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Cloud Computing and Cloud Manufacturing is the logical next step in the Evolution of Manufacturing and C-Labs is in the Right Place at the Right Time providing Solutions that Combine the Strength of Smart Connected Devices with Cloud Computing

Technology
SaaS

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Chris Muench
CEO

BIO:
Chris Muench is the President and Chief Executive Office at C-Labs, which he founded in 2009. He brings twenty-five years of industrial automation software development experience and passion together in C-Labs to deliver exceptional solutions for today's modern factory automation environment. Chris has delivered solutions while working at Siemens Energy and Automation, and at Microsoft. He has technical expertise in Windows Embedded, Cloud Computing, Silverlight, NUI, and advanced communication protocols including OPC and mobile devices. His credentials include a BS in Data Technology, and he has been a Microsoft MVP for ten years and an Industrial Automation Expert.

About The C-Labs:
The C-Labs mission is to provide solutions combining the strength of smart connected devices with cloud computing and enterprise class distributed business intelligence services. Our seasoned team of business and technology professionals has extensive experience in manufacturing, automation and B2B software environments, delivering exceptional products and solutions.

Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine

CEOCFO: Mr. Muench, what was your vision when you founded C-Labs? What is the vision today?
Mr. Muench: The vision of C-Labs is to develop "cloud based manufacturing" using distributed systems, distributed communications, distributed storage and everything else that makes the cloud a great resource for manufacturers. That is a very far reaching vision and there are many steps required to get there. There are also a lot of processes that have to be created in order to get to that goal.

CEOCFO: Where are you in the process? What have you figured out so far; what are your next steps?
Mr. Muench: The biggest issue with the cloud right now is trust. People and companies are afraid of losing control and security of their IP and data in the cloud. But they like to experiment with it. Everyone that I talk to agrees that the cloud is the future, but no one really knows what that means. C-Labs helps guide manufacturers step-by-step through the process of cloud integration. Currently, we are working with several of the top 10 OEM's in manufacturing. They are willing to move towards the cloud, however not at a full speed "we do everything at once" way. They would rather solve their immediate needs first, and then see how their end-customers are accepting the solutions. Then they will move additional technologies and data into the cloud. The number one end-customer need right now is giving productivity and maintenance workers access to real-time information in the factory through their mobile devices. This is not easy to do because factory security guidelines, IT guidelines, cloud guidelines and the mobile guidelines are all different. We are able to bridge all four networks and guidelines together to ensure secure communications takes place between the factory and the mobile devices - via the cloud. We haven't seen anyone else who can do that.

CEOCFO: What have you figured out that is allowing you to put all these different devices together? Is it an algorithm, a methodology, a program? What have you realized that others do not?
Mr. Muench: We have built a technology that we license to our customers called the C-DEngine. The C-DEngine communicates securely between the devices or nodes, and relays information between the factory,

the IT data center, the cloud and mobile devices. Customers can build their own solutions with the C-DEngine as the communication platform. We also build solutions for our customers that don't want to do it themselves or have a need for a special application.

CEOCFO: How do you overcome the skepticism of these companies? What do you say that reassures them where they can get that "Aha moment" where it really can work?
Mr. Muench: The internet is moving towards a very common and standardized way to facilitate communications: sending everything over port 80, the "HTTP" port. Everyone knows how to browse a web page and we know how to make browsing secure so we know the protocol works. That makes us very comfortable, working with a technology that uses HTTP and port 80 for all of our communications. IT administrators are very familiar with this protocol as well and have all the firewall policies in place to ensure the highest security possible. Previous solutions and technologies required customers to install specific gateways and open certain ports in a firewall. Companies did not like doing that for security reasons. Companies now are starting to trust http communication over port 80. If you can browse Google.com - you can connect a mobile device to your PC or industrial device in a secure way using our C-DEngine. We do not send the entire contents of your PC over the cloud; we just send data and information an application developer has identified to the mobile device. This allows for very fine grade control of the application that sends the data to the mobile client. With our C-DEngine It is very easy to develop these solutions.

CEOCFO: What do you see as the next couple of steps in the progression for manufacturers?
Mr. Muench: One of the next steps is the enhancement of these relays by what I call "plug-in services" that do a little bit more than just relaying the

information. They start working on analysis, historian storage, trending and alarm processing. Everything that HMI and Scada system is doing these days locally can be moved step-by-step into the cloud. The more customers trust the cloud, the more solutions they will want to push up there. There are a lot of benefits of cloud processing, especially around administration, billing, extension, availability and flexibility. It is easy for us to show customers their Key Performance Indicators (KPI's) on their mobile devices, and then move them towards adding more and more processing in the cloud including aggregating data, storing data and managing data. All this is currently done locally "on premise".

CEOCFO: Are there particular industries that are more receptive or that

are better candidates for you to work with?
Mr. Muench: Yes. The automotive industry is extremely forward thinking and pushing towards cloud based solutions. I know of two German automobile manufacturing companies that are looking into that right now. One of the reasons is that they have many factories across a wide range of regions. In order to collect KPI's from all these factories, they currently have to build very expensive VPN connections and get their IT departments involved. This can be a very long process. Food and Beverage is the second industry that is interested in this technology. This is being driven by the need to adhere to government regulations and certifications. Food and Beverage producers currently collect all of this information locally and store it in ever-expanding data centers. The cloud is the perfect way to store this data long term, in case of

an audit or some other requirement comes from the government.

CEOCFO: Would you tell us about the Frost & Sullivan Award?
Mr. Muench: I was a bit surprised about that, though very pleasantly! We had a lot of interviews in early 2012 with Frost & Sullivan. From our perspective, more to help us understand if we were on the right track by getting feedback from them. When they announced in May that we had won the award for Entrepreneur of the Year, I was not quite sure why this happened. Then in September when I was at the award ceremony they gave a presentation about Ten Megatrends in the Next Twenty Years. Their interesting revelation was that for six or seven of those megatrends such as urbanization, mobility around human life and life sciences; C-Labs technology was right in the middle of those megatrends. So Frost & Sullivan was selecting us because we are providing technologies that help these megatrends to be realized.

CEOCFO: Is C-Labs funded to go through your next of growth or will you be seeking additional funding or partnerships?
Mr. Muench: Right now C-Labs is funded for initial growth steps with the help of two "angel" investors. We are also talking with a number of large manufacturing OEM's who have expressed interest in developing partnerships with us. As we expand our technology framework and move into the development and delivery of standard products, we will continue to seek out additional funding and partnerships.

CEOCFO: Why should C-Labs stand out for investors and people in the business community?
Mr. Muench: The biggest thing that we have to offer is a clear vision of how the next twenty five years will shape up. I have been in the manufacturing industry since the 1980's. I worked for Siemens for sixteen years in the headquarters of product development in the PLC and HMI area. I also worked at Microsoft for many

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years seeing the platform and framework provider side, and understanding what kinds of core technologies are being developed in the next years.

Cloud computing and cloud manufacturing is the logical next step in the evolution of manufacturing and C-Labs is in the right place at the right time to be a very strong part of it. Manufacturing customers who see the C-Labs technology immediately understand the power of what can be done with it. And we have not even scratched the surface of what is possible with cloud technologies. Future expansion of M2M (Machine to Machine) communication will be a huge growth area and is something we are focused on.

CEOCFO: So you are well ahead of the game?
Mr. Muench: At this point, yes. We are seeing a lot of movement in this area but other companies don't have the ability or focus to work on all four communications networks at once. And for me, communication is just the beginning. Running services on any of these communication nodes, by extending and scaling them out in the cloud is where the real value comes in. That is something that we will build up over the next couple of years and is an area ripe for new products. Consumer companies are very interested in our technology as well. For example, you can have a connected washer and dryer that tells your phone when the laundry is done. You are out at Starbucks and you want to know if your roast in the oven is done, and you can even turn off the oven from your mobile device. There are all kinds of scenarios that we have not yet thought of because the technology is just starting to make them possible.

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