

Advertising exchanges are the engines of the online ad auction system. Every major advertising exchange in the market uses the IAB OpenRTB system. See the table below. As AdExchanger writes, “The eight-year-old OpenRTB standard governs how demand-side platforms (DSPs) and supply-side platforms (SSPs) communicate with each other to buy and sell programmatic ads.”<sup>1</sup> These exchanges broadcast hundreds of billions of bid requests per day.

	Daily bid request estimates	RTB system
Index Exchange	50 billion. <sup>2</sup>	IAB OpenRTB (version unknown) <sup>3</sup>
OpenX	60+ billion. <sup>4</sup>	IAB OpenRTB 2.5 <sup>5</sup>
Rubicon Project	Unknown billions, daily. Claims to reach 1 billion people’s devices. <sup>6</sup>	IAB OpenRTB (version unknown) <sup>7</sup>
Oath/AOL	90 billion. <sup>8</sup>	IAB OpenRTB 2.3 <sup>9</sup>
AppNexus	131 billion. <sup>10</sup>	IAB OpenRTB 2.4 <sup>11</sup>
Smaato	214 billion. <sup>12</sup>	IAB OpenRTB 2.2, 2.3, 2.4 <sup>13</sup>
Google DoubleClick	Unknown billions. DoubleClick is the dominant exchange.	IAB OpenRTB 2.2, 2.3, 2.4, 2.5 <b>and</b> Authorized Buyers Proto <sup>14</sup>

It seems likely that the New Economics Foundation’s estimate that bid requests broadcast data about the average UK internet user 164 times a day<sup>15</sup> was a conservative estimate.

<sup>1</sup> “Programmatic Reborn: IAB Tech Lab Completely Overhauls OpenRTB Spec”, July 2018, AdExchanger (URL <https://adexchanger.com/ad-exchange-news/programmatic-reborn-iab-completely-overhauls-openrtb-spec/>)

<sup>2</sup> “Tour IX’s Amsterdam and Frankfurt Data Centers”, Index Exchange, 2 July 2018 (URL: <https://www.indexexchange.com/tour-ix-amsterdam-frankfurt-data-centers/>).

<sup>3</sup> “Bid request”, Index Exchange (URL: <https://knowledgebase.indexexchange.com/display/DEMANDAPI/Bid+Request>)

<sup>4</sup> “OpenX Ad Exchange”, OpenX (URL: [https://www.openx.com/uk\\_en/products/ad-exchange/](https://www.openx.com/uk_en/products/ad-exchange/)).

<sup>5</sup> “OpenRTB API”, OpenX, (URL: [https://docs.openx.com/Content/demandpartners/ox\\_openrtb.html](https://docs.openx.com/Content/demandpartners/ox_openrtb.html))

<sup>6</sup> “Buyers”, Rubicon Project, (URL: <https://rubiconproject.com/buyers/>).

<sup>7</sup> “Bid request”, Index Exchange (URL: <https://knowledgebase.indexexchange.com/display/DEMANDAPI/Bid+Request>)

<sup>8</sup> “Maximize yield with Oath’s publisher offerings”, Oath, 3 April 2018 (URL: <https://www.oath.com/insights/maximize-yield-with-oath-s-publisher-offerings/>)

<sup>9</sup> “RTB protocol”, Oath, (URL: <https://learn.onemobile.aol.com/hc/en-us/articles/204861014-RTB-Protocol>).

<sup>10</sup> “Transacting at a peak of 11.4 billion daily impressions, our marketplace handles more traffic each day than Visa, Nasdaq, and the NYSE combined” at <https://www.appnexus.com/sell>. Note that in 2017, AppNexus [said](http://go.drivescale.com/rs/451-ESR-800/images/DRV_Case_Study_AppNexus-final.v1.pdf) in “AppNexus Scales with DriveScale”, 2017, (URL: [http://go.drivescale.com/rs/451-ESR-800/images/DRV\\_Case\\_Study\\_AppNexus-final.v1.pdf](http://go.drivescale.com/rs/451-ESR-800/images/DRV_Case_Study_AppNexus-final.v1.pdf)) that 10.7 billion “impressions transacted” came as a result of running 123 billion auctions. The impressions transacted to auctions ratio appears to be roughly 1:11.5. Therefore, the 11.4 billion impressions reported in 2018 equates to 131 billion auctions per day.

<sup>11</sup> “Bid response from, Appnexus, (URL: <https://wiki.appnexus.com/display/adnexusdocumentation/Incoming+Bid+Response+from+Bidders>)” and “Legacy bidding protocols”, AppNexus, (URL: <https://wiki.appnexus.com/display/adnexusdocumentation/Legacy+Bidding+Protocols>). Note, AppNexus has a proprietary bidding protocol, but dropped it in December 2018.

<sup>12</sup> 500 Billion / 29.6 = 18.6 billion impressions per day. Using AppNexus 1:11.5 ratio, this is 214 auctions per day. 500+ impressions figure cited in “Optimize your mobile strategy”, Smaato, (URL: <https://www.smaato.com/>).

<sup>13</sup> “DSP onboarding guide”, Smaato, 1 October 2018 (URL: <https://wiki.smaato.com/display/DSP/DSP+Onboarding+Guide>).

<sup>14</sup> “OpenRTB integration”, Google Authorized Buyers, 23 January 2019 (URL: <https://developers.google.com/authorized-buyers/rtb/openrtb-guide>)

<sup>15</sup> *Blocking the data stalkers*, New Economics Foundation, December 2018 ([https://neweconomics.org/uploads/files/NEF\\_Blocking\\_Data\\_Stalkers.pdf](https://neweconomics.org/uploads/files/NEF_Blocking_Data_Stalkers.pdf)), p. 9