VOICECOIN

VOICECOIN WHITE PAPER

Toward a decentralized voice-based World Wide Web over blockchain

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Contents

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All contributions will be applied towards the Foundation's objects, including without limitation promoting the research, design and development of, and advocacy for a blockchain-based voice domain name system, establishing technical standards and protocols to connect Chatbots with users around the world, so that in the future, people can access chatbots from any smart voice-enabled device and use the corresponding Chatbot service, creating an open-source globally influential "voice internet" ecosystem that will integrate voice domain names into domain name services of all walks of life, in order to improve people's online experience.

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Abstract

The Foundation aims to provide people with a new way of using the internet by building a **decentralized Voice Domain Name System (V-DNS) platform based on blockchain technology**. Registered domains form the **Voiceweb**—a blockchain platform for voice-chatbot development. **Voicecoin** is the virtual currency for Voiceweb.

On this open, decentralized, and interconnected platform, users can access applications, brands, and skills using any voice-enabled device that supports V-DNS resolution.

V-DNS enjoys many advantages over traditional DNS: The V-DNS format is more natural, flexible, and better suited to the public's ev- eryday use. Because it is based on blockchain technology, V-DNS has higher security and reliability as well as higher resolution efficiency, and it can effectively prevent DDoS attacks and DNS in- jection attacks. It offers more convenient payment and transaction possibilities. V-DNS also provides enormous convenience and ben- efits to the public registration and trading of voice domain names, ensuring property rights in the area of domain-name ownership.

Based on the V-DNS protocol, the V-DNS dialogue services support the execution of multifaceted blockchain-platform smart con- tracts. In this way, through speech and blockchain, the Foundation is introducing a zero-trust mechanism that creates enormous con- venience and certainty in people's daily lives. The dialogue services can take the form of chatbots or perhaps a service within a smart home. People can simply speak to a voice browser and access the internet, find services, or carry out other more complicated internet operations. Our goal is that over time, the V-DNS protocol

- Security and reliability

- Higher resolution efficiency

- Prevents DDoS attacks and DNS injection attacks

- Convenient payment and transaction mechanisms

- Property rights regarding domain-name ownership

- Support the execution of multifaceted blockchain-platform smart contracts

- Opens and broadens the popular services of chatbots

- Resolves the global issue of chatbot naming conventions

- Resolves the trust issues among popular chatbots

voice internet. Based upon the interoperability features of the V-DNS protocol, these dialogue services will be able to communicate with each other in a similar way to traditional web hyperlinks, and in this way the voice internet will be established. This chatbot-linked web shall be named the Voiceweb.[1] The Foundation is developing a family of protocols for the conversational web on the basis of the web's true value system and the genuine spirit of the internet.

The blockchain platform that supports the V-DNS protocol will be named Voiceweb, and the Foundation has named the virtual currency that is used with and based on this platform Voicecoin. In the areas of artificial intelligence and chatbots, Voiceweb opens and broadens the capabilities of popular chatbot services, resolves the global issue of chatbot naming conventions, and resolves the trust issues related to popular chatbots. When a decentralized chatbot platform is achieved, chatbots no longer need to be
created according to the individual specifications of each centralized internet giant or rely on the popularity and payment channels of those platforms. Chatbots will be officially freed to serve people throughout the world, and payment problems will be completely resolved with the encrypted virtual currency integrated into the blockchain. Voicecoin liberates chatbots, liberates the web, and liberates the internet. Through Voiceweb's open voice-internet platform, the entire internet industry has the potential to establish an open standard in the era of "big voice," which will open access to smart-voice interfaces for the entire world and solve a great many current issues of security, reliability, and efficiency. The Voiceweb platform will poten- tially reduce the complexities developers currently face when they're required to develop similar services for different platforms. It will also allow for the sharing

VOICECOIN: CREATING NEXT-GENERATION AUDIO-ENABLED DOMAINS AND APPLICATIONS SO YOU CAN INTERACT WITH THE INTERNET USING YOUR VOICE.

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1   From an academic point of view, "web" is collectively referred to as the conversational web.

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1. INTRODUCTION

1.1 THE PROBLEM

GOOGLE AND AMAZON ARE PRIVATIZING THE VOICE INTERNET.

The largest technology companies in the world—Amazon, Apple, and Google—are developing proprietary smart-speaker products. It's only a matter of time before these devices need to interoperate with billions of other devices, resulting in the need for a decentralized new standard—the **Voiceweb**.

These smart speakers may be the internet gateways of the future. Unlike the traditional way of accessing internet services, people activate the speaker simply by calling its name and then using speech to access various integrated services. The speaker's integrated speech services are plug-ins (also called **Skills** or **Actions**), which must adhere to standards provided by the speaker company. Generally speaking, these plug-ins take the form of a chatbot. Under such a service system, situations in which it's convenient to directly call the chatbot's name often occur. Also, chatbot developers must devise distinct means of access for speakers produced by different manufacturers, or the chatbot cannot be used. In speakers produced by different manufacturers, each chatbot's name must be registered separately; otherwise the names may conflict, which also creates inconvenience for the user. Every new speaker requires a developer to code interoperability functions, resulting in a mishmash of code, languages, functions, and user experiences.

1.2 THE SOLUTION—VOICE DOMAIN-NAME PROTOCOL

FOUNDATION PROPOSES A BLOCKCHAIN SOLUTION AS THE FOUNDATION OF AN OPEN-SOURCE VOICE INTERNET.

These problems may be solved by applying blockchain technology. Speaker chatbots can be named and uniformly registered according to the V-DNS protocol on an open blockchain platform. In this way, all chatbots have their own name and their own unique ID. Smart-speaker manufacturers will use the open resources of blockchain, thus breaking down information walls, promoting the sharing of industry information, reducing access issues for developers, and reducing the inconveniences associated with the integration of hardware and software.

- Uniformly registered Voice Domain Name Protocol

- Individual Name with unique ID

As long as a person can speak the name of the service they want to access, they can do so from anywhere using any smart speaker. These services can become available on any voice-enabled device anywhere in the world. This opens speech services to the public domain and gives speech-based service brands the opportunity to emerge. On the basis of these voice characteristics, this open blockchain platform for chatbot-name registration will be named the **Voiceweb**. Developers can register their own chatbots on the blockchain, potentially enabling the goal of the smart-speaker manufacturers to be shared with the entire world. Thus, after a smart speaker is launched, its users can access any chatbot's services by simply calling its name.
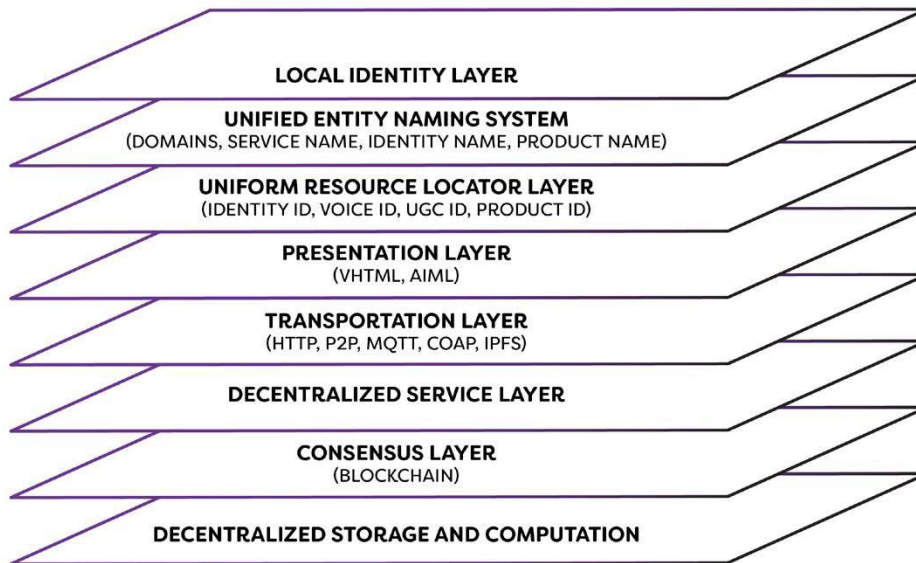

2. HISTORY OF VOICEWEB

December 2014	•	Aimed at establishing the next new method of communication after WeChat, we began studying and researching AI and Blockchain technology.
March 2017	•	Completed the Blockchain product, marketing and technology research reports.
May 2017	•	Completed building Chatbot platform version 1.0.
June 2017	•	Began the development of the wallet program.
October 2017	•	Blockchain wallet prototype launched.

3. THE CURRENT SOLUTION

The traditional resolution scheme on platforms such as Amazon or Google requires developers to complete training in the area of setting the user's entity and intent.

This is the Google Home user process:
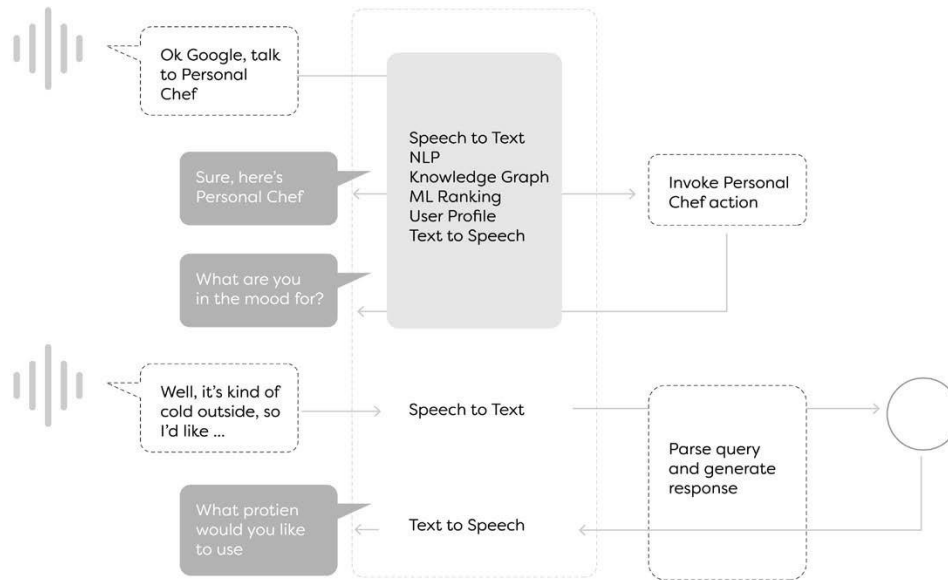
When the developer sets the application name, it can be analyzed via semantics.

In Dialogue Discovery: Explicit Triggering

Ok Google,   let's talk   to   Personal Chef

Trigger Phrase	App Name
	Developer Specified

Ok Google,   ask   Personal Chef   for   a   hot   soup recipe

Trigger Phrase	App Name	Action	Action Phrase
	Developer Specified	Preposition	Developer Specified

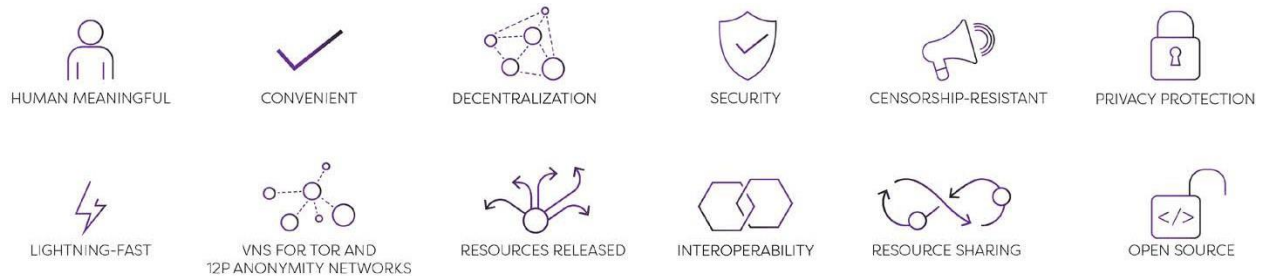Working Examples: Let's speak to Domino's
                           Ask Dr. Doggy if dogs can eat chocolate

Unfortunately, the invocation name set by corporate developers like Google and Amazon **works only with their own proprietary equipment**; it is **not a system that is open to the public**. Facebook's chatbot can be used only within Facebook; outside users cannot access it, and it's not open to the public. With the aim of promoting the voice era and revitalizing the purpose of the web, the Foundation proposes an interoperated, decentralized invocation-name scheme, thereby improving web usage, bringing tangible benefits to internet users, and—to a certain extent—curbing the current centralized monopolization of this avenue of internet access by the internet giants.

4. VOICEWEB FEATURES

Wilcox-O'Hearn proposes the following three properties for naming protocols: **human-meaningful, decentralized**, and **secure**. V-DNS possesses the characteristics of all these and more, owing to the integration of voice features combined with blockchain technology.

| HUMAN MEANINGFUL | CONVENIENT | DECENTRALIZATION | SECURITY | CENSORSHIP-RESISTANT | PRIVACY PROTECTION |
| LIGHTNING-FAST | VNS FOR TOR AND 12P ANONYMITY NETWORKS | RESOURCES RELEASED | INTEROPERABILITY | RESOURCE SHARING | OPEN SOURCE |

4.1 HUMAN-MEANINGFUL

Human-meaningful is a common domain-name system. It is only user selected and is easy to remember. V-DNS accomplishes this, being easily recognized by the ear, unambiguous, and suitable for use on the voice internet. Voiceweb's biggest feature is voice. The design of domain-name rules is no longer based on the state's constant suffix but in the form of dialogue with people. Currently, traditional top-level domain names are gradually coming out with more natural-language features, but the development is slow. Adding a gTLD (Generic Top-Level Domain) is troublesome. In addition to the technical issues of efficiency and scalability, Namecoin supports only .bit suffixes in product features and does not support other suffixes. Extended support for the domain name is poor, and scalability is poor. For example, it does not support .txt records. Blockstack is a virtual chain implementing an abstract state machine that works on other blockchain platforms. State machines are used to perform a variety of services, including the identity service Onename, which, in theory, can execute any service, solving part of Namecoin's functionality issues. There are many others that allow users to own their own data, but they do not support a natural-language domain name.

4.2 CONVENIENT

Voice serves a core function that permeates the entirety of the voice blockchain. It's a natural method of log-in and payment. This will reduce complexity and costs and enable seamless interaction between humans and computers. Its underlying currency is Voicecoin. Using Voicecoin, people can pay for any service on a speech-enabled device. When not logged in, they can utilize the chatbot services. When logged in, they can take things a step further and initiate payment

via the chatbot. This product was designed to utilize the distinguishing characteristic of speech, from wallet authentication and log-in to the registration of domain names, and the provision of chatbot services. People can log in to their wallet using their own voice, and individuals, companies, and organizations can register the voice domain names.

4.3 DECENTRALIZATION[2]

Traditional DNS is based on ICANN, but V-DNS is completely different; it runs on a decentralized blockchain. It can be executed by anyone but cannot be controlled by anyone. Each node runs independently and does not depend on any third-party services.

4.4 SECURITY[3]

Under the traditional DNS mechanism, HTTPS protocols are used to solve the problem of DNS hijacking. However, the website needs to rely on the certificate authority's guarantee (the "CA"). If any one of the thousands of CAs is attacked, makes a mistake, or is compelled by a government, it may issue false certificates/credentials. Decentralized DNS does not need to rely on CA, and no entity can easily hijack V-DNS domain names. Traditional DNS is very weak; if a node is attacked, then there could be domain-name resolution accidents. In some areas, domain-name registration is subject to real-name authentication, and for domain-name-offering services, you must first pass a governmental examination. DNS cache pollution often directs users to different addresses. A DDoS attack occurred in 2016 against DNS provider Dyn, resulting in large companies such as Amazon, PayPal, Reddit, and GitHub being unable to provide normal services. Traditional DNS servers can deduce the websites that consumers visit, and users have zero privacy protection.

4.5 CENSORSHIP-RESISTANT

With traditional DNS, the government can block certain websites' accessibility, but this cannot be done so easily with V-DNS. In some areas of the world, including China, websites are often not accessible due to government censorship. But V-DNS is built on blockchain technology, and every domain name is accessible on the user's computer without tampering.

4.6 PRIVACY PROTECTION

Using traditional DNS, the server can track the consumer's activity/history on the basis of the consumer's IP. The blockchain-based V-DNS avoids this by not producing any network tracking when users visit a site.

4.7 LIGHTNING-FAST

Traditional domain-name switchover generally requires 24 to 48 hours, which results in unnecessary service downtime. But blockchain-based V-DNS can very quickly update the domain-name list. Traditional DNS resolution time is slow, generally over 100 milliseconds. The V-DNS maintains its domain-name list locally, and thus resolution time is less than three milliseconds.

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2   https://blockstack.org/docs/blockstack-vs-VNS
3   https://bit.namecoin.org

4.8 SUPPORTS ANONYMITY

V-DNS can direct users to anonymously hosted websites on Tor and I2P anonymous networks. Unlike Tor's .onion domain (made up of random letters and numbers) or I2p's .i2p domain (which can direct different crowds across different websites), V-DNS provides both Tor and I2P hosting with a suitable, readable, and definitive DNS analyzation service.[4]

4.9 RESOURCES RELEASED

V-DNS establishes a process that allows people to release their domain-name resources.

4.10 INTEROPERABILITY

By sharing the same basic form of domain name, global chatbots will be able to communicate with each other across platforms. For example, the traditional WeChat public number can't talk to Facebook's chatbot, but V-DNS overcomes this limitation.

4.11 RESOURCE SHARING

By removing the individualized, stand-alone voice domain-name systems of the smart-speaker manufacturers, V-DNS establishes a unified domain-name system that strengthens information sharing and reduces the number of intermediaries involved in consumer use of the product. This system has the potential to result in enhanced resource efficiency within the industry and huge improvements to the consumer user experience.

4.12 OPEN-SOURCE

The V-DNS protocol is an open-source project under Voiceweb. The proliferation of Namecoin is not very active, making it difficult for that platform to become a widely used and supported domain-name system in the decentralized Internet. V-DNS will effectively solve this issue. In addition to its open-source code, V-DNS is also an open-source ecosystem.
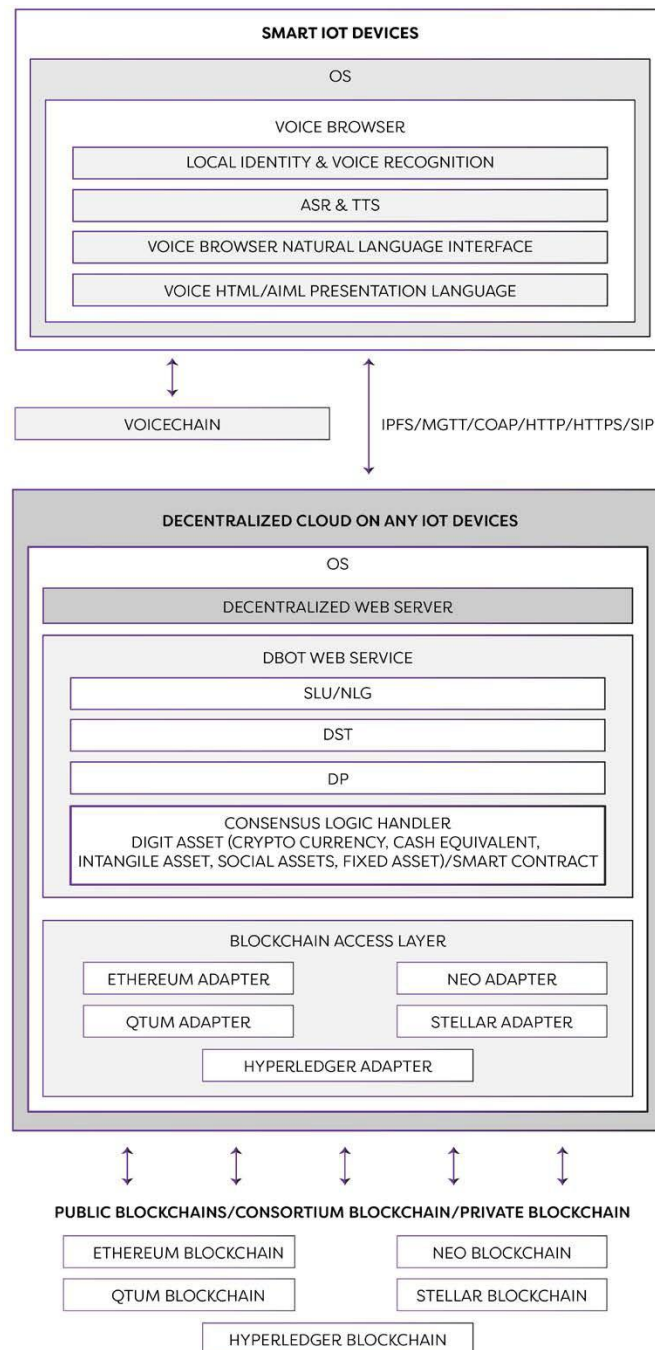
For the specific technical properties and means of implementation, please refer to the technical white paper.

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4   While V-DNS may be able to hide the location and IP address of the domain-name owner, it might still be possible to link the domain-name owner to their transactions if the domain name has been registered via Tor (for example, from a stock exchange), which can reveal the owner's identity.

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5. HOW DOES V-DNS WORK

5.1 SYSTEM ARCHITECTURE

Immediately following Chatbot registration, each chatbot has a formal name. Using the appropriate browsing equipment, the user can find the address of a chatbot by using the domain name. **We call this chatbot name the Voice Name. To resolve the issue of duplicate names, we introduce the concept of the Voice Domain, where chatbots can share the same name in different voice domains.** In this way, as long as the smart speaker can identify the voice domain through voice recognition and find it on the voice domain, the Chatbot can be found via the Voice Name.

SMART IOT DEVICES

OS

VOICE BROWSER

LOCAL IDENTITY & VOICE RECOGNITION

ASR & TTS

VOICE BROWSER NATURAL LANGUAGE INTERFACE

VOICE HTML/AIML PRESENTATION LANGUAGE

VOICECHAIN   IPFS/MGTT/COAP/HTTP/HTTPS/SIP

DECENTRALIZED CLOUD ON ANY IOT DEVICES

OS

DECENTRALIZED WEB SERVER

DBOT WEB SERVICE

SLU/NLG

DST

DP

CONSENSUS LOGIC HANDLER
DIGIT ASSET (CRYPTO CURRENCY, CASH EQUIVALENT, INTANGILE ASSET, SOCIAL ASSETS, FIXED ASSET)/SMART CONTRACT

BLOCKCHAIN ACCESS LAYER

ETHEREUM ADAPTER   NEO ADAPTER

QTUM ADAPTER   STELLAR ADAPTER

HYPERLEDGER ADAPTER

PUBLIC BLOCKCHAINS/CONSORTIUM BLOCKCHAIN/PRIVATE BLOCKCHAIN

ETHEREUM BLOCKCHAIN   NEO BLOCKCHAIN

QTUM BLOCKCHAIN   STELLAR BLOCKCHAIN

HYPERLEDGER BLOCKCHAIN

The Voiceweb Application Protocol (VAP) stack is a tiered network system that integrates blockchain technology to enable a decentralized voice internet. It offers users an easier, safer, and more open browsing experience than the World Wide Web.

Easier. Presentation layers allow people to use natural language to access and browse the internet. The digital-identity layer means that people won't have to sign in every time they use a new application.

Safer. The Digital ID and the Cash Equivalent layer make payments and digital-asset access and protection simpler and more secure. It also makes it very difficult for people to create fake identities and disseminate content anonymously.

More open. Because of its decentralized nature, Voiceweb users' personal information and data can't be exploited or leaked by centralized platforms and organizations.

Obviously, each protocol layer requires further explanation. In reality, they're not as simply divided as indicated in the diagram.

5.2 VOICECHAIN
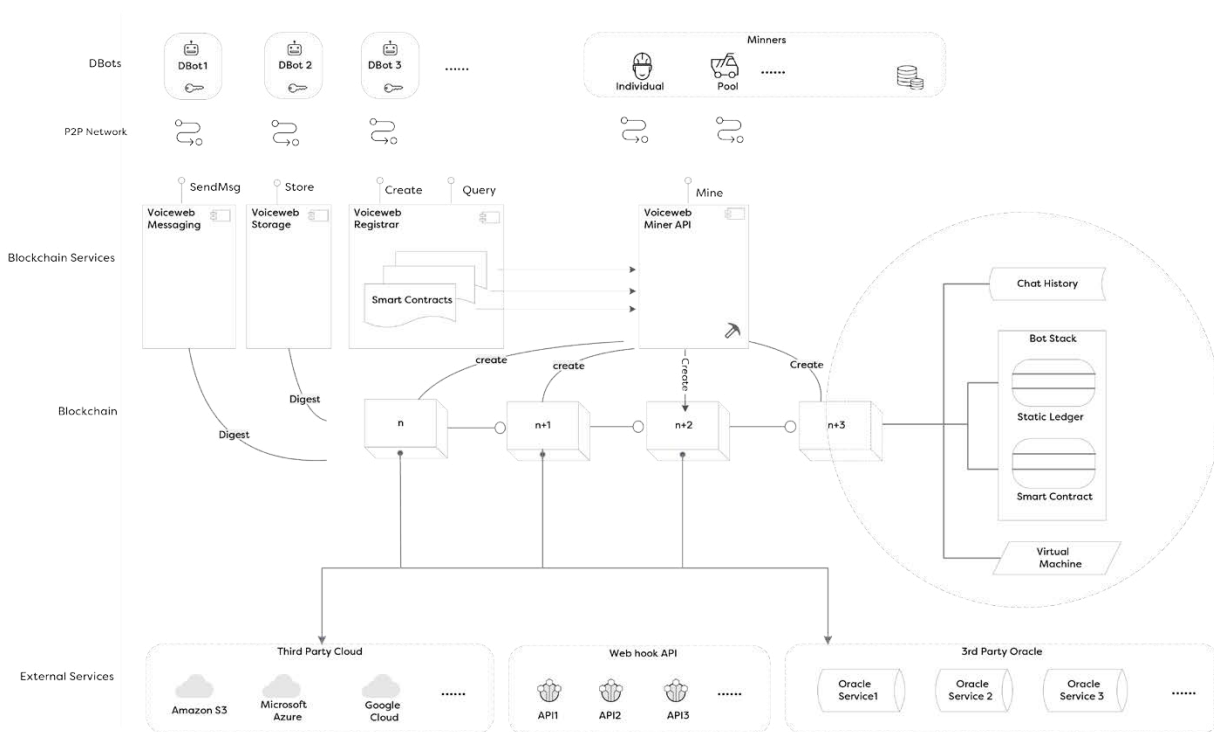
Chatbot registration gives each chatbot a formal name. can find the address of a chatbot by searching for its voice domain name. This chatbot name is called the **voice name**. To resolve the issue of duplicate names, we've introduced the concept of the **voice domain**, whereby chatbots can share the same name in different voice domains. In this way, as long as the smart speaker can identify the voice domain through voice recognition and find it on the voice domain, the chatbot can be found via its voice name.

5.3 VOICE-DOMAIN RESOLUTION
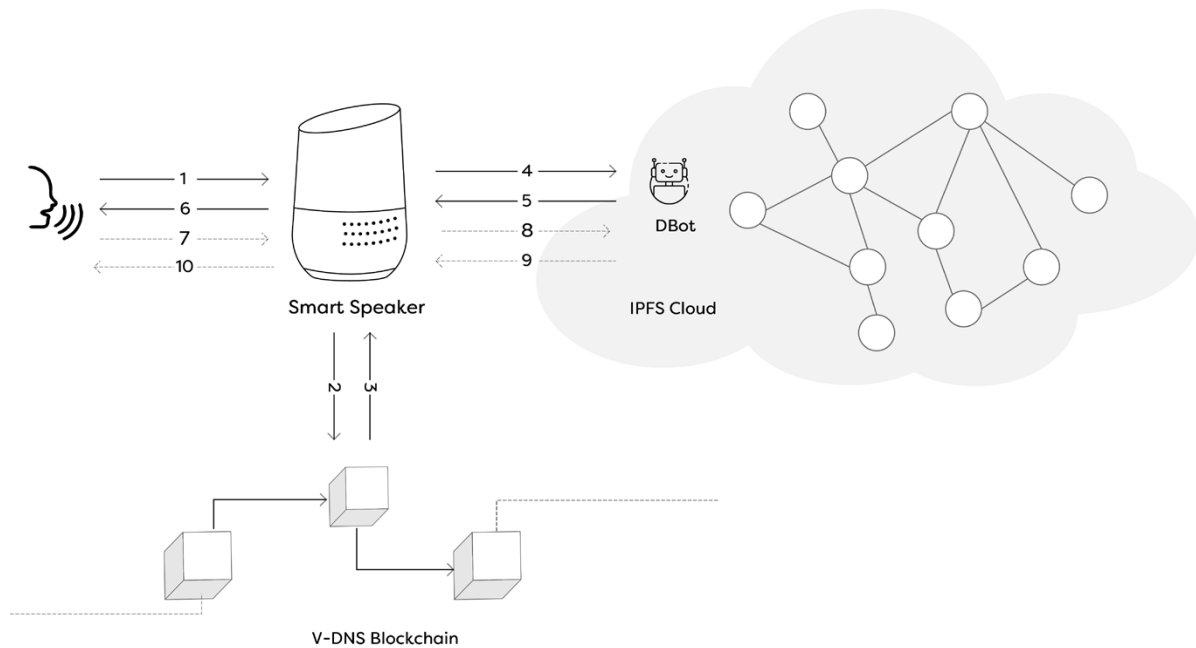
Step 1: The working principles are illustrated above. After the user activates the smart speaker, they speak the name of the chatbot.

Step 2: The smart speaker's embedded chatbot browser, on the basis of the domain name spoken by the user, queries the chatbot's URL address at the V-DNS blockchain interface according to the name spoken by the user.

Step 3: The V-DNS interface returns the chatbot's address.

Step 4: On the basis of the chatbot's name, the bot browser accesses the cloud-based IPFS DBot and sends the first request.

Step 5: The DBot acknowledges with a greeting reply.

Step 6: The bot browser directs the smart speaker's voice interface to play the chatbot's reply.
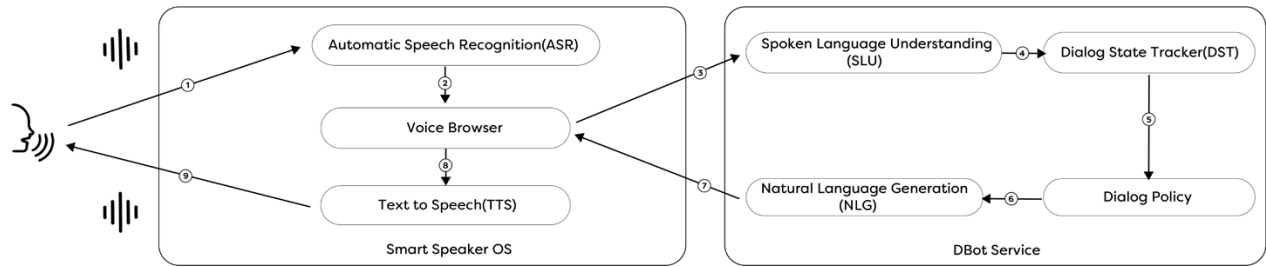
Step 7: After the user hears the chatbot reply, he or she decides whether to reply.

Step 8: If the user replies, then the dialogue is passed to the DBot via the smart speaker's bot browser.

Step 9: The DBot returns the user's reply.

Step 10: The bot browser then transmits the reply to the user.

5.4 CHATBOT WORK PROCESS

In this illustration, when the user speaks (step 1), the smart speaker converts the speech to text (ASR), then sends it to the chatbot browser, which sends the request to the DBot service (step 3). After the DBot receives the request, it first interprets the user's intention (SLU) and then sends it to the session state processing (DST), which, in turn, submits to the session strategy (DP), then generates the reply language (NLG) and returns the reply to the chatbot browser (step 7), which will then send a request to the speaker system, which will convert the text back to voice (TTS) and play it back to the user (step 9). In this way, one entire conversational process is completed.

PAYMENTS AND TRANSACTIONS

The unit of exchange to buy and sell domain names on voice blockchain is the Voicecoin. Another intended purpose for Voicecoin is to provide users with a unified means of payment for chatbot usage. People can use Voicecoin on the Voiceweb payment platform to pay for chatbots. It's envisaged that the Voicecoin system will become a decentralized chatbot voice-payment and settlement service.

LOCAL IDENTITY

As is generally known, the financial industry places stringent requirements on the security and identity of data. Via Voiceweb, a third-party financial accounting mechanism may be introduced that has the potential to enhance data storage with respect to these requirements through Identity Recognition Module verification.

INTEROPERABILITY

At its base, the master contract is envisaged to connect to other blockchains' smart-contract platforms, opening the chatbot platform to other services and moving toward realizing a truly decentralized voice internet, thereby providing the most convenience to the public.

INTEGRATION

Chatbots may be integrated with all kinds of cloud-based services.

6. USE

USE CASE 1:

USE VOICE TO CALL CHATBOT TO USE INFORMATION

The user activates Alexa and then says: I want to chat with the Alpha Go chatbot

Speaker: OK, it's connected for you.

User: Okay.

Speaker: Connected

Alpha Go Chatbot: *Hello! What would you like to talk to me about?*

User: Can you teach how to play Go?

USE CASE 2:

BUYING PRODUCTS VIA

User: OK Google

Speaker: Please state the service you require?

User: I'm going to Apple to buy an iPhone X.

Speaker: Connecting to Apple Chatbot.

User: Okay

Speaker: Connected

Apple Chatbot -> Speaker: *Hello, I am Apple Chatbot, you want to purchase the iPhone 10, cor- rect?*

User: Yes

Apple Chatbot -> Speaker: *May I use your address on file?*

User: Yes

Apple Chatbot -> Speaker: *Your Address is 1241 W Fletcher St Unit H?*

User: Yes

Apple Chatbot -> Speaker: *Would you like to pay with Voicecoin?*

User: Absolutely

Apple Chatbot -> Speaker: *Your order has been submitted and you can inquire about the status of your order on the blockchain. Your iPhone 10 will arrive within three days.*

USE CASE 3:
TRANSFER TO OTHER CHATBOTS USING

User: Help me connect to Microsoft XiaoBing chatbot, her address is XiaoBing@Microsoft

Apple Chatbot -> Speaker: Ok.

Speaker: You are connected to Microsoft XiaoBing chatbot

Microsoft XiaoBing Chatbot -> Speaker: *Hello*

USE CASE 4:
SEND A MESSAGE TO A FRIEND USING VOICE

User: Hello! Help me send my girlfriend, Alice, a message
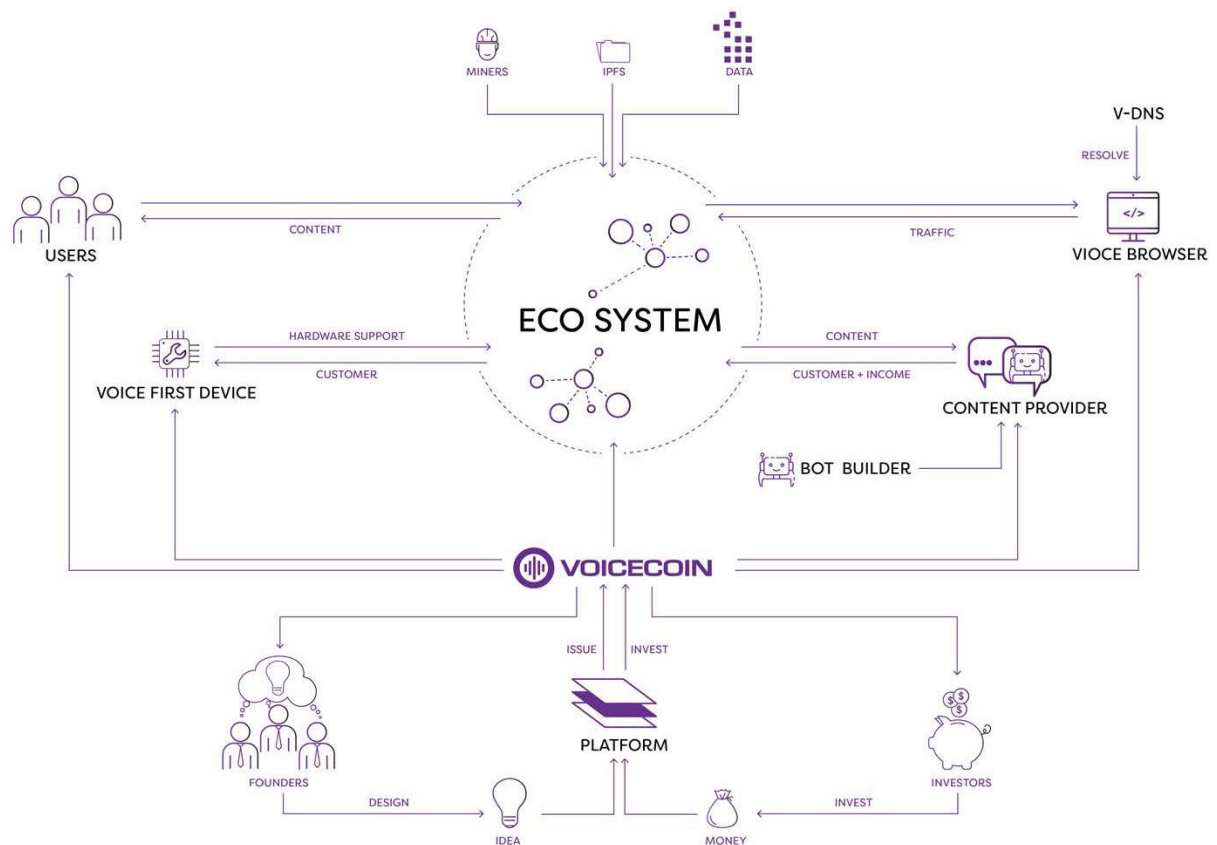
Speaker: You have several Alices here. Which one?

User: Alice@me

Speaker: Ok, what message would you like to send?

User: Tell her I will not be back for dinner this evening.

Speaker: The message has been sent

7. VOICEWEB

7.1 DOMAIN OWNER

People will be able to buy their own exclusive voice domain name using Voicecoin. The voice domain will be registered and maintained in the form of natural language. Behind these domain names are various kinds of chatbot services. The content of these services is rich and varied. Everyone can create their own exclusive chatbot, and proxies provide chat services for other users. These chatbots will support smart contracts and may exist in a decentralized cloud. In the future, people may discover that it is cheaper to use decentralized clouds.

After the chat robot is released, anyone, anywhere with access to a smart speaker can call, use services, and make payments via voicecoin. Payment histories will be logged on the blockchain. When people use chatbots, they can log in naturally by voice and call different chatbots, which will smoothly transition between applications without the need of repeated log-ins and authentication.

7.2 VOICE CHATBOT DEVELOPER

With regard to service providers, in this decentralized voice internet, chatbots genuinely have a global name—they are no longer solely relegated for use inside a social platform but are open for global usage. Anyone, in any corner of the world, can access a smart speaker and call a chatbot. Anyone can even create their own voice home page, which can also be called by a voice speaker from overseas. So everyone may have their own dedicated voice radio station. Unlike Amazon, Google, and other giants of the voice system, the domain-name system shall be open. The bots will not be deployed in the same way as the services of the giants, such as Amazon and Google, which have only one deployment. The service can be provided through intelligent voice devices around the world service.

7.3 SMART-SPEAKER MANUFACTURER

Smart-speaker manufacturers may utilize the open resources on the blockchain, turning islands of information into continents. This will promote the sharing of industry information, reduce development costs and access problems, and allow for the integration of various services into all smart-speaker equipment.

7.4 SMART-SPEAKER USERS

With regard to users, in this decentralized voice Internet, there is no need to bring one's mobile phone; one can walk into any corner, find a smart device, and access any chatbot-enabled website through speech! One does not have to be tied to a cell phone; every device will be a smart device, and every device will have a voice browser. The browser can access any one of the world's conversation-based internet addresses using the spoken domain name. Thus, the public will be connected to chatbots via speech, giving rise to a whole new level of consumer convenience. The use of blockchain technology to establish chatbots, coupled with the use of smart-contract technology, will best resolve the issue of consumer confidence in these devices' communication between people and machines, and in this way will greatly promote the greater utilization of a chatbot's speedy and convenient services by the consumer.

7.5 VOICE-BOT BROWSERS

These will include Baidu and Google and will be offered to natural-language-processing companies.

8. ECHO SYSTEM OPERATION STRATEGY

8.1 TARGET MARKET

USER MARKET

60.5 MILLION
users of smart
voice assistants

128.9% GROWTH
in smart voice
device usage

eMarketer believes that **35.6 million Americans will use smart-voice devices at least once a month this year**, an increase of 128.9% over last year. (These figures do not include smartphone voice assistants. They're limited to stand-alone smart-voice devices, like Amazon Echo and Google Home.) This makes sense when you look at it from the point of view of the smart-device market, which is estimated to grow by 23.1% this year. Amazon, Google, Microsoft, and Apple are the biggest players. By the end of the year, 60.5 million Americans will use these voice assistants at least once a month. That's more than one-fourth of all smartphone users and nearly one-fifth of Americans

US VOICE-ENABLED DIGITAL ASSISTANT USERS, BY GENERATION, 2016-2019 (millions)

| Year	Millenials	Gen X	Baby Boomers
2016	23.3	13.4	8.6
2017	29.9	15.6	9.7
2018	35.8	16.7	9.9
2019	39.3	17.2	10.1

Note: individuals who use voice-enabled digital assistants at least once a month on any device: millennials are individuals born between 1981-2000, Gen X are individuals born between 1965-1980 and baby boomers are individuals born between 1945-1964. Source: eMarketer, April 2017

PRODUCT-SHIPMENT FORECAST

VoiceLabs calculates that manufacturers will **ship 24.5 million smart-voice-enabled devices this year**, while the total number of voice-enabled smart devices available in the market will reach 33 million units. This is significant, because shipments of voice-enabled smart devices have risen exponentially from 1.7 million units in 2015 and 6.5 million units in 2016.

VOICE-FIRST DEVICE FOOTPRINT
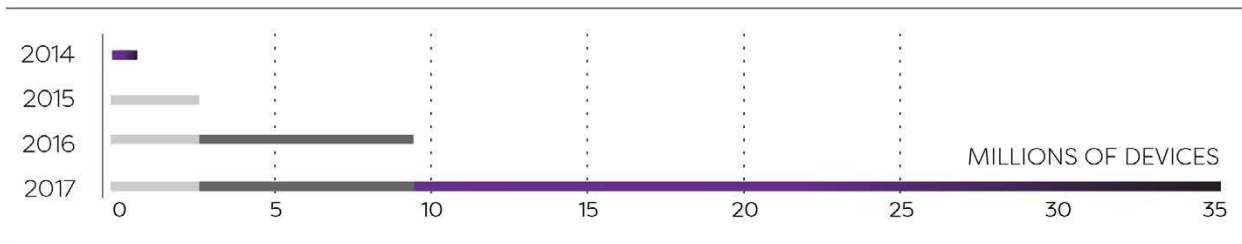

VoiceLabs Analysis combined with research from CIRP, KPCB and InfoScout

MARKET SHARE

According to data from eMarketer, in the first quarter of this year, Amazon Echo achieved a market share of 70.6%, and Google Home achieved a 23.8% share of the US voice-assistant market. Other vendors (including Apple, Lenovo, LG, Harmon Kardon, and Mattel) split the remaining market share of 5.6%. It's clear from this data that Amazon Echo is already the absolute leader in the virtual-voice market.

In the fourth quarter of 2016, Amazon revealed that Amazon Echo's sales during the holiday season rose sharply, with sales up over ninefold. Although Amazon did not disclose specific figures, CIRP, RBC Capital Markets, and Morgan Stanley estimate that since their launch in 2014, the Echo and the other two products have accumulated combined sales of circa 10–11 million units, worth somewhere between $800M and $1B. In March 2017, RBC Capital Markets forecasted that Amazon Echo sales would reach $10B by 2020.

US VOICE-ENABLED SPEAKER USER SHARE, BY PAYER, 2017

% of total

Google Home
23.8%

Amazon Echo
70.6%

Other 5.6%
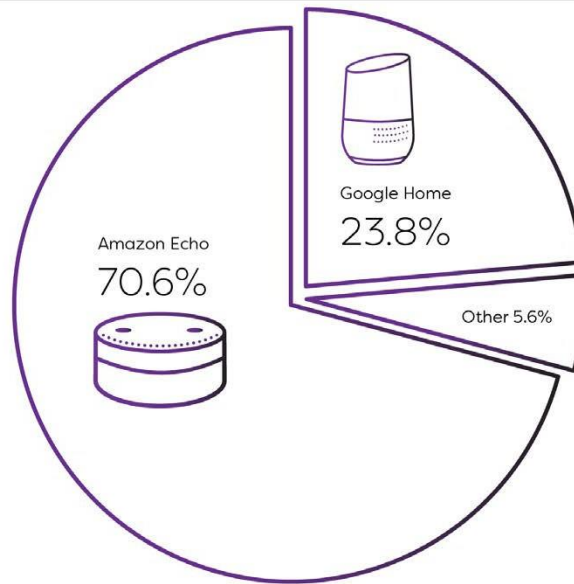
Note: individuals of any age, who use a voice-enabled speaker at least once a month.
Source: eMarketer, April 2017 | www.emarketer.com

This reflects 60 million units. There will be 128 million total devices in circulation.

IN CONCLUSION

THE VOICE INTERNET IS HERE.

Competition for smart-speaker products between the Internet giants is a clear indicator that the voice internet is here. With this internet vision, people can call any kind of chatbot through smart speakers and then chat with those chatbots to access various services. In the future, speakers will take smaller and smaller forms and won't be restricted just to the home. They will be everywhere and may ultimately replace phones.

8.2 INTERNET THINKING

Voice blockchain must employ internet thinking and enhance the user's experience.

8.3 ECOSYSTEM DEVELOPMENT STRATEGY

As the Voiceweb evolves, the Foundation will continue to work hard to promote the healthy and sustained growth of the entire ecosystem in order to benefit the vast majority of internet users. The Foundation's ecosystem strategy requires us to be open-minded and participate in cooperative efforts across a variety of projects. At the same time, the Foundation needs to work to establish the proper environment for Voicecoin products. Through cooperation with partners, enterprises, businesses, technologies, governments, and other resources, industry efforts will be integrated for maximum efficacy, efficiency, and social synergy. Investment-banking practices will be employed for industry analysis, screening, and selection of

appropriate business and promotional applications. The Foundation's aim is to include these businesses in Voiceweb's development and to promote the sustainable development of an open-source Voiceweb. The Foundation aims to encourage scholars and developers to join Voiceweb's technology research and platform development in order to do the following:

- Attract a large number of businesses and individuals to use the Voiceweb blockchain platform and develop decentralized websites

- Increase the stability of Voicecoin, prompting further Voicecoin transactions

8.4 THE DEVELOPER COMMUNITY

Voice blockchain takes a decentralized approach to management. The future of the Foundation, except for permanent structure and staff, will mainly depend on the power of the community to develop and build.

8.5 OPENNESS AND COLLABORATION

For the purpose of fostering a mentality of cooperation within the industry rather than competing with other companies, such as Ethereum, NEO, Amazon, and Google, the Foundation intends to aid in the establishment of industry standards and protocols. The V-DNS protocols established on the voice blockchain are smart contracts; however, the voice blockchain does not offer other blockchain smart-contract abilities aside from these. Voice blockchain will assist chatbot developers to link with other smart-contract providers. The user-developed chatbot exists in a decentralized cloud or perhaps somewhere in the traditional cloud. The voice blockchain will not develop any cloud services on the basis of IPFS. By adhering to this open-source ethos, the Foundation intends to facilitate an open-development community, which is the basis for the growth and strengthening of any blockchain platform.

8.6 ADOPTION

In order to promote the adoption of the product, access to a third-party cloud will initially be supported. In other words, in the early stages, you will be able to bind the traditional URL form of a domain name. In the future, it will be transformed into a decentralized IFPS cloud service. For domain names that do not provide the specified URL, a default chat robot fallback bot will be established. The DBot provides proxy services according to the web content, slot-filling Q&A, and a knowledge map. To improve the authentication efficiency of wallets and improve the user experience of wallets, the Foundation will also set up a mechanism for voice registration and authentication.

8.7 UNITING SMALL- AND MEDIUM-SIZE COMPANIES

Once the voice-internet gateway is monopolized by the giant companies, small- and medium-size companies will be able to provide services only on their platforms. This promotes a warped model of development across the entire internet. It undermines the user's best interests and suppresses the growth of small- and medium-size companies. For this reason, small- and medium-size companies have to work together so that they can enjoy access to voice-internet gateways.

8.8 ENSURING THE LEGITIMACY AND OPERATIONS OF THE FOUNDATION

The legitimacy of the Foundation must be clearly demonstrated and beyond reproach. To this end, the Foundation will organize a legal team and cooperate with independent and government agencies to ensure the continued legitimacy of its establishment and operation. Special attention is being paid to ensure the legitimacy of the Pre-Sale and the legitimate use of funds raised.

8.9 CONTINUOUSLY ESTABLISH THE PRODUCT'S COMPETITIVE ADVANTAGE AND DIFFERENTIATION

On the basis of our cognitive leadership, the Foundation intends to adopt different strategies, especially the strategy of pre-emptive attacks in the field of IoT, which will win better market results.

8.10 SHORT SPRINT, RAPID-ITERATION STRATEGY

Product development must be rapid, especially on the strategic side, to quickly make breakthroughs and occupy the leading position in the market as the standard ecosystem.

8.11 DIMENSIONAL THINKING, DIMENSIONAL REDUCTION STRATEGY

The Foundation will be selected and established in Singapore, similar to the Singapore presence of the Ethereum Foundation. The trademark form and product packaging will reflect some similarities and some differences compared to Bitcoin. In this way, consumers will be given the perception that the Foundation operates on genuine, world-class decentralized-web standards and that the Foundation is a global organization specializing in the creation of decentralized-web standards.

9. VOICEWEB FOUNDATION

The Voiceweb blockchain project will be managed by the Foundation, which was formally established in Singapore in December 2017 as a nonprofit entity. The Foundation is devoted to Voiceweb's open development and construction, and transparency of governance as well as the promotion of a safe and harmonious open-source ecosystem society. The Foundation will also work on the development of Voicecoin. The concept of the Voiceweb was first proposed by the Foundation, and the decentralized Voiceweb is a project of the Foundation that aims to advocate for a new form of decentralized web.

9.1 MOTIVATION

Since the emergence of web technology, and owing to the early World Wide Web protocol's imperfect nature, it has faced a huge developmental crisis. Blockchain technology, and especially the continuous development of related technologies, is constantly creating new technical conditions allowing people to construct better network and electronic trading platforms. In the battle among the internet giants, these centralized forces each establish their own proprietary systems, thereby exacerbating the ecosystem monopoly. This, in turn, results in an inability to guarantee consumer data safety and privacy, adds difficulties to developers, and adds inconvenience to the public use of the services. If this pattern continues, then visiting a website to access internet services will become history. The voice internet will be split up into separate, centralized kingdoms by these great internet powers. The Foundation intends to use blockchain technology to solve the voice-internet-era bot decentralization and connectivity issues. Voiceweb is devoted to connecting voice and blockchain. Language is the most important mode of communication between people and should also be the main way for people to communicate with other types of intelligence. The development trend of cloud integration is moving toward highly intelligent smart terminals that require a more powerful mode of human–computer interaction than the touch screen of a mobile phone. Toward this purpose, the Foundation envisions the decentralized voice domain-name system, and through this service could come about an industry-wide voice domain-name system linking decentralized artificial-intelligence services.

9.2 VISION

The Foundation intends to build a decentralized voice internet by establishing a V-DNS system to give rise to the voice age, stimulate the creativity of individuals and small- and medium-size enterprises, free the internet from the tyranny of centralized, monopolistic internet giants, and make it a more convenient place for more people.

10.3 MISSION

The mission of the Foundation is to create and maintain a blockchain-based voice domain-name system by establishing technical standards and protocols to connect chatbots with users around the world so that in the future, people can access chatbots from any smart-voice-enabled device and use the corresponding chatbot service. Through the community, third-party developers, and technological innovations, the Foundation will create an open-source, globally influential ecology that will integrate voice domain-name services with people and businesses throughout the internet in order to improve people's online experience. Through the integration of regulatory logic and through linking with third-party platforms, the Foundation will establish the voice internet.

9.4 VALUES

The Foundation's core values include nonprofit operations structure, open-source, collaboration, interconnection, decen-

tralization, transparency, respect for user privacy, enhancement of internet security, enhancement of the internet user's convenience and experience, and the protection of user privacy. The tenet of foundation management is that the Foundation's product designs and management policies must conform to these objectives, and they must also be included in the implementation phase. The Foundation's values are partly inherited from ICANN, the WWW organization, and the Bitcoin Foundation. Any decision that violates these core values must be immediately terminated and corrected. Full support and promotion of this value system is needed for sustainable development.

ICANN's goal: one world, one internet. On this basis, voice-blockchain analysis is aimed only at voice-domain-name services and strives to take the lead amid fierce market competition, gradually forming an industry standard that is accepted by the majority of intelligent-speaker-equipment manufacturers, thus benefitting more internet users. The ideologies inherited from the World Wide Web include open-source and interconnectivity. The Voiceweb blockchain project's founding tenet is to revitalize the web in the era of voice Internet access to avoid complete monopolization by the internet giants.

Through the Voiceweb blockchain, all chatbots have both a common name and an ID, and chatbots can also formally communicate with each other. Since the founding of Bitcoin, we have solved the issues of overpayment and double payment through decentralization. We have seen many iterations and elements of decentralization, transparency, respect for user privacy, and enhancement of internet security, which also make up the core values of the Voiceweb Foundation.

FREEDOM OF SPEECH	WORLD WIDE OPEN	NOURISH INNOVATION	PROTECT PRIVACY
NET NEUTRALITY	INTEROPERATED	SECURE	DECENTRALIZED
TRANSPARENCY	DIVERSITY	CONVERSATIONAL	SOCIAL

9.5 PRINCIPLES

The first tenet of project management is to adhere to the core values of the Foundation and uphold the Foundation's original purpose. Voiceweb is a subset of the conversational web, and therefore it is decentralized. Because Voiceweb is a web, its design must include the spirit of openness and interconnectivity of the web. Therefore, under this platform system, linking to third-party blockchain platforms will be available, and third-party cryptocurrencies will have the ability to be exchanged with Voiceweb's encrypted digital currency.

Voiceweb will support virtual contracts but not competing blockchains. The nature of the Voiceweb organization will be as a nonprofit entity. Voiceweb's decision-making mechanism is an autonomous form of decentralization. Technical innovation. Forging a secure and trustworthy platform that is secure and contractually compatible with other platforms. Sustain-

able development. In order to achieve sustainable development and to avoid fragmentation of the development structure from the ground up, a sound governance structure should be established to manage matters such as general affairs, code management, financial management, compensation management, the scope of privileged operations, etc. The administration framework must be constantly evolving as the Foundation and community evolve via such avenues as monitoring and oversight functions, rulemaking, and change-control management.

9.6 VOICEWEB FOUNDATION MANAGEMENT

To ensure transparency in the development, construction, and management of the blockchain and to promote the safe, harmonious, sustainable, persistent, and efficient development of the voice-driven ecosystem, the Voiceweb Foundation has established the Voiceweb blockchain organizational structure, which includes the policy committee and its executive director.

The executive director is elected by the decision-making committee and is responsible for the day-to-day management of the Foundation, coordinating the work of the subordinate committees, conducting decision-making meetings, and regularly reporting to the decision-making committee. The Technical-Development and Operation Committee is responsible for the development of the blockchain platform as well as the daily operations of and maintenance work on the blockchain platform. The Developer-Community Operations Committee is mainly responsible for organizing a system of blockchain-community developers, ongoing upgrades, and maintenance of the voice browser, and holding regular developer conferences. The Marketing and PR team's main responsibility is to promote the spirit of the Foundation, conduct in-depth cooperation with industry partners, promote market usage of the voice blockchain, shape and maintain a good brand image, and promote the popularization of the voice internet. The Finance Management Committee is responsible for the utilizing and auditing raised capital, reviewing daily operating expenses, providing transparent financial management, employing third-party agencies to provide relevant work audit reports, conducting compliance governance and supervision, and periodically disclosing the use of funds raised by the Foundation. The Personnel Management Committee is responsible for the recruitment of developers, payroll management, and performance appraisals, and for implementing the talent strategy of the Foundation.

9.7 RISK MANAGEMENT

The Voiceweb Foundation is a social organization that exists purely for the public good. With the backdrop of the transformative technological power of blockchain, the future development potential of Voiceweb is extremely profound, and the field of application is unprecedentedly large. Our vision is that blockchain technology, as the basis for a value internet, will revolutionize every aspect of the internet life of individuals, regardless of whether that happens through personal use or business applications, and will significantly transform people's form and mode of internet operation. We truly believe that AI technology will reform productivity while blockchain technology will reform the relation of production and business models. However, due to the ambiguous attitudes of some governments and other possible unforeseen elements, the Voiceweb Foundation may not always experience smooth sailing and will certainly encounter some obstacles, both seen and unseen.

The Voiceweb Foundation calls for an annual security assessment of Voiceweb sustainability to develop and refine a risk-management system. This system shall include project quality, project progress, project applications such as smart contracts and simple contract applications, threat-identification analysis, regulatory-measures assessment and analysis, risk definition and disposal, and other phases.

The Foundation will make decisions according to the priority level of an incident and on the basis of the characteristics of the incident, such as the extent of impact, the scope of influence, the number of tokens, and the probability of occurrence. For high-priority incidents, the Foundation will quickly organize relevant committees for decision-making. Types of incidents are mainly divided into management services and code services. For general management of the Foundation affairs, members of the Foundation hold meetings for discussion, and decisions are made jointly by the Finance Management Committee, the Personnel Management Committee and Foundation chairman.

For open-source-community code issues and issues regarding the use of capital, the decision-making will generally take the form of a member vote. Based on the amount of Voicecoin held and the voting weight of the currency, each member of the community will vote their shares through the voting system of the Foundation, and the results of the will guide the actions. Policy committees will decision-making power, but the community voting results will be used as a reference.

With regard to decisions about emergency issues (such as events that influence the entire community, software security, system upgrades, etc.), these policies are reviewed by the Code Review Board and submitted to the Policy Committee. The decision-making committee adopts a voting mechanism and implements this mechanism within the community. The Foundation will avoid disagreement through the voting mechanism. If disagreements should emerge, the members at the policymaking level will decide the issue through a vote on the basis of the amount of Voicecoin held and the voting weight of the currency.

POLICY RISKS

Among potential risks, the biggest one is always the policy risk. When faced with the risk of uncertain governmental policies, the Foundation must first improve its self-discipline, strictly ensure the legitimacy of the Foundation's organizational form, and ensure the legitimacy of the Foundation's management activities. No unauthorized appropriation of the assets of the Foundation shall take place, nor shall any person seek the personal interests of the Foundation or undermine the interests of the Foundation on its behalf. We must ensure that the Foundation's accounts are public and transparent and establish a strict financial-examination and financial-approval system to ensure the safe and legal use of Voiceweb funds.

With regard to Pre-Sale raised capital, these funds must be utilized in strict accordance with the white-paper instructions to launch certain projects. A return mechanism must be set up so that funds can be returned if policy requires their return. As mentioned in the white paper, we must clearly explain which items we cannot promise to complete. There must be no exaggerated blatant attempts to appeal to consumers. The policy of the establishment of user donations or purchase of virtual currency must come from specialized lawyers to ensure the validity and effectiveness of the terms.

TECHNOLOGY-DEVELOPMENT RISKS

There is a certain degree of technical difficulty involved in implementing the content mentioned in the white paper in the Foundation's operational development plan. On the one hand, there is the need to constantly show technical feasibility. And on the other hand, there is the need to constantly prove technical reliability, stability, security, etc. Note that there is a risk of uncertainty in the early days of any project. On account of the open-source nature of existing industry products and the progress we have made, we firmly believe that the technical platform we are developing is feasible under current economic conditions. The reliability, stability, security, and other issues of the technology platform depend on the project's resource conditions and the team's management capabilities and productivity. If the resource conditions are satisfied, we can establish standardized procedures to ensure that all operational safety and reliability goals are met. If insufficient capital is raised, the commitment should be scaled back, and priority should be given to ensuring operational stability.

MARKET-ACCEPTANCE RISK

In terms of market operational risk, there may be some uncertainty about the market reaction to Voicecoin once it is launched. First, Ethereum already exists, and there is uncertainty as to whether users will accept Voiceweb. Second, Voicecoin products will not be initially offered on the basis of the premise of supporting many different features; therefore, it is worth testing whether users will accept this. Third, it is important to ask, Will the Voicecoin products possess price stability? All these problems need to be examined and solved. We will analyze and compare in depth the features of Voicecoin and other products, precisely define the characteristics of Voicecoin products, and improve their match with market requirements, thereby reducing the risk associated with market operations. Regarding Voicecoin price stability, we must consult the Chicago school of economics, and a very scientific and comprehensive mechanism of evaluation needs to be established. This will require the participation of many industry experts and a very strong team to guarantee, and it must be given top priority.

MARKET-COMPETITION RISK

There will always be plagiarism from competitors for projects with better ideas and designs. In these circumstances, we may not necessarily protect certain rights through patent litigation, given that we are an open-source-community organization. But you can be sure that unique innovation and innovative technology will be employed in our specific implementation of strategy; however, the project is currently in its infancy, and this information is strictly confidential and not public information.

INVESTOR-MANAGEMENT RISK

Regarding investor risks, investors may possibly sue the project sponsors on the basis of the imperfections of the Foundation's charter, depending on the effectiveness of the project's execution. To this point, on the basis of the common agreement, efforts should be made to improve the effectiveness of project implementation and avoid such a situation, provided that subsequent projects raise awareness of any issues.

TEAM-MANAGEMENT RISK

We must establish a strict development-team-management system. We must have a plan to stop any possible contingency, and there must be penalties if issues occur. We firmly believe that in the future, "The road is winding, and the future is bright." Unwavering from our original intent, and with a firm belief in our blueprint for the future, we will not falter because of risks and uncertainties.

10. THE UTILITY TOKEN—VOICECOIN

10.1 ECONOMY

The native digital cryptographically secured token of Voiceweb (**Voicecoin**) is a major component of the ecosystem on Voiceweb and is designed to be used solely on the platform. Voicecoin is a nonrefundable functional utility token that will be used as the unit of exchange between participants on the Voiceweb. The goal of introducing Voicecoin is to provide a convenient and secure mode of payment and settlement between participants who interact within the ecosystem on Voiceweb. Voicecoin does not in any way represent any shareholding, participation, right, title, or interest in the Foundation, its affiliates, or any other company, enterprise, or undertaking, nor will Voicecoin entitle token holders to any promise

of fees, revenue, profits, or investment returns, and are not intended to constitute securities in Singapore or any relevant jurisdiction. Voicecoin may be utilized only on Voiceweb, and ownership of Voicecoin carries no rights, express or implied, other than the right to use Voicecoin as a means to enable usage of and interaction with Voiceweb.

Further, Voicecoin is required as virtual crypto "fuel" for using certain designed functions on Voiceweb, providing the economic incentives that will be consumed to encourage participants to contribute and maintain the ecosystem on Voiceweb. Computational resources are required for running various applications and executing transactions; thus providers of these services/resources (e.g., storage space, servers) would require payment for the consumption of these resources (i.e., "mining") to maintain network integrity. Voicecoin will be used as the unit of exchange to quantify and pay the costs of the consumed computational resources. Voicecoin is an integral and indispensable part of Voiceweb, because in the absence of Voicecoin, there would be no common unit of exchange to pay for these costs, thus rendering the ecosystem unsustainable.

Voicecoin will have a total circulation of approximately 21 Million. Of the Voicecoins, 20% will be used to repay investors and motivate the startup team, 40% will be used in the Pre-Sale, and 20% will be reserved by the Foundation with that entire amount eventually being given to the ecosystem, 20% will be mined. In keeping with the long-term interests of the original Voiceweb team and the Foundation, these Voicecoins will be made transferrable only over a period of four years. Founding team, private equity investors and development team gave their manpower, resources, and material and technology contributions to aid in the development Voiceweb, and they will be repaid in Voicecoin.

For registered domain name users, the system cost and cost of registering one domain name is one Voicecoin. Any person or organization can create a domain name transfer contract. The domain name transfer contracts will create a smooth mechanism for transfer of domain names.

For domain names not used during the second half of the registration year, the system will charge a fixed fee of the purchase / transfer price of domain name per year. If the account balance is not enough to cover the tax, after 3 months' time the domain name is automatically released. Domain name use tax, as well as the transfer of domain name taxes and levies, will be processed by the miners when the contract is executed.

10.2 PRE-SALE PLAN

The project is raising capital through the Pre-Sale in order promote the Voiceweb Protocol and promote this decentralized Voiceweb ecosystem. The implementation of this Pre-Sale will be announced in May 2018 and be held for two months. The Pre-Sale will offer a total of 8.4 Million Voicecoins during the period. Participating currency platforms include Bitcoin and Ether. We plan to raise $1M-2M. Hard Cap is $5M.

The first five weeks of the Pre-Sale will offer bonuses for early birds, and there will be a specific discount rate (that will be reduced weekly):

There are risks involved in the Pre-Sale. Please refer to the risk warning. You understand and accept that Voicecoin:

1. is nonrefundable and cannot be exchanged for cash (or its equivalent value in any other virtual currency) or any payment obligation by the Foundation or any affiliate;

2. does not represent or confer on the token holder any right of any form with respect to the Foundation (or any of its affiliates) or its revenues or assets, including without limitation any right to receive future revenue, shares, ownership

right or stake, share or security, any voting, distribution, redemption, liquidation, proprietary (including all forms of intellectual property), or other financial or legal rights or equivalent rights, or intellectual-property rights or any other form of participation in or relating to Voiceweb, the Foundation, the Distributor, and/or their service providers;

3.   is not intended to be a representation of money (including electronic money), security, commodity, bond, debt instrument, or any other kind of financial instrument or investment;

4.   is not a loan to the Foundation or any of its affiliates and is not intended to represent a debt owed by the Foundation or any of its affiliates, and there is no expectation of profit; and

5.   does not provide the token holder with any ownership or other interest in the Foundation or any of its affiliates.

The contributions in the token sale will be held by the Distributor (or its affiliate) after the token sale, and contributors will have no economic or legal right over or beneficial interest in these contributions or the assets of that entity after the token sale. To the extent that a secondary market or exchange for trading Voicecoin does develop, it would be run and operated wholly independently of the Foundation, the Distributor, the sale of Voicecoin and Voiceweb. Neither the Foundation nor the Distributor will create such secondary markets, nor will either entity act as an exchange for Voicecoin.

10.3 TOKEN ALLOCATION
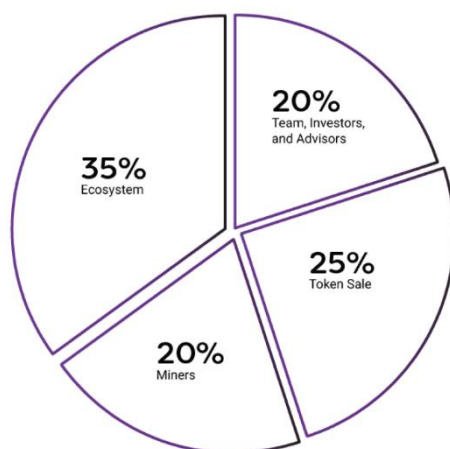
10.4 USE OF FUNDS

Twenty percent will be used for screening for industry suitability, strategic industry deployment, project support and coin replacement, industry adoption of Voiceweb technology, and the realization of a business market for the product. And in addition, to support Voiceweb-related academic research, developer educational materials, promotion of awareness of Voiceweb technologies, and contributions to other open-source communities.

Of the Foundation Proceed Allocation, the Voicecoin Pre-Sale raised capital will be used for Voiceweb Foundation operations including development, marketing, finance and legal consulting, 10% for academic research, 30% for voice browser development, 30% for Voicechain development, 10% for the daily operations of the Foundation, 20% for marketing of the commercial platform. A high proportion of academic research will help to ensure the reliability of the project's long-term development. all of these funds will ultimately be distributed to the community.
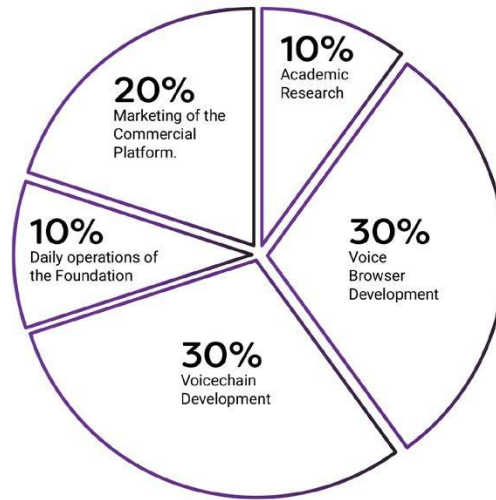
11. ROAD MAP
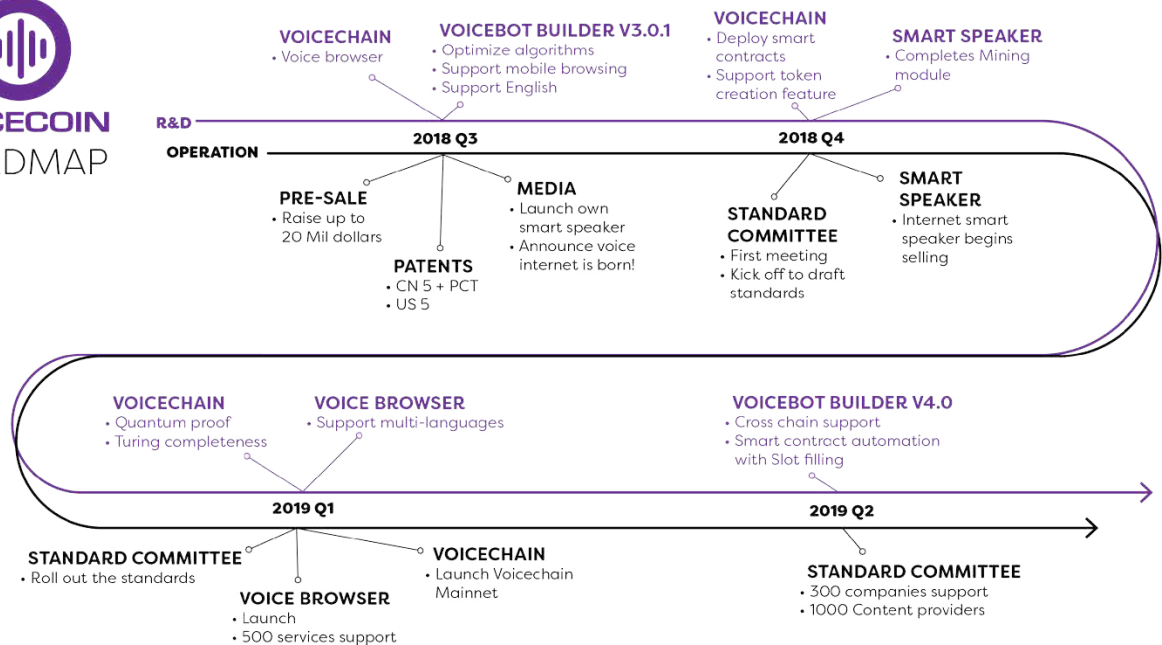
12. THE FUTURE OF VOICEWEB

By 2020, the world will have 20 billion networked devices. Ten percent of the world's GDP will run on the blockchain. As artificial intelligence continues to deepen its development, human–computer interactions will become more conversational, and GUI will no longer be the preferred method. Public use of the internet is becoming more intimate and seamless, with a variety of new AR/VR technology that immerses people in a more natural way in the Internet of Things (IoT)—the world of intelligent internet. In this world, people can use various services worldwide without relying on trust, and the mode of payment for these services would be encrypted virtual currency. In a decentralized internet society, **users' privacy and security are fully protected**, and everyone's dignity is maintained and is no longer arbitrarily dictated by various centralized applications.

In such a life, people connect with all things not just through the internet but also through their voices. Before idea-driven technology matures, mankind will start from the heart and use voice as the core of human-computer interactions in this next evolution of the internet. Using voice to name everything, summon everything, communicate with everything, and pay for everything is the epitome of the better world of the future. The internet has experienced three stages of device connection: the PC internet, the mobile internet, and now the IoT. In the era of the PC internet, people accessed the internet by entering a domain name to obtain services, and the humans and computers interacted via mouse and keyboard. In the mobile-internet era, people accessed internet services through apps, and humans and computers interacted via touch screens. In the era of the IoT, not all devices will have a screen or even a keyboard; voice will be the way people access internet services. Voice will not only be a means for calling up the services but also a means for using those services.

THE EVOLUTION OF THE INTERNET
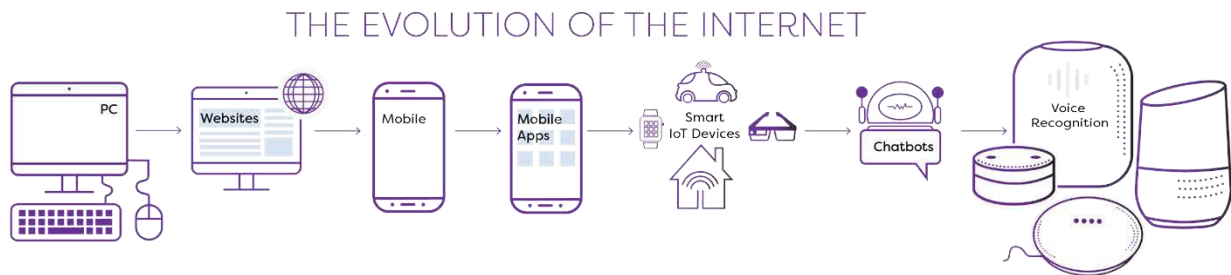
In the era of voice internet, there must be a dialogue function included in whatever form the calling up of services by people takes. This dialogue service is no longer a website or a mobile app, but a chat service, which can be identified as a chatbot. These types of chatbots not only exist within social media but also in a variety of intelligent devices, and are also widely deployed in various traditional and decentralized clouds. These widely deployed chatbot services do not exist in isolation but are gradually converging and connecting to each other. If these chatbot services can be hyperlinked via voice, one can call this web the chatbot web. The Foundation has dubbed this web the Voiceweb. Employing the Voiceweb methodology, one does not seek to find the URL nor to find the name of an app to download it—one just needs to know the name of the chatbot.

In this decentralized Voiceweb, each bot will be given a globally unique name and ID, which will exist on a decentralized blockchain. Anyone can access these bots without having a social media account. These bots registered on the decentralized blockchain can be identified as DBots. DBots are not the same as traditional chatbots, as DBots will exist independently of the social media platform. Like a website, the DBot has a globally unique name and address that can be accessed directly from anywhere in the world. But unlike traditional websites, blockchain technology eliminates the need

for authentication before using every DBot. These bots will all adopt a form of encrypted digital currency as the means of payment. Unlike on the traditional web, each user can choose whether to be anonymous when using the Voiceweb, and the user's identity can be verified without having to register and log in repeatedly.

With the blockchain cloud platform built by Voiceweb, people can share unused storage and operating resources, including smart-home devices, providing an exemplary industry example. In this way, the chatbots that people call via voice can be stored in any shared device, reducing the cost of data storage and computing for the chatbot service, and increasing the utilization of idle IoT devices' resources. Voice domain is the simplest smart contract that exists on the Voiceweb block-chain, and in the future, interface acknowledgment and Oracle will be supported. The bot service we use will no longer be stored in a centralized cloud, but rather within the resources of any shared device, or the amount of free storage space and power of various smart-home devices. Anyone can offer cloud services, allowing chatbots to be located on a decentralized cloud. The consensus mechanism is "proof of time and space."

Providers of chatbots' storage space and servers will receive Voicecoin incentives if they are proven to be effectively available by the miners. These shared devices, not just computers and mobile phones, will support smart-home devices' unused resources in the future, including smart speakers and other IoT devices, and some devices that communicate via MQTT protocols. In the future, there will be a large quantity of smart devices, and the idle resources of these devices will be fully utilized to support other chatbots' data storage and logic operations.

13. FREQUENTLY ASKED QUESTIONS

Q. WHY NOT SOLVE THESE ISSUES USING TRADITIONAL DOMAIN NAMES?

The main issue is that the traditional domain-name design is not suited to the characteristics of voice, but really suitable only for keyboard input. People have witnessed the inconvenience of entering these domains when surfing the internet, and they are extremely inconvenient when using a speaker interface. Many domain names do not pass the radio test. Voice blockchain aims to establish standards so that registered domain names take a natural-language form, without special symbols, that can be easily read and that are identifiable by voice. The Namecoin platform utilizes this scheme of establishing a domain name through the blockchain, but the Namecoin platform has no voice domain-name system.

Q. WHY NOT USE THE ETHEREUM OR NEO BLOCKCHAIN PLATFORM TO ADDRESS THESE ISSUES?

Any developer can create a domain-name smart contract on the Ethereum blockchain platform, but the problem is that voice domain names are industry specific. Chatbot developers uniformly follow this standard and then push their products to the specialized organizations, with nothing more than a hope that they'll become a public industry resource. Owing to the special nature of chatbots, including the communication protocol, security certification, user privacy, and other issues, there are many special requirements associated with the provision of a voice-domain-name blockchain that can be solved only through a proprietary platform.

Q. WHAT IS VOICEWEB?

Chatbots are registered on the Voice blockchain. People then use the voice name to access a chatbot by voice and use the various services provided by the chatbot. Because each chatbot has an exclusive and unique ID, they can also reference and connect with each other, and in this way an interconnected chatbot network is formed. From the perspective of voice, this web is named the Voiceweb.

Q. WHY CREATE THIS PROJECT?

The earliest motivation for the Voiceweb project was to find a method of revitalizing the Web in the IoT era by using blockchain technology. In the mobile era, people are using social platforms more and utilizing the web less. But these social platforms are centralized and not globally open or interconnected. In the IoT era, the founders believe that people are more likely to access the internet via voice. But if a new open standard is not developed, this new internet access point will be controlled solely by the internet giants, which would result in all online services needing to be distributed through a centralized voice platform. The founders are dissatisfied with the bleak outlook of a centralized future and instead adopt a decentralized view aimed at smashing the monopolies these large companies are establishing, and bringing about the birth of a new open voice internet.

Q. WHY NOT USE AN APPLICATION MODEL FOR CHATBOTS?

Due to lagging HTML development, lagging browser development, and the inconvenience of domain-name input, people choose to download. But in the voice internet, people won't need to download apps, because the content of the application itself is in the form of voice and thus can be transmitted as text. After the arrival of 5G, network-transmission conditions will be much improved, and at that time many voice applications will stream audio and video from the cloud to the user. And it's more convenient. People can use it simply by speaking. If the traditional App Store model is adopted, users will need a separately configured interface, which is inconvenient and impractical.

Q. HOW DO YOU ESTABLISH AN INDIVIDUAL VOICEWEB ECOSYSTEM?

In the initial Voiceweb ecosystem, the Foundation will develop voice-application plug-ins on Alexa or Google Home, and these voice plug-ins will resolve various chatbot-service brands. As the marketplace continues to validate this model, a voice-based chatbot browser will eventually be introduced. This browser will be the essential software for voice speakers. The browser access agreement will be open so that more people will develop this kind of browser.

Q. WHAT IS THE TEXT DESCRIPTOR LANGUAGE OF THE SPEECH BROWSER?

AIML protocol and VoiceXML protocol

Q. WHAT WILL THE COMMUNICATION PROTOCOL OF THE VOICE BROWSER BE?

For better network conditions, HTTP/HTTPS is recommended. For poor network conditions, the MQTT protocol can be used, and Headload can be used for smaller protocols. At present, the CoAP protocol is also the more commonly used protocol in IoT. For small devices, implementing the TCP and HTTP protocols is clearly excessive. The CoAP protocol was designed to allow small devices to connect to the internet. CoAP is an application-layer protocol that runs on the UDP protocol rather than TCP over HTTP. The CoAP protocol is very small—the smallest data packet is only four bytes.

Q. WHAT IS DIFFERENT FROM NAMECOIN'S DOMAIN NAMES?

Voiceweb's domain-name format resolution is based on the characteristics of speech rather than geographic region. Users can register domain names using a variety of languages, and these are the domain names that will actually be used. Domain-name resolution occurs on the basis of the language the user speaks. Namecoin also does not support text records, and there are still many issues with the platform. Voiceweb will inherit the advantages of traditional DNS in natural-language support, which are not available at Namecoin.

Q. WHY DOESN'T TRADITIONAL ETHEREUM SOLVE THESE ISSUES?

Although the traditional Ethereum platform provides smart-contract technology, it lacks the special considerations for the development of chatbot smart contracts, so they are not completely supported. Voiceweb creates the chatbot's proprietary blockchain platform, which will address these issues.

Q. WHAT VALUE IS PROVIDED BY THIS SYSTEM?

A universal platform enabling the growth of the Voiceweb

Q. WHAT IF ETHEREUM OFFERS SIMILAR SERVICES?

Any other development networks may at some point assemble. Our mission is to grow collectively.

Q. PEOPLE ALREADY USE BAIDU AND GOOGLE-INTEGRATED CHATBOTS, SO WHY WOULD THEY USE YOUR SERVICE?

Developers develop for many different applications. An open-source universal system is needed.

Q. WON'T PEOPLE PREFER TO INSTALL SUCH A CAPABILITY THEMSELVES AND THEN USE IT?

The trouble with this approach is that getting to the use phase can be troublesome because you first must install and set up the capability. Imagine you are traveling while wearing such a device; your setup will be very troublesome. We will also provide a favorites function for ease of use.

Q. WHAT IS VOICECOIN?

Voicecoin is the virtual currency used on the Bottom platform and is also the first phase of the Voiceweb project.

Q. WHAT IS THE VOICEWEB FOUNDATION?

Established by the founders of this project, the Voiceweb Foundation aims to restructure the web stack using blockchain technology. As a decentralized nonprofit organization, the Voiceweb Foundation's goal is to promote a decentralized web, revitalize the web, and launch decentralized agreements for use by the internet industry through academic cooperation and continuous research.

Q. HOW MANY COINS WILL BE GENERATED IN TOTAL?

21 Million.

Q. HOW WILL VOICECOINS BE RECEIVED?

When disbursement occurs, it will happen from our ERC20 contract. We will send a follow-up email just in case you want us to send to another wallet address.

ERC20 Contract Address: 0x99637cBdef67d8Ac94af0D5f321Ea37414A3b7B0

Token symbol: **VC**

Decimals: **18**

Q. HOW WILL VOICECOINS BE PURCHASED?

Using ETH and Bitcoin.

Q. HOW DO WE CONTACT THE VOICEWEB TEAM WITH QUESTIONS?

Send an email to support@voicecoin.com.

Q. WHAT IS DBOT?

Voiceweb is one of our means of achieving this new form of internet, which will be built using blockchain technology. In Voiceweb, the sites will no longer take the form of the traditional web but will be delivered in the form of voice conversations, known as DBots.

Q. WHAT IS THE VOICE DOMAIN?

Instead of using the keyboard to enter a traditional domain name, our voice-internet browser, the Voiceweb, can be accessed by voice. These domain names, unlike traditional domain names, are in the form of natural language. When people use a voice-internet device, they access the desired services by calling up the appropriate voice domain.

LEGAL DISCLAIMER

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