Recording June 2019:
https://drive.google.com/file/d/1recWF40EVr02hGyin9jXW44rhG3Xe05H/view

PTX1031
1:23-cv-00108

Ad Server

Ad Server is a tool that lets publishers:

- Decide where on their pages ads run
- Create and manage campaigns
- Target campaigns to certain users or places

Traditionally there is direct relationship between advertisers and publishers, campaign assets are sent over via email and all configuration is done in the publisher's ad server based on a signed order form.

You can read up more on Ad Servers here.
And in general about basis and history of online advertising in all posts in this series.

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(Ad) Exchange

(Ad) Exchange is an online, auction-driven marketplace where ad impressions are sold and bought in real time.
Publishers can place exchange tags on their websites, which will send ad requests to the exchange with every impression.
Bidders can bid for each impression - how much they want to pay and what ad they want to display.
Exchange selects the winner and displays the ad.

Google Ad Manager

You can read up more on Ad Exchanges here.
And in general about basis and history of online advertising in all posts in this series.

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Supply Side Platform

SSP is a publisher tool that lets them configure rules that (Ad) Exchanges must adhere to on the publisher inventory.
For example: publishers can set advertisers they don't want on their sites (for example competitors) and they can set minimum prices for which ads can be bought (to protect direct ad sales)

Often SSP and Exchange are bundled as one product and both names are used interchangeably.

Google Ad Manager

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Publisher tools

Within Google publisher advertising stack, all above mentioned components (Ad server, Ad Exchange and SSP) are part of Google Ad Manager platform. (Formerly called DFP - DoubleClick For Publishers)

For smaller publishers Google AdSense allows them to monetize their inventory.

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Demand Side Platform

DSP is an advertiser tool which is used to define and manage campaigns - who the campaign should reach, what creative should be served, what budget is allocated to campaign.
DSPs respond to ad exchange bid requests by submitting which campaign and for which price they want to show on a given impressions

Display & Video 360

You can read up more on DSPs here.
And in general about basis and history of online advertising in all posts in this series.

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Advertiser Tools

Google's suite of advertiser tools are called **Google Marketing Platform**. DSP is called **Display and Video 360** (formerly DBM - DoubleClick Bid Manager).

The advertiser tool for smaller advertisers is called **Google Ads** (formerly AdWords).

Display & Video 360

Introductory training to buy-side of RTB is here: go/rtb-training

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Inventory types

Inventory is the sum of requests to which ads can be delivered.
There are 3 main inventory types:

- **Display content**
  - Regular ad banners you see on web pages
- **Video content**
  - In-stream - for example YouTube pre-roll ads
- **In-app**
  - Ads delivered to mobile applications (many formats including banners and video)

We will mostly focus on Display ads in this deck. Most basic concepts apply across all inventory types with Video and In-app adding additional layers of functionality.

4th main inventory type is search ads (AdSense For Search), but it's out-of-scope for this deck and is not serviced by Google Ad Manager.

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Inventory structure

Ad Manager inventory structure is comprised of:

- **Ad Unit** - basic building block of inventory, can be organized in a tree of Ad Units, usually corresponds to 1 Ad Slot
- **Ad Slot** - a place on the page where ads can be shown, each Ad Slot needs to have an Ad Unit associated with it
- **Placement** - a collection of Ad Units to make targeting campaigns easier
- **Key/Values** - webpage can pass key-value pairs of custom attributes (article ID, user gender, etc...) to be used for campaign targeting

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Google Publisher Tag

GPT is a Javascript library that publishers use to tag their web pages so they can talk to Google Ad Manager backend.

There are multiple ways to implement GPT on the page depending on the publisher need and there is API documentation available here.

```
<head>
<script async="async"
src="https://www.googletagservices.com/tag/js/gpt.js"></script>
<script>
 var googletag = googletag || {};
 googletag.cmd = googletag.cmd || [];
</script>
</head>
<body>
<div id="div-gpt-ad-1234567891234-0">
  <script>
    googletag.cmd.push(function() {
      googletag.defineSlot('/1234/sports/football', [728, 90],'div-gpt-ad-
1234567891234-0')
        .addService(googletag.pubads())
        .setTargeting("Gender", "Male");
      googletag.enableServices();
      googletag.display('div-gpt-ad-1234567891234-0');
  });
  </script>
</div>
</body>
```

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Ad Request

GPT tag on the web page sends an **Ad Request** to the Ad Manager backend.
The Ad Request contains information about the impression:

- URL of the site
- Browser User Agent
- Slot parameters (Ad Unit, size, key/value pairs)
- etc.

Ad Request also contains user-related information like Cookies, User IDs, etc, that can be later at the backend matched to user demographics and behavior profiles, audience segments, etc.

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Useful acronyms

(e)CPM - (effective) Cost Per Mille - price for 1000 ad impressions. Standard unit of measurement for impression pricing. For reporting can be calculated as revenue divided by number of impressions times 1000

CPC - Cost Per Click - price for 1 click

CTR - Click Through Rate - number of clicks divided by number of impressions

CPD - Cost per Day - the amount an advertiser is charged daily for a Sponsorship campaign, where they are guaranteed a certain proportion of a publisher's inventory.

Line Items

Line Items represent campaigns / campaign elements within AdManager. There is a structure of objects within AdManager that lets you define your campaigns, but Line Items are the unit at which AdManager delivery operates on.

Line Items define things line:

- Campaign goal (how many impressions, clicks, etc)
- Campaign duration
- Campaign priority
- Frequency capping (how often should it appear for one user)
- Targeting (where and to whom should the campaign serve)

Details are available in Help Center

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Line Item Types

There are 3 main Line Item types in AdManager with subtypes that differ by campaign goal:

- **Guaranteed** - campaigns that the publisher guarantees will be delivered
  - **Sponsorship** (%-based goal, for example 50% - serve on 1 out of each 2 requests)
  - **Standard** (amount based goal - amount of impressions, clicks, etc)
- **Non-guaranteed (remnant)** - campaigns with best-effort delivery or competing on price
  - **Network** (%-based goal)
  - **Bulk** (amount based goal)
  - **Price Priority** (price goal)
  - **House** (lowest priority, meant to fill the gaps if no higher priority campaigns available
- **Exchange** - dynamically call Ad Exchange or AdSense to get the ad from the buyer
- **Yield Groups** - not a Line Item per say, but a way to traffic Ad Exchange and other SSPs

Detailed description of Line Item types and priorities here. Even more details in Help Center,

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Ad Selection Process

When AdManager receives an ad request, it goes through an ad selection process to pick the Line Item or Yield Group that will serve. It takes many factors into consideration, including:

- Line Item type
- Line Item priority
- Line Item goal
- Line Item targeting
- Is line Item under or over delivering?
- Frequency capping
- Exclusions
- And more...

Full ad selection white paper is available in Help Center

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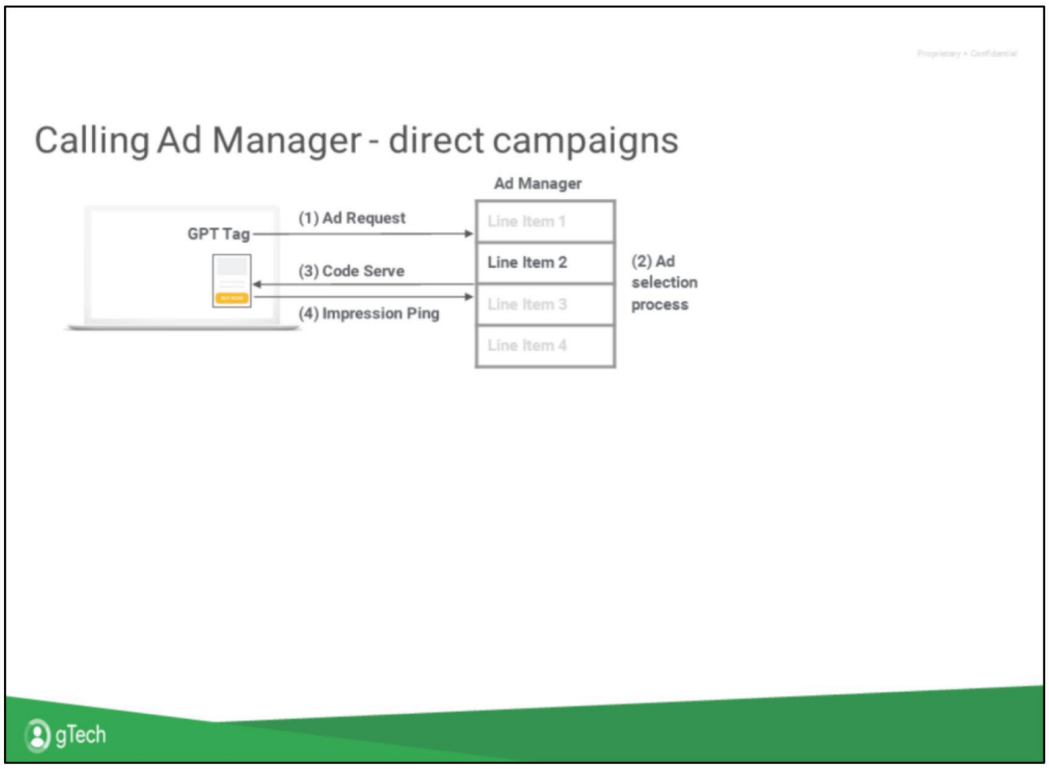
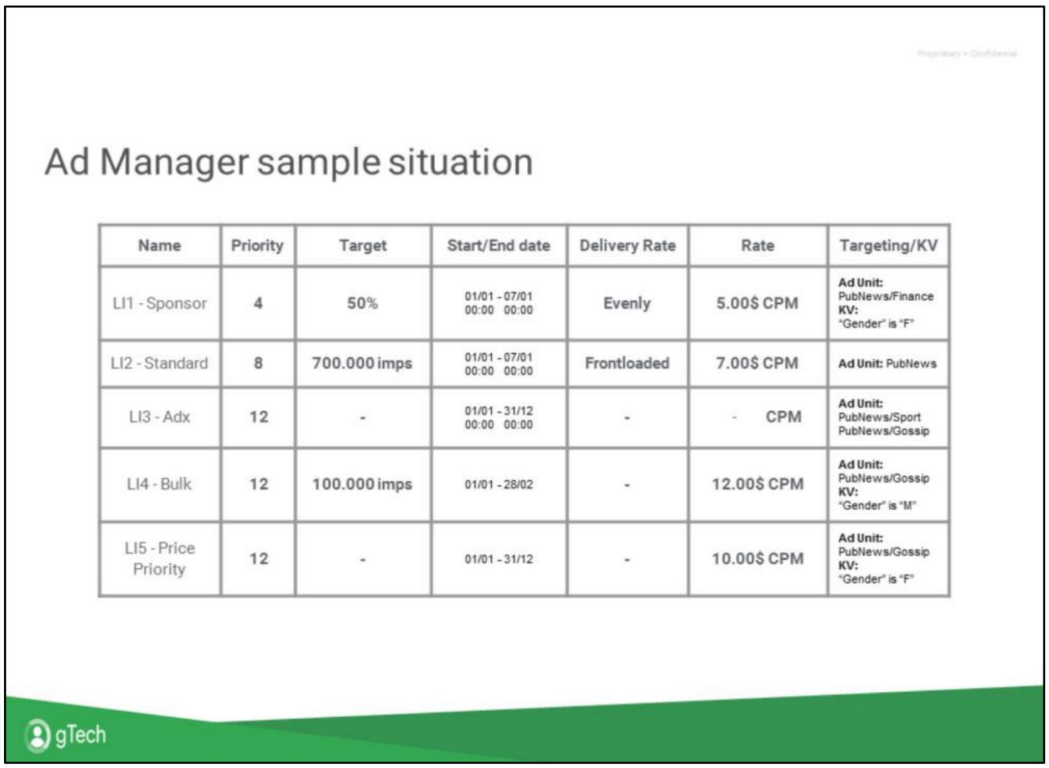


Very simple example here to show the whole ad delivery process

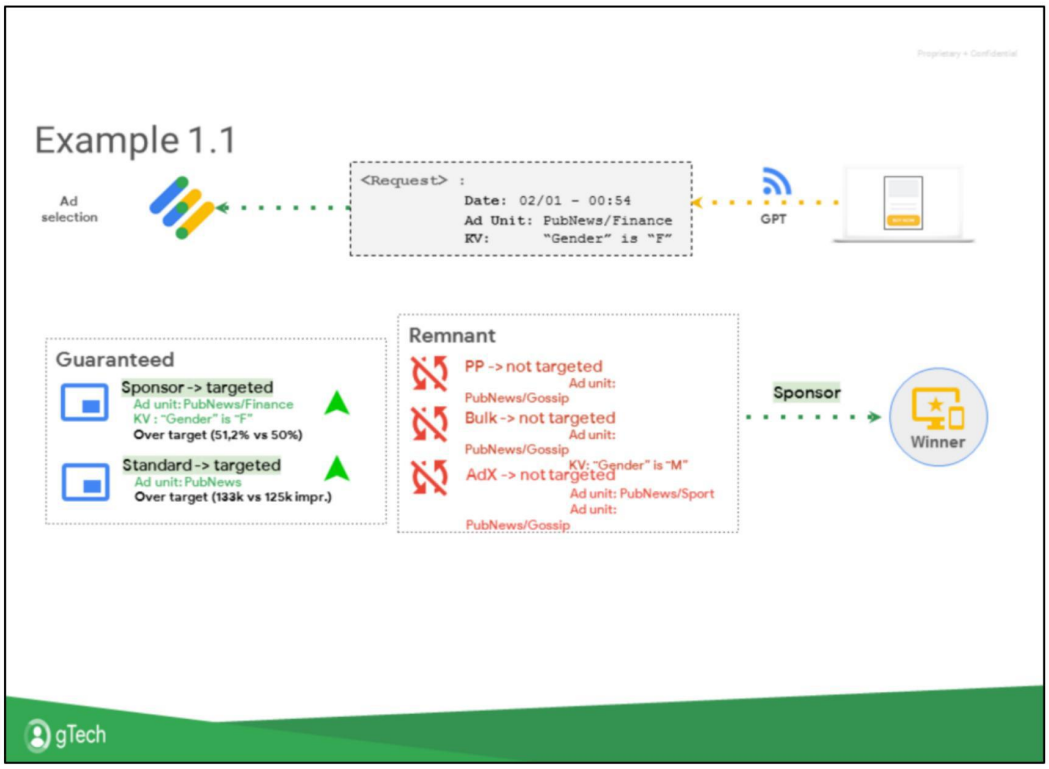
0. GPT is put on website
1. GPT makes an ad request to Ad Manager
2. Ad Manager runs ad selection process
3. Ad Manager serves the code to the website
4. The creative sends an impression ping back to Ad Manager for reporting purposes (that's the end goal, currently some types of ads like in-app direct are reported based on ad server responses)



To make it more interesting and insightful we have set up a situation, close to what you could see in reality, with different line items.

Even delivery The ad server delivers 5% more than the even goal, though the delivery indicator may be higher than 105% due to inventory forecast insights.

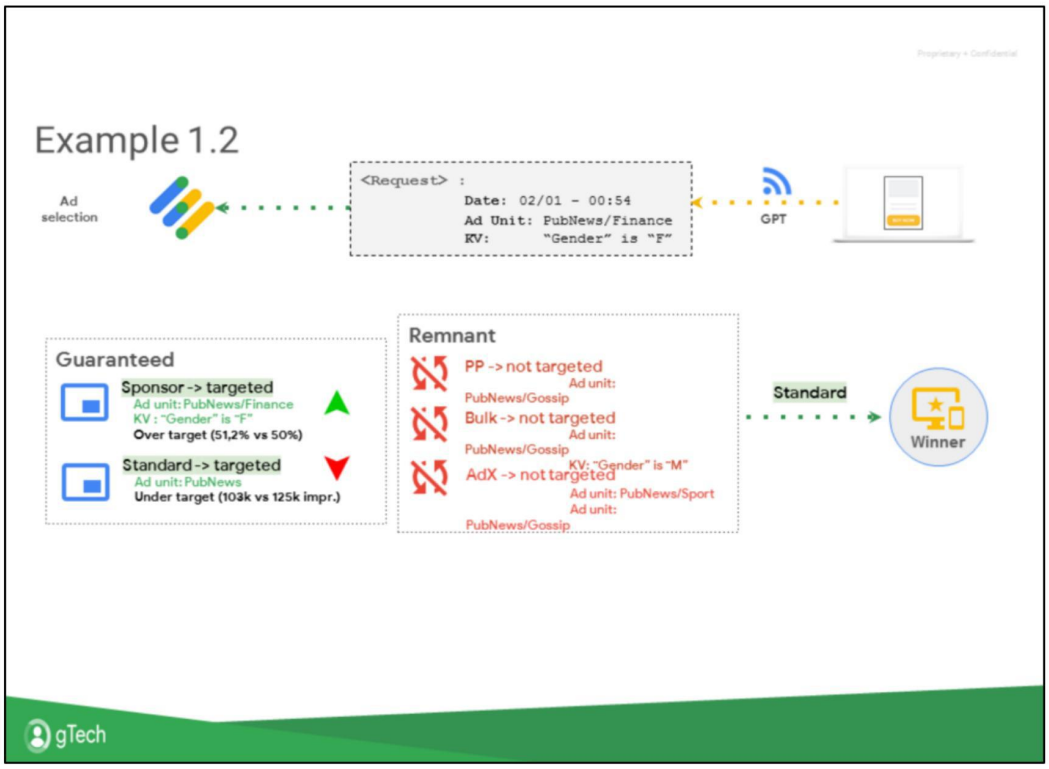
Frontloaded: A line item begins by briefly serving to a goal that is as much as 40% higher than a goal without frontloading, and then gradually declines to serving 5% ahead of schedule as the campaign draws to its end. The sum of impressions during the first half of the campaign can be as much as 25% higher than without frontloading.



Example 1.1:

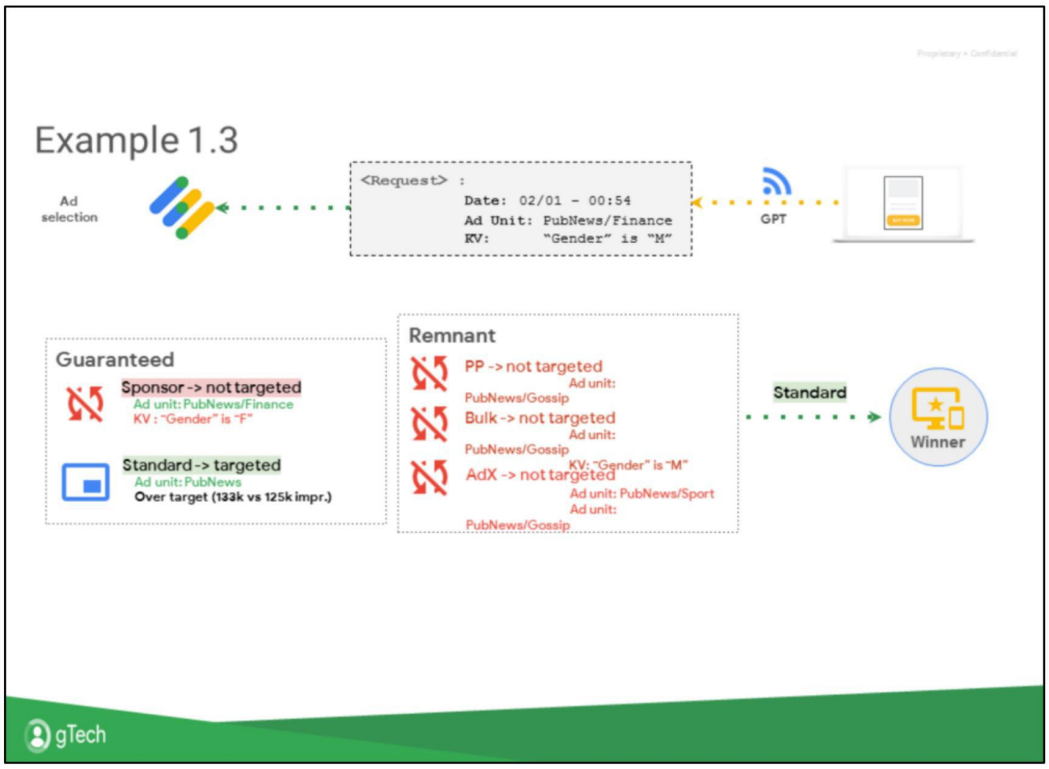
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Finance
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 51.510 imps delivered on 100.593 requests (51.2%)
Standard: 133.043 imps delivered
Eligible Line Items:
Sponsor: Ad Unit and KV targeting matches
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit not targeted
Winning Line Item:
Sponsor
Explanation:
Both the Sponsor and Standard campaign are on target with delivery

Sponsor has an higher priority (4 vs 8)

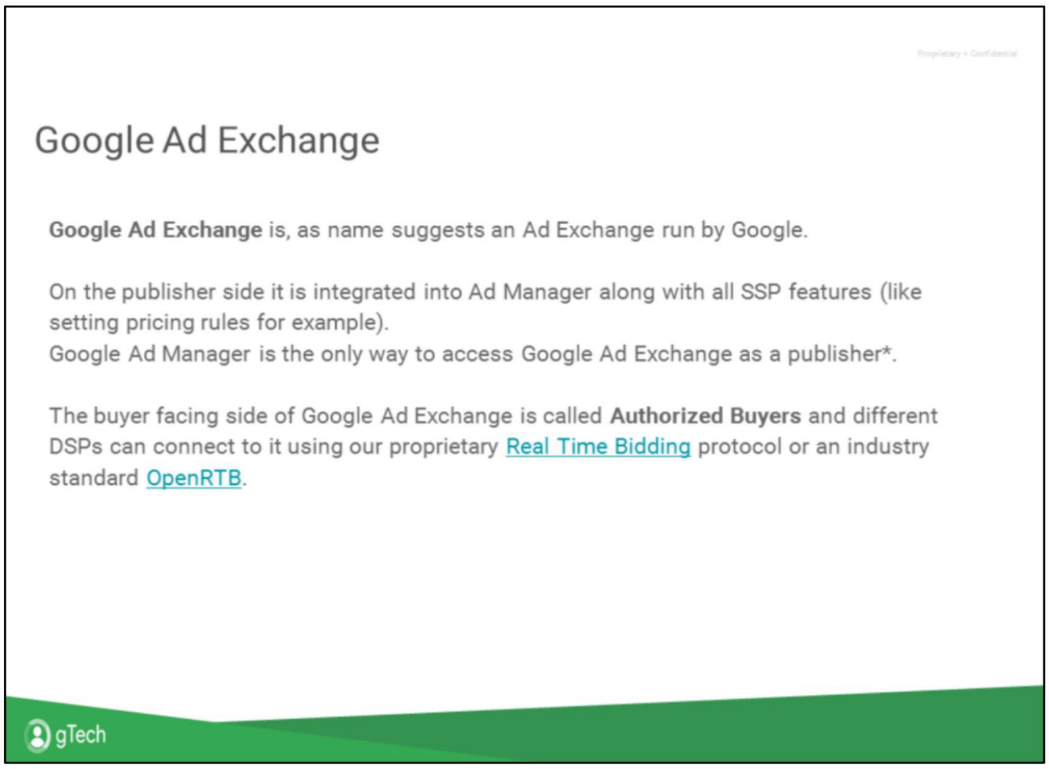


Example 1.2:
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Finance
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 51.510 imps delivered on 100.593 requests (51.2%)
Standard: 103.702 imps delivered
Eligible Line Items:
Sponsor: Ad Unit and KV targeting matches
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit not targeted
Winning Line Item:
Standard
Explanation:
The expected pacing for the Standard campaign is to deliver 125.000 imps/day (Frontloading), thus it is under-delivering

The Sponsor campaign is on target with delivery
The computed Satisfaction Index of the Standard campaign is lower to the one of the Sponsor Campaign



Example 1.3:
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Finance
KV:
"Gender" is "M"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 133.702 imps
Eligible Line Items:
Sponsor: KV targeting doesn't match
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit not targeted
Winning Line Item:
Standard
Explanation:
The Standard campaign is the only one eligible to serve



* - as of June 2019 there is still a legacy way to access AdX standalone, but it will go away in a near future

Ad Exchange auction

Ad Exchange gathers signals from the request: URL, what the page is about, User Agent, ad slot size, cookie id.
Next Ad Exchange sends a **Bid Request** to DSPs with this information asking them to bid on the impression.
DSPs respond with **Bid Responses** indicating how much they are willing to pay and what ad they want to deliver.
Ad Exchange collects those responses, does filtering against publisher defined rules and runs a **first-price auction**. This means - the highest bidder wins and pays what they bid.
In the past Ad Exchange auction used to be a second-price auction.

You can read more on the Ad Exchange auction in this Help Center article

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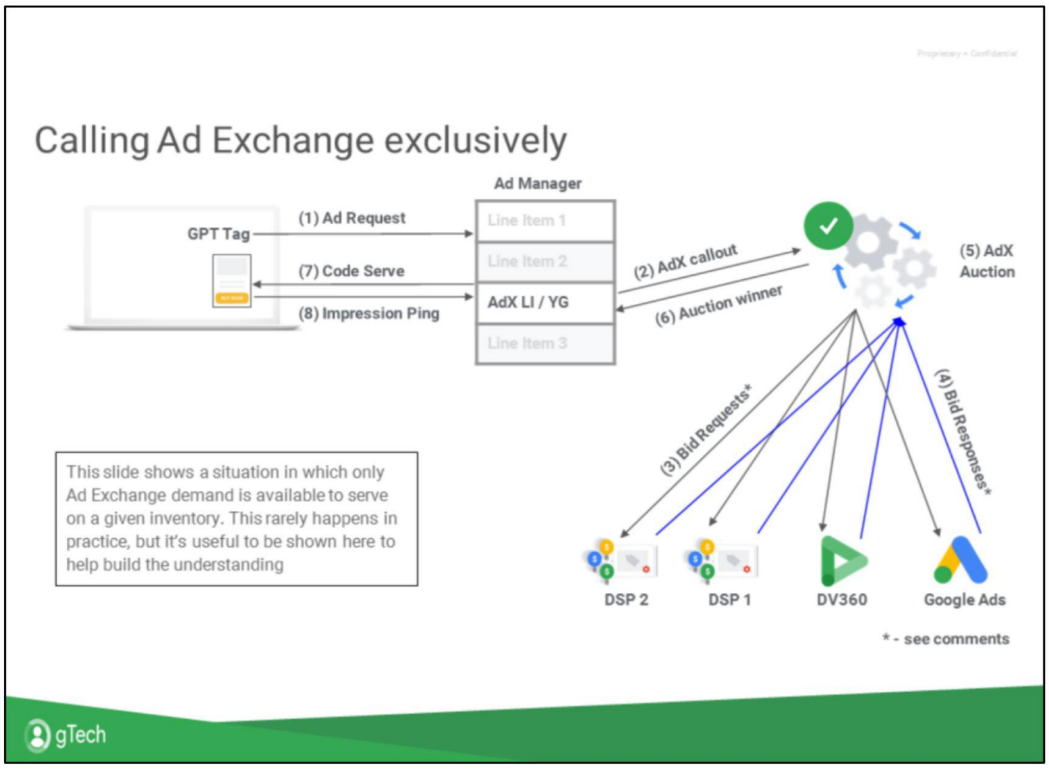


0. GPT is put on website
1. GPT makes an ad request to Ad Manager
2. Ad Manager calls AdX
3. AdX sends bid requests* to DSPs
4. DSPs run their logic and respond with bid responses
5. AdX runs auction
6. AdX returns winning ad to Ad Manager
7. Ad Manager serves the code to the website
8. The creative sends an impression ping back to Ad Manager for reporting purposes (that's the end goal, currently some types of ads like in-app direct are reported based on ad server responses)

* - Technically Google Ads and DV360 don't receive Bid Requests and Responses via RTB protocol, but are instead integrated directly with AdX auction. Here only presented logically for clarity

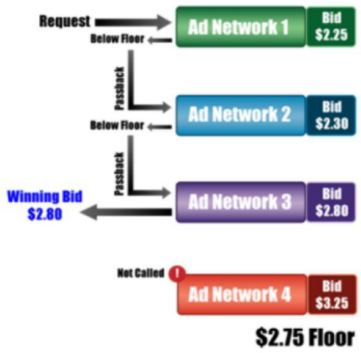
Ad Network waterfall

Waterfall is a traditional way of accessing demand from multiple ad sources (Networks, Exchanges, etc) for one impression.

It introduces latency to ad load and can lead to missing out on highest bids.

Passback means that when one ad system cannot fill an ad request it passes it back to a different ad system.

Similarly traditionally ad servers deliver direct campaigns first and only request ads from ad networks when no direct campaign currently needs to serve



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Dynamic Allocation

Dynamic Allocation is a way for AdManager to almost always call Ad Exchange demand but only deliver it when it maximizes revenue while making sure direct campaign goals are met. Dynamic Allocation uses a server-to-server connection which minimizes latency.

Read detailed explanation in this training and in this Help Center article

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How Dynamic Allocation works

Ad Manager first goes over regular ad selection process ignoring Ad Exchange demand and selects best suited direct campaign.
Then it calculates an **Ad Manager Reserve Price** (aka temporary CPM / **tCPM**):

- For Non-guaranteed campaign - reserve price is 0
- For Guaranteed campaign - Ad Manager chooses reserve price based on campaign progress, available inventory left, historical bids, etc to make sure all guaranteed campaign goal can be met while maximising revenue.

Next Reserve Price is sent to Ad Exchange as an extra floor for buyers to beat it. If they can - Ad Exchange ad serves, if not - previously selected Line Item serves.
When guaranteed campaign was initially selected, other non-guaranteed campaigns compete on price with reserve price as well as Open Bidding (discussed later).

Read detailed explanation in this training and in this Help Center article

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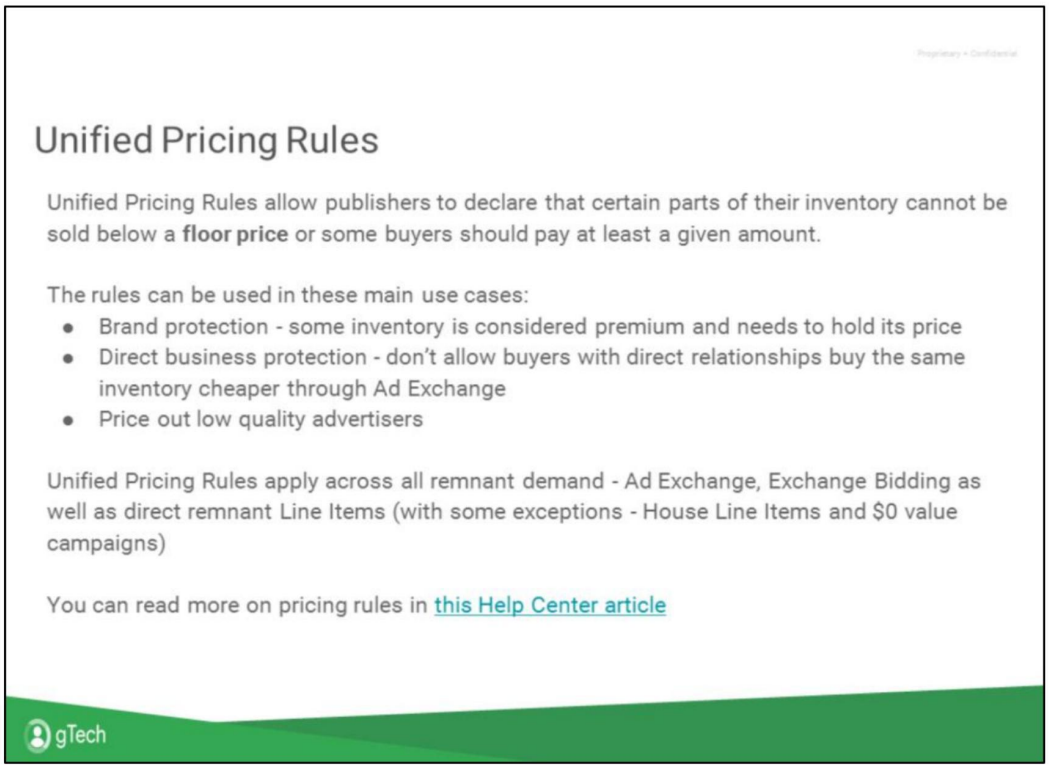
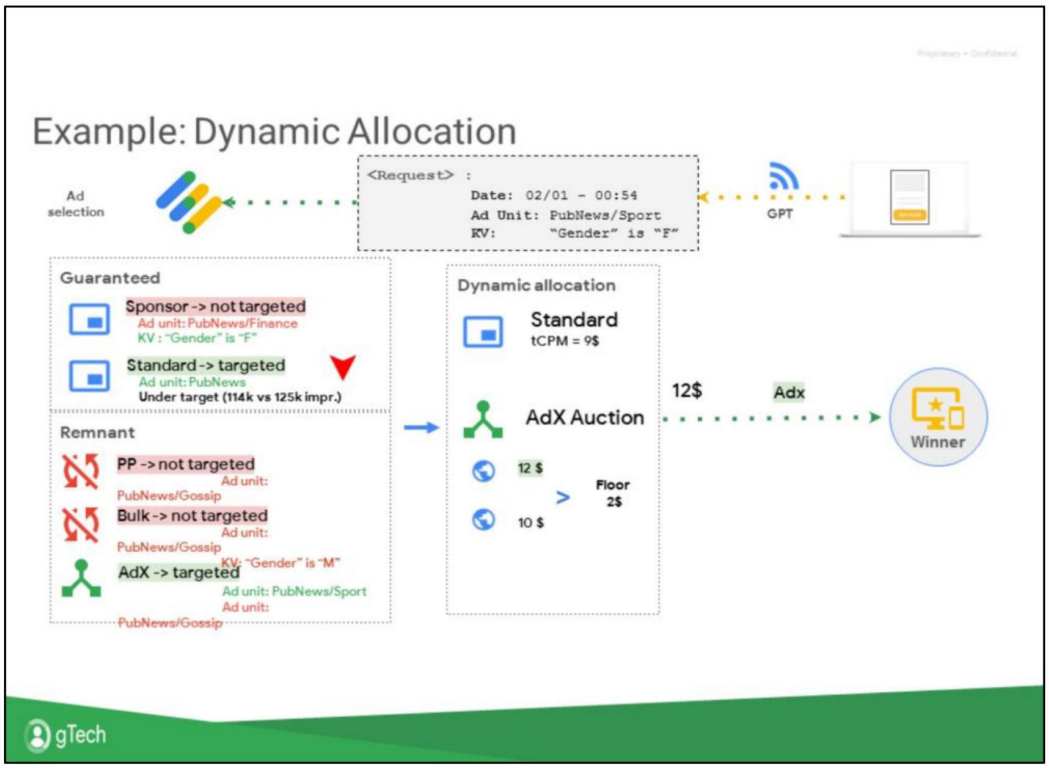
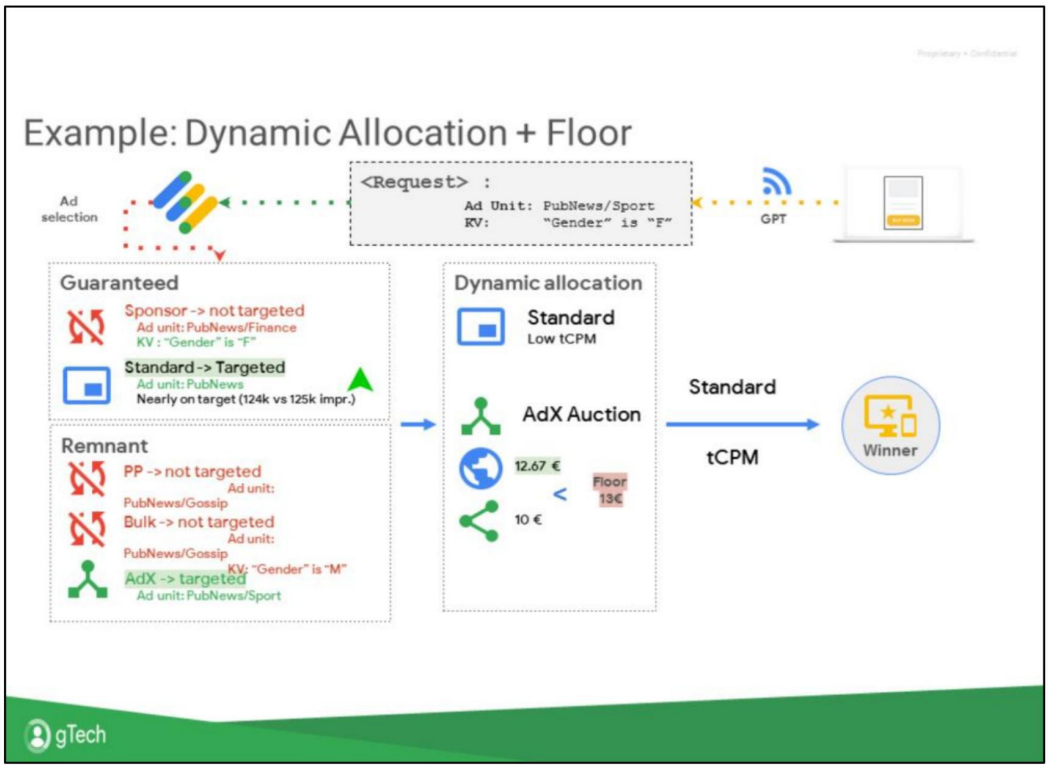


In the future Unified Pricing Rules will come into play and eventually replace current rules:
go/eb-pricingrules



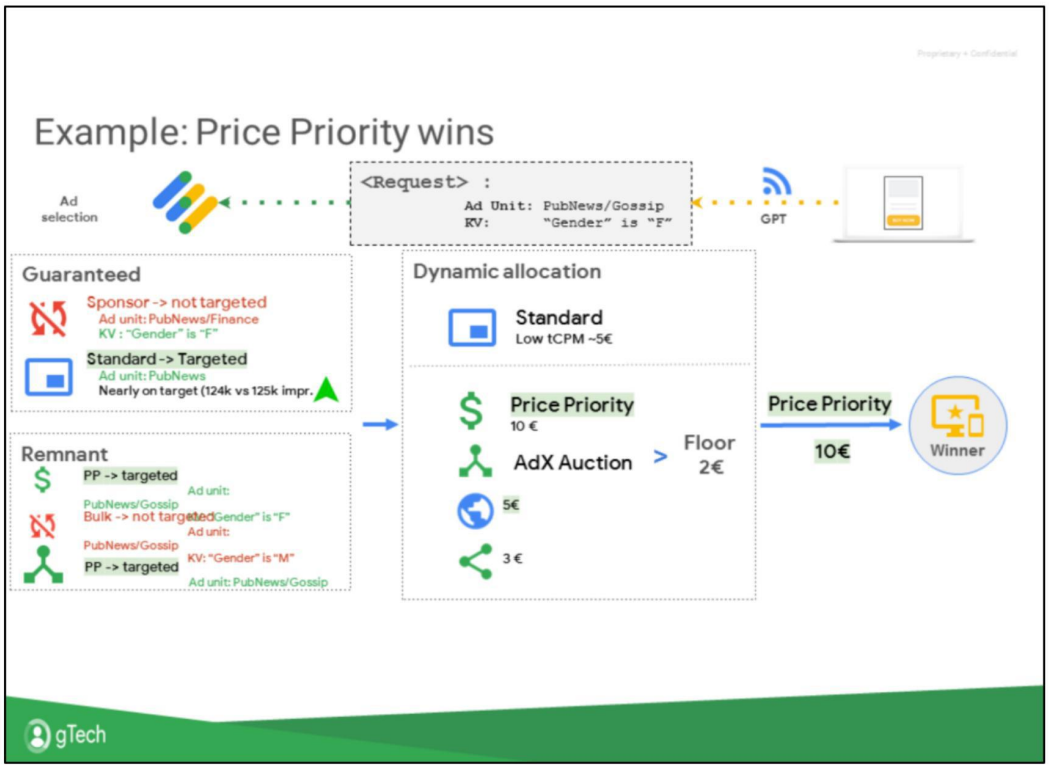
Example 2.1 (Dynamic Allocation ON):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Sport
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 114.442 imps
Eligible Line Items:
Sponsor: Ad Unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
Ad Exchange Open Auction Floor: 2.00 CPM
Ad Exchange Auction Winning Bid: 12.67 EUR CPM
Winning Line Item:
Adx
Explanation:

The Standard campaign is nearly on target
Dynamic Allocation is activated
The bid of the Adx Line Item is way higher than the tCPM computed for the Standard campaign
The bid is higher than the floor set



Example 2.3 (Dynamic Allocation ON - Floor):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Sport
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 124.442 impsLo
Eligible Line Items:
Sponsor: Ad Unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
Ad Exchange Open Auction Floor: 13.00 CPM
Ad Exchange Auction Winning Bid: 12.67 EUR CPM
Winning Line Item:
Standard
Explanation:

The Standard campaign is nearly on target
Dynamic Allocation is activated
The Ad Exchange bid is lower than the Open Auction floor price



End thomas part
Example 2.4 (Price priority winning - DA ON):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Gossip
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 124.442 imps
Eligible Line Items:
Sponsor: Ad Unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
PricePriority: Ad Unit targeted directly, targeting on KVs
Bulkr: Ad Unit not targeted
Ad Exchange Open Auction Floor: 2.00 CPM

Ad Exchange Auction Winning Bid: 5 EUR CPM

Winning Line Item:

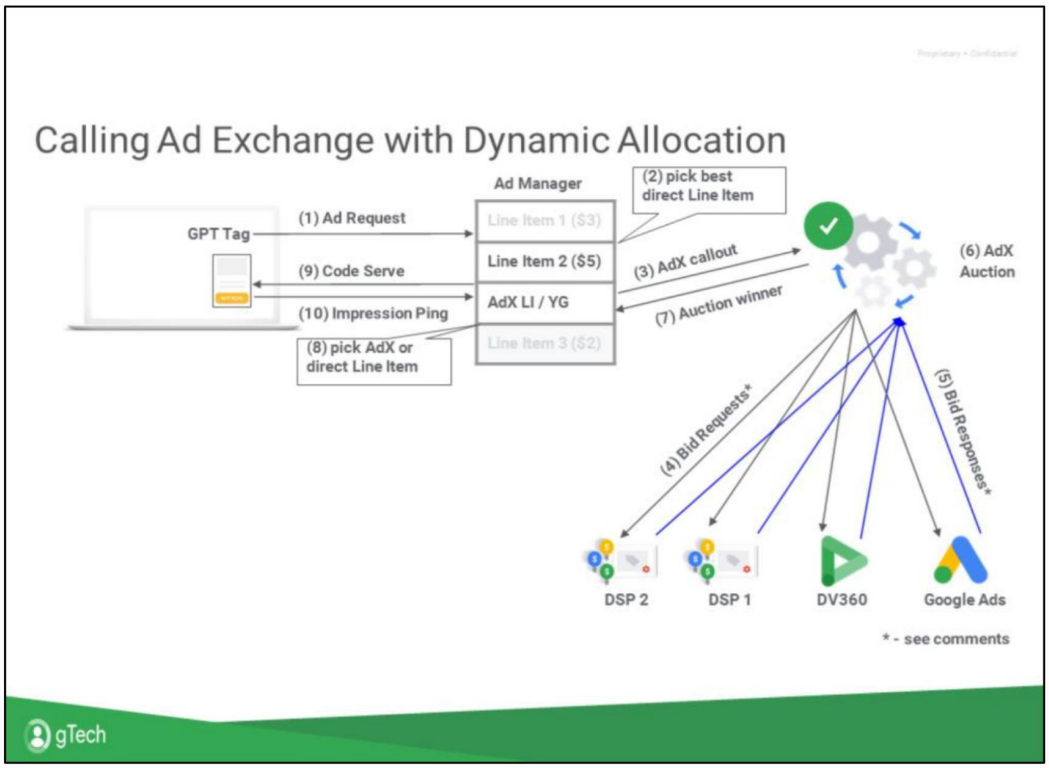
Price Priority

Explanation:

The Standard campaign is nearly on target

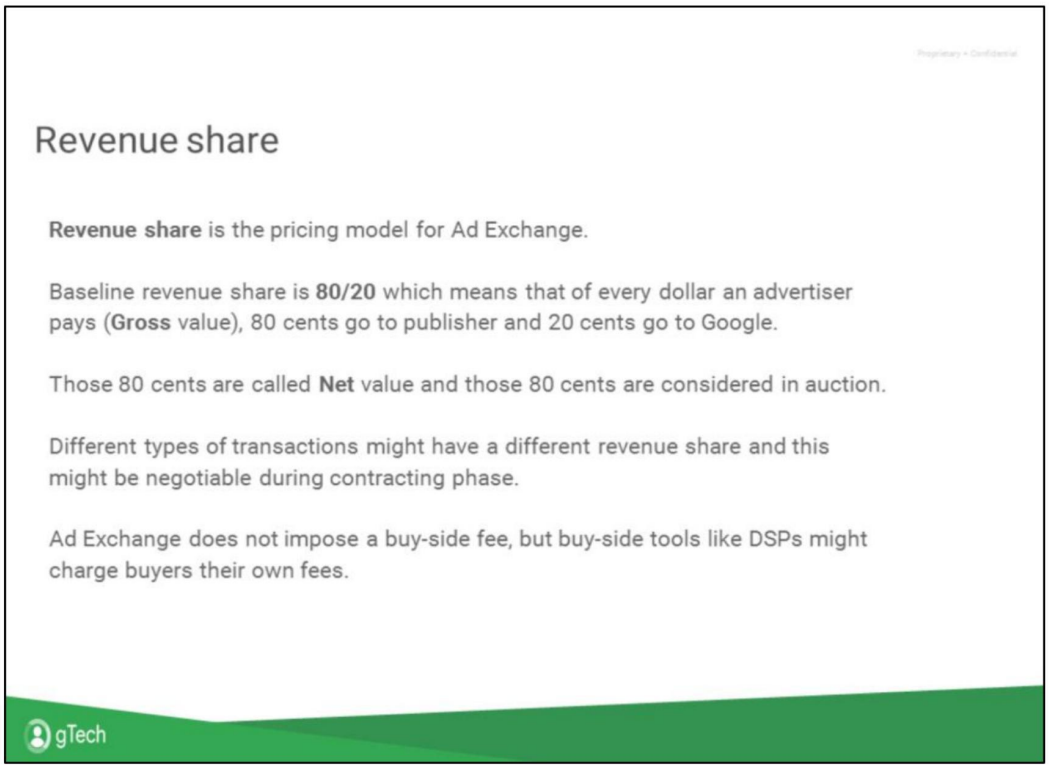
Dynamic Allocation is activated, Adx covers the floor

Price priority LI wins over other LI, due to its higher CPM



0. GPT is put on website
1. GPT makes an ad request to Ad Manager
2. AdManager picks best direct Line Item based on reserve price
3. Ad Manager calls AdX
4. AdX sends bid requests* to DSPs
5. DSPs run their logic and respond with bid responses
6. AdX runs auction
7. AdX returns winning ad to Ad Manager
8. Ad Manager chooses best paying ad - either AdX one or previously selected direct Line Item
9. Ad Manager serves the code to the website
10. The creative sends an impression ping back to Ad Manager for reporting purposes (that's the end goal, currently some types of ads like in-app direct are reported based on ad server responses)

* - Technically Google Ads and DV360 don't receive Bid Requests and Responses via RTB protocol, but are instead integrated directly with AdX auction. Here only presented logically for clarity



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Dynamic revenue share

Dynamic revenue share is an Ad Exchange feature that allows Ad Exchange to win more impressions.

The feature allows Ad Exchange to modify per-query revenue share while keeping the average revenue share as per contract.

Floor: $2

No DRS	Bid Gross	RevShare	Bid Net	Payout
Auction 1	$2.4	80/20	$1.92	**$0**
Auction 2	$4	80/20	$3.2	**$3.2**
Sum	$6.4	80/20	$5.12	**$3.2**

With DRS	Bid Gross	RevShare	Bid Net	Payout
Auction 1	$2.4	90/10	$2.16	**$2.16**
Auction 2	$4	74/26	$2.96	**$2.96**
Sum	$6.4	80/20	$5.12	**$5.12**

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First Look

First Look is a business concept meaning that some Ad Exchange buyers are allowed to have a first look at certain impressions and decide to buy them or not ahead of other campaigns or demand sources.

First Look AdManager features allows publishers to offer certain buyers an ability to buy selected inventory ahead of any reservation campaigns as long as they bid above a first look floor.

You can read more on first look in this Help Center article

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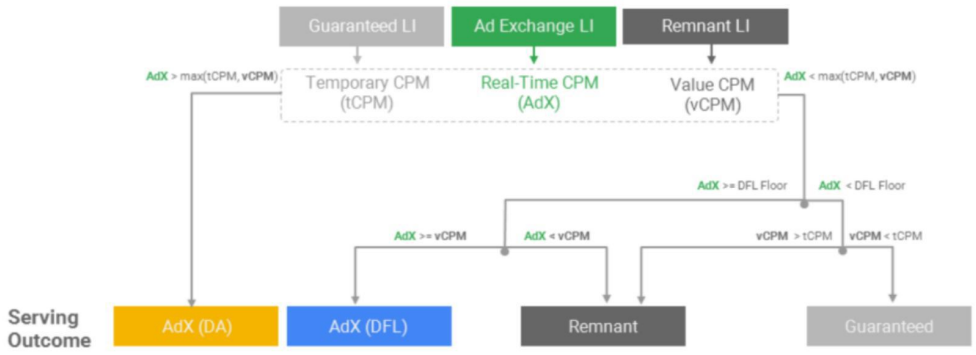
First Look serving logic



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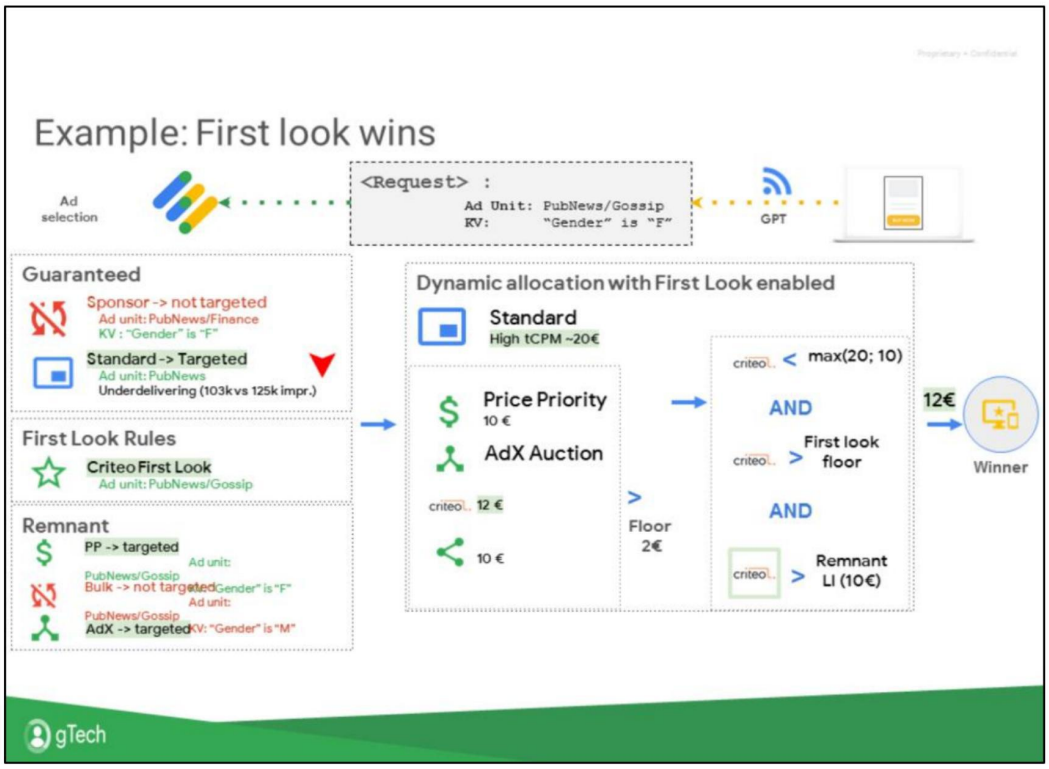
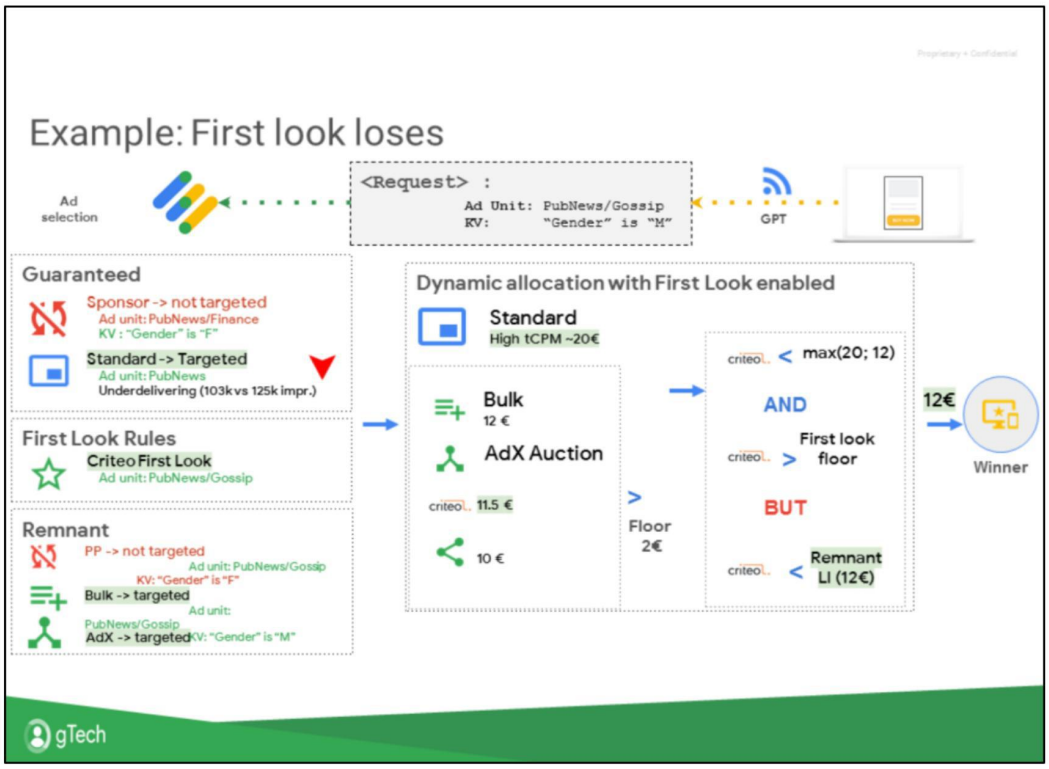


Example 4.1 (First Look is activated and wins over remnant LI):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Gossip
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 51.510 imps delivered on 100.593 requests (51.2%)
Standard: 103.702 imps delivered
Eligible Line Items:
Sponsor: Ad unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
Price priority: Ad Unit targeted directly
Eligible First look pricing rules:
Criteo First Look : Ad unit targeted directly, no targeting on KVs.
Ad Exchange Open Auction Floor: 2.00 CPM

Ad Exchange Auction Winning Bid: 12.00 EUR CPM from Criteo
Winning Line Item/YG:
Adx LI - Criteo First Look
Explanation:

The expected pacing for the Standard campaign is to deliver 125.000 imps/day (Frontloading), thus it is under-delivering
The tCPM for the Standard campaign is high, let's say 20.00 EUR.
Adx LI CPM is lower than the max of guaranteed LI CPM (20.00 EUR) and remnant LI CPM (10.00 EUR), but the bid from Criteo clears both the first look floor (11.00 EUR) and the remnant LI CPM (10.00 EUR).



Example 4.2 (First Look is activated but loses against remnant LI):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Gossip
KV:
"Gender" is "M"
Guaranteed Line Items situation:
Sponsor: 51.510 imps delivered on 100.593 requests (51.2%)
Standard: 103.702 imps delivered
Eligible Line Items:
Sponsor: Ad unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
Bulk: Ad Unit targeted directly, targeting matches on KV.
Eligible First look pricing rules:
Criteo First Look : Ad unit targeted directly, no targeting on KVs.
Ad Exchange Open Auction Floor: 2.00 CPM

Ad Exchange Auction Winning Bid: 11.50 EUR CPM from Criteo
Winning Line Item/YG:
Remnant Line Item - Bulk
Explanation:

The expected pacing for the Standard campaign is to deliver 125.000 imps/day (Frontloading), thus it is under-delivering
The tCPM for the Standard campaign is therefore high, let's say 20.00 EUR.
Adx LI CPM is lower than the max of guaranteed LI CPM (20.00 EUR) and remnant LI CPM (12.00 EUR). The bid from Criteo clears the first look floor (11.00 EUR) but not the remnant LI CPM (12.00 EUR).

Optimized Competition

Dynamic Allocation by default makes sure that all guaranteed campaigns meet their goals by selecting appropriate value for reserve price.
Sometimes this value is too high for even very high bids to win.

Optimized Competition uses machine learning to lower those very high reserve prices to lower, but still high levels.

This allows very high bids to win in small percentages of auctions, while introducing only a tiny percentage of possible underdelivery of guaranteed campaigns resulting in higher yield overall.

You can read more on optimized competition in this Help Center article

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Optimized Pricing (aka Reserve Price Optimization)

In a first-price auction bidders have to estimate the market value of the impression so as to bid high enough to win but low enough not to overpay.
Certain impression might present a high value only for minority of buyers and low value for others.

To extract most revenue for the publisher from those impression **Optimized Pricing** uses machine learning algorithms to estimate market value of a particular impression and dynamically raise the auction floor (pre-auction) to hopefully raise the closing price of the auction.

You can read more on optimized pricing in this Comms Doc

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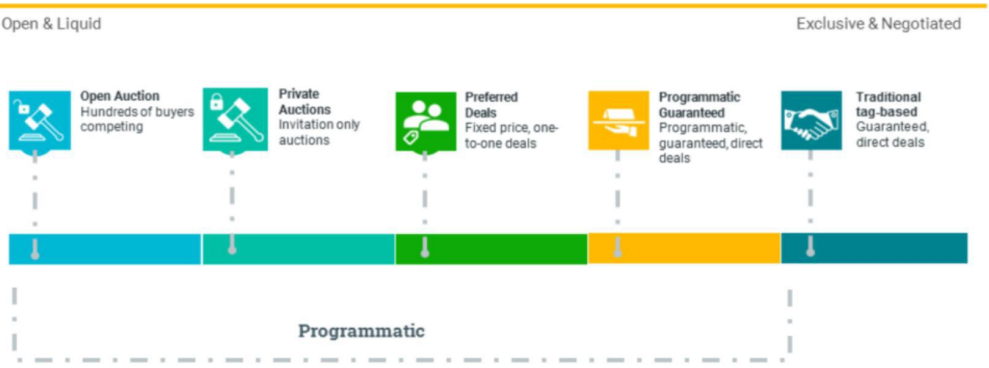
Id	Date	Text
2	06/11/2019 10:26:18	+michald@google.com
1	06/11/2019 10:40:29	yeh, I don't understand it, I asked PTMs but they did not share any details, but it does apply. The way I think it works, it relies on buyers to actually react to the floor price we send out
1	05/18/2020 17:48:20	does this apply to 1st price? I mean, Optimized Pricing seems a way to adjust floors and maximize yield in a second price world. no?
1	05/18/2020 17:48:20	Note this is currently paused on th e back-end. Latest info / positioning here: https://docs.google.com/presentation/d/1Dg-5RcjVjqxU_R414ZTHok-uYUqRQQtQQXTIesWWMzw/edit#slide=id.g3130274390_0_254

Transaction Types in Ad Manager



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Transaction Types in Ad Manager 2

Open Auction - everyone can bid on an impression, highest bidder wins in an auction, subject to buyer-specific floors or blocks.

Private Auction - publishers can invite selected buyers into private auctions with PA-specific floors. When any bids for PAs come, there is a private auction held before open auction. If it selects a winner, open auction bids are not checked even if they would be higher.

Optimized Private Auction - bids for Private Auction and Open Auction compete against each other. As with regular private auctions, the ID of the private auction conveys information to the buyer agreed on with the publisher (specific inventory, specific audience, that might make the buyer willing to pay more for the impression).

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Transaction Types in Ad Manager 3

Preferred Deal - direct deal between publisher and buyer at a selected price, evaluated before the private and open auctions, if the buyer bids agreed price, it buys the impression even if auctions might have a higher bidder. Buyer does not need to buy the impression.

Programmatic Guaranteed - direct deal between publisher and advertiser or agency, done via Ad Manager UI, creatives managed on the buyer side, billing via Ad Manager. Requires the buyer to buy the impression.

Traditional tag-based - direct deal between publisher and advertiser or agency. Usually contracted quantity of impressions, clicks, etc. Can be guaranteed. Creative assets passed on via email, manual campaign set-up, billing outside Ad Manager.

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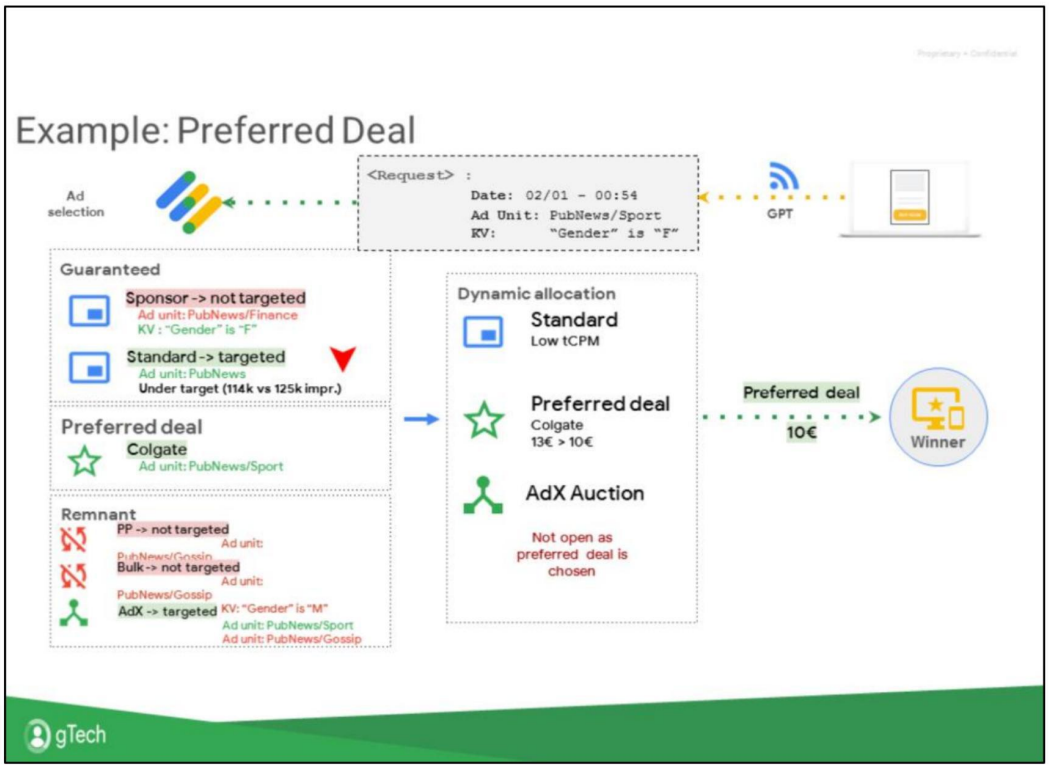

Example 5.1 Preferred Deal (Dynamic Allocation ON):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Sport
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 114.442 imps
Eligible Line Items:
Sponsor: Ad Unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Preferred deal: targeted
Adx: Ad Unit targeted directly, no targeting on KVs
Winning Line Item:
Preferred deal
Explanation:
The Standard campaign is nearly on target and therefore has a low tCPM

assigned
Colgate covers the floor of its preferred deal with a 13€ bid, over the 10€ deal floor
Adx auction is not opened as the preferred deal has been opted in by the advertiser
Preferred deal wins the impression.

Yield management

Optimize Inventory Allocation	Maximize AdX Auction Revenue	Aggregate Demand
• How to optimally allocate impressions across Guaranteed vs Auction?	• Pricing: should be done by query, based on what buyers are willing to pay	• Actual "real" time bidding from multiple demand sources, with minimized latency for users and streamlined payments
• Dynamic Allocation • First Look • Optimized Competition	• Optimized Pricing • Revenue Share Based Optimizations • Target CPM BETA • Managed Reserves ALPHA	• Exchange Bidding

More details on how many Yield management features work together can be found in this deck.

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Header Bidding

Header bidding is a technique used by some Exchanges / SSPs to get them first look rights for publisher inventory or Dynamic Allocation-like per impression price competition.

It uses a script usually put in web page <head> section that calls SSP to get a preliminary bid "promise" that can be passed to an ad server to evaluate against other publisher demand. Once the ad server selects the preliminary bid it serves actual SSP code on the page to deliver the promised ad.

The most widely used library is called **prebid.js** and can call multiple SSPs in parallel.

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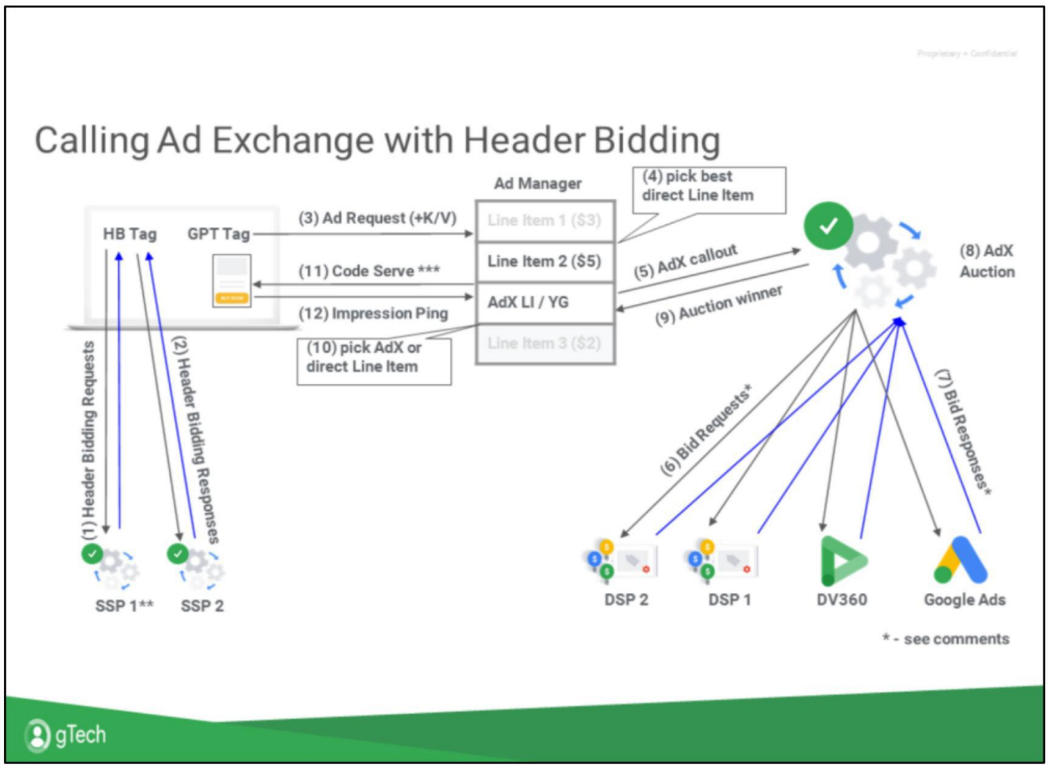
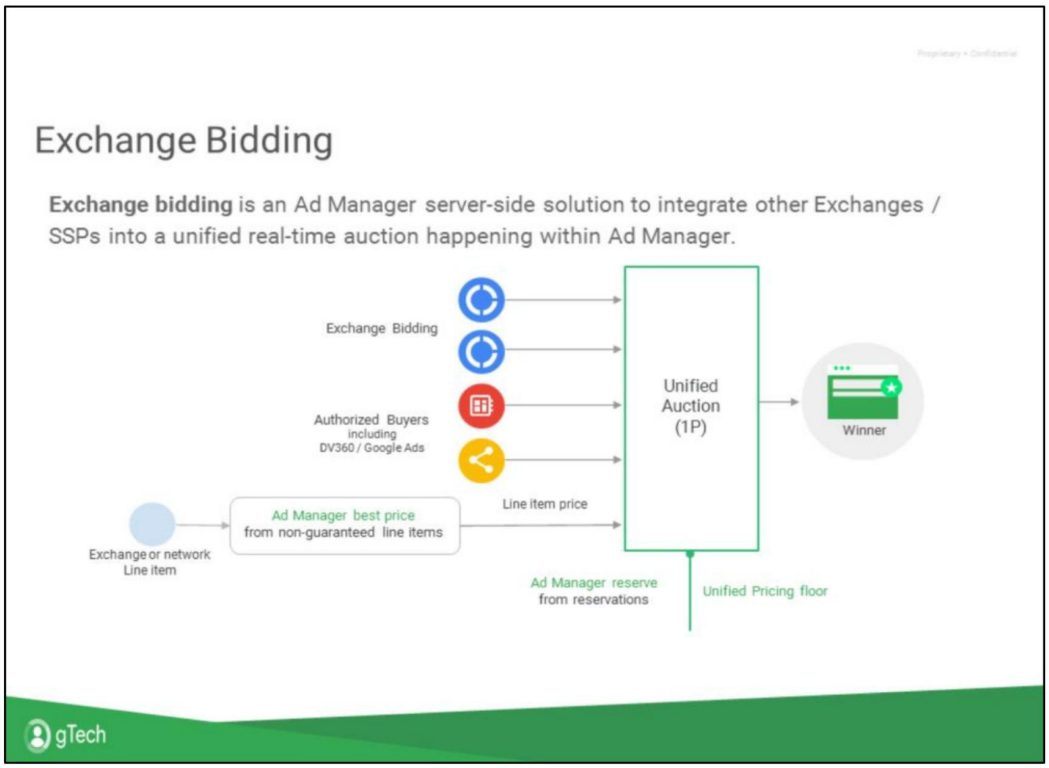


0.1 Header Bidder Tag is put on website
0.2 GPT is put on website
1. Header bidder tag makes requests to header bidding partners **
2. Header bidder partners respond with their quote
3. GPT makes an ad request to Ad Manager, passing Header Bidding quote into Ad Manager using Key Values
4. AdManager picks best direct Line Item based on reserve price
5. Ad Manager calls AdX
6. AdX sends bid requests* to DSPs
7. DSPs run their logic and respond with bid responses
8. AdX runs auction
9. AdX returns winning ad to Ad Manager
10. Ad Manager chooses best paying ad - either AdX one or previously selected direct Line Item
11. Ad Manager serves the code to the website ***
12. The creative sends an impression ping back to Ad Manager for reporting purposes (that's the end goal, currently some types of ads like in-app direct are reported based on ad server responses)

* - Technically Google Ads and DV360 don't receive Bid Requests and Responses via RTB protocol, but are instead integrated directly with AdX auction. Here only presented logically for clarity

** - Not shown on the graphic, but internally other SSPs make calls to DSPs as well before returning with their bid. Those can be the same SSPs that will later be queried by AdX

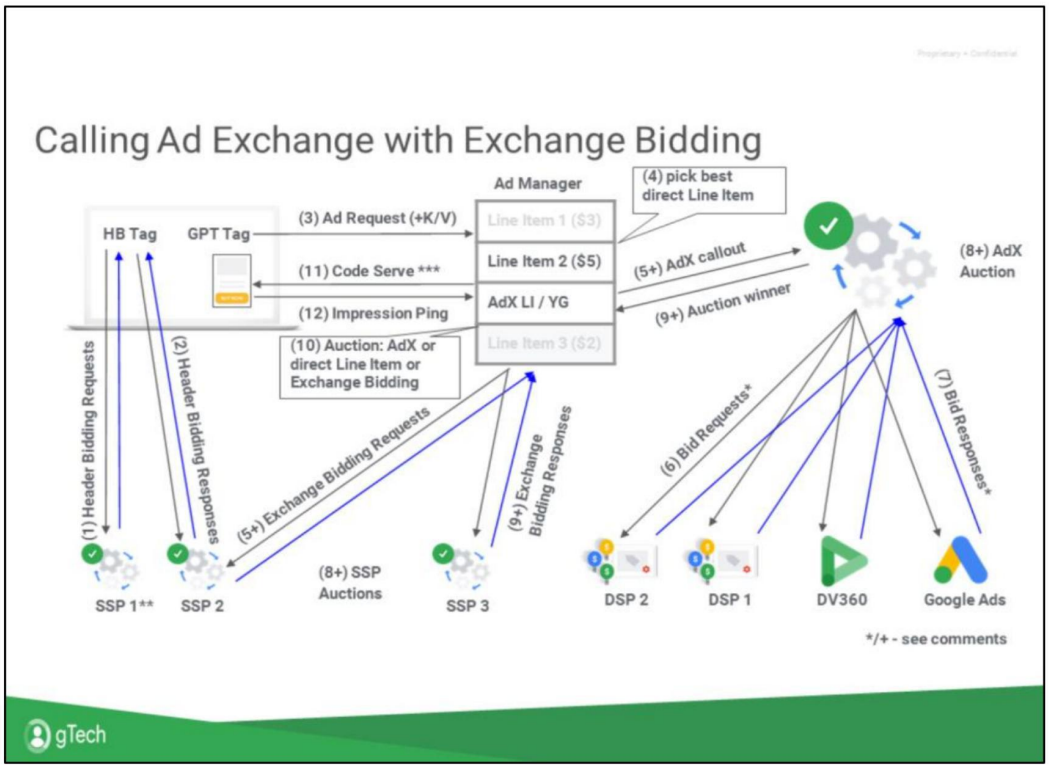
*** - If a header bidding line item won, its creative will usually be a winning SSP tag that will in turn call its SSP to get the actual winning creative



Start thomas

Exchange bidding is Google response to HB which has set up costs and introduces latency.

Id	Date	Text
2	06/11/2019 08:05:43	This picture is no longer true in 1p world, but I m not sure what else to write about EB so the slide does not feel empty. Maybe the updated picture? But this does not feel right at this moment https://docs.google.com/presentation/d/1Yyklc3tbC2iWt2BxJjR9EW-zb4RCV5FfwgUZdzxx6PI/edit#slide=id.g57fe387186_0_1669
3	06/11/2019 08:05:43	will show the updated slide, maybe highlighting the fact that we are currently transitioning



0.1 Header Bidder Tag is put on website
0.2 GPT is put on website
1. Header bidder tag makes requests to header bidding partners **
2. Header bidder partners respond with their quote
3. GPT makes an ad request to Ad Manager, passing Header Bidding quote into Ad Manager using Key Values
4. AdManager picks best direct Line Item based on reserve price
5+. Ad Manager calls AdX
5+. Ad Manager calls Exchange Bidding Partners
6. AdX sends bid requests* to DSPs
7. DSPs run their logic and respond with bid responses
8+. AdX runs auction
8+. Exchange Bidding Partners run their internal auctions, ad selection algorithms
9+. AdX returns winning ad to Ad Manager
9+. Exchange Bidding Partners return winning ads to Ad Manager
10. Ad Manager runs a first price auction between previously selected direct Line Item, AdX winning ad and all Exchange Bidding ads
11. Ad Manager serves the code to the website ***
12. The creative sends an impression ping back to Ad Manager for reporting purposes (that's the end goal, currently some types of ads like in-app direct are reported based on ad server responses)

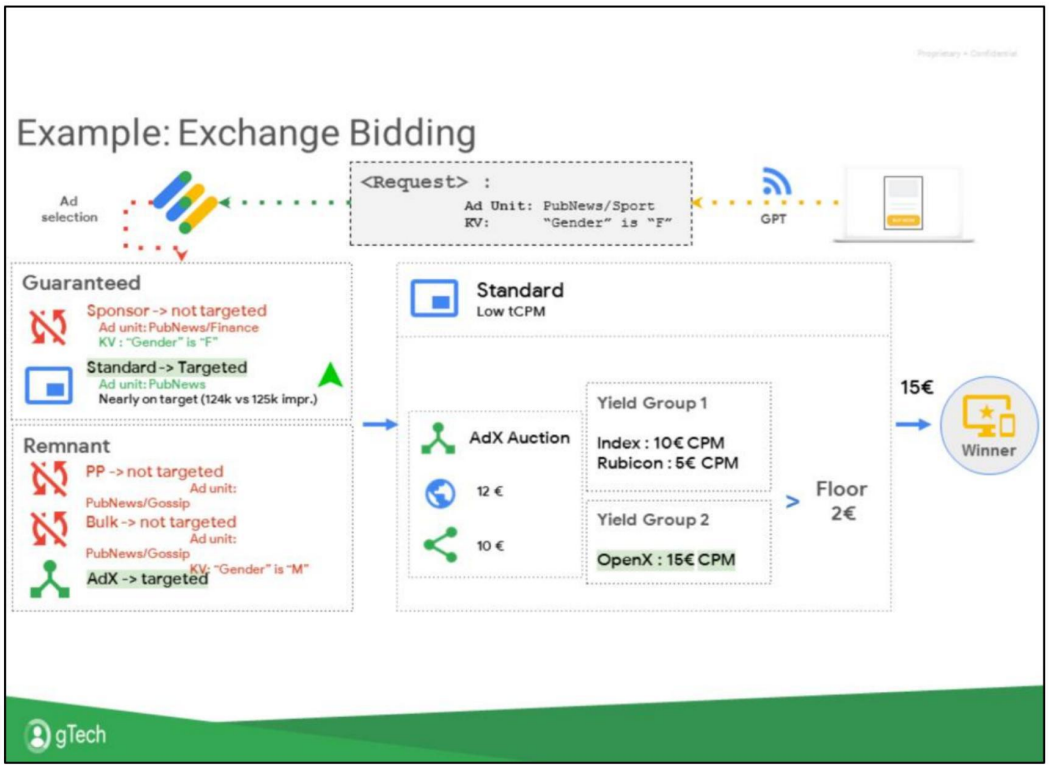
* - Technically Google Ads and DV360 don't receive Bid Requests and Responses

via RTB protocol, but are instead integrated directly with AdX auction. Here only presented logically for clarity

** - Not shown on the graphic, but internally other SSPs make calls to DSPs as well before returning with their bid. Those can be the same SSPs that will later be queried by AdX

*** - If a header bidding line item won, its creative will usually be a winning SSP tag that will in turn call its SSP to get the actual winning creative

+ - both actions happen concurently

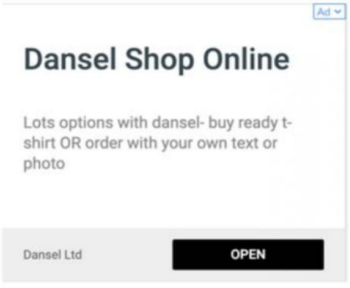


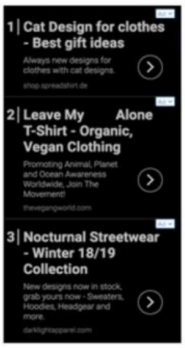
Example 3.2 (Exchange bidding):
Date:
02/01 - 00:00
Requested Ad Unit:
PubNews/Sport
KV:
"Gender" is "F"
Guaranteed Line Items situation:
Sponsor: 15.510 imps on 100.593 eligible requests (15.4%)
Standard: 124.442 imps
Eligible Line Items:
Sponsor: Ad Unit not targeted
Standard: targets a parent Ad Unit of the one requested, no targeting on KVs
Adx: Ad Unit targeted directly, no targeting on KVs
Eligible Yield Group:
Yield Group 1: Ad Unit target directly, no targeting on KVs
Yield Group 2: targets a parent Ad Unit of the one requested

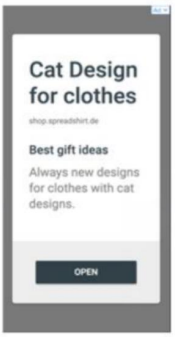
Ad Exchange Open Auction Floor: 2.00 CPM
Ad Exchange Auction Winning Bid: 12.67 EUR CPM
Exchange Bidding Auction :
YG 1 :
Index : 10.00 EUR CPM
Rubicon : 5.00 EUR CPM
YG 2 :
OpenX : 15.00 EUR CPM
Winning Line Item/YG:
YG 2 - Open X.
Explanation:
The Standard campaign is nearly on target
Dynamic Allocation is activated
Adx LI wins over all remnant LI. It then competes in a first price auction against networks from eligible YG.
OpenX for YG 2 wins the auction

Creative Formats: Text Ads

Text Ads are ads with layout auto generated from Google Ads campaigns that also serve on Google search







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Creative Formats: Image / HTML5

Image / HTML5: either a JPEG or some HTML content (can be static or dynamic) that fills a given rectangular ad slot

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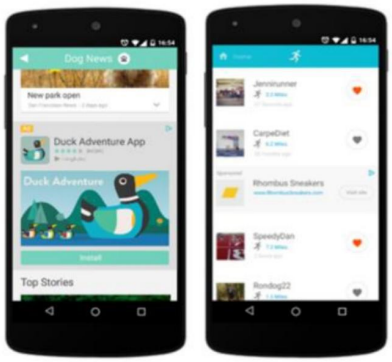
Creative Formats: Native

Native: ads in which the advertiser provides individual assets (text, image, logo, etc) and publisher lays them out so they match the design of the surrounding content



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Creative Formats: Out-of-page

Out-of-page: a custom ad that displays outside a typical rectangular slot, for example replacing page background, interacting with page in custom ways. Also known as: skin, page takeover

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Viewability

MRC **Viewable Impression** Guidelines detail what it means that the ad was seen. For display creatives at least 50% of pixels of the creative must be visible on screen for at least 1 second.

Since for advertisers it important that their ads are actually seen by users paying attention to viewability parameters is more and more popular with buyers.

Google's technology for viewability is called **Active View** and includes additional metrics on top of standard compliant viewable impressions.

You can read more on Active View in this Help Center article

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ads.txt

ads.txt is an IAB standard designed for advertisers to be able to verify that the inventory on the exchange is offered by an authorized seller.

It requires the publisher to publish an ads.txt file on their domain to list which providers can offer their inventory on sale.

You can read more on ads.txt in this Help Center article

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GDPR

Europe's **General Data Protection Regulation (GDPR)** is a law that requires all parties that want to process user data to acquire user consent for data processing from users located within European Economic Area.

The law applies to all data processing: user accounts, purchase, analytics and also ads. Processing user data is essential for most of ads use cases but the simplest ones.

Google Ad Manager offers built-in controls to stay compliant with the law even if the user did not consent.

You can read more on GDPR this Help Center article

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Invalid traffic

Invalid traffic (known internally only as AdSpam) is a traffic that Google would like to not serve ads to, so we often don't count it in statistics, don't charge advertisers for it and don't payout money to publishers for this traffic.
It's main sources are discussed in this deck.

Never discuss details of Invalid Traffic externally without the permission of gPTO above what is included in Help Center

You can read more on AdSpam in the AdSpam Advocacy site

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THANK YOU

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Following slides for v2

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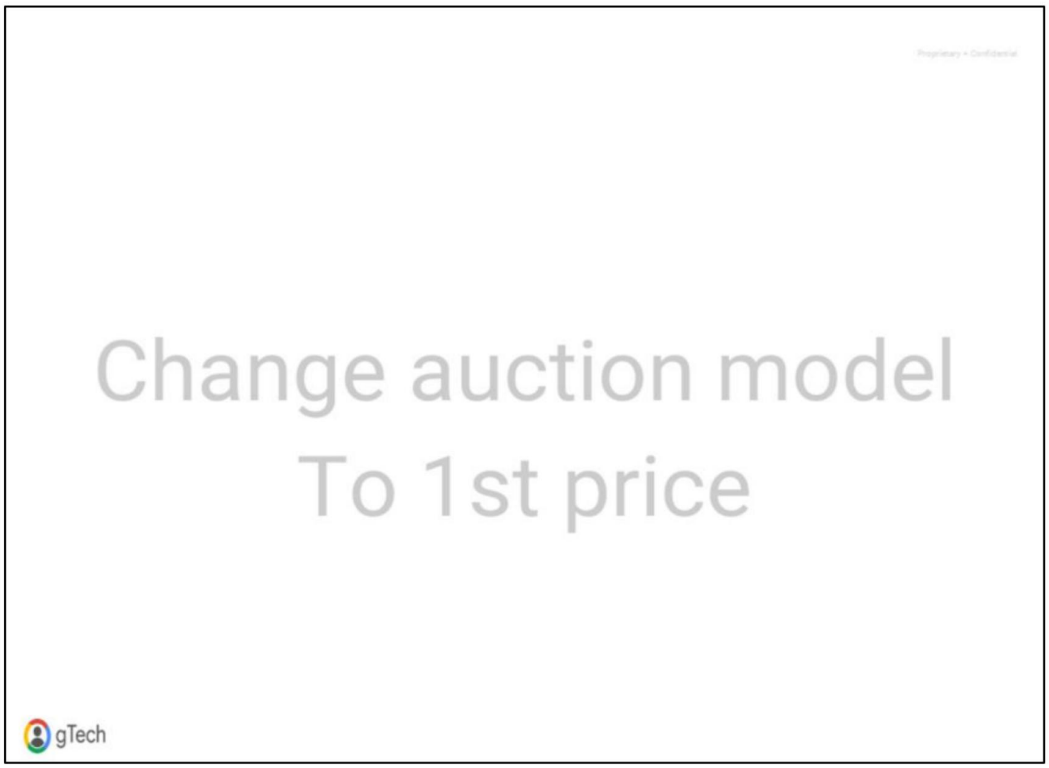
Change auction model
To 1st price
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New Optimized Pricing
Aka Managed reserves

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Target CPM
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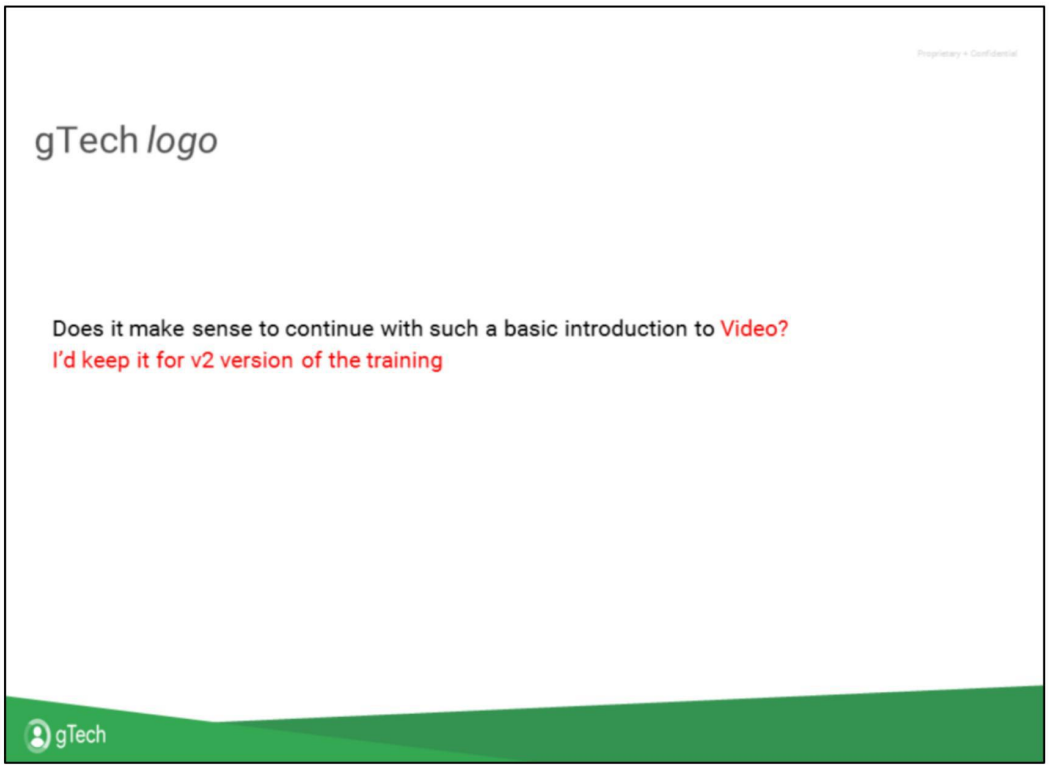
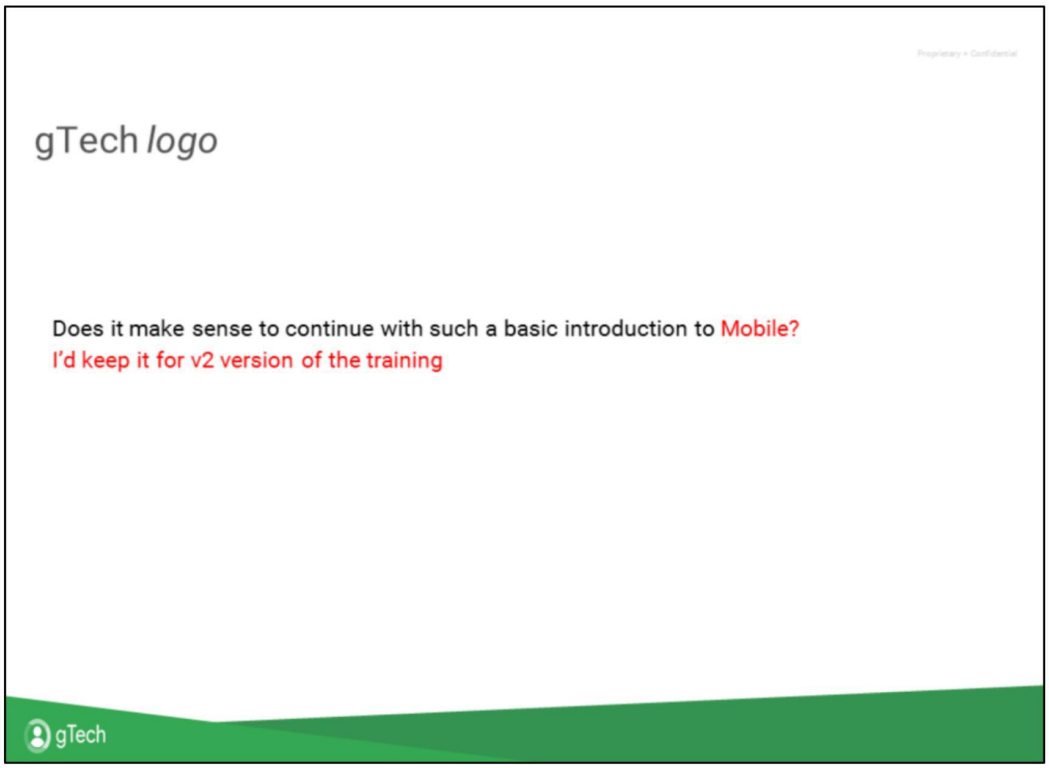

gTech *logo*
Does it make sense to continue with such a basic introduction to Video?
I'd keep it for v2 version of the training
gTech


Proprietary + Confidential
gTech *logo*
Does it make sense to continue with such a basic introduction to Mobile?
I'd keep it for v2 version of the training
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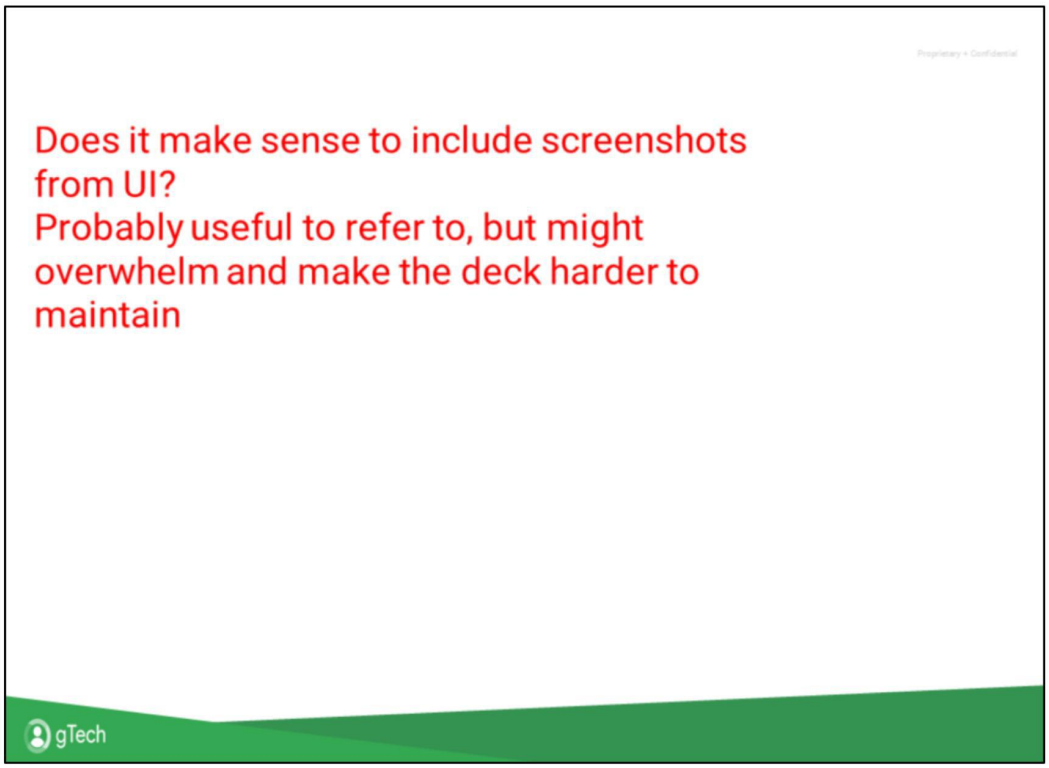
Proprietary + Confidential
Does it make sense to include screenshots from UI?
Probably useful to refer to, but might overwhelm and make the deck harder to maintain
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