



## HEALTH CARE TECHNOLOGY INNOVATOR CAREVIEW CALLS WIND RIVER 'LIFESAVER'

Wind River Professional Services Addresses Business-Critical Design Challenges in Record Time Frame for Health Care Video Monitoring System

### Company Profile

CareView Communications, Inc.

#### Industry

- Medical

#### Solutions

- Wind River Professional Services

#### Results

- Addressed complicated development challenges in 24 hours, putting next-generation health care system project back on track
- Achieved on-time market delivery
- Avoided having to rebuild business-critical system from scratch
- Came in under budget

CareView™ is a health care technology company offering the next generation of patient-care monitoring. The company's unique solution, the CareView System®, introduces continual monitoring and observation.

The CareView System is a secure, real-time video-monitoring system that enables nurses to continuously observe patients from a remote location. The system records all movement within a patient room for the length of the patient's stay, contributing to a higher quality of care.

The CareView solution produces a Health Insurance Portability Accountability Act (HIPAA)-compliant, patient-approved video record for a patient's medical file. The record may also be used to document care and procedures, patient and hospital ancillary activity, incidents, and clinical and support services and techniques.

While the medical team uses the CareView System to care for the patient, the patient can also use the system to surf the Internet, watch movies, and enjoy the company of family members and friends via videoconference.

The CareView System is comprised of a proprietary, high-speed data network system (Actual Private Network™) deployed in a health care facility using the existing cable television infrastructure. This network supports CareView's Room Control Platform (RCP) and a suite of software applications.

### THE CHALLENGE

While designing the next-generation version of the RCP, CareView encountered challenges with the Intel® graphics stack. The CareView System uses Tunnel Creek, Intel's Atom-processor-based system-on-chip (SoC) for embedded solutions.

CareView was already heavily invested in the open source Debian operating system (OS), so it wanted to get the drivers working quickly to avoid the need to scrap the entire business-critical project. The company needed the ability to interface with the Chrontel chipset to put video out to the TV and provide patient services.

"We chose the Tunnel Creek platform for H.264 video encoding because we needed our video archives to be compressed on the disk with hardware encoding," explains Matt Clark, vice president of software development and technical support for CareView. "The Intel Embedded Media and Graphics Driver (EMGD) was the only technology that would allow us access to the encoder, but this solution was closed-source."



*"Wind River Professional Services executed quickly and came in well under budget. ... Now we're completely back on track in terms of time-to-delivery. Our next-generation CareView System monitoring platform should be out early this year."*

— Matt Clark, Vice President of Software Development and Technical Support, CareView

At this point, CareView signed a contract with an Intel-licensed professional service provider to help address this challenge. But after a six-month, unproductive interaction with this vendor, Clark and his team were frustrated and motivated to find a better solution.

## THE SOLUTION

CareView approached Wind River Professional Services with its request to compile and produce the EMGD that would get the Tunnel Creek platform working on the Debian OS. The company needed to get back on track quickly to avoid a failed project.

Wind River Professional Services exceeded all of CareView's expectations and, within 24 hours of starting on the project, sent CareView a working deliverable.

"I was shocked and impressed at how quickly they were able to perform the work we needed to move our project forward," Clark says. "Wind River was a lifesaver."

In the first two days, Wind River Professional Services set up the environment, got the camera to work, and had Tunnel Creek's graphics processing unit (GPU) performing H.264 video encoding.

The remainder of the engagement lasted two weeks. During this time, Wind River Professional Services helped the CareView design team with additional video and coding work and integrated EMGD on the Debian OS. Professional Services also put together sample utilities showing CareView designers how the solution works on the platform.

"Getting the EMGD driver to work with the Chrontel card was particularly challenging because there are a lot of parameters," Clark recalls. "The card takes video output from the motherboard and puts out several video formats. Wind River Professional Services was able to quickly meet these challenges during our engagement."

Wind River and CareView agreed that the best way to enable the hardware-accelerated video-encoding capabilities of the Tunnel Creek platform was to use the Linux multimedia framework (GStreamer) with EMGD's GStreamer video encoder plugins. Wind River made performance optimizations to the platform's

low-level video libraries via the proprietary Intel Performance Primitives (IPP) library for color space conversion. These choices leveraged existing code and the experience of the Wind River and CareView teams to help achieve a rapid path to success.

Another strength of Wind River Professional Services, according to Clark, is the strong project management.

"Our project manager was very available and communicative," he explains. "He met with us daily to go through updates. Because it was such a transparent project, we were able to adjust our course as needed for the greatest efficiency and quality. We fed our thoughts to the Wind River team on an ongoing basis and didn't have to spend time going down the wrong path."

The core technical team from Wind River Professional Services was "sharp and fast—so there was no wasted time during the process," Clark adds.

## RESULTS

"Wind River Professional Services executed quickly and came in well under budget," Clark says. "With Wind River, we were able to take a really difficult situation and turn it completely around."

If Wind River hadn't solved CareView's design challenge, the company would have had to create its entire next-generation system from scratch to move away from Tunnel Creek, which would have taken at least another three or four months on top of the six months spent with the initial services vendor.

"Now we're completely back on track in terms of time-to-delivery," Clark says. "Our next-generation CareView System should be out early this year."

## SUMMARY AND FUTURE PLANS

With Wind River Professional Services, CareView was able to get a business-critical project back on track in record time.

"If we need to hire a licensed services vendor in the future, Wind River Professional Services will be our first choice," Clark concludes. "If six months from now we need to upgrade to a new version, we'll be calling Wind River because we know what they can do for us."

# WIND RIVER