Buy side perspective on Header bidding (HB)

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Summary
This document is offers a GDN/DBM buy-side perspective on Header Bidding. Based on the insights presented in this document, ***we recommend***: DBM should become a header bidding participant, we should evaluate if GDN should do the same, we need a sell-side product that is better than HB (for adv. & pubs).

1. Header Bidding is here to stay: revenue benefit to publishers, better access for buyers

Header bidding was developed as a reaction to EDA. HB allows external buyers to compete with DFP line items on the basis of actual CPMs with all other demand in one flat auction at the time of decision making - this was previously only possible for GDN via EDA. The main benefit to publishers from header bidding is increased revenue, due to actual vs. average CPM bid competition in between line items and EDA (see appendix for examples).

Some reports in the industry argue that an additional header bidder can increase yield by 10%[1]. This seems to agree with the 10% revenue uplift that we saw when Admob turned on live CPM, which also changed actual bids vs. expected to be considered in the auction.

2. DBM needs to buy via Header Bidding
Today, DBM is disadvantaged by not ***directly*** participating in header bidding. While we indirectly participate, we are paying too much (as we have to go through other exchanges as middleman) and reducing our competitiveness (by having potentially reduced bis enter a first price auction).

In the absence of DBM buying through Header Bidding directly, any query that flows through HB either:

1. Comes to us via 3rd party exchange, pay exchange middleman
2. Comes through AdX at 20% margin
3. Is not reachable

DBM, as a pure advertiser agent, should directly participate in header bidding and pass on the gains to the advertiser. The following downsides are frequently quoted to discourage buyers to participate in header bidding. We think these are manageable or misperceptions.

- ***Increased page load time*** --- header bidding calls are directly from a user's client to the participating buyer. This increases page latency and also sets a natural limit to the # of

[1] "a single header bidding source can increase yield by 10 percent", CTO of purch https://goo.gl/hSw9Jb

header bidding calls that can be effectively implemented. This is good for large buyers as publishers have to make a choice. There also is an opportunity for a strong technical player to innovate and develop better standards/header bidding wrappers.

- ***Self competition*** --- Header Bidding runs a first price auction amongst all bids - so there can be no self competition. Unless in JEDI, where by design the AdX auction competes with header bids.
- ***First price auction*** --- Since we are likely already participating through header bidding indirectly, we are likely already first priced - buying directly via header bidding will not create any additional short-term risk. Long term, participating in HB and being transparent about this will further incentivize advertisers to move from fixed CPM to performance optimized buying.

In summary, we believe that sophisticated buyers are able to manage these challenges to the point that the benefits by far outweigh them - unsophisticated buyers could join DBM.

3. From Buy-side perspective, current JEDI design not competitive

While it's true that today's header bidding implementations have some drawbacks (see appendix), sophisticated buyers still stand to gain by buying directly on header bidding.

	JEDI	***Header Bidding***	***Proposed State***
Margin for 3rd Party	5%	0%	<=5% depending on sell-side value
Margin for ***GDN***	20%		
Inventory Access	Backfill	Reservation & Backfill	Reservation & Backfill
First party cookie	no	Yes (+20-30% rev)	Yes*
Latency	50-100ms slower than AdX	Bad implementations reported to have high latencies	50-100ms slower than AdX
Policies	Platform policies	n/a	Platform policies
Who can buy	Limited to Exchanges	Anyone incl. DSP	Anyone incl. DSP
Auction for 3rd Party	First price auction for Exchanges	First price auction for header bidders	First price auction for Anyone
Auction for GDN	2nd Price Auction w/ potential optimizations		
Who collects payment	Google Collects	Pub Collects	Google Collects
Who controls ad decision	Publisher via Google	Publisher	Publisher via Google

Self competition	Yes b/c different auctions are used	No: first price auction	No: first price auction

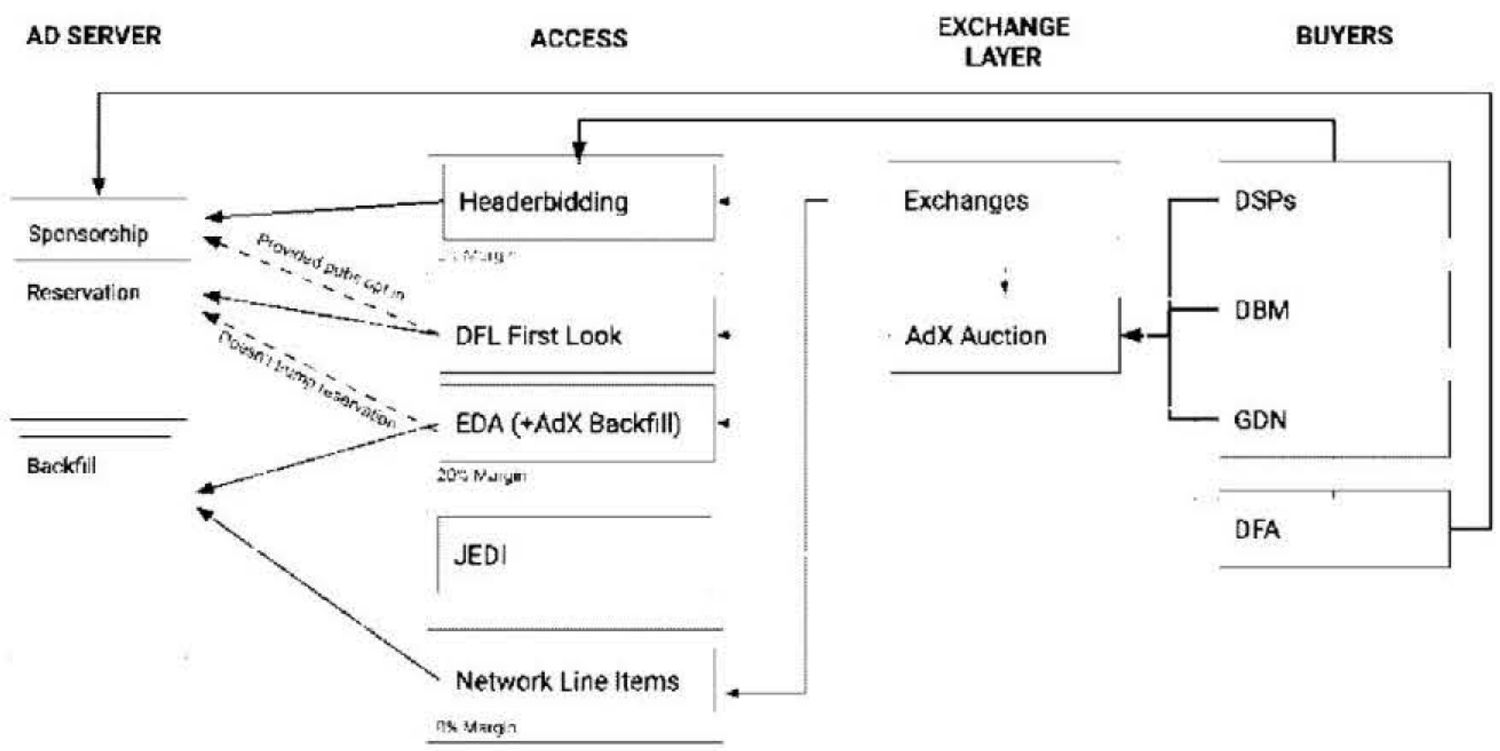
Due to the lower margin, better access, and the ability to leverage first party cookie, we see many buyers embrace Header bidding. For example:

- Advertising Age is reporting that Facebook plans to buy via Appnexus/Index Exchange HB wrappers[2]
- Criteo has been doing this for a long time and attributes some of its recent growth to buying through HB via their 16k direct publisher relationships[3], which make up 35% of Criteo's revenue[4].

From pure publisher's perspective, JEDI offers the advantage that Google collects but with HB pub, or whoever owns the HB wrapper, has full control on the ads decision.

4. Current overall inventory flow exposes us to competitive thread

Header bidding offers superior buy-side access to ad server inventory. The chart below shows how, with proper configuration, header bidding could be booked in as sponsorship. This allows for taking inventory away from direct sold - in an extreme case, this inventory would not be accessible in any other way (see access column).



JEDI on the other hand is designed to compete with Backfill line items that are already accessible to EDA, Network line items (pending configuration), and ultimately the AdX auction.

[2] https://goo.gl/QPM6wA
[3] https://goo.gl/bRdJ87
[4] https://goo.gl/FDKSuk

Competitive Thread
Another large player develops a header bidding wrapper standard that is accepted by publishers. In the worst case scenario, this could effectively lock Google out, using DFP sponsorship line items. Provided we'd be allowed and willing to compete via the HB layer itself, that player would have full insight into our bidding and control over deciding what ad to show.

Header Bidding FAQ

Q1: What are the various types of HB implementations? Do exchanges supply their own wrappers or do they integrate with say prebid.js? Who sets this up and how?

There are three types of technologies:

1. open source solutions created by exchanges --- such as Prebid and PubFood, first created by Yieldbot and AppNexus engineers, respectively
2. proprietary solutions by exchanges --- Index Exchange, Sovrn offer a free product, bRealTime offers a paid product
3. proprietary solutions by non-exchanges --- Technorati's SmartWrapper, charging publishers on CPM basis

There is no true standard for wrapper products, leading to a general mistrust of individual, exchange owned wrappers. Publishers fear that they might prefer their own demand, buyers worry that their bidding information might be used against them. The creation of a standard would likely have to be led by publishers, as they decide what they put on their pager. More details in this AdExchanger article.

Q2: Why do publishers want header bidding?

1. ***Higher yields***[5]
2. ***Full control over the ad decision*** (publishers get ultimate control over the auction)
3. ***More simplicity*** (no need to configure and constantly update line network items)

Header Bidding can be considered an evolution of auction systems. While in traditional auction systems, multiple exchanges are called until the impression is filled (daisychain), header bidding calls multiple buyers simultaneously and effectively conducts a first price auction with the bids. This happens before other ad server calls. In addition, it give publishers control in how they call various bidders. For example, with a wrapper, they can run tests where they add and remove

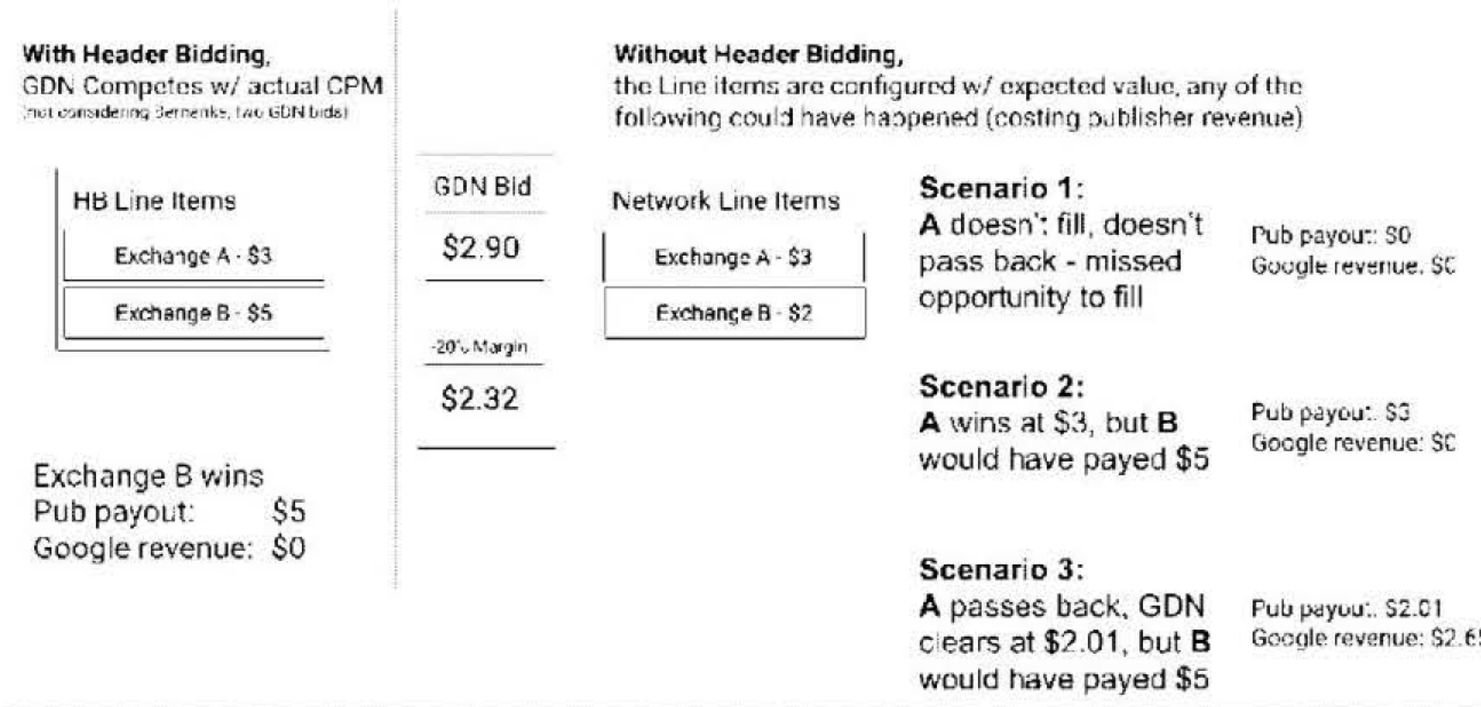
[5] "a single header bidding source can increase yield by 10 percent", CTO of purch https://goo.gl/hSw9Jb

partners to optimize performance (price/latency). In other words, the publisher has total control over the "auction" conducted through header bidding.

Q3: Why does headerbidding lead to increase publisher revenue?

While self competition is quoted in the industry as the reason for increase publisher revenue, this is not true. Header Bidding runs a first price auction amongst all bids - so there can be no self competition.

Instead the increased revenue comes from actual bids competing with line items vs. average bids. This simple example highlights the difference:



Q4: Why do buyers want header bidding?

1. ***Lower margin*** (no margin via most HB solutions, 5% via JEDI. A dollar bid goes further.)
2. ***Better access*** (traditional HB is booked as high priority line items in ad server)
3. ***Transparent pricing*** (clearing price is based on first price)
4. ***Direct access to first party cookie*** (reported to have +20-30% impact)
5. ***Not subject to Exchange buy-side policy***

While it's true that today's header bidding implementations have some drawbacks (see appendix), sophisticated buyers still stand to gain by buying directly on header bidding.

For these reasons, we see many buyers embrace Header bidding. For example, Advertising Age is reporting that facebook plans to buy via Appnexus/Index Exchange HB wrappers[6]; Criteo has

[6] https://goo.gl/QPM6wA

been doing this for a long time and attributes some of its recent growth to buying through HB via their 16k direct publisher relationships[7], which make up 35% of Criteo's revenue[8].

Q5: On what line items does headerbidding run, where EDA?

Almost all pubs, except for three are on EDA now. Per design EDA allows us to compete against all HB line items, including guaranteed with the only exception being sponsorship, which in practice is off-limit for EDA and first look. However, there is a chance that some publishers allow their HB line item to compete on sponsorship priority. This would make the respective inventory inaccessible to us. Based on recent DFP stats, 95% of HB impression volume happens in remnant space, 5% in guaranteed.

ADDITIONAL RESOURCES

Internal Resources:
ACM presentation on FB HB (9/2)
Header bidding in the wild
Display and Video Ads Metrics Review Q2

External Resources:
Sovrn explanation of header bidding

APPENDIX
OPTIONS TO IMPROVE CURRENT DESIGN (RAW NOTES ONLY)

In order to have a competitive offering, we need to offer buyers 1) a way to buy inventory at lower margin, 2) competition w/ reservation line items, 3) allowing the actual bid to compete (vs. avg. expected bid), 4) more signals.

Publishers will want 1) a transparent first price auction, 2) payment through Google, 3) reliable reservations handling.

This could be done in a number of ways:

A - Scalable header bidding wrapper solution that can be a lot better than what Appnexus/Index Exchange offers for both publishers and advertisers.

B - Allow all buyers to compete with line items via EDA.

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[7] https://goo.gl/bRdJ87
[8] https://goo.gl/FDKSuk

The cost is the margin that we charge today, which we believe is not sustainable anyway, since we expect buyers to move to head bidding in the future. Note that, we would only lose the margin we charge on today's RTBs since Adwords can make it up on the buy side (if that's the right tradeoff between profit, ROI, and conversion volume).

OPEN QUESTIONS

1. How much do we benefit from EDA? What % of DFP's reservation impressions are EDA-enabled, and what % of those are actually filled by ADX thru EDA? What is the split of EDA and DA? To what extend the presence of header bidding increases clearing price of EDA (when competing w/ actual priced line items vs. predicted)?
2. How are pubs dealing w/ the issue that HB could ruin direct sold? They seem to care for DFL.
3.

Buy-side competitive pressure

1. What' is Facebook doing and why?
2. What are the implications to both buy- and sell-side?
3. How should we respond? Is Jedi sufficient? If not, what's missing?
4. How would Facebook react, what is the expected steady state?
5. Can this lead to margin compression and make exchanges dispensable?

Sell-side competitive pressure

1. From a publisher perspective, what does HB offer that we don't have? Can we change Jedi to be more competitive - or should we consider other offerings?

Other

Why HB vs running a second price auction with all demand sources? (This came from Woojin asking Alok...)

Strategic considerations

If the conclusion is that exchanges are dispensable and DFP is no longer a way to improve access to inventory, is there merit for still being in the platform business? DFP/AdX used to be the only combination to compete against direct sold is this technology at risk of being commoditized leading to an inevitable end state with zero margin sell-side technology?

For us this could mean arriving at an end state where we allow all buyers access to inventory via EDA at zero margin using a first price auction. How is this preferential over developing our own wrapper/plugin and approaching publishers directly with it?

[redacted]