Acumera Case Study

Casey's

INDUSTRY: Convenience Store
NUMBER OF LOCATIONS: 2900+
HEADQUARTERS: Ankeny, Iowa

About the Company

With nearly 2,900 locations across 20 states, Casey's has built a strong reputation as a trusted fuel provider, but also as a destination for freshly prepared food, including its innovative pizza, delicious sandwiches, and a variety of bakery items. From one store in small-town Iowa in 1968, the company has successfully grown to the third-largest convenience store chain in the country. As the company expands its digital presence, with online ordering and a growing loyalty program, it continues to innovate and adapt to changing consumer preferences.

> The technology strategy for our stores is integral to Casey's growth by providing flexibility to add new technology that will enhance the experience for our guests and ensure uptime and resiliency for our team members who serve them. Moving to edge compute as our tech foundation allows us to grow and evolve our in-store IT systems at scale."

Sanjeev Satturu
Chief Information Officer for Casey's

Challenge

In recent years, convenience retail stores that sell food and fuel have significantly expanded their product offerings, introducing new complexities to their operations. These businesses now offer a wide range of freshly made food options, rivaling the variety found in quick-serve restaurants (QSRs). However, managing both an expanded retail and hospitality product mix and fuel operations presents unique challenges. As a result, these stores face increasing operational demands while relying on legacy IT systems—many of which have not significantly evolved for as long as two decades.

This complexity is further amplified by the surge in online ordering, a trend led by QSRs that convenience retailers are also adopting. With customers now expecting the convenience of online food ordering alongside traditional fuel services, these stores must juggle a variety of operational demands. The challenge lies in integrating these new services, which are best delivered by cloud-native applications, without having an advanced IT infrastructure. C-store legacy systems, designed for simpler times when they could get by with single-purpose hardware for critical functions like point-of-sale and fuel operations, are ill-equipped to handle the sophisticated operations and modern architectures required to manage the needs of a growing restaurant business.

However, there is a growing shift among forward-thinking retailers who are embracing modern IT architectures. These leading-edge businesses are adopting virtualized applications optimized on Intel® architecture CPUs, allowing them to run multiple applications within the c-store location. This modernization not only streamlines operations but also positions these retailers to better compete with both traditional QSRs and other convenience stores, offering a path forward in an industry that must evolve to meet today's technological and operational challenges.

Acumera, an Intel® Industry Solution Builders Retail Community member, has developed an edge computing solution to help convenience stores make the transition to a modern application infrastructure. The company has partnered with Intel to build a complete in-store IT solution for Casey's General Stores, Inc.

A Containerized Edge Solution

The Acumera Reliant Platform is a comprehensive cloud-to-edge solution based on Intel architecture processor-based servers, designed to meet evolving remote branch office compute needs in a range of industries, including convenience stores, retail, restaurants, and fueling stations. Figure 1 (pg. 3) shows how the platform offers retailers and restaurants a fully integrated system, eliminating the need for customers to build and manage the underlying infrastructure typically required for operations, such as point-of-sale (POS), fuel management, and expanded food service. By leveraging Acumera's robust platform, c-stores and other retailers can streamline their operations, improve performance, and reduce complexity in managing their IT environments.

At its core, the Acumera Reliant Platform provides a suite of essential services that allows businesses to optimize their operations in a highly flexible, scalable manner. One of the standout features of the platform is its use of Type 1 virtualization, which enables the efficient and secure deployment of multiple virtual operating systems on a single server. In addition, the solution concurrently supports Docker container-based workloads under a parallel Type 2 hypervisor that runs natively, without dependencies on any virtual machines.

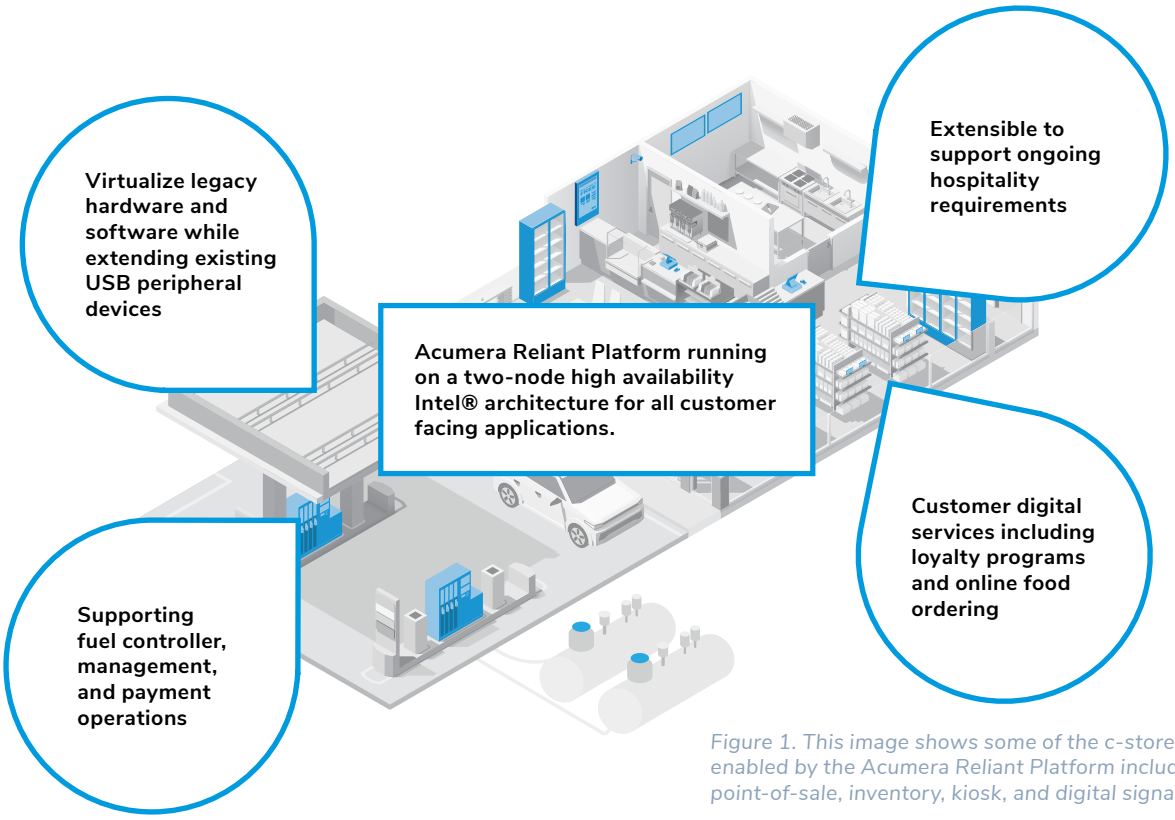

Figure 1. This image shows some of the c-store services enabled by the Acumera Reliant Platform including point-of-sale, inventory, kiosk, and digital signage.

The Acumera Reliant Platform also includes advanced monitoring, alerting, and data collection features, providing real-time insights into system performance. The platform's monitoring and alerting capabilities ensure that potential disruptions in fuel operations, point-of-sale systems, or kitchen operations are quickly identified, reducing down-time and ensuring a smooth customer experience. In an industry where both operational efficiency and customer service are critical, the platform provides the agility needed to meet customer expectations while maintaining complex systems.

Convenience stores, which face unique operational challenges due to the integration of fuel systems with food and retail services, benefit particularly from the flexibility and scalability of the Acumera Reliant Platform. With centralized orchestration and configuration management, retailers can deploy updates and new services across multiple stores seamlessly. This platform is paired with powerful configuration management and orchestration tools, ensuring that retailers can manage their distributed systems with ease and maintain consistency across multiple locations.

One of the key advantages of the Acumera Reliant Platform is its cloud-agnostic architecture. Retailers are not locked into a specific cloud provider and can choose to run the central management stack on any cloud platform they prefer, whether it's AWS, Google Cloud, Microsoft Azure, or a private cloud environment.

The platform's robust technology stack is built on open-source technologies, ensuring both flexibility and cost-effectiveness. It uses Debian Linux as the underlying operating system, Docker for native containerization, and Puppet for configuration management, along with a unique application independent orchestration framework, offering a highly reliable and scalable foundation for deploying and managing applications.

The open-source strategy behind the Acumera Reliant Platform not only provides access to a wide array of development tools but also ensures continuous innovation and community-driven improvements. This approach allows retailers to customize their environments to meet specific operational needs while benefiting from the reliability and security of a full-featured, open-source stack.

By delivering a complete, cloud-native solution with advanced features, virtualization, containerization, orchestration, and monitoring, the Acumera Reliant Platform enables c-stores and other retailers to modernize their operations without the complexity of building and managing their own edge computing infrastructure. Its open-source foundation, combined with cloud-agnostic capabilities, offers flexibility, making it an ideal solution for businesses looking to scale and optimize their IT environments in an increasingly competitive marketplace.

Benefits

The partnership between Casey's and Acumera continues to deliver transformative results:

Edge Computing for Real-Time Data Processing
Benefit: Reduces latency and dependence on centralized cloud services, ensuring faster response times and improving the overall customer experience.

Multi-Site Network Management
Benefit: Streamlines network operations, reduces downtime, and ensures that all locations adhere to corporate security policies, which is critical for maintaining brand consistency.

Seamless Point-of-Sale (POS) System Integration
Benefit: Ensures consistent and secure payment processing, provides real-time sales data, and improves inventory management, leading to better financial control and customer satisfaction.

IoT Device Management
Benefit: Enhances operational efficiency by automating tasks like energy management and security monitoring and ensures that IoT devices remain secure and compliant.

Security and Compliance Management
Benefit: Minimizes the risk of data breaches and non-compliance penalties and enhances customer trust by safeguarding their personal and payment information.

Business Continuity
Benefit: Protects revenue by minimizing downtime and ensures that customers continue to receive service even during software updates or internet interruptions.

Remote Monitoring and Troubleshooting
Benefit: Reduces operational costs and response times, ensuring that any technical issues are resolved quickly and efficiently.

Digital Menu Boards and Self-Service Kiosks
Benefit: Allows for quick updates to menus and promotions, improves customer engagement, and reduces the need for manual updates at each location.

Intel® Xeon® Scalable Processors

Casey's chose edge hardware that leverages Intel® Xeon® Scalable processors delivering workload-optimized performance in space- and power-constrained environments - from the data center to the intelligent edge. These innovative, system-on-chip processors support high-density, single-socket network, storage, and cloud edge computing solutions with a range of integrated security, network, and acceleration capabilities.

Casey's Goes Virtual with Acumera

Casey's General Stores, Inc. selected Acumera's Reliant Platform for a chain-wide project that introduced virtualization at the point-of-sale, extending the company's existing Point of Sale hardware and attached USB peripheral devices.

Like many of its peers, the IT systems at Casey's stores were fixed function, single use appliances that weren't easily updated to support changes in the business. One of the goals of the deployment for Casey's was to extend legacy hardware and keep as many of the USB peripherals (card readers, printers, scanners, and bar code readers) as possible, extending their useful life. To do that, Casey's and Acumera partnered to virtualize the point of sale applications so they could run on the Acumera Reliant Platform and went from system design to chain-wide deployment in about 10 months across more than 2,600 stores.[1] Deployment of Acumera's Reliant Platform chain wide is foundational to the current and future in-store IT solutions with improved observability and reliability.

Conclusion

C-store chains such as Casey's are thriving with expanded food and beverage offerings and enhanced customer engagement. But this is challenging based on the legacy IT infrastructure for their stores. The Acumera Reliant Platform is a complete edge cloud solution that takes advantage of the power of Intel architecture processors to remake and revitalize the in-store IT infrastructure. With the Acumera Reliant Platform, not only do convenience stores and other retail outlets have access to the latest applications—they can also virtualize older applications that still have a useful life. Acumera's customers gain a new competitive edge while they are able to reduce hardware and maintenance costs.

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[1]Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy