



In Conversation

In Conversation with Eric Newcomer

Carol Baker

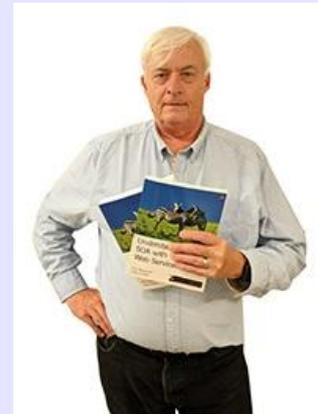
We talk to Eric Newcomer, the new Chief Technology Officer at WSO2 (<https://www.wso2.com>) about his new role and why he has such a forward-thinking approach to life.

For nearly a decade, Eric held senior architecture roles at two of the world's leading financial firms: Credit Suisse and Citibank. There he focused on introducing new technologies and best practices, including open source, big data, microservices, Docker and Kubernetes.

Prior to his most recent role at Citibank, Eric served as global head of architecture and innovation for the Treasury and Trade Services division there. Before joining Citigroup, he was the chief architect, Investment Banking division at Credit Suisse. Eric also served as CTO at IONA Technologies until its acquisition by Progress Software. Prior to this role, he was a distinguished engineer at Digital Equipment Corporation (now part of HP), specialising in database and transaction processing.

Long a proponent of open standards and open source, Eric has served on the Eclipse Foundation and OSGi Alliance boards of directors, and he chaired the OSGi Enterprise Expert Group. He is the co-author of WS-Transactions and has contributed to many other industry standards, including SOAP, WSDL, UDDI, WS-Security, OTS, AMQP, STDL, and XA. Additionally, he oversaw IONA's participation in open source projects, such as CXF, ActiveMQ, and Camel.

Eric is the author or co-author of three widely respected textbooks: Principles of Transaction Processing (with Phil Bernstein), Understanding Web Services, and Understanding SOA with Web Services (with Greg Lomow). He is also co-author of a patent on mobile messaging technology.



Congratulations on your new job. What will your new role as CTO at WSO2 entail?

Thank you. I am very happy – after about ten years of working for banks – to go back into the tech sector. In financial services I was chief security architect for the consumer bank division of Citibank, and before that role, I was chief architect for the treasury and trade division of Citibank which handles the accounts of the Fortune 500 and Governmental organizations worldwide, encompassing payments, foreign trade, and financing for corporate treasury departments. Previously, I had been the chief architect for the banking division of Credit Suisse. But prior to this, I spent about 25 years in the tech industry, with my most recent job before financial services being CTO for IONA Technologies.

In many ways, my job at WSO2 is very similar to the role that I had at IONA, but today, the tech industry has moved on so dramatically and is so forward-thinking that my role will be quite visionary and very exciting.



In Conversation

My technology career started as an engineer at Digital Equipment Corporation, that is now part of HP, before I moved to IONA Technologies (now part of HP). As I was in transactional database processing I began specializing in that area co-writing several text books including, *Principles of Transaction Processing* (with Phil Bernstein), *Understanding Web Services*, and *Understanding SOA with Web Services* (with Greg Lomow). The books were well received and respected as college texts, and I have had the privilege of working with some real industry heavyweights.

My move into financial services came as one of IONA's largest customers was Credit Suisse. At IONA I had worked with the team dedicated to Credit Suisse and got to really understand how IONA's technology vision and products were being received, and where we might look for improvements and future changes.

During that time, I got the company involved in web services, which made them pivot over to web services and help establish a lot of the standards which these services are based on. This is when I first met Sanjiva Weerawarna and Paul Freemantle – so I knew both founders of WSO2 long before they started the company.

For me now to have the chance to move back into the tech sector and work with Sanjiva, Frank Layman, Jonathan Marsh, and some other industry veterans which I knew from those days is really wonderful. The enthusiasm and the culture at WSO2 is tremendous. The technology capabilities, collaboration and talent of the employees are at an exceptionally high level, and my role as CTO will be to help figure out the future direction of the company – especially as we move towards cloud and cloud-native computing, and I am looking forward to working with our customers and analysts to get the word out.

Generally, I summarize the role as trying to facilitate a virtuous cycle – to use an Amazon word 'a flywheel' – that starts turning between what is going on in the engineering and technology department at WSO2 for new ideas and new solutions, new proposals for contributions to solving and addressing some of the problems in the industry, and bringing that out, talking with press, analysts, customers, and at events and most importantly, getting some feedback on those ideas.

We see our contribution to that cycle as the ability to have the conversation at the table, as opposed to standing outside the building trying to work out what everyone is talking about. So we will be contributing our intellectual capital into the broader industry for the purpose of participating in the discussions, getting information about what everyone else is doing.

We found that by having a seat at the table, and getting the feedback from customers, we can feed that all back into the company. This is the context in which we are playing in the broader industry. Now let's see how we can tweak and refine our core message and our strategy to deliver that service.

At the same time, we are making sure we are thinking two or three years forward – especially around the transition to the cloud. We're figuring out together what and



how we can contribute to the cloud data trend. What we can offer to our customers, and to the industry in general.

Now that you are back in the tech world, so to speak, in addition to your blog, will you also be writing further text books?

I have started reviewing some of the collateral which has been drafted inside the company to help frame the content especially as I have been involved in writing as a profession.

I am really thinking about whether the programming language Ballerina could be the subject of my next textbook, as Ballerina was originally designed by WSO2 to improve productivity for application developers that have to work with distributed cloud-native systems.

As you have come in to help set the vision of the company, is there a particular timeline you are working towards for Ballerina?

The first order of business is really around the move to the cloud.

I was speaking about this to Sanjiva only this morning, discussing how the technical underpinnings of the cloud provide value for money – almost like a seismic shift in value for money – compared to the older IT environments.

Inevitably our customers will want to move there for all the benefits of cost and flexibility, scale up, large data handling, and machine learning – which can all be achieved by going into this new computing environment. Whether it be on-premise or hosted in public cloud, there is a seismic shift in IT infrastructure and all companies are trying to get there.

Of course, web companies such as Google, Facebook, Amazon etc are already there. Whenever a new company launches it can already access ready-made flexible infrastructure which gives it an immediate advantage over legacy competitors. This is how they are in part disrupting established companies by using better, cheaper, faster IT infrastructure.

For instance, if you look at financial services there is a long list of fintech companies entering the market and all of them are based on this new infrastructure which means in some ways this flexibility is the competitive advantage for improving the user experience. They can change their applications more quickly in response to customer feedback. They get the feedback through machine learning and AI. They also collect data more quickly than via legacy infrastructure and older enterprise applications. Therefore, industries are looking for a more responsive agile IT environment, so they can get the same benefits that machine learning feedback loops are able to generate for web companies.

For example, today I was looking at a hotel booking and it appeared in my facebook feed later. It is very annoying, but at the same time it is the enigmatic power of these technologies on these infrastructures which is driving customer experience,



In Conversation

and therefore revenue. So assuming companies are going there, our task has to be to figure out how to help them get there, and what to do to help advise them once they get there.

Coming from the financial services market, has there been anything which has been a real driving force for you to go back to the tech world?

When I joined financial services it was almost like taking a step back in time dealing with legacy systems and the lack of agility, for instance, compared to what you would be able to do in a fintech.

In a technology company you are always looking forward seeing where the latest trends are, the technologies coming on board, and how they can help solve customer problems. Whereas in an established company such as a bank (which often has a long-established and archaic history) you are always looking backwards at what has been proven, what you know is going to work, and what you can adopt safely.

It is definitely exciting to be back in a forward-looking role and with WSO2 I think the opportunity is great as the company evolves. It has been a very successful company with its current strategy, and now everyone realizes it is time to pivot and revise the strategy, so it is a great time to participate in that.

Also I think Ballerina is a very fascinating project, that we touched on before, to create a new language for the purpose of assisting customers in this journey to the cloud. There is a lot of potential right there.

Today Ballerina is being used in our integration projects to make them easier to provide a low-code for integration. But longer-term, I think there is even more potential for it to be the language which is relevant for this migration to the cloud – and that is very exciting.

What sort of trends are we likely to see moving forward?

The movement towards a more modern IT infrastructure is one, and the benefits of that, and the need to re-engineer for it, is an on-going trend.

Re-engineering is symbolized by the micro service trend. Some folks such as Martin Fowler talk about it as a development trend, but it is not really. That is not why it exists. It exists because commodity data centres are made up of hundreds of thousands of PCs and you want to have the right size workload running on them.

You create your application, and you have hundreds of these micro services working together in a PC-based environment. This is the reason why they have become so popular because they are the best way to create applications suitable for this new IT infrastructure.

I think that will continue, and in conjunction with that is a culture shift in the existing enterprises where you will be creating these smaller units of work, then stitching



them together to build your applications. Organizations will need to reorganize their teams.

It's not just about technology, but about adopting more agile techniques, and smaller teams which can work together on these units of work as opposed to bigger teams that work on these larger monolithic applications. That is definitely going to be continuing as companies try to figure out what is the right way to organize their IT staff to handle this; re-engineering and forward-looking movement into big data, machine learning and AI.

This is another trend that is going to continue, and accelerate.

We are seeing how some colleagues in the area of edge computing are viewing machine learning and AI capabilities at the edge of the network. Probably the best-known example of this is Alexa – there is some machine learning AI in there which is why Alexa is so fast. There will be similar technology in cars, planes, trains, washing machines, electric meters, etc. It is going to be amazing to think that we will have a world of APIs.

This brings us back to what we are all interested in – API management

It is amazing to think you can have APIs on all these devices which you can call and send a request for AI execution out on the edge of the network. This is a fascinating trend which will continue during the next year and we will see a lot of activity in the API space.

We also touched on the machine learning and AI feedback loop where you collect sufficient amounts of data – and you really do need a lot of data sets for this – to go through and understand customer trends.

In particular, we are talking about financial institutions who are interested in having the ability to provide good customer-intuitive experiences – easy to use mobile apps, easy to use web apps. Being able to get the feedback loop in place so that these companies can tailor these experiences to the customers much better is another trend that is going to continue, and that will involve a lot of the data management activities to ensure data quality.

The challenge for machine learning tends to be getting the data in such a form and space that it can be used successfully for those algorithms. You can't just feed any garbage in – you will simply get garbage out, if you do.

Because of the ongoing Covid-19 situation, there is the need to push everything to digitalize, and at WSO2 we will find a way to help companies achieve this.

Is there one forward thinking thought you would like to leave our readers with?

One of the most interesting things going forward is the cultural aspect of how IT is being done. Until we change that and align the agile culture to the agile nature of



In Conversation

the software in the API landscape, we will not be able to realize the full benefits of the new technology.

If you are talking about automating the development process and pushing out changes to your website every couple of hours – as some of the web companies do – that is a culture shift, that is not just technology.

Going forward, it is how you organize your department. How you do your testing and your development, it's how you give responsibility to your teams, how you oversee them, how the teams work with other teams and so on. For me this is probably the biggest problem on the horizon, but when resolved it will make a big difference to the organization.