

Hardware and Software
Engineered to Work Together



Oracle's WebRTC Solution for the Enterprise

Enabling secure, reliable, and scalable communications within browsers and mobile applications



WebRTC enhances customer interactions and unleashes business innovation

Oracle's WebRTC solution enables secure and reliable real time communications from within a browser or mobile application

WebRTC (Web Real-Time Communications) is an open standard for embedding real-time multimedia communications capabilities directly into a Web browser and mobile applications. Enterprises can use WebRTC to communications-enable Web sites, extend corporate voice services to mobile users, develop innovative mobile applications, and enable video collaboration and on-line meetings, to name but a few examples. With WebRTC, users can make voice calls, video calls, and share screens directly from a browser or mobile application without downloading, installing, or configuring special-purpose applications or plug-ins.

Businesses can improve customer interactions, boost employee productivity, and contain costs by adding WebRTC-based communications to corporate unified communications (UC) systems and contact center applications. But WebRTC introduces a variety of connectivity, security, and control challenges for corporate IT planners.

New solutions are required to protect and control WebRTC sessions and to bridge the Web world with the corporate communications infrastructure. Oracle's WebRTC solution is specifically designed to help IT teams overcome these challenges. The solution streamlines WebRTC implementations and ensures highly secure, reliable, and scalable browser-based communications.



WebRTC Deployment Challenges

WebRTC is intended to enable simple peer-to-peer communications between browsers and mobile applications that leverage the WebRTC media stack. It is not a framework for implementing a full-fledged enterprise communications system. The WebRTC specifications focus primarily on media management. The signaling plane – call setup and session management functions – is left to the application developer. New server-side network elements are required to ensure enterprise-class predictability and reliability for browser-based communications and to interconnect the Web and corporate UC domains, where required.

IT planners must address a variety of connectivity, security, and control challenges when introducing browser-based communications and integrating WebRTC-based applications into the corporate UC network.

Connectivity

Application developers must account for differences in WebRTC implementations when building their WebRTC-based browser and mobile applications. The WebRTC specifications provide options from which browser manufacturers and mobile application developers may choose when adding WebRTC capabilities. Interoperability between dissimilar browsers may require adaptation by the application.

When WebRTC-associated communication sessions need to be connected to a SIP-based UC network, a WebRTC-to-SIP gateway function is required. The gateway provides interworking between the protocol used to signal WebRTC sessions and SIP over TCP, TLS or UDP, used by the UC network. In addition, the gateway must provide interoperability with various SIP implementations used by UC manufacturers and may also require media transcoding (i.e. G.711, G.722).

Security

The WebRTC specifications do not address authentication, authorization and accounting (AAA) functions, or specify any standard mechanisms for tying into corporate directory services, such as Microsoft® Active Directory®, or web authentication systems, such as the Open Authentication (oAuth) standard. WebRTC specifications also do not include provisions for protecting against denial of service (DoS) attacks or other threats.

Control

WebRTC provides a simple framework for establishing media flows between two browsers or mobile apps that leverage the WebRTC media stack. It does not define



methods for controlling sessions or ensuring session continuity. The WebRTC specifications provide no inherent mechanisms for moving sessions between end-points or orchestrating sessions. Nor do they provide methods for preserving sessions in the event of network timeouts, browser resets, or page reloads.



Solution Overview

SOLUTION BENEFITS

- **Accelerates application deployment** by mitigating interoperability and interworking issues
- **Mobilizes users** by enabling seamless session hand-offs between IP endpoints
- **Protects IT assets** by preventing attacks, fraud, and service theft
- **Optimizes user satisfaction** by ensuring predictable and reliable communications
- **Streamlines application development** with comprehensive SDK
- **Eliminates project risk** by leveraging expertise and proven solutions from a market leader

Oracle's WebRTC solution brings enterprise-class communications to the browser and native mobile applications that leverage the WebRTC media stack. It works together with Web application servers to deliver real-time voice and video communications between WebRTC browsers and SIP endpoints. Designed for flexibility and easy scalability, the solution supports a range of deployment models.

The solution enables protocol interoperability and interworking, protects the corporate UC and contact center infrastructure, and ensures high service quality and reliability for browser-based communications. It includes JavaScript software development tools that enable developers to quickly add WebRTC communications to existing Web and mobile applications.

The comprehensive solution includes the following components:

- **Oracle Communications WebRTC Session Controller** connects WebRTC browsers with each other and with SIP-based enterprise UC and contact center communications systems. It signals WebRTC endpoints, provides dynamic media anchoring, supports standards-based identity management, offers comprehensive session rehydration functionality, and delivers a seamless Web-to-SIP gateway with enterprise-grade reliability and security.
- **Oracle Communications Consulting Services** helps IT organizations simplify WebRTC deployment and support. The offering includes extensive project management, pre-installation planning, on-site implementation, and post-installation remote consultative services.

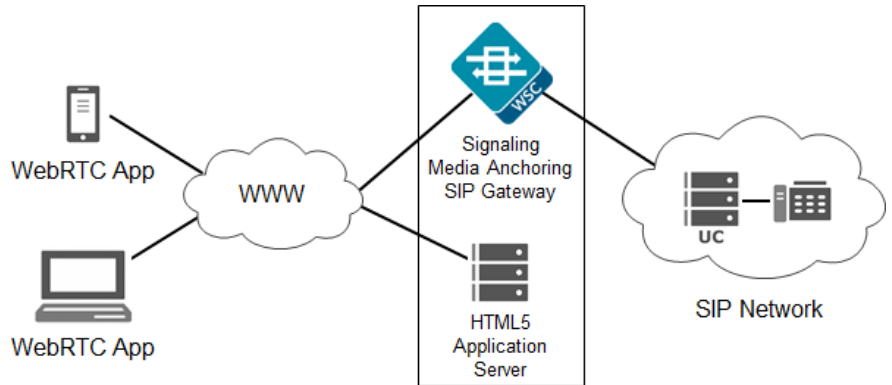


Figure 1 WebRTC Session Controller connects browsers, mobile applications and SIP endpoints

Key Features


Oracle's WebRTC solution is specifically designed to resolve the complex connectivity, security, and control challenges IT teams typically encounter when implementing browser-based communications.

Connect

Oracle's WebRTC solution uses Java Script Object Notation (JSON) over WebSockets to establish reliable connections with browser endpoints. The solution melds the Web and enterprise UC worlds providing JSON-to-SIP signaling interworking along with encryption interworking and media transcoding functions. Interworking across multiple transport protocols and interoperability with multivendor UC systems streamline connections with SIP-based networks.

Secure

Oracle's WebRTC solution helps safeguard enterprise IT infrastructure, services, and applications. The solution protects against a wide range of DoS attacks and other threats. Signaling and media streams can be terminated, inspected, and re-originated in real-time to protect against eavesdropping, hijacking, and other attacks. The solution supports a variety of standards-based authentication and authorization options including



Oauth and uses LDAP to integrate with popular enterprise policy stores such as Active Directory®.

Control

Oracle's WebRTC solution provides extensive session routing and call control functions. The solution leverages a distributed, highly available signaling and media architecture that delivers enterprise-grade scalability and reliability. It provides rich call admission control capabilities to prevent service overloads and ensure high service quality. And it ensures session continuity by automatically reestablishing dropped WebRTC sessions regardless of cause - a dropped network signal, browser reset, network handover or user initiated device swap.



Table 1. • Oracle Communications WebRTC Session Controller

Feature	Benefit
Session rehydration	Automatically reestablish dropped WebRTC sessions; ensure superior user experiences
Protocol interworking (JSON-to-SIP interworking, encryption interworking, transcoding)	Accelerate WebRTC deployments; extend enterprise UC and contact center services to Web users
Advanced DoS/Distributed DoS and overload protection	Prevent malicious attacks and service outages
Call admission control	Control access to resources and prevent system overloads
OAuth interface	Leverage Web authentication mechanisms
LDAP/Active Directory interface	Leverage corporate policy stores for authentication and authorization
Multivendor UC interoperability	Streamline SIP deployments
1-to-1 High Availability (HA)	Statefully route around hardware or interface failures; ensure enterprise-class reliability
Extensible JavaScript SDK	Simplify WebRTC client development

Table 2. Oracle Professional Services

Feature	Benefit
Project management	Ensure all installation phases are fully managed and all tasks are completed for each installation phase according to the customer's schedule
Preinstallation planning	Optimize deployment to meet operational requirements
Onsite implementation service	Ensure successful, seamless deployment into production
Post implementation remote consulting	Ensure ongoing support during services rollout



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