Abstract
Cloud computing paradigm has significantly affected the healthcare sector like various other business domains because healthcare data are persistently growing over the Internet. This poster presents a framework that utilizes the cloud computing services to offer personalized recommendations about the most appropriate health insurance plans. The framework permits users to compare the Health Insurance Plans implicitly and explicitly. Experimental results exhibit that the framework accurately identifies clusters for comparisons between the user’s requirements and the Health Insurance Plans.

Motivation
- Huge volumes of health insurance data
- Limited capabilities of the contemporary Web based tools

Challenges:
- Multi-faceted requirements
  - cost
  - coverage
- Information filtering
  - difficult to find relevant information
- Structural and semantic heterogeneity across health insurance providers
  - no standardized representation of health insurance plans

Optional Solution:
- Cloud Computing
- Scalability
- Elasticity
- Big Data
  - Volume
  - Velocity
  - Variety
- Data types:
  - Structured
  - Unstructured

Research Contributions
- Plans’ evaluation based on various criteria, such as premium, copay, deductibles, and out-of-pocket limit
- Implicit plan recommendations in the start (solution to the cold start issue in recommendation systems)
- Explicit plan recommendations based on user stated cost and coverage requirements
- A parallel algorithm to compute similarities between users’ requirements and health insurance plans
- A ranking methodology to rank the plans using Multi-attribute Utility Theory
- Plans’ clustering to minimize the number of comparisons
- A methodology to avoid popularity bias issue of recommender systems
- Scalability analysis by increasing the workload and number of processor to observe the effects on overall time consumption

System Architecture
- Cloud based health insurance plan recommendation
- Plan Ranking
  - Plan clustering
  - Cluster identification
  - Similarity computation
  - Plan ranking
- Plans’ ontological representation
- Insurance plans retrieval from Web
- Interface to the cloud
- Ranked list of plans

Experimental Results
Implicit Recommendations
- Recommendations offered on first interaction with the system
- Based on plan popularity of health insurance plans
- Initial popularity computation to overcome cold start
- Implicit determine of initial cost based requirements
- Temporary ranking computation to avoid long-tail problem

Explicit Recommendations
- Recommendations based on user stated requirements in terms of cost and coverage requirements
- Similarity between the plans and requirements
- Ranking using Multi-attribute Utility Theory