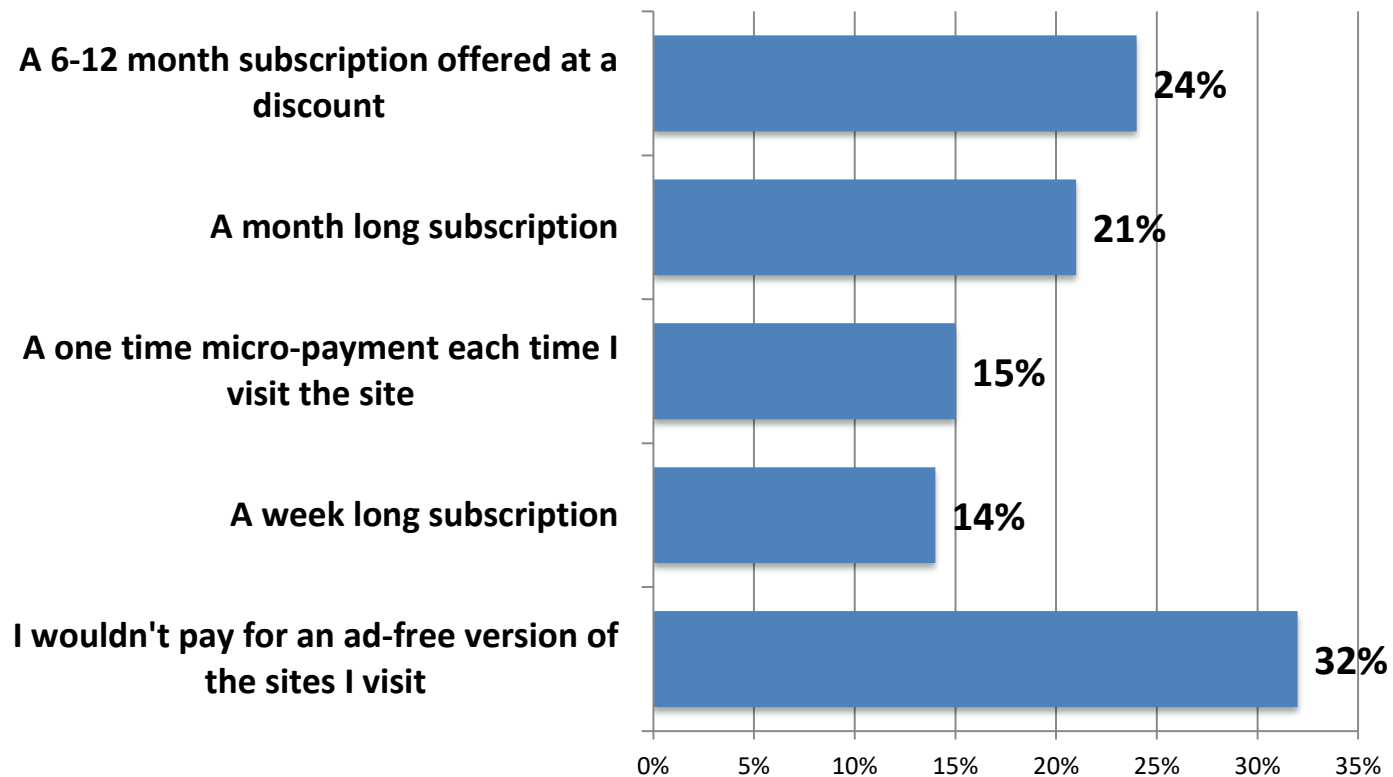
# The Majority (69%) of Adblock Users Actually Pay for Digital Content

Q: Do you currently pay for or regularly purchase the following online? Please check all that apply.



# The Majority (68%) of Adblock Users Would Pay For An Ad-free Experience

Q: If a website offered an ad-free experience for a price, which payment structure would you most prefer?



# Alternative Revenue Is Out There

THE **DAILY CALLER**

Enjoy reading The Daily Caller?

Creating original news is expensive. Without revenue we can't do it. Please support us by either donating to our journalism or allowing ads to pay for the content. Without one of these options we will go out of business. You can support us by either turning off your adblocker(s) or by signing up for The Daily Caller donation.

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Support The Daily Caller's research and reporting on the topics you care about, and browse Ad-Free without interruptions. Just click the "Subscribe" button below.

Subscribe

**Whitelist The Daily Caller**

This will only whitelist our site and allow ads to support us for the content you read.

Whitelist The Daily Caller

I choose to not support TheDC

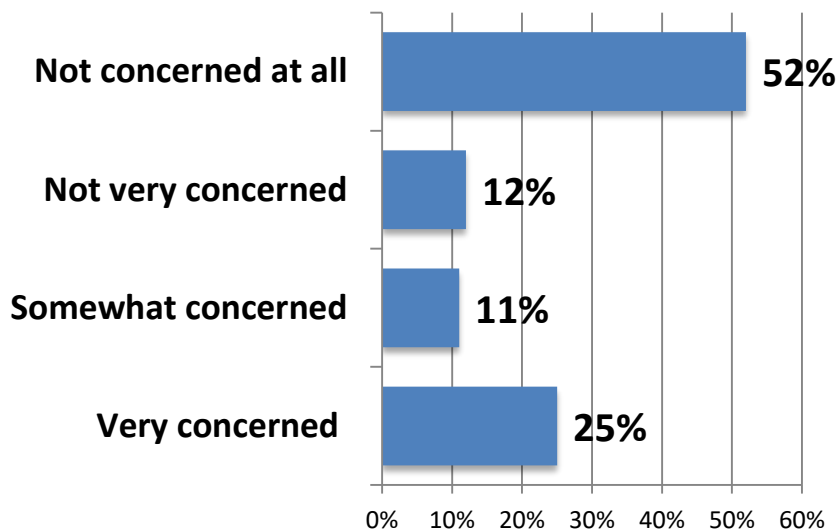
Already have a subscription? [Login](#)

POWERED BY  Admiral

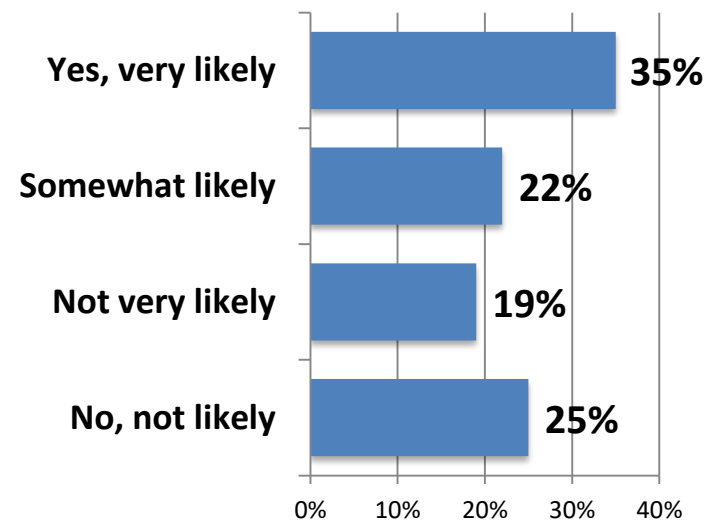
Admiral Engage w/Monetary Compensation

# Consent is Key towards Obtaining Permission in the Age of GDPR

Q: How concerned are you that certain businesses, websites, social networks, and advertisers are collecting some of your personal data for marketing purposes?



Q: Would you allow these businesses to access or use your personal information if they asked you for permission?



# Build & Manage Better Relationships With Their Consumers

- Don't be afraid to communicate with your consumers
- Base your decisions on meaningful data
- Ask for permission
- Consent is key



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**TECH LAB**

Michael Yeon, VP Marketing & Sales

[michael@GetAdmiral.com](mailto:michael@GetAdmiral.com)

# Questions

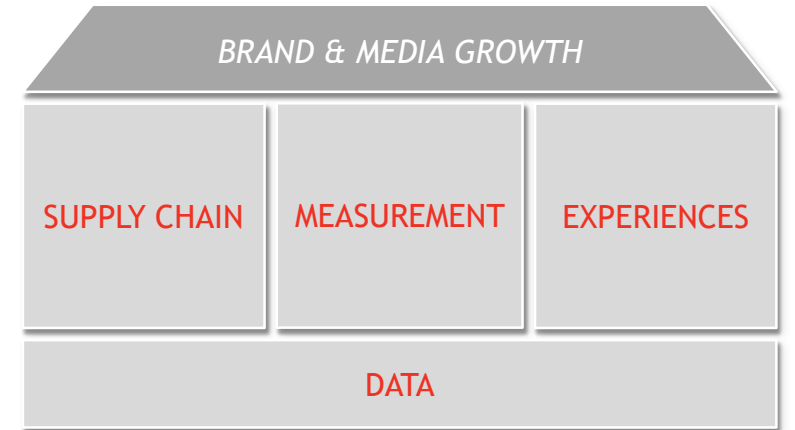


# IAB Tech Lab News

# Strategies & Offerings – IAB Tech Lab

*We enable brand & media growth via:*

- A transparent, safe, effective supply chain
  - Scalable & more consistent measurement
  - Higher-quality consumer advertising experiences
- ...all supported by the responsible use of data.



*We do this by developing & providing:*

- Standards: Specs, Protocols, Technical Guidelines
- Software: SDKs, Code, Tools
- Services: Compliance Programs & Events

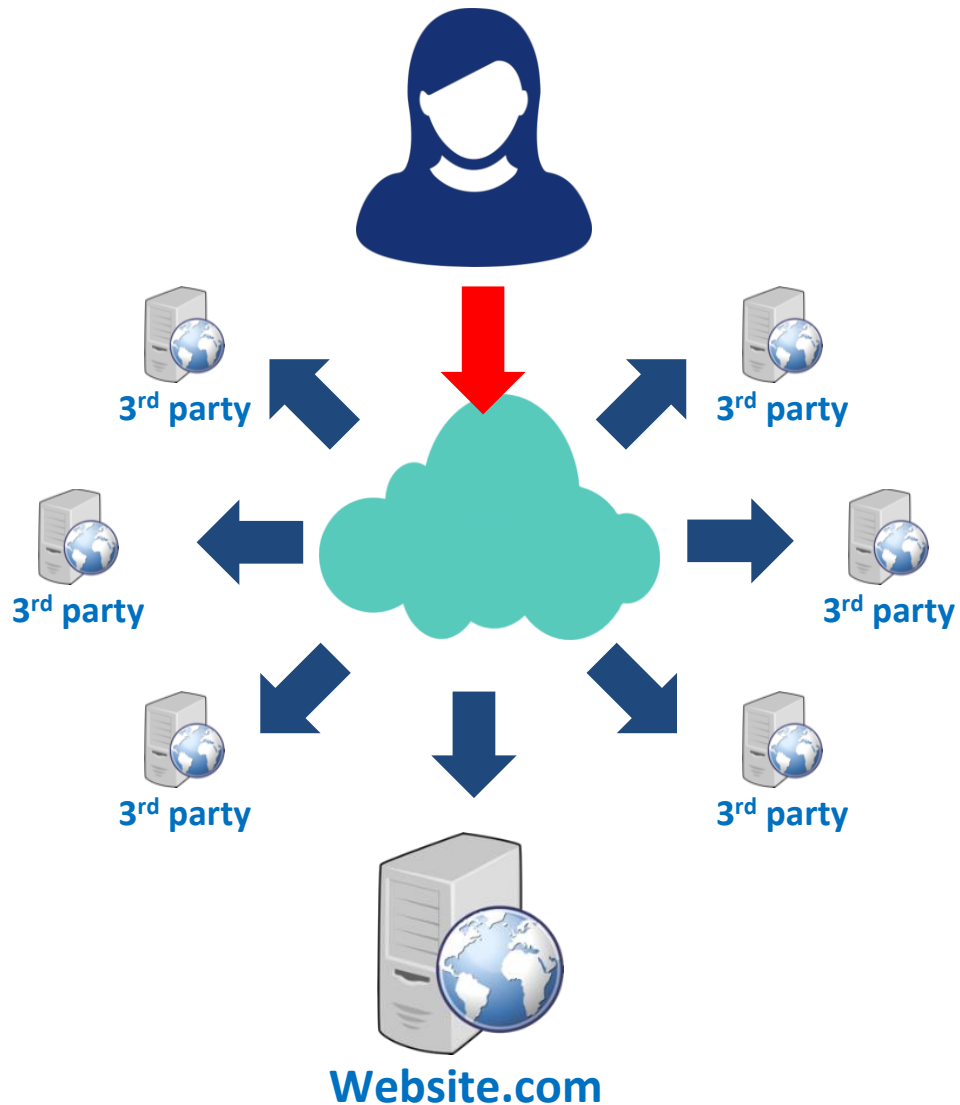
# Key Initiatives/Products – The “What”

Initiative/Product	Supply Chain	Measurement	Experiences	Data
ads.txt & ads.cert	✓			
TAG Engagement – ID, Anti-fraud	✓			
OpenMedia – OpenRTB, OpenDirect, Ad Mgmt. API	✓		✓ (Ad Mgmt)	
Blockchain – Education, TBD Standards	✓	?	?	?
Open Measurement SDK/API		✓		
Measurement Standards – MMTF, Podcast		✓		
Video – VAST, “VPAID”, VMAP		✓ (VAST)	✓	
TV – Evolving ATSC Std., File Formats, Metadata			✓	
Mobile – MRAID			✓	
Ad Products – New Ad Portfolio, Dynamic Content Ads			✓	
LEAN Program (covers multiple Experiences initiatives)			✓	
Privacy – GDPR Framework with IAB Europe			✓	✓
Identity – DigiTrust, OTT IFA, Standards	✓	✓	✓	✓
Data – Transparency Standards, Taxonomy	✓	✓	✓	✓

# News and Releases

- › **DigiTrust**
- › **OTT IFA**
- › **Open Measurement**
- › **Data Transparency Framework**
- › **Ads.txt Aggregator**
- › **VAST 4.1**

# The DigiTrust Standardized User ID



- **DigiTrust cloud service**
  - Standardized ID
  - Consent preferences (CMP)
  - Neutral, no profit motivation
- **Technology design**
  - Standardized JS file
  - CDN delivery, no network requests
  - No data collection
  - 1<sup>st</sup> party cookie context

# OTT IFA Guidelines

## ➤ **Public Comment Closed**

- Public Comment ran through May 3

## ➤ **Goals and Features**

- The Guidelines are a recommendation for a set of features on smart TV, connected device and other over-the-top (OTT) platforms that support core advertising functionality supported through HTTP cookies in traditional browser environments.
- Establishes three parameters:
  - An Identifier for Advertising (IFA)
  - An IFA Type string
  - A Limit Ad Tracking (LAT) flag
- Includes implementation and usage guidance for Consumer Electronics Manufacturers, OTT App Publishers, and Ad and Measurement Platforms.

# Open Measurement SDK - Update

45

members

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 MOAT  DV DoubleVerify  
 comSCORE

90

Downloads

 INMOBI™  TapJoy™  
 Supership  VMAX  
 POKKT™ VIDEO ADS  pinger  
 VERVE™  iab. TECH LAB

# Open Measurement SDK - Update

- **OMID API version 1.2 – supports Web Video (VAST + OMID verification)**
- **6 compliance certifications – completed + pending**
- **Future Roadmap features**
  - **Web SDK for video + more**
  - **Audibility**
  - **Blocking and failover**
  - **Microsoft Windows SDK**
  - **Encryption- Trust and handshake**
  - **Uniform impression definition**
  - **Ad Id**
  - **Native signals**
  - **OTT, Offline measurement,**
  - **Additional ad formats, Deep links to content**



# Data Transparency Framework

## ➤ Available for Public Comment

- Released May 23
- Feedback through July 16

## ➤ Transparency Standards Workshops

- NYC Yesterday
- SF on July 11

## ➤ Goals and Features

- Baseline expectation for data sellers regarding the additional information that buyers need to make an informed purchase decision.
- Standardized audience taxonomy so buyers can compare like segments across vendors
- Software to deliver this data to buyers in their platform of choice via an open source API

# Ads.txt Aggregation

## ➤ Data Service

- Available for subscription, \$10,000 annual fee, discounted for IAB Tech Lab members.

## ➤ Goals and Features

- The Ads.txt Aggregation is the result of daily, internet-wide crawls of ads.txt files. We do our best to crawl all domains, currently crawling over 2 million domains with ads.txt files.
- The aggregation is provided as a wholesale replacement to managing your own crawler. You may choose to use IAB Tech Lab's aggregation to supplement your own research.
- API Access is available to subscribers.

# Compliance Programs

# Compliance Programs | Overview



## Compliance for Technical Protocols & Specifications

✓ Validates the implementation of Technical Standards: [VAST](#) | [VPAID](#) | [MRAID](#) | [OpenRTB](#) | [OpenData](#) | [Dynamic Content Ads](#) | [SafeFrames](#) | [Audio Standards](#)

## Compliance for Measurement Guidelines & Best Practices

✓ Audits adherence to Measurement Guidelines: [Ad Campaign Measurement](#) | [Desktop, Video, Mobile Impressions](#) | [Desktop, Video, Mobile Viewability](#) | [Desktop, Video, Mobile Clicks](#) | [Podcast Measurement](#)

## Compliance for Open Source Software – Open Measurement SDK

[Program available now!](#)

## Compliance for Data Transparency & Integrity Standards

✓ Validates audience data disclosure and integrity practices.  
[Program expected to launch in 2nd half of 2018](#)



# Compliance Programs & Top Priority Initiatives

## Compliance Programs:

- **MMTF Measurement (new in 2017)**
- **Open Measurement SDK/API**
- **Podcast Measurement (server side)**
- **VAST 4.x**
- **Data Transparency**

## Critical Initiatives for Adoption:

- **ads.txt incl. Aggregator**
- **DigiTrust ID**
- **GDPR Framework**
- **Open Measurement**
- **VAST 4.x**
- **LEAN Seal**

# GDPR

# Transparency and Consent Framework

- In support of IAB Europe, Tech Lab is leading technical governance for the Transparency and Consent Framework
- This will help industry compliance with rules on data protection and privacy - notably the EU General Data Protection Regulation (GDPR)
- The project scope includes:
  - Consent Management Provider JavaScript API specs
  - Global Vendor List and Consent string specs
  - pubvendors.json tech spec
  - Mobile In-App support
- [GitHub](#) / [Global Vendor List](#)

# Framework Terms

## Daisybit

- Consent information compressed into a string of binary values and passed throughout the online advertising ecosystem through the OpenRTB specification.
- The compressed information is referred to as the Consent String.

## Global Vendor List

- A list of registered vendors who are third parties that a publisher might be using in connection with surfacing content to its end users. Registrants either:
  - Access an end user's device or browser
  - Collect or receive personal data about the publisher's end users.

## CMP

- A company that can read
  - the vendors chosen by a publisher
  - the consent status of an end user
- And can do this either
  - Service specific, through a first-party cookie
  - Globally, through a third-party cookie



# Publishers Integration

**Publishers will display a consent UI on their page to consumers. A Consent Management Provider (CMP) should provide this.**

**Publishers can function as their own CMP or use an existing CMP ([list of CMPs here](#)).**

**Publishers can utilize the Framework's ability to have global web-wide consent strings for users, OR publishers have the flexibility to use first party cookies to store consent.**

# Additional Items

## ➤ **pubvendors.json**

- A technical means to address publisher concerns about liability and legitimate interest
- Public comment period ended earlier this month.

## ➤ **Mobile / In-App**

- Mobile in-app spec global Interface within an App, so that all partners of a publisher can easily access the consent information alongside an optimised user experience where consent does not need to be requested more than once.
- Public comment period ended earlier this month.

**LEAN**

# Experiences: What LEAN Means – How Our Work Fits

## Lightweight

New Ad Portfolio

Dynamic Content Ads

AMP

DigiTrust?

- **New Ad Portfolio (IAB TL)**  
Technical guidance for **(L) Light** ad delivery, and format guidance for **(N) Non-Intrusive** behavior.
- **Dynamic Content Ads (IAB TL)**  
Efficient communication of ad components aligns with **(L) Light**; context-appropriate delivery is expected to be **(N) Non-Intrusive**.
- **Accelerated Mobile Pages (AMP)**  
By design, a mobile friendly, **(L) Light** delivery package.
- **DigiTrust (IAB TL)**  
Efficient cookie matching eliminates need for overloading pages with pixel-based synching and results in safer, faster sites.

## Encrypted

HTTPS

OpenRTB 3.0

## Allowing Choice

DAA

GDPR Framework?

- **OpenRTB 3.0 (IAB TL)**  
Emerging efforts for signed bids and other cryptography align with **(E) Encrypted**.
- **Digital Advertising Alliance (DAA)**  
DAA provides strong and useful choice programs that **(A) Allows Choice** for web and app.
- **GDPR Framework (IAB Europe / IAB TL)**  
Specs for publishers, vendors, CMPs to interoperate and **(A) Allow Choice**.
- **Better Ads Standards? (CBA)**  
A focus on user experience to determine Intrusive and **(N) Non-Intrusive** formats.

## Non-Intrusive

Better Ad Standards?

New Ad Portfolio

Dynamic Content Ads

# LEAN Seal

## ➤ Goals

- Provide a lightweight recognition of adherence to LEAN principles.
- Promote existing programs and technology that are paths to LEAN implementations.

## ➤ Challenges

- Differentiation from existing programs. LEAN Seal is an aggregation.
- Payment Friction. Industry participants pay for a variety of programs. Even at a low price, an additional payment is required.

## ➤ Actions

- Sign up to participate in initial product push.

# LEAN Score

## ➤ Goals

- Establish a common, licensable algorithm for quantifying user experience.
- Foster the development of non-Tech Lab tools and services that leverage Score methodology.

## ➤ Challenges

- Inexperience – while we have experience publishing technical specifications, we've not established algorithms.
- Unproven Market – Is the licensing path correct, or should this be freely available?

## ➤ Actions

- Participate in LEAN, DEAL, Experience WG.
- Share methods in use for quantifying advertising UX.

**Thank you**