



# HUMAN Bot Defender: Designed for Low-latency

## Stop bad bots without impacting application performance

HUMAN Bot Defender is designed to minimize the impact on website performance by focusing on low-latency techniques. The solution is architecture-agnostic and deploys out-of-band, meaning it integrates with the customer’s current web technology stack and/or CDN, without the need for any additional tiers or layers. Our patented Virtual ID technology validates trusted users in under 2ms.

### Human Defense Platform Components

Here is a breakdown of the user session flow within the different components of the Human Defense Platform, which powers the Bot Defender Solution.

#### Sensor

The Sensor collects and sends anonymized behavioral data from the user’s device/browser. It is asynchronously loaded to ensure low latency.

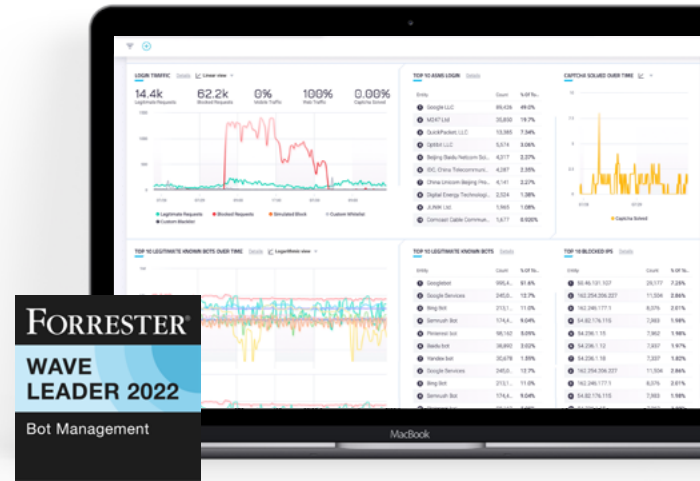
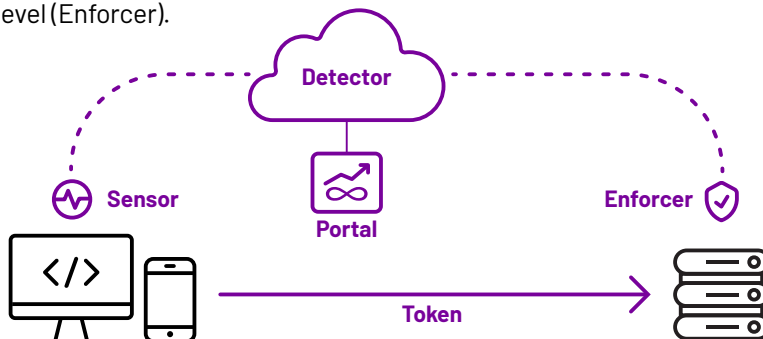
#### Detector

The Detector processes the data sent from the Sensor to produce a risk score which is sent back as a token to the Sensor. The token is sent to the Enforcer as part of the user session.

#### Enforcer

The Enforcer enforces the Detector’s decision embedded within the token received from the client.

The Human Defense Platform integrates at the client level (Sensor) and at the server level (Enforcer).



**“We seamlessly integrated Bot Defender at our platform edge to ensure maximum protection against automated bot attacks, but also to minimize latency.”**

— Alan Murray, Senior Director, Architecture at FanDuel

Sensor size  
**~70KB**  
dependent on enabled capabilities/products

Page-request impact  
**under 2ms**  
for 95% of requests

## Client-side Sensor

The client-side component is a lightweight JavaScript for web (Web Sensor) and mobile SDK for native apps (Mobile Sensor for iOS and Android), where the token sent is a cookie for the web user and a header for the mobile user.

The Web Sensor is lightweight (~70 kb), cacheable, and operates asynchronously to ensure minimal latency for the page load times. The Sensor executes after the DOM-ready event, and most of the Sensor actions run only as needed, so the user experience on the website is not affected.

## Cloud-based Detector

The cloud-based Detector processes the data sent from the Sensor to produce a risk score, which is sent back as a token to the Sensor. The token is also sent to the Enforcer as part of the user session.

## Server-side Enforcer

The Enforcer integrates on the server side. HUMAN supports more than thirty platform-specific integrations to support different CDNs, load balancers, web servers, application tiers, as well as serverless implementations.

Because the Sensor sends out-of-band signals to the Detector, most requests from legitimate users will be validated asynchronously and given a signed token (**about 95% of them**). Using our patented Virtual ID technology, the Enforcer decrypts and validates the signed token **within 2 milliseconds**. This out-of-band execution results in **zero network overhead for 95% of the legitimate users**. Almost all of the legitimate requests from a mobile SDK client come with a token.

For new traffic that has no token, the Enforcer makes a synchronous API call to the Detector that is globally replicated to ensure high-availability and low latency. This API call has a **95<sup>th</sup> percentile value for response times within the range of 35 to 50 milliseconds**. It is important to note that the API call is invoked in **under 5% of all requests**. This mechanism also fails-open after a set timeout (configurable) in case the API calls fail to complete.

## Global Infrastructure Serving Regions Outside of the US and EU

The latency for LATAM and Asia customers is within acceptable ranges. HUMAN adds PoP for the Detector based on customer demand. Currently, the HUMAN PoP for the Detector are located here:

### Americas

- us-east1 (South Carolina)
- us-east4 (Northern Virginia)
- us-central1 (Iowa)
- us-west1 (Oregon)
- us-west2 (California)
- southamerica-east1 (São Paulo)

### Europe

- europa-west1 (Belgium)
- europa-west3 (Frankfurt)

### Asia

- asia-northeast1 (Tokyo)
- asia-south1 (Mumbai)
- australia-southeast1 (Sydney)

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## About HUMAN

HUMAN is a cybersecurity company that protects organizations by disrupting digital fraud and abuse. We leverage modern defense to disrupt the economics of cybercrime by increasing the cost to cybercriminals while simultaneously reducing the cost of collective defense. Today we verify the humanity of more than 20 trillion digital interactions per week across advertising, marketing, e-commerce, government, education and enterprise security, putting us in a position to win against cybercriminals. Protect your digital business with HUMAN. **To Know Who's Real, visit [www.humansecurity.com](http://www.humansecurity.com).**