

# New Directions in Conceptual Modeling

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# Focus on Two Broad Areas

- Biological Data
- Business Intelligence/Big Data

## Challenge

iPlant develops a vision for plant science cyberinfrastructure



### CHALLENGE

- Vision
  - iPlant Genotype to Phenotype
  - iPlant Tree of Life
  - Seed Projects
- phenotypes
- 
- iPlant Tree of Life (iPToL)**
- Understanding the phylogenetic relationships between all plant life



### Seed Projects

### DISCOVER

- Discovery Environment**
- Access iPlant tools through a single user-friendly interface
- [MORE...](#)
- 
- 
- DNA Subway**
- An educator-tailored interface for bringing iPlant to the classroom
- [MORE...](#)
- 



### Atmosphere

### LEARN

- Upcoming Events**
- [Genome Informatics Workshop](#)  
November 02 2011 - November 05 2011
  - [Geospatial Code Sprint](#)  
November 08 2011 - November 09 2011
- 
- iPlant Leaflet Newsletter**
- Current Issue: August 22 2011
- 
- News**
- The iPlant Collaborative: Cyberinfrastructure for Plant Biology - Frontiers in Plant Genetics and Genomics Publication

### CONNECT

**People at iPlant**

Community driven science



# Biological Domain

- Diverse types of biological datasets, need integration
- Need new types of abstractions to capture semantics
- Examples: sequences of different kinds: DNA, genes, proteins, nucleic acids, mRNA, Amino acids, 3D folding
- Relationships among these and constraints: function regulation, transcription, translation

[Ram & Wei, 2004, 2006-10)

# Business Intelligence/Big Data

- Many new emerging social media data domains: social bookmarking (del.icio.us), Twitter, Online ads....
- Example: Google Ads: Types vs. Instantiations

Google ads are types, impressions are instantiations.

[Currim&Ram, 2010, Wei &Ram, 2010,2011]

Search

About 1,580,000 results (0.17 seconds)

Everything

Images

Maps

Videos

News

Shopping

More

Paradise, NV

Change location

Any time

Past hour

Past 24 hours

Past week

Past month

Past year

Custom range...

More search tools

### iPad 2 Silicone Cover - Snugg Squared Skin Protection.

[www.amazon.com](http://www.amazon.com)

amazon.com is rated ★★★★★ 6,467 reviews

Skinny Fit Design. Buy Now \$19.99

### New iPad 2 Accessories | HDAccessory.com

[www.hdaccessory.com](http://www.hdaccessory.com)

Leather Cover, Hybrid Case, Stands, Capacitive Stylus, Screen Guards.

### iPad Cases | BoxWave.com

[www.boxwave.com/Winning\\_iPad\\_Cases](http://www.boxwave.com/Winning_iPad_Cases)

boxwave.com is rated ★★★★★ 45 reviews

Uniquely styled cases to protect your Apple iPad

### Shopping results for ipad 2 covers



[Targus VuScape Cover & Stand for iPad 2 Case for web...](#)

★★★★★ 53 reviews - \$24 - 138 stores - Nearby stores - In stock

[Exact Smart Cover Partner Snap On Slim-Fit Case for ...](#)

\$1 - 4 stores

[Apple Computer MC942LL/A iPad 2 Smart Cover Poly Blue](#)

★★★★★ 7 reviews - \$16 - 4 stores

### Apple - Smart Cover - Cover up, stand up, and brighten up iPad 2.

[www.apple.com/ipad/smart-cover/](http://www.apple.com/ipad/smart-cover/)

So much more than a case, Smart Cover protects your iPad, wakes it from sleep, stands it up, and gives you a way to make it even more personal.

### The Best iPad 2 Cases - Slideshow from PCMag.com

[www.pcmag.com/slideshow/story/261693/the-best-ipad-2-cases](http://www.pcmag.com/slideshow/story/261693/the-best-ipad-2-cases)

19 hours ago - Take a look at some of the coolest iPad 2 cases you can buy. ... you're not using the stand, the case folds back to cover the iPad's back panel, ...

Ultimate iPad 2 case roundup | Crave - CNET

Ads



[Smart Cover Enhancer II For Apple iPad 2 Black](#)

\$29.99 - Micro Center



[SwitchEasy Green CoverBuddy Case for Apple ...](#)

\$25.00 - Cases.com



[Targus Versavu Rotating Stand and Case For ...](#)

\$47.99 - eBags

Save Extra 20% + Free Shipping & Returns!

### Best Selling iPad 2 Case

[www.zagg.com](http://www.zagg.com)

The ZAGGmate™ - Tough Aluminum Case with built in Bluetooth Keyboard

### Cheap iPad 2 Covers

[www.tmart.com/iPad2-Covers](http://www.tmart.com/iPad2-Covers)

Stylish Design iPad 2 Covers.

Price from \$4.53, Free Shipping!

### iPad 2 Covers

[www.focalprice.com/ipad.accessories](http://www.focalprice.com/ipad.accessories)

focalprice.com is rated ★★★★★

From \$3.52, iPad2 Cases & Covers.

90 Days Money Back, Free Shipping.

er model



Search

Instant is on ▼

About 10,700,000 results (0.22 seconds)

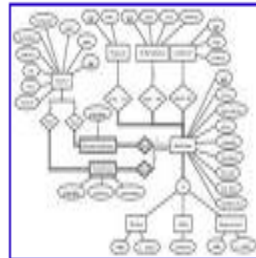
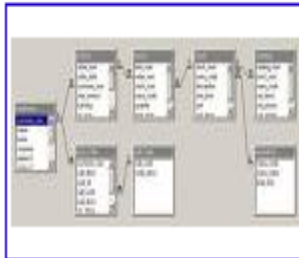
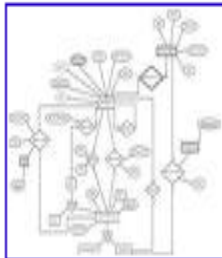
[Advanced search](#)

► [Entity-relationship model](#) - Wikipedia, the free encyclopedia

In software engineering, an **entity-relationship model** (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database ...

[en.wikipedia.org/wiki/Entity-relationship\\_model](http://en.wikipedia.org/wiki/Entity-relationship_model) - [Cached](#) - [Similar](#)

[Images for er model](#) - [Report images](#)



Sponsored links

[Database Modeling Tool](#)

Draw ER Diagrams with DeZign

Create, design & import databases.

[www.datanamic.com](http://www.datanamic.com)

[ER Model](#)

See the demos on MySQL Workbench: MySQL Visual

[Modeling Tool](#)

[www.mysql.com](http://www.mysql.com)

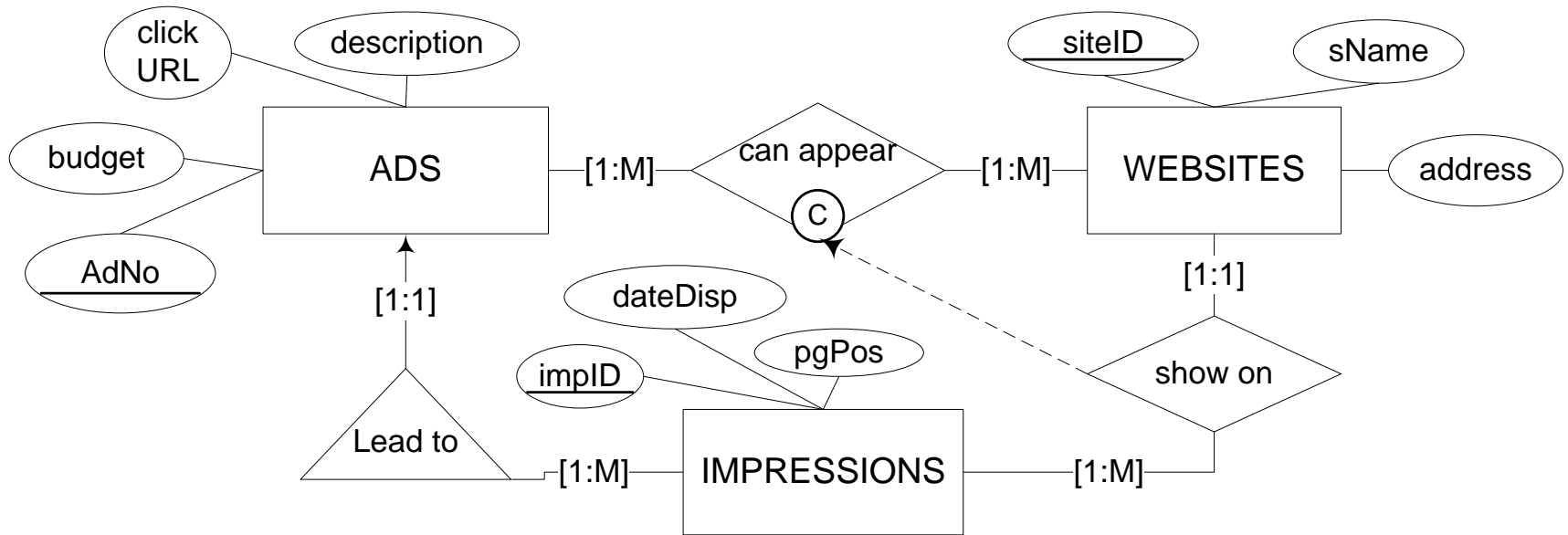
[See your ad here »](#)

[PDF] [The Entity-Relationship Model Overview of Database Design ER Model ...](#)

# Business Intelligence/Big Data

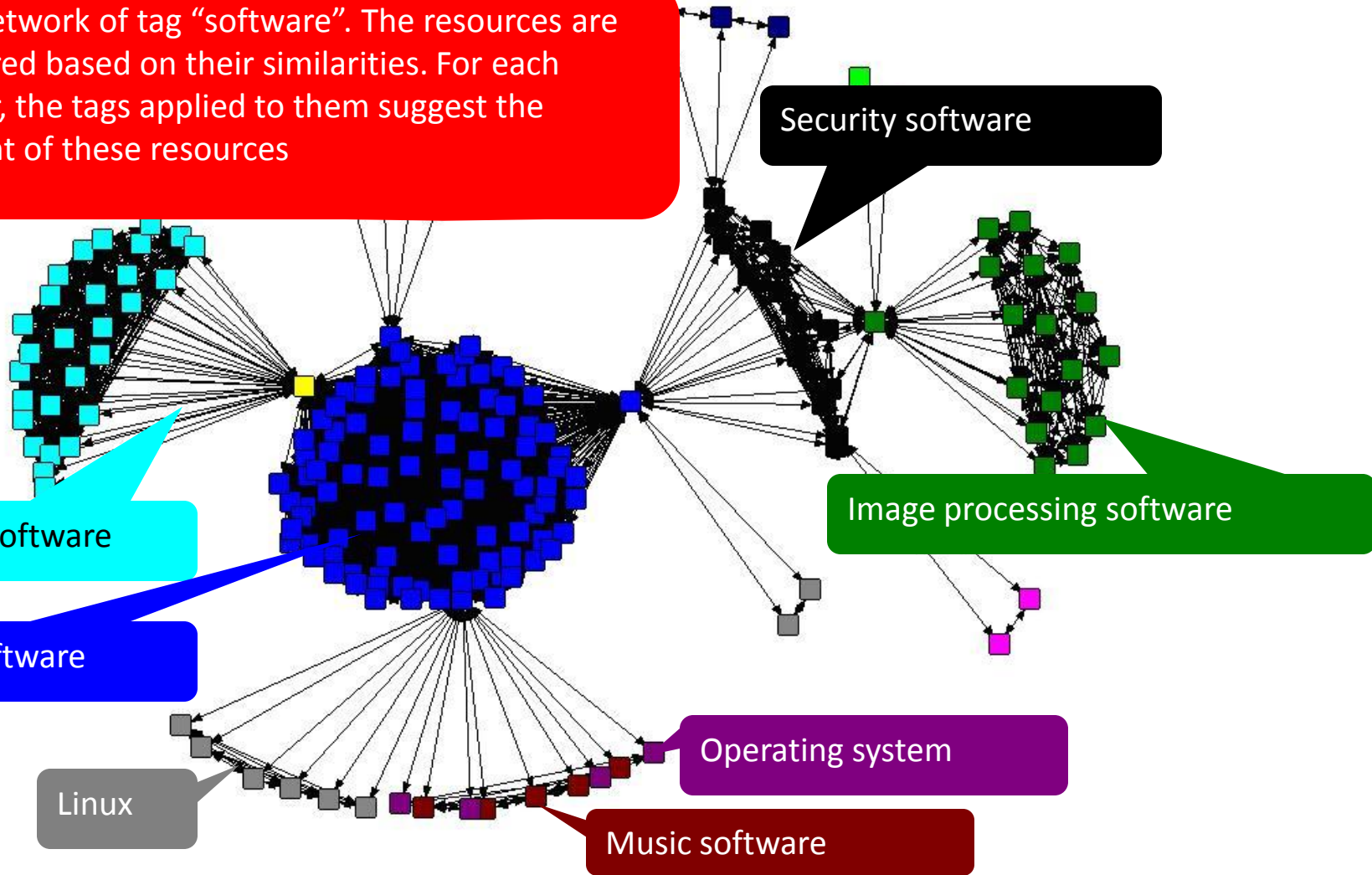
- Different properties of ads vs. impressions
- NOT subclass or aggregation relationship
- NOT Interaction relationship
- Different constraints
- Inheritance has interesting properties.



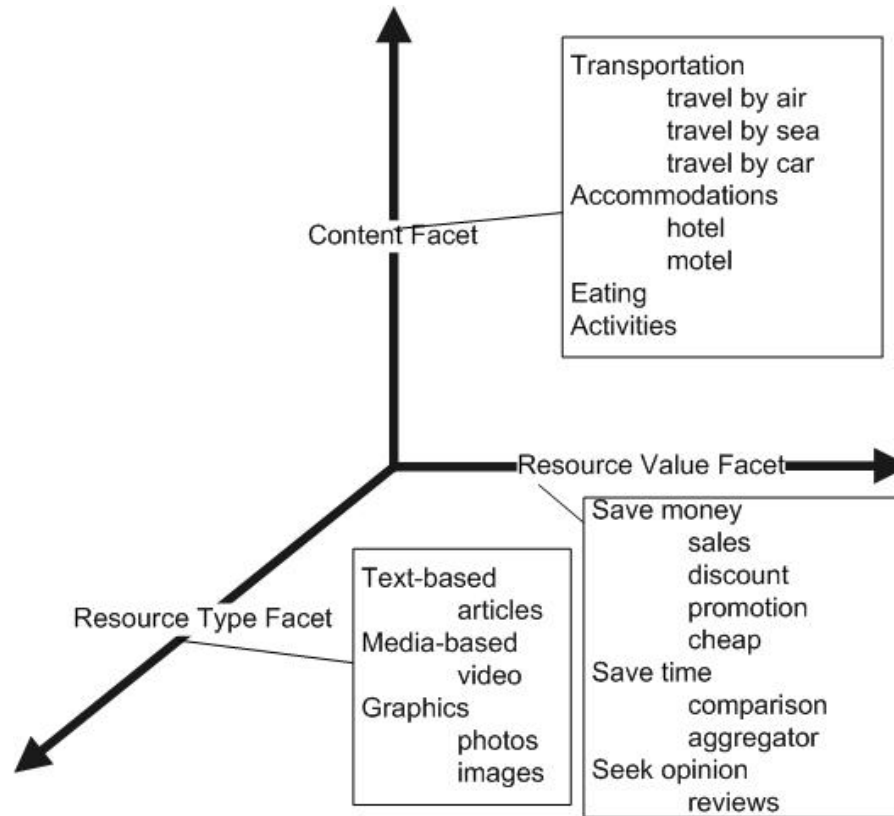


# Information Networks and Conceptual Modeling

RRu network of tag "software". The resources are clustered based on their similarities. For each cluster, the tags applied to them suggest the content of these resources



# Organizing Social Bookmarks using a Conceptual model



# New and Exciting Directions

- Develop semantic concepts for new domains
- Abstractions, relationships, rules/constraints
- Need to learn about these new domains
- Work with interdisciplinary scientific domains
- Examine different types of Big data domains
- Use Data Mining techniques to structure the data and organize using a conceptual model
- Create new constructs, use them and evaluate their utility in a real world setting.