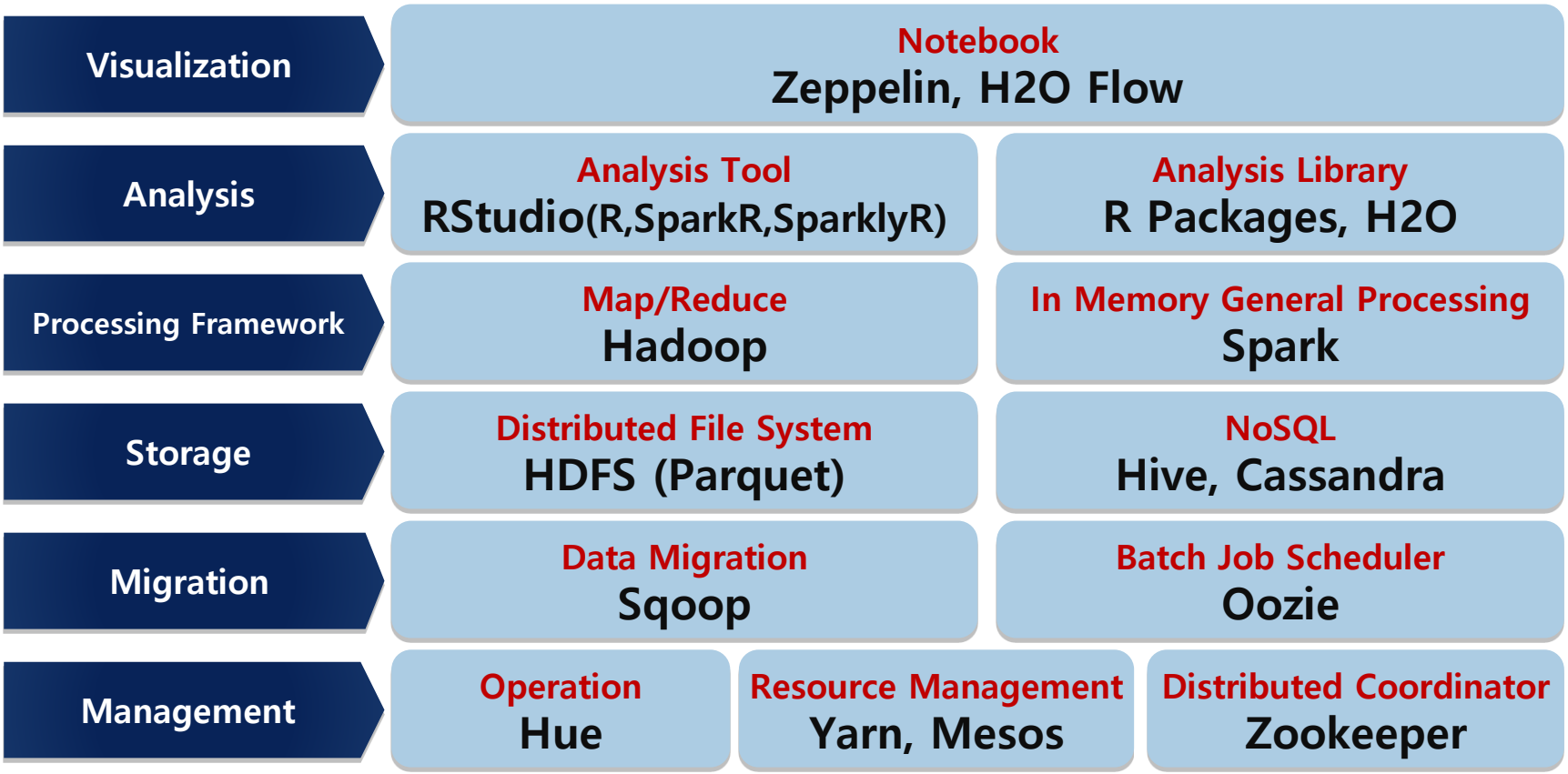
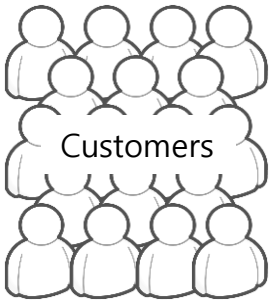
Open Source based Analysis Environment

10~100 times faster than the existing RDB to construct the mart for analysis on the HDFS



Hybrid Recommender System (Concept)

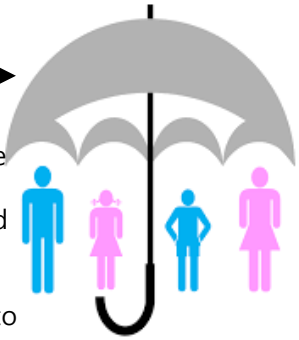
1 Customer Micro Segmentation



Customers were clustered based on their economic power

2 Recommender System

Within a cluster, analyze the difference between customer coverage amount and average coverage amount per coverage / Use the difference to compute the similarity between users or items



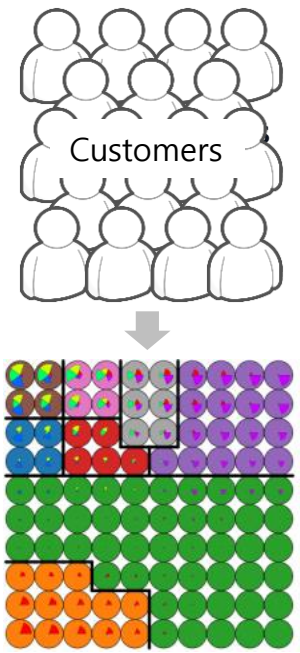
3 Up & Cross Selling

(up-selling) When the target customer is possessing the recommended coverage: The customer is possessing the amount less than the average coverage amount, so enable additional recommendation as much as the average coverage amount

(cross-selling) When the target customer is not possessing the recommended coverage: Recommend the relevant coverage product in the standard of average coverage amount

Hybrid Recommender System (Details)

SOM-based Two Step Clustering + Collaborative Filtering



Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5
Cluster 6
Cluster 7
Cluster 8

Choose a Cluster

The **average** coverage amount for each coverage within the cluster
(※ average function could be replaced by median or mode depending on data distribution)

within the cluster

for each coverage

- **average**
- median
- mode

Among the customers, when the sum of **coverage preference index is** 3 or higher

Sum>=3

Yes → **Recommend coverages using Collaborative Filtering**

No → **Recommend Popular coverages within the cluster**

Coverage preference score per customer = Customer coverage amount - Average coverage amount per coverage

Coverage preference index per customer = 1 if the customer coverage preference score is equal or higher than 0, and 0 if the customer coverage preference score is smaller than 0

(※ **Coverage preference index per customer** is used to compute the similarity between users or items in CF algorithm. Thus, the sum of the index should be greater than 2 at least)

Cross Selling & Up Selling

Coverage preference score per customer = Customer coverage amount - Average coverage amount per coverage

Coverage preference index per customer = 1 if the customer coverage preference score is equal or higher than 0, AND
0 if the customer coverage preference score is smaller than 0

Customer Insurance Product

	Coverage(A)			Coverage(B)			Coverage(C)			Coverage(D)			Coverage(E)		
	IP1	IP2	IP3	IP1	IP2	IP3	IP1	IP2	IP3	IP1	IP2	IP3	IP1	IP2	IP3
C1	$100		$200			$100	$50		$100						$100
C2	$150	$50			$20				$100					$100	
C3	$100												$50		

(※ IP: Insurance product, C: customer)

Customer Coverage Amount

	Coverage(A)	Coverage(B)	Coverage(C)	Coverage(D	Coverage(E)
C1	$300	$100	$150		$100
C2	$200	$20	$100		$100
C3	$100				$50

Coverage Preference Score

	Coverage(A)	Coverage(B)	Coverage(C)	Coverage(D	Coverage(E)
C1	$300-$100(A's average)	$100-$50(B's average)	$150-$70(C's average)		$100-$70(E's average)
C2	$200-$100(A's average)	$20-$50(B's average)	$100-$70(C's average)		$100-$70(E's average)
C3	$100-$100(A's average)				$50-$70(E's average)

Coverage Preference Index

	Coverage(A)	Coverage(B)	Coverage(C)	Coverage(D	Coverage(E)
C1	1	1	1	0	1
C2	1	0	1	0	1
C3	1	0	0	0	0

Cross Selling & Up Selling

	Coverage(A)	Coverage(B)	Coverage(C)	Coverage(D	Coverage(E)
C1	1	1	1	0	1
C2	1	0	1	0	1
C3	1	**0.5**	**1**	**0**	**1**

(※ C3: Target Customer)

Predicted Preference Using CF algorithm

Cross Selling Coverage(C)

Up Selling Coverage(E):
additional recommendation as much as the average coverage amount ($50-$70=-$20)