

# Cloud Computing Enables Rapid Diagnosis of Failing Machine

**Machine was hours away from catastrophic failure.**

**Site:** A large textile finishing plant in southeastern U.S.A.

**Asset:** Main Air Compressor

The only reason a textile finishing plant avoided a catastrophic main air compressor failure was because a highly skilled analyst analyzed data over the Internet.

Cloud computing, a concept in which computer resources are made available over the Web – enabled the plant to upload vibration data taken from the machine to Azima’s WATCHMAN Reliability Portal. An Azima analyst – located hundreds of miles away – simply logged in and analyzed the data minutes after it was collected.

In less than one hour, the plant went from having a critical machine in danger of failing to having a fact-based recommendation to take it down and avoid catastrophic damage.

After operators discovered a critical main air compressor was “not sounding right”, the plant contacted Azima for an emergency. The plant needed a highly skilled analyst with extensive compressor experience to diagnose the problem given they did not know the internal configuration of the machine. Not knowing this important variable can greatly impact the accuracy of analysis.

Traditional methods would have had an analyst being flown to the plant, accruing significant costs and, more importantly, taking up valuable time. Because Azima is a pioneer of cloud-computing in the predictive maintenance industry, no travel was needed. The data was collected by plant personnel and uploaded for the remote analyst through the secure WATCHMAN Data Center.

From the data, Azima determined there was gross looseness in the motor, most likely from a loss of bearing fit on the inboard end. Peak-to-peak vibration was 1.5 in/sec, indicating that a rotor rub or other secondary catastrophic damage was highly likely.

Despite not knowing the configuration, the Azima analyst drew on his 30 years of experience and, based on the data, was confident the compressor had a bearing sleeve motor and that a wipe had occurred. He notified the finishing plant that the damage was so great, the air seals in the motor may have rubbed and allowed an oil leak to occur.

The plant took the compressor down and upon inspection found the analyst’s diagnosis was exactly correct. Had the compressor been left running, the motor would have failed catastrophically within a few hours—and the resulting damage would have extended beyond the motor.

Remote analysis through cloud computing allowed the plant to get its vibration data to a highly-skilled analyst in another part of the county in minutes. If that had not been possible, the machine would have likely failed before the analyst could physically get to the plant. Further, had another analyst with less experience—maybe located in closer proximity to the plant—been brought in, the correct diagnosis may not have been made.

