Lucy Sanders is vice president for Avaya eCRM Solutions Research and Development. She is a key visionary in developing Avaya’s eCRM Solutions strategic architectural and technology direction, and is responsible for the entire Avaya Labs R&D eCRM Solutions organisation, a global team spanning five locations and including over 600 engineers.

Lucy was promoted to VP from her role as CTO with Lucent Technologies’ Bell Labs Innovations. She joined Bell Laboratories 24 years ago after receiving a Masters Degree in Computer Science from the University of Colorado, and has broad experience in: real-time operating systems, multimedia, and call centres. While at AT&T and Lucent, she worked on System 75, the G3r ECS, the MMCX (Multimedia Communications Exchange), Call Centres and eCRM solutions.

Pamela Clark-Dickson spoke with Ms Sanders and director of Research and Design, Avaya Australia, Scott Cole, in Sydney recently.
EA: What is the role of the Avaya eCRM Solutions R&D lab?

LS: The Avaya Labs R&D eCRM Solutions is the name we give to all the R&D developers we have globally. There are 3,000 engineers all around the world, and we have about 100 doing research – pure R&D research in areas such as speech technologies. The bulk of the R&D teams conduct development in our product houses, in applications, solutions, eCRM, unified messaging; we have our Definity enterprise communications systems and then networking and connectivity solutions. The Avaya Lab teams stand in support of those product houses. So the eCRM product division has eight sites around the world, and the site here in Sydney does work in the eCRM space. It supports all of Avaya in lots of different things including IP-based solutions, services and eCRM.

EA: What sort of technology is the Avaya Lab working on in eCRM?

LS: The market is moving in interesting ways in eCRM, and maybe I should frame what I mean by eCRM. Our heritage is in the classic call centre which has agents on headsets with screen pops. Increasingly, call centres are becoming more and outbound, and are becoming more than voice call centres – they are becoming contact centres where people can reach the business by Web, by e-mail, by forms. So more and more the call centre is becoming a contact centre. We are seeing that trend, and we work on solutions in the call centre and the multimedia contact centre. But we are focussed on not just the initial contact into the business, but also the fulfilment of the request itself, so we like to say we are focussed on the hello to satisfaction.

Under the surface of that there is a lot of technology and communications servers, so in that area there is voice response, outbound dialling, the Definity PABX and so on. There are multiple channels and kinds of technologies – e-mail, Web, IP-based communications, and then we also have a growing body of software solutions and technologies and movement of work.

EA: What do you mean by fulfilment with regards to technology?

LS: We are thinking about things from the business process perspective. In our business we are not into the generic workflow. We really want to be able to codify or systematise whatever rules the business has on how they want to give services to their customers. And they can be sophisticated. So if you are a pharmacy you might want to have traditional services through a store, but you also might want to have a pharmacist at home answering questions, you might want to provide your clients with business flows that might notice automatically that the medications you are taking are not compatible with one another, you might want to offer services to a customer which automatically reach out and say "it is time to fill your prescription".

Then we put workflow and enterprise application integration (EAI) under that, and also something we think Avaya does very well, which is resource matching, where work moves through the business process in much the same way as skills-based routing happens today.

EA: What is resource matching?

LS: In our traditional call centre business we have Advocate, and the Advocate-based algorithms are as applicable to the business flow as they are to the initial receipt of a call. For example, if you have taken out a loan, you can take the way that loan origination request moves through your business process and provide service levels around each part of that request. And you can also pick the best knowledge worker who is next best able to handle it. You can build reserve workers into each step of the process. Everything we know about Advocate applies to the entire business process. We are also looking at Advocate pull-work: algorithms where you can work with agents about which work they should do next, on the best behalf of their business.

EA: What are the algorithms involved with this process?

LS: The basis of the algorithms is the Advocate engine. We are building layers on it where you have the basic algorithms you can apply, and then business processes can put additional processes in Advocate. It is the same basic code, and we are going to now be layering things on as we start to reach out more into the fulfilment of the request.

EA: How has the underlying architecture of CRM changed, with regard to Internet, thin client, use of object-oriented technology and so on?

LS: In a traditional ACD, with management reporting, soft phones and CTI applications, what we are beginning to see is the buildout of those applications into the enterprise. More and more, we see enterprise servers that need to be integrated together in a seamless way so you can fulfil the customer's request across the enterprise. So we are seeing that multi-vendor integration, and partnerships with other companies other than Avaya, are what we need to be doing to implement that on behalf of the customer.

The Internet is also important. We are also seeing big trends on businesses wanting customers to reach them in any way, that has been spoken about a lot in
our industry, and we are starting to see that businesses are on the cusp of implementing it.

Databases, data management, how we take information or data and turn it into information and knowledge on behalf of these companies and how we put it to use, and all of the MIS technologies are important as well.

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**EA:** What about the impact of new channels, for example, wireless, e-mail, Web?

**LS:** We are seeing a big uptake in the last year. There is an emerging trend here that these electronic channels are integrated with stores, offices, points-of-presence, so that I as a consumer, if I order something online I can return it to the store. That is a new twist to it that I have seen over the last little while. People in the call centre business are starting to install e-mail solutions and Web.

**SC:** As with the case of most technology, the promise precedes the fact. People like to think about it for a while. One of the examples of that is the Internet call centre, and if you look at the convergence of the IP world with the voice world, the concept of the Internet call centre has been around for some time and early uptake has been quite slow, and there are a number of factors for that. The fact that PCs don’t come with a microphone, and with firewalls, that audio quality was not that great. Until we got to the current crop of PCs, they didn’t have the processing power that was needed to provide voice. But as those barriers are being overcome, we are seeing some of what people talked about a year, two years ago, is becoming a reality. There are people deploying call centres today where you push a button and you are connected via an audio channel to the call centre. As a deployed reality it is only relatively recent.

**LS:** In the e-mail world we have been able to send e-mail for a while, but it is only recently that we have seen the advent of content analysis engines, which can scan e-mail, and understand what the e-mail is about, in order for the agents to handle large volumes of e-mail. Some of the content analysis engines have led to e-mail being more readily accepted in a contact centre as well.

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**EA:** How is artificial intelligence used in content analysis?

**LS:** I don’t think there is much yet. If you mean, do content analysts learn, then they can learn from responses and a number of things that agents can do manually, there is a feedback loop by which you get trained all the time to be a better content analyst. But that may or may not be what people think about artificial intelligence. It’s more Star Trek-ish than that, machines that can think.

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**EA:** What about the impact of technologies such as natural language speech recognition, and so on?

**LS:** We are doing a lot of work ourselves in the NLSR area; I think it is a great solution because it really does help you get into more customer-friendly self-service options. We have seen a demonstration here in Sydney with NLSR in business flow, where people could reach an IVR and speak about what they wanted, and direct through to a business flow. I think it gives more choice – we are seeing more and more people like self-service because they can use it any time. We have an IVR product that has an open interface for NLSR, text to speech and speech to text. We also have interfaces now into the Web with the IVR, so you can use Web content to make some of that richer, and additionally we are working in the labs on Voice XML (VXML).

**EA:** What is the relevance of VXML?

**LS:** We know it is going to be a very important thing for us, and we think in other parts of Avaya outside the eCRM space, when we think about voice portals and so on, VXML is a very big deal for us in Avaya. We are looking at it first Avaya-wide and then we are going to be backing it into some of the eCRM applications.

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**EA:** What is currently under development in the Avaya Labs?

**LS:** In the Interaction Management space, we have another release of the ACD coming out, we have another release of our outbound capabilities coming out [outbound call management for the enterprise]. We will be coming out with better IP-based solutions in the interaction management space, and another release of our multi-channel contact centre where we have better e-mail and Web and voice over IP – in particular with content analysis, we have better content analysis for e-mail channel and voice over IP.

In the Business Management and Information space, we have the next release of CRM Central in the next 12 months, where users will be able to set up a business flow, set service levels around the business flows and then do some of the examples we are talking about with the hello-to-satisfaction piece.

The third and final is business intelligence, where we have a lot of operational, MIS management reporting, we have a product there called CMS, a new release of products for BI and another one coming in the next 12 months.

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