With Tools that Analyze Source Code On-the-Fly, Simplify Peer Code Reviews and Extend the Life of Complex Software with a Focus on Embedded Systems, Klocwork® Inc. Helps Developers Create more Secure and Reliable Software

**Technology
Source Code**

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**Mike Laginski
CEO**

BIO: With 30 years of experience at industry-leading companies including Lotus Development Corporation, Cognos, and Fulcrum Technologies, Mike Laginski has developed a proven track record of building strong operations teams.

Prior to joining Klocwork, Mike enjoyed a successful career in increasingly senior domestic and global operations roles. As senior vice president and general manager of North American Operations at Lotus, Mike

led his division to double-digit revenue growth while closing the company's single largest software license order.

Mike also gained marketing and product management experience from Lotus and Cognos, served as chief operating officer at Fulcrum Technologies, and has sales experience with Hewlett-Packard and Burroughs.

About Klocwork® Inc.:
Klocwork helps developers create more secure and reliable software. Our tools analyze source code on-the-fly, simplify peer code reviews, and extend the life of complex software. Over 1000 customers, including the biggest brands in the mobile device, consumer electronics, medical technologies, telecom, automotive, military and aerospace sectors, have made Klocwork part of their software development process.

**Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine**

CEOCFO: Mr. Laginski, what is the concept at Klocwork Inc.?
Mr. Laginski: Our tools are used to analyze source code on the fly, which saves developers a significant amount of time and helps them deliver more secure and reliable code for embedded systems. We focus purely on embedded systems and support languages such as C, C++, Java, and C#. We are in the developer tools space.
CEOCFO: When you say on the fly, what is the normal way and what are you providing that might not be available elsewhere?

Mr. Laginski: The way many providers in this space do the analysis is that the developers are just coding at their desk, in their editor or IDE of choice. They would then submit their code to a nightly build typically and the analysis would be done on that build. Any security vulnerabilities or reliability issues that were found in their code would be sent back to them the next day so that they would have to go back into their code to make the changes. The way Klocwork does it, it is very much like when you are using Microsoft Word and you make a spelling mistake while you are typing. When this happens, a little squiggly line shows up telling you that you have made a mistake so that you can fix it immediately. What our analysis tool does is that while you are in visual studio, we are analyzing your code while you are typing and when you create a potential security vulnerability or reliability issue, we notify you immediately so that you can instantly correct the code before you submit to the build. It is a huge time savings, huge productivity gains, and you do not force the developer to constantly be going back into the code to make corrections.

CEOCFO: What was the challenge in putting this together?
Mr. Laginski: The complexity. The code bases we are analyzing run into the tens of millions of lines of code. Many of these systems have been around for a long time. These code bases tend to be in very large infrastructure types environments, embedded devices, medical devices, military aerospace, and telecommunications. There is a very

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high level of complexity to these devices or systems, so analyzing that code and being able to present to people where the potential security or reliability problems is a very significant undertake.

CEOCFO: Are there similar services or is this something that is unique to Klocwork?
Mr. Laginski: There are a few companies in this space, but there are only a few primarily because the barrier to entry into source code analysis is very high. You have to be brave of heart to come into this space.

CEOCFO: Klocwork has a sterling set of customers in many industries. Are there industries or certain types of companies where you would like to have more of a presence?
Mr. Laginski: No, actually as I mentioned, we really focus on the embedded players. When you take a look at what is happening in society, there are more and more embedded devices and instances where are lives are dependent on embedded systems. For example, you are seeing more recalls for automobiles that are software related rather than mechanical related. High-end cars are being recalled because of software problems. You can now find up to 100 million lines of software code in some of these luxury cars. In airlines, there are well over 100 million lines of code running throughout an airplane. You are seeing embedded devices in your fridge and you have robotic vacuum cleaners running around your house with software code in it. The lights in your home, your thermostat are other more basic examples. All these traditionally mechanical devices are now being connected to the Internet so they can be controlled remotely. The embedded world is expanding into every corner of our daily life. The typical person in the industrialized world is probably walking around with 10 to 20 million lines of software code in their pockets and purses between smartphones, GPS devices, the latest craze of health fitness, and tools. We are becoming increasingly reliant on embedded devices.

CEOCFO: You have a variety of products. How do they break down? Are there one or two main categories?
Mr. Laginski: Yes, there is a source code analysis tool- The Klocwork Insight product- and then we have a product called Klocwork Cahoots, which is a new tool that we have developed specifically for developers doing code review. Any large organization requires developers to do code review whether they like to or not and what we have tried to do is apply a social media approach to code review. Instead of forcing people to get in a room, book the room, schedule the people, and going over someone's code, we give people the ability to post that their code is available for review. That automatically notifies those in the chain of command or the peer command that need to review the code. We also give people the ability

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> **– Mike Laginski**

to track code reviews of other developers because they either view someone as a mentor or consider someone as a superstar developer in the company. A more junior developer can learn from the way they code and their coding styles so it can be quite educational for them.

CEOCFO: Most technology companies I speak with talk about how difficult it is to find qualified people that fit in both the technical side and the personality side. How do you attract the talent you need, given some of the challenges?
Mr. Laginski: Attracting talent goes beyond just the developers. It is very hard to find people at every level including sales, marketing, technical writing, and customer support. The challenge is across the board with finding really talented people but the key thing around attracting people into our space is that this is one of the most complex puzzles you will get to work on to try and solve. Working on

breakthrough technology is the key attraction. To do that squiggly line while a developer is writing code, instantly identifying a problem that is a potential security vulnerability or reliability issue, is an intense level of complexity that attracts very bright minds that are looking to solve very complex mathematical problems. It is the challenge of being the one who can find the really nasty security vulnerability or really nasty reliability problem that has the potential to make a cell phone reboot by itself or cause problems in a fighter jet or an automobile. There is a huge ego boost when you are the person that found the problem that would have caused a major reship of a product.

CEOCFO: Would you tell us a little bit about the actual process? What are your people doing day in and day out?
Mr. Laginski: On the code we are developing, it is creating algorithms that will find specific types of problems in a variety of circumstances over multiple types of devices. It is a very heavily matrixed environment, which adds to the challenge and keeps the interest level high. It is ways of finding how to tune the ratio between problems that are going to be very real problems or problems that people may think are problems but actually are not problems, which is considered false positives and false negatives. That is the wording used in our space around presenting a defect that is not really a defect, which is a false positive. Not finding a defect that actually is a defect- whether it be a security vulnerability or reliability issue- not finding the problem is as bad and actually worse in many cases than being able to find a problem because you missed something and it got past you. This is for people who love math and love math problems.

CEOCFO: How do you reach potential customers?
Mr. Laginski: There are multiple ways we approach them. Our market, being very heavily technically oriented, is typically out on the web looking for tools using a variety of keyword searches. We attend a

number of industry specific trade shows and we do some direct mail campaigning but it is largely getting out into various websites and forums where developers are speaking to developers as opposed to marketers speaking to developers and letting them know that this technology is available and that they should check it out.

CEOCFO: How is business these days?
Mr. Laginski: Very good for us. We are growing at a very nice clip, we hired about 15 people so far this year and we are looking to fill in about another 6 positions this year. We are starting to do our planning for next year and looking to do quite a bit of hiring next year as well. It is a growing space and we are pretty excited about the future.

CEOCFO: Why should people in the business and investment community pay attention to Klocwork?
Mr. Laginski: What we do for companies and our customers- which we have over 1,100 customers globally- is we protect their customers. When you think about embedded systems, there is typically a hardware device that is shipped to their end customer and by us helping our customers find where the security vulnerabilities are or reliability issues are before they ship, we make sure that when you are using that embedded device it just works. When you think about the things you use every day, when they do not work you tend to say you will never by another one or you will never buy anything from that company again. Everybody's time is tight, everybody expects things to work, and when things do not work, we really do not sit down like our parents used to sit down and just fix things. In most instances, you cannot get inside the device to fix it and even

if you could the device is too complex for an end user to actually fix. The other thing is that we protect the company's brand. Nobody wants to be on the front page of Business Week, Wall Street Journal, or any other business magazine where their product has had a major recall and x millions of devices have failed. Nobody wants that kind of press because it is almost unmanageable press. We really help protect the brand of our customers. There is also the cost of reshipping. A consumer device such as a cell phone is a great example. Those kinds of devices are measured in the millions and tens of millions of devices shipped. If there is catastrophic security problem or reliability problem that requires a reship, the cost is in the tens of millions of dollars, which is a direct hit to a company's bottom line. We help protect that from happening. Equally important, is providing your developers with the tools they need to develop code they will be proud of. Let's face it. Developers are the rock stars of most companies. They want to solve the unsolvable and build the impossible. That is what they do. Executive Management really needs to appreciate that the development environment has changed pretty dramatically over the last ten years. A lot of open source is being used in companies and in a lot of a case nobody really knows what the security or quality of that open source code is or whom has been working on that open source code, yet it is getting embedded into systems and being shipped out. A lot of off-shoring is happening with development where development work is being contracted out to third parties that may or may not have the same levels of security and quality standards that you would normally have in your company or currently have in your internal development teams. With acquisitions

and development teams, it is not uncommon for our customers to have 8 to 10 different development centers around the world. People are working on modules of a product, components of a product, and different products that come together into a single box. One of the things that our product is really good at is making sure that the security, quality, reliability, of that code that is going in the box is consistent regardless of who or where the development team is. When you think about some of the big telecom companies, medical device companies, and military and aerospace companies, many of their code bases have been around for ten plus years. Over the course of the life cycle of that code, there has probably been a few thousand developers that have touched it. You are the new developer that is just joining the company and have been handed a particular component of a product and you have no idea what the guys before you did. You have no idea if through time and countless enhancements and iterations if there is code that is now at risk for security vulnerabilities or reliability issues. What we do is we provide the analysis that shows you where your risks and exposures are.

CEOCFO: How could someone not decide to use it?
Mr. Laginski: Part of it is human nature and part of it is time crunch. Development teams are under such pressure to get the next rev of the product out or get a new product out, that sometimes testing gets pushed off to the next release. Unfortunately, mankind is more reactive than proactive. We tend to react to disasters as opposed to try to prevent disasters and there is a little bit of that that spills over into the business world and the development culture.

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