DRX Unified Yield Management Strategy Review

July 9, 2018

Agenda

Objectives (focus is primarily DRX):
- Update on Jedi progress after GA
- Discuss strategy framework and some initial ideas for unified yield management

Executive Summary:
- EB performance strong after GA; But pubs continue to multi-list inventory across HB/Jedi/AdX for overlapping demand, with higher floors on AdX
- Our Unified YM Strategy is to
  - *Leverage Jedi to improve platform attractiveness*: accelerate Jedi for apps to replace mediation (NB for FB and other networks); incremental investments to make Jedi web more convenient (unified controls/ Jedi deals)
  - *Improve Google net revenue by mitigating impact of inventory multi-listing*: through changes to
    - Auction dynamics (unify floors across AdX/EB/remnant by moving AdX to 1P auction/ remove AdX last look against remnant LIs)
   - DRX pricing

Jedi product flavors

	App (Display + Video)	Web (Display)	Video
DFP Premium pricing	Exchange Bidding: 10%/ Network Bidding: 10%	Exchange Bidding: 5%/ Network Bidding: N/A*	Exchange Bidding: 10%/ Network Bidding: N/A*
Admob pricing	Open Bidding (EB+NB): 10%		
Current Launch state	EB GA for DFP premium EB Beta for DFP SB OB Alpha for Admob	EB GA for DFP premium EB Beta for DFP SB	EB Beta for DFP premium EB Beta for DFP SB

Only buyer for NB web inventory in the pipeline is FAN, which has a tiered buyside revshare model

Post-GA EB performance positive on all key metrics

Revenue and Adoption

Daily Gross revenue

Legend: null, MobApp, Display, Video, Games
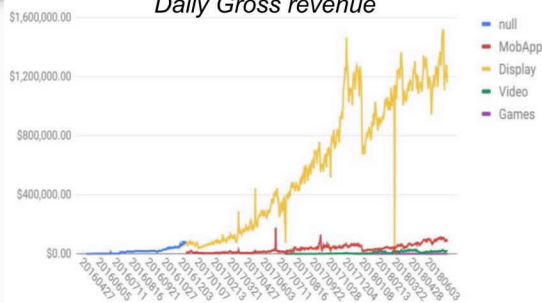
- $460mm ARR in gross revenue
- 469 DFP publishers
- 15 third-party exchanges

Other key performance metrics

Performance metric	Definition ^	May 2018*	Aspirational Goal	Investigation Threshold	Wrong Track Indicator
Publisher indirect revenue lift	PubRev(AdX+EB+remnant) / PubRev (AdX+remnant) - 1	~15%	≥ 12%	6%	< 3%
Publisher payout lift	PubRev (Adx+EB) / PubRev(AdX) - 1	~19%	≥ 15%	9%	< 5%
Programmatic Impressions converted (HB)	Imps (HB ⇒ EB) / Imps (HB) - 1	~10%	≥ 4%	1%	< 1%
Google gross revenue lift	GoogleGrossRev(AdX + EB) / GoogleGrossRev(AdX) - 1	~17%	≥ 10%	5%	< 5%
Google net revenue lift	GoogleNetRev(AdX + EB) / GoogleNetRev(AdX) - 1	~0-2%	≥ -1%	-5%	< -10%

* from simulations; does not include additional AdX revenue from incremental access through EB
^ Denominators represent counter-factual when Jedi is not available to pubs on JEQ

But pubs continue to multi-list inventory across HB/Jedi/AdX for overlapping demand...

HB and EB: Pubs continue to use Header Bidding even after EB adoption

Match Rate on 250 EB pubs	1 month prior to EB adoption	Month 5 after EB adoption
AdX	25.48%	26.16%
EB (Other Exchanges)	0.00%	4.31%
Header Bidding	5.44%	6.25%
Header Bidding w/ EB Exchanges	**2.32%**	**2.08%**
Header Bidding w/ non EB Exchanges	**3.12%**	**4.17%**
Other Tag Based Remnant	52.49%	49.85%
Standard and Sponsorship	14.15%	13.44%

*Assuming these buyers are not blocked on AdX for the same queries*

EB and AdX: A large share of Jedi wins is from demand already available on AdX*

Jedi Buyer Network+	Daily Imps	% of EB Imps	% of AdX Buyer Imps (ex GDN)
Unknown DSP**	416,556,962	34.53%	-----
DBM	218,830,185	**18.14%**	**45%**
The Trade Desk	134,672,659	**11.16%**	**4%**
Amobee	70,339,073	5.83%	1%
Rocket Fuel	45,211,819	3.75%	1%
Yahoo	34,654,858	2.87%	1%
Quantcast	34,584,800	2.87%	1%
Conversant	33,013,968	2.74%	0.4%
AOL	31,729,591	2.63%	0.4%

... and floors tend to be higher for AdX bids

AdX vs HB: 42% of HB won queries have a higher AdX floor than the HB LI price
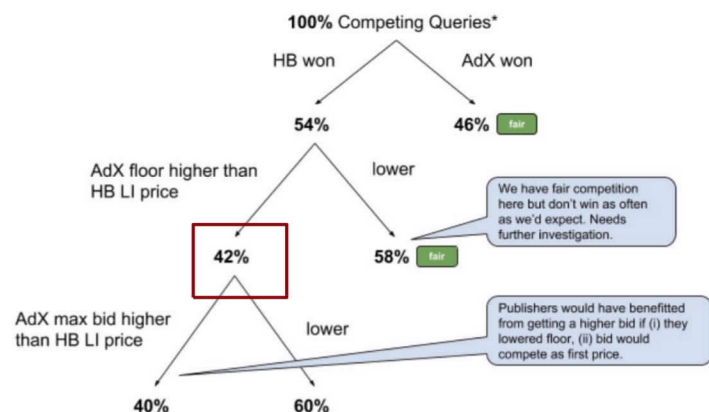
AdX vs EB: DBM's EB transactions concentrated on low bid values (low DFP floors, exemption from AdX and RPO floors)
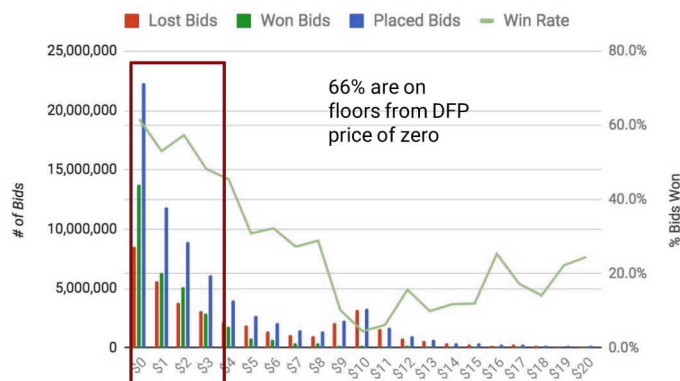
Revisiting AdX/Jedi product strategy, our goal is to improve platform attractiveness and increase net revenue

Strategic goal for DRX	**(A)** Improve platform attractiveness to ensure sustained inventory access	**(B)** Increase Google net revenue
Mechanism	Increase pub yield by accelerating transition from waterfall/ mediation to RTB	Increase proportion of transactions through DRX programmatic pipes
Implications on Jedi strategy	Make Jedi a **convenient product** to access real-time 3P demand **across all inventory**	Make AdX/Jedi the preferred channels for indirect transactions, and **mitigate impact of multi-listing inventory** for overlapping demand

Stopping HB may not be entirely feasible; Our focus is to tolerate it, by driving toward use of HB only for incremental demand (like AMZN)

To bolster platform attractiveness, we should accelerate Jedi for apps, continue making incremental investments on web

Primary focus for 2H'18

A

Make Jedi work for all demand/ all inventory

B

Make Jedi more convenient

mApp: Accelerate Network and Exchange Bidding

NB on DRX:
- Launch NB for whale network
- Extend NB to all app buyers (irrespective of AdX relationship) to replace mediation waterfalls

Web: Launch NB for FB, unified controls, and Jedi for SB pubs

NB on DRX:
- Launch NB for whale network
- Allow pubs to relax policy enforcement on AdX to access incremental network web demand

To be discussed

EB on DRX:
- Expand to DFP SB pubs at same pricing as AdX

Invest in features that allow for simpler management of 3P demand (unified protections and pricing across DFP/AdX/Jedi, Jedi PMP deals, format availability, reporting)

To grow net revenue, we could mitigate impact of multi-listing inventory and make AdX/Jedi the preferred channel for indirect*

A **Reduce incidence of floor based inventory incrementality**

- *Potential short term fix:* Remove global Bernanke and AdX last look against remnant LIs
- *Longer term fix:* Unify floors across 3P demand and AdX by moving AdX to 1P auction
- *Improve visibility*: Query ID to gather insights into multi-listing; Surface insights to buyers

B **Focus Google sales teams on net revenue**

- Change AdX buyside sales incentive to net (and not gross revenue) to reduce "matchmaking" (which amplifies DBM multi-listing)

C **Change web pricing to improve AdX attractiveness and reduce subsidization of remnant LIs**

- Decrease AdX pricing (in line with competition)
- Increase DFP web platform fees (realign price with improved platform value; reduce attractiveness of complex/expensive setups)

Other Google buyside levers (like increasing GDN revshare/ defensive bidding on multi-listed inventory/moving to a Yavin model) may also be pursued to improve net revenue

Initial results from moving to a 1P auction looks promising in increasing DBM spend through AdX

Initial experiments with DBM submitting an aggressive 1P bid, still subject to existing AdX floors

(1) DBM AdX bid becomes more competitive than Jedi bids (where DBM also bids through 3PE):
   - (a) DBM on AdX Matched Queries +8%
   - (b) Jedi Matched Queries -11%

(2) Google net revenue increases due to shift in impressions from Jedi to AdX
   - (a) DBM on AdX profit +333M
   - (b) Jedi profit -4M

Next steps: Extend to GDN, improve DBM bidding algorithm, and remove existing AdX floor on 1P bids

Avg. serving fee has trended downward, even as platform value proposition has improved

Serving Fee Impressions and CPM by Month
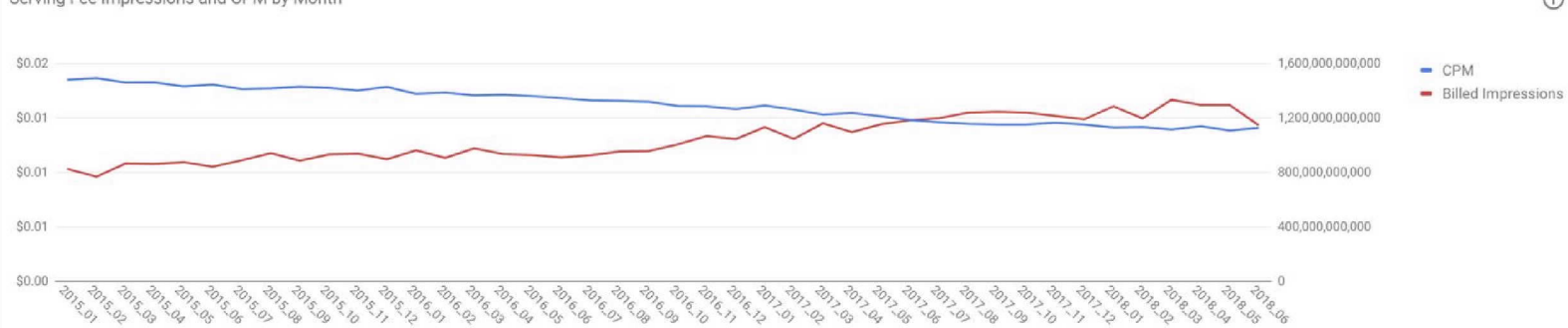
- **Avg. serving fees declined 20-25%** in the last 2 years due to volume based discounts, increase volume from SB pubs (free ad serving) and increased platform fee waivers (~$2.7M/ month)
- Platform **value offered to pubs have increased** in the same period through yield optimizations (like OC), Insights (Opportunities, AiH), forecasting (seasonality), budget and pacing improvements, unified QT reporting, troubleshooting, etc
- Some of these improvements benefit DFP LI and, not just AdX demand

DRX price changes could improve AdX attractiveness, reduce HB freeriding, and align price with value offered

	Option A: **2x DFP web serving fee (4c CPM); drop AdX revshare to 15%**	*Option B*: **Raise DFP serving fee ~20%; no AdX price change; Fees for complex HB setups**	*Option C*: **Raise DFP serving fee ~20%; AdX revshare to 15%; Fees for complex HB setups**
Benefits	• Net revenue neutral for Google • Better aligns value/price (platform more valuable; AdX commoditized) • AdX more price competitive; HB serving cost reflect benefits offered	• Google net revenue increase ($40-50M) • Complex HB setups marginally disincentivized • Price change more easily commercializable	• AdX more price competitive • Complex HB setups marginally disincentivized • Price change more easily commercializable
Risks/ Issues	• Publishers could react strongly; Not all pubs will have a neutral impact • REDACTED - PRIVILEGE • Risk of more platform competition/ disintermediation of ad serving	• AdX still "expensive" channel for DBM/AdX RTB demand • Simple HB setups still "free-riding" on DFP platform benefits	• Decline in net revenue (~$200M) • Simple HB setups still "free-riding" on DFP platform benefits

Stopping the practice of fee waivers and heavy discounts of platform fees should be pursued in parallel

Appendix

Google

Why do pubs use HB?

1. *(Incremental demand)* Access demand not available through AdX/EB (eg. AMZN)
2. *(Increase yield)* Increase CPM from demand sources already available on AdX/EB (eg. Index)
   a. Simulate real-time waterfall model for more accurate flooring of demand
   b. Self competition between same sources of demand
3. *(Diversify revenue)* Reduce revenue dependence on Google

Header Bidding undermines some of our core principles for 3P yield

1. *Platform strength*: HB technology makes third party yield solutions more attractive, undermining the value of DRX as a must-call platform
2. *Fair access for Google demand*: HB takes some auction logic outside DFP; sometimes resulting in unfair competition (inflated value CPMs)
3. *Increase revenue*: HB takes some transactions away from DRX pipes, even when same demand is available on DRX
4. *Ecosystem visibility:* By moving auction logic outside DFP, HB reduces our ability to gain a comprehensive understanding of the 3P ecosystem

Why do pubs set up higher floors on AdX?

1. Global Bernanke subsidizes pubs who set higher floors on AdX in general, which could be a factor

2. Pubs set different floors for the same buyer on different exchanges to simulate a real-time waterfall and soft floor the buyers (like DBM), and AdX primarily bears the brunt of these higher floors

3. Pubs have the perception that undesirable ads on AdX is correlated with low CPMs, and setting higher floors will "protect" them

4. Pubs have been willing to tolerate some revenue loss in exchange for reduced dependence on Google as a whole

But HB adoption and impression share still growing

Average price line items losing ground to HB and EB

Distribution of Remnant served Impressions - LPS & OPG T1 (monthly) ⓘ

Legend: 🟩 3rd Party won via EB 🟨 HB 🟥 Adx/AFC 🟦 3rd Party Indirect (Non-HB/EB)
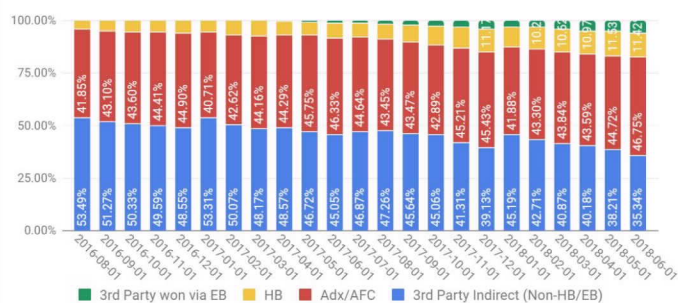
HB adoption increasing across all regions

HB Adoption - % of LPS publishers using header bidding per region ⓘ

Legend: — LPS APAC — LPS EMEA — LPS LATAM — LPS NA
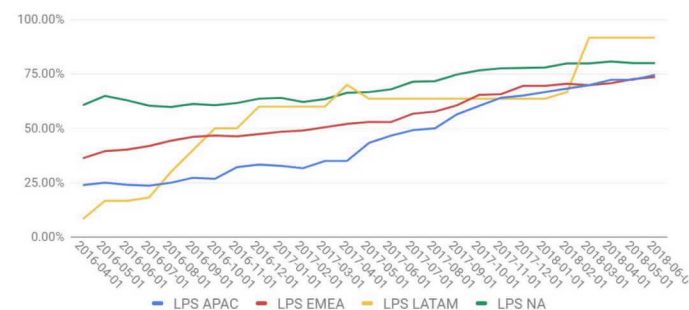
We expect publishers to continue using HB as long as there is incremental yield to be made

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Slide 17
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1       rather than bucket all HB together, should we isolate the specific
segments of HB that are most concerning from a strategic standpoint (AMZN,
prebid) from the other HB?
                George Levitte, 6/28/2018
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Our focus with Jedi is not to directly stop HB, but improve platform attractiveness and increase net revenue

Core principles of Jedi strategy

1. *(Platform strength)* Ensure DFP remains an attractive platform for all inventory and demand to ensure sustained inventory access for buyside

2. *(Increase revenue)* Increase overall Google net revenue

3. *(Reduce market inefficiencies)* Accelerate transition of auction model from waterfall/mediation to real time monetization

Stopping header bidding may not be entirely feasible, but our focus is to drive toward pubs using HB only for incremental demand (like AMZN), and we still charge for the value delivered when they do

To grow net revenue, we need to make AdX/Jedi the exclusive channel, by reducing incentives to multi-list inventory

Transaction slices	Sell-side proposals Focus for today	Buy-side proposals
GDN on AdX	**A. Realign pricing structure:** Decrease AdX revshare	Increase buyside revshare (for all demand/ just GKS demand)
DBM on AdX		Move to a flexible buyside revshare model like Yavin (for all demand/ just GKS demand)
AdX buyers on AdX		
GDN on 3PE (Jedi and remnant LIs)	**A. Realign pricing structure:** Increase platform fees	Increase Awbid revshare; Defensive bidding when demand is soft-floored
DBM on 3PE (Jedi and remnant LIs)	**B. Reduce pub incentives to multi-list** inventory at different prices on different exchanges	Defensive bidding when demand is soft-floored; Move to a flexible buyside revshare model like Yavin
non-Google Jedi demand	**A. Realign pricing structure:** Increase platform fees; **C. Incentivize Google sales teams on net revenue**	

Notes Summary:

Slide 5: 'Should breakdown the 49% / tag based remnant by region and by desktop/mobile/video. Factor in NPV'
Slide 8: 'Need more specifics on which policies we would like to relax'
Slide 9: 'How can we incentivize sales based on remnant line item conversion?'
Slide 10: 'Results [Rasta]'