

# ○ GLOBAL INTERNET DIPLOMACY

## AN INTERVIEW WITH PAUL TWOMEY

*Liz Fell, Freelance journalist*

Dr Paul Twomey was appointed in March 2003 as the president and chief executive officer of ICANN, the Internet Corporation for Assigned Names and Numbers.

He was the first non-US citizen to lead ICANN, a private, non-profit, public interest corporation that is charged with the global co-ordination of the Internet's domain name system root, Internet protocol addressing, and other Internet protocol resources.

After serving at the helm of ICANN for nearly seven years, Twomey decided last year not to seek renewal for another three-year contract. He will remain in the new position of senior president until December 2009 to support the transition to the new President/CEO.

Twomey played a pivotal role in the creation of ICANN when he was the chief executive officer of Australia's former National Office for the Information Economy (1998–2000). While at NOIE he was selected in 1999 as the inaugural chairman of ICANN's Governmental Advisory Committee (GAC).



**Paul Twomey**

On leaving NOIE in 2000 to set up his own advisory firm, Argo Pacific Pty Ltd, he was appointed by the then Communications Minister, the Hon Richard Alston, as Australia's special representative for ICANN and the domain name system, a part-time position that enabled him to continue serving as GAC chairman for four years.

Twomey's early career included senior executive positions with the Australian Trade Commission (1994–1998); consultancy services with McKinsey & Company (1989–1994); advisory services for the Department of Foreign Affairs & Trade and the Australian Council for Overseas Aid; research officer for Asian Bureau Australia; tutor in International Relations, Department

of Government, University of Queensland; and judge's associate in the Supreme Court of Queensland.

He holds a Bachelor of Arts with Honours from the University of Queensland, a Master of Arts in Political Science and International Relations from Pennsylvania State University, and a PhD in International Relations from the University of Cambridge.

Freelance communications journalist Liz Fell interviewed Twomey at ICANN's Asia Pacific office in Sydney before he formally retired as President and CEO. This is an edited version of the interview which took place in late May.

A previous interview with Twomey by Liz Fell can be found in the *Telecommunications Journal of Australia*, Autumn 2003, Volume 53, No 1, pp. 13–21.

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**TJA:** Was your address to the recent AusCERT Information Security conference on the Gold Coast the main reason for your visit back home or are you also checking out positions for a post-ICANN career?

**Twomey:** Ah, Liz, you're so true to form! [Laughter] ICANN Asia Pacific is based in Sydney now so I'm actually here on and off throughout the year. My travel schedule tends to be a global one. Our main offices are Los Angeles, here in Sydney, in Washington and in Brussels, and we have smaller offices in places like Egypt and parts of Africa, so we've got a global presence.

**TJA:** So you have internationalised ICANN to some extent?

**Twomey:** That's right. The staff is internationalised, the board is internationalised, as are our offices and the time zones we operate in. We've got to be very careful with that because our function is global and not regional, so it's important that in establishing offices to help us serve people in different time zones we don't portray the domain name system as something we manage on a regional basis.

**TJA:** That sounds like a delicate balancing act. Does the US office sometimes expect a response while you are asleep in Australia?

**Twomey:** They do too often. Years ago in Australia we used to talk about going global and operating global Australian companies. Well, I have to say that operating a truly global organisation that deals with literally every country in the world is a real management challenge!

**TJA:** And exhausting I assume?

**Twomey:** Yes, exhausting. For an organisation which is on the Internet, I spend an enormous amount of my time on what Clem Doherty (former director, McKinsey & Company) once referred to as 'high bandwidth, low bit rate', that is, 747s! The reality of Internet governance is that people are people, they want to deal with you face-to-face whether you're dealing with country code managers or governments or major registries.

**TJA:** Taking up the theme of the recent AusCERT conference, how does ICANN contribute to the prevention of what is an increasing number of threats to Internet security?

**Twomey:** We've actually just recently released a strategy for our security, stability and resiliency process and we want feedback on that, so I would be interested in your readers' views. Our main areas are in the secure 7 X 24 operation of the IANA (Internet Assigned Numbers Authority) functions, the operation of the root server data, and in ensuring that there are provisions to protect registrants in the contracts for the generic top-level domain registries and registrars. If we take .com as an example, in ensuring that the registry for .com run by VeriSign, and the registrars (of which there are 900) have the right provisions in place for data escrow, for backup and things like that.

**TJA:** Can you give some examples of when ICANN becomes involved in countering threats?

**Twomey:** Well, the next layer of issues is collaboration and co-ordination with our community about building greater capability. There are two recent examples which I think are useful. One is a series of programs where we've been working world-wide with the local country code operator organisations on their response planning when there are attacks on their infrastructure. In other words, we've been sharing some of the experience that we've had from the root server system and the big generic top-level domains.

The second example has been playing a role with others in helping to co-ordinate responses to some of the botnets, the most significant one being the Conficker botnet, where quite clearly it has a link with the domain name system or the unique identifier system. We're not the Internet's policemen – our role is not to be securing the Internet *per se* – but where there is an intersection with the Internet's unique identifier system we do have some responsibilities. Now Conficker is an example where the bot used domain names as a command and control mechanism. We ended up working with 115 registries around the world helping them and giving them advice as to how to take preventative actions to try to stop this massive increase in the domain name registration of the bot's command and control system.

**TJA:** And these attacks are on the increase!

**Twomey:** Yes. There has been a lot of reaction to the cybersecurity community dealing with each attack as it comes and so we need, as a technical community, to start thinking about how we address core problems. One example that ICANN has been working on for two years with its partners, the US Department of Commerce and VeriSign, is introducing DNSSEC, the Domain Name System Security Extensions protocol, into the root zone system; and we've recently been promoting that among top-level domains. The DNSSEC protocol will contribute to people having more confidence when they look at a domain name, or look at a site using a domain name, that the data on the machine actually comes from that site. Also potentially we should do more at the protocol level with the Internet Engineering Task Force grouping looking at the protocols to see what options there are to improve the security of existing protocols.

**TJA:** Are national cybersecurity policies the way to deal with these global attacks?

**Twomey:** Well, over 100 countries have cyberwarfare doctrines, formally and there are elements of 'arms race' about them in that the people devising attacks are finding new ways to do them and the people defending attacks are finding new ways to try to stop them. I think what we need to do in this response is to reinforce the role of collaboration and co-operation. The single global interoperable Internet delivers us enormous economic and social benefits. We've got to be careful that we keep a strong commitment to ensuring the commons is secure and resilient, and that we have a model which can do that and which doesn't result in just saying, 'The government is going to protect me'. I think that's an unlikely answer to the challenge.

My concern is that if politicians and policy makers start mixing together cyber espionage threats, cyber warfare threats and general criminal activity and call them all 'cybersecurity', there will be a natural tendency at some stage to call on the interests of the nation to defend them – because most of us still live in a sort of Lockean contract where we have given up our freedoms for the state to protect us. There are some countries in the world, or some parts of some countries in the world, that would be quite happy to use national security as the excuse to start breaking up the single global interoperable network and could put all sorts of national security reasons as to why there needs to be basically a series of country intranets. We in the West, I think, have to be very careful that, as we respond to cybersecurity issues, we don't make a heavy state-based national cybersecurity approach an excuse to start putting up non-tariff barriers, or any form of barrier, to the way the present single interoperable Internet works.

**TJA:** How would these barriers work?

**Twomey:** Well, let me give an example of the sort of damage that can be done. In February the Pakistani government requested that one of the gateway ISPs block YouTube because they didn't like what it was projecting in terms of Islamic values or something. The gateway managed, inadvertently I think, to write the code in BGP, Border Gateway Protocol, which is one of the languages for the routers. The consequence was that the gateway didn't just redirect YouTube traffic going to Pakistan to its site, it managed to inform every router across the world and within about half an hour all of YouTube's traffic was going to a Pakistan ISP. Then, thankfully, NANOG – the North American Operators' Group – and others managed to intervene; they told everybody else involved, people changed the codings in the routers, and they came back to normal.

**TJA:** It sounds like the Pakistanis hijacked it!

**Twomey:** It's not hard technically to start putting up all sorts of barriers and suddenly things just don't work. That's the concern: that we don't give people an excuse to say, 'This traffic only works if my security apparatus approves it'.

**TJA:** Can you elaborate on your idea of a public health model as an alternative? I saw a report on your AusCERT address that quoted colourful phrases on your 'pandemic' analogy such as 'draining the swamp, rather than worrying about the fever'.

**Twomey:** Yes, that particular report got all the nice lines and put them one after another to say that was the speech – which was not quite true!

I think the Internet is a complex ecosystem that has much greater similarities to public health than it does necessarily to straight command and control processes like national security. I don't think that the sort of approach such as, 'I'm going to take that hill' or 'I'm going to defend this line' is necessarily applicable to all cybersecurity issues.

Now of course I'm not saying that governments and their security apparatus don't have a major role. We all have some responsibility for cybersecurity: corporates have some responsibility and each of us individually has to have some responsibility. We need a model to think about the challenge and that's why I say the public health model is better. Somebody has got to be the GP, somebody has got to be the Centre for Disease Control, and the emphasis, coming back to the public health and pandemic part of the analogy, is that we have to focus on resiliency, not on security, because we're going to have things that go wrong. If something goes wrong for a company, how are you going to respond? How are you going to bring back your escrow data? That's different to saying, 'Look, it's just security, build me a high wall'.

**TJA:** Turning to the US policy, have you formed a view on the way President Obama is planning to handle cybersecurity?

**Twomey:** Well, Melissa [Hathaway, interim White House Cybersecurity Adviser] did a review and I had been saying similar sorts of things in the lead up to that review. There is, of course, a need for government responses and for capacity. And I think a public-private partnership is an important part of any cybersecurity approach, because 90 percent of all the infrastructure is sitting in the private sector.

**TJA:** Meanwhile, the US debate is being fed by new bills in Congress and the future of ICANN's contracts with the Department of Commerce.

**Twomey:** Yes, there are at least four pieces of legislation. I think those bills have been part of the signalling from the Congress to the Executive that they want the Executive to take cybersecurity seriously.

**TJA:** The bill from Senators Rockefeller and Snowe has been criticised by one academic, Dr Milton Mueller, as being almost a 'caricature' of what the rest of the world fears about US control of ICANN and the domain name system root. Is that a fair comment?

**Twomey:** I think the bill has interestingly focused on the IANA (Internet Assigned Numbers Authority) functions and the IANA contract. I don't think the executive is considering any change to that.

**TJA:** And that is the historic contract that enables ICANN to perform the technical functions supporting the domain name system. Is it up for renewal?

**Twomey:** It's a five-year rolling contract and I think it's up for renewal in two years.

**TJA:** Does ICANN need to lobby the US government each year to ensure the IANA contract is renewed?

**Twomey:** No. The US role in the IANA function is a procurement contract asking for the function to be performed and they have an authorisation role when changes get made to the zone file, which has been a very procedural thing.

**TJA:** Yet there are still critics ready to argue the US can control the global Internet through ICANN ...

**Twomey:** I have to tell you that in the whole time I've been involved with ICANN, which is now 11 years, I have never once seen in the performance of that function the United States government exercise any policy aspect control.

**TJA:** Commerce's other ICANN contract, now known as the Joint Project Agreement (JPA), is due to expire at the end of September. Do you expect this contract to be terminated, extended, or amended?

**Twomey:** Our view is that the Memorandum of Understanding process and the final JPA have been very successful in helping to guide the ICANN community to build a real functioning organisation. We think it therefore has reached its natural end point and we should celebrate the success of that. The issues around ICANN are not perfect. The things that ICANN itself has to deal with will continue to produce controversy because it's structured as an organisation to bring all the stakeholders together, and the stakeholders fight each other. But having said that, the establishment of an international bottom-up, community-led, private sector-led organisation to deal with these issues, which gives global solutions through contract returns, has proven basically to be a very successful one.

**TJA:** How do you respond to those who are critical of what they see as US control of ICANN such as the European Union Commissioner of the Information Society, Viviane Reding, who recently called for President Obama to cut ICANN's ties to the US government and make it accountable to an international body, a 'G12' for Internet governance?

**Twomey:** Well, the week after Viviane made her statement, the European member states made it very clear that that was a personal statement of the Commissioner. And I understand that there has been a communication from Brussels to the United States making that clear.

**TJA:** Have you discussed ICANN's contract renewal with the current Australian government or the communications department?

**Twomey:** The department is part of the Governmental Advisory Committee process and, yes, I think there has been discussion with them around the JPA process.

**TJA:** Do you expect Commerce's JPA renewal process to attract public comment from those who want the US to have more control as well as those who see ICANN as all about US monopoly control?

**Twomey:** I think you should be careful of that language, Liz. You said 'US monopoly control'. The Department of Commerce is very clear in the Notice of Inquiry it has put out on the JPA. It says this is not an oversight document.

**TJA:** OK. What is your preferred term?

**Twomey:** Well, it's been a partnership as to how to implement a policy, frankly. The Clinton administration policy was that they would like to see this part of the way the Internet was co-ordinated move away from specific subcontracts to the US National Science Foundation and be co-ordinated within the Internet community itself. ICANN was a response of the community to that White Paper process of the Clinton administration. The key element of the Memorandum of Understanding process is the JPA which is almost like a due diligence process for a venture capitalist: these are the sorts of characteristics and strengths we would expect in such an organisation and, as that organisation grows, we would expect it to have the following characteristics. I think the JPA now is literally a two-page document – the 2003 Memorandum of Understanding was 36 pages – so in terms of the detail that people think needs to be achieved to be a successful type of organisation, we think it's close.

**TJA:** You sound confident about ICANN's independent future?

**Twomey:** What we have seen in the last three or four years – and I have been heavily involved with the United Nations' World Summit on the Information Society and its follow-on – has been an education process for a lot of the world's diplomats about how ICANN works, and some appreciation of what the US role is and is not. In terms of the conclusion of the Joint Project Agreement – is ICANN a stable organisation that will keep going in the future – I think inherently that is the case.

A few weeks ago I spoke to the High Level Group, which is the group of all the senior officials of the European Member states, and one government official said to a third party, 'When Twomey speaks, it's really clear that ICANN is not going away.' I think that's the reality. The reality now is that international community is increasingly aware that the ICANN model is established, it works, it's performing the functions well, and they have confidence it's the way to go.

**TJA:** I think you have taken steps to improve ICANN's accountability too, which includes establishing a review tribunal?

**Twomey:** Yes, accountability, and how ICANN is accountable, is important. We have just recently released a further review about accountability, particularly putting in place basically a judicial review mechanism for ICANN. We're going to create an Independent Review Tribunal with standing members, set terms, and senior jurists including appellate judges and technical people, so that it looks like a senior appellate court and people will say, 'There's the bench'. We're giving

them powers that are very similar to the sort of administrative law review panels that exist in many countries.

**TJA:** On this question of accountability, I saw the Technology Policy Institute in the US, whose supporters include AT&T and Cisco, has recently released a paper which suggests ICANN be restructured to be accountable to its 'direct users', namely, the registries and the registrars. How do you respond to that idea?

**Twomey:** That's not going to fly anywhere. That's a breach of antitrust. There is no way that ICANN can be directly accountable to the registries and registrars. That's exactly the accusation other people make about their controls.

**TJA:** It is clearly a challenging job to balance all these different and conflicting positions which, in ICANN-speak, you call 'stakeholder representation'. Has this model worked on all issues?

**Twomey:** Yes, because essentially the process we're talking about is inherently a global political process with a small 'p'. It's a bottom-up process.

**TJA:** Well, a 'top' level stakeholder is the Governmental Advisory Committee that you – as the Australian representative – supported, nurtured and chaired for about four years. How many GAC members are there now?

**Twomey:** About 120. It was 34 when we started.

**TJA:** I assume they don't all attend each meeting.

**Twomey:** They turn up at different times. It reminds me very much of OECD or ITU working groups. In other words, the governments who are interested in particular topics tend to attend. Others will attend more remotely.

**TJA:** Does the GAC seek unanimity in its deliberations?

**Twomey:** Yes, they basically work by consensus. Whatever comes out of the GAC in written form is via a Statement of Principles. We've seen their Principles on new generic top-level domains and that sort of thing.

**TJA:** What happens when there is no consensus?

**Twomey:** The only things that get passed are by consensus.

**TJA:** So when an issue is discussed and you don't hear any more, then you realise it didn't achieve a consensus. In other words, you find out about it through a process of omission.

**Twomey:** It's a very common process in international governmental discussions!

**TJA:** Can we talk about some of the problems you had as CEO with the long-running issue of approving or rejecting the application for '.xxx', a top-level domain for what is known as adult material?

**Twomey:** Well, this issue is *sub judice* so I have to be careful.

**TJA:** But the '.xxx' applicant, ICM Registry, has publicly posted its filings with the International Centre for Dispute Resolution, including supporting witness statements, for everyone to read.

**Twomey:** Well, I'm a witness.

**TJA:** OK. Let me try some general questions. Were you under pressure personally from either the US and Australian governments to reject the '.xxx' application?

**Twomey:** Liz, I just direct you to look at the public board meeting and read the public statements by the board members when they looked at the ICM decision.

**TJA:** But the GAC deliberations aren't public!

**Twomey:** Then draw your own conclusions.

**TJA:** Did you have any discussions about this issue with then Communications Minister, Senator Coonan?

**Twomey:** No. I had no discussions with Senator Coonan. She made some public statements in the media. Liz, I have a very thick skin. Any scent that some government might have made some sort of public comment and would have influenced myself or any others on the board is, I think, ridiculous.

**TJA:** After researching ICANN's long history with the '.xxx' proposal, I thought perhaps you might like to offer some advice to Minister Conroy on his plan to mandate net filtering in Australia using a secret list aimed partly, but not only, at excluding porn!

**Twomey:** Liz, it's not my job to give advice to Australia on some sort of censorship regime! [Laughter].

**TJA:** ICANN is currently extending the top-level domain name space that, aside from generating funds, will allow almost any word or phrase to be placed on the right side of the ubiquitous dot. Do you expect a lot of disputes with multiple applicants for names like '.paris' or '.hilton'?

**Twomey:** What has been proposed at the moment is at least four grounds for objections for applicants. If you take the intellectual property one, there is the World Intellectual Property Organisation (WIPO), which has been established as an objection tribunal specifically, and there's also basically an objection process so you can go off to an arbitrator who makes a decision.

**TJA:** Do you see this expansion of domain names as one of your major initiatives at ICANN given that the new internationalised domain names that have non-roman characters will impact on literally billions of net users?

**Twomey:** Yes, that's huge – languages like Farsi, Arabic, and Urdu. There are 22 languages in India that use 11 character sets!

**TJA:** The non-English speaking members must be pleased with this initiative?

**Twomey:** Very much so. The Russians, the Greeks, the Bulgarians, the Arab-speaking world, the Indians, the Chinese, the Japanese, the Koreans ... there's a lot of interest.

**TJA:** Has it been an advantage to be Australian in your position at ICANN?

**Twomey:** Absolutely. Among Anglo-Saxons, at least, Australians tend to have a view of how things get addressed in different environments, which is quite useful. You understand how the North Americans work, how the Asians work, just simple things like meeting dynamics.

**TJA:** On the Internet's future, former ICANN chairman, Vint Cerf, in a speech given earlier this year, noted the increase in mobile devices and sensor networks and raised the issue of address scarcity. What happens if or when Internet addresses run out? Is Internet Protocol version 4 (IPv4) suddenly going to mutate to IP version 6 (IPv6) and end the potential scarcity issue?

**Twomey:** The unallocated pool of v4 will probably deplete at the end of 2010 going into 2011. That means that v4 will still be in the networks for at least the next 20 years.

**TJA:** But I understood versions 4 and 6 are not compatible?

**Twomey:** That's what ISPs are going to have to work on – building the dual stack technology – that's one of the big challenges. I think you'll find deployment of IPv6 is taking place now by people with large networks. Cox in the United States, for instance, is deploying IPTV and that sort of large network deployment is using IPv6.

**TJA:** So why have you resigned from such a challenging position?

**Twomey:** Well, by the end of this year I will have been president for seven years and I was chair of the GAC for four years before that, so at this stage in my career I would like to do something a bit different. I didn't want to sign up for another three years of such intensity. It's not the intensity of the work, it's the intensity of the travel. The travel in this job is very, very intense.

**TJA:** Did you have time to enjoy living in Marina del Ray?

**Twomey:** That's an interesting conversation, because I went to get apartments at Marina del Ray, did the mathematics and figured out I was better off not getting an apartment because I was always somewhere else.

TJA: So you have stayed in hotels?

Twomey: Yes.

TJA: In the future, do you anticipate living in Australia or the US?

Twomey: Well, I've got family links in Australia but there are a number of opportunities around. I'm talking to some people about stuff in the United States.

TJA: Is your own firm, ArgoPacific, still alive and well?

Twomey: Yes, it's still operating and doing work. A couple of start-ups are going quite well.

TJA: Finally, on the topic of your post-ICANN career, I have seen your name popping up in the media in relation to the future National Broadband Network (NBN) in Australia.

Twomey: Yes, my name has appeared. I can't make any observations about that *per se*, but what I would say about the NBN is that I think there are a couple of aspects about the model which are phenomenal – they're really very, very interesting. First of all is the structural separation of Telstra and what that can mean for the economy. I think that's very significant. Secondly, the vision of rural broadband and the impact of re-engineering the services sector in the economy, both government and private services, I think is really significant. Most people I know, who are in the Internet space, are very interested in the model because it does come to the heart of driving up bandwidth and delivering it. I was interested to see that Susan Crawford, a former ICANN board member and at present a special Obama adviser for technology, has publicly stated that they are very interested in what has been announced and are looking at it very closely.

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