

## Delivering Multimedia Communication Services with Oracle ECAS, WSC and Radisys MediaEngine™



Mobile networks are being transformed as the proliferation of IP-enabled smart devices drives the adoption of technologies such as VoLTE and VoWiFi. The diversity in mobile endpoints and access technologies is introducing a variety of high-definition audio and video codecs into modern communications. At the same time, rapid innovation in communications technologies on the Internet at large, with technologies such as WebRTC, is putting pressure on network operators to maintain pace with so-called 'OTT' (Over-the-Top) services. With the combined solution set of the Radisys MediaEngine family and the Oracle Evolved Communications Application Server and WebRTC Session Controller, service providers now have the tools to rapidly introduce and generate revenues from new, value-added multimedia communications services.

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## Bringing WebRTC into the Service Provider's Network

WebRTC brings the promise of adding high-quality audio and video communications to a diverse set of applications, ranging from contact centers, medical consultations, online learning and even online dating. Unlike traditional PSTN communications, these applications allow context to be added to the real-time communication, so that a call initiated from a web page or mobile app can tell the recipient who is calling and perhaps why.

At the same time, the vast installed base of the PSTN and enterprise phone systems presents a tremendous opportunity to connect these two worlds. The Oracle WebRTC Session Controller (WSC) allows WebRTC users to be identified and authenticated using directory services such as LDAP, authenticated using standard protocols such as OAuth, and to connect to SIP and IMS networks. A developer-friendly SDK allows application builders to add voice, video and chat to iOS, Android and browser-based web apps.

## One Media Resource Function for Web and IMS

While they may use different codecs, applications delivered to WebRTC, VoLTE or VoWiFi endpoints make use of the same media services, whether for conferencing, interactive voice/video response or session recording. The Radisys MediaEngine family—from the cloud-ready vMRF (Virtualized MRF) to the powerful, carrier-grade MPX-12000—provides a common set of industry-leading features for handling audio and video packet streams. In particular, MediaEngine's transcoding capabilities allow WebRTC endpoints using VP8 and Opus to communicate with VoLTE endpoints using H.264, AMR-Wideband and EVS, not dropping to a low-bandwidth codec, but maintaining a high-definition session.

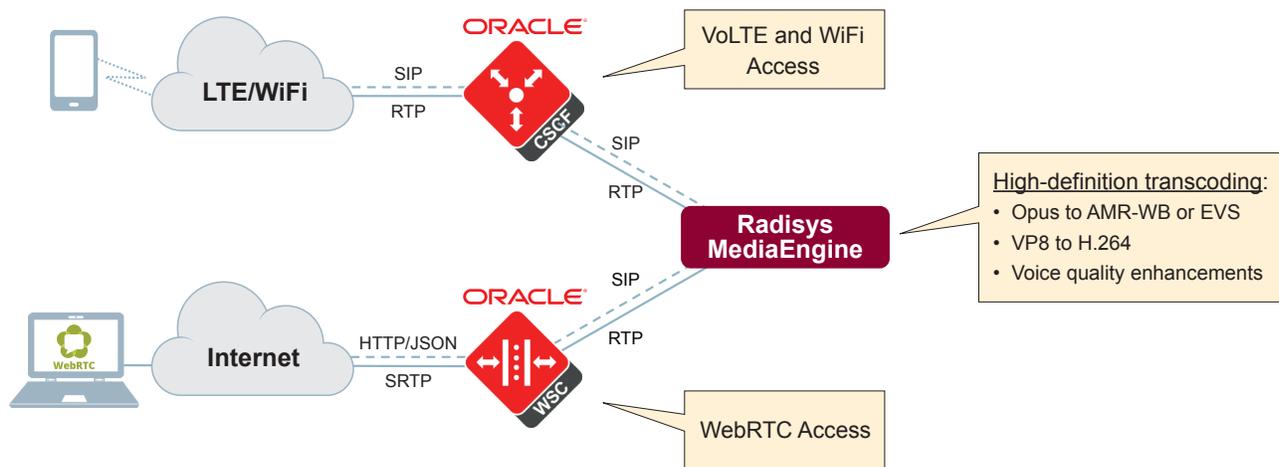


Figure 1: Transcoding between VoLTE/VoWiFi and WebRTC endpoints.

## Building Multimedia Apps for Web and IMS

When used in conjunction with the Oracle Evolved Communications Application Server (ECAS), the Radisys MediaEngine product family makes a powerful toolkit for developers of multimedia applications. ECAS is a SIP application server tailored for VoLTE and VoWiFi networks, with built-in features including single-radio voice call continuity (SRVCC), and a comprehensive suite of supplementary services, such as communications forwarding, barring, hold, identification and ad-hoc conferencing. ECAS is itself based on the Oracle Communications Converged Application Server (OCCAS), considered by many to be the premier Java SIP application server for IMS environments.

It delivers an open, standards-based, highly available development and deployment platform for next-generation communications applications, and is currently used by over 125 network operators and service providers.

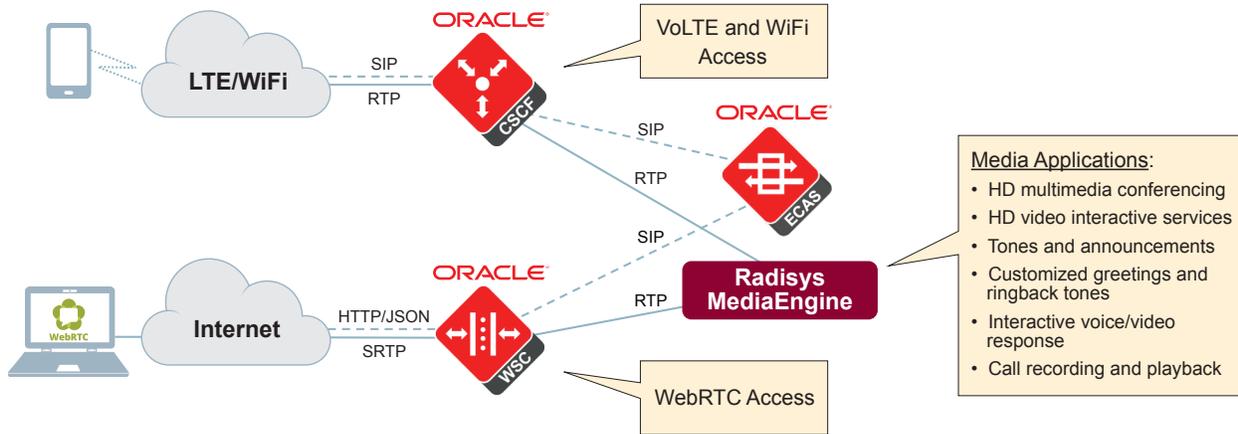


Figure 2: Delivering one set of multimedia services to both the web and telco networks.

The same services are available to both IMS and WebRTC users. The WSC transforms the web-based signaling of JavaScript objects carried over HTTP into standard SIP, and the Secure RTP media used over the Web into standard RTP for use in the secure IMS core. Here, it is the equivalent of the traffic from a standard IMS Call Session Control Function (CSCF), except perhaps for the codecs used. ECAS takes this signaling and invokes media services from MediaEngine using RFC 5707-compliant Media Server Markup Language (MSML) carried by SIP.

## Radisys WebConnect™ Java Adapter for ECAS and OCCAS

Radisys WebConnect Java is a JSR-309-compliant adapter that exposes the feature-rich media processing capabilities of the Radisys vMRF and MPX-12000 platforms to ECAS and OCCAS developers. No knowledge of SIP or MSML is necessary to develop applications for conferencing, interactive voice/video response systems, tones and announcements, recording and playback, and so on.

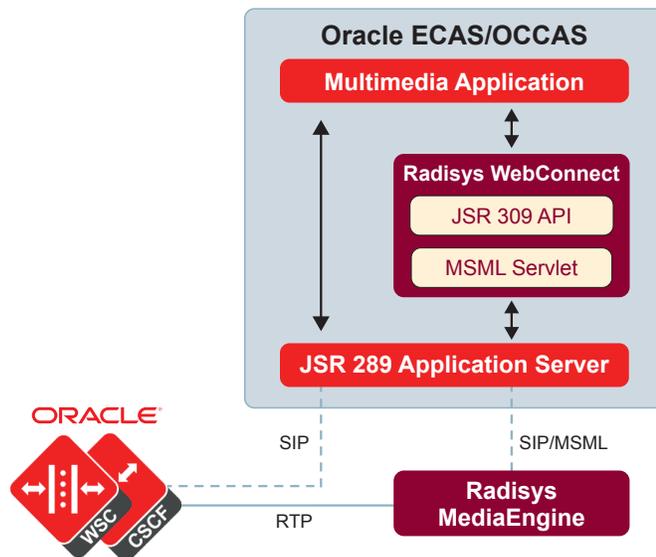
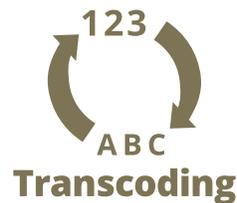
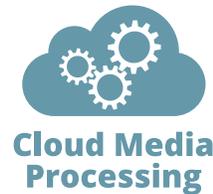


Figure 3: Radisys WebConnect Java Adapter simplifies building media applications.

## Benefits of Radisys MediaEngine for Media Processing

Radisys MediaEngine, combined with WebConnect Java for ECAS and OCCAS, delivers the following benefits for Oracle customers:



- **Multi-Service** – MediaEngine delivers media processing support for a broad range of interactive multimedia services. Radisys calls this our OneMRF strategy—one MRF platform for all IMS, WebRTC and OTT communications services—delivering operational and economic benefits for service providers offering a broad range of services and helping to future proof their service infrastructure investments.
- **Multi-Codec** – Oracle service developers can ignore the issue of incompatible endpoint codec technology. MediaEngine supports a broad list of industry-standard codecs, including AMR-WB HD-audio and H.264 video for VoLTE services, and Opus HD-audio and VP8 video for WebRTC.
- **Voice Quality Enhancements** – Radisys’ VQE capabilities encompass an integrated set of features designed to overcome common audio quality problems in VoIP/VoLTE services, including noise, packet loss and echo. MediaEngine with VQE eliminates the need for stand-alone voice conditioning equipment, delivering additional savings for the service provider.
- **Multimedia Transcoding** – When an audio codec mismatch is identified during session setup, MediaEngine will automatically apply audio transcoding. For video endpoints using different codecs, MediaEngine applies video transcoding with transrating, including picture size, framerate, and bitrate adaptation. Transcoding is applied either automatically within a service context (like multi-point video conferencing, for example) or for point-to-point network transcoding use cases.
- **VoLTE and VoWiFi** – Radisys is a leader in VoLTE deployments around the globe. Our MRF products are compliant with VoLTE and Video-over-LTE service requirements, as defined in 3GPP IR.92 and IR.94 standards.
- **WebRTC** – MediaEngine is equally at home supporting WebRTC services as it is OTT and IMS services, and when used in conjunction with Oracle’s WSC can be used to provide seamless interworking between all these subscriber bases and technologies.

## Radisys MediaEngine Offers Reliable Scalability for Oracle WSC and ECAS Deployments

Radisys is unique in the industry for offering the most comprehensive range of media processing solutions, from entry-level single-server deployments, to virtualized media processing solutions, through to the DSP-based MPX-12000 Broadband MRF with industry-leading densities and capacities. Deploying ECAS and OCCAS with a Radisys MediaEngine platform ensures that the service provider can start small, yet scale very large. Radisys WebConnect Java for ECAS and OCCAS is compatible with any Radisys MediaEngine platform approach or solution.

## World Class Technical Support

Radisys is a recognized leader in IP media server and IMS MRF technology. With over ten years’ experience and six million ports deployed globally, Radisys has the experience and expertise to offer 24/7 support coverage for OCCAS installations around the globe.

## Summary

Network operators and service providers have deployed Oracle's ECAS and OCCAS to support a growing variety of IMS, OTT, and web-based communication services, using an increasing number of modern HD codecs in the underlying IP media packet streams for these interactive services. Radisys is a leader in multimedia packet processing and transcoding services for the telecommunications industry. The combination of Oracle's ECAS and WSC with the Radisys MediaEngine family—integrated using Radisys' WebConnect Java—offers Oracle customers a proven media processing solution and technology partner, whether migrating intelligent networking services to IMS, developing the next great OTT service, or bringing WebRTC-based visual communication services to your customer base.

## Key Solution Components

### Oracle Call Session Control Function (CSCF)

- Provides access to IMS core for VoLTE and VoWiFi endpoints



### Oracle WebRTC Session Controller (WSC)

- Gateway between WebRTC endpoints and SIP/IMS networks
- Comes with developer-friendly SDKs for building browser, iOS and Android apps



### Oracle Communications Converged Application Server (OCCAS) and Evolved Communications Application Server (ECAS)

- OCCAS: Java app server that provides framework for building SIP-based apps
- ECAS: app server tailored for VoLTE and VoWiFi, built on OCCAS



### Radisys MediaEngine

- OneMRF for WebRTC and IMS/VoLTE/VoWiFi environments
- Available as dedicated hardware (MPX-12000) or virtual appliance (vMRF)

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