MEET MIKE QUIGLEY: CEO OF NBN CO LIMITED

NETWORK ARCHITECT AND DESIGNER

Liz Fell

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Quigley began his telecommunications career in 1971 as a cadet engineer with Standard Telephones & Cables (STC), a subsidiary of International Telephone & Telegraph (IT&T) until it was acquired by France-based Alcatel NV in 1987. After graduating from the University of NSW with a Bachelor of Science in Physics and Maths and a Bachelor of Electrical Engineering (Hons I), he worked in Alcatel Australia's R&D and technical areas before moving to more senior executive positions.

Quigley was responsible for Alcatel in Australia and New Zealand when he was appointed to the US in 1999 as Chief Operating Officer and then President and Chief Executive Officer of Alcatel USA. In 2003 he also became President of Alcatel's Fixed Communications Group in Paris, and in 2005 he was promoted to President and Chief Operating Officer of Alcatel. After Alcatel's merger with Lucent Technologies in November 2006, Quigley decided to leave the company and he returned to live in Australia in 2007. Since his NBN Co appointment he has resigned from board positions at Leighton Contractors and Audinet Pty Ltd but he remains a non Executive Director of the Prince of Wales Medical Research Institute in Sydney.

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TJA: Thanks for giving up your time for this interview. The joint media release from Prime Minister Kevin Rudd and Minister Stephen Conroy on your NBN appointment said, in part: 'Few people in the world have first-hand experience with the deployment of the type of network our National Broadband Network plan involves. Mike is one of those people … [he] has led the development and integration of large scale Fibre-To-The-Premise (FTTP) and Fibre-To-The-Node (FTTN) implementations for some of the largest US carriers.' Was winning that US$1.7 billion fibre access network contract with SBC Communications/AT&T in 2004 a major achievement during your long Alcatel career?

Quigley: Yes, that was probably part of it. But also, when the Minister was considering me for this job he probably went back through some of my history and knew that I had been in telecoms for 36 years, that I'd been involved in almost all types of technology from submarine cable to satellite systems, that my background was in design and development but I'd been in manufacturing, marketing, sales, and running telco companies here and in the US, and that I'd ended up being President and Chief Operating Officer of Alcatel which was a big vendor. So he understood that I had been in the business a long time.

TJA: It's an impressive history but it couldn't have been easy for Alcatel and yourself to break into the US market?

Quigley: No, winning the SBC contract was a lot of work. Certainly Alcatel, both the board and the CEO, Serge Tchuruk, were really happy that we had won it, the reason being that they knew a lot of background work had been done. It required a bit of foresight to say, 'OK, where is it that telcos in the US are going to want to be?' You had to try to make sure you positioned yourself to be there in terms of the network designs when they needed you. So I was running Alcatel's fixed line business for some time…

TJA: Was that when you were Alcatel's US President?

Quigley: Actually, I was in this strange situation where Alcatel had three large business groups and three large geographic regions and I was running one of each. So I was running North America and I was running a fixed line business. The fixed line business was big business at the time – a five billion Euro business – so while I was doing that we were supplying DSL. We were the biggest supplier of DSL.

TJA: Didn't Alcatel buy DSC Communications, which had the DSL technology?

Quigley: Yes, that was slightly before I got to the US. We integrated all of that and we kept winning more DSL business. So we were seen as probably THE fixed line player in the world.

TJA: Was it difficult heading up a foreign supplier in America, especially a French supplier that might even be spying on their industry?

Quigley: It wasn't easy, but being Australian didn't hurt!

TJA: And you were born in England!

Quigley: It didn't hurt if you were English and Australian. I mean, who were the two biggest allies of the Americans? And, by the way, the kind of culture of the US and the culture of Australia – while they have their differences – are not radically different. The Americans kind of liked the straight-up-and-down approach. I was very much the chief salesperson because if you're the CEO of a big vendor company in the US, you've got to be the chief salesperson. The telcos there tend to be quite technically astute, certainly more so than in Europe where the CEOs aren't engineers and don't necessarily come from telco backgrounds. In the US, there are engineers in the traditional telcos and it helped that I grew up through technology so I could have conversations with them. If I told them we could do this, they knew there was a reasonable chance that we could. So that contract to roll out fibre to the node and some fibre to the home was more than just a supply of equipment: it was an integration contract.

TJA: Was this the first time that Alcatel had offered the integration?

Quigley: No, it wasn't the first time, but it was the first time in which a deal was done like that. There were many telco companies – Ericsson being among them, and Siemens and Alcatel certainly – who would do maybe some operations and maintenance and maybe some installation. But this was more than that. This was architecting and designing a network. We became almost 'joined at the hip' to AT&T. In other words, they looked at us as a real partner in how you design and architect and then build this network.

TJA: You say AT&T though it had actually been acquired or swallowed by SBC?

Quigley: Yes, AT&T had been swallowed by SBC who then took the AT&T name.

TJA: On the equipment supply side, I've read that Alcatel was providing AT&T with its own IP routing, Ethernet aggregation and switching, DSLAMs, and fibre-to-the-premises gear.

Quigley: That's right, and also a lot of integration activity. We built huge labs in Dallas, Texas, which was a big part of it. We had already started on some of this stuff.

TJA: Aside from DSC and its DSLAMs, hadn't Alcatel bought up quite a few companies in the US?

Quigley: We had. Certainly the IP routing company was a key acquisition to pull off this contract. And we bought some smaller video middleware companies to build up the expertise in being able to offer 'triple play'. In other words, we kind of positioned ourselves to be the person that the operators could turn to and say, 'If I need a partner, who do I go to?'

TJA: And you were a charming, non-French salesman with a high-level of technical knowledge and the right equipment…

Quigley: I was trying to sell as well! You try to make yourself a good partner to work with!

TJA: Did you become a partner with Microsoft to push IPTV as part of Alcatel's triple play strategy?

Quigley: Yes. We certainly partnered with Microsoft and, by the way, this was tough going for me in Alcatel because Alcatel had a video middleware piece of business, so I was promoting the Microsoft solution ahead of our own internal product. Why was I doing that? Because I was convinced that for a company like AT&T they needed to have someone like Microsoft doing that consumer end. With the best will in the world, Alcatel just didn't have, you know, that French phrase, 'Je ne sais quoi'. They wouldn't quite know how to have the appeal of a Microsoft when it came to the Electronic Program Guide!

TJA: Was IPTV Alcatel's term originally?

Quigley: To be honest, I can't remember.

TJA: It seems to be defined in lots of different ways.

Quigley: Yes, that's always the problem. Often people think about it as Internet TV and we have to keep trying to explain that it isn't Internet TV. It's a Virtual Private Network that is run by AT&T. It's true VPN using IP technology to deliver video services, and that's quite complex to do.

TJA: Meanwhile, you were appointed as Alcatel's President and Chief Operating Officer and around this time, namely mid-2005, you visited Australia when Switkowski was retiring as Telstra CEO. Were you invited to apply for his job?

TJA: As the global Alcatel President, were you also helping Alcatel secure a deal with Telstra in late 2005 for its proposed next generation fixed broadband network?

Quigley: Yes, I met Sol [Trujillo] several times and Greg Wynn. I knew both of them reasonably well.

TJA: Were you managing the Telstra bid?

Quigley: I had an interest with what was going on in Australia and I had quite a number of discussions both with our people and with Telstra people.

TJA: You must have been persuasive because Alcatel won a strategic partnership with Telstra and entered an MOU to provide 'network design and integration, product supply, deployment, maintenance and ongoing support, in relation to broadband access, Ethernet aggregation, and fixed next generation voice and network integration'.

Quigley: Yes, all good stuff. We were successful.

TJA: Were there plans for any fibre to the premises?

Quigley: They were looking at fibre to the node, but when you're building these networks – fibre to the node or fibre to the premises – it's not radically different. There are some changes: you're putting in splitters instead of cabinets, and you're putting some electronics in the field with FTTN. But all you're really doing with FTTN is pushing that fibre further out and using that last bit of copper, which is expensive to replace.

TJA: However, Telstra soon suspended its network proposal partly because it was after regulatory certainty in terms of preventing rivals from gaining access to the new network.

Quigley: It was one of those situations that sometimes happens. You can stitch up a deal, but if the telco decides to change somehow, there's not much you can do about it.

TJA: Well, Alcatel did embark on a lobbying campaign which included production of a KPMG-Alcatel White Paper titled, '*Fostering broadband infrastructure – the need for regulatory certainty*'. You attended the May launch of that paper.

Quigley: I think I remember that. Normally when I came out they got me to do one of those things.

TJA: What I found interesting about the paper was that the KPMG-Alcatel cost estimates to deploy this national broadband network ranged from about A$5 billion for fibre to the node to A$20 billion for fibre to the home.

TJA: At this launch, you were reportedly scornful of the proposal floated by Telstra's rivals to collectively fund a network that all telcos could access. You apparently used words to the effect that this was not the way you had seen it done anywhere in the world!

Quigley: It could well be. If I were asked a question about whether or not I thought a large group of telcos could do that, I'd have to say that I'd never seen it done anywhere and it's not so easy.

TJA: As I understand it, Telstra's need for 'regulatory certainty' was central to the launch discussion with you citing examples from the US.

Quigley: Yes. Actually, it's probably very important for almost all telcos. I was influenced heavily, I guess, by the work I did in the US. I often visited the Federal Communications Commission, and more than once testified at a Congressional committee on regulatory issues. And we demonstrated to the FCC Chairman and some of his folks just what it meant when we were going through the whole question of unbundling. There were some silly ideas that people were floating around the US at the time. For example, that you could unbundle at the back plane of the DLC. In other words, when you've got a piece of equipment, some telcos were arguing that they should be able to get access to an AT&T or a Verizon Digital Line Concentrator at the back plane of the equipment and plug in their own cards. So I was involved in trying to demonstrate

that some of these crazy ideas were completely impractical from an equipment point of view. As the largest supplier of some of this gear, we were seen as an authority on the technicalities and technologies without any particular barrow to push one way or the other.

TJA: Indeed, you must have known the Telstra network and its engineers very well after your many years at STC/ IT&T and Alcatel?

Quigley: Yes, I'd spent a lot of time in exchanges. For the FMO, the Future Mode of Operation project, we did a helluva lot of local switches, transit switches, signalling transfer points, and OAS switches.

TJA: And long before the FMO project, were you involved in bedding down Telecom Australia's 10C exchange, which was supplied by STC?

Quigley: No, in those days I wasn't in the switching division. I started in the line transmission group. I was designing analogue frequency division multiplexing systems in the STC Labs in Botany Road. And when we cranked up the submarine cable facility in Port Botany I was involved in that.

TJA: Can we talk about your design work? Is it correct that IT&T, STC's multinational owner till the mid '80s, had manufacturing branches around the world and research centred in Belgium, therefore most of its equipment was imported here and then modified?

Quigley: Not true. It depended. Those days in IT&T there was no central lab in Belgium. It just happened that Belgium was one of the centres for switching, for System 12. But also there were centres in Stuttgart, and in Italy and Spain. There was a number of places. It was a kind of confederation so different labs were doing all sorts of things in the '70s and early '80s. Those were the days when every telco, whether it was British Telecom or Deutsche Telekom or whatever, wanted products designed their way.

TJA: So were modifications done by local engineers?

Quigley: Well, no, not even that. Let me give you an example. When I started in optical fibre transmission systems in the mid '80s, the world had first of all begun with multimode and then it went single mode fibre. What had people developed? They had developed 2 and 8 megabit low capacity, short distance, multimode fibre systems. They had also developed 140 megabit single mode fibre systems. What did Telecom Australia want? They wanted a 2, 8 and 34 megabit single mode system because they had a big continent and very long thin routes. Nobody had ever done that in the world. I was the lead engineer and, with a couple of other guys, we went to Germany because that was where IT&T was doing some of its fundamental system design on fibre systems. I worked in the systems group and we developed a single mode system. I borrowed some of the intelligence from that, but we needed a new line code for actually transmitting bits. There wasn't such a code available, so I then went to Harlow in England to the famous STL laboratories where I worked with them developing a new line code, and we paid them from STC

here in Australia. So this was a fundamentally new piece of technology. It wasn't begged or borrowed from anyone. I brought it back, put it together with the stuff that I'd worked on in Germany, and we developed a new line system, which was deployed.

TJA: And where did Telecom fit into that?

Quigley: Well, they specified it originally but we designed the whole thing. We would go through prototypes, test the whole thing, and then we would say to Telecom Australia, 'Here's the product. We believe it meets all your specs.' They would take it into their Labs and they would hammer it and see whether it was all fine. So that was how the design was done. It was a lot of fun, but it's all gone now.

TJA: Was that in 2005 under Sol Trujillo?

Quigley: Oh, no, it was long before that. The fact is that the industry changed. You simply could not afford to keep R&D labs going in all these different places so you had to rationalise it all.

TJA: And as recently as 2006 you helped the merger of Alcatel and Lucent Technologies, owner of the famous Bell Labs; that must have led to more global rationalisation?

Quigley: Some time later, yes! (laughter). I often think it was simpler in those early days!

TJA: Meanwhile, back in Australia at the end of 2007, were you following the ongoing NBN debate?

Quigley: To some extent – but, to be honest, I was involved in a bunch of other stuff. I was on the board of Leighton Contractors so I was learning something about the mining industry and construction, and I joined a neuroscience research institute. I even enrolled in a Master of Biostatistics degree at Sydney University. I was having fun.

TJA: Biostatistics?

Quigley: Yes, I've always liked Biology and Statistics. I did pretty well in it too!

TJA: Did you finish?

Quigley: No, I had only just started when this came along! I got to do two subjects.

TJA: And how did the NBN job come along?

Quigley: I was travelling overseas with my wife having a holiday and I was asked … in fact, I was asked before I went on that trip whether I would consider going back to Europe to run a large vendor.

TJA: Should I try some possibilities?

Quigley: No! Don't even bother! It was a big company and I went to see them when I was over there. But before I made the decision, I got a call from Egon Zehnder.

TJA: The favoured executive search group! Did you talk to telco people before you decided, even if it was just to find out what had happening to Telstra?

Quigley: Well, I was following it in general terms. I honestly didn't have anybody advising me but I started researching it and once you start you realise it is quite an ambitious project. I had certainly followed how the Government went out with the FTTN, Telstra didn't bid…

TJA: I thought it made a bid but it wasn't accepted.

Quigley: Well, as I understand it, they didn't put in a compliant bid.

TJA: I assume you will find it very different from design-and-build a broadband network for a government rather than for a private owner?

Quigley: Sure. I was 36 years in the commercial world.

TJA: So now you will have to deal with, among others, the Department of Broadband's large Infrastructure group and its advisers, Senate committees, and regulators from the ACCC. It must be extraordinary.

Quigley: It's extraordinarily interesting and extraordinarily challenging because you have to think very seriously about public policy decisions.

TJA: And do you have to chase up some policy decisions because they haven't been made yet?

Quigley: Yes, they have to be made, that's right. So I've tried to make sure that, inside the company, people understand that our job isn't like a commercial enterprise. Our job is to execute government policy. It's not to make the policy: it's to execute on what the government decides.

TJA: Are you are in close contact with the Broadband Minister, Senator Conroy?

Quigley: Yes, that's where I was this morning! What we try to do is – and this is what is so exciting – we are part of trying to frame up those decisions for the government.

TJA: I saw that the NBN implementation study by McKinsey-KPMG is overseen by a steering committee made up yourself and representatives from four Departments, including Prime Minister and Cabinet. Didn't Minister Conroy's Department initiate that study before you arrived?

Quigley: Almost in parallel. Let me be clear that the Lead Adviser, McKinsey-KPMG, work for the Department, not for NBNCo. They're giving advice to the Department that helps them frame policy issues, and they're not trying to do the development of the network. We're working very closely with them, but we're doing all the network design.

TJA: Your subsidiary, NBN Tasmania Ltd, was also set up before you got your job?

Quigley: Yes. These I just took as things that the government had decided.

TJA: Was the joint venture status with the Tasmanian government also decided?

Quigley: Yes, before I got there.

TJA: What about the appointment of Doug Campbell as NBN Tasmania chairman?

Quigley: Doug came on board about the same time as I did.

TJA: The tender for $250 million to build a new regional backhaul network was another government initiative managed by the Department before you arrived and won by Leighton-owned Nextgen Networks. Since you had been a member of the Leighton Contractors' board did conflict of interest concerns prevent you from having any involvement with that tender?

Quigley: I wasn't involved. You're exactly right. I made it clear to the Department that I could not be part of any evaluation of that bid.

TJA: Did you have any say in the design of the network?

Quigley: Well, it's just backhaul, and there's clearly a shortage of backhaul around the place.

TJA: But surely where it goes – the route – is important for creating NBN competition?

Quigley: Sure, but the government had designed it, they were going out with the tender, it was already on the way, and I couldn't get involved because I would have had a conflict.

TJA: So Nextgen is going to build, operate and maintain a government-owned backhaul network which is not part of the NBN at all?

Quigley: Yes, but that will sort itself out. All in good time!

TJA: At the NBN industry briefing forum in Sydney in January there were still doubts about the decision to build a network that stops at Layer 2 in the vertical stack…

Quigley: Not In my mind!

TJA: Several people were even gloomily predicting that the major wholesale providers offering these Layer 3 services to retail resellers would be Optus and Telstra again?

Quigley: No. I spoke to a quite large telco – certainly somebody in the top ten who I just happened to be with the day before – and their business model was exactly what I had expected. They wanted to become a wholesaler provider, building on us, selling to resellers.

TJA: Minister Conroy has said NBN wholesale prices will be geographically averaged. Are you comfortable with that proposition?

Quigley: It certainly has implications, but I'm here to execute government policy not to make it.

TJA: Can't you influence it?

Quigley: When you say influence it, I can make sure the government understands in a network sense, in a cost sense, in a timing sense, what the impacts of its decisions are, but it's not up to me to try and decide whether we have uniform pricing. That's really a policy decision.

TJA: On learning about NBN's two proposed wholesale Ethernet bitstream products, one for capital city and regional centres and the other for rural areas where there is no competitive backhaul, I wondered if they would be priced differently?

Quigley: You can have your aggregation points closer to the premises or you can backhaul it up to a point of interconnect that's further up into the network, closer to the capital cities. What we're trying to make sure is that people can't get into both of those points and try to use the backhaul as a separate product. We're not selling that product. And we've got to be very careful, by the way, that we don't screw up the industry structure.

TJA: Isn't it going to change anyway?

Quigley: Yes, but we've got to be careful how big a piece we're going to take which is why I'm very reluctant to move up the stack on the way through.

TJA: What about the proposed multicast capability? Is that classified as Layer 2 or Layer 3 in the vertical stack?

Quigley: There's a difference between supplying a Layer 3 service and what we're doing with multicasting. Let me give you an example of where we've got some Layer 3 protocols but we're not 'selling' them as such. If you put ONT [Optical Network Terminating] equipment in a house, and it's got a number of Internet jacks, and somebody comes along and plugs their PC directly into an Internet port, what do we want to happen? What we plan in concept – and we haven't designed this yet – is that it will bring up something on the PC screen that says,' You've just connected to NBNCo. We're a wholesale-only provider so if you want to use this service please go and talk to an RSP [Retail Service Provider]'. Now to do that, we've got to do some things at Layer 3, but that doesn't mean we have a Layer 3 service we're selling. Multicasting is a little bit similar in that if we want to carry bitstreams at Layer 2, and we want to do that very efficiently in the network, we need some Layer 3 protocols, in particular, one called IGMP for IPTV. We're not selling a Layer 3 service: we're just using a Layer 3 protocol.

TJA: Then there is the idea of a separate RF or radio frequency feed for delivering video services which I understand is favoured by the existing TV nets. Could the NBN have both capabilities?

Quigley: Yes, you could put IPTV over the Layer 2 bitstream using multicasting or you could use RF. The RF is there for the same reason as an ATA [analogue terminal adapter] for audio so you can do existing legacy services.

TJA: Finally, satellites to reach the last 10 percent. I saw that Alcatel has lost its satellites…

Quigley: No, it sold its satellites!

TJA: Yes, and the rationalisation of the satellite industry hasn't left many manufacturers making the Ka-band satellites you need for broadband, though I see that Space Systems/Loral must be a front runner given its local company has filed for the best Australian orbital slots. Have you seen their representatives?

Quigley: They've certainly made pitches to us, yes, and I think it's fair to say that, at this point, we anticipate satellites being used in the solution to get to the last few percent. We'll have a look at what is possible, which is why we went out with a Request for Capability statement recently. There was a time, by the way, when I was running our submarine business and people said, 'You're absolutely wasting your time because the world is going to be satellite'. Now people are telling me, 'Why are you doing this fibre network? Wireless will do it all!'

TJA: And in relation to using terrestrial wireless for remote homes, has some spectrum been reserved by the government for the NBN or will you have to participate in an auction?

Quigley: That's an issue yet to be resolved – it's a policy issue again. The government has got spectrum and it's not up to me to tell them what they should do. I can make recommendations to them and tell them what we think we need to do the job they've asked us to do.

TJA: I just have a final question, which is not directly to do with the NBN.

Quigley: That's all I know about!

TJA: And you are enjoying it?

Quigley: Yes. It has its tough times, but it's intellectually very stimulating. It's a combination of these different parts coming together: policy issues and some tough negotiations. It's interesting.

TJA: I wanted to ask whether you had time to fall in love with Paris while you were working at Alcatel?

Quigley: Yes, Paris is an absolutely beautiful city. My wife speaks very good French but I only spoke some polite French. If I had taken on the job in Alcatel I would have kept up the lessons. But the food's fabulous, and you can get on a train and go away for the weekend. It's just glorious. You could never get bored in Paris!

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