Semantic Web, “Web 2.0”, and Beyond: Why All This Really Matters

Ora Lassila
Research Fellow, Nokia Research Center Cambridge
Visiting Scientist, MIT Computer Science & Artificial Intelligence Laboratory
Elected Member of Advisory Board, World Wide Web Consortium

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Ingredients of my talk:

- Technology (a little)
- Vision (a bit more – I hope)
- Attitude (even more – sorry…)
What do we really want…?

- (from information & communications technologies)

- Things have gotten out of hand
  - technology is hard to use
  - technology does not serve us (quite the contrary, in fact…)

- We use technology the way we use tools
  - (e.g., a hammer)

- Why don’t computers work on our behalf?

- This is particularly true of personal computing
I believe it is all about data

- Current applications/systems “imprison” data
  - users are not in control
  - same is true for “content”

- Crossing application boundaries is hard
  - particularly if systems in question were not designed and engineered to interoperate

- Ongoing attempts that try to “free” data
  - “Web 2.0”
  - Semantic Web
“Web 2.0”

- More a social rather than a technical development
- New social phenomena
  - blogs, wikis, mashups, users as “content producers”
  - tags, folksonomies, mass creation of structure and meaning
  - the “Long Tail”
- Some new technical stuff
  - “rich user experience”, AJAX
  - “new” kinds of data (e.g., microformats, RSS)
- Plays “fast and loose” with standards
  - whatever you manage to deploy becomes a standard
“Web 2.0”

- Version numbers are stupid
  - misguided philosophy (Web evolves)
- Lots of marketing
  - little new technology
  - (note: HTTP and HTML still rule…)

I just wanted to say how much I’ve come to dislike this “Web 2.0” faux-meme. It’s not only vacuous marketing hype, it can’t possibly be right. […]

- Tim Bray (one of the creators of XML), August 2005
What is the Semantic Web…?

- **Attempt to enable automation of tasks on the Web**
  - this is difficult, since all content is intended for humans
  - we need “machine-friendly” content

- **Approach: Content with accessible formal semantics**
  - use logic as a universal language
  - take advantage of logical inference (reasoning)
  - ontologies as data schemata

- **Drivers**
  - metadata, content rating
  - “open” data, information integration, “mash-ups”
  - automation, agents
Stepping towards the Semantic Web

- Semantic Web is built in a layered manner
- Not everybody needs all the layers
Problematic technology to evangelize

- Most problems, once you articulate them, will have a non-Semantic Web solution
  - typical question: “Can I do this just with XML…?”
- Semantic Web is an interoperability technology
  - good for “future-proofing”
  - but: what is the monetary benefit of interoperability?
- Relationship to “Web 2.0” needs to be elaborated
  - complementary, not adversary
  - e.g., microformats can be a good source of data
  - how do we connect ontologies and folksonomies?
Semantic Web and Personal Computing

- Often advertised as “no humans in the loop”
  - this technology is very “user-oriented”, however
  - ultimately, it is about giving users more control

- Interesting application areas & developments
  - PIM data – “Semantic Desktop”
  - Semantic Web services
  - device & system interoperability – ubiquitous computing

- Basic principles
  - maximize users’ freedom (e.g., to make use of data)
  - minimize users’ need to deal with (meaningless) details
NRC Cambridge and Semantic Web

• **Project “Connecting Me”**
  • social networks are central to information management

• **Many applications possible once we have a good model of people and interpersonal relationships**
  • explaining relationships to unknown people, finding people you do not know, etc.
  • expressing policies using interpersonal relationships

• **Implementation involves**
  • running Semantic Web software on the phone
  • rethinking data management
Summary: Why is all this important?

• Personal computing technology is hard to use
  • users’ needs are not served

• Information overload
  • “thirsty for information, drowning in data…”
  • solutions involve someone else being in control

• Realization of the ubiquitous computing vision
  • paradigm shift, but can it really be implemented?
  • (ubiquitous computing as an “interoperability nightmare”)
Questions? Comments?

• mailto:ora.lassila@nokia.com