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## **O-RAN Alliance Continues to Grow as Global Operators and Suppliers Reach Across Borders to Collaborate on Open Innovation in Radio Access Networks**

- The global adoption of O-RAN Alliance specifications by the industry is creating the foundation for the future of Radio Access Networks
- O-RAN growth continues, with Vodafone as the newest operator member
- 22 planned MWC demonstrations of O-RAN-based equipment implementations are being converted to an O-RAN virtual showcase

**Bonn/Germany, February 20, 2020** – The O-RAN Alliance continues to gain momentum in enabling the Radio Access Network (RAN) industry to deliver intelligent, fully interoperable, virtualized and open RAN. This global collaboration represents a unique willingness to reach across borders and create new platforms that will drive innovation for everyone.

Two years ago, 5 mobile carriers spanning the continents of Asia, Europe, and North America joined forces to launch the O-RAN Alliance as “a world-wide, carrier-led effort to drive new levels of openness in the radio access network of next generation wireless systems.” A year later, nearly 80 participating companies released O-RAN’s first specification and technology demos.

Nine new operators have joined the O-RAN Alliance in 2019 and 2020, including Bell Canada, BT, Chunghwa Telecom, DISH Network, KDDI, SoftBank Corp., Sprint and Vodafone. Now with over 160 companies (including 24 mobile operators across 4 continents), O-RAN is governed by a global board spanning 4 continents and 11 countries (4 from Europe, 2 from China, 2 from India, 2 from Korea, 2 from US, and 1 each from Australia, Japan, and Singapore).

O-RAN’s emphasis on openness is reflected in its structure as an open technical organization, where incumbent as well as emerging industry players can join and contribute to its architecture and specifications. The O-RAN Alliance has now approved 31 specifications, released 1.3M lines of open source code (in partnership with the Linux Foundation), and held its first multi-continent global plugfest.

“The adoption of the O-RAN Alliance by the industry is an inspiring example of how operators and suppliers around the world can sit down together to design and release technical standards that work for everyone,” said Andre Fuetsch, Chairman of the O-RAN Alliance and Chief Technology Officer of AT&T. “The O-RAN Alliance now brings together a global force of 24 carriers committed to improving the performance and efficiency of their mobile networks. As the 5G era takes off, the O-RAN Alliance stands poised to enable the network experiences that all of our customers expect.”

“The O-RAN Alliance has rapidly grown from the five founding mobile operators to more than 160 operators and contributors comprising industry leading large vendors, small & medium companies, start-ups and academic institutions,” said Alex Jinsung Choi, COO of the O-RAN

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Alliance and SVP Strategy & Technology Innovation, Deutsche Telekom. “We are proud to welcome such a diversity of members in our joint effort to lead the industry towards next generation open and smart RAN.”

The O-RAN Alliance members were prepared to showcase 22 demonstrations of real O-RAN-based equipment implementations at Mobile World Congress (MWC), further proving the O-RAN Alliance’s progress towards the maturity of open and smart RAN equipment. As a result of MWC’s cancellation, many of these demonstrations will be made available as part of a virtual showcase, which will be announced soon.

“The progress being made through the O-RAN Alliance is real and these demos will help to continue the group’s momentum,” said Chih-Lin I, Co-chair of O-RAN Technical Steering Committee (TSC).

#### **Demo list:**

AT&T and CommScope are showcasing O-RAN’s vendor agnostic Operations, Administration and Maintenance (OAM) Architecture and O1 interface specification. The demo will perform live configuration, performance, and fault management from CommScope’s OneCell system at the Rutgers University WINLAB using Open Network Automation Platform (ONAP) as the Service Management and Orchestration (SMO).

China Mobile and BravoCom are co-sponsoring an intelligent RAN control demo. This demo showcases a Near-real time Radio Intelligent Controller (RIC) performing Radio Resource Management (RRM) optimization, a video KQI prediction and RRM enforcement xAPP using machine learning, and a non-real time RIC performing dynamic cell-splitting/merging based on the KQI/KPI status of cell.

AT&T and Nokia are co-sponsoring a demo of the O-RAN OSC open source near-real-time RAN Intelligent Controller (near-RT RIC) running at the network edge on an Akraino-based Open Cloud Platform. The demonstration is based on live trials of the platform conducted on AT&T’s 5G mmWave network and will showcase life cycle management of xApps, specifically an admission control xApp controlling RAN behavior.

China Mobile and Nokia are co-sponsoring an intelligent RAN control demo. The demo will showcase AI-empowered QoE assurance of Cloud VR with machine learning based radio available bandwidth and QoE prediction to enable AI-adaptive rate adaptation.

Samsung and KDDI are co-sponsoring an intelligent RAN control demo. This demo will showcase E2 Closed loop RAN Resource Control and Network Slicing.

Sterlite will be sponsoring a demo on Intelligent RAN control. This demo showcases a Non-Real Time Radio-Intelligent Controller managing a machine learning algorithm that can predict cell

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load. This load prediction model is used by a Mobility Load Balancing xAPP in the Near-Real Time RIC Controller to manage the cell load using performance metrics from the E2 nodes under varying mobility scenarios.

VIAMI is sponsoring an open fronthaul demo consisting of an O-RU emulator integrated with TM500 UE emulator which will be used to test the O-DU connected over O-RAN open fronthaul. The ability for vendors and operators to test the performance of gNBs based on O-RAN architecture independently of O-RUs will be key to accelerating commercialization of O-RAN technology.

NEC will show their O-RAN Open Fronthaul compliant small-cell RUs that support the 3.7GHz, 4.5GHz and 28GHz bands. Interoperability of these RUs with another vendor's CU/DU over the Open Fronthaul interface has been verified by NTT DOCOMO and deployed in their commercial 5G network.

Keysight and Xilinx are co-sponsoring two open fronthaul demos. This demo consists of a Xilinx O-RAN enabled Antenna Array Radio Unit demonstration using Keysight O-RAN O-DU emulation combined with RF measurements. A second demo consists of a sub-6 GHz antenna featuring a remote radio head with O-RAN compliant fronthaul interface.

NVIDIA and Keysight are showcasing an open fronthaul demo. This demo highlights interoperability between an NVIDIA Aerial SDK-accelerated 5G gNodeB and a Keysight UeSIM over O-RAN compliant fronthaul link.

AT&T, CommScope, and Intel are demonstrating mmWave 5G gNB and 7.2x open fronthaul demo. This live demo showcases a virtual reality application of a 360-degree zoo experience using Intel's FlexRAN to deliver live O-RAN 7.2x traffic to CommScope's 5G mmWave radio.

EXFO is sponsoring an open fronthaul demo. This demo consists of an O-DU emulator connected to an O-RU emulator using the O-RAN open fronthaul specification over an eCPRI protocol at 25Gbps.

SKT, Keysight and SOLiD are co-sponsoring an open fronthaul demo. Keysight O-DU emulator will be used to test the SOLiD 28GHz O-RU connected over O-RAN WG4 open fronthaul defined APIs over the eCPRI interface. Also, 28GHz RFIC performance and beamforming functionality will be evaluated for use in SKT's 28GHz in-building systems.

Mavenir will be sponsoring a demo on Open Fronthaul. This demo showcases 4G and 5G RAN products using the O-RAN architecture with split 7.2x and split 2 interfaces with MTI and NEC.

Radisys is sponsoring a multi-vendor ecosystem demo includes an O-DU communicating with the O-RU operating in the 3.5GHz band (n78) over the open front-haul (OFH) interface for gNB split option 7.2x. This demo leverages components and technologies and can be adapted to other configurations, such as frequency band and transmit power, with minimal effort.

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Ciena, Radisys, Wind River, AT&T and DISH Network are co-sponsoring a demonstration of 5G Edge orchestration and optimization. This demo consists of a multi-vendor implementation of O-RAN O1 and O2 interfaces to drive dynamic optimal placement and configuration of 5G RAN, Transport and 5G Core components to support latency critical 5G Edge applications.

China Mobile and Lenovo are co-sponsoring a full-stack O-RAN solution in combination with MEC applications. The demo features O-RAN deployment scenario B, consisting of O-RAN cloud platform, O-CU, O-DU, and O-RU. The edge cloud platform also hosts MEC applications, enabling a 5G smart transportation use case.

Altran, Baicells and China Mobile are co-sponsoring a whitebox hardware demo that showcases a stand-alone end-to-end use case using whitebox hardware for an indoor pico cell.

China Mobile, Radisys, QCT and Intel are co-sponsoring a whitebox hardware and O-RAN stack demo. This demo showcases an end-to-end solution for 5G Stand Alone based on the O-RAN software architecture and open fronthaul interface specifications.

China Mobile, ArrayComm, CIG, Altran, Wind River and IPLOOK are co-sponsoring an O-RAN compliant whitebox and 5G stack demo. This demo showcases an end-to-end 5G Stand Alone application based on ARM hardware and cloud platform.

China Mobile, CertusNet, Lenovo and NTS are co-sponsoring the demo of an integrated small cell solution based on cloudification and virtualization. This demo showcases the decoupling of hardware and software based on O-RAN architectural principles.

VMware and Netsia are co-sponsoring a live end-to-end Network Slicing and Service Orchestration demo, using a multi-domain and multi-cloud environment. The demo showcases network slices that are built on-purpose for specific network services and optimized for prescribed QoS SLAs, spawning over the Radio Access Network, Edge Clouds, Transport Network, Core Clouds and Public Clouds.

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## About O-RAN Alliance

O-RAN Alliance is a world-wide community of more than 160 mobile operators, vendors, and research & academic institutions operating in the Radio Access Network (RAN) industry. As the RAN is an essential part of any mobile network, O-RAN Alliance's mission is to re-shape the industry towards more intelligent, open, virtualized and fully interoperable mobile networks. The new O-RAN standards will enable a more competitive and vibrant RAN supplier ecosystem with faster innovation to improve user experience. O-RAN-compliant mobile networks will at the same time improve the efficiency of RAN deployments as well as operations by the mobile operators. To achieve this, O-RAN Alliance publishes new RAN specifications, releases open software for the RAN, and supports its members in integration and testing of their implementations.

For a short video describing O-RAN's progress, see [www.o-ran.org/videos](http://www.o-ran.org/videos)

For more information please visit [www.o-ran.org](http://www.o-ran.org)

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