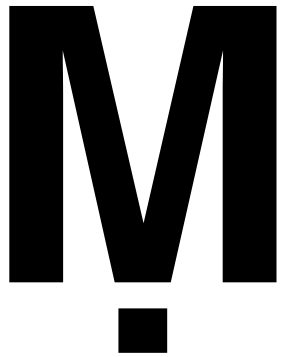

Masu

THE INTERNET FOR EVERYONE AND EVERYTHING

Summary

Everywhere in the world there is rising demand for improving Internet bandwidth and convenience of access at lower prices.

Existing carriers have focused on per customer revenue using traditional business models. This coupled with a lack of real competition between providers in many fixed broadband markets have prevented low-cost and ubiquitous Internet access from appearing despite existing technical solutions.

Masu will overcome this with a proprietary technology and business model designed for tomorrow's wireless broadband and payment ecosystems, a model which generates revenue for people willing to provide free, limited Internet access over WiFi, Bluetooth, ZigBee with a separate paid tier on top of the free access.

The Masu business model gives individuals, companies, and government entities a financial incentive to provide low-cost, fast and reliable access, using a digital currency similar to Bitcoin. Our goal is to bring the combined cost of mobile and fixed Internet access down to $1 per day per customer on all their devices.

State of the Internet: 2016

The Internet can be divided into three main components: the **transit network** which carries data over long distances, the **distribution network** which bridges the last mile from the transit network to the consumers of Internet service and the **access network** which allows devices to connect to the distribution and transit networks. The existing access networks economics are split in three broad categories: commercial access (fast and expensive), consumer access (middling speed and cost), and free access (very rare and unreliable).

CARRIER NETWORKS

Typical fixed consumer Internet access in the US costs $25-50 per month, with an additional $100 for mobile Internet access. A few municipalities and companies have established free wireless networks, but they must shoulder the cost without any revenue, and therefore there is little incentive to provide free access.

Wireless data access is move expensive, and often tied to legacy phone and messaging models which are no longer relevant. In some markets a tragedy of competition has created parallel networks which consume large amounts of capital for development and result in poor service for users at a high cost.

PUBLIC & COMMUNITY NETWORKS

Numerous public network efforts have been organized and exist at various levels of deployment. Typically a small group of technical volunteers manage the project, which limits the systems to serving small communities. Efforts to build large public access networks using off the shelf wireless technology have largely failed due to the cost of maintaining and building the network, even with volunteer labour.

Several grass-roots efforts have been started to create decentralized distribution networks ‘mesh net’ or ‘dark net’ parallel networks either partially of completely disconnected from the Internet. These efforts lay the technical foundation for a robust peer-to-peer networking technology but have faced funding and deployment challenges in line with public networks.

INTERNET OF THINGS

The emerging Internet of Things makes ubiquitous, zero-configuration access a crying need: Internet access is a requirement for those billions—soon trillions—of connected devices, yet accounting, billing and access restriction overhead threaten to make adoption challenging and frustrating for users. Selecting networks and entering passwords creates a huge usability challenge for these devices which Masu aims to solve.

DIGITAL CURRENCIES

Cryptographic currency systems such as Bitcoin provide distributed financial value transfer services which are more secure than traditional client-sever communication, and allow for completely decentralized operation by providing incentives for unrelated and physically distant parties to coordinate on a single task. This network has incentivized largest distributed computing effort in the the world.

Technical Proposal

We propose a business method and apparatus which allows independent providers to establish wireless access networks and earn a form of cryptographic currency for providing free, provable, connectivity to the global Internet. Operators purchase a Wi-Fi Access Point (the Masu Box) running software which provides a method for proving connectivity of a device on the local wireless network (the client) to a number of servers on the Internet (the verifiers) via a wireless gateway or mesh network (the gateway).

AN ACCESS POINT FOR THE REST OF US

The Masu Box provides a modern, IPv6 enabled, Wi-Fi networking environment. Stripped of legacy features and designed to provide high performance connectivity with advanced queue management and intelligent RF management to ensure a high quality of service. Coupled with these performance features is simple setup via a mobile application, the Masu Box allows users to build the network themselves, deploying it whenever and wherever it's needed.

EASY TO USE CRYPTO CURRENCY SYSTEM

Masu has developed an easy to use, point of sale crypto currency exchange system that make it possible for retail stores to easily sell and accept Masu coins and eventually other cryptographic currencies. While existing bitcoin systems are low friction for advanced users there is a trust threshold for initially joining the network and financial costs are high given current values of Bitcoins. Alternate coins, such as Dogecoin have improved this with more friendly branding but the fundamental ease of use needs to meet or exceed that of credit card purchases.

PROOF OF CONNECTIVITY

The basis for the Masu coin is a replacement for the "proof of work" system used in Bitcoin and other cryptographic currencies. Counter-signed message are exchanged between the client and the verifiers, the signed results of these exchanges are encoded in a block-chain data structure, which is shared between the verifiers, these proofs of connectivity are then used to generate a value token. Multiple independent operators may deploy gateways devices and verifiers for connecting clients to the network. As clients connect to the network coins are generated by way of direct production on the gateway, and small transaction charges or tips on the part of the verifiers.

MASU COIN ECONOMICS

Masu coins can then be traded for priority access to the network a process called 'burning' which removes them from circulation, or exchanged for other cryptographic or traditional currencies as needed. Providers who have accumulated large sums of coin can resell them in bulk in order to provide operating capital to purchase more equipment, pay for connectivity and expand and improve the overall network. **The overall value of the coins in circulation is the difference between the amount of free service provided, and priority service used.** The goal is to maintain the currency at a steady work value unit: one day's worth of network access.

Use Cases

The Masu network is created by network service providers, consumers and supporting infrastructure working together to provide a fluid market for internet access.

Providers

Shop Owners purchase a Masu access point and install it on their premises, customers can now use the free access, which will earn the shop owner Masu coins they can then sell to their customers for priority access or trade with other Masu sites in order to balance the supply of bandwidth between them.

Home Owners and Renters purchase a Masu access point and install it on their existing broadband connection, visitors have a shared network to connect to, their own devices can be attached to a separate, secure network which will not generate any coins or to the public network as free devices, which will. This enables home users to earn Masu for connecting their own computers, as long as they use the public access.

Businesses can purchase Masu Boxes and deploy them as an easy to manage and reliable access networking solution. Similar to home users they can put some devices on separate private networks but do not earn Masu coins from those devices. The business can distributed these coins to it's employees to offset the cost of mobile bandwidth and roaming.

Consumers

Store Customers arrive at a Masu location, they are able to use the free tier of access with some limits (bandwidth or time limited). If they wish to remove the limits, they can purchase Masu from the location owner. This model creates a two-tiered service, providing both universal free and provides revenue for the shop owner.

Internet of Things devices can easily connect to to the Masu Access Network and use the limited data services without any advance configuration if the owner wants to assign coins to the device address they can do so without having to configure the device, or even communicate with it. The network maintains the balance in the block chain and the verifiers automatically burn coins as needed.

Infrastructure

Verifiers are paid a small tip to verify access granted to free customers and for transactions which need to be encoded in the block chain. Verifiers also maintain the routing table for the network and manage burn-down of coins.

Exchanges are used to balance bandwidth and coin inventory between masu providers. Exchanges will also provide for buying and selling Masu coins in bulk and trading for other crypto or fiat currencies.

Masu Products

MASU BOX & FIRMWARE

A modular, radio agnostic design for a small, low power wireless access point. It provides a power supply, PCIe backplane, four mini PCIe slots. These slots can be configured with various radio, processor and storage cards as needed for a particular application.

MASU RETAIL SOLUTION

The Masu retail solution provides for over the counter sale of Masu Coins using a paper wallet solution and mobile application for shop owners. This allows existing retail establishments to quickly and easily monetize their existing Wi-Fi network offerings while introducing customers to the Masu system.

MASU WEB, MOBILE AND DESKTOP APPS

The Masu App is used to manage your Masu balance, load Masu coins into a wallet and manage Masu APs. It can be used to transfer Masu coins to other users of the system and or purchase or exchange Masu online.

MASU VERIFICATION SERVER

The verification server runs as a distributed, decentralized Cloud Service and is used to verify connectivity of devices to the Internet as well as Masu coin transactions. Verification server run a distributed protocol and share a block-chain data structure between them for recording verified access, coin creation, trading and burning on the network.