DEPLOYING NEXT-GENERATION INITIATIVES AT THE EDGE

Leveraging Cloud + Edge computing to accelerate digital transformation

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SUPERMICRO

Supermicro is a global leader in high performance, green computing server technology and innovation. We provide our global customers with application-optimized servers and workstations customized with blade, storage, and GPU solutions. Our products offer proven reliability, superior design, and one of the industry's broadest array of product configurations, to fit all computational needs.

ACUMERA

Acumera is a leading provider of an edge computing software platform for hospitality and retail. Acumera's Reliant platform centralizes, automates, and controls application and content delivery, management, and security on-premise, in stores and restaurants. A natural extension of the cloud, edge computing reduces latency, supports continuous operations, and can accelerate digital transformation.

The Acumera Reliant platform is a ready-to-deploy, proven solution with embedded tools to support large scale distributed environments through virtualization, containerization, centralized management, and comprehensive monitoring and security. Acumera converges new and legacy applications into an integrated and scalable system that is hardware agnostic. Acumera's clients represent leading retailers and restaurants.

Executive Summary

Edge computing refers to computing done in close proximity to users instead of relying entirely on the cloud. For businesses like retail, hospitality, and financial services, this often represents their stores, restaurants, and bank branches. Consumer-engaging businesses are increasingly seeking digital transformation, and edge computing is where new innovation meets the needs of connected consumers.

Gartner predicted in 2017 that by 2020 we would see 20 billion connected "things" in the e-book: "Leading the IoT, Gartner Insights on How to Lead in a Connected World," and that prediction has certainly come true. Today, every business, employee, and consumer is connected by technology, which has driven businesses to create more services and immersive experiences that require large amounts of data processing in real-time. As a result, the retail and hospitality industries must deliver the kind of innovation these connected consumers expect, such as mobile shopping, video streaming capabilities, augmented reality, artificial intelligence, machine learning, and other new, exciting technology we now have at our fingertips.

Edge computing allows the cloud and physical world to integrate, providing this next-generation, digital-ready infrastructure to support speed to market, delivering digital and immersive experiences in your stores, restaurants, and branches.

The Acumera Reliant Platform
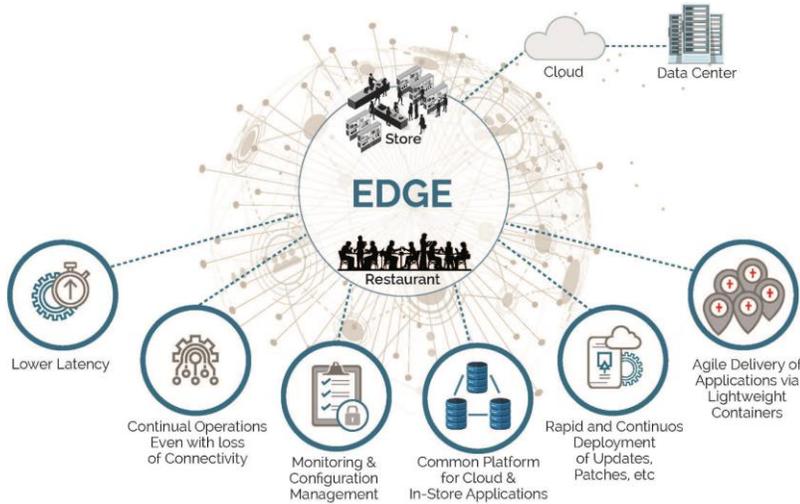
The Acumera Reliant Platform is a pre-configured, hardened platform for the retail and hospitality industry that includes leading tools for virtualization, containerization, monitoring, security for sensitive data, and centralized controls to manage a scalable infrastructure supporting legacy and next-generation applications, IoT, operating systems, and devices across thousands of geographically dispersed locations.

Figure 1: Acumera's Reliant Platform Benefits

The Acumera Reliant Platform provides five core foundational components:

1. **Application Hosting** - (containerization and whole OS virtualization)

2. **Centralized Management** – cloud-based web UI and REST-ful API enabled control

3. **Orchestration** – manage major or micro configurations across one, a set, or all sites, applications, and target endpoints under management

4. **Monitoring** – comprehensive toolset for application, and system availability, resources, services, and configurable thresholds for disk, CPU, RAM, port/service checks

5. **Data Collection** – centralized aggregation point within store/restaurant location for local log streams across all deployed hardware types, applications, and endpoints
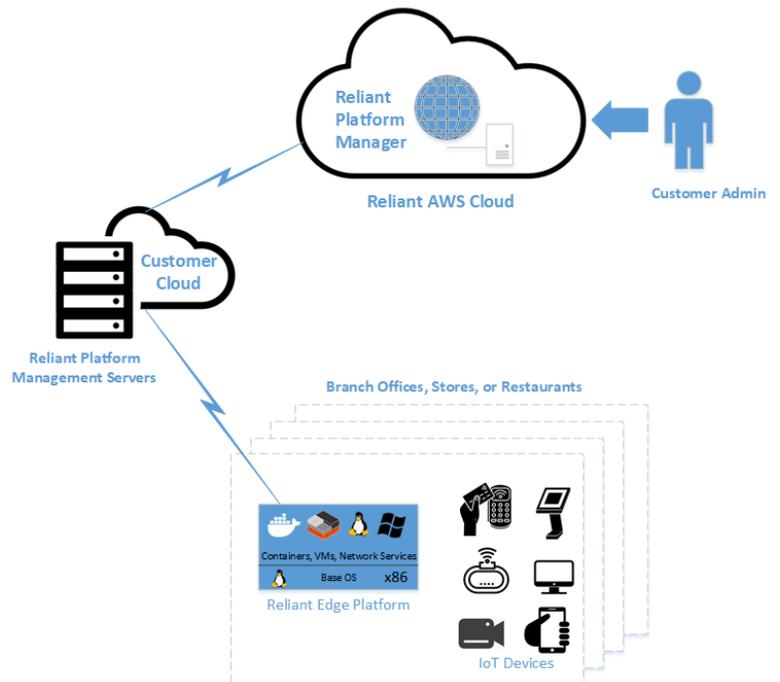

Figure 2: Acumera Reliant Platform Components

SUPERMICRO SERVERS FOR RETAIL EDGE

Supermicro supplies a range of servers optimized for Edge computing, with the processing power needed for applications and services required for retail and hospitality businesses. Edge SuperServers also support local data storage and coprocessors for Edge AI inferencing and visual computing.

E302-9D

The Supermicro E302-9D is a high performance fanless system that brings the power of the Intel® Xeon® D processor into kitchen environments where particulates and humidity wreak havoc on electronics.

5019A-FTN4

The 5019A-FTN4 is a low-power short-depth server that is ideal for the typical retail and hospitality environment while offering the cost/performance the market demands.

E200-8D w/Dual System Tray

Redundancy is a critical requirement for retailers, where downtime can result in lost sales. Supermicro's small form factor systems are the ideal solution to maintain retail uptime.

The Acumera Reliant Platform is delivered in two formats

Acumera provides the Edge Platform solution directly to end operators and large-scale franchise organizations. The Acumera Reliant Platform is both cloud agnostic and supports x86 on-premise hardware related to end-customer deployment. The Acumera Reliant Platform management plane runs in client data centers, at 3rd colocation providers, and major public cloud providers such as AWS, Google, and Microsoft Azure.

Platform as a Service ("PaaS") – where the Acumera Reliant Platform Edge solution is bundled with x86 physical edge capable hardware from an appropriate provider based on requirements with complete managed services, including encompassing account management/client services and level 1/2 break-fix support from a 24x7x365 US-based service center, core Acumera Reliant Platform release/updates, and patches.

Software as a Service ("SaaS") – software only where prospect reuses existing x86 physical hardware or where Acumera facilitates hardware selection based on requirements. For SaaS delivery, the operator or franchise operator usually provides level 1/2 support, however, the Acumera Reliant platform can also supplement potential operators' support resources through a separate statement of work. Additionally, Acumera Reliant provides core level 3 product releases, bug fixes, and scheduled maintenance releases.

Acumera Reliant & Supermicro Partnership

The Acumera Reliant platform utilizes off-the-shelf physical hardware directly from ISO certified vendors owned and managed facilities such as Supermicro. Reliant leverages Supermicro's ISO certification, including physical security controls, procedures, and processes including order placement, procurement, staging, integration, and shipment. All physical hardware built for Acumera end-customers as part of a Platform-As-A-Service (PAAS) is shipped directly to Acumera's facility for the secure application of Edge system image, required quality assurance (QA) testing, and shipment.

Edge Management Plane

As it relates to the overall Edge Management plane, the customer can leverage Acumera's existing PCI DSS validated

environment within AWS within a dedicated VPC or run those servers within their data center or authorized 3rd party hosting provider.

Connectivity between the Acumera Reliant Edge Platform running on physical hardware can be established through a software-based TLS/SSL VPN originating from the Edge Appliance directly to a Reliant managed aggregation point within either Acumera's AWS VPC, the specific Customer's DC, or an authorized 3rd party. Alternatively, the Customer may elect to leverage existing dedicated connectivity through their existing providers through MPLS or an alternate VPN solution such as IPSEC.

User authentication is based on username and password with multi-factor authentication into the central UI, which controls the Edge appliances, underlying hosted applications, and endpoints. Authentication between Cloud or Client DC management plane servers and the Acumera Reliant Edge Platform instances occurs through Acumera generated and managed certificates as part of Acumera's infrastructure.

Conclusion

Retail and Hospitality are increasingly improving customer experiences, efficiency, and profitability by expanding their Cloud-to-Edge compute capabilities.

Technologies and services provided by both Acumera and Supermicro deliver the right scalable architecture to enhance a greater amount of next-generation technology and capabilities at the Edge.   Ease of consolidating operations and managed centrally, migration to orchestration and virtual applications in a self-reliant system enables greater options for the store while providing AI and computer/machine vision applications, IoT, and immersive digital experiences at the Edge – inside the four walls of stores and restaurants.

Scalability, reliability, and the enhanced management services from Acumera and Supermicro create a great architecture to build upon and deliver faster digital transformation to meet today's retail and hospitality requirements.

For more information, please visit Supermicro or Acumera at:

www.supermicro.com/iot-edge

www.reliant.io