



# 2011 Semantic Technology Conference

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## Semantic Technologies in Practice: Transforming the Field by Taking the Pain out of Data Integration

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04:05 PM - 04:30 PM

Level: **Case Study**

Location: Plaza A

Traditional warehousing and federation methods are mature and suitable for many core data integration and federation applications. However, they are demonstrably unsuited for dynamic data integration and enterprise federation in many large markets, including massive niches within scientific research, healthcare, legal, and telecommunications.

Semantic technologies deliver faster, far more extensible data modeling and integration methods directly to subject matter experts as well as to formal ontologists and enterprise architects. Although seemingly modest and technical in presentation, these radical efficiency and extensibility benefits are particularly relevant in business and research environments that deal with time-sensitive integration requirements and changing data that span multiple information domains.

This talk describes use of specific semantic technologies such as IO Informatics' Knowledge Explorer™ with customers such as Pfizer, FDA, and leading research hospitals. The talk demonstrates how semantic data integration methods have changed the playing field for rapid integration of complex, changing data.

Direct technology benefits reviewed include:

- Faster time to core integration: specific examples show how users have avoided the common pain of waiting until it is too

late for the next data mart or federated middleware application

- Reduced task burden on IT experts: domain subject matter experts can now do integration on the fly and make these integrations available to IT
- Results in adaptable, extensible integrated knowledge bases: knowledge creators and consumers can now add new datasets and enrich existing knowledge bases on the fly, no more brittle applications and databases
- Unexpected benefits of semantically linked data: including drag and drop connectivity to new data sources, visual network queries for pattern-based searching, and decision-support

## References

- (1) E. Gombocz, R. Stanley, J. Eshleman: "Computational R&D in Action: Integrating Correlation and Knowledge Networks For Treatment Response Modeling and Decision Support", Poster at *Advanced Strategies for Computational Drug R&D*, Park Plaza Hotel, Boston, MA, Sept. 28-Oct. 1, 2010.
  - (2) R. Stanley, E. Gombocz, J. Eshleman, C. Rockey: "From Concepts to Production: Semantic Technology Solves Real Life Sciences and Healthcare Challenges", Poster at *Semantic Technology 2010 (SemTech)*, Hilton, San Francisco, CA, June 21-25, 2010.
  - (3) R. A. Stanley, E. A. Gombocz, Z. Rhoades: "Realizing personalized medicine with semantic technology: Applied Semantic Knowledgebases (ASK®) at work", Poster at *Conference on Semantics in Healthcare and Life Sciences (CSHALS)*, Royal Sonesta Hotel Boston, Cambridge, MA, February 24-26, 2010.
  - (4) R. Stanley: "NIST / CLDA Case Study: From Data Management, Exploration and Analysis to Applied Combinatorial Biomarkers for Hepatotoxicity", Lecture at *GTC Bio 3rd Annual Biomarker Discovery and Development*, San Diego, CA, July 10-11, 2009.
  - (5) E. A. Gombocz, Z. Rhoades: "Predictive Toxicology: Applied Semantics with major implications towards safer drugs", Poster at *SemTech 2009 Semantics Technology Conference*, The Fairmont Hotel, San Jose, CA, June 14-18, 2009.
  - (6) E. Gombocz, A. Higgins: "Discovery and Validation of Toxicity Biomarkers through Application of Correlation Networks and Canonical Pathways", Lecture at *GTCbio's Rediscovering Biomarkers: Detection, Development, and Validation* at San Diego Marriot La Jolla, San Diego, CA, July 23-24, 2007.
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*Robert received a graduate degree in Sociology of Knowledge (epistemology) from the University of Chicago, with postgraduate work focusing in ontologies and knowledge networks at New York University. He has several granted and continuing information technology patents, multiple publications and has organized, sponsored, chaired, and presented at numerous conferences. Previously, Robert was Chief Information Officer at Biosentients, where he designed informatics software for distributed research and data integration. Other professional experience includes his time as Associate Scientist at Zeitgeist, where Robert focused on project management and design for life science data management and informatics applications. Additional experience includes research direction at the Bruner Feldman Cognitive Science Laboratory and work at New York University's Academic Computing Facility / Faculty Innovation Center. Along with his academic and corporate experience, he has managed many major IT projects, including the largest, NIST (Advanced Technology Program) bioinformatics project awarded to date.*