reindeer project

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Written by: Shintaro Hara, Yuki Ikeda, Toshihisa Nakamizu March, 2018

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01 What is reindeer? Five points

1-1 From Japan, the world's first cloud design database

Reindeer wants to become the GitHub of cloud design. That great tool has improved the software product development work of 27 million engineers around the world by giving them an information repository and a way to collaborate. Reindeer wants to offer those same things to cloud design creators to dramatically improve cloud computing provision around the world.

Our main motivation for offering reindeer is that we want to ease the sense of crisis that has followed a string of numerous cloud computing provision mistakes that have occurred around the world, from annoying system downtimes to serious information leaks. We all remember the recent leaking of information about over 100 million American households [1] and leaks of government information [2]. Reindeer consigns such incidents to the past by ensuring that anyone can find the cloud computing combination that is right for them and the cloud design that meets their provision conditions, completely free of charge. Providing an information repository is one step toward that goal, and this is a feature that reindeer shares with GitHub. However, reindeer is also a world first: a system that is optimized for secure storage and sharing of cloud design-related open data.

We need to keep in mind that cloud design is no longer of interest only to a limited subset of IT infrastructure specialists such as systems engineers. Entrepreneurs and industry creators talk incessantly about things like the cloud or AWS (Amazon's cloud computing service). Amazon actually gets more of its operating profit out of AWS than out of its mail-order business. Clearly, the cloud computing aspect of service building is becoming increasingly necessary and essential. For us, this change epitomizes a hugely significant evolution in the creative activities that humanity engages in. Following the dramatic democratization of software development in the 1990s, cloud computing is steadily shifting control over the IT infrastructure provision process—the backbones of service building—away from a handful of capitalists and toward everyone else. That means that the creation of online services that simplify and enrich people's lives will become a creative activity that is accessible to more people than ever.

To support this development, reindeer will include not only a GitHub-like repository of information but also a rewards system to promote the creation and sharing of high-quality cloud designs. In this way, reindeer will support those who contribute to the development of cloud computing and help accelerate this evolution of creative activities. Reindeer will amass high-quality cloud designs from all over the world and provide recipes that will allow anyone to become a creator and build high-value online services.

1-2 A world in which all people are creators and the zero marginal cost society

"When I was a kid, it felt like they made something new every day. Some gadget or idea. Like every day was Christmas."

Jonathan Nolan, Christopher Nolan 'Interstellar' (2014)

Our ultimate goal, after we eradicate mistakes in cloud computing provision, is to help human creative activity evolve. Simple Internet "surfers" evolved into bloggers and YouTubers who proceeded to make the world a great deal more interesting. Surely the world will become an even more prosperous and more exciting place if something similar can happen again—if more people with wonderful ideas can evolve into service creators and start producing value. Every day would be like Christmas.

More importantly, if everyone has access to these means of producing value, we may be able to stop the waste of environmental resources that has been the price of wealth creation so far. Why? Because producers would no longer have to scale up in a world of scarce means of production and be forced to compete excessively in a struggle for resources. What we want is to contribute even a little to creating a sustainable and prosperous world that we can leave to the next generation.

Also, once that enormous production capacity of people around the world is unleashed to make extreme productivity a reality, the cost to produce a single unit of anything will drop until it comes as close to zero as it can get. We will reach the "zero marginal cost society" that Jeremy Rifkin predicted. A world where the concentration of wealth no longer has much meaning—a world where people everywhere can enjoy the same rich and happy lives in a sustainable way—may finally be on the horizon.

1-3 Maximizing the power of cloud computing

We first realized the overwhelming power of cloud computing in 2012. We were tasked with handling streaming content from a large event that involved a timeline of the event being linked to social media postings. After the idea was pitched to us, we had only a month until the big day. We used PaaS and IaaS to build a system that could handle enormous traffic volumes of over 5,500 qps just for dynamic

One of Japan's most famous event venues, set in a sea of beautiful cherry blossoms

contents and was optimized for enormous amounts of big data. We had to deal with changes and problems right until the end. By the time we had configured systems like a task queue and KVS, the event was less than a week away.

 If we had needed many people for server provision, as would have been the case with a solution that did not involve cloud computing, we certainly would have run out of time and got into serious trouble. We still shudder to even think back on that project. Six years on, the possibilities of cloud computing continue to expand year by year at an amazing rate. At the same time, however, cloud computing has become ever more difficult to use. We feel this difficulty is making it ever more likely that others will find themselves in the kind of serious trouble we barely escaped. Take AWS, a very popular system. To use AWS today, you have to choose what you need from almost a hundred functions and combine them in just the right way.

However, this complexity should not be seen as a downside of cloud computing. Everyone desires and imagines different and endlessly varied things. Unless that changes, a monolithic service that can make everything happen with one easy press of a button will never gain traction. That means cloud computing functionality necessarily has to be offered in the form of small and easy-to-combine modules, much like microservices. Combining those modules to create new value is the only way in which free human creativity and diversity can truly manifest.

That is why we need something like reindeer—a system that can help users themselves become producers. We need reindeer not only to keep usage errors and accidents at bay but also to protect humanity's freedom to create.

1-4 Open data-native

Reindeer handles information in the form of open data. Anyone can freely use the data stored and shared via reindeer, without having to take any special interests into account. The creative activities of humanity have little room to evolve when people constantly have to wrap their heads around all kinds of royalties or struggle to figure out if the building blocks they are accessing are actually marketing materials.

The enormous software information repository that GitHub has made can host data about any part of the service-building process, including information related to IT infrastructure. At the same time, GitHub cannot do more than serve as a productivity improvement tool. GitHub deals in software, a medium that is inextricably linked to intellectual property in the form of content and business requirements. That means any information published on GitHub may come with implicit licenses. The system is not designed to encourage the search and reuse of the content it hosts.

That is one reason why reindeer is so focused on information related to the IT infrastructure called "cloud computing." Configuration information for IT infrastructure is not like that for software. It has developed in the form of general-purpose knowledge that can be put to various other uses. This knowledge can easily be separated from anything that could be designated as "intellectual property," for example descriptions of the relationships between specific requirements and realization methods. That means that at this point, the configuration information of IT infrastructure is easier to describe as open data than software. As the boundaries between software and IT infrastructure continue to blur while virtualization technology evolves, the types of information we have to deal with are set to expand. But all information on reindeer must be open data if we are to preserve our key values of maintaining searchability and reusability of all information.

1-5 Blockchain-native

We could never build reindeer without a blockchain. Transparent information management and the flow of funds are extremely important for cloud designs that are published as open data. However, a centralized database made with existing technology would inevitably suffer from a host of problems.

Firstly, such a database would not be able to certify that all the cloud designs provided are being

published without any alterations—in other words, that the intentions of cloud design providers who are trying to contribute to human progress are being respected. There would be a glaring need for third-party audits, and maybe even for new legal frameworks to verify the neutrality of those audits.

Secondly, how could we secure funds to reward those who provide all these cloud designs? The value of reindeer will be proportionate to the number of high-quality cloud designs that accumulate on it. Securing stable financial resources is a sine qua non to achieve that growth. However, charging users for their use of the database would mean that the cloud designs on it are no longer open data. Chasing income from advertising would mean injecting distorted information and noise into the database to benefit a third party. This could unduly influence the creative activities of reindeer users.

Only a blockchain provides an answer to these problems. Because a blockchain functions as a ledger system that cannot be falsified, anyone can verify the correctness of the information registered in it. Also, because system processing happens in a decentralized environment via public smart contracts, no one can interfere, intentionally or unintentionally. This guarantees transparent management of information. We will discuss the details later. For now, we can say that funding for rewards can be generated stably through inflation of tokens on a blockchain. That is why we plan to build reindeer on Ethereum, the world's largest blockchain that can execute smart contracts and is Turing-complete.

02 Three kinds of value that reindeer provides

2-1 Searching and reusing high-quality cloud designs as recipes for service building

Perhaps you want to get started with AI-powered online customer support. Or perhaps you want to create an information website that 30% of all leisure visitors will use. In either case, reindeer will provide you with the cloud computing combinations and configuration examples that you need. Cloud automation data for CloudFormation and the like is included in designs, so you can just send everything to a cloud vendor and set up that exact system configuration immediately. You can also adapt a design to create your own original configuration. At the same time, reindeer will be more than a glorified marketing catalog of cloud designs, a collection of abstract design patterns with much information omitted, or a library of best practice guides. We will carefully evaluate the cloud designs on reindeer and make the results of those evaluations available to users. We discuss our methods in more detail in the next section.

2-2 Supporting service creators with tools to register high-quality cloud designs and get rewards

If you are thinking of using cloud computing, reindeer will offer you a platform to interact with other participants and seamlessly create, store, and share cloud designs. Collecting cloud designs is what we focus on, so the functions of reindeer will be carefully optimized to handle cloud designs. Moreover, all data that reindeer receives will be released as open data. We plan to use Creative Commons licenses. But that is not all: we will provide users with compensation to reward them for their efforts. The amount of compensation users receive will be determined by a unique evaluation process designed to identify high-quality designs. All that content will be published and executed via smart contracts on a blockchain, meaning that users will not have to worry about infringing anyone's interests. We give more details about how we will implement all of this in the next section.

2-3 A workflow system to support IT governance in organizations

We have seen with our own eyes how many organizations that provide cloud computing are

bogged down by complicated exchanges of documents and approval flows. Organizations that prioritize IT governance establish fixed workflows, but in reality, the formats that participants exchange information in and their means of communication are often heterogeneous and inefficient. As we pointed out in our introduction, mistakes in cloud computing provision can lead to dangerous information leaks. And for corporations, even a brief bout of system downtime can result in significant loss of opportunity. Reindeer wants to change that state of affairs by offering a workflow system that facilitates every step of the cloud design creation process, from coordination among participants to auditing and ordering.

We believe that working together on the issues that plague corporations that handle many cloud designs of high quality will end up benefiting all users of cloud design, including individuals.

03 Four realizations of reindeer

3-1 CDS (Cloud Design Specification)

CDS is the first language in the world that defines cloud designs using user-centric notation. It is a kind of HTML for cloud design. As mentioned earlier, reindeer will grow based on the key values of searching and reusing open data. That means we need a standardized way to express all that information. Just like HTML enabled people to create web pages and seamlessly transfer information across the world, CDS gives people a standardized tool to exchange cloud designs. CDS was also built to refer to and expand upon existing infrastructure automation tool languages such as AWS Cloud Formation. These languages are already used around the world and exist in powerful ecosystems in which provision conditions can be used for ordering in the way they are written. CDS inherits the characteristics of these languages.

CDS can also handle qualitative natural language information, for example, characteristics of the services that are being realized with cloud computing and target user information. We believe we can use our knowledge as speakers of Japanese, a relatively minor language, to improve the searchability of multilingual information, for example how morphemes are handled. We expect

to make appropriate adjustments to our search algorithm after receiving user feedback, but the following combination seems like a likely outcome.

- Extraction of suitable designs through full-text multilingual search
- Extraction of similar designs through vector values (1)
- Extractions of designs that can be useful as references through betweenness centrality (2)

$$(1) \quad cos\left(\vec{q}, \vec{d}\right) = \frac{\sum_{i=1}^{|V|} q_i d_i}{\sqrt{\sum_{i=1}^{|V|} q_i^2} \sqrt{\sum_{i=1}^{|V|} d_i^2}}$$

$$(2) \quad C_b(n_i) = \frac{\sum_{j \neq k} \sum_{i \neq j, k} \frac{g_{jk}(n_i)}{g_{jk}}}{(g-1)(g-2)}$$

3-2 A system to evaluate the quality of cloud designs

For us, a cloud design is of higher quality if it contains more easy-to-use information for people trying to build online services. Building on that definition, we use several criteria to evaluate each design's ease of use and present the final score to users in the form of design indicators. These criteria should be adjusted as necessary once people are making actual use of the database. For now, we are envisioning the following criteria.

Evaluation criterion 1: Raw design indicators

This criterion aims to reduce the likelihood that users will choose a design that is not actually usable. If a design is "raw," meaning it has actually been used by someone to build an online service, we believe this shows that the design is suitable for use for, and fulfills the provision conditions for, cloud computing. If information has been edited, such as in best practice guides, valuable information may have been summarized. Information may also have been altered for advertising purposes.

1-1: Existence

Considers whether a real system with a proven track record of operation has been built based on the design in question. A design gets a higher score when the existence of a real system is proven through DNS authentication or connections with a third-party API.

1-2: Accuracy

Considers whether the design fits cloud computing provision criteria that are up to the standards of real-world orders.

A design gets a higher score when it includes code to make it compatible with orders for infrastructure automation tools such as AWS Cloud Formation and Azure ARM Template.

Evaluation criterion 2: Searchability indicators

A design that contains correct information is still useless if it does not meet the needs of whoever tries to use it. For that reason, reindeer will give higher scores to designs that contain more information to help a user determine whether the design is right for them.

2-1: Completeness

This indicator considers the scope of the information included in the design. A design gets a higher score if it contains more CDS-definable elements, for example, information about users providing online services.

2-2: Valuation

Considers how much information is provided about related designs. As shown below, a design gets a higher score the more it refers to other designs that were referenced during its creation.

$$C_{i4} = \begin{cases} \log_{10}(x+1) & (1 \leq x \leq 9) \\ 1 & (9 < x) \end{cases} \qquad (C_{i4} = 0.01 \; if \; C_{i5} \leqq 0.01)$$

2-3: Participants

Considers how much information is provided about the designers involved. As shown below, a design gets a high score the more information it provides about participants involved in the creation of the design, such as planners and engineers.

$$C_{i5} = \begin{cases} \log_{10}(x+1) & (1 \leq x \leq 9) \\ 1 & (9 < x) \end{cases} \qquad (C_{i5} = 0.01 \; if \; C_{i5} \leqq 0.01)$$

3-3 Reindeer tokens on a blockchain

To support the circulation of high-quality cloud designs, we issue and use reindeer tokens on a blockchain. We describe the details below.

A)   Token generation

The value of reindeer will be proportionate to the number of high-quality cloud designs that accumulate in the database. A key way to encourage database growth will be to provide a stable stream of tokens that give people an incentive to register their cloud designs. For that reason, we will implement ongoing token generation through inflation. While we believe that the rate of inflation should be adjusted according to the operational situation of the database, we estimate a yearly inflation rate of 10% of all tokens issued.

B)   Users must have a certain number of tokens before they can register a cloud design

We must protect the value of the database by keeping out malicious data and phony data entered purely to get rewards. That is why we will only provide rewards when we can confirm that, in between registering a cloud design and receiving rewards, a reindeer user holds a number of tokens equivalent to the scheduled rewards. If a user does not meet this condition, rewards will be reduced or lowered. Since the user does not make any payment or deposit to reindeer, however, the user's asset balance is not affected. Users have to comply with this condition for every separate design that is eligible for rewards. That means users who want to earn large rewards by registering successive cloud designs must hold a correspondingly large number of tokens. Since there will be some time between registering a design and receiving rewards for it, we believe that our system will be enough to discourage behavior that could make the database less valuable.

C)   Distribution of tokens as rewards

We will distribute tokens as rewards to users who register cloud designs. Tokens will be distributed once per month. We plan to calculate the number of tokens distributed as follows. First, we will quantify the quality of a registered cloud design based on the evaluation criteria we described earlier. The result will be an evaluation point (E). If a design is updated, that point (E) will be calculated only for whatever part is higher than the highest past rating.

$$E_{ie} = max(E_i) - \sum_{j=1}^{n} C_{ij} R_j \qquad (E_{ie} \geq 0.01)$$

C: Points according to evaluation criteria
R: Weighting of evaluation criteria

Next, we will add the number of tokens held by the people involved in the creation of the registered cloud design (as described in the design). Then, we calculate the proportion (O) of the total amount of tokens issued that is taken up by the number of tokens held by the creators. We do this because we believe that the more tokens a user holds, the more likely they are to contribute to the database.

$$O_i = \frac{\sum_{k=1}^{Paticipants} H'_k}{\sum_{j=1}^{TokenHolders} H_j} \qquad (H' \subseteq H)$$

H: Number of tokens held by all token holders
H': Number of tokens held by creators

The point (P) is calculated based on the evaluation point (E) and the proportion of tokens held by the creators (O). The tokens (r) generated by inflation are distributed in accordance with point (P). Even if there are too few registered designs that qualify for tokens at that time, no one can earn rewards that are higher than that point multiplied by the standard exchange rate (currently expected to be 0,003% of the total number of tokens issued). If the total amount of rewards to be distributed is less than the additional rewards generated by inflation (corresponding to the monthly share of the 333 highest-rated designs), the remaining tokens will be moved to a dedicated fund. A situation like that would indicate that reindeer needs to strengthen its ability to amass more cloud designs. For that reason, we would use 50% to cover additional marketing and service development costs, and "burn" the other 50% to preserve the value of tokens.

$$R_i = r \frac{P_i}{\sum_{j=1}^{NewlyRegisterdDesigns} P_j} \qquad (R_i = P_i \; BaseRatio \;\; if \;\; R_i \geq P_i \; BaseRatio)$$

Note that rewards will be distributed among all participants who are listed in the registered cloud designs. We expect that these listings will be accurate, as rewards will be higher if the number of "participants" listed in the design assertions is higher.

Also, we want to keep volatility from being affected by the additional tokens that enter the market every month on the fixed rewards distribution day, at the rate of 1/12th of 10% of the total number of tokens issued. For that reason, we will use a system in which efficacy of tokens is 1% on the day rewards are distributed (first exchangeable ratio), 60% 50 days later, 99% 95 days later, and 100% after about 145 days (max exchangeable ratio).

$$\alpha = \frac{MaxExchangeableRatio - FirstExchangeableRatio}{FirstExchangeableRatio}$$
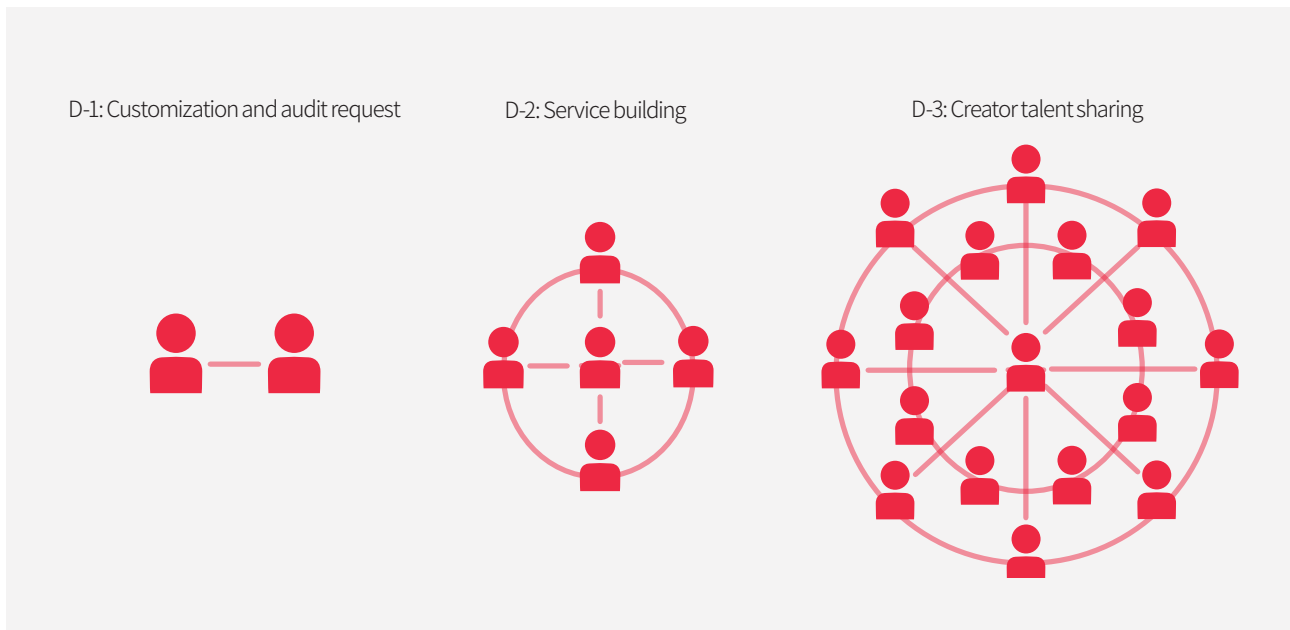
$$\varsigma(t) = \frac{MaxExchangeableRatio}{1 + \alpha e^{-rt}} \qquad (r = 0.1)$$
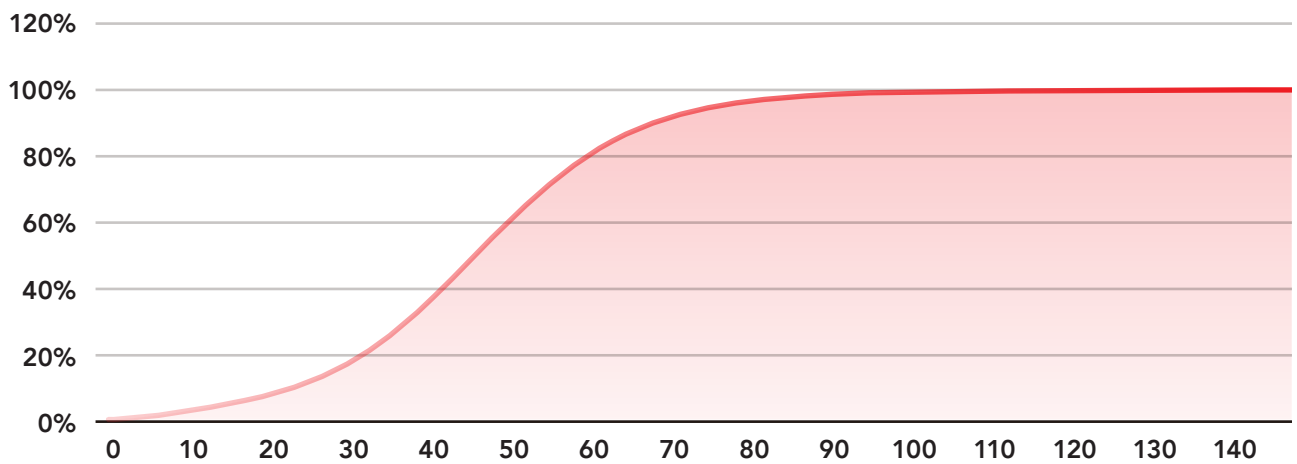
Suppressing a surge of token transfers with an efficacy rate that forms a sigmoid curve

D) The purpose of tokens

To stimulate the circulation of tokens, we will expand the possible uses of tokens as follows.

D-1: Customization and audit request | D-2: Service building | D-3: Creator talent sharing

D-1: Customization of cloud designs and audit requests

We will provide a place where reindeer participants can exchange requests for customization and quality checks of cloud designs. For example, a user would be able to use their own reindeer tokens to request design changes to have only AI functionality handled by another cloud vendor or make their site capable of handling three times more users.

The ability to request quality checks will be very valuable for startups that lack an in-house auditing team. For auditing teams, this feature will contribute to the expansion of their know-how.

D-2: Cooperation between engineers and planners to construct services

We want to expand the usage scenarios for tokens so that they become not only a tool to support distribution of cloud designs, but also a way to help engineers and planners who participate in reindeer work together to build services, developing products and realizing their plans.

D-3: Creator talent sharing

We pay attention to the voices of creators from all domains, first and foremost those who participate in reindeer, and put the spotlight the supply and demand capacity of these creators. We will provide them with a platform to exchange capacity—a kind of talent-sharing economy—and aim to maximize our token economy.

3-4 Workflow system

   This feature is mainly aimed at providing organizational users with a way to smoothly carry out cloud design-related work, from work requests among participants to coordination and the auditing of non-functional requirements such as security. Because this functionality would contribute to the improvement of the overall cloud computing provision process, it can lead to labor savings through automation of easily automated tasks such as basic audits. It can also help avoid human errors.
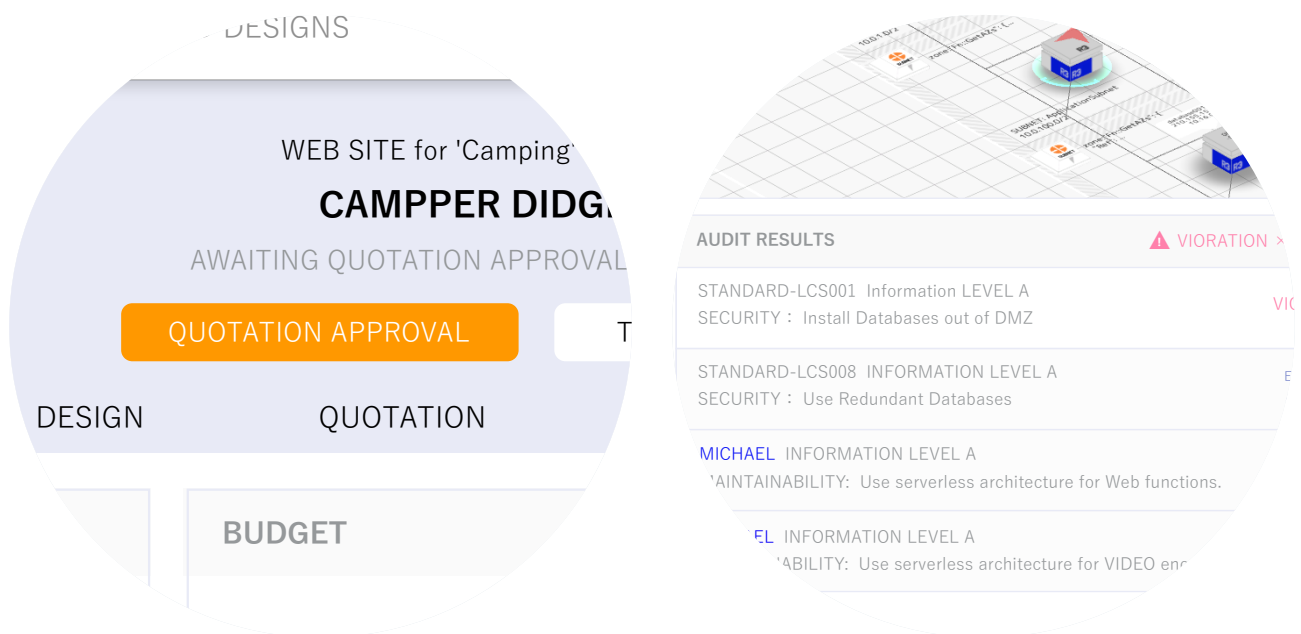
04 The size of the market and our growth plan

"Through 2020, cloud adoption strategies will influence more than 50 percent of IT outsourcing deals."

- Gartner https://www.gartner.com/newsroom/id/3616417

We will become an important player in the cloud computing market. By aligning ourselves with the planners and engineers who create new services, we will help promote the safe and efficient use of cloud computing and contribute to the healthy growth of the overall market. We are also an independent player that can maximize the benefits for its users because we can straddle a wide variety of vendors to provide our users with the combination of cloud services that best suits their needs. Considering that the cloud computing market beat expectations and has the strength to grow to 300 billions USD by 2021, we believe that reindeer's growth potential is high.

Cloud Computing Market Size

billion US$

400				
300				
200				
100				
0				
2017	2018	2019	2020	2021
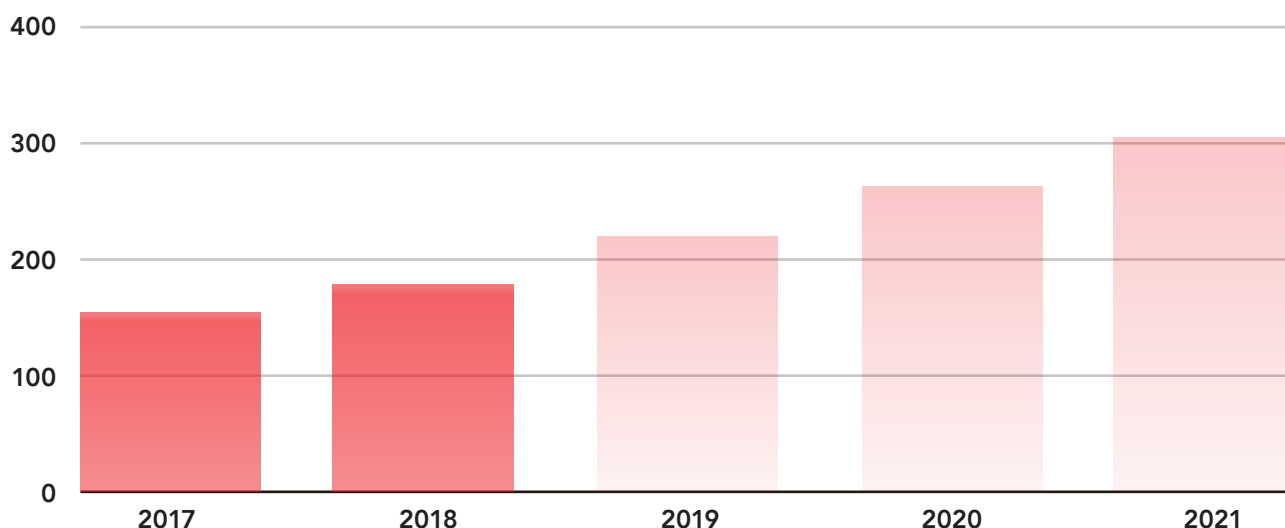
Source: Gartner (April 2018) 'Worldwide Public Cloud Service Revenue Forecast'

First stage of growth: increasing the number of high-quality cloud designs

In the first phase, we will focus on the following areas.
- Gathering cloud designs of websites, mainly short-term campaign sites
- Collaboration with businesses, advertising agencies, and development
and production companies that make extensive use of cloud designs

As evidenced by the fact that we use "raw design indicators" to define high-quality designs, we believe that cloud designs that were created in the context of actual service building are the most valuable.

Also, in a field such as cloud computing where technologies are advancing at a rapid pace, it is essential to gather data faster than it becomes obsolete. For that reason, we will initially focus on gathering cloud designs of websites where many service-building projects emerge every day. These days, even a campaign website with a limited lifespan must not only be equipped with machine learning, GIS, interoperability with external APIs, and so on, but also be able to handle a massive number of visitors. Many diverse cloud designs emerge for such websites, and we believe information about them will be an invaluable learning resource for many.

Second stage of growth: increasing the diversity of the cloud designs on reindeer

After that, reindeer will gradually amass cloud designs for IoT infrastructure, business-critical systems, and control systems. We see cloud designs as information about combinations of tools that can be used to build services, information that can be distributed as open data. At this point, reindeer could include services on the blockchain as part of its combinable cloud computing offerings. Chances are high that reindeer will also include computing services such as general-purpose application functions (dialog engines, automated driving controls, and so on).

Third stage of growth: a platform that supports the reuse of open data

At this third stage, after the database has seen significant growth, we plan to do everything we can to ensure stable functioning of APIs that will enable open reuse of all that data and to make
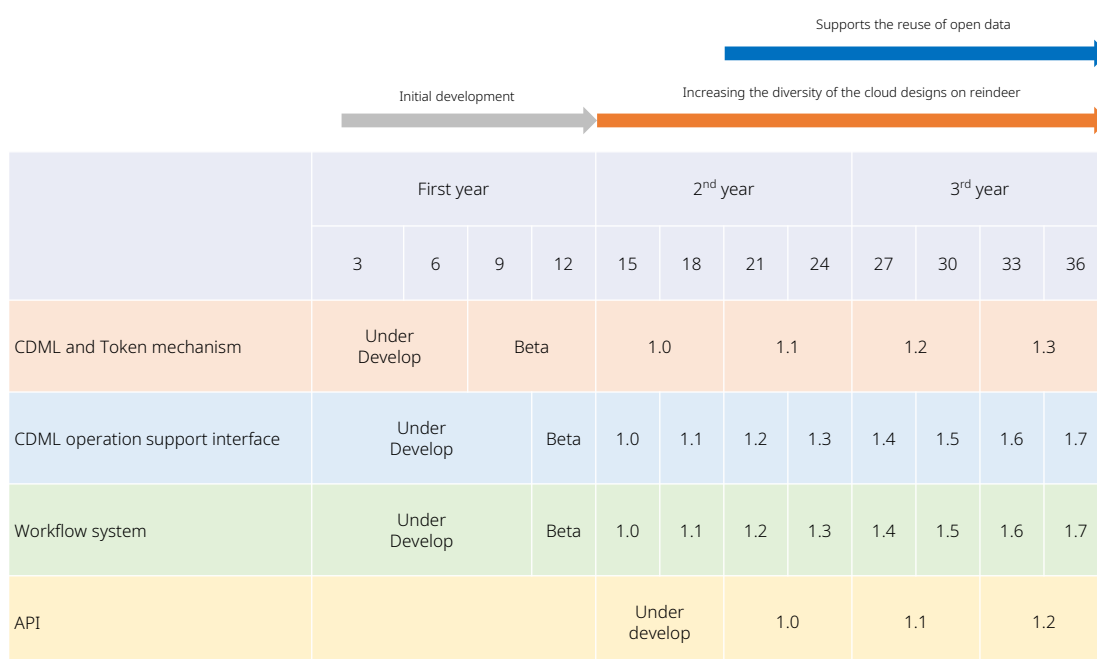
quality improvements. All those accumulated high-quality cloud designs will have very many different kinds of utility value, and we want to support the free use of these designs however we can. The designs will be useful not only as blueprints for building online services but also as a barometer of trends in market prices and technologies. Reindeer participants could even use the platform as a portfolio to display their achievements.

(One problem that engineers in Japan face is that they cannot announce their achievements to the world because they work in a context of hierarchical subcontracting structures and business practices that involve contract information staying hidden. This gets in the way of their self-actualization.)

Also, because the cloud designs in the database are described in a standardized format called CDS, it may even be realistic to imagine external AI-powered systems leveraging the designs in reindeer—without any human involvement. We believe that our role is to cultivate this database, carefully and continuously, so that it can grow into a data usage ecosystem.

05 Roadmap

Six months after the start of the project, we will release a test version of the system infrastructure, namely CDS and the token mechanism. Another six months after that, we plan to release an official version as well as user experience-related peripheral systems such as the operation support interface and the workflow. Another half year after these functions are released, we plan to add APIs to encourage reuse of all systematic data in reindeer. We plan to upgrade all these functions at regular intervals—every six months for the system infrastructure, every three months for peripheral systems. Because we will take it upon us to protect and encourage the growth of the surrounding ecosystem, we plan to devote great care to improving things that can strongly impact that growth: CDS and data provision APIs. From the moment reindeer is officially released, we will most likely incorporate preservation measures such as ensuring that older versions can be used for a year after a new version comes out.

Supports the reuse of open data

Initial development

Increasing the diversity of the cloud designs on reindeer

	First year				2nd year				3rd year			
	3	6	9	12	15	18	21	24	27	30	33	36
CDML and Token mechanism	Under Develop		Beta		1.0		1.1		1.2		1.3	
CDML operation support interface	Under Develop			Beta	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
Workflow system	Under Develop			Beta	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
API					Under develop		1.0		1.1		1.2	

06 Fundraising and how to use those funds

We plan to raise funds in some way, but we have not decided how exactly we will do this. Any progress we make in this area will be announced as soon as it happens.

07 Our mission

As mentioned in the introduction, our mission is to make all people into creators. We want to build a society in which everyone can create services so that a wide variety of ideas can become a reality. Such a society will not only bring freedom of expression and diversity of lifestyles and values. It will also spur a redistribution of the wealth that is currently hoarded by a handful of producers and greatly improve the average wealth and happiness of people who are alive today. It will also be a more sustainable society: doing away with excessive competition between enormous and heavily capitalized corporations will mean less waste of resources and less harm to the environment.

Such changes could finally bring about the zero marginal cost society that Jeremy Rifkin has predicted. It is human creativity that will make those new service ideas and the tools to realize them, so human creativity will always be valuable and necessary. However, by the extreme productivity brought by the enormous production capacity of people all over the world, the cost of producing a single unit of anything will drop until it comes as close to zero as it can get. As Rifkin says, the gap between rich and poor may disappear as production activities and profits become accessible to everyone. This may usher in a new economic paradigm that will change capitalism. In any case, everyone who supports this project will have a front row seat to witness the arrival of a new world that no one has ever seen before.

08 Introdusing

The reindeer team is made up of people who have built all kinds of online services that make use of cloud computing, both as engineers and as planners. We will use every ounce of the problem-recognition and problem-solving expertise that we have collectively gained to build and develop this database. Below, we introduce the key members of the reindeer project. If you are interested in reindeer, please do not hesitate to contact us via any of the channels listed at the end.

Shintaro Hara / Founder

Before striking out on his own in 2011, Shintaro Hara worked as an executive in several system development companies, where he was engaged in new business development and management of the development department. He did contract development work for PaaS utilization projects which Google joined as a technical adviser, as well as for of online services making use of IaaS and the like, for numerous Japanese clients and public institutions. He believes that the active use of advanced technology is key to the evolution of society and the self-actualization of engineers, and has also done extensive work introducing machine learning, natural language and image processing, and geographic information systems. He has been an engineer for over 15 years. He was the technical supervisor of the Japanese-language version of The Definitive Guide to Plone.

As he was pondering the problem of the increasing difficulty of cloud computing provision and exploring ways to distribute open designs, Yuki Ikeda—who had been quick to recognize the potential of the blockchain—reached out to Hara, who realized that they should join forces to work on their ideas. They brought in Toshihisa Nakamizu, who excels at project implementation, and began work on reindeer.

Yuki Ikeda / Co-Founder

Yuki Ikeda is a graduate of the University of Tokyo. While in university, he majored in the study of material design and used data science, including databases of physical properties, first-principle calculations, and neural networks, to study what would be the strongest metallic compositions for use in nuclear reactors. He grew aware of the potential of open access and open data as public goods.

In 2011, he joined Recruit Co., Ltd., where he was first an engineer on, then responsible for development direction of projects such as hotpepperBeauty, car sensors, and Rikunabi NEXT. Independently of this work, he also founded an offshore development company in Vietnam. Thinking that he could use the blockchain to visualize the value of information such as human knowledge and wisdom, create new economic spheres, and solve social problems, he reached out to Hara and started this project.

Toshihisa Nakamizu / Co-Founder

After graduating from university, Toshihisa Nakamizu worked on large-scale projects at a software company in the role of systems engineer. He also did project management at KAYAC Inc. He gained experience on many projects, most of them related to online promotion for Japanese clients. After he left KAYAC Inc., he started COMPASS Co., Ltd.

" I want to make small inconveniences more convenient, even just a little." That was Nakamizu's motivation for developing apps to make all kinds of things in life a bit more convenient, from restaurants and kindergartens to retirement homes and the neighborhood greengrocer. At the same time, he joined LIG to help with team building. He was in charge of bringing the production team together via team building and organization building. After two years with LIG, he returned to his company and worked as project manager on a variety of small and large projects.

Shogo Tsuruda / Designer

After dropping out of Waseda University, Shogo Tsuruda became a designer at a company that mainly engaged in creating and operating e-commerce sites. He then moved on to IMJ Corporation, where he created numerous websites for domestic clients. In 2016, he struck out on his own and established the LCC Staraxia. He worked as a web and UI designer for a wide variety of clients, from domestic clients to startups.

Hidetoshi Nakano / Legal adviser

Graduate, Waseda University School of Political Science and Economics
Attorney at law, Grow-will International Law Firm
Director, Mirai Challenge, Inc.
CEO, SAMURAI INNOVATION PTE. Ltd. (Singaporean corporation)
During his university years he gained experience in starting up systems development and web service businesses, eventually putting those skills to use in his work as a lawyer specializing in the IT industry. He is one of the few Japanese lawyers well-versed in virtual currency laws.

The key members of this project are Japanese, which we believe brings us the following advantages. First of all, because we are close to the world's largest token trading market [3] (in March 2018, 43% of Bitcoin trading was in JPY, the largest share of any currency. Trading in USD was a distant second at 31%). For that reason, we can respond quickly to social trends and regulation in the area of token trading. Secondly, working with the Japanese-speaking community will allow us to continuously deal with service usage issues that participants who speak minor languages might face. A user who speaks a relatively minor language has a keen awareness of language-related problems. This awareness is especially important when one is making a database that will be available around the world, especially when it comes to providing systems that make use of natural language processing to improve expression and information searching. Japanese just one local language. However, at the very least, the Japanese community has valuable experience when it comes to day-to-day awareness of the existence of numerous minority groups and the importance of efforts to accommodate their needs.

09 Get in touch

What drives us is the thought of the wealth and happiness that could exist in a future world that has been transformed by cloud designs offered as open data. We are beyond excited to have the opportunity to introduce our project here. The first thing we want to do is provide support for the creative activities of specialists such as engineers and planners. Ultimately, we want to help create a society where anyone can be a creator and make the things they dream about. We chose to call our platform "reindeer" because we want every day to be a "Christmas" made by and for everyone. We will use the channels listed below to tell the world about reindeer's progress. If you have any interest in our project, please do not hesitate to reach out to us. We will do our best to respond to every question we get. Let us conclude by saying how much we look forward to talking with all of you about how we can create the better world we believe in.

website	https://reindeer.tech
telegram	https://t.me/joinchat/Hxd2OhLhColSfF-oRB8Thw
twitter	https://twitter.com/reindeer_press
medium	https://medium.com/reindeer-project
github	https://github.com/reindeer-project
trello	https://trello.com/b/6shgb1LB/reindeer-project

[1]: https://www.upguard.com/breaches/cloud-leak-alteryx
[2]: https://www.upguard.com/breaches/cloud-leak-inscom
[3]: https://www.cryptocompare.com

Let's make it happen!
from the members of
reindeer project