Semantic Web Services
Panel WWW12

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Obstacles: Need for Wide-spread Adoption

• Many of the benefits of Semantic Web Services (SWS) are dependent upon relatively wide-spread adoption of Web Service descriptions in a Semantic Web language.

• There is currently little incentive/business case for service providers to create such descriptions.

• Further, SWS foil the current business case for many Web sites, which is often based on advertising revenue. (With SWS, people won’t necessarily go to web sites, computer programs will.)

• There are few tools to assist in the sometimes arduous process of creating SWS.

• Automating resulting from SWS can lead to lack of trust in the use of the Web.
Addressing the Obstacles

- **Intranets** should be the first implementation sites for SWS
  - no concerns over trust issues
  - clear business case = improved interoperation of company software, documents and services
  - reduced effort to build SWS descriptions

- Build **killer apps** that require SWS descriptions, giving incentive and a business case for the wide-spread adoption of SWS descriptions.

- Build **tools** to assist in creating SWS descriptions.
- Build tools for automatic generation of SWS descriptions.

- Encourage better **synergies with industry** to help in the construction of tools and killer apps.
One “Killer App”

If you’re like most people, you spend a lot of time on the Web

  • locating relevant information from disparate places & synthesizing it;
  • looking for appropriate services to perform transactions for you, predicated on the information you’ve collected;
  • the interplay between the two above

This interaction commonly exists when researching a topic of interest, shopping for items, planning travel, etc.

Imagine if you could severely reduce the hunting and pecking for information. Imagine if you could make a request to the Web to, e.g.:

  “Buy me ‘The Culture of Fear’ by Barry Glassner.”
  “Plan my vacation to the Patagonia (following my preferences and constraints), but check with me before booking”
  “Find me a service that will ship frozen vegetables from San Francisco to Saskatoon.”
“Killer App”: Automated SWS Composition

This can be achieved by Automated SWS Composition.

*Given SWS and a description of a user’s objective (possibly combined with some reusable user preferences and constraints), synthesize and execute one or more web services to achieve that objective.*

When Web Services only provide information

Automated SWS Composition = Information Integration

When Web Services have transactional elements (side effects)

Automated SWS Composition = AI planning & execution

Many researchers including us at Stanford, researchers at Yale, U. Maryland, etc. are tackling this issue.