

## CASE STUDY

# Digital Transformation Focused on Enhancing Scale, Security, and Standards for Operational Excellence

Diversified Energy (DEC) is an independent natural gas producer operating in Appalachia, Texas, Louisiana, and Oklahoma. The company focuses on acquiring existing long-lived, low-decline, producing wells, as well as their associated midstream assets, at times. DEC efficiently manages these assets to improve production, optimize operations, increase efficiencies, and reduce emissions before permanently retiring them at the end of their producing lives. This solutions-based, stewardship approach makes Diversified the Right Company at the Right Time to responsibly produce energy, deliver reliable free cash flow, and generate shareholder value.

DEC is unique among United States natural gas and oil producers in that it does not actively engage in large-scale, capital-intensive drilling and development programs that seek to capture short-term high production and revenue. These traditional development models typically seek to divest mature, assets to generate more cash for further development, while avoiding future retirement obligations.

Traditional oil and gas approaches to IT and operational technology (OT) architecture would make it challenging for the DEC team to integrate new well sites into its IT/OT systems at scale. DEC is a high-growth company. David Myers, CIO, says the key questions became: "How do we scale? And how do we integrate new assets into our technology infrastructure quickly and at the right total cost of ownership? The wells we buy have a steady cash flow but are lower producing, so scale and cost are important with every acquisition."

DEC recognized the pivotal role that digital transformation and seamless integration across the IT, OT, and security domains play in establishing a robust foundation for the company. DEC initiated a series of strategic endeavors focused on the guiding principles of standardization, simplicity, and safety.

In 2018, Myers and Lee Davis, DEC's vice president of technology, determined that a 100% cloud strategy focused on simplification, standardization of systems, and the creation of repeatable processes would support the company's rapid acquisition growth plan. "That sounds easy," Myers says, "but it takes a lot of discipline and hard work to get to the point where you can say 'We are simple and standardized.'"

Myers outlines four critical strategies that DEC implemented:

## 1. Cloud-First Technology Strategy Driving Enterprise Digitization

At the core of the company's IT strategy lies the cloud-first technology strategy, a pivotal driver of DEC's resilience and value proposition. The cloud strategy entails the virtual operation of the company's entire infrastructure, encompassing



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**David Myers**  
CIO  
Diversified Energy

## Details

**Customer:** Diversified Energy

**Industry:** Oil and Gas

**Headquarters:** Birmingham, Alabama

## Business Impact

- Greatly improved security, due to increased visibility and ability to isolate any prospective incidents
- Dramatic cost savings, as FortiGate virtual machines (VMs) and LTE modems displace MPLS connections, physical firewalls, virtual private network (VPN) hardware, and more

information systems and applications. DEC leveraged virtual FortiGate Next-Generation Firewalls (NGFWs) to protect these resources. The cloud strategy also extends to the management platform; Davis's team uses FortiGate Cloud to manage the FortiGate VMs. Davis says the company selected FortiGate Cloud "mostly for simplicity's sake."

This visionary approach significantly mitigates potential cyberthreat vectors, and its advantages are manifold:

- Zero-trust architecture and software-defined segmentation: These cutting-edge technologies fortify the DEC security framework by introducing additional protective layers. They proficiently mitigate and isolate potential impacts of cyberattacks, ensuring the uninterrupted functionality of the company's operations.
- Operational resilience: DEC's comprehensive all-cloud IT ecosystem serves as a guarantor of unwavering operational resilience. Supported by robust data backup capabilities, the DEC IT team can promptly isolate threats in the event of security breaches, which minimizes downtime. Additionally, this approach empowers DEC to maintain stringent control over, and reinforce the security of, its sensitive information.
- Real-time business continuity: The company's investments in the all-cloud IT ecosystem equip the IT team with a real-time, region-to-region business continuity strategy poised for immediate deployment in the face of catastrophic incidents.

## 2. Common Systems Driving the One DEC Digitization Strategy

DEC has undertaken a concerted effort to streamline its systems and eliminate technical debt, creating a unified ONE DEC platform that extends seamlessly from the wellhead to the boardroom. This platform encompasses common supervisory control and data acquisition (SCADA), internal measurement, marketing, and enterprise resource planning systems. It fosters standardization, scalability, and efficiency across the enterprise.

As part of its corporate acquisition playbook, DEC transitions acquired companies onto the ONE DEC platform, enabling DEC to leverage its investments in all-cloud, digitalization of the oil field, and cybersecurity hardening strategy.

Each DEC office is protected by a FortiGate NGFW, with local connectivity provided by FortiSwitch secure enterprise switches and FortiAP access points.

"To use any line-of-business application, including our SCADA system, we connect to the instance running in the Microsoft Azure cloud," says Chris Shaunfield, vice president of security and enablement. Employees connect to an Azure-based remote desktop to perform every aspect of their job, whether in corporate headquarters, on a gas field, at home, or anywhere else. "We have built a true zero-trust architecture because access to every application and all data requires authentication for that particular cloud resource."

## 3. Enhanced Cybersecurity Oversight

At DEC, each OT system connects to the DEC cloud through a private LTE modem link, which sends data to the Azure-based SCADA system through a FortiGate NGFW VM. Leveraging the all-cloud strategy, LTE, and ONE DEC platform in a unified lens provides visibility and actionable data to respond to potential cyberthreats. It also eliminates several security vectors by not having to protect physical, on-premises hardware.

Shaunfield reports that DEC's approach has made the company's OT devices more secure. "Our systems that are Level 0 and Level 1 in the Purdue model have the same challenges as every other OT device," Shaunfield says. "These are our PLCs [programmable logic controllers], SCADA RTUs [remote terminal units], and similar devices, and they typically have no built-in security. FortiGate firewalls are leveraged to provide security at Levels 0 and 1."

### Business Impact (cont.)

- Cloud/network team can easily manage IT and OT environment across thousands of sites through a single pane of glass

### Solutions

- FortiGate Next-Generation Firewall
- FortiGate VM
- FortiGate Cloud
- FortiSwitch
- FortiAP
- FortiNAC

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#### Lee Davis

Vice President of Technology  
Diversified Energy



DEC is starting to roll out the FortiNAC network access control system. The company engaged Deloitte to assess security risks in its gas fields, and a key takeaway was that DEC needed to risk-rank its assets in the field and apply security accordingly. “Every field office has physical FortiGate firewalls,” Davis says. “With the FortiNAC solution, we will extend that, gaining telemetry on how individuals use our network. That will give us much better visibility to monitor our field assets proactively.”

As DEC determines the highest-risk sites, it will install FortiNAC capabilities. “We may determine that a site or asset is at higher risk based on collective data from assessments, operations, safety, etcetera,” Shaunfield says. “In those cases, we will deploy FortiGate firewalls, FortiSwitch switches, and the FortiNAC solution to identify and classify all connected devices to enhance access control in Level 0 and Level 1.”

Myers adds, “The Microsoft Azure cloud, Fortinet, and our LTE connectivity integration has allowed us to scale up quickly. Fortinet plays a significant role in our overall cloud and security strategy.”

#### 4. IT/OT Convergence and Data Warehousing

Converging the IT and OT infrastructures represents a pivotal objective within DEC’s strategic framework. This synergy enhances the economic efficiency of the company’s cyber strategy and amplifies its operational capabilities. The merger of the IT and OT domains, in conjunction with DEC’s private LTE-first strategy, forges a robust and secure foundation, enabling the company to navigate the digital landscape with heightened agility and precision. By leveraging FortiGate NGFW VMs in the all-cloud environments, DEC is able to better manage the data exchange between the IT and OT segments to build the field level of data analytics.

In tandem with IT/OT convergence, DEC has implemented a cutting-edge data warehousing initiative. This initiative harmoniously consolidates data from various sources into a unified platform, facilitating advanced field analytics and strategic decision-making. This convergence is instrumental in digitalization of the oil field providing nearly real-time field-level analytics, allowing the company to explore routes by exception across 10 states. Moreover, it seamlessly integrates with DEC’s internal operation control rooms, where staff focus on production optimization.

Many day-to-day decisions about gas production rely on telemetry gathered from the well sites. The company’s SCADA and other OT systems are mission-critical. “We have well-level data on daily volumes, pressure, tubing, and casing for approximately 70,000 wells that we can report daily,” Myers says. “We can view multiyear trends by wellhead. We can view exceptions by route, by pumper, or by region. We have differentiated ourselves in IT/OT convergence by integrating our cloud platform, LTE strategy, and security strategy, and by delivering daily actionable well data to the field.”

#### Summary

DEC’s execution of the cloud-first strategy, cybersecurity resilience, IT/OT convergence, and ONE DEC platform initiative has enhanced the company’s resilience and delivered substantial value. This multifaceted approach and partnership with Fortinet propel DEC’s digital transformation by executing an IT strategy designed to fortify the company’s security, drive operational resilience, and create a data-driven culture, further solidifying DEC’s position as an industry leader.

The transition to exclusively cloud-based workflows enabled the company to replace a slew of legacy networking and security equipment with FortiGate VMs. “We were able to displace MPLS, VPNs [virtual private networks], many physical firewalls, and other hardware,” Shaunfield says. “In our gas fields, we just drop a private APN [access point name] in for LTE connectivity, and the modem communicates to our Azure infrastructure.”

Davis and his team also use the FortiGate VMs to segment the company’s Azure network. “We have separated our Level 4 corporate infrastructure from the data and applications in Levels 2, 3, and 2.5,” he says. The company also segments traffic according to application, end-user use case, or both. “The FortiGate firewalls perform much better than other firewalls we have used in the past, and this is especially true in the Azure network segmentation.” The company has had no latency issues, and security is far superior to DEC’s legacy environment.



Myers summarizes the past five years: “The journey to the cloud and the convergence of IT and OT into a cohesive framework has been one of discipline, focus, and good choices of strategic partners. Being nimble enough to react to the emerging cloud in 2018, leveraging the LTE expansion, and partnering with Fortinet for enhanced security were like catching lightning in a bottle. It has been a wild ride, but we continue to see the return on our investment through scalability, efficiency, speed, and enhanced security. The journey is not for the faint of heart, but perseverance, grit, and a good team of people—and strategic vendors like Fortinet—have produced the right results.”



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