Knowledge discovery on Web3.0 and its application in research communities

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(ver 0.01 draft)

Web 1.0

"the mostly read only web"

45 million global users (1996)

focused on companies

home pages

owning content

Britannica Online

HTML, portals

web forms

directories (taxonomy)

Netscape

pages views

advertising

Web 2.0

"the wildly read-write web"

1 billion+ global users (2006)

focused on communities

blogs

sharing content

Wikipedia

XML, RSS

web applications

tagging ("folksonomy")

Google

cost per click

word of mouth

Web 3.0

"the portable personal web"

focused on the individual

lifestream

consolidating dynamic content

the semantic web

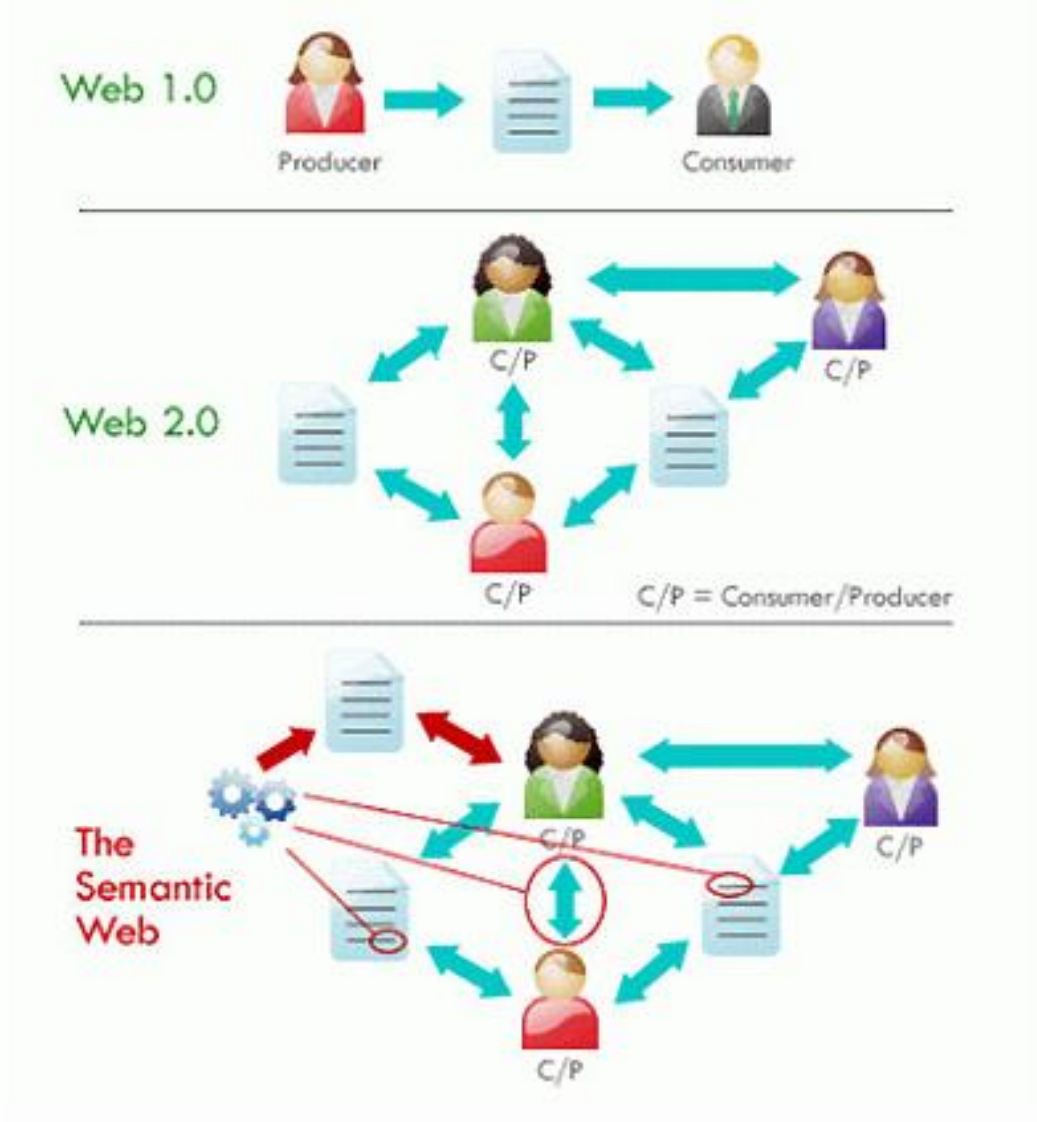
widgets, drag & drop mashups

user behavior ("me-onomy")

iGoogle, NetVibes

user engagement

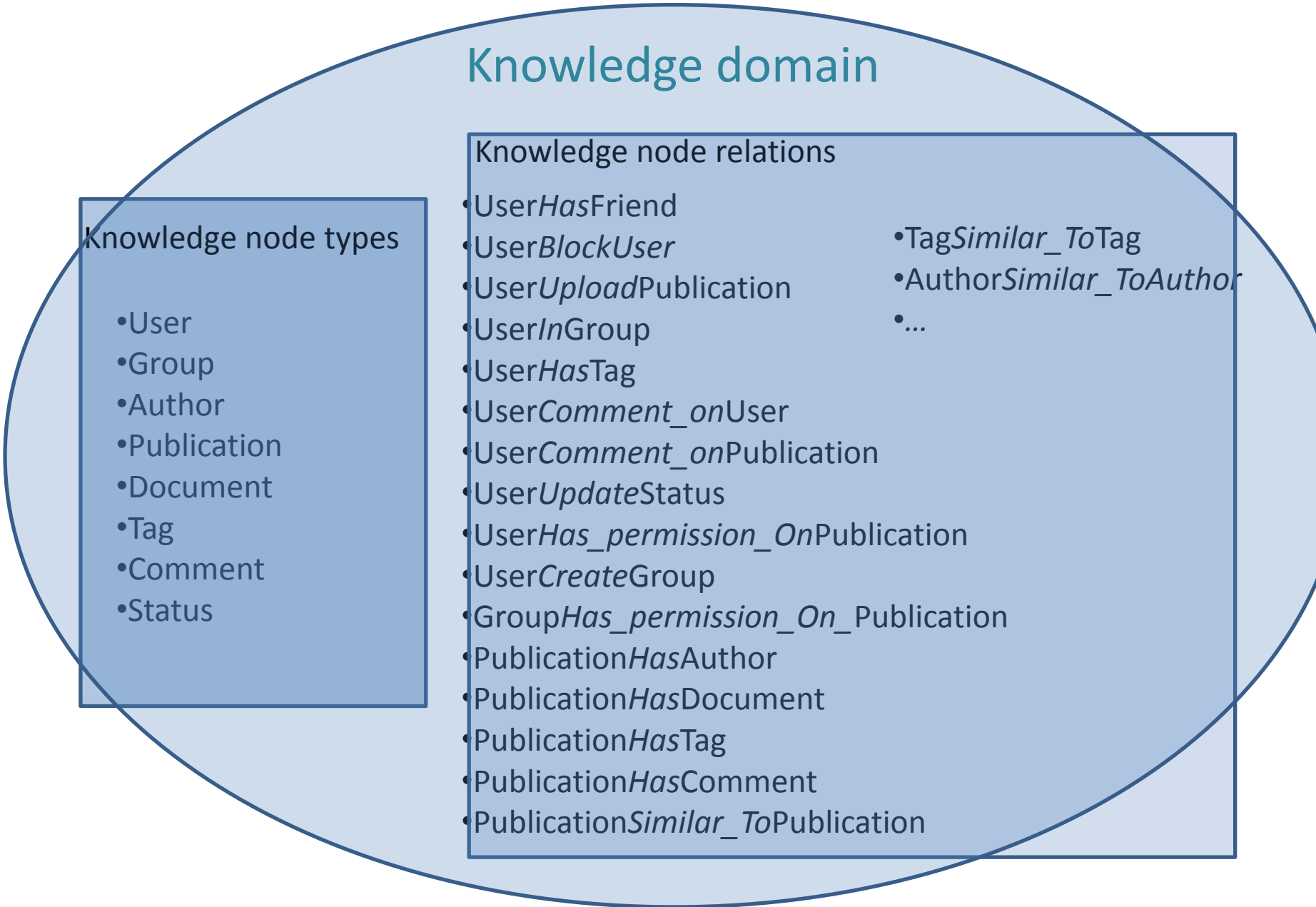
advertainment


Web 1.0
Producer
Consumer
Web 2.0
C/P
C/P
C/P
C/P = Consumer/Producer
The Semantic Web
C/P
C/P
C/P

Web3.0

- A web were the context of the content defined as data
- A web capable of reading and understanding content and context
- A web can better satisfy the requests of the people and machine
- A web capable of filtering the content that of interest to the user

Knowledge management In a research community



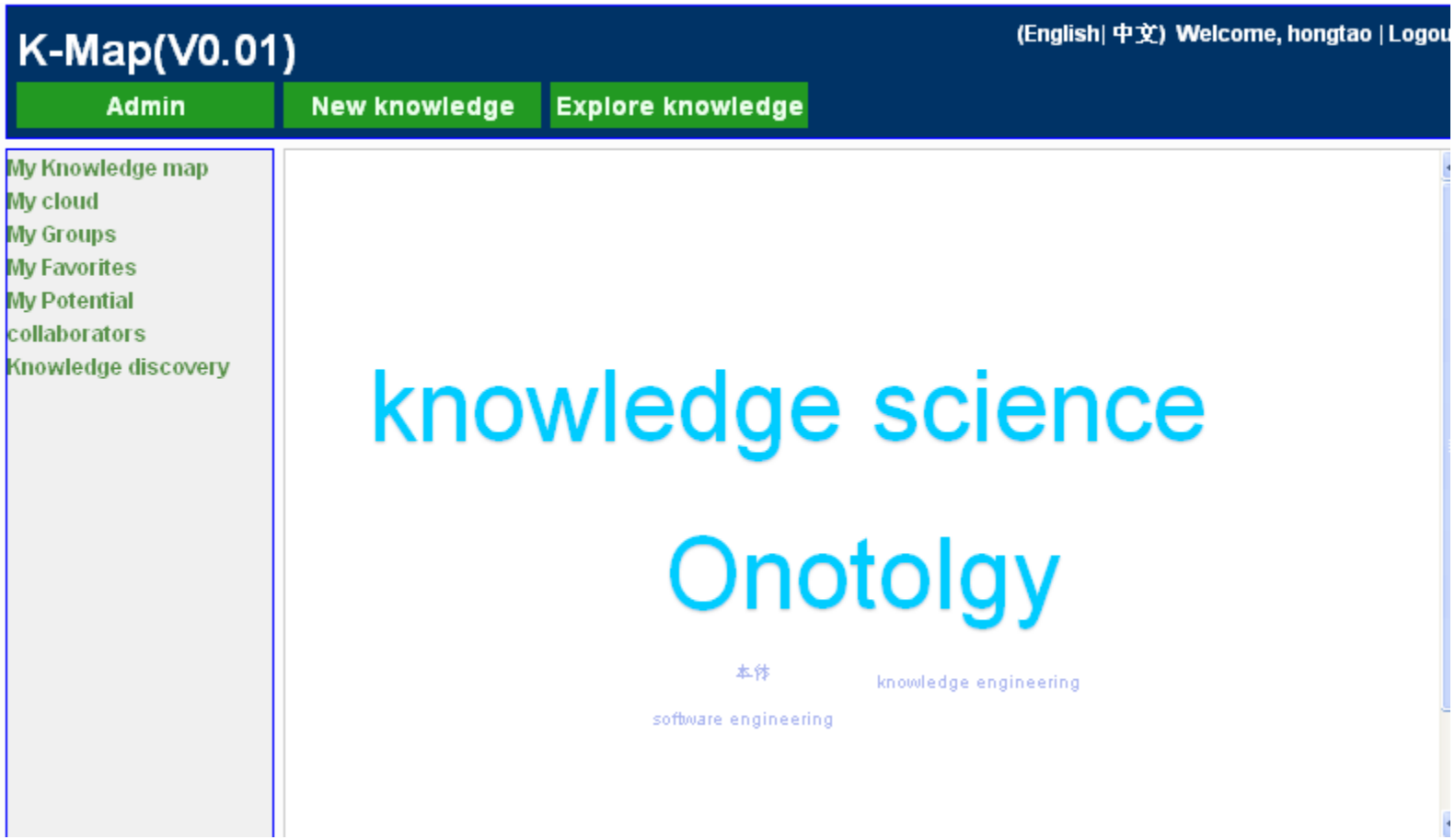
Challenges

- Connectedness: All different type of knowledge node are interlinked and connected
- Data size: For example, if we want to store 10 thousand publications, we may need store over 1 million related entities
- Semi-structure: Individualization of the knowledge node, the property of the knowledge node should be user definable
- Extracts implicit, potentially useful information from the data
- Knowledge visualization

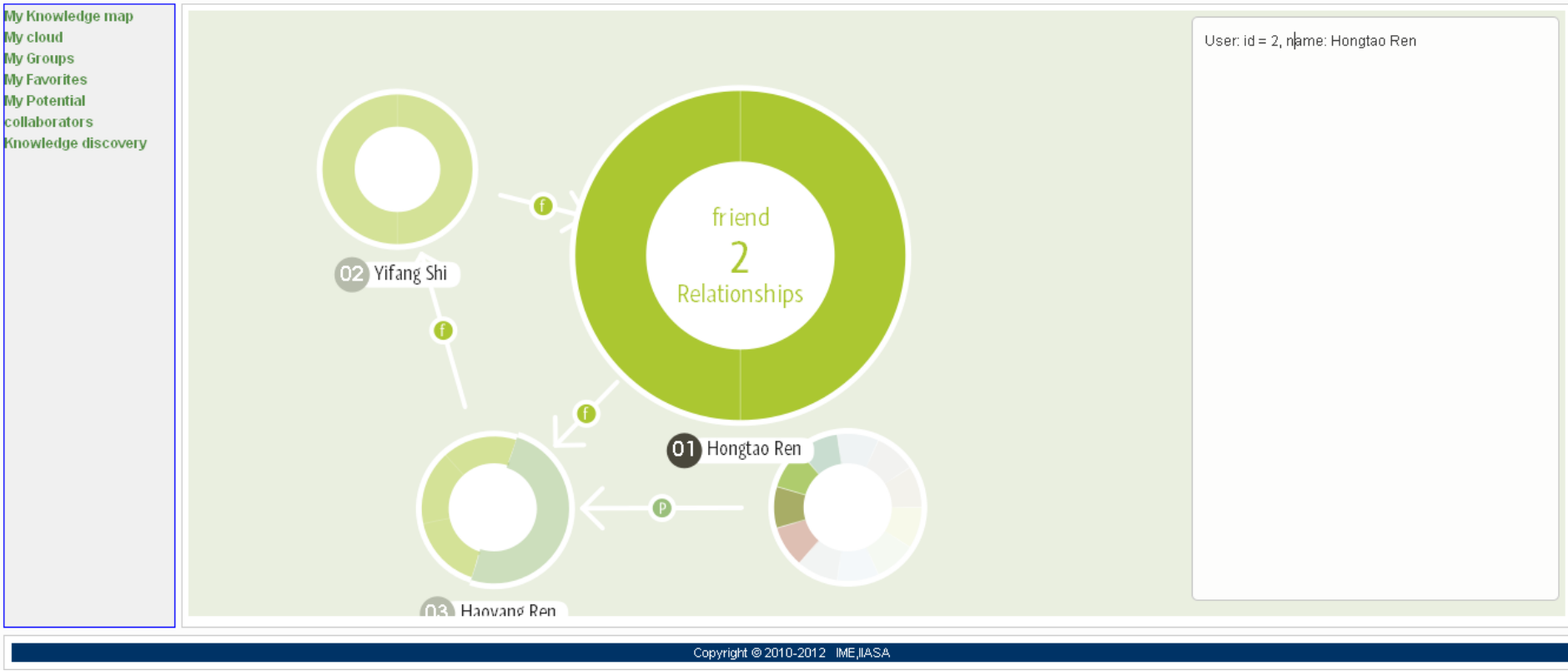
Solutions?

- NoSQL (Basex,CouchDB,MangoDB, Neo4j)
- XML, RDF
- Cypher, gremlin
- RESTful
- Data as a service
- HTML5 and CSS3

My tags cloud



My knowledge map



My potential collaborators

My Knowledge map
My cloud
My Groups
My Favorites
My Potential collaborators
Knowledge discovery

Records

	Id	First Name	Last Name	institution	First name(Chinese)	LastName (Chinese)
1	29	Tieju	Ma	ECUST		
2	28	Hongtao	Ren	IIASA.IME	宏涛	任
3	3	Yifang	shi	Beijing Unv.	颐芳	石

@Query (“start user=node :node_auto_index(name=‘haoyang’)
match user->[r:hasTag]<-potential
return potential”)

Knowledge discovery

- Find your interested publications owned by your friends of friends of…
- Find people who are also interested in your research area
- Discover the potential research area
- Event mining