

# The “Cloud” And What It Means To The Industry

**W**hen James Watt perfected the steam engine in 1775, revolutionizing the production of musical instruments was possibly the last thing on his mind. Yet that’s what his invention ultimately did. Steam-powered production machinery created the efficiencies that made instruments affordable for the masses, giving birth to what we refer to today as the “music industry.” The resulting factories and supporting retail network would not have been possible without the genius of Watt.

Similarly, in 1970 when a team of engineers at Intel was developing the first microprocessor, it’s doubtful they were thinking about how their invention might impact the music industry. Fifty years later, it’s safe to say the impact has been enormous. Scanning the range of products on display at NAMM, it’s not an overstatement to say that the microprocessor “changed everything.” In the realm of electronic musical instruments, it has yielded price/performance ratios that were undreamed of only a short while ago: Keyboards with nearly unlimited polyphony, hundreds of voices, programmability, and numerous interfaces are all available for a comparative pittance. The pre-microprocessor ARP Odyssey, the top-selling synth of 1972, illustrates the magnitude of the progress. At its introduction, it retailed for \$1,295 (\$9,000 in current dollars). Today, an improved reissue of the Odyssey can be had for a MAP price of just \$820.

Microprocessors that are the heart of programmable rhythm machines also gave rise to EDM genres, and they are what make it possible to transform a \$1,000 laptop computer into a potent multi-track studio, include Bluetooth controllable EQ in a \$400 powered speaker, and offer a modeling amp that mimics a dozen classic tube amps for under \$400. Less obvious, but equally significant, microprocessor technology has transformed the production of traditional products, including guitars and wind instruments. These powerful bits of silicon that control the manufacturing machines that shape wood, apply finishes, insert electronic components, and bend metal have yielded unprecedented levels of quality and affordability.

There’s an emerging technological advance on the horizon that could have similarly far-reaching implications, namely the much-touted “cloud.” It’s doubtful that music is on the minds of the technologists at Amazon, IBM, Microsoft, and Oracle who are devising ways to rent out storage and processing capabilities on high-powered computers.

Nevertheless, this cost-effective, hassle-free way to access immense computing power holds out promise for our industry.

At some point in the future—and it always comes faster than you think—instead of buying a synthesizer with finite capabilities, users could instead tap into an unlimited and expanding library of voices in the cloud. Or use it to exchange tracks to facilitate collaborative projects. Or store projects or voices to access on remote devices. These are just a few applications. As manufacturers build products to exploit this technology and musicians embrace them, expect a flood of entirely unanticipated applications.

Throughout history, musical evolution has been driven by a virtuous circle of instrument makers applying new technology to improve their products, musicians using the new instruments in unanticipated ways, prompting manufacturers to return to the drawing board to pursue further refinements.

This circular process produced the modern grand piano, the violin, every wind instrument, and more recently, the electric guitar as we know it today. Leo Fender, Jim Marshall, and every other amplifier designer initially thought distortion was a bad thing—ads from the ’50s and early ’60s uniformly emphasized crystal clear, audio quality tone. Then came Jimi Hendrix, who decided to overdrive his Marshall, and in short order, a wide range of distortion producing devices came to market. The expanding array of guitar effects indicates players and manufacturers are continuing to push the tonal envelope.

In most product categories, new technologies are destructive, replacing prior, less effective versions. This is why we have pity for the poor “buggy whip makers” overtaken by the automobile, or the typewriter companies displaced by the word processor, or Eastman Kodak crushed by the digital camera. However, in the case of the music industry, new technologies rarely displace what came before. Despite a vast number of electronic instruments available, U.S. consumers purchased more than 1 million traditional violins and wind instruments last year, all based on century-old designs. The power and performance of digital keyboards continue to evolve, yet as the NAMM show indicated, there is healthy demand for analog sounds that date back two generations. Automation has yielded guitars of exceptional quality and value, but by our count, there are probably more hand-built instruments available today than at any time in the recent past.

We’re not smart enough to predict how evolving cloud technology will shape the music industry, but we suspect it will make a potent addition to the palette of musical tools.



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