NAND RESEARCH

RESEARCH NOTE

INTEL MWC EDGE & AI/RAN ANNOUNCEMENTS

STEVE MCDOWELL, CHIEF ANALYST
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CONTEXT

Intel announced a new edge platform and highlighted its momentum in AI-assisted vRAN/O-RAN acceleration at the recent MWC conference in Barcelona.

NEW: INTEL EDGE PLATFORM

Intel's new Edge Platform is a, modular and open software platform designed to significantly simplify the deployment, development, management, and security of edge and AI applications for enterprises.

This platform provides cloud-like ease of use for managing applications at the edge, facilitating faster deployment and improved total cost of ownership (TCO) for businesses.

Intel's new edge platform addresses the escalating compute demands at the edge, where data generation and AI integration are increasingly critical. It tackles several challenges, including the difficulty of building performant edge AI solutions, the diversity of hardware and software needs, the secure and efficient handling of large data volumes for AI, and the complex management of distributed edge devices and applications at scale.

Intel's Edge Platform is appropriate for various use cases requiring advanced networking and AI analytics with low latency, such as defect detection in industrial settings, frictionless retail checkout, and smart city traffic management. It supports hybrid AI scenarios, combining on-premises analytics with cloud processing to efficiently manage global deployments.

Key features of the platform include:

- **Open and Modular Design:** Facilitates easy integration into existing environments or the development of tailored solutions, leveraging Intel's vast experience and ecosystem in edge computing.

- **Infrastructure Management and AI Application Development:** Offers capabilities that can seamlessly integrate into existing software stacks through open standards, enhancing the flexibility and scalability of edge deployments.
- **Built-in OpenVINO AI Inference Runtime:** Optimizes applications for low latency and power efficiency at the edge, enabling standard hardware to run AI applications without the need for costly upgrades.
- **Secure, Policy-Based Automation:** Automates IT and OT management tasks, ensuring secure and remote provisioning, onboarding, and management of a wide range of edge nodes.
- **Closed-Loop Automation and Deep Hardware Awareness:** Utilizes policies and observability to optimize operations across the network, improving TCO with an emphasis on efficiency and security tailored to Intel architecture.

For developers, the platform promises finely tunable application orchestration, powerful AI models and application development tools, and various edge services. These include data annotation and vertical industry-specific services to enhance outcomes in common use cases.

Intel's Edge Platform wlll launch with support from a broad and proven partner ecosystem, including major industry players like Amazon Web Services, Capgemini, and Verizon Business, underscoring Intel's role in driving innovation in edge computing and its potential to revolutionize enterprise operations at the edge.

NEW: INTEL AI/VRAN ENHANCEMENTS

Intel is leading the integration of artificial intelligence (AI) into the evolving landscape of the mobile industry, specifically focusing on adopting vRAN.

Here are the key highlights of Intel's recent announcements and developments:

1. **4th Gen Intel Xeon Processors with vRAN Boost:** Intel introduced commercial availability of its 4th Gen Intel Xeon processors, codenamed Sapphire Rapids EE, featuring fully integrated Layer 1 acceleration designed for vRAN applications.
2. **Granite Rapids–D Platform:** Scheduled for availability in 2025, this future Intel Xeon platform will significantly improve vRAN performance and power efficiency through integrated vRAN Boost acceleration, AI acceleration, and other architectural enhancements.
3. **AI in vRAN:** Intel is leveraging AI to optimize network performance by enhancing radio resource allocation, increasing energy efficiency, and improving user experiences—Intel Xeon processors with built-in AI acceleration support efficient RAN inference workloads processing within the CPU.

4. **Intel vRAN AI Development Kit:**

    a. Aimed at select partners, this development kit enables the building of intelligence in the RAN without extensive AI expertise.

    b. It includes AI models optimized for vRAN use cases, built on top of Intel-optimized libraries and frameworks like oneAPI, TensorFlow, PyTorch, and tools like OpenVINO.

    c. The development kit leverages built-in AI acceleration, telemetry, and power management of Intel Xeon processors to help operators dynamically reconfigure their networks for cost savings and new revenue streams.

5. **Collaborations and Ecosystem Support:** Intel's work is supported by collaborations with AT&T, Deutsche Telekom, SK Telecom, and Vodafone, showcasing the benefits of AI in vRAN for improved energy efficiency, user experience, and guaranteed service level agreements (SLAs).

Intel's initiatives underscore its commitment to advancing mobile network technologies, promoting open and virtualized RAN architectures, and harnessing AI to create more efficient, responsive, and intelligent networks.

ANALYSIS

As businesses increasingly migrate towards data-driven operations, the demand for computing power closer to the source of data generation—namely, the edge—has surged. Intel's move is a strategic response to this burgeoning demand, offering a solution that promises to streamline the deployment and management of edge and AI applications with cloud-like simplicity.

Intel's Edge Platform appears poised to catalyze the next wave of digital transformation for enterprises. By addressing key challenges around flexibility, cost, performance, and security, Intel is not just selling a product but positioning itself as a central player in the future of edge computing.

The announcement of the commercial availability of 4th Gen Intel Xeon processors with vRAN Boost and the forthcoming Granite Rapids–D platform shows Intel's commitment to leading the industry toward more efficient, scalable, and intelligent network infrastructures.

Several key points stand out in Intel's vRAN strategy:

- **Technological Leadership:** The deployment of Intel's 4th Gen Xeon processors in major networks, such as Verizon and Vodafone, demonstrates Intel's technical edge and its processors' capability to meet the demanding requirements of modern vRAN deployments. Looking forward, Intel’s

upcoming Granite Rapids–D platform promises significant performance and power efficiency gains.

- **AI Integration:** By embedding AI capabilities directly into the RAN through processors with built-in AI acceleration, Intel is enabling a new level of network optimization. This approach should improve radio resource allocation, energy efficiency, and overall user experience by leveraging AI to analyze network data and make real-time adjustments.
- **Ecosystem Collaboration:** Intel's collaboration with leading telecom operators and technology partners shows strong ecosystem support in driving vRAN and O-RAN adoption. Partnerships with AT&T, Deutsche Telekom, and SK Telecom for AI-enhanced vRAN deployments put Intel in good company.
- **Development and Accessibility:** The introduction of the Intel vRAN AI Development Kit is a strategic move to lower the barrier to entry for incorporating AI into vRAN. By providing optimized AI models and development tools, Intel is facilitating the adoption of AI in networks and encouraging innovation among network operators and developers.

Intel's announcements reflect a broader industry trend towards virtualization and intelligence in network infrastructure. By leading with technological innovations and collaborative efforts, Intel is positioning itself and its partners to capitalize on the benefits of vRAN and AI, such as cost savings, operational efficiency, and enhanced service offerings.

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