SOLUTION BRIEF

Intel® Powered Edge Solutions

Converged Edge Reference Architecture (CERA) for On-Premise/Outdoor

The key to scaling the edge to cloud wireless infrastructure network transformation is a unified compute platform that converges private wireless network with IOT

EXECUTIVE SUMMARY

5G and IoT convergence are transforming network infrastructure, paving the way to deliver unprecedented wireless compute power to intelligent devices. Customers across industries are looking to take advantage of 5G to improve ROI by transforming existing services and making new use cases such as advanced automation and outdoor compute possible.

But challenges lie ahead as solution providers are struggling to keep up with demand. Building, testing, and onboarding new solutions at the on-premise and outdoor edge is costly and complex, as burdensome regulations, funding constraints, and lengthy development times impact development. At the same time, many customers are also seeking easy and effective solutions to evolve their private networks beyond Wi-Fi and Ethernet to include 4G and 5G wireless, which requires an additional investment in wireless. Only a truly unified compute platform can overcome these challenges to deliver on the promise of 5G and IoT convergence.

The Converged Edge Reference Architecture (CERA) platform is the industry solution to overcome these challenges. CERA unifies and converges IOT with wireless infrastructure network technology to simplify workload convergence at the edge while densifying wireless networks. The CERA reference platform abstracts network complexity and streamlines the solution get-to-market process from development to deployment, enabling solution providers to consume, deploy, and scale their services to offer new value to their customers.

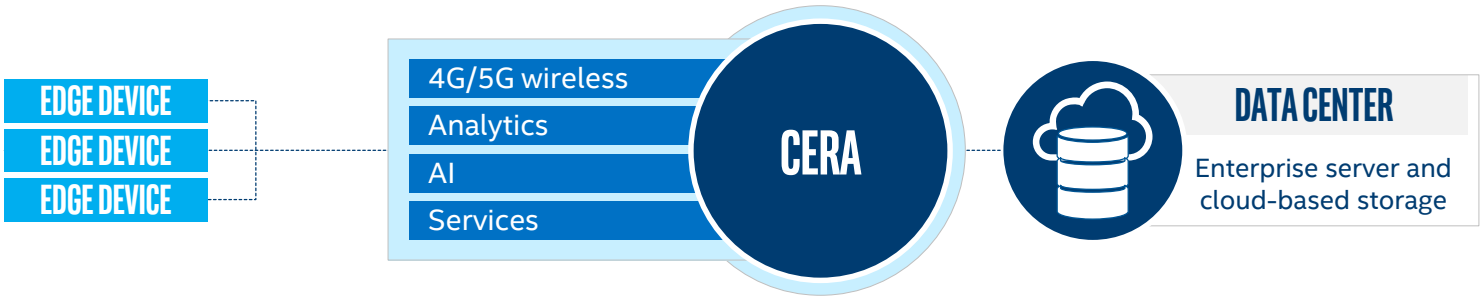

Figure 1. CERA consolidates workloads at the edge while densifying wireless networks

CUSTOMER BENEFITS

Realize edge value quickly

Deploy new edge services at reduced time-to-market/revenue through a simplified, secure architecture

Expand services

Unlock new possibilities and business opportunities within retail, industrial, and transportation

Scale confidently

Scale solutions on a unified platform designed to operate both indoors and out

HOW IT WORKS

CERA combines Intel®-powered, commercially-hardened hardware, software and support to rapidly deploy wireless networks through an all-in-one solution. CERA enables the network densification required to support 5G wireless infrastructure connectivity and consolidates workloads to grow compute-hungry workloads at the edge.

By harnessing the Intel® Open Network Edge Services Software (OpenNESS), CERA provides a platform to develop, securely on-board, and manage new edge services on the on-premise & network edge.

CERA IN THE EDGE-TO-CLOUD LANDSCAPE

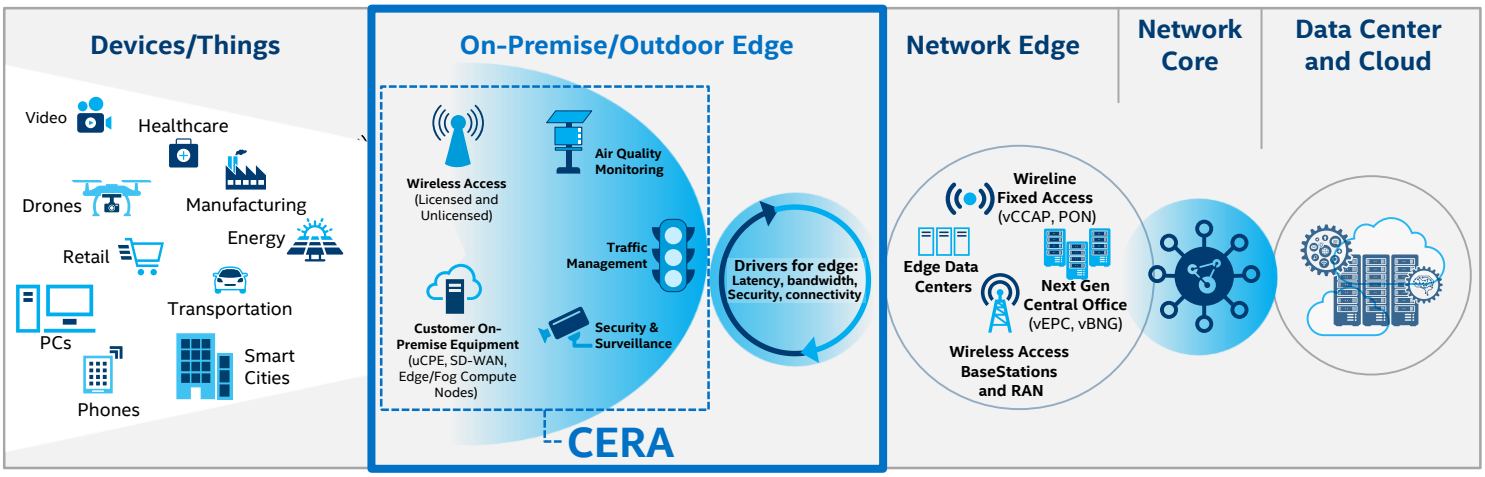

Figure 2. CERA completes the intersection of private wireless network infrastructures and edge workload devices to enable lower latencies and higher bandwidth

INDUSTRIES AND USE CASES

Form Factors

- Small Cells
- Street Lights
- Traffic Lights
- Retail & Public Kiosks
- Road Side Units
- Industrial & Enterprise Network Scaling
- Digital Security & Surveillance

Industrial

- Manufacturing
- Automation
- Worker Safety
- Device Connectivity

Retail

- Digital Signage
- Advertising
- Media Transcoding
- CDN
- Gaming

Transportation

- Traffic Management
- Intersection Safety
- Pedestrian Warnings

Monitoring

- Air Quality Monitoring
- Flood Warnings

DSS

- POI
- Security
- Surveillance
- Gun Shot Detection

SOFTWARE AND HARDWARE SUPPORT FOR CERA

Intel's comprehensive suite of 5G-optimized platforms and toolkits power a wide range of converged workloads.

- Intel® Xeon® and Intel® Xeon® Scalable processor-based solutions enable converged compute for on-premise locations.
- Intel® Movidius ™ Visual Processing Units (VPUs), Intel® Vision Accelerator Design Products and Intel® Field-Programmable Gate Arrays (FPGAs) power advanced programmable, automation, and AI use cases
- The Intel® Distribution of OpenVINO™ toolkit and other Intel® SDKs helps fast track the development of computer vision and deep learning inference applications
- Intel® Quick Assist Technology (QAT)
- Intel® OpenNESS toolkit to help abstract network complexity and ease to onboard and deploy cloud native applications and services
- Growing commercial ISV ecosystem enable powerful CERA-based solutions depending on specific applications and use cases

VALUE OF BUILDING ON CERA WITH INTEL®

EQUIPMENT AND TECH PROVIDERS

- **Co-develop with Intel®** and our cross-industry partner ecosystem
- **Co-market with Intel®** through joint initiatives, analysis, and site listing
- **Co-sell with the Intel® sales force**

SOLUTION INTEGRATORS

- **Offload testing** costs to estimate deployment demands
- **Accelerate time to market** with simple, pre-bundled deployments
- **Provide value-added services** for customization, support and operations

COMMS & TELCO SERVICE PROVIDERS

- **Expand your platform customer base** and cover more use cases
- **Improve the relevance** of your customer offerings
- **Capture operational technology** workloads with network integration

CUSTOMER DEPLOYMENTS

- **Explore alternate business** which includes Services platforms
- **Access to data sets** to drive value
- **Establish a win-win** relationship with solution providers and their end customers

Conclusion

CERA provides the unified compute platform needed to enable scaling the wireless network transformation from edge to cloud by combining wireless network with IoT edge node capabilities. With pre-bundled solutions and lower cost testing, CERA accelerates this transformation by simplifying the onboarding process of new solutions and services that were previously impossible. By leveraging additional resources and collaborating with Intel® to develop, market, and sell your converged edge reference architecture solutions to customers, you can scale your own business and unlock new opportunities.

To learn more about the Intel® technologies mentioned in this brief, please consult the following resources:

- Intel® Distribution of OpenVINO™ Toolkit (an open source version is also available)
- Intel® Open Network Edge Services Software toolkit

To learn more about our rich partner ecosystem comprised of ISVs, SIs, and more, visit the Intel® Internet of Things Solution Alliance directory for specific partners by domain: https://solutionsdirectory.intel.com/member-roster