APP-ADS.TXT & ADS.TXT TRENDS REPORT

Q3 2019

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Q3 2019: APP-ADS.TXT & ADS.TXT TAKEAWAYS

1,122%

increase in app-ads.txt adoption in Q3 2019

63%

more invalid traffic (IVT) on apps without app-ads.txt

50%

over half of the top 1k programmatic apps have app-ads.txt

1 million

over 1 million domains now have ads.txt

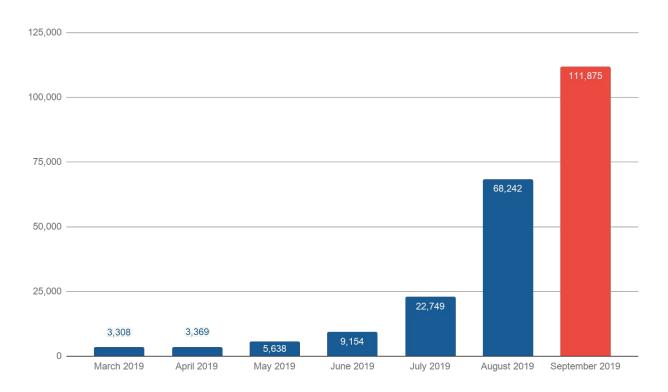
APP-ADS.TXT ADOPTION

OVERALL TRENDS & IVT IMPACT

adoption skyrockets 1,122%

APP-ADS.TXT ADOPTION SKYROCKETS 1,122% IN Q3

March - Sept. 2019; iOS & Android apps with app-ads.txt

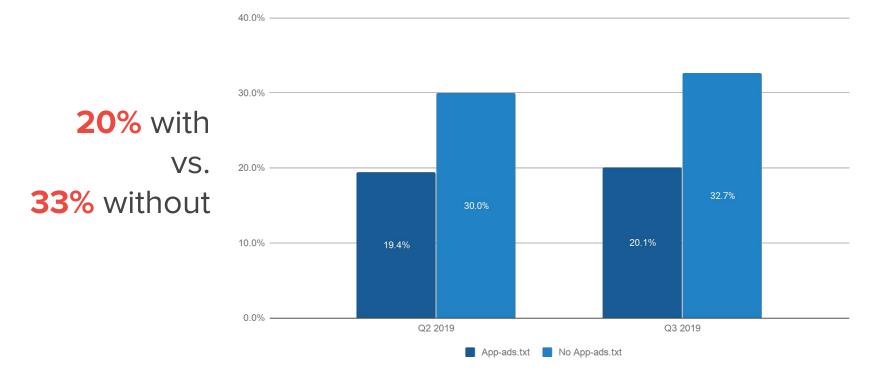


Over 110k apps now have app-ads.txt

APPS WITHOUT ADS.TXT HAVE 63% MORE IVT

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Q2-Q3 2019; iOS & Android apps combined; invalid traffic (IVT) rates measured by Pixalate





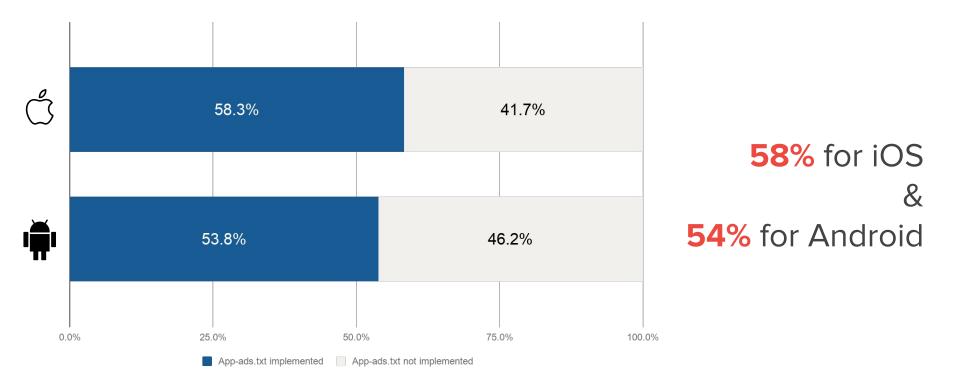
APP-ADS.TXT ADOPTION

AMONG MOST POPULAR APPS

over 50% of the top 1k programmatic apps have adopted the initiative

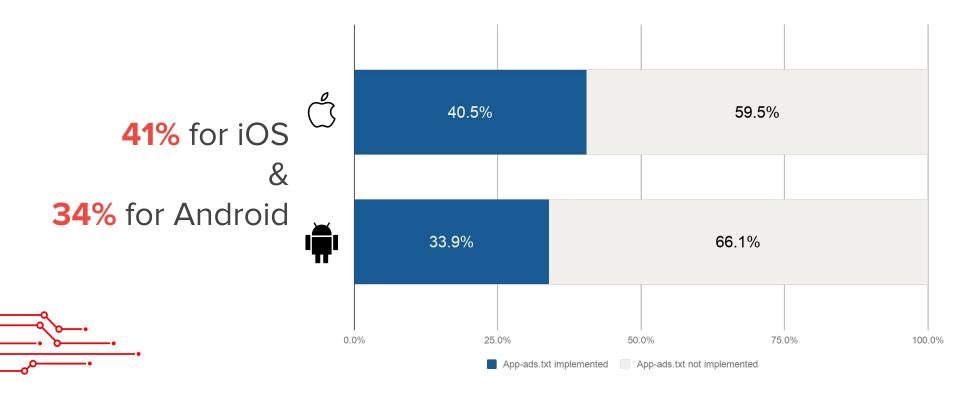
PROGRAMMATIC: OVER 50% OF TOP 1K HAVE ADS.TXT

Q3 2019; % of top 1k iOS/Android apps, based on programmatic ad volume, that have app-ads.txt; measured by Pixalate



PROGRAMMATIC: iOS LEADS ANDROID AMONG TOP 5K

Q3 2019; % of top 5k iOS/Android apps, based on programmatic ad volume, that have app-ads.txt; measured by Pixalate

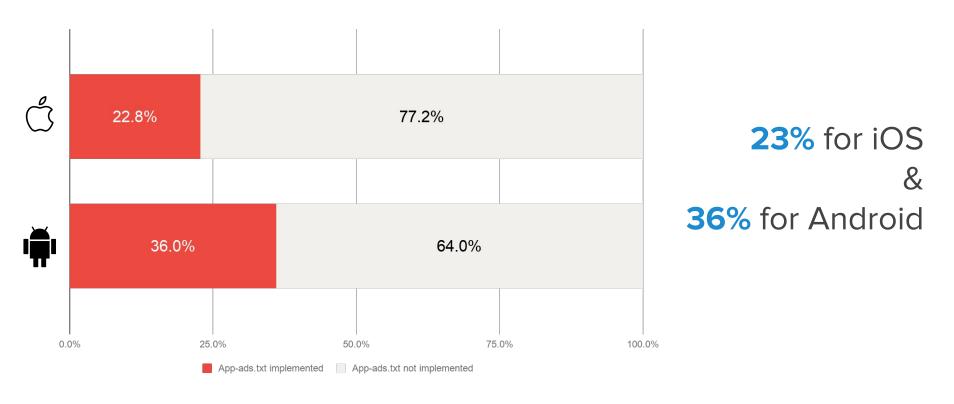




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USERS: 36% OF ANDROID TOP 1K HAVE ADS.TXT

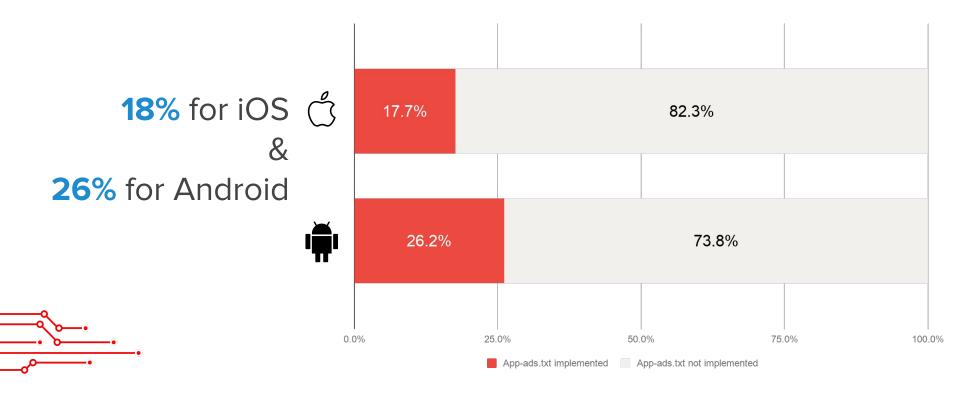
Q3 2019; % of top 1k iOS/Android apps, based on users, that have app-ads.txt; measured by Pixalate





USERS: ANDROID HAS FASTER ADOPTION AMONG TOP 5K

Q3 2019; % of top 5k iOS/Android apps, based on users, that have app-ads.txt; measured by Pixalate



APP-ADS.TXT ADOPTION

iOS vs. ANDROID

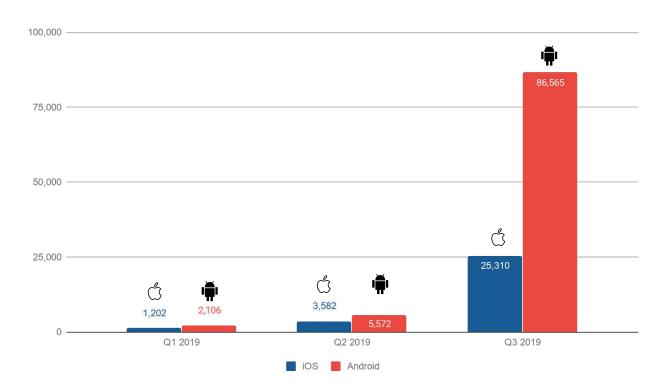
Android saw a 1,454% rise in adoption in Q3 2019



25k iOS, 86k ANDROID APPS HAVE ADS.TXT

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Q1-Q3 2019; total # of Android/iOS apps with app-ads.txt



1,454% jump for Android

607% rise for iOS

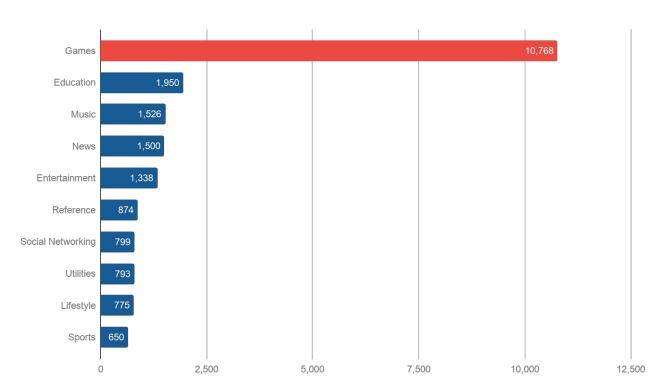




iOS: GAMING APPS ARE FASTEST ADOPTERS

Q3 2019; # of apps with app-ads.txt by iOS app category; top 10 categories based on app-ads.txt adoption shown

10x more iOS Games apps have app-ads.txt

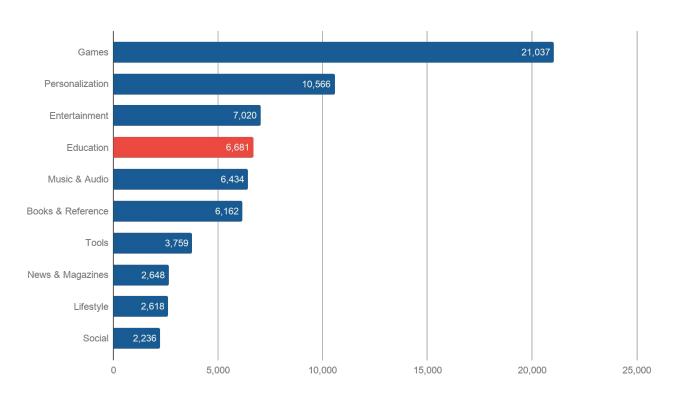






ANDROID: EDUCATION APPS ADOPTING APP-ADS.TXT

Q3 2019; # of apps with app-ads.txt by Android app category; top 10 categories based on app-ads.txt adoption shown



Education apps are 4th-fastest adopters on Android

APP-ADS.TXT TRENDS

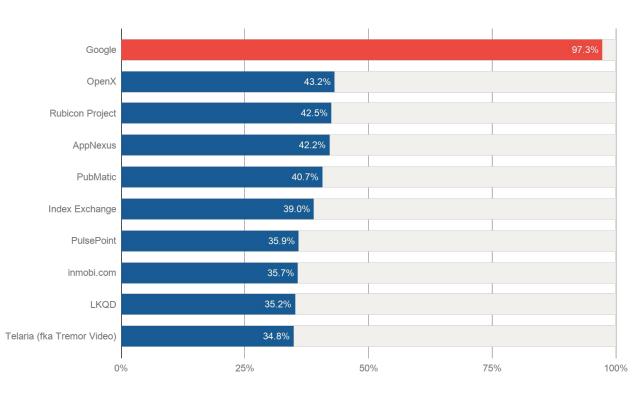
SSP (SELL-SIDE PLATFORM) RANKS

MoPub a top 'Direct' partner; OpenX a top 'Reseller' partner

GOOGLE IS ON 97% OF APP-ADS.TXT FILES

Q3 2019; rate at which a seller is listed as a partner on unique app-ads.txt files; among all apps with app-ads.txt

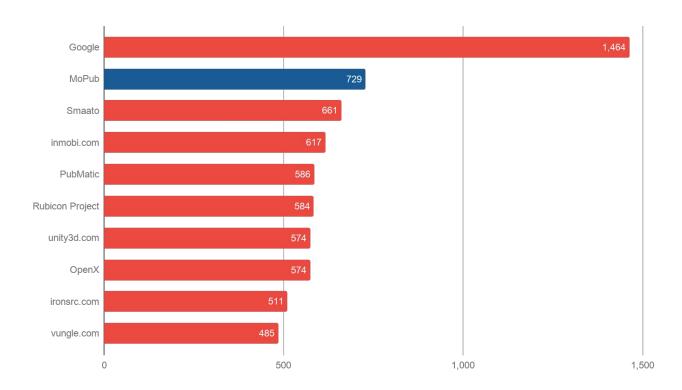
97% of all app-ads.txt files have Google listed





ANDROID: MOPUB 2ND LARGEST 'DIRECT' PARTNER

Q3 2019; # of times a seller is listed as a 'Direct' partner on unique Android app-ads.txt files among top 5k programmatic Android apps



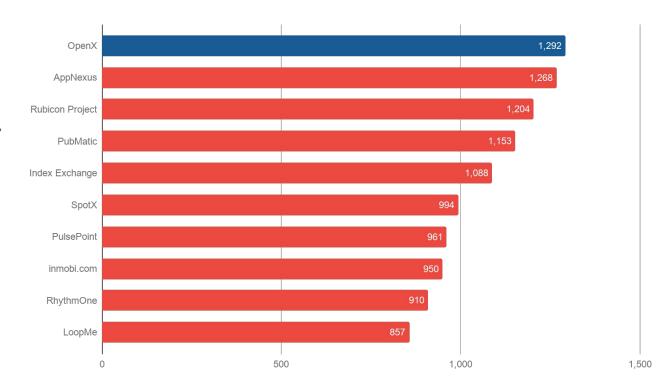
MoPub is 2nd-largest direct partner among top Android apps

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ANDROID: OPENX IS TOP 'RESELLER' PARTNER

Q3 2019; # of times a seller is listed as a 'Reseller' partner on unique Android app-ads.txt files among top 5k programmatic Android apps

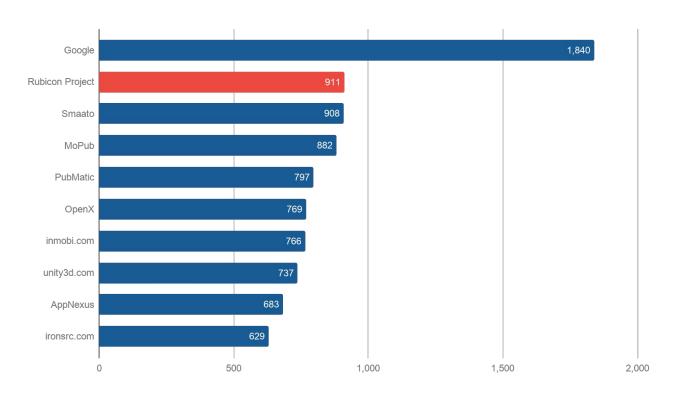
OpenX is the top reseller partner among Android's biggest apps





iOS: RUBICON PROJECT 2ND LARGEST 'DIRECT' PARTNER

Q3 2019; # of times a seller is listed as a 'Direct' partner on unique iOS app-ads.txt files among top 5k programmatic iOS apps



Rubicon Project

2nd-biggest direct partner on top iOS apps

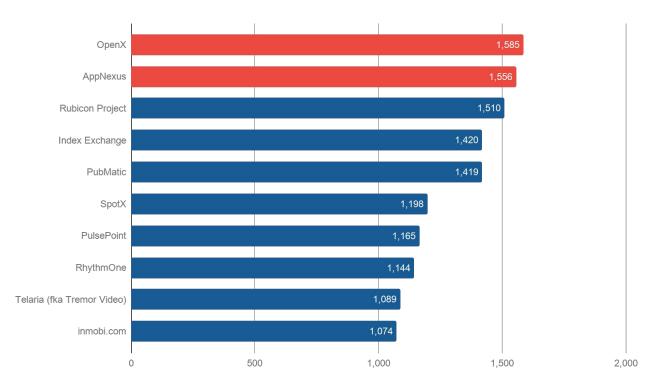


iOS: OPENX, APPNEXUS TOP 'RESELLERS'

Q3 2019; # of times a seller is listed as a 'Reseller' partner on unique iOS app-ads.txt files among top 5k programmatic iOS apps

OpenX & AppNexus

battle for biggest reseller on top iOS apps



APP-ADS.TXT TRENDS

SUPPLY CHAIN INTEL: CATEGORIES

the leading app-ads.txt suppliers based on app category on iOS & Android

ANDROID DIRECT: MOPUB, GOOGLE COMMON IN TOP 5

Q3 2019; top 'Direct' partners on Android apps with app-ads.txt; by category; top 5 Play Store categories based on total app-ads.txt adoption shown

	Games	Personalization	Entertainment	Education	Music & Audio
1	G	G	G	3	G
2	unity	smaato ⁿ	INMOBI	gotham ads	INMOBI
3	is	m	rupicoñ	/4	m
4	**/	mopub*	■ PubMatic	G	mopub*
5	mopub*	ADVIEW	mopub"	IUUOBI	*OpenX

ANDROID RESELLER: PUBMATIC TOPS 3 BIG CATEGORIES

Q3 2019; top 'Reseller' partners on Android apps with app-ads.txt; by category; top 5 Play Store categories based on total app-ads.txt adoption shown

	Games	Personalization	Entertainment	Education	Music & Audio
1	*OpenX.	■ PubMatic	■ PubMatic	■ PubMatic	*OpenX
2	*			PULSEPOINT	■ PubMatic
3		*OpenX.	*OpenX		(npicoji
4	Loop Me	unpic <mark>oŭ</mark>	rubicon	LKQD	
5	INMOBI	PULSEPOINT		*	©xAd ⁻

iOS DIRECT: GOOGLE SWEEPS THE MAJOR CATEGORIES

Q3 2019; top 'Direct' partners on iOS apps with app-ads.txt; by category; top 5 App Store categories based on total app-ads.txt adoption shown

	Games	Education	Music	News	Entertainment
1	G	G	G	G	G
2	₩ unity	m	IUUOBI	npico	rupic <mark>oj</mark>
3	is	INMOBI	m		m
4	mopub*	mopub*	mopub*	*OpenX.	INMOBI
5	*/	VRTCAL	*OpenX	■ PubMatic	smaato*

iOS RESELLER: OPENX IS TOP 2 ACROSS THE BOARD

Q3 2019; top 'Reseller' partners on iOS apps with app-ads.txt; by category; top 5 App Store categories based on total app-ads.txt adoption shown

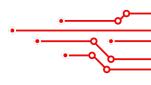
	Games	Education	Music	News	Entertainment
1	*OpenX	*OpenX	LAPICÖÜ	*\(\textstyle{penX}\)	
2	*		*\u00f3penX	(npieöÿ	*\(\text{penX}\)
3	unpicou				■ PubMatic
4	INMOBI		*	■ PubMatic	rupicoŭ
5		₽ xAd⁻	■ PubMatic		

ADS.TXT ADOPTION

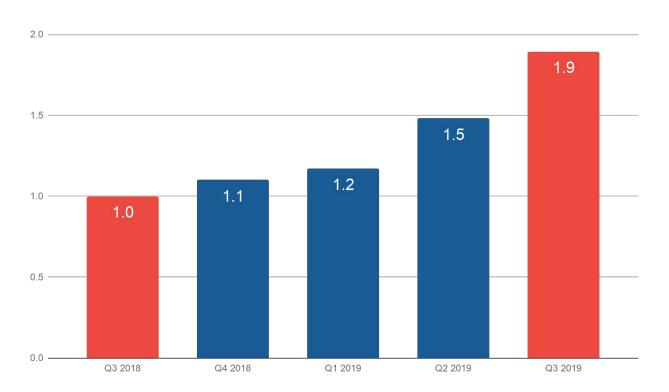
OVERALL TRENDS & IVT IMPACT

ads.txt adoption doubles year-over-year

ADS.TXT ADOPTION DOUBLES YEAR-OVER-YEAR



Q3 2018 - Q3 2019; total number of domains with ads.txt; indexed against Q3 2018

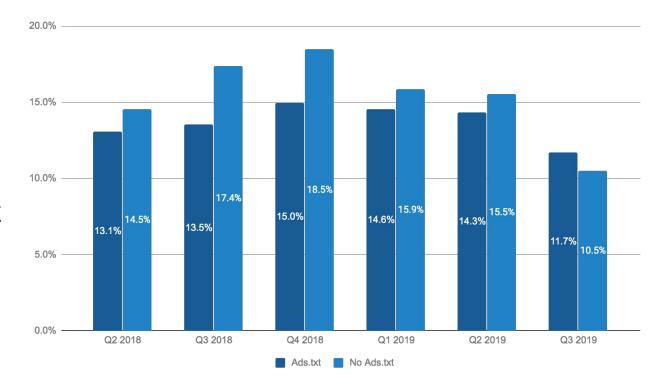


Over 1 million domains now have ads.txt

FOR FIRST TIME, ADS.TXT IVT IMPACT IS MINIMAL

Q2 2018 - Q3 2019; invalid traffic (IVT) rates on domains with vs. without ads.txt; IVT measured by Pixalate

11.7% with vs. 10.5% without



ADS.TXT ADOPTION

AMONG MOST POPULAR DOMAINS

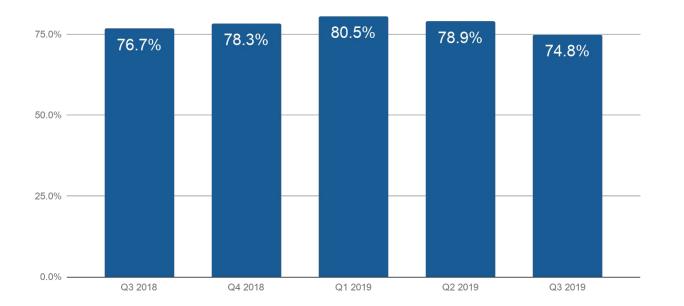
75% of the top programmatic domains have ads.txt

TOP 1K ADOPTION RATE DIPS TO 75%

Q3 2018 - Q3 2019; % of top 1k domains in terms of programmatic ad volume with ads.txt



100.0%



75% of the top 1k sites have ads.txt, down for 2nd straight quarter

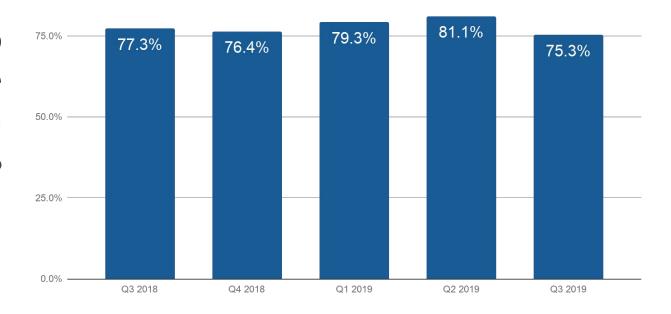
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TOP 5K ADOPTION RATE DROPS TO 75%

Q3 2018 - Q3 2019; % of top 5k domains in terms of programmatic ad volume with ads.txt

100.0%

75% of the top 5k sites have ads.txt, down from 81%





ADS.TXT TRENDS

SSP (SELL-SIDE PLATFORM) RANKS

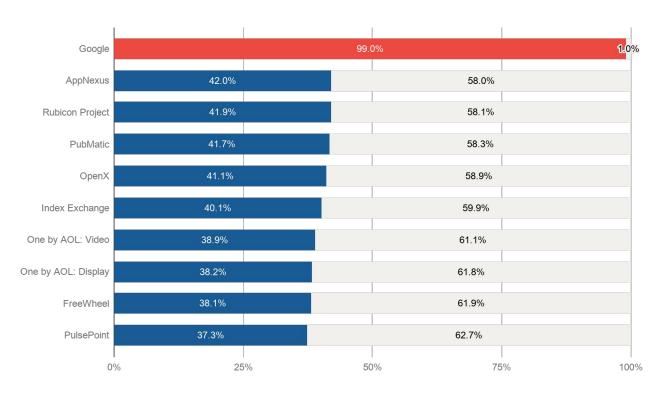
Google's throne is challenged as top 'Direct' partner on popular domains



GOOGLE IS ON 99% OF ALL ADS.TXT FILES

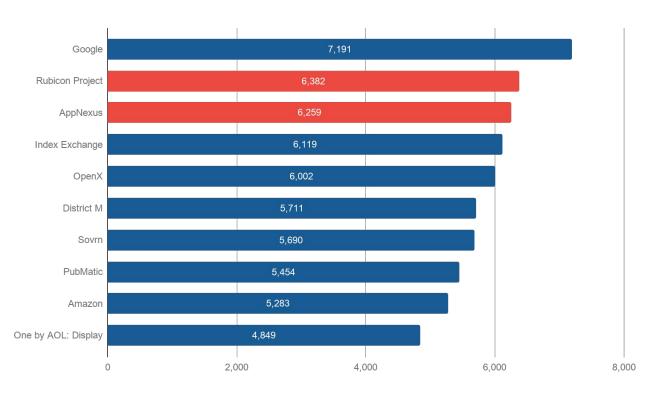
Q3 2019; rate at which a seller is listed as a partner on unique ads.txt files; among all domains with ads.txt

99% of all ads.txt files have Google listed



AMONG TOP 10K, GOOGLE'S THRONE IS CHALLENGED

Q3 2019; # of times a seller is listed as a 'Direct' partner on unique ads.txt files among top 10k programmatic domains

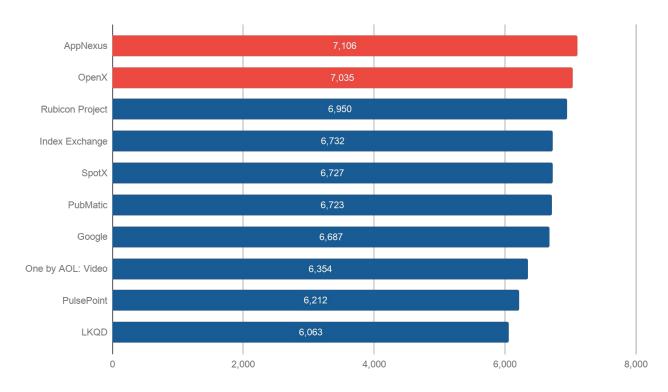


on top, but
Rubicon and
AppNexus are
within 1k on
top sites

APPNEXUS IS MOST COMMON 'RESELLER' PARTNER

Q3 2019; # of times a seller is listed as a 'Reseller' partner on unique ads.txt files among top 10k programmatic domains

AppNexus is biggest reseller on top sites, closely followed by OpenX



ADS.TXT TRENDS

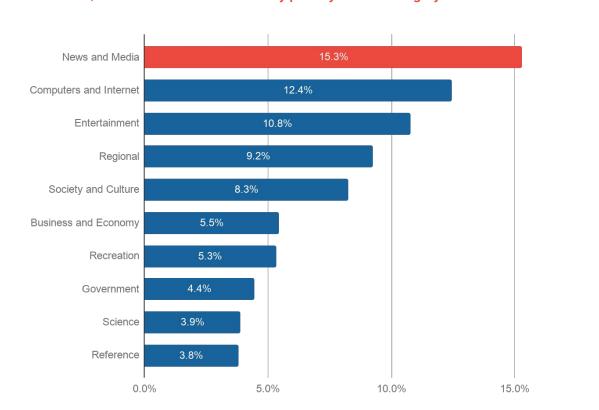
SUPPLY CHAIN INTEL: CATEGORIES

15% of all ads.txt files are on news sites

15% OF ALL ADS.TXT FILES ARE ON NEWS SITES

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Q3 2019; % of all domains with ads.txt by primary domain category



Over 15% of all sites with ads.txt are in the News & Media category

20.0%

DIRECT: AMAZON CRACKS THE TOP 5

Q3 2019; top 'Direct' partners on domains with ads.txt; by category; top 5 domain categories based on total ads.txt adoption shown

	News & Media	Computers/Internet	Entertainment	Regional	Society & Culture
1	G	G	G	G	G
2			*	*	*
3			LAPICÖÜ	■ PubMatic	
4		■ PubMatic	■ PubMatic	unpico <u>u</u>	■ PubMatic
5	■ PubMatic	rubic <u>oñ</u>	O	Aol.	

RESELLER: APPNEXUS 1ST ACROSS THE BOARD

Q3 2019; top 'Reseller' partners on domains with ads.txt; by category; top 5 domain categories based on total ads.txt adoption shown

	News & Media	Computers/Internet	Entertainment	Regional	Society & Culture
1				*	
2	PULSEPOINT	G	rubicon	PULSEPOINT	PULSEPOINT
3	(npico <u>u</u>	PULSEPOINT	■ PubMatic	G	*\u00f6penX
4	*OpenX	■ PubMatic	G	■ PubMatic	rubic <u>oñ</u>
5	■ PubMatic	UDICO	PULSEPOINT	r∩picö <u>ü</u>	

METHODOLOGY

METHODOLOGY

Pixalate's data science and analyst team analyzed over 1.5 million apps and over 80 million domains utilizing proprietary analytics tools to compile this research. The research contained herein represents data collected by Pixalate from April 1, 2018 through September 30, 2019. The data in this report is reflective of root domains and apps only; Pixalate has removed duplicates occurring from subdomain ads.txt files.

The top 1000/5000/10000 domains and apps in terms of programmatic ad volume (e.g. "Pixalate Top 5000") were identified using Pixalate's proprietary ranking of volume among domains and apps which support programmatic advertising.

The top 1000/5000 apps in terms of users (e.g. "User Top 1000") were identified using data provided by the Google Play Store and Apple App Store.

App category information is derived from the official Google Play Store and Apple App Store; "walled garden" apps, such as Facebook, are not included. Domain category information is obtained via a crawler.

Pixalate utilized its proprietary algorithms to measure invalid traffic ("IVT") levels across devices and channels, including General Invalid Traffic ("GIVT") and Sophisticated Invalid Traffic ("SIVT").



DISCLAIMER & ABOUT PIXALATE

DISCLAIMER

The research and insights contained within this report, including IVT rates and other such designations, represent Pixalate's opinions (i.e., they are neither facts nor guarantees). The data has not been audited or reviewed by a third party, but the reseach and insights are grounded in Pixalate's proprietary technology and analytics, which Pixalate is continuously evaluating and updating.

Per the MRC, "'Fraud' is not intended to represent fraud as defined in various laws, statutes and ordinances or as conventionally used in U.S. Court or other legal proceedings, but rather a custom definition strictly for advertising measurement purposes." Also per the MRC, "'Invalid Traffic' is defined generally as traffic that does not meet certain ad serving quality or completeness criteria, or otherwise does not represent legitimate ad traffic that should be included in measurement counts. Among the reasons why ad traffic may be deemed invalid is it is a result of non-human traffic (spiders, bots, etc.), or activity designed to produce fraudulent traffic."

ABOUT PIXALATE

Pixalate is an **omni-channel fraud intelligence company** that works with brands and platforms to prevent invalid traffic and improve ad inventory quality. We offer the only system of coordinated solutions across display, app, video, and OTT/CTV for better detection and elimination of ad fraud.

Pixalate is an MRC-accredited service for the detection and filtration of sophisticated invalid traffic (SIVT) across desktop and mobile web, mobile in-app, and OTT/CTV advertising.

www.pixalate.com

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