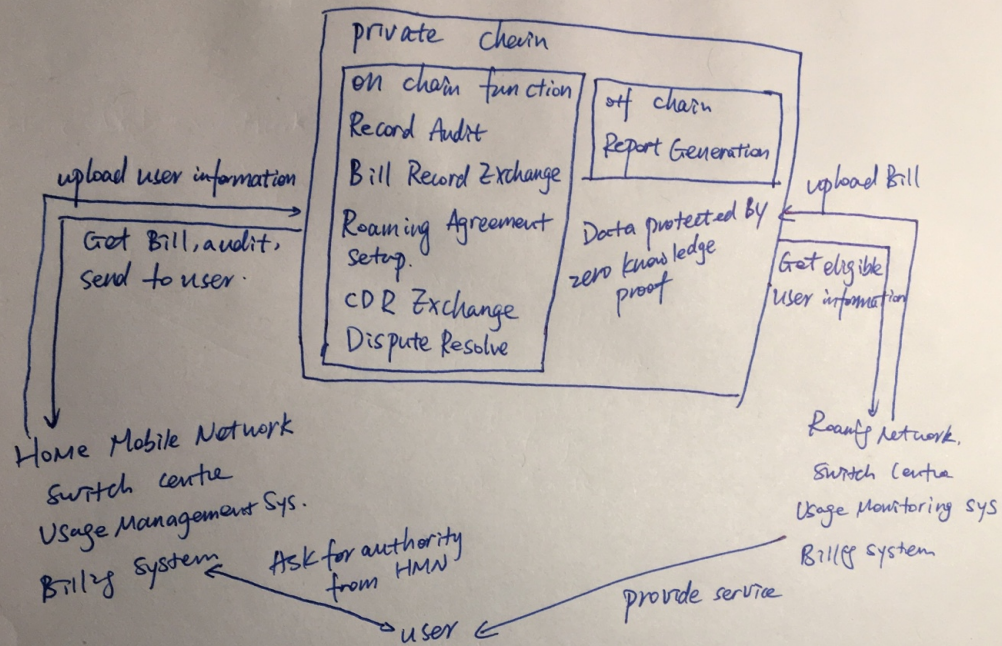


# COMP6452 assignment2

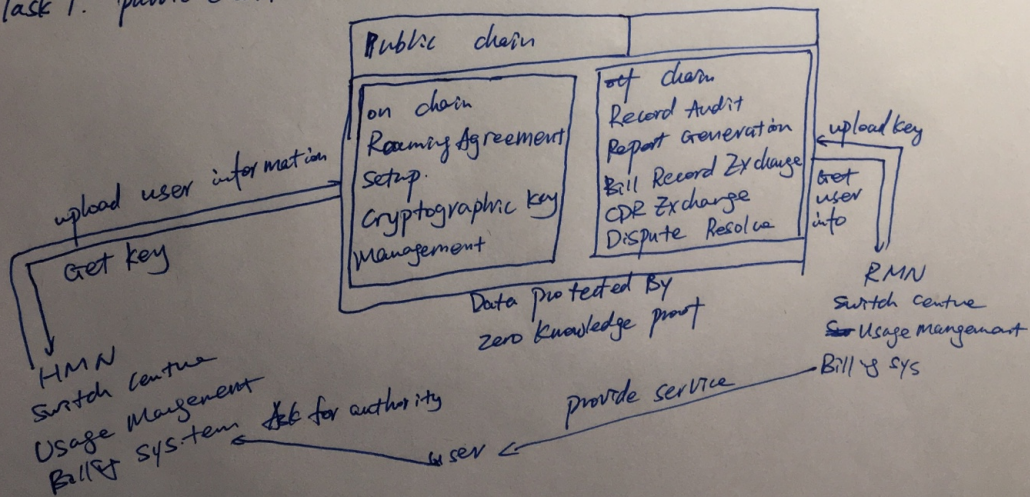
Fengting YANG

Z5089358

## Task 1. private chain

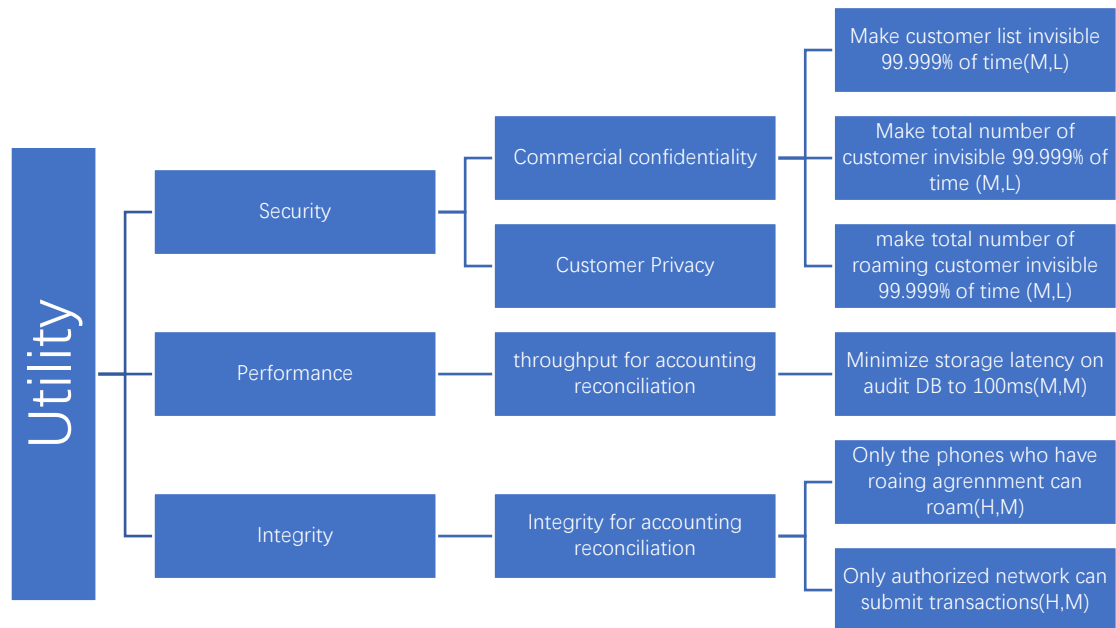


## Task 1. public chain



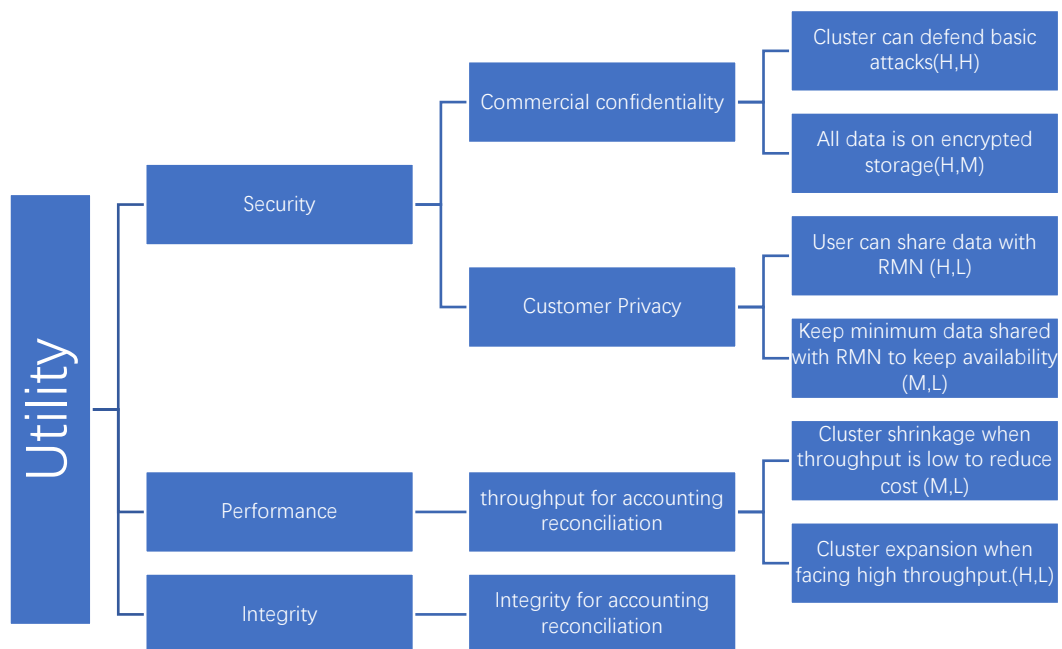
In public blockchain, the blockchain is like an authority center. However, in private blockchain, it likes a clearing house

## Task 2



	S1	S2	S3
Name	Attacked by hacker	Unauthorized user wants to roam in another city	Unauthorized roaming service provider
Description	A hacker hack one server	A user wants to roam in another city but not authorized	An unauthorized roaming service provider wants to join the network without any agreement
Attribute	security	availability	Security
Environment	Under attack	Normal usage without authorized	Unauthorized join
Stimulus	External attack	User has no authority	Service provider wants to join the network without any agreement
Response	Shut down the attacked server, use backup server	Reject user's request	Join denied
Why deal with the risk	Ensure the commercial confidentiality	The user should get the roaming agreement first to roam	The roaming service provider should get an agreement to get the access key to join the network

	S4	S5	S6
Name	User bill delay	CDR generate delay	One of server failure
Description	The user cannot get bill on time	HMN cannot get CDR on time	One server on cluster failure
Attribute	Performance	Performance	Availability
Environment	Normal operation	Normal operation	One server down
Stimulus	When the server is busy, there will be high delay in bill generation system	In every CDR exchange day, there will be high throughput caused by CDR exchange	Multiple reasons to cause a server down
Response	Server expansion temporarily	CDR exchange later than CDR generation (for example, every 1 <sup>st</sup> day of month to generate CDR but exchange on 10 <sup>th</sup> )	Deploy workload balance in advance. Once a server down, the cluster can still work
Why deal with the risk	The user should get there bill on time to pay correct fare.	Ensure the consistency	Ensure the availability



	S7	S8	S9
Name	Low throughput	Unnecessary information access request	Insufficient information user
Description	When the throughput is low, the cluster shrink the server quantity	RMN wants to access some unnecessary user information	One user asks for authority from HMN but he cannot provide sufficient personal information
Attribute	Performance	Security	Security
Environment	Low throughput	Normal operation but with unnecessary information access request	Normal operation
Stimulus	Automatic	Unnecessary information access	Insufficient information provided
Response	Shut down some servers automatically	Request denied	Request denied
Why deal with the risk	To reduce cost	To protect user privacy	To ensure every user is traceable

	S10	S11	S12
Name	Cannot submit user information on time	Server failure on switch center	Roaming agreement update failure
Description	Once a user gets agreement from HMN, HMN must let RMN know this user immediately	One of the servers is down on HMN switch center	When updating roaming agreement, some exception occurs
Attribute	Performance	Availability	Availability
Environment	New user join	Normal operation	Normal operation
Stimulus	New user join	CPU failure	Exception thrown
Response	Try to upload user information from backup server	Switch to backup CPU immediately by deploying watchdog	Roll back to old version and debug new version
Why deal with the risk	HMN should let RMN know a new user joined the roaming network immediately so that user will not be confused why he can't roam	To ensure the reasonable server quantity to provide service to user	Though the agreement failed to update, the system should still run.

### Task 3

In my opinion, a private blockchain should be used to implement the whole system. Private blockchain can provide high integrity, performance and privacy compare to public blockchain. Although conventional blockchain can provide highest confidentiality, integrity is still the most important feature, which private blockchain can provide best.