



CHARLOTTE PIPE AND FOUNDRY COMPANY

Charlotte Pipe and Foundry, headquartered in Charlotte, North Carolina, designs and manufactures premium cast iron and PVC pipe products for the industrial, commercial and residential plumbing industries worldwide. Founded in 1901, the family-owned company operates seven facilities across the U.S.

Industry

Manufacturing

Strategic priorities

- Cloud Infrastructure

VMware footprint

- VMware® Cloud Foundation™
- VMware NSX®
- VMware vSphere®
- VMware vSAN™
- VMware Skyline™

Charlotte Pipe and Foundry Harnesses Multi-Cloud Tech to Sharpen Competitive Edge

In the face of rising costs, stiff competition and the need for innovation, Charlotte Pipe and Foundry used VMware Cloud Foundation to secure cost reductions, improve operational efficiency and bolster network security. By optimizing technology, data analytics and automation, the company enhanced manufacturing processes and decision-making to increase its competitive edge. Through its partnership with VMware, Charlotte Pipe and Foundry streamlined its cloud migration, fortified its cybersecurity, and developed a strategic industry partnership to drive innovation, growth and sustainability.

Meeting challenging market conditions

Founded in 1901, Charlotte Pipe and Foundry (Charlotte Pipe) manufactures cast iron and PVC pipe for industrial, commercial and residential plumbing applications. The company supplies its products to a global market and operates seven manufacturing facilities across the U.S. The family-owned company, with its workforce of 1,500 employees, produces all products in the U.S. Over its century-plus history, Charlotte Pipe built a market-leading business by delivering premium quality products and services.

“We are constantly looking at ways to innovate and improve our manufacturing and processes, and technology is definitely a way to do that. And we use data collection and analytics tools for crucial decision-making, such as determining which products we should continue manufacturing and which ones we need to discontinue. It’s a constant innovation process.”

Rodney Barnhardt, Server Administrator, Charlotte Pipe and Foundry



“At Charlotte Pipe and Foundry, we pride ourselves on being more than just a cast iron and PVC manufacturer. We also produce custom cast iron, such as motor housings and pumps,” says Rodney Barnhardt, server administrator, Charlotte Pipe and Foundry. “Our products are in your home or business, and we aim to be either the number one or number two manufacturer in our industry, depending on the market.”

Maintaining leadership in a global, commoditized market is no easy task. Domestic cast iron and PVC pipe manufacturers face competition from cheaper, foreign imports, soaring domestic production costs and variable demand driven by economic shifts and housing starts. The market is dispersed, demanding robust contractor and wholesaler relationships. These challenges are further amplified by constant changes in building codes and construction standards, mandating ongoing R&D investment and new certifications. Compliance with rigorous sustainability benchmarks set by governments and consumers demands the creation of more eco-friendly products.

In an environment where business interactions increasingly occur online, a strategic focus on enhancing B2B e-commerce and digital sales capabilities is essential, necessitating further investment. To remain competitive, domestic manufacturers must aim for operational efficiency, product distinction, exemplary customer service, cost reduction and swift adaptation to rapid market fluctuations. The primary challenge resides in widening profit margins in the face of commoditization and escalating costs.

Embracing a multi-cloud strategy to drive innovation

Charlotte Pipe recognizes that surviving—and thriving—in the midst of these challenges demands a robust and flexible digital infrastructure.

The company needed to better support B2B ecommerce capabilities, manage and analyze large volumes of data for strategic decision-making, uphold sustainability standards via sophisticated IT systems, and ensure robust cybersecurity protocols in the face of increased digitization.

“We are constantly looking at ways to innovate and improve our manufacturing and processes, and technology is definitely a way to do that,” says Barnhardt. “We use data collection and analytics tools for crucial decision-making, such as determining which products we should continue manufacturing and which ones we need to discontinue. It’s a constant innovation process, and technology plays an important role, especially with AI and machine learning.”

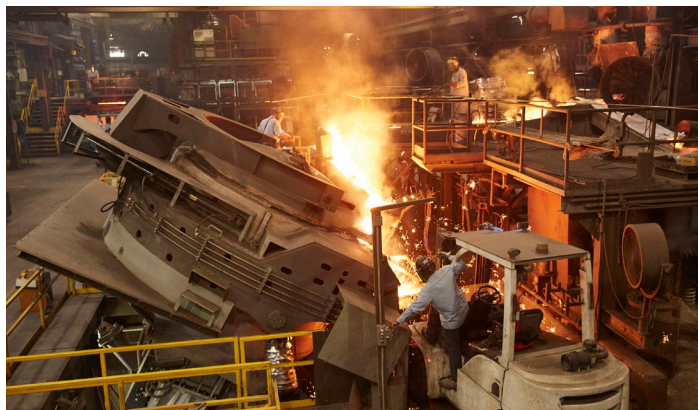
The company’s ultimate goals were to improve operational efficiency, create distinctive product offerings and reduce costs to meet the demands of a rapidly changing market. Charlotte Pipe enlisted VMware to develop a multi-cloud platform to leverage and integrate the most effective features of on-premises and cloud infrastructures, including the capability to integrate AI and machine learning into its business and manufacturing processes.

The platform is built on VMware Cloud Foundation, a unified software-defined data center (SDDC) solution that integrates VMware vSphere, vSAN and NSX into one integrated stack to deliver the enterprise-ready cloud infrastructure for private and public clouds that Charlotte Pipe needs. This simplifies deployment and operation by delivering cloud infrastructure with consistent operations, developer-ready infrastructure and intrinsic security.

Using this comprehensive suite of software-defined services, Charlotte Pipe enhanced agility, simplified operations and reduced costs. These services, encompassing areas such as computing, storage, networking and security, support both traditional and containerized applications in various environments.

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Rodney Barnhardt, Server Administrator, Charlotte Pipe and Foundry



Preparing for AI and machine learning

Charlotte Pipe is boosting operational efficiency with infrastructure modernization, data management and cybersecurity. “We’re laying the groundwork for the future by shifting workloads to the cloud while keeping some on-premises in a hybrid approach we believe is key to our continued success,” says Barnhardt. “As we look forward, the possibilities and flexibility offered by VMware Cloud Foundation excite us.”

Utilizing VMware Cloud Foundation, Charlotte Pipe can automate processes, upgrade network performance and enhance stability. Moving forward, the company plans to integrate machine learning and AI to augment operational capabilities. The company also implemented micro-segmentation for increased security and used VMware Skyline for troubleshooting.

“To better manage our data and infrastructure, we trust VMware Cloud Foundation, a stable and proven product that has allowed us to automate processes, improve network performance, and enhance stability,” says Barnhardt. “As we continue to exploit technology to improve our offerings, we are exploring machine learning and AI in our products and processes. We’ve also implemented micro-segmentation, a step forward in limiting server communication to enhance security. Skyline has become an integral part of our troubleshooting process, ensuring the stability of our environment.”

“VMware Cloud Foundation is our trusted solution for better data and infrastructure management. It’s a proven product that has automated our processes, improved our network’s performance, and heightened stability.”

Rodney Barnhardt, Server Administrator, Charlotte Pipe and Foundry

“At Charlotte Pipe and Foundry, our mission is to lead, innovate and secure a future where we continue to serve our customers with unparalleled excellence. We now have a robust foundation for that future. We see multi-cloud as the key to our continuous growth. We feel secure with our trusted, strategic partnership with VMware.”

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Laying the groundwork for the future

Charlotte Pipe is using micro-segmentation, integrated into VMware Cloud Foundation, to strengthen its cybersecurity in various ways. “We’ve segmented the network with NSX to improve security, and we are starting to apply automation and processes to better suit the company in the future,” says Barnhardt. The company can break down the network into isolated segments at the individual workload level, enabling the company to apply specific security policies to each segment and minimize the potential attack surface.

“Our collaboration with VMware has not just enabled cloud migrations but significantly improved our network security with NSX,” says Barnhardt. “We trust this stable and proven product to support our infrastructure, which has allowed us to witness improvements in speed and efficiency of upgrades.”

This strategy is especially useful in securing ecommerce operations, where protecting sensitive customer data is paramount. The company can employ micro-segmentation to effectively secure, monitor and manage data flows in vast data repositories.

“At Charlotte Pipe and Foundry, our mission is to lead, innovate and secure a future where we continue to serve our customers with unparalleled excellence,” says Barnhardt. “We now have a robust foundation for that future. We see multi-cloud as the key to our continuous growth. We feel secure with our trusted, strategic partnership with VMware.”