

# BID SWITCH

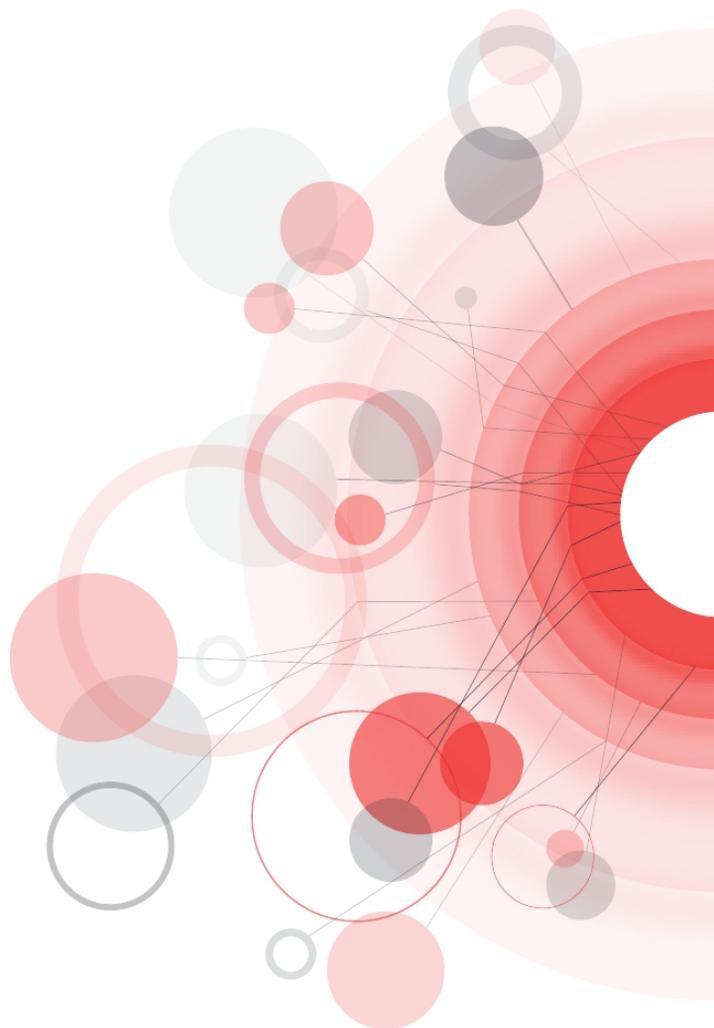
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## Anomaly Detection: A Unique Anti-Fraud Approach

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# BidSwitch Anomaly Detection

## A Unique Anti-Fraud Approach

Anomaly (definition): Something that deviates from what is standard, normal, or expected.

Ad Fraud can mean many things to different people, but generally refers to the instances where advertisers pay for ads that can never generate any impact. There are a wide variety of ways this can occur, ranging from how viewable an ad unit is, where it is really being served, to whether an ad is viewed by an actual person.

Non-human traffic registering impressions is likely to be the cause that is most widespread and problematic because it can be difficult to detect, particularly from one SSP to another. This type of ad fraud can arise

through many methods, but the most common include bots, ad stacking, spoofed sites and domains.

### Common Ad Fraud Methods

#### Bots

Non-human programs that mimic human behavior, sometimes via cookie data replication, designed to generate fake impressions or serve unseen ads in the background of a real users computer. This method is more difficult to detect and generally more problematic because bots can be retargeted or even whitelisted as a real audience.

#### Ad Stacking

While a user only sees one ad, the publisher may be serving multiple ads, or 1x1 pixel ads simultaneously within a single ad unit. These types of ads register as an impression but are never actually seen.

#### Spoof Sites

Sites built mainly for the purpose of serving ads. Often time spoofed sites are part of a large network of sites to avoid triggering suspicion around individual sites collecting inordinate amounts of revenue. Spoof sites are becoming increasingly sophisticated and often include 1-2 layers of real content that could be considered worthy of real traffic.

#### Spoof Domains

Domains created to replicate premium, well-known sites. Advertisers can be duped into thinking they are buying high quality inventory from a recognized site when they are not. This can also impact the publishers who will appear to have more inventory than they do, decreasing their prices.

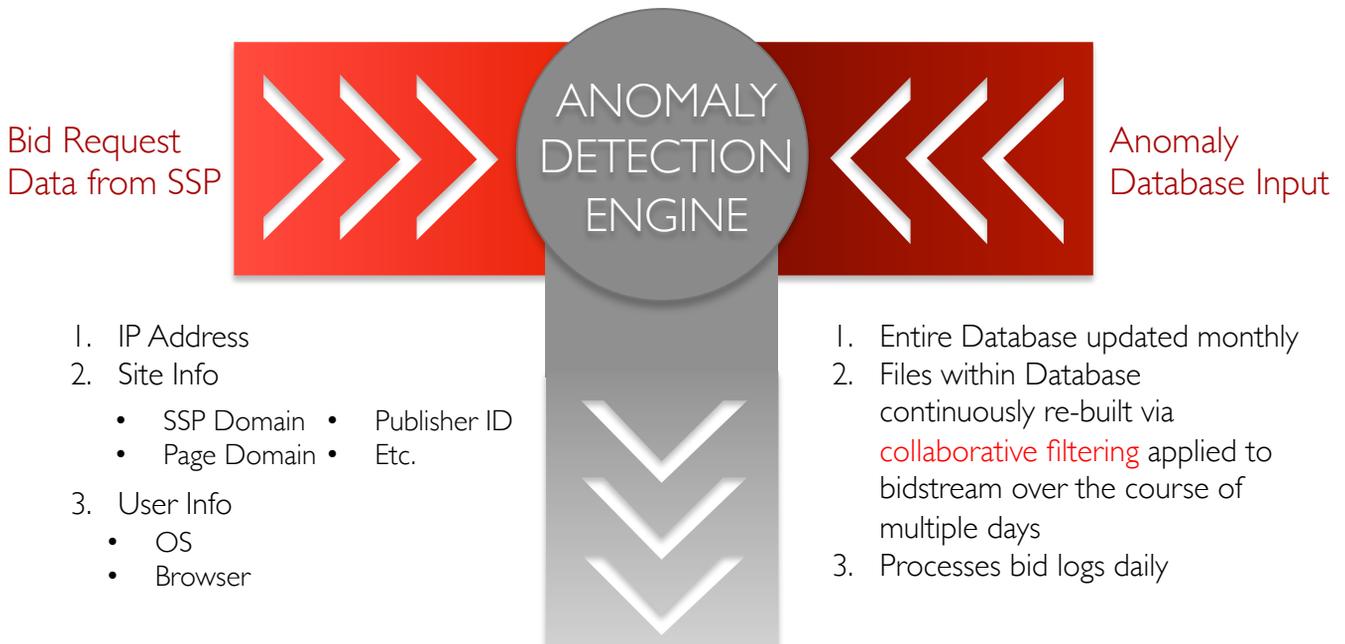
# How It Works

Based on an expansive amount of bid request data and bidstream activity (200B Bid requests/day) that BidSwitch listens to across 100+ Supply Partners, the BidSwitch Anomaly Detection Engine is continuously building a database that distinguishes between convertible (OK) and non-convertible (NOT OK) bids.

Every bid request is filtered through the same Anomaly Detection Engine, which is simultaneously synced against the pre-existing database. All bids are confirmed as OK prior to the bid request ever being sent to a Demand Partner.

This occurs in real-time and enables pre-bid fraud detection so Demand Partners are not wasting money on listening costs or on ads that can never generate any impact.

## DETECTION ENGINE INPUT



If bid request is considered non-convertible, it is not sent to Demand Partners and a “no-bid” response is sent to the Supply Partner with no specified Reason.

### NOT OK (NON-CONVERTIBLE) ATTRIBUTES (a few examples)

1. A few users visit only a few particular sites and create significant traffic
2. These users do not visit other more common sites
3. Other users with more common behaviors do not visit these particular sites

### COLLABORATIVE FILTERING PROCESS

1. Assess how OK or NOT OK each IP, Site, User is likely to be based on multitude of attribution sets
2. Based on this information, calculate how OK or NOT OK a bid request is
3. Minimize bad users on good sites and good users on bad sites using iterative expectation-maximization algorithm

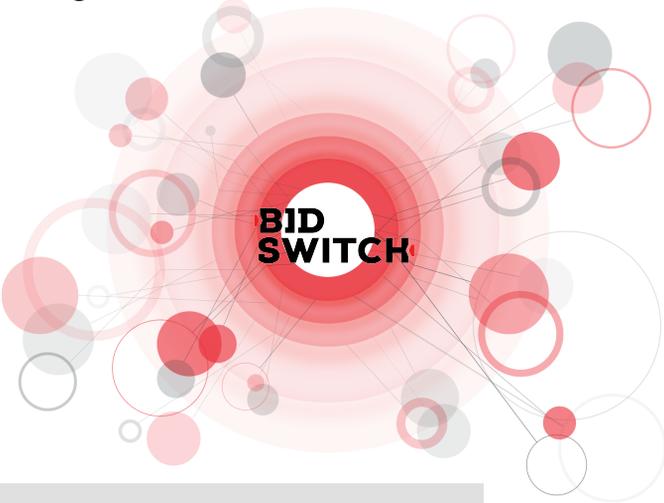
# The BidSwitch Difference

As a neutral party between supply and demand, we aim to create an open, efficient and fully transparent real-time ecosystem—with as little fraud as possible. We choose not to profit from practices that do not provide genuine results for our partners.

## SCALE

### BIRDS EYE VIEW

We process 20TB of data and listen to 100B Bid requests per day across 90+ Supply Partners enabling a uniquely expansive, real-time view across all global traffic.



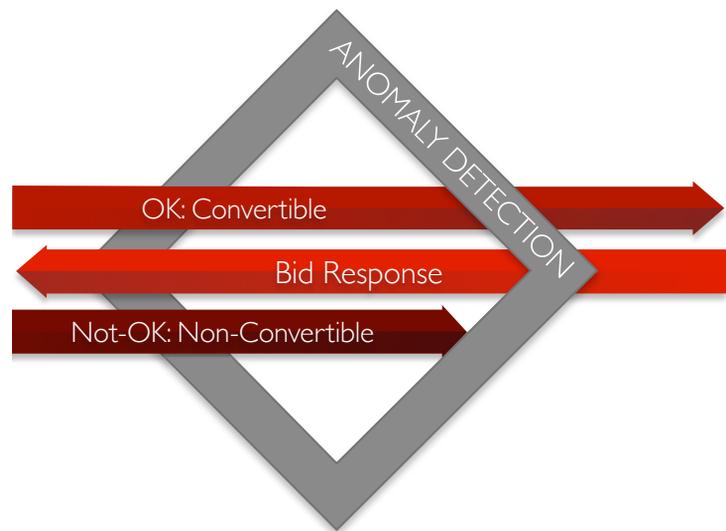
### MASSIVE DATABASE

The size, scope and historic nature of our data across multiple Supply and Demand players is nearly impossible to rival and allows us to detect irregularities other fraud vendors cannot.

## NEUTRALITY

### BIDSWITCH: THE BOUNCER

We are the bouncer at the club, not the cop. We do not take a stance on policing what we consider “low performing” bids. We simply block the people and players that do not appear trustworthy or credible to provide a truly effective real-time environment for our partners. They don't have to go home, but they can't stay here.



To learn more about BidSwitch Fraud Detection and how it works, reach out to your Account Manager. We are happy to share more about what goes on inside, but we can't just give it away.