Perspective

Huawei advances agent-driven autonomous operations for intelligent wireless networks with OpenAN

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Analysys Mason attended Huawei's Decoding China event in Shanghai in October 2026. Huawei has set out a new strategy for intelligent wireless networks, which harnesses new radio hardware, agentic operations and the OpenAN framework to accelerate the journey to L4/L5 autonomous networks. The presentations, meetings and discussions at the event form the basis for this article, supplemented by Huawei's public materials and Analysys Mason's own analysis.

Huawei is advancing its intelligent wireless network solution to support stricter requirements for AI-enabled diversified services

Wireless networks face increasingly stringent requirements for capacity, uplink capability, latency and reliability, due to services becoming more diverse and the number of connections continuing to rise exponentially. The growing deployment of AI agents and physical AI that offload perception and inference processes to the cloud is leading to demands for stronger uplink capabilities to support training and inference.

Huawei's intelligent wireless network solution addresses this challenge by leveraging AI across various layers of the network and services. It is built on a three-layer intelligence framework comprising the following.

- **The network element layer.** This includes algorithm optimisation for RANs, intelligent service identification for WANs and unified service intent for core networks. Network elements collect high-precision sensing, enabling real-time awareness of multi-dimensional data and feeding it upwards for policy execution.
- **The network layer.** RANSpirit combines the telecoms foundation model with Huawei's RAN Digital Twin System to enable intent-driven resource scheduling and closed-loop optimisation towards single-domain autonomy in the wireless domain.
- **The service layer.** The operator's own agent or third parties' platforms orchestrate scenario-specific policies and processes across domains to close the end-to-end value stream for event processing, experience assurance, complaint handling and marketing.

The rationale behind this framework is latency partitioning, where time-critical loops are executed within domains at second-to-minute timescales, and global, cross-domain policies are handled at the upper layer.

At the operational level, guaranteeing differentiated per-service performance requires resources to be reallocated dynamically with closed-loop automation. Huawei's approach to agentic operations has shifted this year: Huawei is now combining its agents for different scenarios into a single RANSpirit agent. RANSpirit delivers unified wireless single-domain autonomy as an integrated agent capable of multi-objective sensing, analysis, decision-making and execution. RANSpirit currently serves more than 1.2 million cells across 25 networks globally (Figure 1).

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Figure 1: Intelligent RAN automation deployments using RANSpirit, worldwide, 2026

Region	Use case	Result
Philippines	A self-organising-network (SON) solution across the entire network, where RANSpirit can identify out-of-service cells within minutes and schedule neighbouring cells to compensate for the lost traffic	In typhoon scenarios, where 1700 cells experienced out-of-service conditions, the system scheduled around 8000 neighbouring cells, successfully recovering nearly 5000GB of service traffic
Côte d'Ivoire	Integrates weather forecasts to predict energy output and dynamically adjust energy-saving strategies	Weekly outage duration down 64% from 51 hours to 18 hours; site traffic up 75%
Europe	Intelligent network load scheduling based on service priority, protecting critical services such as voice, to protect from risks of large-scale power outages	Effective back-up power duration of base stations increased by four times
Kuwait	Intelligent auxiliary troubleshooting, where FMEMate automatically associates alarms, infers the root cause of faults and generates handling recommendations	Average fault handling time (MTTR) reduced by 21%; less outdoor working time for engineers in high temperatures
China	Intelligent scenario-based experience management covering estimation, assurance, protection and evaluation of mobile service packages	Uplink live streaming rate up 38%; WeChat latency down 28%

Source: Huawei

OpenAN aims to accelerate multi-agent collaboration across multi-domain autonomous networks use cases

OpenAN is an open, vendor-neutral framework by the Linux Foundation that enables cross-layer, cross-domain integration of telecoms-specific agents. It also allows for multi-agent collaboration to accelerate autonomous networks with efficient orchestration and interaction. First announced at MWC 2026, OpenAN has been spearheaded by contributions from co-initiators China Mobile, Huawei and other globally renowned communications and technology enterprises. The first release in June 2026 contained three components.

- **A2A-T SDK**. The telecoms-grade extension of the A2A protocol enables deterministic, network-scenario-compliant cross-layer agent collaboration.
- **Registry Center.** The agent discovery service registers agents and their skills, handles authentication and addressing, and uses LLM-aided retrieval to match an intent to the right agent.
- **Orchestration Center.** This provides a low-code and no-code canvas for visual workflow orchestration, can import TM Forum AN Solution Packages directly and offers pre-built packages for high-value use cases.

The A2A-T protocol is an extension of Google's Agent-to-Agent (A2A) protocol, standardised at TM Forum as IG1453. It adds four telecoms-grade enhancements based on A2A. The extensions address

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a property missing from general-purpose agent protocols, namely that execution errors on a live network carry service-affecting cost. The specification is published by TM Forum as IG1453. By building on A2A, vendors already using it can simplify agent co-ordination and position A2A-T as a telecoms profile, though operators should press for upstream alignment to prevent a fork as A2A evolves.

At Huawei Decoding China 2026, Corporate Vice President and President of Wireless Network Solution Fang Xiang introduced RANSpirit and OpenAN as complementary solutions for autonomous networks, presenting energy savings as the first use case in the RAN domain, while a cross-domain fault co-ordination solution is still being developed. Realising Level 4 autonomous networks requires end-to-end cross-domain autonomy. This remains a challenge due to complex multi-domain integration and the lack of unified, standardised protocols needed for cross-layer, cross-scenario agent collaboration, built on a shared ontology for consistent interpretation of faults, intents and resources. Key OpenAN components, including the Agent Framework with reusable practice templates, agent audit traceability and AN ontology, are evolving on the project roadmap, with community contributions advancing these capabilities progressively.

Greater industry collaboration is needed to overcome challenges in scaling agentic operations

OpenAN is one of several LFN projects addressing network automation. The ecosystem may further elaborate on its alignment with other LFN initiatives in the future. The community should also specify the integration approach for A2A-T to connect with MCP for agent-to-tool access. An MCP co-existence profile is recommended to standardise vendor implementations and reduce integration complexity.

Security and auditability capabilities such as verifiable identity, least-privilege authorisation and traceable responsibility are key focus areas for the trust framework. The GSMA is consulting on a white paper on trust for agent networks to provide unified industry guidance. Because the ecosystem supplies modular agent capability, new commercial approaches are being evaluated, including ROI- or outcome-based pricing and usage-based options, such as charging by the number of API calls made to an agent.

OpenAN is backed by other founding members, including AIS, AsiaInfo, Infosys, Orange, Personal and ZTE, and the circle widening slowly: Zain, Inspur and China Unicom now appear among the project's 11 listed participants. Further opportunity exists to broaden the ecosystem to include more global vendors and operators. In response, the GSMA has launched its Open Autonomous Network (OAN) Agent Ecosystem Project to consolidate consensus among partners and support commercial implementation.

OpenAN's A2A-T network-specific primitives and LFN hosting give the project a credible technical base. Its governance framework continues to evolve, guided by China Mobile and Huawei, while welcoming wider community input. OpenAN has also laid out further plans to launch new scenario solution packages developed through joint operator innovation. In addition, it intends to announce new contributors to TM Forum's Innovation Hub Pioneer Project, which will take place by the end of the year, before operators begin commercial verification of OpenAN deployments in 2027.

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Operators should review evidence for multi-vendor, cross-domain trials and published results before making architectural commitments, and consider how the 2027 verification milestones will support protocol evolution. Vendors should participate in these trials as a qualification criterion for any claim of A2A-T support. Standards bodies will play a key role in providing guidelines for conformance testing and mappings to existing TM Forum specifications so that OpenAN becomes a common industry framework.

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