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Oracle Communications Operations Monitor

As a comprehensive end-to-end network monitoring and troubleshooting solution, Oracle Communications Operations Monitor provides operations teams with real-time call correlation across multiple network sites, protocols, devices, and unified communications services, along with in-depth root cause analysis with sub-second visualization, offering flexible deployment options over on-premises, virtual and cloud environments.

Overview

Oracle Communications Operations Monitor is part of the Oracle Communications Session Monitor product family, an end-to-end network visibility and monitoring software system that increases the ROI of Long Term Evolution (LTE), IP Multimedia Subsystem (IMS), voice over IP (VoIP), and unified communications as a service (UCaaS) deployments and provides an unprecedented view of the network for both operations management and in-depth troubleshooting. Oracle Communications Session Monitor products enable enterprises and service providers to quickly and securely deploy IP communications networks, reduce operational costs, generate additional revenue and minimize churn. It is a proven, carrier-grade solution for enterprise networks and fixed and mobile service providers, with hundreds of deployments globally, including many tier-1 service providers.

Oracle Communications Session Monitor products capture all signaling messages from the network, using network probes linked to a correlation engine, with the results viewable through a web-architected GUI. Network probes are available as Oracle Communications Session Monitor probes that run on commercial-off-the-shelf (COTS) hardware and as software components that are integrated into Oracle Communications Session Border Controller's session delivery platforms. Oracle Communications Session Monitor products are a 100 percent passive, nonintrusive solution that is vendor-agnostic and supports any next-generation network architecture.

Oracle Communications Operations Monitor offers full, end-to-end correlation of all calls in real time across multiple network sites, protocols, devices, and unified communications services. It enables network-wide views of calls and registrations as well as key performance indicators (KPIs) and statistics, network equipment statistics and information, and user group and trunk information. It offers drill-down into the network, providing diagrammatic call flow analyses with full protocol and device details, raw capturing, and registrations end to end. Oracle Communications Operations Monitor supports flexible deployment options across on-premises, virtual machines, and cloud.

Major advantages

Oracle Communications Operations Monitor offers many advantages to service providers. For example, it:

- **Reduces operational costs.** With Oracle Communications Operations Monitor, staff members work more efficiently by saving time on problem identification and resolution. Comprehensive and accurate reports on problems lead to easier, faster communication with vendors and partners, and monitoring efforts are minimized when KPIs of the application and network layers are leveraged.
- **Increases service quality.** Potential issues are identified before service is affected. Network operations personnel can easily browse through the application layer behavior to identify problems beyond device statistics.
- **Enhances efficiency.** With Oracle Communications Operations Monitor, it is possible to perform safer configuration changes and introduce new equipment into the network more efficiently. Oracle

Communications Operations Monitor also enables a dramatic decrease in the time required to close tickets and facilitates reporting on service availability with applications layer statistics.

- **Offers rich functionality.** Oracle Communications Operations Monitor enables real-time correlation of all calls and offers flexible, network-wide, specific KPIs and statistics. It is designed with real operations tasks and problems in mind and provides real-time and historical tracing.
- **Improves overall efficiency.** Oracle Communications Operations Monitor's fast and easy troubleshooting drastically reduces the mean time to close support tickets and increases customer satisfaction through direct, fast, effective assistance. Many reported issues can be closed directly in first-line support through a quick customer experience overview.
- **Doesn't require provisioning.** All information is gathered automatically for all users, and new users are visible immediately after connecting to the network. Oracle Communications Session Border Controller configurations including SIP devices, trunks, and hostnames are automatically imported. There is no need to perform individual or bulk provisioning of user information, so deployment can take place in days.
- **Provides comprehensive views of customer experiences.** Network operators gain full visibility into user activity in real time, improving operational efficiency and enabling proactive management of the customer experience.
- **Delivers shortened incident response times.** Swift and efficient troubleshooting reduces trouble ticket closure times and increases customer satisfaction through immediate and responsive assistance.
- **It's vendor-independent.** All Oracle Communications Session Monitor products can be deployed in IP communication networks from any vendor, and they're fully agnostic in terms of monitored networks and devices.
- **It's cloud-ready.** Oracle Communications Operations Monitor is cloud-ready with support for deployment on Oracle Cloud Infrastructure, Amazon Web Services and Microsoft Azure. Data transmission links from probes to Oracle Communications Operations Monitor can be secured using TLS and because the connection is initiated from the probes ensures that they can work through NAT and firewalls.

Monitoring and analysis features

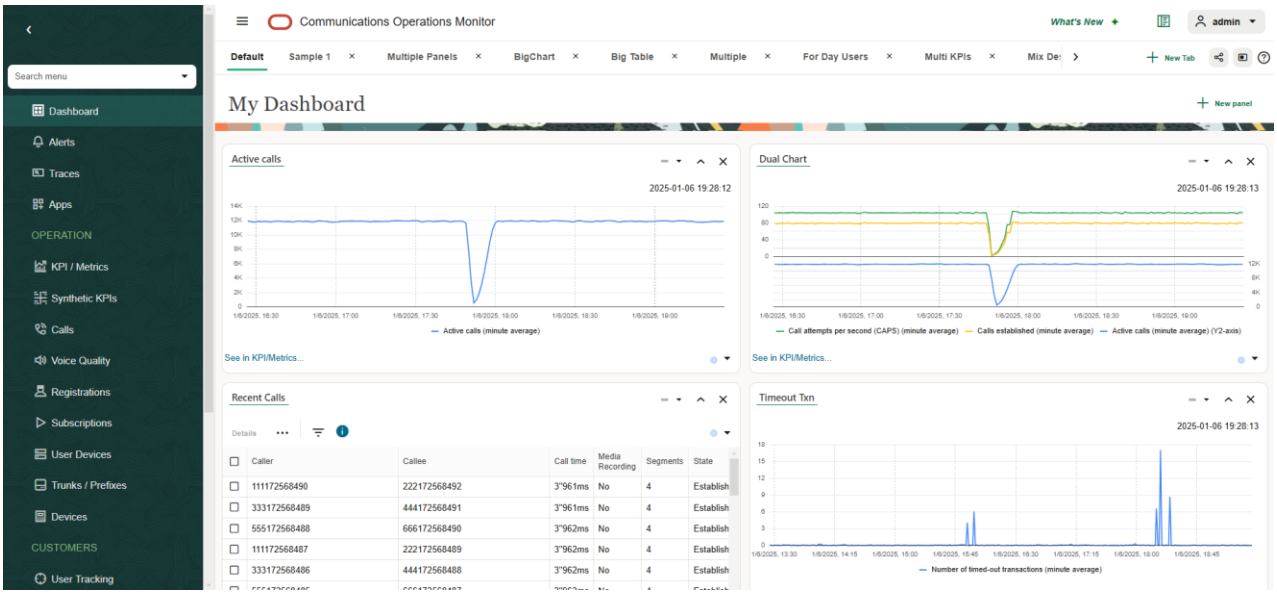
Multiple site and network protocol call correlation

Calls can be correlated and analyzed across multiple network sites and protocols (such as Session Initiation Protocol (SIP), H.248, Diameter, ENUM, or SIGTRAN, depending on licensed features) and devices, thereby providing full, end-to-end visibility into the network. Network operators are able to track back data for a single call—identifying the caller and call recipient, their IP addresses, the number of call segments, the call flow diagram, the call status, and all detailed call information to enable real-time monitoring and troubleshooting.

KPI analysis

Oracle Communications Operations Monitor comes with a full range of KPIs for voice network monitoring, addressing service accessibility, retention, and integrity that can be aggregated by service, site, and customer. All KPIs can be accessed in real time through the Oracle Communications Session Monitor products web interface and through Simple Network Management Protocol (SNMP) and (optionally) an extensive API based on the REST standard.

Figure 1. KPIs can be measured and monitored in real time through a customizable GUI.



Network tracing

Oracle Communications Operations Monitor provides real-time and historical call and transaction tracing facilities, with drill-down to sequence diagrams showing signaling transactions and media sessions (with the Media Quality extension) for each call across the entire network. Each step of the call can be viewed and analyzed to assess issues.

Network alerts

Network issues and alerts for numerous issues, such as poor voice quality or slow responses, can be established with configurable network and service KPI alarm thresholds, and the alerts can be viewed instantly through a configurable dashboard. Dashboard graphs can include transit and response times, the number of registered users, the number of error calls, and so on. Alerts can be exported to network management systems with SNMP traps.

Call logs

Oracle Communications Operations Monitor provides a list of all active and finished calls for the full network as well as a filter capability to identify problematic calls for further analysis. This explorative approach enables operations staff to browse the network at the application level.

Presence events monitoring

Oracle Communications Operations Monitor allows monitoring of presence events (subscribe, notify and publish) messages, thereby enhancing the level of information a network user can access to better identify and troubleshoot network issues. The presence events form significant part of network transactions and can impact network performance and it becomes imperative to effective monitor these events to identify network congestions.

UCaaS Monitoring (Microsoft Teams Direct Routing calls)

Oracle Communications Operations Monitor allows end-to-end monitoring of Microsoft Teams Direct Routing calls by allowing integration with Microsoft Graph APIs to gather call data from the Teams systems. This information is then correlated with the Session Border Controller leg of the call to provide holistic, end-to-end,

and real-time visibility into Direct Routing calls. This enhances the breadth of information that is available to the users thereby allowing faster and a more comprehensive troubleshooting.

Troubleshooting features

IP decoding and filtering

This feature enables network operators to see a packet-by-packet view. The full IP packet exchange between each network element can be analyzed for better troubleshooting and voice and video issue location. Not only is the overall packet loss of one call provided, but the frequency of the packet losses (burst packet loss) is also provided so operations staff can better understand the impact of voice and video quality issues.

Media recording

Oracle Communications Operations Monitor may be used to record media from a particular user for later playback for further quality analysis. Not only can one playback the media, but also get information on codec and the media type information for the call. The recorded media may include audio, video, text, image, messages, and even T.38 fax transmissions.

In-depth, root-cause analysis

Oracle Communications Operations Monitor enables users to drill down from the network level to localize root-cause issues at the element, customer, device type, and end-user levels. Bidirectional data capture enables network operators to quickly locate on which part of the network a message has not been sent and whether the defective side was the intended recipients or the callers.

Automated alias detection

Different aliases are aligned automatically for a customer, based on end-to-end call correlation and topology. Manual tweaking is also possible. This is especially important for large network topologies in which different numbering and addressing schemes implement complex routing decisions.

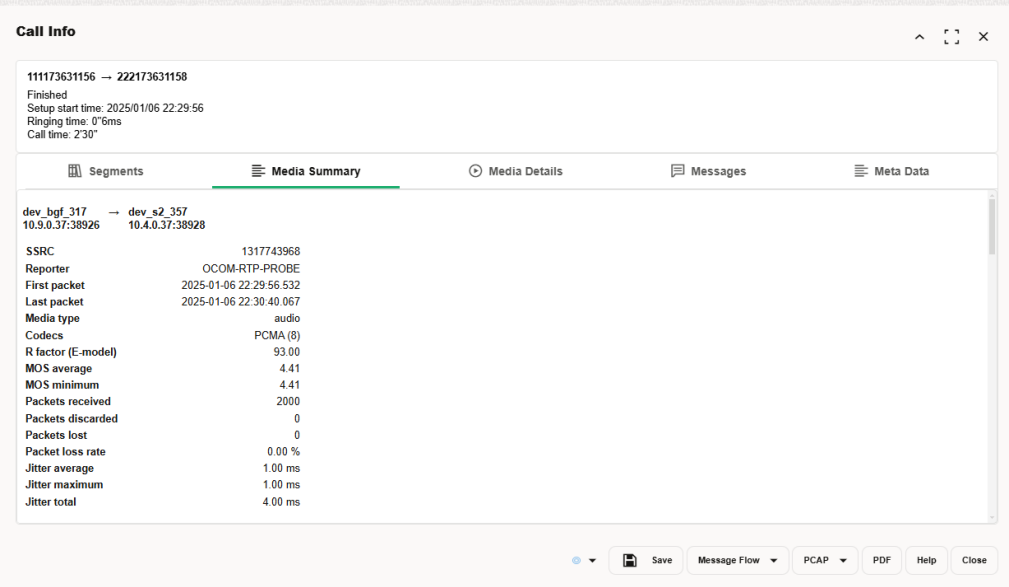
Live user search

The right user can be found quickly with live user search functionality, and only part of the phone number is needed. Additionally, a deep link access is possible, which is useful for connecting to third-party products such as call center solutions or umbrella network monitoring tools. With a single click in these systems, network operators can jump right into Oracle Communications Session Monitor products with the corresponding user already preselected. It takes only seconds to view the current and past situation of a customer at a glance, with no provisioning required.

Call drill-down

Oracle Communications Operations Monitor enables drill-down to the signaling level and to voice parameters (it requires the Media Quality extension). It provides the call and media session information end-to-end and makes it easy to identify the root cause of a signaling or media issue. If needed, the full details of all protocol messages are as available as the exporting to packet capture (PCAP) format for communication with vendors and other departments. Oracle Communications Operations Monitor can be used in conjunction with existing tracing and troubleshooting tools and scripts, including widely used open-source tools such as Wireshark.

Figure 2. Network Operators can analyze call message flows to proactively identify and correct voice quality issues.



Ease-of-use and interoperability features

Simple and intuitive GUI

The user interface is designed for efficient daily use and serves beginners and advanced users equally well. Important information is easy to spot, and more in-depth information is available on intuitive links. Almost no training is required, and existing staff can work on next-generation networks from the start. Each Oracle Communications Operations Monitor user can be assigned specific permissions and given visibility to specific segments of network traffic. This provides secure visibility into the network that is appropriate for each user's role. Each user also gets to define their own dashboard by selecting the widgets they want to see. As a fully web-based solution, it minimizes infrastructure and maintenance efforts.

Open operation and business support systems (OSS/BSS) interfaces

Oracle Communications Operations Monitor is easily integrated with third-party umbrella management systems and other OSS/BSS solutions via the standard SNMP interface or the optional REST Remote API extension for Oracle Communications Operations Monitor for tighter integration scenarios, such as traces, calls, registrations, KPIs, and user experience information.

Call detail record (CDR) generation

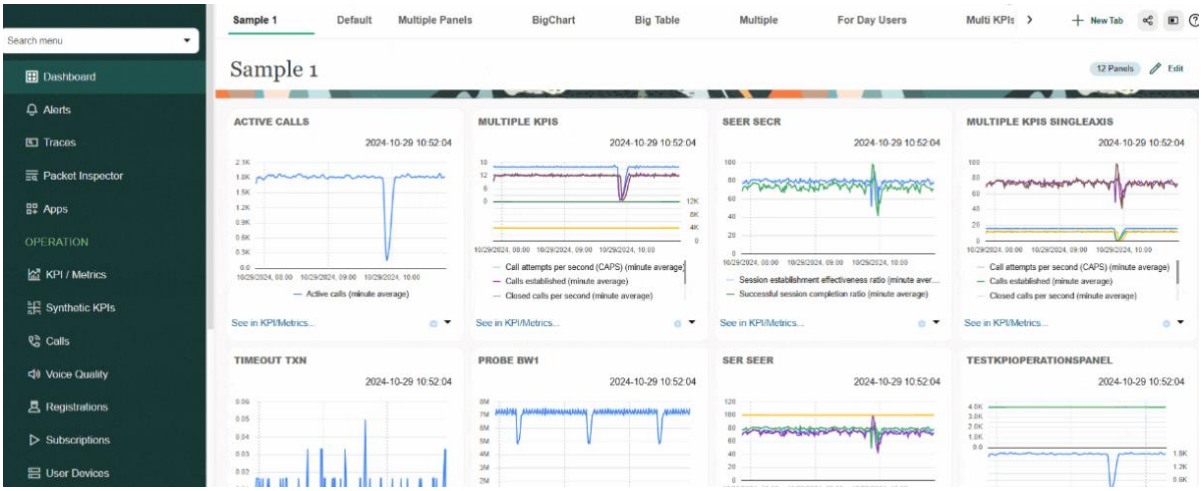
The optional CDR Generation feature of Oracle Communications Operations Monitor provides end-to-end call detail records for processing by third-party systems or for statistical analysis. These CDRs contain additional information detailing network segments the call has traversed and voice quality information. Through Oracle Communications Session Monitor products' unique call correlation functionality for all calls, the CDRs can also be a valuable resource for business intelligence solutions.

Dashboards

Oracle Communications Operations Monitor comes with a dashboarding tool for producing a range of charts and graphs to display, track, and record traffic data. It also provides a data export facility for offline reporting tools, enabling raw data to be exported into PCAP, comma-separated values (CSV), and PDFs.

All reporting information can be made available through the optional REST API for automated machine processing.

Figure 3. Oracle Communications Operations Monitor includes a dashboarding tool for producing a range of charts for displaying, tracking, and recording traffic.



Additionally, call data content and incidents can be exported in CSV format for post-processing in desktop applications. Internal tagging of customer experience information can help facilitate internal communications between all departments accessing Oracle Communications Operations Monitor dashboards.

Service dashboards

Color-coded dashboards enable problems to be recognized at a glance. Statistics on recent calls can include:

- Successes versus failures
- Voice quality information (requires the Media Quality extension)
- Call history with detail information
- Drill-down into protocol details for all recent calls

User equipment dashboards

The end device details for each user include:

- Recently used devices
- Brand, type, and firmware information
- IP address information
- Network address translation (NAT) information
- Recent working and failed registrations
- Concurrent device usage

Statistics dashboards

The statistics and KPIs provided for a single subscriber include:

- Distribution of calls by destination
- Call success rate
- Average call length
- Average number of calls per day
- Ratio of incoming versus outgoing calls
- Average mean opinion score (MOS) value
- Count of Microsoft Teams Direct Routing calls at any point in time

Statistical information is important for better understanding customer behavior and estimating the overall service quality for each customer. For service providers, these statistics also provide an opportunity to up-sell according to usage patterns, such as flat rates or packages.

Add-on extensions

You can enhance Oracle Communications Operations Monitor by purchasing optional add-on extensions to leverage additional functionality. The following optional extensions enhance the performance of Oracle Communications Operations Monitor and provide a customized solution tailored to specific user requirements:

- The Mediation Engine Connector extension simplifies the management of multiple Mediation Engine monitoring nodes and maximizes the benefits of Oracle Communications Operations Monitor in multiple locations. It provides an overview of the data collected by the mediation engines, offering a global dashboard. The global search and drill-down features of the Mediation Engine Connector enable network operators to scale the troubleshooting features of Oracle Communications Operations Monitor across multiple sites. Operations personnel can rapidly gain an understanding of the overall status of the global network while obtaining the ability to drill down to troubleshoot issues.
- The Media Quality extension enables the retrieval and processing of media quality information from Real-time Transport Protocol (RTP) traffic and from reporting customer premises equipment.
- The App Support extension adds support for customer-specific applications and provides additional functionality that integrates seamlessly into the web application. It enables customers to develop custom functionality that is unique to their needs or not yet available in Oracle Communications Session Monitor products.
- The REST Remote API extension provides an open interface to Oracle Communications Session Monitor products, so third-party applications can access real-time and historical data. The internal data—including raw and aggregated data such as traces, calls, registrations, KPIs, and user experience information—can then be exposed to third-party systems.
- The CDR Generation extension generates CDRs for successful and failed calls, based on Oracle Communications Operations Monitor's end-to-end call correlation.
- The SS7/SIGTRAN Protocol extension extends the set of supported signaling protocols with M2UA, M2PA, M3UA, and ISUP, in the context of SIP/ISUP calls and registrations.
- The Gateway Control Protocol extension extends the set of supported signaling protocols with the relevant gateway control protocols, H.248, and Media Gateway Control Protocol (MGCP). Gateway control protocols are frequently used in IMS/LTE and heterogeneous networks.
- The Diameter Protocol extension provides Diameter protocol support, including full correlation with call signaling protocols. Diameter is widely used in IMS/LTE networks, and this feature supports the IMS Cx interface with the Home Subscriber Server (HSS).
- The ENUM Protocol extension enables support for the processing of ENUM messages.
- The UCaaS Monitoring extension enables configuration of Operation Monitor to connect to Microsoft Teams admin center to gather call details for Teams Direct Routing calls and correlate them with the Session Border Controller call leg.

Why Oracle Communications Operations Monitor?

Innovative. A constant evolving software-based solution available to run on standard hardware servers, virtual machines (VM) and cloud, built on modern architecture and cutting-edge technology.

Intuitive. Easy-to-use interface, it does not require extensive protocol knowledge.

Time-saving. Spend less time assembling data, setting up infrastructure, finding and fixing network issues.

Extensible & Open. Plug-in interface for Apps and a REST API for managing new requirements; direct integration to Oracle network products technology.

Real-Time. Sub-second visualization, analysis and troubleshooting on real time calls without waiting for CDRs or database aggregation.

Exhaustive. A comprehensive solution in the market combining communications monitoring and troubleshooting.

Related products

- Oracle Enterprise Operations Monitor