The Little Black Book of
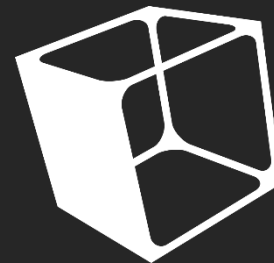# Supply Path Optimization

JOUNCE
MEDIA

Jounce Media is the industry leader in programmatic supply chain management and is trusted by the world's largest brands, agencies, media companies, and advertising technology platforms to inform high efficiency programmatic trading strategies. Through industry-leading research and fully transparent supply chain data, Jounce arms buyers and sellers with an information advantage to identify and avoid value-extracting RTB auctions.

Learn more at jouncemedia.com.

Must-Know Concepts

This book aims to be your supply path optimization (SPO) reference guide. It contains descriptions of the foundational concepts that power the programmatic supply chain.

Programmatic Landscape

- ❑ The Open Internet
- ❑ Programmatic Components
- ❑ Supply Chain Constituents

Supply Chain Dynamics

- ❑ RTB Auctions
- ❑ Supply Chain Fees
- ❑ Auction Duplication
- ❑ Multi-Integrations
- ❑ Rebroadcasting

SPO Solutions

- ❑ Traffic Shaping
- ❑ Hop Compression
- ❑ Value-Added Reselling
- ❑ Supply Chain Transparency
- ❑ SPO Segments

Must-Know Terminology

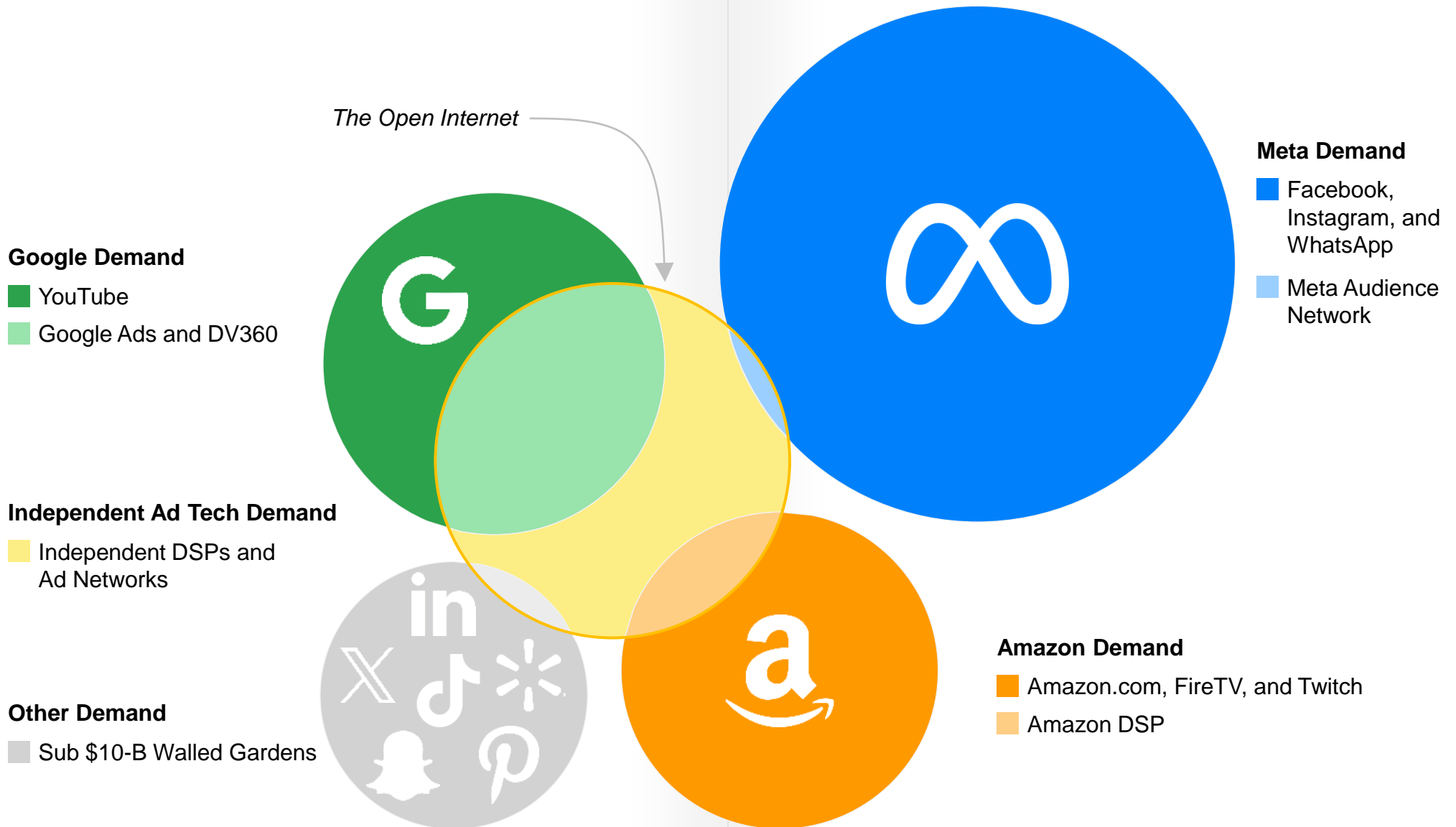Throughout the book, we use the following industry-specific terms to describe the programmatic supply chain and associated SPO concepts.

Supply Path Optimization (SPO)	A collection of techniques that enable programmatic media buyers to make intentional choices about the ad tech platforms that power programmatic trades.
DSP	A technology platform that submits bids to SSPs on behalf of media buyers.
SSP	A technology platform that conducts programmatic auctions on behalf of publishers.
Wrapper	A publisher technology that orchestrates the execution of multiple auctions for a single ad impression.
Reselling	Any programmatic sales arrangement in which more than 1 company processes payment on behalf of a publisher.
Queries per Second (QPS)	A measure of the frequency with which ad opportunities are made available to DSPs. Most scaled bidding platforms process over 1 million queries (auctions) per second.
Traffic Shaping	A suite of techniques implemented by SSPs to limit the number of bid requests they issue to bidding platforms while maintaining maximum access to high value inventory.

The Open Internet

Walled gardens are auction-based digital media companies that require marketers to use media buying tools that are built and operated by the media company. Open internet media companies, by contrast, give buyers choice to participate in auctions using third party bidding systems.
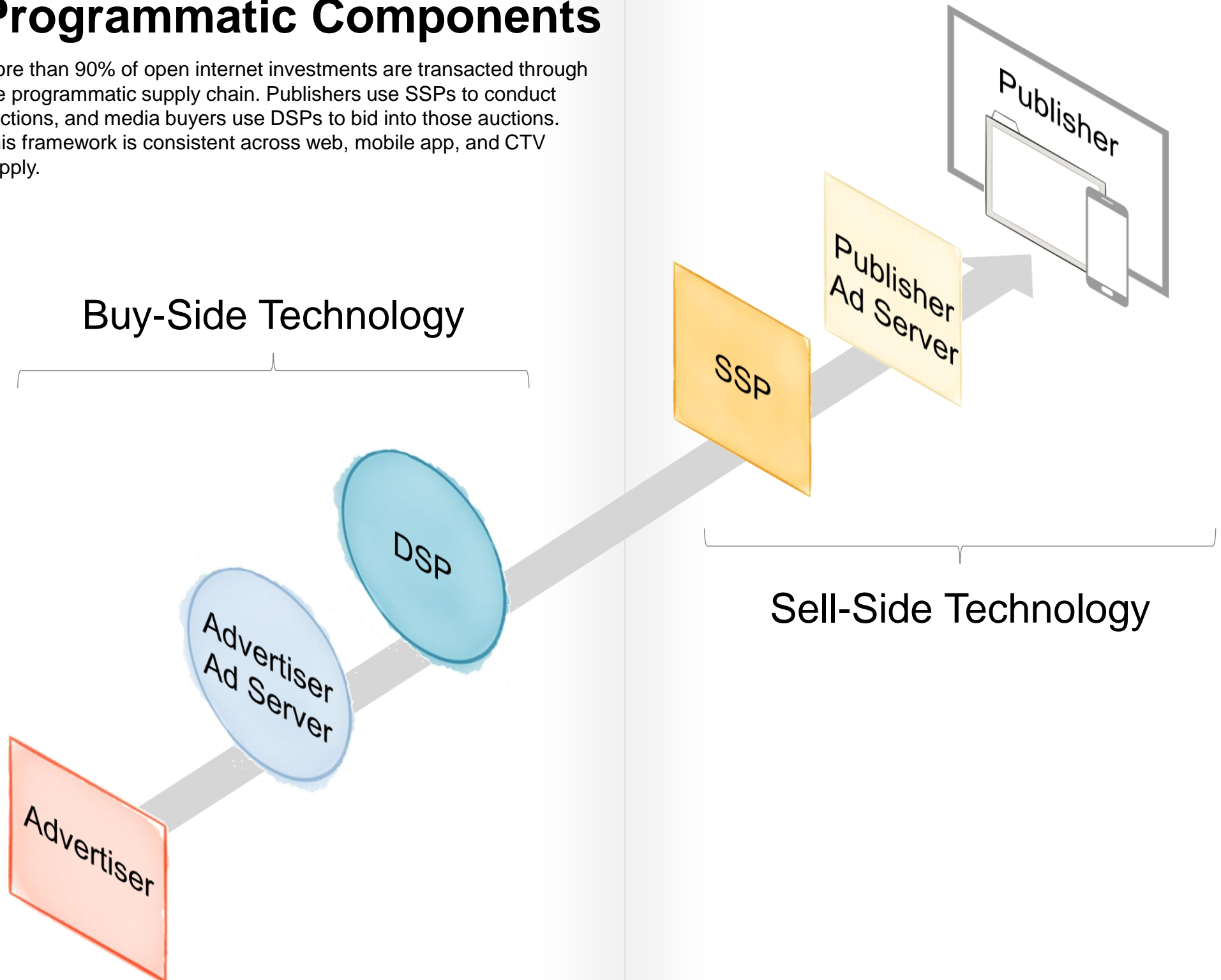
Advertisers deploy $70-75B per year to the open internet through DSPs and ad networks. These bidding platforms are operated by Google (light green region below), Amazon (light orange), other walled gardens (light blue and light gray), and independent ad tech companies (yellow).

The Open Internet

Google Demand

■ YouTube

■ Google Ads and DV360

Independent Ad Tech Demand

■ Independent DSPs and Ad Networks

Other Demand

■ Sub $10-B Walled Gardens

Meta Demand

■ Facebook, Instagram, and WhatsApp

■ Meta Audience Network

Amazon Demand

■ Amazon.com, FireTV, and Twitch

■ Amazon DSP

($1B) The size of the bubble represents estimated 2024 gross ad spend

Programmatic Components

More than 90% of open internet investments are transacted through the programmatic supply chain. Publishers use SSPs to conduct auctions, and media buyers use DSPs to bid into those auctions. This framework is consistent across web, mobile app, and CTV supply.

Buy-Side Technology

Sell-Side Technology

Publisher

Publisher Ad Server

SSP

DSP

Advertiser Ad Server

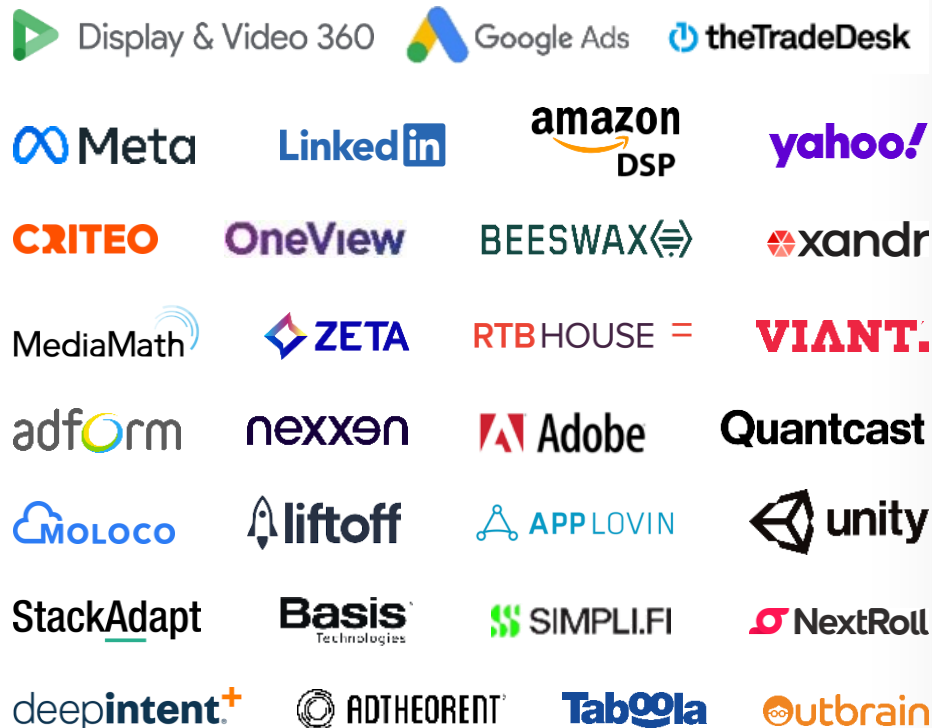Advertiser

Supply Chain Constituents

Both the DSP and SSP categories are crowded with dozens of competitors. Most marketers work with a small number of DSPs, and a small number of category leaders have emerged.
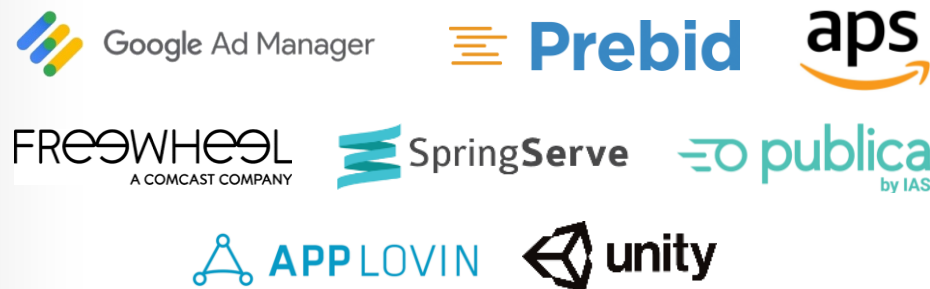
Unlike media buyers, most publishers partner with more than 10 different SSPs to sell their inventory. This industry dynamic has slowed the consolidation of the SSP category.

Buy-Side Technology

Advertiser Ad Servers

Campaign Manager · INNOVID · flashtalking

DSPs

Display & Video 360 · Google Ads · theTradeDesk
Meta · LinkedIn · amazon DSP · yahoo!
CRITEO · OneView · BEESWAX · xandr
MediaMath · ZETA · RTB HOUSE · VIANT.
adform · nexxen · Adobe · Quantcast
MOLOCO · liftoff · APPLOVIN · unity
StackAdapt · Basis Technologies · SIMPLI.FI · NextRoll
deepintent+ · ADTHEORENT · Taboola · Outbrain

Sell-Side Technology

Publisher Ad Servers & Demand Mediation

Google Ad Manager · Prebid · aps
FREEWHEEL A COMCAST COMPANY · SpringServe · publica by IAS
APPLOVIN · unity

SSPs

Google Ad Manager · Magnite · PubMatic · Index Exchange · aps
xandr · CRITEO · media.net · OpenX · sovrn · triplelift
FREEWHEEL A COMCAST COMPANY · nexxen · BEACHFRONT · SEEDTAG · CADENT
sharethrough · EQUATIV · Epsilon · sonobi · 33across · media.net
TRUSTX · PulsePoint · adform · RISE · gumgum · yieldmo
LiveIntent · Taboola · Outbrain · KARGO · NATIVO
[primis] · EX·CO · Connatix · vidazoo A Perion Company · Teads
APPLOVIN · unity · INMOBI · VERVE GROUP · mobilefuse

RTB Auctions

RTB (real time bidding) is a 6-step process by which DSPs and SSPs operate programmatic auctions.

DSP	bid request ②	**SSP**	ad request ①
	bid response ③		net bid ④
	win notification ⑥		ad call ⑤

Upstream intermediaries, wrappers, and ad servers

① Ad Request

The publisher's ad serving system initiates an auction through an SSP.

② Bid Request

The SSP sends to the DSP a package of information that describes the ad opportunity. This includes information about the site or app where the impression will deliver, information about supported creative formats, and information about the consumer.

③ Bid Response

The DSP selects a campaign that is willing to participate in the auction, calculates the expected value of the impression for this campaign, and sends a bid price to the SSP.

④ Net Bid

After collecting bids from many DSPs, the SSP selects a winning bid. The SSP then deducts its fee from the winning DSP's bid price and sends a net bid to the publisher.

⑤ Ad Call

The publisher evaluates the SSP's net bid against bids from other SSPs, ad networks, and direct-sold campaigns. If the publisher chooses to fill the impression through the SSP, it issues an ad call and begins the ad serving process.

⑥ Win Notification

If the SSP receives an ad call from the publisher, it also issues a win notification to the DSP. The win notification is the billable event that DSPs use to manage campaign pacing and frequency caps.

Supply Chain Fees

There are multiple entities that collect a fee for each programmatically-traded impression. At a minimum, the DSP and SSP each take a percentage of the marketer's gross ad spend, typically resulting in a 70% net payout to the publisher.
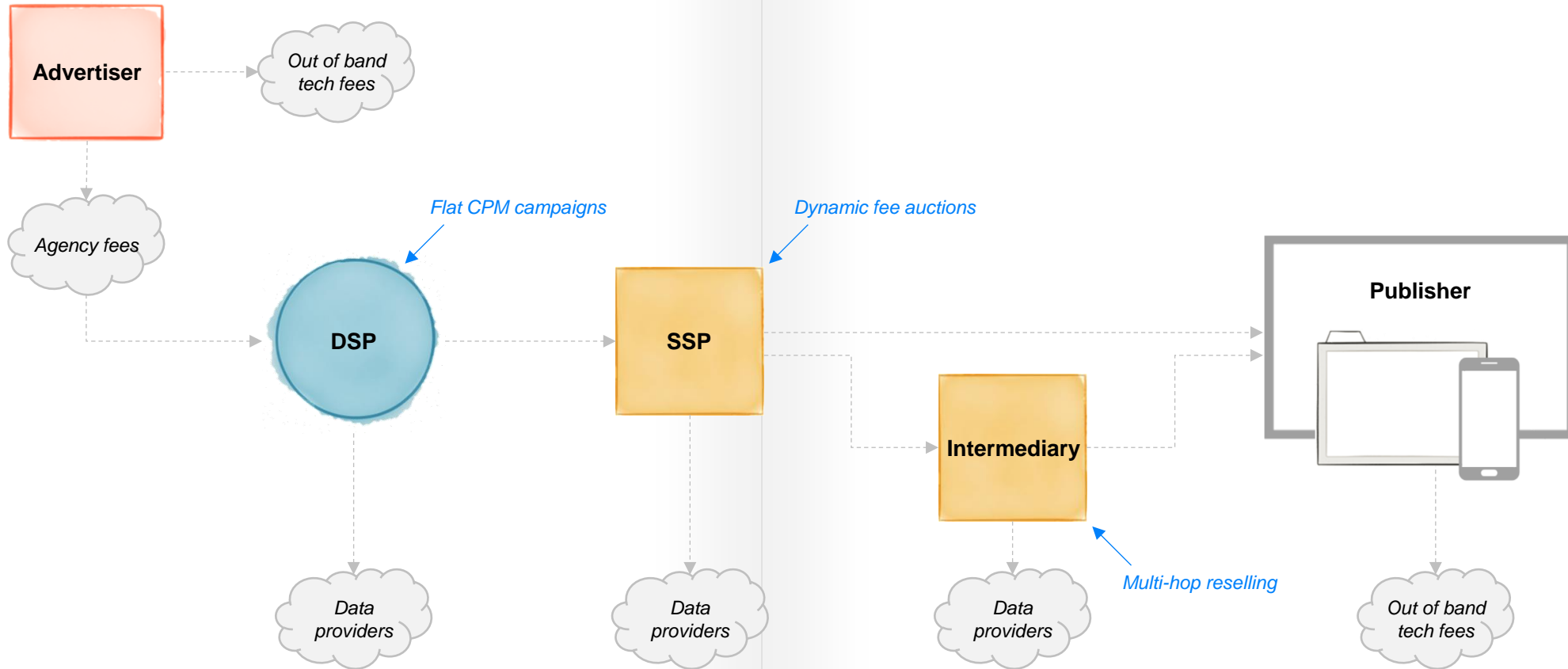
There are also impressions for which the publisher's net payout is far lower than 70%. The three primary drivers of excess supply chain fees are flat CPM campaigns, dynamic fee auctions, and multi-hop reselling.

Advertiser

Out of band tech fees

Agency fees

Flat CPM campaigns

DSP

Dynamic fee auctions

SSP

Publisher

Intermediary

Multi-hop reselling

Data providers

Data providers

Data providers

Out of band tech fees

|	
Flat CPM Campaigns	DSP campaigns that charge a fixed price for each impression, regardless of the actual auction clearing price.
Dynamic Fee Auctions	SSPs that modify their take rate from one impression to the next, typically expanding their fee for high DSP bids.
Multi-Hop Reselling	Long supply chains in which the SSP pays another supply chain intermediary rather than the publisher.

Auction Duplication

Header bidding and other similar technologies enable publishers to operate multiple RTB auctions for each available impression. In the diagram below, publisher 1 initiates duplicate auctions for each available impression, making it appear to have twice as many available impressions as publisher 2.

Auction duplication is a proven technique for increasing demand density and improving publisher yield. Across web, mobile app, and CTV, the average open internet impression is now monetized through dozens of duplicate auctions.
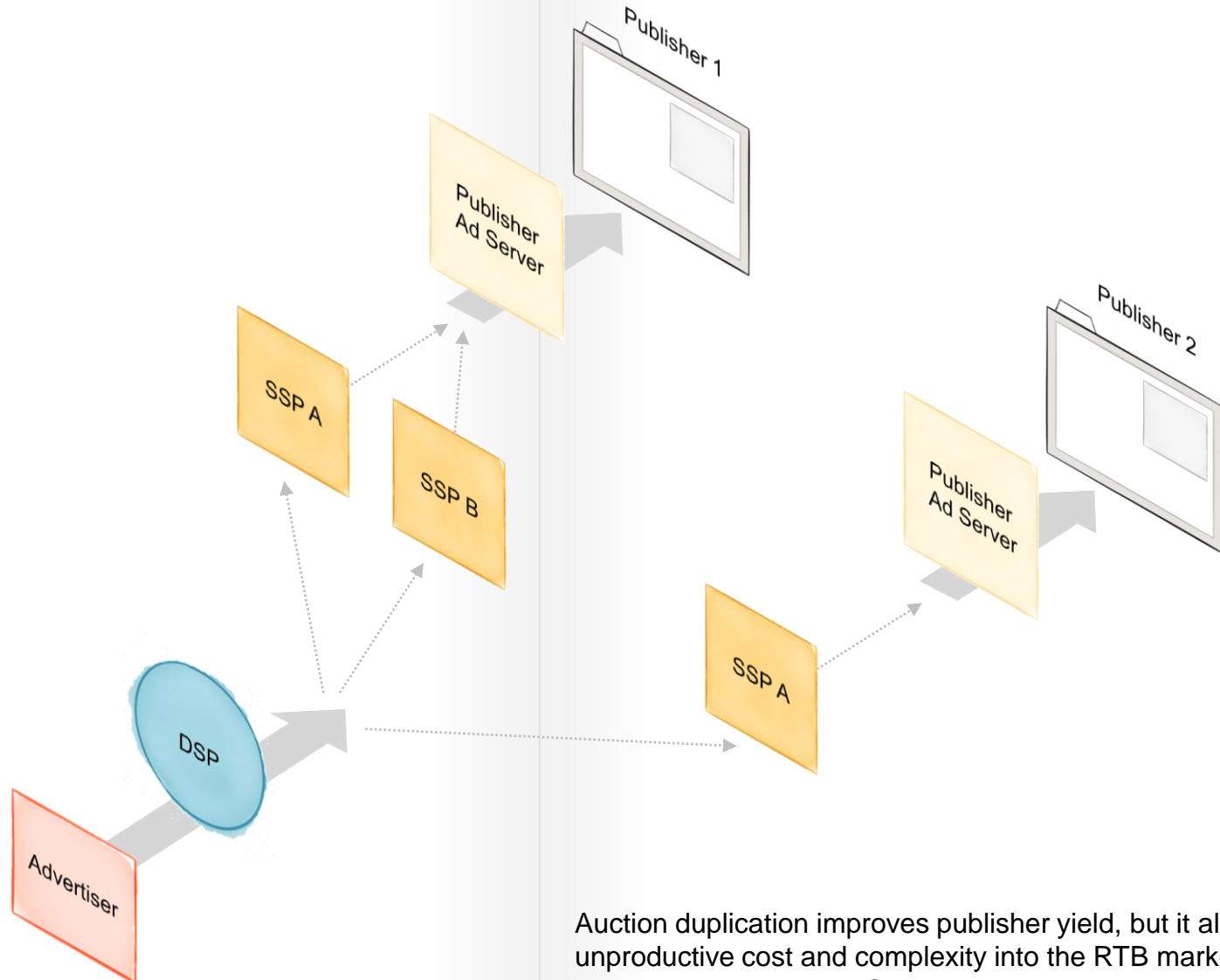

Auction duplication improves publisher yield, but it also injects unproductive cost and complexity into the RTB market. This burden is primarily carried by DSPs.

Multi-Integrations

To maximize the yield benefits of auction duplication, publishers often use multiple wrappers that each initiate multiple auctions. Publishers who use multiple wrappers often integrate the same SSP multiple times – once per wrapper.

The three most common wrappers are Prebid, Amazon Publisher Services, and Google Open Bidding. Most websites and many apps use all three of these services.
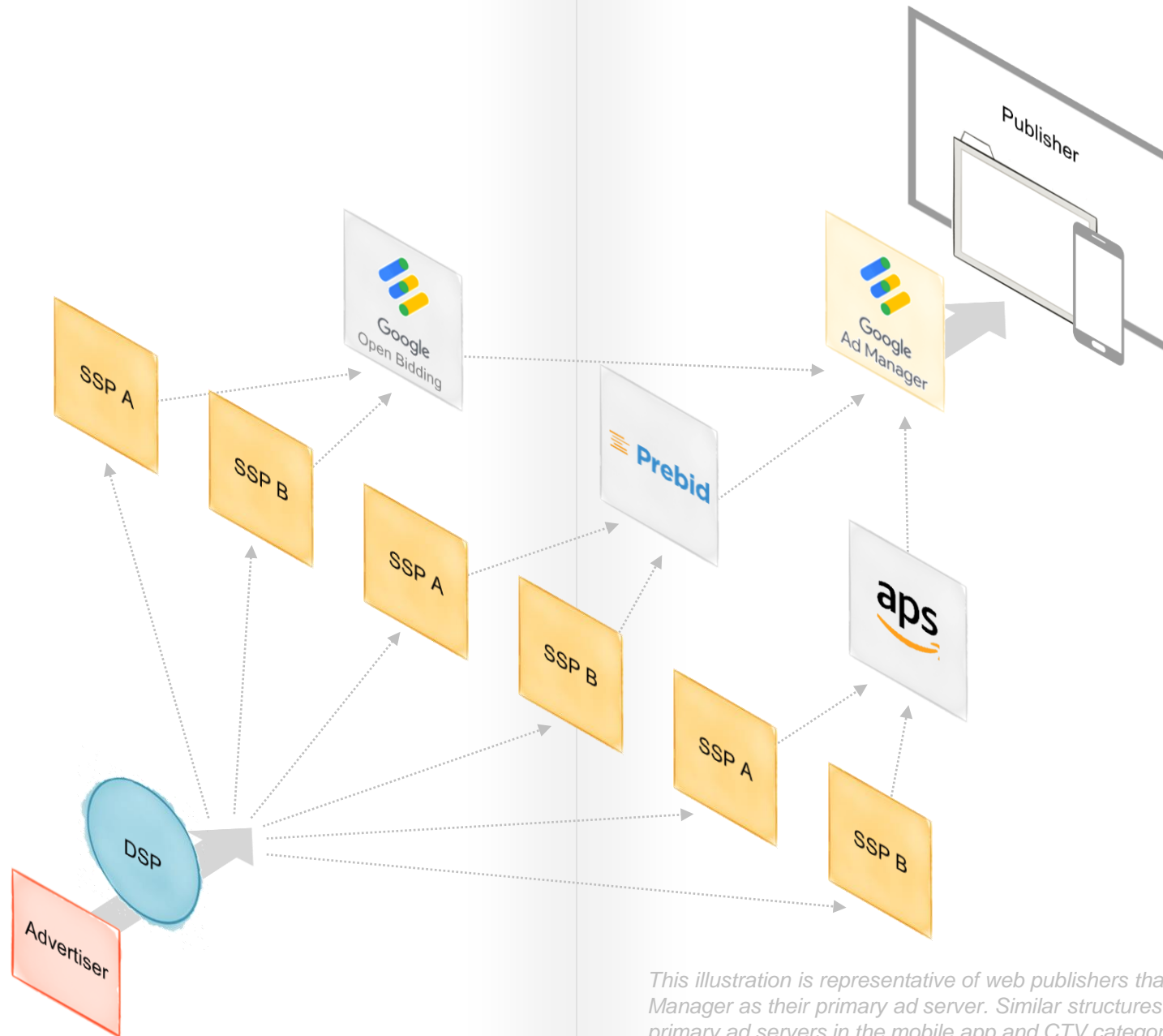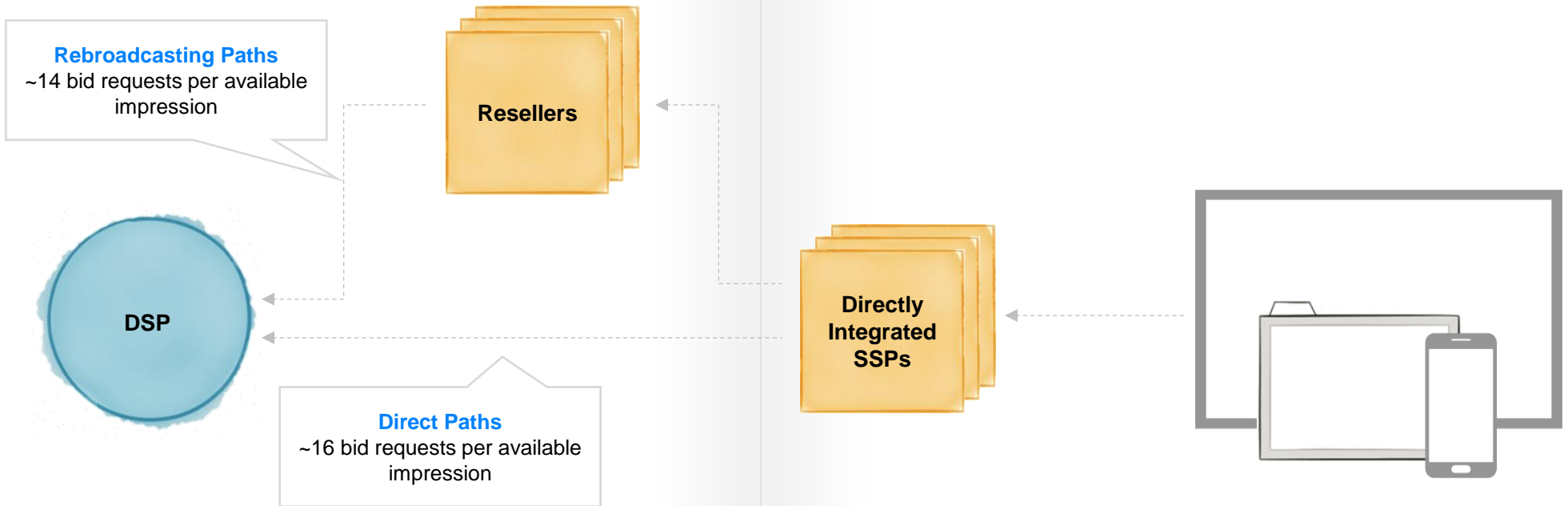

This illustration is representative of web publishers that use Google Ad Manager as their primary ad server. Similar structures exist for other primary ad servers in the mobile app and CTV categories.

Rebroadcasting

Publishers can further inflate the volume of bid requests they issue to DSPs through rebroadcasting. In a rebroadcasting supply chain, one of the publisher's directly integrated SSPs initiates auctions through other SSPs ("resellers" below). Those resellers then issue bid requests to DSPs, turning a single SSP auction into many DSP bid requests.

Across web, mobile app, and CTV, the average impression is made available 30 times to DSPs – 16 times through direct supply chains and an additional 14 times through rebroadcasting supply chains.

Resellers

Rebroadcasting Paths
~14 bid requests per available impression

DSP

Direct Paths
~16 bid requests per available impression

Directly Integrated SSPs

Rebroadcasting auctions reduce the net payout to publishers but create even more auction duplication that captures DSP bids. Most publishers find the net effect is yield upside and make the rational decision to sell through both direct and rebroadcasting supply chains.

Traffic Shaping

There is no DSP that has the capacity to listen to 30x auction duplication for each available impression. To manage this capacity constraint, most DSPs impose an upper limit on the frequency of bid requests that they accept from each of their SSP partners.

The result is a highly filtered bidstream in which each publisher is competing with its peers to be selected by the SSP and made available to potential DSP buyers.

DSP

SSP

Publisher A
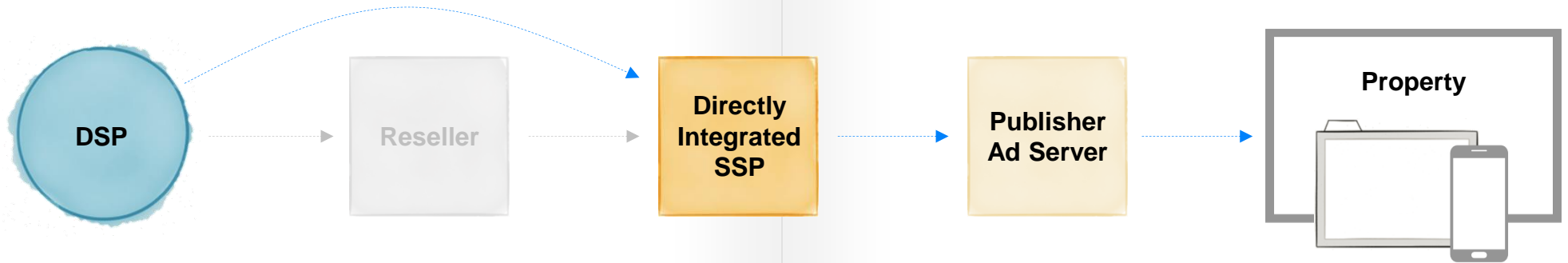
Publisher B

Publisher C
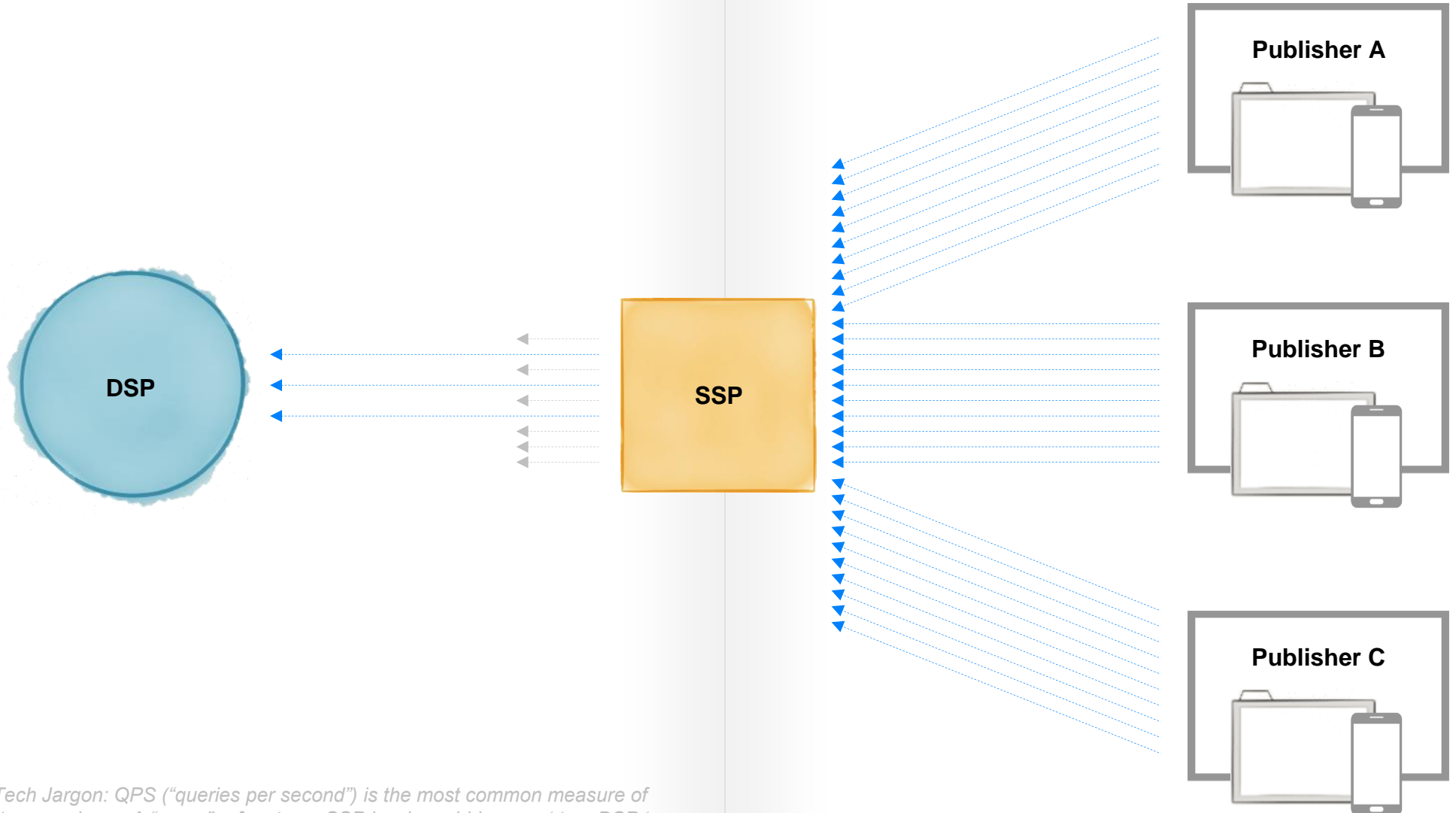
Ad Tech Jargon: QPS ("queries per second") is the most common measure of bidstream volume. A "query" refers to an SSP issuing a bid request to a DSP to check for potential bids. Each DSP/SSP integration typically operates between 100,000 - 1,000,000 QPS.
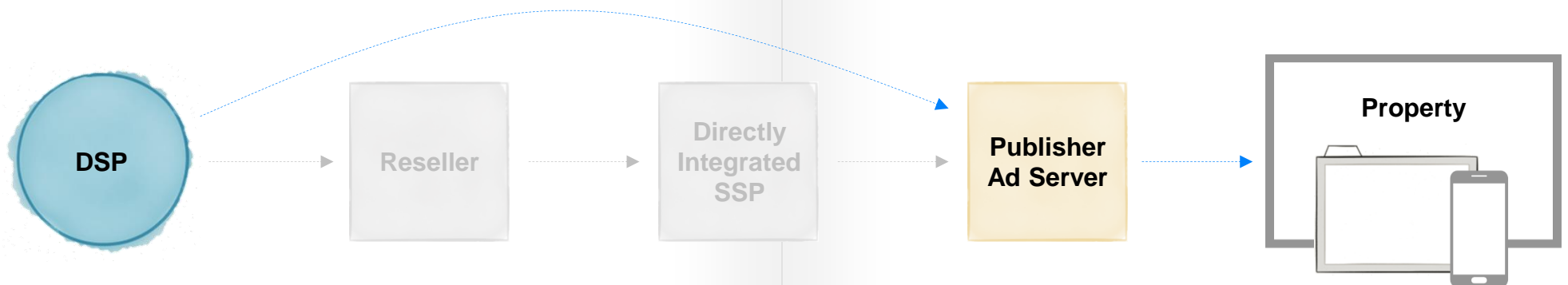
Hop Compression

Instead of relying on SSPs to shape the bidstream, many DSPs are actively managing which bid requests they do and do not accept from each SSP. Most commonly, DSPs are looking for opportunities to remove duplicative rebroadcasting auctions.

Reducing supply chain hops increases the financial efficiency of programmatic transactions and allows DSPs to more efficiently utilize limited QPS capacity.

Many DSPs are identifying the largest sources of rebroadcasting supply and building direct integrations with those SSPs:

DSP → Reseller → Directly Integrated SSP → Publisher Ad Server → Property

Additionally, the largest DSPs are building publisher-direct integrations that bypass the SSP layer entirely:

DSP → Reseller → Directly Integrated SSP → Publisher Ad Server → Property

Value-Added Reselling

Not all reselling is bad reselling, and there are emerging industry standards that enable DSPs to identify value-add intermediaries that provide unique inventory access.

Sales houses, proprietary placements operators, and content owners are all exclusive controllers of supply, and DSPs should put these companies on equal footing with publishers.
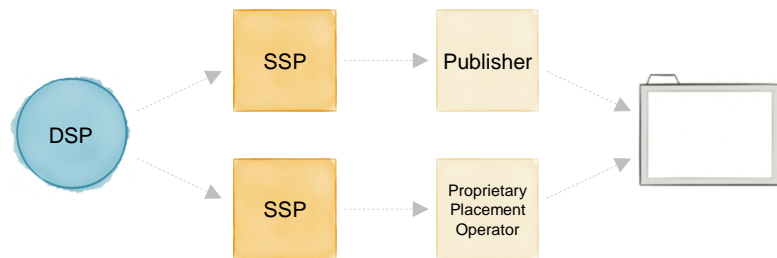
Outsourced Yield Management

Publishers, particularly operators of sub-scale websites, commonly outsource programmatic monetization to an exclusive sales house. These outsourced yield management partnerships introduce an additional, but necessary, supply chain hop for every available impression.
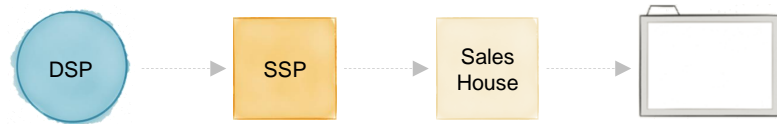
Outsourced yield management is most common on the web

Content Syndication

Media companies commonly distribute their content through third party websites and apps. Content syndication is particularly common for multi-channel CTV services. In these scenarios, marketers buy a single app from many content owners.

Content syndication is most common in the CTV category
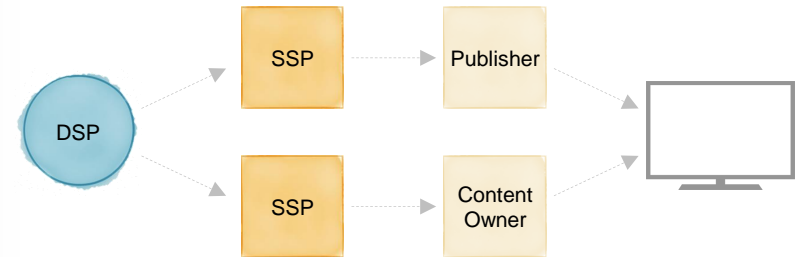
Proprietary Placements

Many scaled websites, and some mobile apps and CTV apps, assign exclusive control of select ad units to a third party monetization partner. Accessing those ad units requires marketers to bid through indirect supply chains.

Proprietary placements are most common on the web

Rebroadcasting

Outsourced yield management, proprietary placements, and content syndication are all similar in that the company paid by the SSP controls the final ad serving decision. Rebroadcasting auctions are scenarios in which one SSP resells another SSP's auction, creating excess auction duplication and excess supply chain fees.
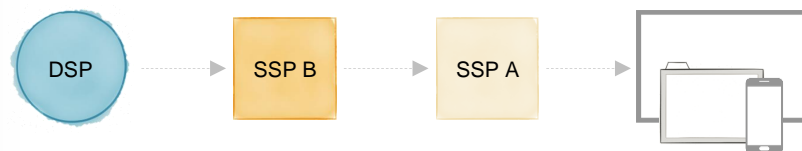
Rebroadcasting is common across web, mobile app, and CTV

For a reselling deep dive, download our free whitepaper
The Marketer's Guide To Programmatic Reselling

Supply Chain Transparency

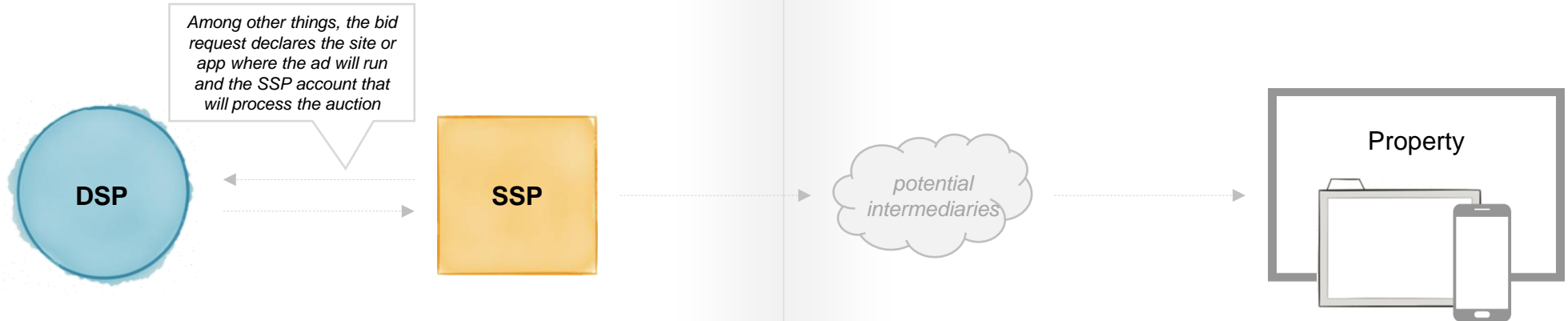Making active choices about which supply chains to enable and disable requires detailed information about the chain of payment for each RTB auction.

The IAB Tech Lab oversees a suite of supply chain transparency standards that are now widely adopted by all publishers and sell-side ad tech platforms.

Among other things, the bid request declares the site or app where the ad will run and the SSP account that will process the auction

DSP

SSP

potential intermediaries

Property

When a DSP receives a bid request from an SSP, it can use three transparency standards to map the supply chain:

ads.txt and app-ads.txt

A mechanism for validating whether the publisher authorized this auction. If SSP A account 123 issues a bid request for website.com, the DSP can check whether website.com/ads.txt lists this account as an authorized seller.

```
website.com/ads.txt
```
```
sspa.com, 123, DIRECT
```

sellers.json

A mechanism for identifying the company that will receive payment from the SSP. For example, a DSP can visit sspa.com/sellers.json to gather information about the company that operates account 123.

```
sspa.com/sellers.json
```
```
"seller_id": "123",
"name": "Media Company XYZ",
"domain": "xyz.com",
"seller_type": "PUBLISHER"
```

schain

If sellers.json indicates the SSP is paying a company that is not the publisher, the DSP can then evalue the schain object in the bid request to trace the full chain of payments through one or more intermediaries.

```
"schain": {
  "ver":"1.0",
  "complete": 1,
  "nodes": [
    {
      "asi":"sspa.com",
      "sid":"123"
      "rid":"BidRequest1",
      "hp":1
    },
    {
      "asi":"sspb.com",
      "sid":"456",
      "rid":"BidRequest2",
      "hp":1
    } ] }
```

Payment to the publisher

Payment between SSPs

SPO Segments

There are over 1.5 million websites, mobile apps, and CTV apps sold through RTB auctions. And because each of these properties is monetized through duplicate direct and indirect auctions, there are hundreds of millions of active RTB supply chains.
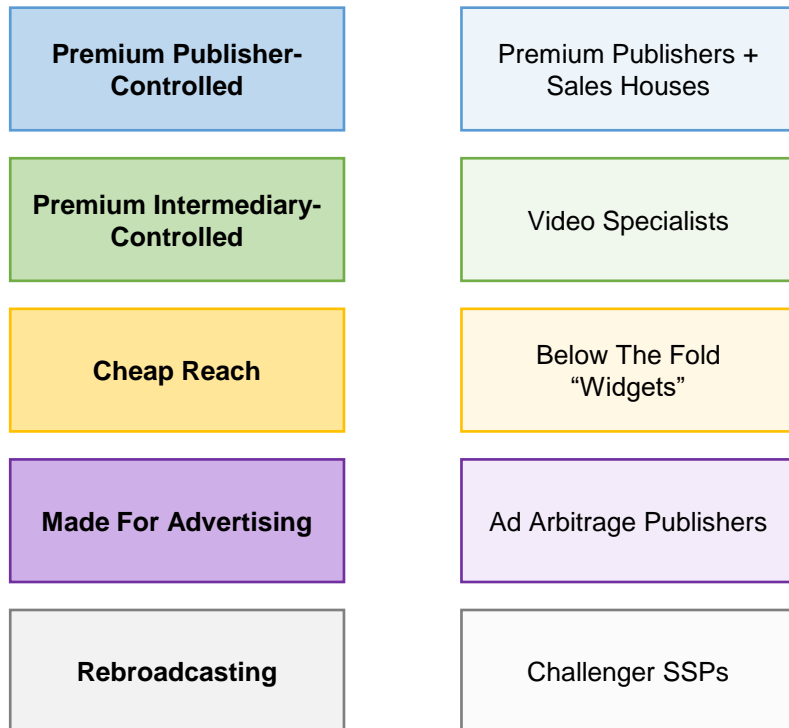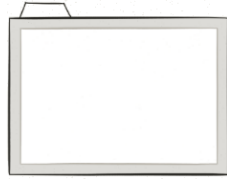
We classify each of these supply chains into one of five SPO Segments, and we recommend media buyers exclusively participate in Premium Publisher-Controlled auctions and Premium Intermediary-Controlled auctions.

Premium Publisher-Controlled	Premium Publishers + Sales Houses	Game Developers + Streaming Audio	Streaming Service App Developers
Premium Intermediary-Controlled	Video Specialists		Content Owners + OEMs
Cheap Reach	Below The Fold "Widgets"	Below The Fold "Widgets"	
Made For Advertising	Ad Arbitrage Publishers		
Rebroadcasting	Challenger SSPs	Mobile Ad Networks	Rights Holder Ad Networks

For a comprehensive description of our SPO Segments framework, download our free whitepaper
The Marketer's Guide To Supply Path Optimization

Jounce Client Resources

Jounce Media subscribers have access to a more complete version of this education program that is organized around 8 learning modules:

Supply Chain Constituents
Which companies process programmatic transactions, and what role does each perform?

Supply Chain Fees
How are advertising investments allocated among supply chain participants?

Auction Dynamics
How do buyers and sellers determine auction clearing prices, and what techniques do buyers and sellers use to optimize pricing?

Publisher Yield Management
How has publisher yield management evolved, and what is the current state of the art?

Programmatic Reselling
Why does reselling exist, and when is a resold impression a wise investment?

Cross-Channel Considerations
What are the key similarities and differences among web, mobile app, and CTV supply?

Supply Chain Transparency
How are buyers and sellers using industry transparency standards to improve supply chain efficiency?

SPO Segments
What factors do buyers consider when implementing SPO strategies, and how does that affect DSP spend allocation?

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