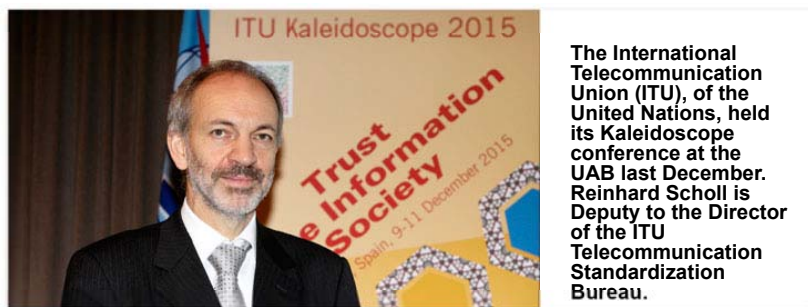


"Without ICT networks hardly anything would work"



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Kaleidoscope 2015 brought together academics and experts from industry, governments and research centres across the world to discuss how to achieve greater trust on the part of those who use ICTs, through platforms that are standardised, reliable and secure.

- Why are standardised platforms needed?

- We take it for granted that we can use our smartphone, made by one particular manufacturer, to phone anyone, at any time, anywhere in the world, whatever phone they have... and it works! We might take it for granted, but in fact it's incredible that this should work. And it wouldn't work without standards: agreed rules on how computers and other devices should work together. I think it's fair to say that the telephone network, or the communication network, is the most complex engineering project that mankind has ever undertaken.

- What does ITU do, and what is this conference about?

- Your smartphone wouldn't work without the ITU having previously allocated frequencies to the various services that use the electromagnetic spectrum. If you have fixed internet access you couldn't use it without the standards set by the ITU. Most international traffic on the internet goes through optical fibre and many of the standards on this come from the ITU. Finally, the ITU assists many developing countries in setting up their ICT infrastructure. As for this event, it brings together experts from universities and research institutes to explore the notion of "trust" in the context of communication networks.

- What are the main challenges in this area?

- As our director Chaesub Lee said, our lives are basically placed on digital platforms, so without a network, without mobile devices, hardly anything would work. This has huge implications. Until quite recently we used the phone network just to make calls but now, with machine-to-machine communication, lots of things will be put on the network, so the implications for security and privacy are huge.

- How can we trust in these networks?

- That is precisely the challenge facing device manufacturers and operators. At the conference we have seen that trust is the big issue for many operators: how to persuade their clients that their voice or data communications can be trusted and that their concerns over privacy are taken into account. There is no easy answer to this question. A lot of research and development work needs to be done.

I was pleased to hear one of the main speakers here at the conference say that we must offer users a platform on which they can be sure that any personal data they want to keep private is actually kept private. This is a great challenge. And it is further complicated by the cultural differences that have to be kept in mind. For example, in the USA they are less concerned about personal data protection than in Europe, especially in Germany, where this is a big issue.

- So cybersecurity is high up on the conference agenda?

- Yes, but trust is about more than just security. You can have plenty of security in place but you still can't be certain the data you are dealing with are trustworthy. For example, if you are travelling somewhere you might look up reviews of a hotel or restaurant on a travel website. You could have all the security protocols installed but you still can't be sure that the review you are reading isn't a fake. So trust is more than security. Security plays a part but there are other things involved too. Also, the word "trust" has a more positive ring to it. When we think of security it conjures up something scary, as if something bad is about to happen. Trust is a more positive notion, on a higher level than security.

- What research needs to be done in relation to Big Data and cloud computing?

- The next-generation network, 5G, will be quite different to the previous evolutions, from 1G to 2G, 2G to 3G, and 3G to 4G. The difference is that 5G will offer many different things to different people. It is not just the development of a new radio interface: a lot of innovation will also have to take place on the fixed network side and cloud computing will play a major role in this.

There are other big trends in the communications industry too, involving a move away from proprietary solutions – those sold by just one vendor – and towards very cheap access. Many of these new solutions will be software-configurable, which means that in order to manage your traffic you don't have to go to a sender and plug a new board into your server. As if by magic you will be able to control everything from

your computer. You can orchestrate your network via software and cloud computing will play a crucial role in that.

Another new development is SDN – software-defined networking – which means that software will become more and more important.

- How can developing countries and disadvantaged communities be helped in all this?

- What we see in developing countries is that they can leap-frog a generation of technology. For example, many people in these countries don't have a landline phone. They have moved straight to the mobile phone, skipping a complete generation of technology. Also these countries are coming up with more and more innovations, in mobile money for example. There is the famous case of a service that started up in Kenya, which lets you send money using your mobile phone. This is a service for people who don't have a bank account. So we can see that the developing world is catching up quickly.

But we do have to be careful in the development of 5G to make sure that rural areas also get coverage and developing countries in particular. Otherwise there is a risk of a gap being created when 5G arrives.

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