Sakura Internet Inc., Tech Bureau Corp., and Arara Inc., recently collaborated and performed extensive tests on the Catapult Blockchain solution.
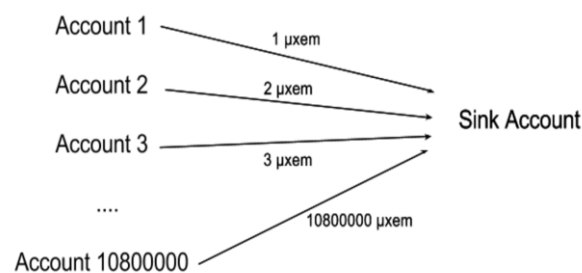
Sakura Internet Inc. (SI), Tech Bureau Corp. (TB), and Arara Inc. (AI), recently collaborated and performed extensive tests on the Catapult Blockchain solution.

The Catapult blockchain solution which was developed by TB based on the all-powerful NEM blockchain technology, is a second iteration of the mijin® private chain solution. It is an enhancement and a complete overhaul of the mijin® solution to give a superior performance designed for the financial industry. More information can be found at https://www.nem.io/catapultwhitepaper.pdf.
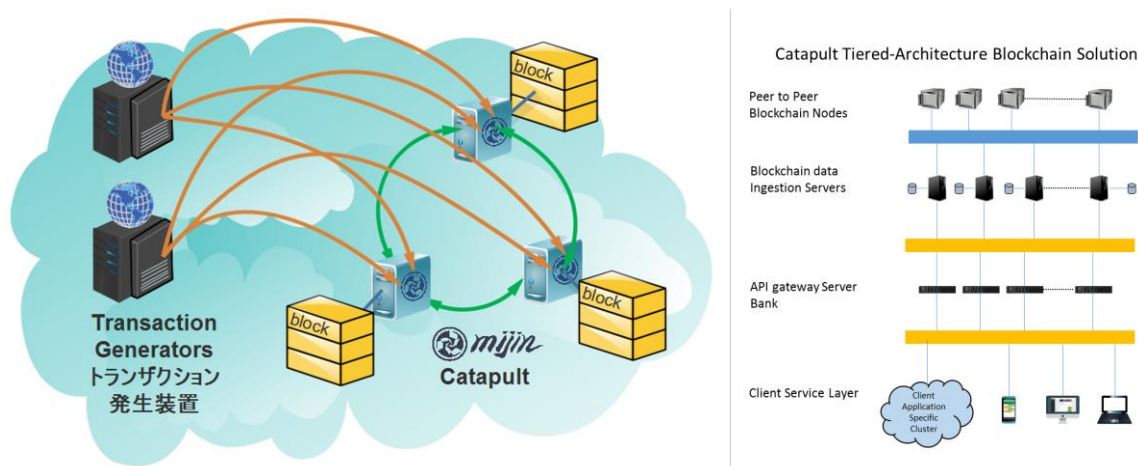
＜Test contents＞
Tests were carried out by the three parties so that AI can evaluate to see if this solution is suitable for their requirements to be used for digital money transfers. The results have been encouraging. The tests were carried out based on the following scenario:

1. 10.8 million accounts
2. A sustained pump of transactions for 1 hour from these 10.8 million accounts to a sink account (in a many to one stream) simulating a real life condition
3. 3 nodes were made to receive this transactions randomly to represent different touch points for these transactions
4. Short block time of about 15 seconds so that transactions can be confirmed quickly

The setup of the test environment was based on the following conditions:

1. 3 Nodes were located in the same geography
2. The nodes were locate in the cloud provided by SI
3. Each of the 10.8 million was given a micro value of a token so that they can each send the transactions into the receiving account in series
4. 2 nodes were to be brought down for 2 minutes to stress test the system
5. As there was no need to compete for "harvesting" Proof of Stake algorithm was used
6. The whole transaction experiment was to be completed within an hour, i.e., a minimum average of slightly less than 3,000 tps.

An application was written to sequence the transactions in a series of constant stream of transactions from each of the 10.8 million accounts. The results obtained were very encouraging. The average transaction rate came to 3,085.77 tps completing the experiment in just under an hour. It hit a peak of 4,142 tps. When 2 of the nodes were cut off for 2 minutes, the system continued to run. They were put back into the cloud after that and it took 3 minutes to synchronize. There was no sign of failure nor forking.

At the end of the experiment consistency was checked to ensure that all the transactions did happen. The sink account showed that there were 10.8m transactions and there was no missing transactions.

＜Conclusion＞

The tests appear to meet the requirements as specified. There was no reported inconsistencies nor failure. The tests pass all requirements and the solution appears to be suitable for use commercially. The benchmark set was high at about 3,000 tps per second and the solution passed the test.

BLOCKS   STATISTICS

Height	Timestamp	Harvester	#TXes	Fees
666	22346496900	5d8bebbe80d7ea3b0088e59308d8671099781429b449a0bbca6d950a709ba068	62000	0.000000
665	22346477481	44700abc3f15ee91e3f3e6e19bfe35d2555d26f7e89287dbe28624263a6b0eb1	50000	0.000000
664	22346461418	44700abc3f15ee91e3f3e6e19bfe35d2555d26f7e89287dbe28624263a6b0eb1	40000	0.000000
663	22346448370	44700abc3f15ee91e3f3e6e19bfe35d2555d26f7e89287dbe28624263a6b0eb1	38000	0.000000
662	22346435639	7c3d2f235fa5bf45194336089691dd143c3af600267ef06350d2574f59ac6daf	51000	0.000000
661	22346419513	7c3d2f235fa5bf45194336089691dd143c3af600267ef06350d2574f59ac6daf	56000	0.000000
660	22346401833	44700abc3f15ee91e3f3e6e19bfe35d2555d26f7e89287dbe28624263a6b0eb1	45000	0.000000
659	22346390970	5618ed3fba5eb628dd419d65f002fe918a19686f1aee4a7d98df8256dc931abb	44000	0.000000

＜Future developments＞

Further tests will be done in the very near future. This will include tampering and penetration tests. Additionally, tests will be carried on geographically dispersed nodes which will include Tokyo and Hokkaido regions together with SI's data centre at Ishikari.

■About Tech Bureau, Corp.
Tech Bureau is the Crypto-Fintech company, which develops software and services based on blockchain technology and cryptocurrency technology. Also, as a founding member of "BCCC", Japan's largest blockchain business organization, it is currently putting all its effort behind the popularization of blockchain technology. Tech Bureau developed Mijin® using NEM technology and NEM developer technical know-how as a part of its Crypto-Fintech Lab. Tech Bureau also runs the Bitcoin and cryptocurrency exchange, Zaif (http://zaif.jp).
Reference: http://techbureau.jp/

■About NEM and mijin®
NEM is an innovative blockchain technology project—a peer-to-peer crypto and information platform started in January 2014 and holds more than 3,000 project members. NEM is designed to work with mainstream industry requirements. A highly versatile solution, the NEM blockchain solution is well suited for the financial sector and for general use.
mijin® is an enhanced private blockchain product developed by Tech Bureau utilizing NEM technology designed to meet enterprise needs. "mijin®" has been tested intensively as a high-throughput ledger engine in various applications.
Reference:http://nemflash.com/nem-next-generation-core-catapult-unveils-productivity/

mijin® is used to build a permissioned ledger within a private business or inter-business configuration from the standpoint of the cloud or within the data center of a private company.
Reference: https://www.nem.io/

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