The Internet of Things used to be a buzz phrase in tech circles, but it’s already so last century. Brace yourself for the Internet of Everything.

BRITISH TECHNOLOGIST Kevin Ashton coined the term ‘Internet of Things’ in the late 1990s to describe how sensors everywhere would one day put objects, not just people or organisations, online. “If we had computers that knew everything there was to know about things – using data they gathered without any help from us – we would be able to track and count everything, and greatly reduce waste, loss and cost,” he said. “We would know when things needed replacing, repairing or recalling, and whether they were fresh or past their best.”

Ashton co-founded the Auto-ID Center at the Massachusetts Institute of Technology in 1998. It set a worldwide standard for RFID chips, electronic tags which suppliers and retailers used in ‘closed loop’ logistics systems to track their products, helping to reduce theft and deter fakes. In time these systems were linked up to do more sophisticated stock control. It was a practical and profitable start for the Internet of Things but progress has been slow.

Now the technological landscape is different, there are bigger players involved and the scene is set for something altogether more exciting.

Sensors are spreading and our A-Z of sensors (p32) shows how these tentacles of the Internet of Things are reaching into every corner of the world. It’s not just cheap-as-chips RFID tags anymore, but a wide variety of powered sensors. Most people carry a multi-sensing Thing in their pocket. The spread of smartphones with location, movement and other sensors has also created a powerful, worldwide computing network.

The new opportunities will be in services that consumers don’t even know they want yet. But there are still some obstacles.

In his analysis on p24, Chris Edwards finds local authorities trying to make their cities smarter face other problems: government regulations restricting what they can do, departmental structures that mean the left hand hasn’t told the right hand what it’s doing, and inflexible public-private contracts drawn up long ago.

All that data transmitted from all those Things has to be an opportunity for the telecoms and network companies but how will they handle it? We look at the standards required for machine-to-machine communications and how the use of ‘white space’ – the empty spectrum tucked in between frequencies used for other wireless systems – provides the bandwidth (p30). Should machines have networks all of their own?

The early vision of the Internet of Things now looks quite modest. Behind every smartphone there’s a person, and connecting networks of people online with networks of Things gives us something even more exciting: The Internet of Everything.