

Web 3.0: user-generated networks?

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European researchers took the concepts of Web 2.0, like user-generated content and social networking, into the real world. They hope to create user-generated physical networks so internets could be set up, by anyone, anytime. It's radical and, surprisingly, fairly realistic. Welcome to Web 3.0.

The internet, Web 1.0, is so incredibly powerful that even now, almost 20 years later, we have only begun to explore its potential. Web 2.0, with its YouTube, Facebook, Flickr and blogs galore is even younger and shows even more potential.

Now, thanks to the work of the WIP project, we may be on the brink of a new internet, a new world wide web. One where users can spontaneously create their own networks, in minutes, and with any kind of data device – mobile or fixed, handheld or deskbound. It means

completely reinventing the internet, retooling its underlying technology, creating new operating principles and defining wholly new communications protocols so that it all works with any technology.

“When the internet first emerged, it assumed devices would be fixed in place and linked by wires,” remarks Marcelo Dias de Amorim, a researcher with the WIP project. “But that’s no longer true. A large number of devices are mobile and equipped with wireless communication capabilities.”

Many of the fundamental assumptions of the original internet have been superseded and many other pillars of the web are simply ad hoc (even bootstrap) solutions to discrete problems. It all appears rather accidental.

WIP wants to change all that, reinventing the internet and its underlying methods in what they cheerfully describe as disruptive technology. It is revolutionary, radical, but is it realistic?

DIY networking

“We’re not looking to replace the internet with the flick of a switch,” warns Dias de Amorim. “What we’re proposing is a robust, flexible, optimised and above all user-friendly set of technologies and standards that will mean any user, anywhere, can identify and network with any nearby devices. Without any technical expertise whatsoever.”

An example helps illustrate the concept. You live in an apartment building. You find neighbour’s wifi connections and invite them to join a new ‘building network’ with a few clicks. Now you can share and communicate with everyone.

You all have internet connections via an ISP, ranging from 1, 2 and 5 megabits/second (Mbits/s). You decide to pool your money and rent a

fibre-optic line that handles voice, data and TV for the whole building. Suddenly you all have 10Mbit/s connections.

Another scenario. You go to a gig with some friends, set up an ad hoc network, and you can all communicate via text, voice or image for the rest of the day, all for free.

It's a radical concept that must overcome some major design flaws of the current internet. One simple example: an IP address governs the routing of information and the identity of the recipient. "That works fine in wired networks, but what happens if the user moves. Their address has changed, not the identity," reveals Dias de Amorim.

"But if separate values are used for identity and routing, then this isn't a problem, even if the user is walking through a park. We've successfully separated the two functions."

That is just one of dozens of challenges the WIP project has responded to during its research. It is a radical rethink of the current state of the art, but can it replace the internet?

"That's not what we're saying," says Dias de Amorim. "It does address the basis of networking, but it can happily plug into the internet itself... That said, if everybody, or even the majority, is using WIP to create internets, then WIP is the internet!"

The project is not quite there yet, but it has made enormous progress. The project split the multitude of technical challenges into three grand strands: user applications and interface, routing protocols, and physical technology innovations. They fit hand in glove to allow users to set up the network, allow the protocols to communicate with any device, and allow the devices to keep up with requirements. It is plug-and-play networking for grown-up applications.

Remarkably, WIP is already in testing phase, using laboratories especially set up for the task, with many of the components of the system. Over the next year, it will finalise some elements and integrate them all together. Finally, it hopes to seed the technology in promising communities to kick-start its adoption.

And then we may see the beginnings of Web 3.0.

Source: [ICT Results](#)

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