

# STRIKING A PARTNERSHIP

When a big job caused fits for the software at a small Seattle company, the sole employee turned to Surfcam for help.

*By Danny English*

**W**ill Stiles knows the stereotype. “There’s a stigma about people working out of their house because a lot of people can’t do it,” he explains. “It’s a discipline.”

Stiles, the owner and operator of Comet Design, has run his design and machining company by himself out of his home in Seattle since 1995, but he says stigmas haven’t stunted his business.

He’s packaged electronic components for the state and collaborated with Uptake Medical in the biotech industry. He’s worked with Fluke, Microsoft, Apple, and Hewlett-Packard, designing motor drives and cables to fit into a gaming joystick and crafting organic surfaces for handheld devices, such as a computer mouse. Consumer products used to be his primary industry. Now, it’s aerospace.

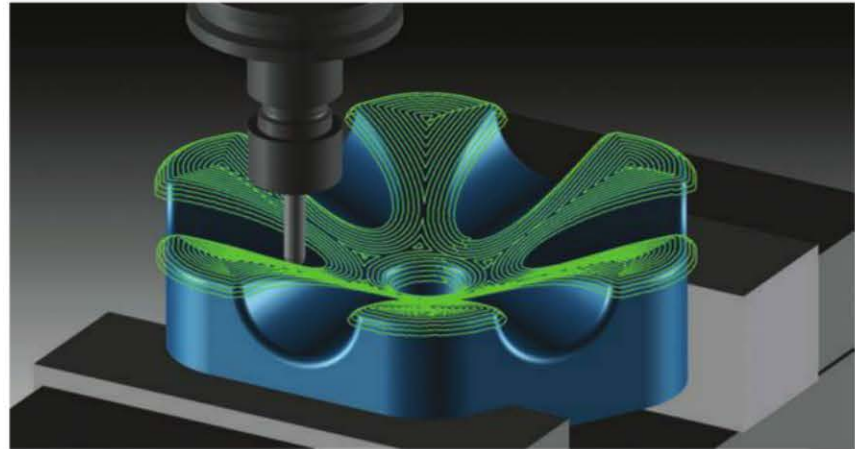
“It ends up the air isn’t too much different from what a human wants a lot of times – which is smoothness,” he says.

Stiles started Comet Design with eight people, and, before that he had managed as many as 40 at other companies. However, those numbers stifled Stiles, he says, because it took him away from what he really loves: design.

“I just found I was doing more management,” Stiles states. “It just ends up when I’m happiest is when I’m doing all this stuff – when I’m down with the mill and making parts and putting things together – and so I brought it back to me. I’m a one man show.”

Stiles admits downsizing has its perks and hurdles. For example, the flexible hours allow him to communicate with international customers without any of the hassles a large manufacturer might face in the same situation, like adjusting schedules to make a phone call across time zones.

On the other hand, Comet Design doesn’t have the same advertising opportunities of a large manufacturer. Or even the same type of website. The first item in a



**Clockwise from top left:**

Comet Design uses a Haas TM-1 3-axis vertical milling machine to cut parts and prototypes. Here, the machine cuts the design Stiles used to evaluate Surfcam software.

Surfcam comes in a variety of applications, including software for 2- through 5-axis systems. Other applications include wire EDM and lathe and mill turn.

The finished product, lamp mounts, after machining.

Google search for Comet Design results in a lackluster webpage that lists companies that have used Comet's services and a link to a page of pictures showing some of its prototyping capabilities. Add the word "Yelp" to your search, which is a website where users rate companies, and the first headline announces in capital letters that Comet Design is closed.

Stiles guffaws at that. "I'm not intending to compete at a level where people discover my company through a web presence because, it ended up, I got very little business that way, and it took a lot of my time," he explains. "I call it lightning bolt marketing. It just literally falls out of the sky, and a new job starts. My problem is I don't have enough of me to go around. I'm always busy. I'm lucky that way."

**A big job**

An aerospace manufacturer sent representatives to approach Comet Design about a project: They asked him whether or not he was available. He was. Stiles, in turn, inquired how big the project was, and when the deadline was. They answered, the project was big – 46 parts in all – and the deadline was soon.

Stiles machines differently than other

manufacturers. Instead of splitting up his workload into smaller jobs, Stiles uses a process called nesting, where he takes "a big hunk of stock," puts it down on the bed of his Haas TM-1 3-axis vertical milling machine, and does all the parts at once. Nesting more stock is more time-efficient than other processes, Stiles says, and his cutting strategy fit the company's requirements nicely.

The problem was, Stiles had never machined so many parts in one run, and his software couldn't handle the load.

"My software that I was running was literally running out of memory, and it couldn't calculate the tool path," Stiles states. "I looked at a new way to buy the stock and get better stock utilization, keep the price the way it was, and run more parts, and my software just couldn't do it."

The problem frustrated Stiles because, "the mill was perfectly able of running of the parts, but the software couldn't calculate the G-code" to program a tool path.

Stiles evaluated his options. He tried updating his CAM software, but that "was almost a joke," he says.

Then, he purchased another CAM software on a trial basis. "I brought it in and started working with it, and after about 20

hours of programming, I brought it to its knees. It could not calculate the tool paths efficiently."

This particular software worked, but it took about 5 hours to do the job Stiles wanted.

"I'm like, 'Why am I spending \$12,000 when my \$5,000 package struggled, too?'"

Stiles conceded to "split up the tool paths and be done with it," he says. "I was really at the point where no one would be able to do this."

Then, a friend of his told him to try Surfcam.

**Efficient excellence**

Stiles invokes his own type of lightning-bolt strategy when working with companies.

"What I like to do is to become a key player in these companies but allow them to use the services as needed and get out as quick as we can to keep the costs at a minimum," Stiles says.

His mission, similar to many manufacturers, is to provide expert consulting to help customers succeed. His method, however, is different from other manufacturers. Stiles doesn't compare his company to ones down the road, and he doesn't buy

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the benefits of bidding wars. His focus centers on acquiring the best technology and tools to produce excellent parts and prototypes efficiently.

“That’s where I’m competing – usually high value and shortening lead times,” Stiles states.

Surfcam fits this mold. The software is a powerful 3D CAM product that runs on a workstation or on a PC. According to Peter Marton, general manager at Surfcam, the system offers a “no-fluff approach to making G-code...efficiently and quickly.”

It’s exactly what Stiles needed, but he still didn’t know whether or not it could handle this specific job, and Marton didn’t make any promises.

“He (Marton) didn’t say, ‘Oh, we’ll do that.’ He said, ‘Well, you know, we might have trouble too,’” Stiles says. “But I think they saw me as an opportunity. Like, ‘Hey, let’s see what our software can do.’”

Willing to experiment, and still in need of software, Stiles accepted the soft sell. He chose the 3-axis system, the 3-axis multi-cut system, and the super filter, toyed with the software for a day without tech support, and ran it.

“In 15 minutes it calculated the tool paths,” Stiles exclaims. “It was astounding. I almost wondered if something was wrong, so I started looking at my tool

paths and ran test cuts on the mill, and it was like, they did it.

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The Surfcam essentially takes a 3D model from CAD software – such as Pro-Engineer or Solidworks – and imports the geometry into its system. It then converts those parameters into G-code and creates a tool path. The operator punches in his preferred tool and the spindle speed, and Surfcam simulates how to cut that drawing on the machine tool. For Comet Designs, the difference with Surfcam comes from its ability to handle extremely large workloads.

Stiles discovered his solution. However, he points out that his situation is unique in the manufacturing world, explaining he used a “back-to-basics method” to evaluate the software.

“I literally ran the code,” he says. “I took their software in and I ran it. And I posted it. And I did test cuts on the mill.

“This is a big undertaking for me. I mean I’m giving up 20 hours of my time just to decide if it’s worth talking to this software company. That’s not something everybody has time to do.”

### Synergistic relationship

A manufacturer’s relationship with a software company doesn’t end with the

purchase. Hiccups occur; a snag is flagged; something crashes.

Stiles says Surfcam offered complete customer service for these problems, including online tutorials and personal technical support. The support was critical to helping Stiles tackle the project.

“I had to come up to speed fast – I had a big job,” he says. “Some of the best support I’ve ever gotten out of any software company.”

He emphasizes his unwillingness to make sweeping conclusions about the software company, but does say he struck a lasting partnership with it.

“It’s a new kind of synergistic relationship that we built,” he says. “I don’t really get anything out of it except good software to run my mill.

“I don’t know if we can take a broad brush and say this is how it affects everybody. It’s specific, but with my blinders on, [Surfcam’s] outstanding. There’s no other choice.” **A**

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#### Surfcam

[www.surfcam.com](http://www.surfcam.com)

#### Comet Design Inc.

[www.cometdesign.com](http://www.cometdesign.com)

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Example of a part designed using Surfcam software.