

TekVet makes home on the range more profitable and efficient through RFID monitoring.

Overview

■ **Business Challenge**

With concern about food safety reaching a crescendo around the world, TekVet's first-of-a-kind service—remotely detecting cattle illness using advanced wireless technology—couldn't have timed it better. But with fast growth on the horizon, the need to focus on IT operations issues threatened to hinder its growth and slow its time to market with new capabilities.

■ **Solution**

TekVet shifted its technology strategy by engaging IBM to host and manage its IT infrastructure. This not only ensured high levels of performance, but even more importantly kept the company's focus on developing new ways to differentiate itself in a growing market.

■ **Key Benefits**

- *Two million cows currently monitored*
- *Estimated 25 percent reduction in the costs associated with cattle by responding rapidly to stem losses*
- *30 percent reduction in the cost of detecting illness among cattle*



Based in Salt Lake City, Utah, TekVet LLC provides advanced wireless networking and information technology services to the agricultural livestock industry. TekVet has successfully developed and received approval from the Federal Communications Commission to deploy its new service, which is now monitoring the health of two million head of cattle.

In the realm of economics, few trends have had more of an impact than the steady rise of globalization across the world economy. The familiar story at a macro level is of trade barriers falling away, triggering an unprecedented surge in trade and global prosperity. However, the deeper one looks into the globalization story, the more evident it becomes that *change* is its truly defining quality. On one side of the equation, this change is the expanded opportunity of global markets. But it's also about compulsory change in the face of increased competition. It is a pervasive effect that is visible in nearly every corner of the economy.

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— Tali Haleua, founder and president, TekVet

Business Benefits

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- Estimated 25 percent reduction in the costs associated with cattle by responding rapidly to stem losses
- 30 percent reduction in the cost of detecting illness among cattle
- Ability to geographically track and analyze health trends within cattle herds
- Provides cattle producers with an additional means of differentiation in the domestic and global beef markets
- Reduction in cattle mortality from infectious illnesses

“When it comes to technology usage, the cattle production business really is the ‘last frontier.’ Our innovation was to develop a solution that would work in this kind of environment – yet help our customers adapt where they needed to.”

– Tali Haleua

Fast-changing fortunes

In the past few years, these forces have become increasingly apparent in the global beef industry, where the confluence of safety issues and market forces has reshaped the competitive landscape. As the volume of beef trade has increased, so have the risks of spreading cattle-borne illnesses around the world. In such cases, the negative impact on local producers can be dramatic. This effect was pointedly illustrated in Europe and the United Kingdom, when outbreaks of bovine spongiform encephalopathy—or Mad Cow disease—caused a massive disruption of the beef market whose effects linger to this day in the form of import bans from affected countries. Given the fluidity of today’s global marketplace, cattle producers from other countries can easily fill the void, resulting in the potential long-term loss of market share for producers affected by these bans. While an extreme example, it underscores how cattle farmers are constantly at risk of losing their substantial investment in their primary asset—the animals they raise.

While Mad Cow may have the most name recognition—and strike the most fear into beef consumers—a far larger number of cattle is affected by a number of less well-known viruses whose high rate of infectiousness can exact a deadly and costly toll on local herds. Unlike ban-triggering outbreaks such as Mad Cow or Hoof and Mouth disease, farmers battling these illnesses stand a much greater chance of minimizing their losses by being vigilant and removing sick cows before they have a chance to decimate a herd. In the United States and elsewhere in the world, the standard methods employed by farmers to do this have changed little since the dawn of cattle farming. Cowboys ride on horseback through herds of hundreds of cows, looking for those showing the telltale signs of illness, such as runny noses, rheumy eyes and disorientation. Upon finding them, they’re cordoned off from the rest of the herd. All too often, however, this is not before half the herd is infected and requires costly treatment.

Old meets new

Of course, the issue of infectious illnesses is not new in the beef industry. What is new, however, is the speed with which diseases can be transmitted in today’s highly globalized world, and the scale of economic risk for farmers trying to compete in the global marketplace. Beef producers are in many ways witnessing a collision between their long-established ways of doing things and a market growing more dynamic, competitive and risky all the time. To survive and thrive in this environment, cattle farmers will need to adapt.

Given the labor intensity of their business, the most fertile opportunities are in using information to make better decisions and do so faster. TekVet (www.tekvet.com), a Utah-based technology solutions provider for the agricultural industry, grasped this reality, and saw wireless sensing technology as a means to make it happen.

Steeped in both wireless technology and the practices of the cattle industry, TekVet's founders envisioned a simple way to assess the health of each cow in the herd without the need for the usual eyeball approach, which is time-consuming for cowboys and by its very nature imprecise. After a two-year study period, the company concluded that the most useful and practical indicator was core body temperature. The challenge was to figure out a practical and reliable way to measure it and communicate it so it could be used to detect trouble. TekVet solved it by using RFID tags equipped with temperature sensors, which are placed in each cow's ear canal, and transceivers, which send the temperature data—along with the cow's unique identifying information—to a central processing location. Once there, the data can be analyzed to detect temperature anomalies, which in turn would trigger either a closer observation of the cow's temperature, or physical intervention to remove the cow from the herd for quarantine and treatment.

Getting active

TekVet's decision to employ active RFID technology was a strategic one, designed to deliver the most thorough and flexible detection capabilities. With passive RFID technology, cows need to pass close to readers, which are generally placed in high-traffic areas such as feeding troughs. Since sick cows often avoid such areas, this creates an implicit blind spot in passive RFID technology, explains TekVet President Tali Haleua. "Active RFID has a much greater range than current passive technology. We're dealing with a very unique product here; a cow has a mind of its own, and it wanders," says Haleua. "With our mesh networking technology, we can cover an area as large as a typical feedlot and provide constant monitoring." After being delivered by the RFID tags, the data is received by strategically placed access points that are attached to polls or buildings on a cattle producer's lot. From there the RFID data is wirelessly transmitted through a satellite medication network to a centralized processing facility, where the data is stored and analyzed. With over two million cows currently monitored by the system, customers have reduced the costs associated with illness by nearly 25 percent by responding rapidly to stem losses. At the same time, the ability to automatically spot sick cows has reduced the cost of such detection by more than 30 percent.

Key Components

Software

- IBM Tivoli® Storage Manager

Servers

- IBM System x™

Services

- IBM Global Technology Services e-business Hosting™ Service

Time frame

- Upfront product development: two years
- Hosting solution implementation: one month

Why it matters

Using active RFID technology, TekVet developed a wireless health monitoring solution that changed the way cattle-men manage the health of their herd. Through the automated polling of each cow in a herd, feedlot managers—and the cowboys that tend to the herd—can instantly pinpoint the location of sick cows and remove them before they can do damage to the rest of the herd. Life on the range just got smarter.

Having put the finishing touches on its offering—known as Electronic Cowbell—TekVet knew it needed to put more emphasis on growing as a business. It enjoyed the dominant market position, having been the first to market with a commercial offering that subsequently drew praise from the U.S. Department of Agriculture and other key influencers. But Haleua knew that some of its biggest challenges lay before it. Given the trends in the global beef market and pressure from trading partners, expanded health monitoring among U.S. producers was inevitable. The question was when—and the implications for TekVet's business model were significant. If demand for the Electronic Cowbell service were to surge in response, TekVet needed to show the world that it was capable of performing at a world-class level. This meant having the capacity to handle a quantum increase in its monitoring volume without compromising the quality of service. Therein lay a key problem: even though TekVet's business was about to turn a corner, its ability to deliver and support the service hadn't kept pace.

Keeping the focus

This placed Haleua and his team at a fork in the road. Using their core expertise as developers, they had brought their innovative wireless monitoring service from conception to fruition. Now, however, they were faced with the kind of operational issues—ensuring scalability, backup and performance optimization—that would prove critical to TekVet's long-term success. But Haleua also realized that, in the end, product development and continuous innovation would truly be the key to building and sustaining its market leadership, and anything that stood in the way of this threatened to undermine the company's future competitiveness. So to deliver the world-class operational capabilities it would need, TekVet turned to IBM Global Technology Services to host, manage and support its technology platform. Running on IBM System x servers, TekVet's wireless monitoring service can now ratchet up its capacity virtually without limit, clearing the way for rapid, cost-effective growth in the U.S. market and beyond.

Just as important for Haleua, however, is the fact that TekVet's lean staff can focus on strengthening the service by incorporating richer analytical and location-based capabilities—further strengthening his company's leadership in this fast-growing area. Haleua also sees TekVet's affiliation with IBM as a strategic relationship whose value will be demonstrated over time. “We expect to benefit from IBM's assistance in leveraging emerging technologies such as RFID, which are the core of our business,” says Haleua. “IBM has demonstrated a willingness to stand behind us in our innovation efforts and help us succeed.”

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