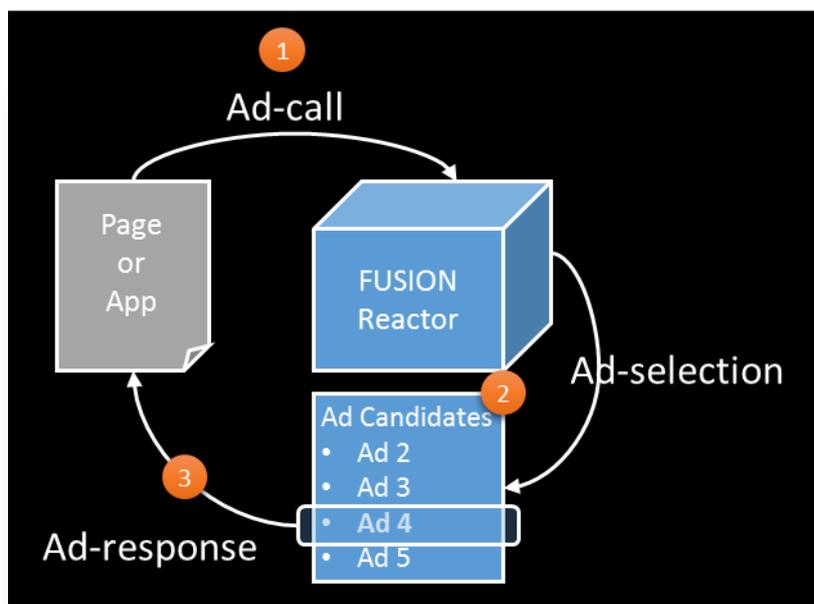


# Signia Fusion – SSB (Server-Side-Bidding)

The Signia SSB is an extension module to the Signia Fusion Ad-Business Management system which conducts Real-Time Yield-Optimisation by comparing internally sold ad-candidate prices via those of bids received from external buyers.

## The Basic Internal Ad-Selection Process

The current Ad-Selection process within a Publisher Ad-Server looks something like the below Diagram 1:



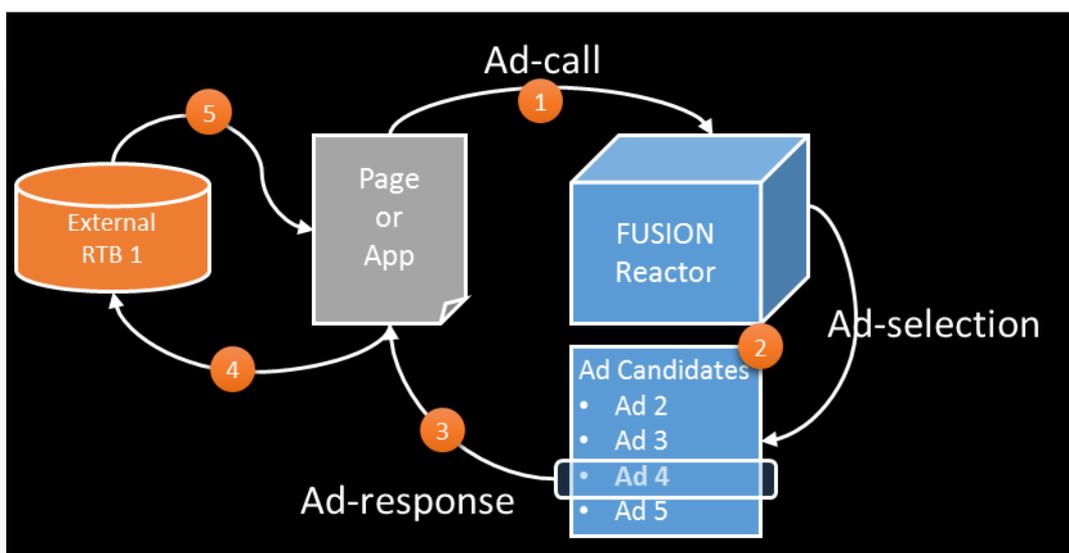
1. The Web Site Page or App makes a call to the Ad-Server and requests an ad. In this call the Page send along certain meta-data such as Site and Page names, optional Key Values related to the content or known values of the users plus some user ad- and page-view history.
2. The Ad-server selects one Ad per Ad-space on the page from a list of Ads sold by the Publishers sales team or Ads entered into the System by the Publishers Ad-management Staff (Ad Candidates). During the selection process all Ad Candidates are ranked

according to an assigned Priority number and Ad Candidates are evaluated in descending order against disqualifying targeting and other conditions such as Media Zone (Site / Page), Frequency Capping Rules, Geo-Location, Key-Value (age, gender, content category, etc.) matching. If a Candidate is disqualified for any reason it is set aside for now and the next Ad Candidate in the list is evaluated. If this candidate Passes the qualification test it is tested for against a Delivery Weighting mechanism which controls the speed of which the Ad is allowed to be delivered over time. This process continues until an Ad Candidate passes the Qualification process and the Delivery Weight assessment and is then selected for delivery or there are no more Ad Candidates in which case no Ad is selected.

- Once an Ad is Selected the its accompanying Payload (the code that renders and controls the ad in the Browser or App) is send back to the users Browser or App.

## The Basic Internal Ad-Selection Process with a DSP Extension

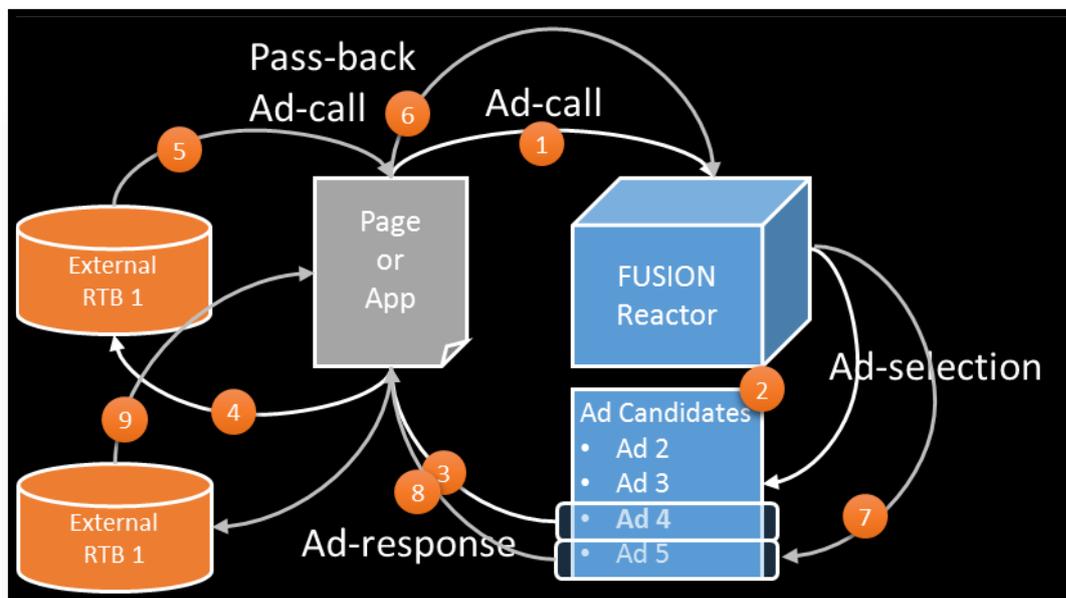
In some cases the Selected Ad is not technically an Ad but a booking communicating to a 3<sup>rd</sup> party application which is given the responsibility of delivering an Ad. This could for example be code that makes a secondary call to a DSP which then proceeds in running through its selection process to deliver a suitable Ad.



4. The Payload delivered back to the Users Browser or App contains a set of instructions for requesting an Ad from an external source, in this example form an External RTB Provider (1).
5. The External RTB Provider (1) makes a selection and delivers Payload Code to the Users Browser or App to display and control the Ad.

## The Basic Internal Ad-Selection Process with a DSP Extension and Pass-back

In some cases the initial External 3<sup>rd</sup> Party does not have a qualifying Ad to select and display so instead of delivering an Ad it delivers code which instructs the Users Browser or App to make another Ad Call to the Publisher Ad-server (Signia Fusion) which then runs through another complete Ad-Selection process.



6. If the Initial External 3<sup>rd</sup> Party (1) does not have a qualifying Ad to deliver it delivers a Payload back to the Users Browser or App contains a set of instructions for requesting a new Ad-Call to be made from the Primary Ad-server (Fusion).
7. A new Internal Selection round is conducted but excludes the External RTB Provider (1) from the Ad Candidate list and selects another Ad, which may be another External 3<sup>rd</sup> Party (2).

8. Payload is delivered to the Users Browser or App with instructions to call for an Ad from the External RTB Provider (2),
9. The External RTB Provider (2) selects an Ad and delivers the Payload to the Users Browser or App.

Is possible that the RTB Provider (2) does not have a qualifying Ad than initiates another Pass-Back round which in turn engages a third, possibly a fourth, fifth 3<sup>rd</sup> Party and so on. As the engagement of a 3<sup>rd</sup> Party Provider is done on the Client Side (the Users Browser or App) all of these redirects are done by communicating JavaScript code via HTTP requests in series, first from Fusion to the Client, then from the Client to the 3<sup>rd</sup> Party and back to the Client. In the case of a Pass-back, then another request back from the Client to Fusion.

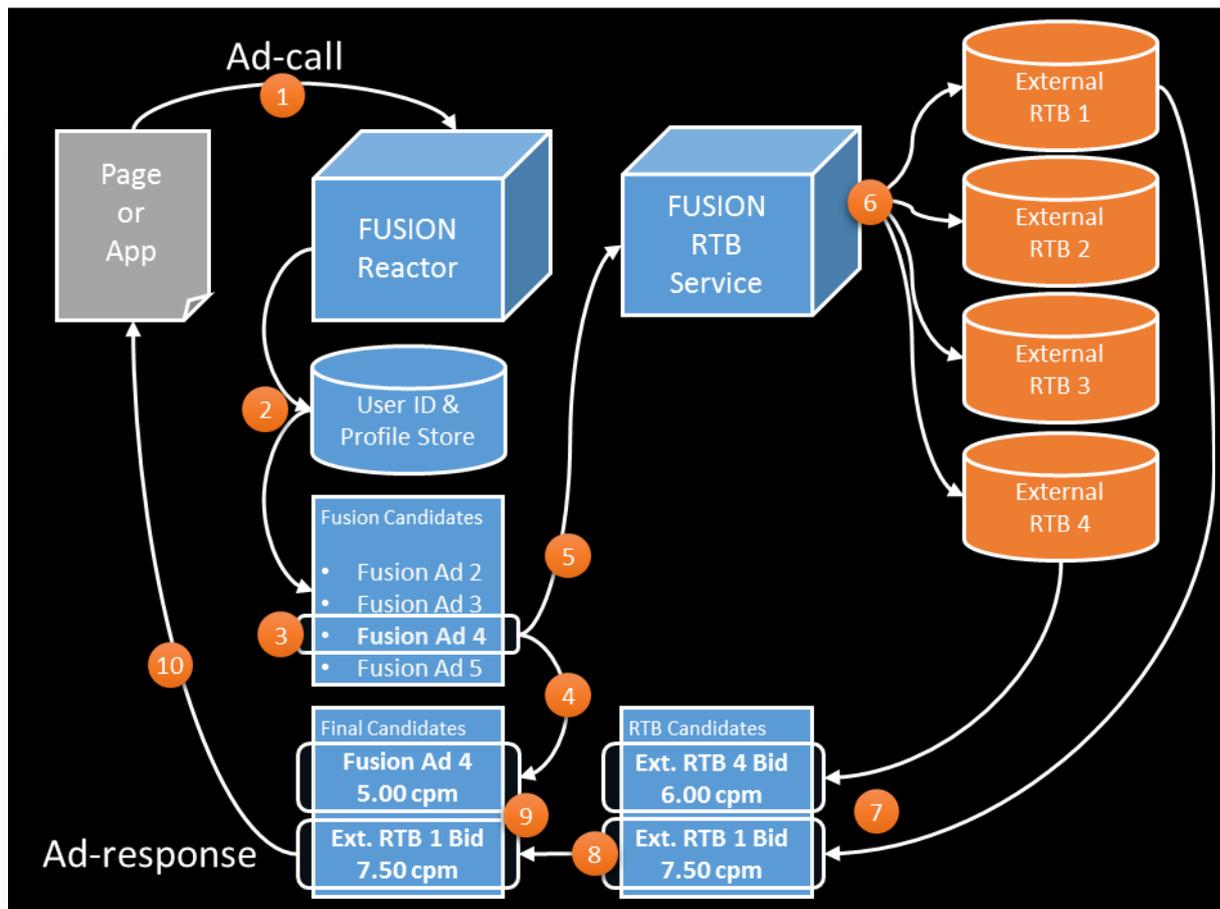
Considering that each of these requests take roughly 50 milliseconds the total cycle takes 200ms for one complete Pass-back round over and above the original ad-call time. When stringing together a series of several pass-back cycles the total time can easily add up to seconds in added latency.

Further, there is no guarantee that the best yield is achieved as the ordered serial string (or Cascading Waterfall as it is sometimes referred to) of 3<sup>rd</sup> Parties is pre-determined (or randomly created in run-time) meaning that the 1<sup>st</sup> Qualifying Ad is being selected, which is not necessarily the Highest Yielding Qualifying Ad

## The Fusion SSB Direct Process

The key difference between the current process and praxis of engaging 3<sup>rd</sup> Party Ad Sales Partners is that all of the Ad Requests negotiations are conducted a) server-side before any Payload is passed back to the Client and b) in simultaneously in parallel.

The Fusion SSB Direct offering is also adding an extended capability for the Publisher to collect, manage and pass on additional User meta data with the Ad Bid Request in order to entice better bids from its 3<sup>rd</sup> Party Partners.



1. An Ad-call is made from the Client as per current praxis
2. Fusion looks up the User in a User ID and Profile database and adds additional known profile information to the Ad-request
3. Fusion makes a preliminary Ad Selection as per current praxis.
4. Fusion add this selected Ad to a new Candidates list.
5. If the Internally Selected Ad allows for external competition Fusion passes on a Bid Request to the Fusion RTB Service.
6. The Fusion RTB Service then creates a series of RTB Bid Requests including the additional User Profile values obtained from the User ID and Profile DB plus a minimum floor price which is calculated from the selected internal Ads effective CPM price and passes these on to any number of receiving External RTB Partners. These Bid Requests are made to each Partner simultaneously and directly from server to server using fast and pre-established communication ports and protocols.
7. If any of the External RTB partners have a qualifying Ad, Bids are replied back to the Fusion RTB service
8. The Fusion RTB Service then vets the incoming bids against quality and conformity to the request and selects the highest yielding Ad and passes this back to the Fusion Final Candidate list.
9. Assuming there is a higher paying External Ad Candidate this is selected and its Payload code is delivered to the Client.

The full selection and bidding process, both Internal and External is handled on Server-side before responding any Payload to the Client this process is much faster and selects the highest yielding Ad for each and every impression. The typical Internal processing times for both the Fusion ad Fusion RTB Services are sub 1ms each and the Bid Request / Bid Response process to the External Partners can be cut off at a Fusion-controlled time-limit (probably in the 50ms region). Adding the initial Ad-call and Payload response times of 50ms the total cycle is no more than 150-200ms.

## The main advantages of the integrated Fusion RTB Process are:

1. Total response times are managed to a fixed time of around 150-200ms and does not grow when adding new External 3<sup>rd</sup> Party Partners.
2. Each and every impressions opportunity has the ability of selecting the highest Ad-bid.
3. This method also allows for connecting many more External RTB Partners. As Bids are managed in Parallel server-side eliminating the need to restrict in series via the Client for each loop the number of Partners can be increased from the current practical max of 2-3 and opens up the opportunity of connecting 10s, 100s or potentially 1000s of RTB Bid Partners increasing the pool of buyers. The more active bidders i
4. n an auction-based ecosystem generally provide better overall yields as opportunities for cherry-picking on an impression by impression basis is attractive to both Advertiser and Publishers.