



Whitepaper

# First-Party Data Collection *with a Server-side Tracking Platform*



# Introduction

The value of data has increased rapidly over the past two decades, becoming a key resource for revenue and growth for many companies.

Before the digital revolution, companies were evaluated, among other things, based on their physical assets. The value of an oil company depended on the size of its oil fields and the value of the machines it owned to extract the oil. Material goods were often the key to value creation.

In the digitalized world, many of the largest companies derive their value from virtual assets – from the behavioral data of their users.

Data is the new oil. Not only large tech corporations have built successful business models on precise ad targeting, personalization, and product recommendations.

Large, medium, and small companies in other industries have long recognized the potential of data-driven strategies for e-commerce and digital marketing.

However, while the importance of accurate web and conversion data increases, their availability is plummeting. Anti-tracking measures and data protection regulations are causing a massive decline in data quality.

Many companies are losing their most critical resource. To ensure revenue and growth, they must reconcile seemingly opposing goals: increasing data quality and ensuring data protection.

This requires a paradigm shift and innovation in data collection.

## The End of Third-Party Cookies

Since the advent of Web 2.0, companies have been able to rely on accurate behavioral data from their website users and monetize it effectively, for example, through remarketing measures.

The third-party cookie, which identifies browsers across websites, was central to this process.

However, the arrival of ad blockers and tracking prevention tools has changed the game. These not only block third-party cookies but also prevent data collection altogether.

Despite Google's continued support for third-party cookies, their obsolescence is becoming increasingly evident. With the expected decline in opt-in rates for tracking, their relevance will continue to diminish.



# Challenges and Opportunities

As data quality declines, so does the performance of advertising campaigns on algorithm-driven platforms like Google Ads, Facebook, or Instagram.

At the same time, the technical requirements for data collection are increasing. To prevent data loss caused by ad blockers and tracking prevention tools, companies must shift data collection out of the browser.

Moreover, data protection regulations such as GDPR, ePrivacy, and others worldwide have established that companies are responsible for their users' data. Protecting this data is only possible if companies control the data collection process.

When data collection is outsourced to third parties, such as analytics tools, companies lose this control, creating potential privacy risks.

Yet, companies also face new growth opportunities. Switching to first-party data collection offers the advantage of more accurate data for digital marketing and a competitive edge over rivals still relying on traditional tracking methods.

Additionally, it allows companies to comply with data protection regulations more flexibly and independently from large corporations.

In the realm of first-party data collection on websites and apps, server-side tracking has emerged as the leading technology with the highest growth rates. Combined with tag management systems (server-side tag management), businesses gain the necessary tools to fully capture web and app data, boost advertising revenue, and comply with global data protection regulations.

***The First-Party-Era  
of the Web has begun.***



# From Client-side to Server-side Tracking

## Benefits of Client-side Tracking

Traditionally, tracking on websites has been carried out by third parties, such as analytics tool providers or data platforms. They directly collect behavioral data on their customers' websites.

For third-party providers, this approach has the advantage of gaining access to valuable raw data—something their customers are typically denied.

For customers, the benefit lies in the ease of implementation, receiving data reports and services in return, such as those provided by Google Analytics.

Technically, this tracking works by embedding the third-party provider's JavaScript tracking code on a website. This code executes in the user's browser, where third-party cookies are placed to track user behavior.

This approach is called client-side tracking because tracking occurs in the user's browser (client).

## Disadvantages of Client-side Tracking

The biggest drawback of client-side tracking is that it is relatively easy for ad blockers and browsers to detect and block, causing massive data loss and significantly distorting data.

Additionally, this form of tracking poses a high data protection risk: companies themselves have little control over what is tracked on their websites and to what extent.

Moreover, most websites implement multiple, sometimes dozens, of third-party data service providers. This results in numerous tracking code units embedded in websites and corresponding cookies placed in users' browsers.

This bloats website sizes, significantly reducing loading speeds. Poor load times not only disrupt user experience, reducing traffic, but are also penalized by Google with lower search rankings.





## Benefits of Server-side Tracking

Given the challenges of client-side tracking, the global shift from third-party to first-party data collection—also called „cookieless tracking”—is underway.

The difference is that companies no longer rely on third-party data and cookies but take over data collection themselves.

While traditional tracking occurs in the user's browser, server-side tracking moves the process to a dedicated tracking server.

In pure server-side tracking, only a single first-party tracking code and a first-party cookie are executed in the browser.

The collected data can then be forwarded from the server to other systems, such as analytics tools, ad platforms, customer data platforms (CDPs), or data warehouses.

The most common form of server-side tracking uses a server-side tag manager.

## Benefits of Server-side Tracking using a Tag Manager:

- Improved data quality by resisting ad blockers and tracking prevention tools in browsers for analysis, reporting, and attribution.
- Complete conversion data for campaign optimization (with certain providers, see „Synthetic Users”).
- Significantly faster website loading speeds due to less tracking code on web pages, enhancing SEO and UX.
- Full data control remains with the website owner.
- Easier compliance with data protection regulations (with certain providers).



## What is “cookieless” tracking?

Cookieless tracking is the buzzword for data collection without third-party cookies.

However, it is misleading and not entirely accurate from a technical standpoint: first-party cookies will continue to exist.

First-party cookies have been used since the early days of the web to ensure essential website functions.

Only third-party cookies are abandoned in “cookieless” tracking.

## Disadvantages of Server-side Tracking

While server-side tracking offers numerous advantages, it also comes with challenges that businesses should consider:

### Complexity:

Implementation requires technical expertise and can be complex, particularly for companies lacking the necessary resources. Setting up server-side tracking internally often involves large-scale IT projects with significant maintenance requirements. Servers and data pipelines must be continually monitored and optimized, leading to additional personnel and technical effort.

### Costs:

Operating a dedicated tracking server incurs ongoing costs, which can vary depending on traffic and are difficult to predict in advance. These include hosting costs for dedicated servers or cloud services, which can rise significantly with increased traffic or scaling needs.

### Limited Support from Third-Party Tools:

Not all marketing and analytics tools fully support server-side tracking, which can complicate integration.

### Data Protection Challenges:

Server-side tracking requires that user consent is processed and documented correctly. Additionally, all data flows must comply with applicable privacy regulations, such as GDPR. Misconfigurations or a lack of transparency can result in legal consequences.

### Maintenance Effort:

An additional server increases the need for regular updates, security measures, and performance monitoring to ensure smooth operation.

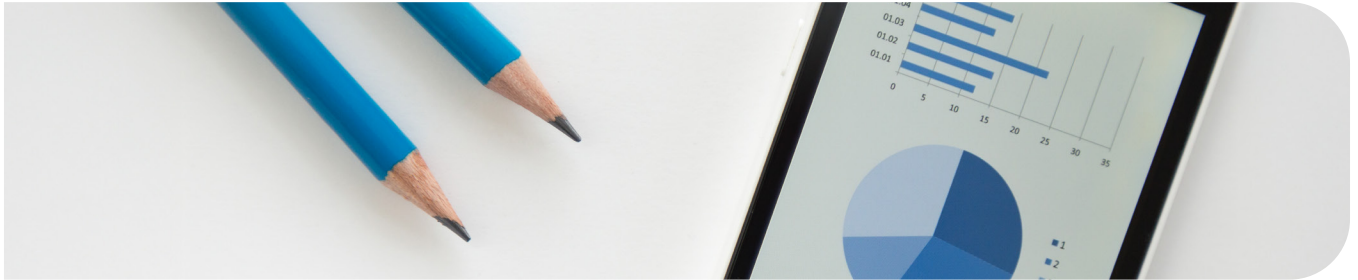


# How Server-side Tracking helps

*Use Cases and Benefits in Performance Marketing, Analytics, and Data Protection*

## Advantages for Performance Marketers

Server-side tracking offers critical benefits that enhance the effectiveness and efficiency of performance marketing campaigns:



### Bypassing Ad Blockers and Browser Restrictions

With server-side tracking, a single JavaScript code is embedded directly into the website for data collection. Instead of sending data directly to platforms like Google or Facebook, the data is first routed to a company-operated server. From there, it can be controlled and forwarded to third-party tools (e.g., Google Analytics) in a data-compliant manner.

### Improved Marketing Attribution and Optimization

Server-side tracking minimizes data loss caused by technical issues on the user side, providing marketers with more reliable data for precise campaign optimization.

### Flexibility and Customization

Server-side tracking enables businesses to decide how data is processed and forwarded. For instance, companies can set specific rules to filter or enrich data before transferring it to analytics tools, tailoring it to their needs.

### Enhanced User Experience and Faster Loading Speeds

By reducing client-side scripts, website loading speeds improve, benefiting SEO, user experience, and ultimately conversion rates.

## Advantages in Analytics



### Consistent and Reliable Data

Server-side processing reduces inconsistencies caused by client-side failures, such as network issues or ad-blocker interference, improving the accuracy of analytics.

### Optimized Attribution Models

Enhanced data availability enables marketers to refine attribution models and better understand the effectiveness of different channels and touchpoints.

### Centralized Data Collection and Integration

Server-side tracking allows for central processing and integration with other data sources, such as CRM systems or offline sales, providing a comprehensive view of the customer journey.

### Expanded Insights with Custom Metrics

Server-side tracking allows businesses to define custom metrics and conduct deeper analyses, which are often hindered by browser restrictions on the client side.

## Advantages in Data Protection



### Greater Control Over Data Sharing

Businesses can control exactly which data is shared with third parties, reducing the risk of sensitive or identifiable user information being unintentionally exposed.

### Reduced Risk of Client-Side Privacy Violations:

Server-side processing minimizes risks stemming from client-side vulnerabilities, such as insecure third-party cookies or unauthorized scripts.

### Minimizing Personal Data Processing

Server-side tracking allows companies to process only the necessary data while anonymizing additional data locally. This supports compliance with privacy regulations without compromising analysis accuracy.

### Increased Security and Data Control

As data is processed directly on the company's server, it achieves a higher level of security. Companies can implement stringent security measures to control data access and mitigate potential breaches.



# Overview of Server-side Tracking Solutions

Compared to client-side solutions, server-side tracking offers numerous benefits, including circumventing ad blockers, improving data quality, and enhancing control over data flows.

However, different approaches and technologies are available, each with specific requirements and resources. Below is an overview of server-side tracking solutions:

## Self-hosted Solutions



Companies manage their tracking infrastructure entirely on their own servers (on-premises) or in a self-managed cloud environment.

This offers maximum control over data processing and infrastructure.

**Technologies:** Commonly involves APIs, Node.js, Python, or middleware. Serverless technologies like AWS Lambda may also be used to avoid physical servers and ensure scalability.

### Advantages:

- Highest data security and full control
- Maximum customization for unique needs
- Independence from third-party providers

### Disadvantages:

- High development, maintenance, and infrastructure costs
- Requires deep technical expertise
- Time-intensive implementation

## Cloud-based Solutions



Cloud-based tracking solutions leverage external infrastructures like Amazon Web Services (AWS), Google Cloud Platform (GCP), or Microsoft Azure. They combine pre-built tools with customizations or allow for building a unique infrastructure in the cloud.

**Data Flow and Infrastructure:** Event data is collected in the cloud, processed, and forwarded to external systems. Serverless technologies like AWS Lambda or Google Cloud Functions enable automatic scaling during high traffic.

### Advantages:

- Quick scalability and flexibility
- Reduced internal infrastructure costs
- Access to advanced technologies, such as machine learning

### Disadvantages:

- Dependence on cloud providers (vendor lock-in)
- Privacy concerns depending on server location
- Additional costs for data transfer and storage

## Specialized Server-side Tracking Platforms



In recent years, tag managers with server-side capabilities have evolved into platforms focused on server-side tracking. These platforms also provide extensive additional features for data enrichment, management, and integration.

**Centralized Data Platforms:** Comprehensive tools for data collection and distribution enable seamless integration.

**Automated Data Pipelines:** Efficient integration and transfer of data from various channels ensure higher data quality.

**Tag Management:** Hybrid platforms like JENTIS allow centralized tag management on the server, improving loading speeds and reducing client-side tags.

**Privacy Features:** Advanced tools such as anonymization and pseudonymization ensure compliance with data protection laws, even when user consent is unavailable.

**Data Enrichment:** Real-time integration of additional data sources provides deeper insights and supports better decision-making.

**Data Control:** Companies maintain control over their raw data, independent of large technology providers.

### Advantages:

- Powerful and suitable for complex multi-channel strategies
- Detailed insights and control capabilities
- Improved compliance with privacy regulations

### Disadvantages:

- Often less cost-effective for very small businesses

## Custom Solutions (Tailored Development)



Custom solutions enable businesses to fully customize their tracking infrastructure to meet their specific needs.

These solutions can be hosted locally, in the cloud, or as hybrid setups. Technologies such as Node.js, Python, or Go are typically used, offering freedom to address unique requirements.

### Advantages:

- Maximum adaptability and integration with existing systems
- Complete control over data processing
- Independence from third-party providers

### Disadvantages:

- High development costs and long implementation times
- Requires an experienced development team
- High maintenance and operational costs
- Limited integration tools and community support

## Hybrid Solutions



Hybrid solutions combine self-hosted and cloud-based approaches to balance data protection and scalability. Sensitive data is processed locally, while computationally intensive tasks occur in the cloud.

### Advantages:

- Balance between privacy and flexibility
- Ability to reuse existing on-premises systems
- Flexibility in handling various data types

### Disadvantages:

- Complex implementation and data synchronization
- Higher costs due to parallel systems

## Tag Management Solutions with Server-side Features



Providers like Server-Side Google Tag Manager or Tealium extend existing tag management systems with server-side capabilities.

### Details:

- Cloud-based tag manager solutions enable centralized data collection and forwarding to analytics or advertising systems.
- Data stream management systems handle event and data stream management efficiently.

### Advantages:

- User-friendly interface for tag management
- Reduces ad-blocker and tracking limitations
- More resource-efficient than full DIY setups

### Disadvantages:

- Limited customizability compared to self-hosted solutions
- Dependence on platform providers
- Service usage costs

## How does Server-side Tracking differ from Server-side Tagging?

The difference lies in their roles and implementation in digital data management and web analytics:

### Server-Side Tracking

A broader approach to collecting and processing user data on the server, enhancing data quality and privacy. It focuses on how and where data is collected and processed (on the server instead of the browser). Tracking involves sending data from tracking points to tools.

### Server-Side Tagging

A specific technique within server-side tracking that manages tracking tags on the server, optimizing website performance and improving data control. It focuses on how tags are managed and executed (also on the server instead of the browser). Tagging involves configuring tags and triggers.

By using server-side tagging within server-side tracking, businesses can improve website performance, enhance data security, and maintain better control over third-party data sharing.

Both concepts aim to enhance data management efficiency while meeting increasing privacy and compliance requirements.

## How Does a Server-side Tracking Platform differ from...

...a Consent Management Platform (CMP)?



CMPs collect user consent but do not collect behavioral data themselves. A server-side tracking platform focuses on data collection. It requires integration with CMPs to process user consent automatically and adjust tracking accordingly.

...a Customer Data Platform (CDP)?



CDPs are used for data activation and segmentation. A server-side tracking platform handles upstream tasks like collecting and forwarding first-party data in a compliant manner, such as to a CDP.

...a Data Clean Room?



Data clean rooms match datasets between market participants. Server-side tracking platforms may offer this functionality but are not necessarily required to.

...Tag Management Systems?



Tag management is a significant part of a server-side tracking platform but is not the same. These platforms also enable data control and modification, which standalone tag management systems cannot do, nor can they guarantee compliance with data protection laws.

...Analytics and Reporting Tools?



Server-side tracking platforms are not designed for reporting or data visualization but rather for delivering accurate, privacy-compliant data to analytics and reporting tools.





# How is the Market for Server-side Tracking Platforms evolving?

With declining consent rates in Google Chrome and the fact that two of the four largest U.S. browsers already operate cookieless, the end of third-party cookies is inevitable despite Google's current support.

For market participants, this shift necessitates adopting first-party data collection or facing declines in data quality, with corresponding impacts on marketing campaign effectiveness and data strategies.

At the same time, data protection authorities in the European Union have moved past the initial grace period and are enforcing GDPR with fines. GDPR itself has become a global model for data protection, inspiring strict data privacy laws in numerous U.S. states and China's restrictive PIPL regulations.

For companies and other organizations, this means they must be prepared for and able to adapt to varying legal frameworks.

These conditions are currently driving significant growth in the implementation of basic server-side tracking solutions.

However, it is essential to ensure that the provider of a server-side tracking platform meets key criteria, particularly in terms of data quality, data protection, and connectivity.

## Data Quality

Platforms should ensure high data integrity by fully and reliably capturing tracking events without data loss.

They must merge data from different sources accurately and offer features like error logging and real-time monitoring to maintain accuracy and timeliness.

## Data Protection

Platforms must be robust against unauthorized access and offer anonymization or pseudonymization options to protect sensitive information.

Compliance with regulations like GDPR or CCPA, including managing user rights such as opt-outs and data deletion, is crucial. Transparent documentation of data collection and use is also essential.

## Connectivity

Platforms should provide extensive integration capabilities to connect seamlessly with existing marketing and analytics tools.

Key features include API support and compatibility with diverse data sources and target platforms. Platforms must also be flexible and scalable to adapt to future requirements.

## AI-Based Server-side Tracking: Synthetic Users

Tracking technologies have evolved significantly, changing how businesses and organizations monitor user behavior online. In today's digital landscape, traditional methods such as cookies face growing challenges, including privacy concerns and regulatory restrictions.

As a result, innovative, privacy-friendly tracking methods are gaining prominence. Among these, AI-based solutions like synthetic users offer new approaches to understanding online activity without compromising user privacy.

Synthetic data is generated using advanced algorithms to replicate the statistical properties of real datasets. These allow analyses that comply with data protection requirements while meeting the needs of online marketing.

### The technology is divided into two main categories:

- **Partially Synthetic Data:** Some variables are replaced with synthetic values, while others retain original data points. This approach carries a moderate risk of re-identification.
- **Fully Synthetic Data:** All variables are algorithmically generated, offering enhanced privacy. However, this method requires strict validation to ensure the usability and security of the data.

## Application of Synthetic Users at JENTIS

JENTIS uses machine learning to fully reconstruct lost conversion data with the help of the Synthetic Users feature and forward it to ad platforms. Consent-required data is combined with statistical data to compensate for data losses due to missing consent.

Based on this, synthetic users are created with similar properties and behavior patterns without containing any actual personal information.

Synthetic Users enable the use of the statistical properties of the entire user base while complying with data protection regulations.

### More ROAS through complete Conversion Tracking

Complete and precise data are essential for sustainably improving the ROAS of advertising campaigns.

They enable algorithms to identify target audiences more accurately and address them more effectively.

High-quality data reduces wastage and allows budgets to be used more efficiently – regardless of which platforms are being advertised on.



# The quick and easy way to better marketing performance

With **over 120 tested connectors and integrations**, JENTIS integrates smoothly into businesses' tech setups, including Google Analytics 4, Google Ads, Google Floodlight, Amplitude, Adobe, Meta, LinkedIn, and many more.

As a **hybrid solution**, JENTIS supports both **client-side and server-side tracking**.

The transition is seamless, allowing parallel operation while migrating without altering existing data pipelines, **avoiding costly tool changes or retraining**.

Teams can continue to use their existing reports and tools.

*Implementation in minutes*



Create JENTIS container



Implement JavaScript snippet



Set DNS A Record



Configure connectors

## More than 120 platforms and tool integrations



## Trusted by



## Increase your campaign revenue AND compliance with JENTIS

Explore how JENTIS' state-of-the-art data protection measures, unmatched data quality, and compliance capabilities can empower your business to confidently adapt to evolving regulatory demands globally.

*Learn how server-side tracking can improve your business*

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