



TRANSFORMATION AT THE INDUSTRIAL EDGE

Edge computing – and Edge AI in particular – is the secret sauce powering leading smart factories globally. In this interview with Mobile World Live's Justin Springham, solutions expert Jeff Sharpe provides insights into how the magic happens in Industry 4.0, and Supermicro's role in enabling the latest innovations in manufacturing.

Tell us, what is Industry 4.0, and also are 5G and edge computing really that important to it?

With Industry 4.0, think of the industry revolution that we've seen over the past, 100 to 120 years. If you think about the early days of the Industrial Revolution, when iron production, metal production happened, you had these humongous factories, building, rail, then cars. Then, of course, Ford came into play and started modernizing the factory to produce more and more. And then within the industry 3.0, the third generation, we got into more compute-oriented manufacturing. So you started introducing more robotics, more quality attributes of that manufacturing piece. And as we're getting into Industry 4.0, what we're doing is we're adding more artificial intelligence, more things like computer vision, attributes that, again, improve the quality of more sophisticated compute gear.

Think about auto manufacturing. Back in the Ford days, very manual labor meant very manual-intensive. And now if you look at some of the cars of today, such as Tesla, there's so many different electrical components, compute components within that car. So your skill set and the type of manufacturing you have to do is so critical. Quality, logistics, handling both the supply chain in and out, and also the output of the product, are really reliant on more AI and machine vision type capabilities. When you're using robotics, you're using computer vision, you're using more automated effects, and latency plays a big role in that. And with that role, you can't do those up in a cloud environment. So Edge is so important to be able to handle the manufacturing processes of tomorrow, and of today, because of that low latency attribute that's required. You can have a one-second delay of managing a robot arm – the quality will not be there.

JEFF SHARPE | DIRECTOR 5G/IOT EDGE SOLUTIONS AT SUPERMICRO

Throughout his 39-year career, Jeff has focused on defining strategic direction for best-in-breed Networking and AI Training and Inferencing while building successful partnerships for new product delivery.



He is currently focused on next-generation Edge solutions for Smart Places, Transportation, and Cities; Industry 4.0; and 5G MEC-based Services.

Before joining Supermicro, Jeff was responsible for leading strategies for AI Edge, Telecom, and Platform Solutions with ADLINK, Radisys, and Nortel.

You mentioned some good examples and case studies. As industry 4.0 grows, what areas are really critical to the success of digital transformation? What are you seeing going on now?

Think about a manufacturing plant 10 years ago, and walking down the aisles, especially a major industry plant building, let's say, car parts. And when you're seeing that you're seeing a lot of manual labor, doing quality inspection, you're seeing different attributes of actually holding the piece in your hand looking at it, inspecting it, and then moving on. You don't know if that part has a solid weld to it. You don't know if the microscopic paint that was attached to that part doesn't have dust just based on the human eye. So with that, you have to interject more AI type functionality, more quality attributes of your manufacturing process, both during and after. And the success of that is combining your IT based infrastructure, meaning all your compute hardware up in the Cloud and at the data center all the way to the Edge. That's where that transformation is starting to occur.

Are there any technical gaps as well? You talked about some of the attributes of success there. But what's missing?

From a Supermicro view and along with our partners we're seeing that gap is putting more and more workloads at the Edge, handling multiple components because power, support, management of these devices are so critical for the deployment of Edge and Industry 4.0. So we're seeing more workloads, handling less power, and also having better management systems within those systems today.

This all sounds great, but factories, oil and gas, and other industrial operations aren't the fastest to embrace change. So how are you new players such as Supermicro in this space? How are you going to be able to convince them to implement new connected intelligence systems that they need?

I think they all want the technology, everyone out there wants to improve the quality of their products and the timing of the delivery of those products. I think the big technical gap is the worry of the unknown: how do I implement AI in my network? How do I make sure everything is running as smooth as a well-oiled machine, but in this sense that well-oiled machine is dataflow. So by implementing standards, both control standards and also standards on how AI works from a training and inferencing technique, common platforms to reduce the risk. That's pretty much – at a high level – where our strategy is, moving forward, for Industry 4.0.

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What are Supermicro's advantages over the established industrial automation providers or perhaps other traditionally IT focused hardware vendors that are expanding into industrial?

So we have a phased approach. The phases include: number one, using what's called Industry 4.0 standards that OPAF (the Open Process Automation™ Forum) is implementing, that are really kind of driven out of Germany. There's a large amount of partnerships that we have and customers that we have, that are taking those standards and implementing not just in a white box manner, but how we manage things like virtual machines and containers at the Edge. And that phased approach goes in and we don't have to replace the sensors. What you're doing is you're adding more intelligence back into the sensors, doing analytics and computer vision, and doing it in a way that you're not shutting your manufacturing floor down; you're doing it in a phased-approach method.

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