

# Indexing the Real World: Sensing, Big Data and Mobility

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## ABSTRACT

In this presentation, Dr. Henry Tirri, EVP & CTO of Nokia and UC Berkeley will discuss insights into the social and scientific implications of the technology trends being driven by the rise of large scale multi-device cloud-based computing.

The cloud has already fundamentally transformed everyday experiences visible to consumers through their access to streaming media, social networking and location services via multiple different computing devices, from phones and tablets to connected accessories.

As bits continue to eat atoms, more elements of the physical world will turn first into code and then into code that lives in the cloud. This is driven by the enormous advantages in sharing, indexing and elasticity of computing code has with respect to physical objects. We have seen this happening to photos and videos, music and books, but this is only the beginning. Consumers will increasingly turn to connected experiences that will in turn produce a wealth of data at a rate unprecedented in the history of mankind.

Due to the pervasiveness of this change, the next phase of the cloud era will see increased partnerships between public and

private sectors around long-term technology trends in areas ranging from urban planning to health care.

It can be anticipated that connected hardware will continue to diversify, with an increased emphasis on “multi-sensing”. Wearables, sensor clusters in vehicles and smart devices, and independent sensors will all become first class citizens of the cloud: both feeding data into it and drawing it back out again. We will look at one exciting example of this trend -- indexing of the real world made possible by global scale location services.

We argue that ultimately computing will totally de-centralize and live throughout a heterogeneous cloud-based architecture, but energy will continue to be the “One Ring to Rule Them All,” that will define where in the cloud the execution happens.

## Categories and Subject Descriptors

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Mobility; Cloud; Sensing; Data; Mapping; Location; Health; Infrastructure

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