

Smarter Shop Floor With Cloud-Based Monitoring

Company: Tech Manufacturing

Location: Pennsylvania, U.S.A

Project Introduction

Tech Manufacturing, a long-time manufacturer of machined metal parts for aerospace clients such as Boeing, Lockheed Martin, and Bombardier, needed to raise production capacity and reduce lead times for their clients' largest and most urgent orders. With their 5-axis CNC machines already running 24 hours a day up to 7 days a week, Jerry Halley, Chief Engineer at Tech Manufacturing, looked towards smarter operation and real-time performance data to increase the productivity and useful life of their existing machines.



"We needed a better understanding of how our machines were actually performing for us in real-time," said Halley. "Live and historical machine performance data would also help us identify technical or process issues that were detrimental to productivity."

With a combination of hardware and software, a CNC monitoring system would collect, analyze, and visualize the necessary performance metrics. However, Halley needed to weigh the productivity gains of such a system against the cost and effort of deployment, especially if it involved a new and unfamiliar server-based IT infrastructure. The ideal system would be easily deployed without specialized IT equipment, knowledge, or effort, and would not require repeated software installation, updates, or configuration.

Application Requirements

- Live dashboard with alerts based on historical and target performance metrics
- Easy to use with existing CNC machines that may not have a built-in Ethernet interface
- Does not require investment or expertise in specialized IT infrastructure, servers, or software
- Knowledgeable and experienced integration and vendor support team

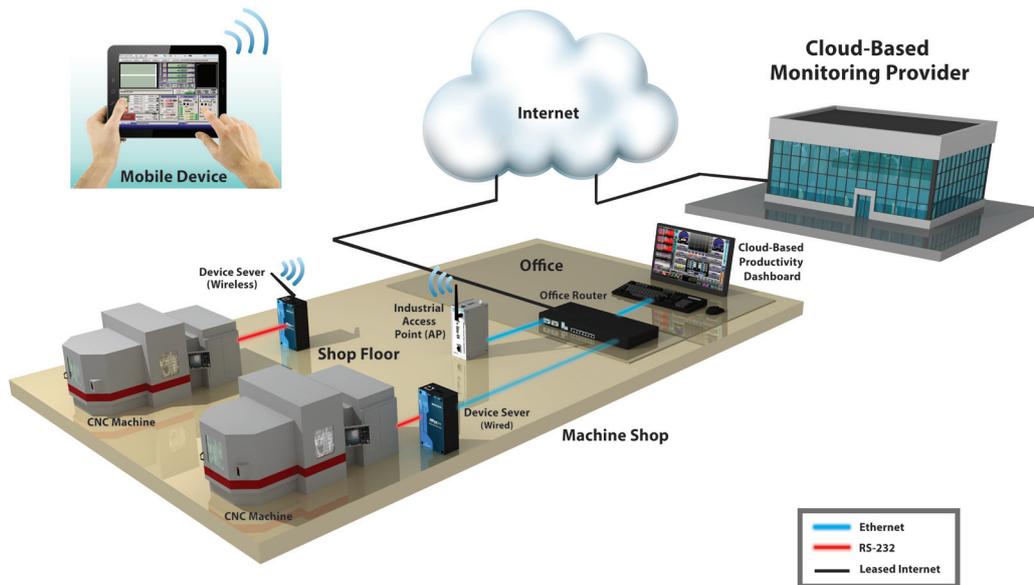


Equipment Monitoring

- Data collection from CNC machines, PLCs, or manual machines
- Collect from Ethernet or RS-232-based devices
- Track multiple types of cycle time
- Real-time equipment dashboard with automatic updating
- Designed and built to evolve, integrate, and grow

Moxa Product Features

- Compact size for easy installation
- Standard TCP/IP interface and versatile operation modes
- Easy configuration by web console or Windows utility
- Multiple options for single/multiple ports and wired/wireless connectivity



Solution

Tech Manufacturing selected Shop Floor Automations, one of the most prominent systems integrators in North America specializing in CNC monitoring systems, to assist with cloud-based monitoring. Each CNC machine was connected to the existing local area network, so no additional IT infrastructure was required. For legacy machines that did not have a readily available Ethernet port, Shop Floor Automations provided an easy-to-deploy solution that was developed with Moxa.

“The industrial networking units from Moxa make it easy for us to get our clients’ legacy machines connected to the cloud,” said Greg Mercurio, President of Shop Floor Automations. “For industrial users like Tech Manufacturing, these solutions are invaluable in extending the capabilities and useful life of their still-functional but older CNC machines.”

With the local network connected to the Internet, machine performance data was easily viewed and analyzed by cloud-based software such as Scytec DataXchange or Predator Machine Data Collection. Key performance metrics were organized on a visual dashboard so owners and machine operators were able to see exactly how productive each cell was, down to the machine level.

Highlights

- Setup completed in less than a day
- No additional IT infrastructure or maintenance effort
- Visual dashboard with rich performance data on each cell and machine
- Significantly improved productivity
- Extended useful life for older CNC machines

“Getting our CNC machines connected and monitored has made it much easier for us to deliver on our clients’ build to print orders with maximum efficiency and minimum lead time. It is a lot easier to get connected than a lot of people may realize.”

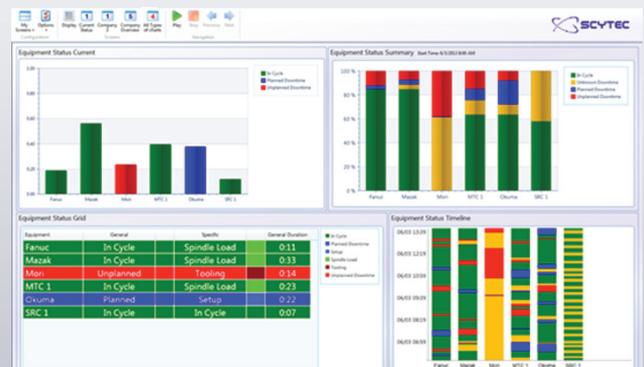
Jerry Halley, Chief Engineer at Tech Manufacturing

Business Benefits

With a cloud-based monitoring system, Tech Manufacturing was able to minimize their upfront cost and deployment effort. “Many clients perceive it to be difficult and expensive to set up a CNC monitoring system,” according to Mercurio. “However, with today’s cloud-based solutions, you can be set up in less than a day, with almost zero additional IT infrastructure or maintenance effort.”

The live dashboard made it easy for Tech Manufacturing to identify critical productivity issues. One immediate finding was that set-up times on certain machines were unnecessarily long, leading to hours of lost productivity every day. By rearranging setup sequence and on/off times, Halley quickly achieved significant productivity gains with those machines.

Having comprehensive machine performance data on hand provided an additional benefit: better service from CNC manufacturers. Service calls were now backed by a rich set of historical data, making it easier to identify and troubleshoot potential hardware issues. “Manufacturers became more willing and able to provide support when we needed it because we had the data to show abnormal operation,” noted Halley.



Your Trusted Partner in Automation

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