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Connecting the World to the World Cup

Pipeline's Q & A with Dr. Tom Porter of Avaya

Every four years, the majority of the planet is united to witness a sporting event that has few equals. This event serves as not just a tournament, but a showcase for national pride, personal triumph, and collaborative victory. It is a massive event, spanning several weeks and an entire nation. It is the FIFA World Cup.

The 2006 World Cup is well underway, and the event is being attended by millions and followed by billions. And while it is soccer (or football, if you please) that is bringing the world to Germany for the Cup, it is the job of telecommunications providers to bring the Cup to the world. In honor of this massive event, Pipeline took a moment to speak with Dr. Tom Porter of Avaya, which has partnered with FIFA to provide the event's converged communication solution.

We took a moment to speak with Dr. Porter while he was onsite at the games.

Pipeline: First of all, tell us a little about your role in this event.

Porter: I'm part of a team of 267 people responsible for running an securing the FIFA event network, which is the largest converged communications network in the world at the world's largest sporting event.

I started off with a doctorate in genetics about ten years ago, and the way I got to what I'm doing is still amazing to me. I took on the challenge of the event network because it's a very hard network to secure, for both technical and political reasons. We have a team that speaks a variety of languages from a variety of backgrounds, and we have a network that is extremely dynamic in terms of its organization. Parts of the network are instaciated on day one and possibly come down on day 30, whereas other parts are instanciated on day 10 and come down on day 40. We have 70 locations, which include hotels, bus stops, and train stations. Both the timing of the locations going up and down and their dispersed geography make it fairly interesting in terms of protecting the network from malicious people, both outside and inside.

Pipeline: How does that compare to last world cup?

It's one third larger, in terms of the number of IP addresses. These things have a tendancy to grow. On this network we have roughly 200,000 security clearances. There are around 30,000 network devices and 45,000 network connections. We will run, over the course of the event, between 15 and 20 terabytes of information over the network. I've heard that's roughly as much information as is contained in the Library of Congress.

Pipeline: How did Avaya secure the deal?

In 2001 we signed a contract with FIFA for several events to be a major partner and be responsible for infrastructure along with DeutscheTelecom. We were involved in the 2002 World Cup, the 2004 Women's World Cup, and the 2005 Confederations Cup.

Pipeline: Do you have plans for involvement in the next World Cup?
It's not yet clear what our involvement will be in 2010. From a technical point of view we are talking about it. We've been talking about network connectivity in South Africa and how we would handle it, and whether we would be doing IPV6 or not. But the people who make these decisions are in talks.

Pipeline: What are some complications this project has encountered?

Porter: The biggest would be the volatile nature of the network. Security people like things that sit still so that they can be characterized. On this network nothing sits still. For example, we're already deinstalling Leipzig and Nuremberg because there are no more games there. There has to be very clear coordination as we pull. Security monitoring and network monitoring devices out of there in time with the physical equipment coming out of the building. The requirements make it tough, as well. Security usually consists of a three part triangle, known as the 'CIA Triad'. It revolves around confidentiality, integrity, and availability. Most security people in the enterprise are most interested in the confidentiality portion. In this network, availability is the key metric. The network has to stay up because we carry real-time data, not only conversational data, but also data that feeds the World Cup website, which is how most Americans get their information about the cup, since the games are generally played while they are at work. We also feed companies that provide real-time statistics during the matches. This need for availability makes us have to make compromises when we are designing security into this thing. The network has to stay up. There are times when security concerns and availability concerns are not coincidental. Another thing that makes it difficult is that we work with DT, European Global Sports, and FIFA directly, as well as other players. In addition to speaking different languages, there are also different backgrounds and different sensitivities to risk.

Pipeline: In general, why do you feel that the World Cup is an important event?

Porter: Well, from a cosmic point of view, it's just a game. But it's the biggest game in the world. About a third of the people in the world are watching the games. In terms of size, it's undeniably important. It's something that the whole world shares. The world is nuts about soccer.

Pipeline: Do you feel that this makes Avaya's role special, in helping to bring the games to the world?

Porter: What we do is all about connecting people, regardless of underlying infrastructure. Building out this network, we learned a lot of lessons. What we've learned, we get to take back into the field with us.

Pipeline: What did Avaya do to ensure a positive QoS over the network?

Porter: It involves planning and testing. We literally built this network in a basement before the event. There were 4000 unique tests in the fall of last year. When we went into full scale production, guys literally unbolted the racks and shipped out the complete system. That has really paid off. It has worked remarkably well.

Pipeline: What approach was taken with regards to fault management?

Porter: Unlike enterprise networks, we have spent a disproportionate amount of time watching this network in real time. We're had a lot of eyeballs on it, 24 hours a day. We use intrusion detection systems, and CNA and OpenView. We also use a few other tools that I won't mention until after the games.

Pipeline: Were there some things that took you by surprise?

Porter: Well I was sorry to see the US go so quickly [laughs]

Pipeline: [laugh] Well, yes.

Porter: Also, there were so many media types taking photos, and whereas in previous events, photographers had used old-fashioned means to transmit their photographs to their respective centers. One of the things that made life interesting this year was that we carried most of the photographs across our networks. It's amazing how much bandwidth gets eaten up by photos. There's another that I'd rather not say, but I'll knock on wood and say it anyway. It's gone much more smoothly than we had anticipated. We've been attacked with some regularity, but the attacks have not been particularly novel. We used to say during the Confederations Cup, "Langeweile ist gut", which means, in German, "Boredom is good". We've used simulated attacks from the inside to test our readiness. We're cautiously delighted that we haven't had more problems.

Pipeline: When are you officially done with the event?

Porter: In about 13 days. An interesting fact that reflects the up and down nature of the network is that the entire network was only built out for a single day. We're now in the gradual deinstall phase.

Pipeline: Is there anything else you'd like to share about this event?

Porter: Well, we hope they watch. I think that the overall message is that converged networks work. I'd heard this term bandied about and I was never quite sure what it would look like in action, even though I've been doing this for a very long time. I think we're starting to see data, video, pictures, voice, and other information all going across one infrastructure, and it works. It's not the future anymore. It's actually here.

Pipeline: Excellent. Thank you for your time, and enjoy the rest of the games.

Porter: Thank you.

Thomas Porter, Ph.D. joined the Avaya Global Managed Services in 2002 as a Senior Security Consultant. Prior to joining AGMS, Porter worked at Alteon WebSystems and Nortel Networks. Recently, Porter served as the first Chief Information Security Officer (CISO) at Avaya. He has spent over ten (10) years in the networking and security industry as a consultant, speaker and developer of security tools. Tom lives in Chapel Hill, North Carolina with his wife, Kinga – an Asst. Professor of Internal Medicine at the University of North Carolina - and two Chesapeake Bay Retrievers.