

Aternity Replay

Executive Summary

Enterprise work has shifted decisively to browser-delivered SaaS applications. Across industries, mission-critical workflows, from ERP and financial systems to healthcare, insurance, and customer service, now depend on third-party platforms that IT teams do not own or cannot instrument.

Session replay has traditionally been used by developers to debug application behavior, but these approaches were not designed for enterprise IT operations or modern SaaS environments. This shift is especially visible in call centers, where organizations are rapidly moving to cloud-hosted CCaaS platforms. When issues occur in these environments, telemetry alone doesn't always tell the full story of what an employee experienced inside the browser, slowing diagnosis, increasing operational risk, and extending resolution times.

Aternity Replay addresses this visibility gap by reconstructing employee interactions using DOM-based session replay, correlated with endpoint, network, and application telemetry from the Aternity platform. IT teams gain precise insight into what occurred during an incident and the conditions that influenced it, without capturing screen video or user-entered data.

The result is faster troubleshooting, improved user support, reduced exposure to sensitive information, and more resilient IT operations across modern SaaS-driven digital workplaces.

Why Browser-Based Replay Is the Only Scalable Approach for SaaS Experience Visibility

Enterprise application environments have fundamentally changed. Many replay solutions rely on application-level instrumentation, which requires developers to insert code into the application itself. This can involve embedding SDKs, injecting JavaScript, or modifying application code to enable session capture.

While this approach can work for internally developed applications, it often results in inconsistent and incomplete coverage in modern enterprise environments. In SaaS-driven workplaces, organizations typically do not own or control the applications their employees rely on, limiting where and how instrumentation can be applied.

Some replay tools can operate with SaaS applications if JavaScript injection is permitted, and the application Content Security Policy (CSP) allows it. In practice, however, coverage is frequently constrained by real-world conditions such as:

- CSP rules that block script injection
- Applications running within secure or cross-domain iframes
- Browser isolation or cross-domain access restrictions
- Sensitive fields that require aggressive data exclusion controls
- Canvas-based, virtualized, or streamed application interfaces

As a result, replay visibility is often limited to a subset of applications or workflows, leaving significant portions of the digital workplace unobserved. The core challenge is not that replay technologies are ineffective but that their coverage across SaaS environments is fragmented and unreliable, making it difficult for IT teams to gain a complete and consistent view of the employee experience.

Browser-based capture solves this problem. Because Aternity Replay operates within the user's browser, it observes application behavior at the point where employees interact with the software. This allows Aternity to capture replay data for any web application accessed through the browser, regardless of where the application is hosted or who developed it.

This approach provides several important advantages.

- **Universal SaaS coverage** allows replay to be captured for virtually any browser-based application, including widely used enterprise SaaS platforms.
- **No application modification** is required, meaning organizations do not need to modify applications or deploy instrumentation code.
- **Immediate deployment** across environments allows replay capability to be activated through endpoint deployment rather than development cycles.
- **Consistent visibility** across applications enables IT teams to gain a unified view of user interactions across all web applications rather than isolated visibility into a few instrumented services.

In a SaaS-driven digital workplace, browser-based capture is the only approach that can deliver consistent and scalable replay visibility across the entire application landscape.

Aternity Replay combines this browser-level visibility with endpoint telemetry and device context, enabling IT teams to understand both the user interaction and the surrounding system conditions that influenced the experience. Delivering scalable replay visibility in SaaS environments requires a different architectural approach.

Reducing Risk While Expanding SaaS Visibility

Many enterprises rely on multiple tools to reconstruct user sessions, including traditional APM-based replay and call-center recording platforms originally designed for quality monitoring and compliance. While these tools can provide partial insight, they often introduce significant operational and security challenges.

Call-center recording systems typically capture full screen video, which could potentially expose sensitive data such as PCI, PII, PHI, or HIPAA-regulated information. As a result, IT teams must follow extensive access controls and approval workflows to review a single session, expanding the number of individuals exposed to sensitive data and increasing organizational risk.

Aternity Replay eliminates this risk while improving troubleshooting resiliency. By reconstructing sessions using DOM-based data rather than screen video, Replay enables IT teams to diagnose issues without exposing sensitive application data. This allows organizations to:

- **De-risk their troubleshooting toolset** by minimizing unnecessary access to regulated data
- **Increase operational resiliency** by enabling faster, safer access to replay insights
- **Extend replay visibility** across SaaS and CCaaS platforms without introducing new compliance concerns

The result is broader visibility with less risk, an essential requirement for modern CIO and security-led IT organizations.

Replay Architecture

Aternity Replay uses a browser-based capture architecture combined with the Aternity Unified Agent for data transport and correlation. During deployment of the Aternity Replay module, browser extensions are installed within supported web browsers on the endpoint. These extensions perform the session capture.

The browser extension:

- Observes user interaction events within the browser
- Captures relevant DOM changes and application behavior
- Evaluates browser activity against URL policies defined in Aternity management to determine capture eligibility
- Collects data required for replay reconstruction

Captured replay data is then transmitted to the Aternity platform via the Unified Agent. The Unified Agent does not perform replay capture itself. Instead, it acts as a secure transport layer that delivers replay data to the Aternity platform and collects device, network, and application telemetry from the endpoint.

This architecture allows Aternity to combine visual replay with full device context, providing a much richer understanding of the employee experience. Because replay capture occurs at the browser level, organizations must be able to control precisely which applications are recorded.

URL-Based Capture Configuration

Replay capture is governed by administrator-defined URL policies configured within the Aternity management console. Administrators can specify which applications or domains should be captured. This allows organizations to focus replay collection on relevant applications, exclude sensitive environments if required, and control replay storage and processing overhead.

Access to Aternity Replay is role-based. Only authorized users with appropriate permissions can view replay sessions, ensuring replay data is accessed securely and in accordance with organizational policies.

This policy-driven approach ensures replay data collection is targeted, secure, and manageable at enterprise scale. Once capture policies determine which sessions should be recorded, Aternity reconstructs the user experience using a DOM-based replay model.

DOM-Based Session Reconstruction

Aternity Replay reconstructs sessions using Document Object Model (DOM) reconstruction rather than traditional video recording.

What is the DOM?

The Document Object Model (DOM) represents the structure of a web page as a hierarchical tree of elements such as text, images, buttons, form fields, menus, and other interactive components. When a user interacts with a web application, the browser continuously updates the DOM to reflect those interactions.

Aternity captures these DOM changes and interaction events and uses them to reconstruct the session step-by-step. This reconstruction model enables replay to operate consistently across modern web applications.

Advantages of DOM Reconstruction

Compared with traditional screen recording approaches, DOM-based replay provides several advantages.

Efficient Data Capture

DOM replay captures events and structural changes rather than full video streams. This significantly reduces storage and bandwidth requirements.

Data Analysis and AI Insights

Can be analyzed with AI across the Riverbed platform to identify recurring issues and experience patterns at scale.

Improved Privacy Controls

Sensitive application data is never captured. Aternity Replay reconstructs sessions using DOM structure and interaction metadata rather than screen video or user-entered content.

Higher Fidelity Troubleshooting

Because the replay is based on application structure rather than pixels, IT teams can inspect:

- UI elements
- User actions
- Application error messages
- Page behavior

This provides a deeper level of diagnostic capability.

Replay Across SaaS Applications

One of the key advantages of Aternity Replay is its ability to support any web application, including off-the-shelf SaaS services.

Many replay solutions rely on instrumentation of specific applications through embedded SDKs, injected JavaScript, or custom code added to applications owned by the enterprise. Because these methods require application modification, they are typically limited to home-grown applications developed by the organization.

As a result, these tools generally cannot provide replay visibility for widely used SaaS applications such as Salesforce, ServiceNow, Workday, and Microsoft 365 web applications. Aternity Replay does not require application instrumentation.

Because capture occurs at the browser level, Aternity can replay any web application accessed by the user, regardless of who developed or owns the software and where it is deployed—in the cloud or on-premises. This provides a much broader view of employee workflows across modern SaaS environments.

While many replay technologies focus primarily on application behavior, troubleshooting employee experience often requires broader visibility.

Differentiation from APM-Based Replay

Some vendors approach session replay as an extension of Application Performance Monitoring (APM), emphasizing correlation between frontend activity and backend traces, logs, and metrics. While this model can provide valuable insight into server-side behavior, replay capture itself still relies on browser-side instrumentation and is often optimized for developer and application teams rather than enterprise IT operations.

As a result, these approaches typically lack visibility into the endpoint and environmental conditions that shape the employee experience. Factors such as device health, local resource contention, Wi-Fi quality, or competing applications on the endpoint are not visible through backend-focused monitoring alone, yet they frequently play a critical role in digital experience issues.

Because Aternity operates at the endpoint, Replay sessions can be correlated with device-level telemetry, including:

- CPU and memory utilization
- Device health metrics
- Network conditions
- Competing application activity

By combining session replay with endpoint telemetry, IT teams gain a significantly deeper understanding of not only what occurred within the application, but also the environmental factors that contributed to the issue. This enables faster, more accurate diagnosis of digital experience problems across modern SaaS-driven workplaces.

Operational Benefits

By combining session replay with endpoint telemetry, Aternity Replay enables IT teams to:

- Diagnose issues without needing to reproduce them
- Reduce mean time to resolution (MTTR) by visually reconstructing the user experience
- Improve help desk efficiency by allowing support teams to immediately see what the user encountered
- Understand the true employee experience across applications, devices, and network conditions
- Identify device, network, or environmental factors impacting application performance

Aternity Replay also enables deeper operational and experience insights:

- Understand employee usage patterns and optimize application workflows
- Define and analyze business activities based on real user sessions
- Identify enterprise-wide issues by analyzing replay data across large user populations
- Leverage AI to analyze session recordings and detect patterns such as repeated errors, slow workflows, or systemic application problems

Instead of asking employees to explain what happened, IT teams can see the exact interaction and understand the surrounding device, application, and network conditions.

Conclusion

Aternity Replay extends digital experience monitoring by providing a visual reconstruction of the employee experience combined with full device context.

By capturing browser interactions through extensions and correlating them with telemetry collected by the Unified Agent, Aternity enables organizations to understand not only what happened, but also why it happened.

This approach provides the visibility IT teams need to resolve issues faster and improve digital experience across modern SaaS-driven workplaces.



About Riverbed

Riverbed, the leader in AI observability, helps organizations optimize their users' experiences by leveraging AI automation for the prevention, identification, and resolution of IT issues. With over 20 years of experience in data collection and AI and machine learning, Riverbed's open and AI-powered observability platform and solutions optimize digital experiences and greatly improve IT efficiency. Riverbed also offers industry-leading Acceleration solutions that provide fast, agile, secure acceleration of any app, over any network, to users anywhere. Together with our thousands of market-leading customers globally – including 95% of the *FORTUNE* 100 – we are empowering next-generation digital experiences. Learn more at riverbed.com.