GAMERTOKEN WHITEPAPER

GAMERTOKEN

PLAY. EARN. TRADE.

gamertoken.io

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ABSTRACT

Media consumption is changing fast. In 2016, the global games market, for the first time ever, eclipsed $100 billion in revenue[1], led by the booming $38.6 billion mobile games segment. This astonishing growth now makes the gaming industry bigger than both the music and movie industries combined. Millennials aren't watching Seinfeld reruns in the living room with their parents; they're streaming TV shows on Netflix, short videos on YouTube, and watching others play video games on Twitch. With over 100 million[2] people now tuning-in each month to watch other people play games, traditional sports can't help but take notice as investors have begun to swarm to capture this coveted demographic.

In addition to the extraordinary growth of industry revenue and spectator viewership, in-game economies have also grown tremendously, with some games estimated to have billions of dollars of virtual items being traded annually. Despite this astonishing growth, the market is riddled with inefficiencies and the benefits are not being shared equally. Currently, a few large companies control the market and receive the lion's share of this newly generated value. Gamers don't benefit much either; they put countless hours into games they love, but monetization of this effort is a pipe dream for all but a select few.

As strong proponents of blockchain technology, we believe it's time that all participants in the gaming ecosystem benefit from this incredible growth, that includes gamers, developers, and publishers. This means transferring more power to the gamer and to the market; providing gamers with the freedom to buy and sell the virtual assets that they earn while giving them additional methods of earning rewards as they play and add money to the ecosystem.

To help accomplish this goal, we've designed the GamerToken, an ERC-20-compatible, Ethereum-based token that empowers gamers to monetize their passion, and gives developers the ability to generate new streams of revenue by designing new items in their game economies.

Smart contracts running on the Ethereum blockchain will power GamerToken, which can be integrated directly into established games. As a launch partner, Gamigo, one of Europe's leading game publishers, will implement GamerToken in its games, with additional game publishers and developers on the way.

Within this ecosystem of games, GamerToken will be used to purchase and trade unique items as well as to reward gamers. To give gamers more control over the valuable items they've acquired, a universal marketplace for trading and designing digital assets will be launched. One of the key features of the new GamerToken ecosystem will be the ability for developers and content creators to enhance their existing rare items through the launch of specialized non-fungible items, based on the new ERC-721 token standard.

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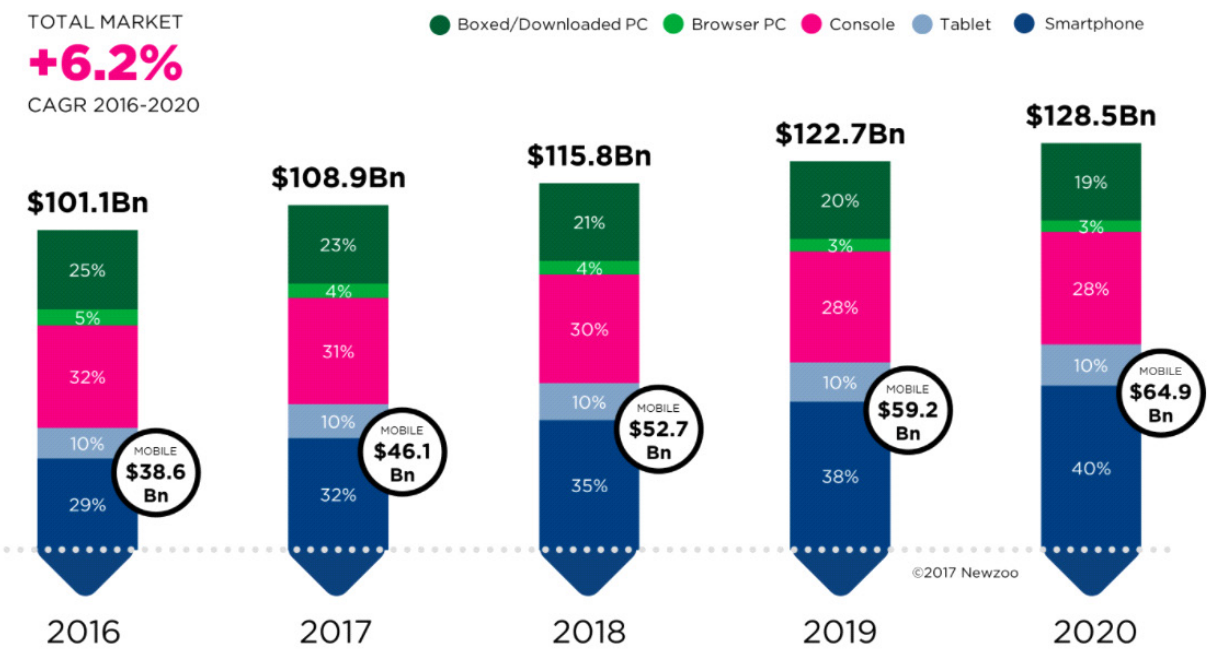
GLOBAL GAMES MARKET OVERVIEW

2.2 billion gamers worldwide[3] were the driving force behind $101.8 billion in annual revenue in 2016 (2017's figures, once released, are widely expected to add another $15 billion[4]). This was led by an expansion in the thriving $38.6 billion mobile games sector. PC games came in third with a 25% share of the overall market. Compounded annual growth is projected to be 6.2% through 2020, signaling gaming's continued dominance as the global, primary entertainment medium. The landscape for game genres is diverse; categories cater to all tastes and demographics, from casual mobile games to hardcore shooters and role playing games (RPGs) with tens of millions of active players. A key trend in recent years has been the major shift in purchasing, from physical game copies to purely digital versions. To put this in perspective, $94.4 billion[5], or 87%, of 2017's revenue was estimated to be from digital purchases.



Newzoo Global Games Market Forecast - Source: Newzoo

THE IN-GAME ITEM ECONOMY

One of the main revenue drivers for the gaming industry has become in-game assets, namely consumable items and cosmetic items. While consumable items can be used to players' in-game advantage (e.g. to temporarily upgrade weapon strength or speed-up in-game progress), cosmetic items are purely aesthetic - they're used to enhance characters' appearances without affecting the balance of the game. These cosmetic items (commonly referred to as 'skins') vary greatly, from golden gun hilts to leopard print

costumes aimed at differentiating characters in a crowd. The rising popularity of the skins economy has caused game publishers to rethink monetization strategy. Instead of charging a large upfront cost to start playing, an increasing number of publishers are opting to give their games away for free with the aim of building a massive user-base.

At some point, these games usually require or encourage payment. With the advent of this free-to-play (F2P) model, encouraging players to purchase and trade in-game items has become the primary source of revenue generation for many top grossing titles. Often called the 90:10 dilemma, it is said that 10% of gamers generate 90% of revenue. Large spenders support the model - with some games averaging up to $550 per paying player[6]. Acquiring cosmetic items has developed into a phenomenon similar to collecting rare artwork, creating a compelling reason for gamers to keep playing.

Free-to-play games have the lowest barriers to entry and can quickly amass large populations of players. Two of the largest games in the world, League of Legends and Counter-Strike: Global Offensive, have both thrived by embracing a cosmetics driven in-game economy. Cosmetic items in Counter-Strike: Global Offensive, which are used to 'reskin' the look of weapons, are highly sought after commodities and carry with them a level of prestige or status.

Cosmetic items can sell from as little as $1 to as much as $60,000[7]. These digital assets are often sold on secondary markets which are outside the control of the game publishers. According to research by Eilers & Krejcik Gaming and Narus Advisors, it's estimated that a staggering $5 billion[8] was wagered on CS:GO skins alone in 2016. This is more than the revenue of the entire eSports market[9]. League of Legends has employed a similar system with great success; just as with Counter Strike, the purchase of skins allows for aesthetic character improvement without affecting gameplay. According to SuperData's research[10], League of Legends topped the free-to-play revenue charts in 2016, generating $2.1 billion in one year from their 100 million monthly active users, primarily from selling skins.

In addition to disruptive monetization models, new technical developments like virtual reality, augmented reality, and live-streaming are further fuelling market growth, as is the ever-thriving competitive gaming (eSports) industry – a stage where pros often show off their own in-game cosmetics. While the industry is firing on all cylinders, it still faces a particular array of structural challenges that prevents most gamers and smaller developers from being able to capitalize on its massive growth.

INCENTIVISING GAMERS

Frequent gamers who play multiplayer and online games spend an average of 6.5 hours a week[11] playing socially. This can be in role-playing games (RPGs) like World of

Warcraft, where players level up their characters to try to acquire better armor and weapons, or first-person shooter (FPS) titles like Counter-Strike, where players strive to get the most 'kills' each match, thereby earning rare cosmetic items for their avatars. Regardless of game genre, one aspect is consistent - gamers spend an enormous amount of time and effort collecting digital assets.

FAIRNESS FOR GAMERS

Many games require months, even years, of playtime to reach the level cap and earn the most valuable items. Apart from the enjoyment gamers get from advancing through games, the vast majority of gamers receive no tangible perks from their playtime, despite providing tremendous value to game developers. Time spent advancing characters, stimulating in-game economies, and being an active presence in online worlds increases the network value of games and should be rewarded. It makes sense for developers to reward this behaviour; it encourages deeper engagement and longer lifetime value (LTV) of players.

The presence of other players is invaluable to the overall health of games as it provides more opportunity for companionship and higher stimulation to the in-game economy. Online multiplayer games thrive off their social environment and acquiring rare items enhances your social prestige. Players get a great sense of accomplishment from being able to show off their hard-earned items and high scores to other players. Without a large player base, this experience would be diminished.

EMPOWERING CREATORS

Another improvable aspect of in-game economies is user-generated content. It's common for game developers to look to their user-base to design and vote on future content to be added into their games. This can be sets of skins, brand new levels, or even unique game modes. Right now, this process is precarious and provides no long-term benefit to the designers who work hard to create high-quality content. The advent of blockchain technology has the ability to alleviate these difficulties for gamers and incentivize crowdsourced, user-generated content in a way that's beneficial for all parties.

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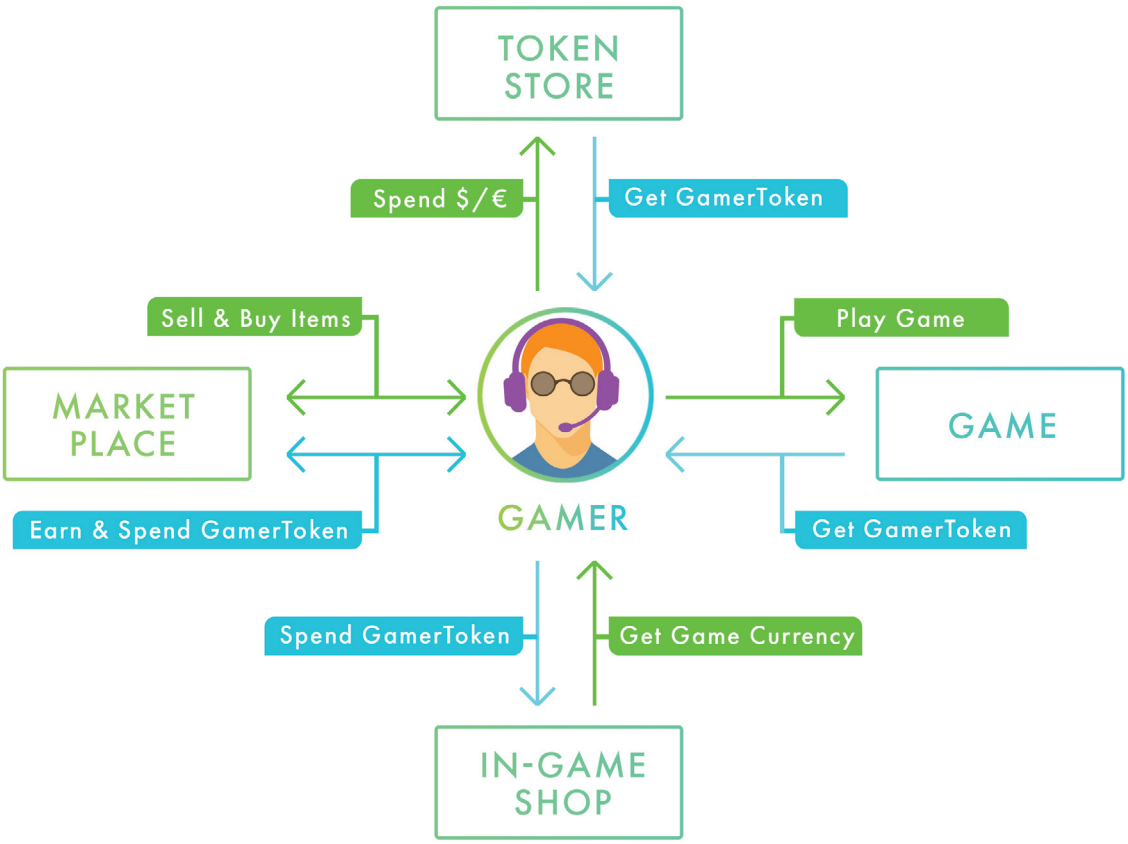
GAMERTOKEN - A REWARDING GAMER CURRENCY

In order to create an open gaming environment with truly unique (non-fungible) items, as well as compensating gamers for the effort and skill they put into games, we've developed GamerToken, an ERC-20-compatible utility token that empowers gamers. It is built on the Ethereum blockchain, and it will be used across the ecosystem by gamers, developers, and publishers. GamerToken can be utilized for rewarding skilled and/or valuable behavior, connecting game economies, and as royalty payments for asset designers. To ensure everlasting uniqueness and verifiable scarcity of non-fungible game items, we use the ERC-721 token standard.

There are 5 primary ways that players can acquire GamerToken:

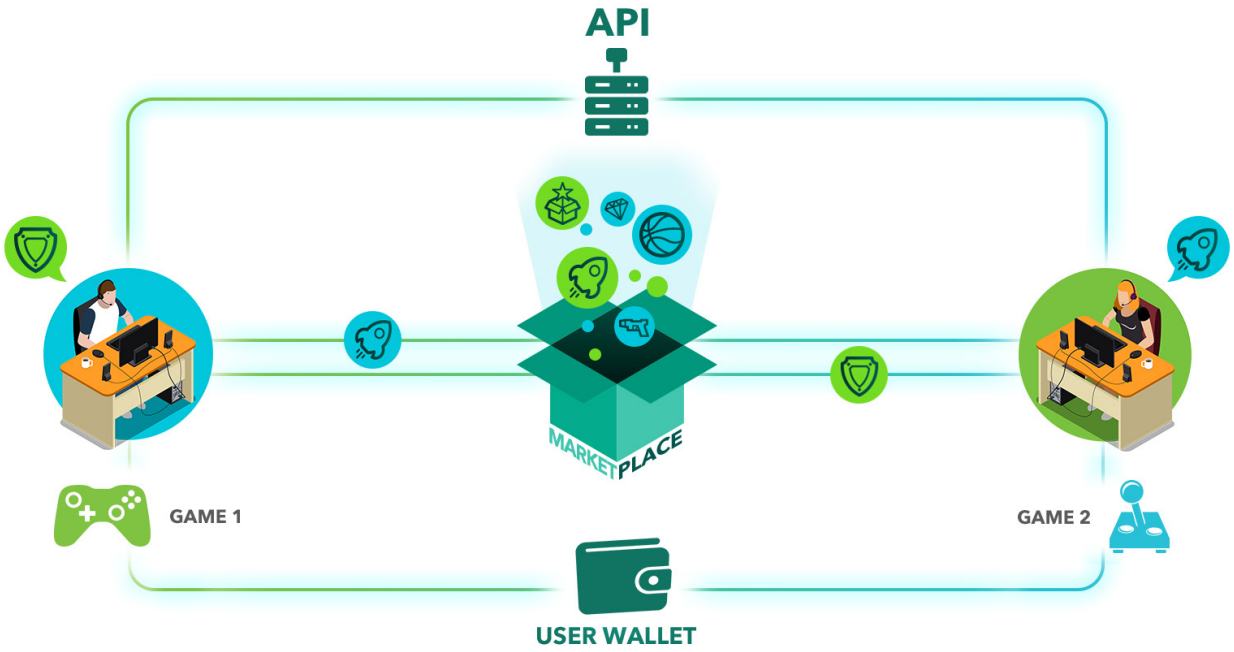
1. By participating in our Token Generation Event.
2. Earning them as rewards through skill-based, in-game actions and achievements.
3. Receiving them in the form of proceeds for selling and trading digital assets.
4. Buying them in our global Token Store.
5. Collecting them as royalty payments for designing digital assets.



Gamers are no strangers to digital currencies within games, but until now, these currencies have had very little cross-game utility. GamerToken will be the currency and reward mechanism for the global gaming marketplace. By using the Ethereum blockchain and universal standards for exchange, GamerToken will be an industry-wide, open ecosystem; benefiting publishers, developers, and gamers.

To integrate with the GamerToken ecosystem, developers will only need to integrate a single API to create unique game items, enable in-game item purchasing, and process marketplace asset transactions, all supported by the Ethereum blockchain.

CREATING A DIGITAL ASSETS MARKETPLACE FOR THE GAMING INDUSTRY



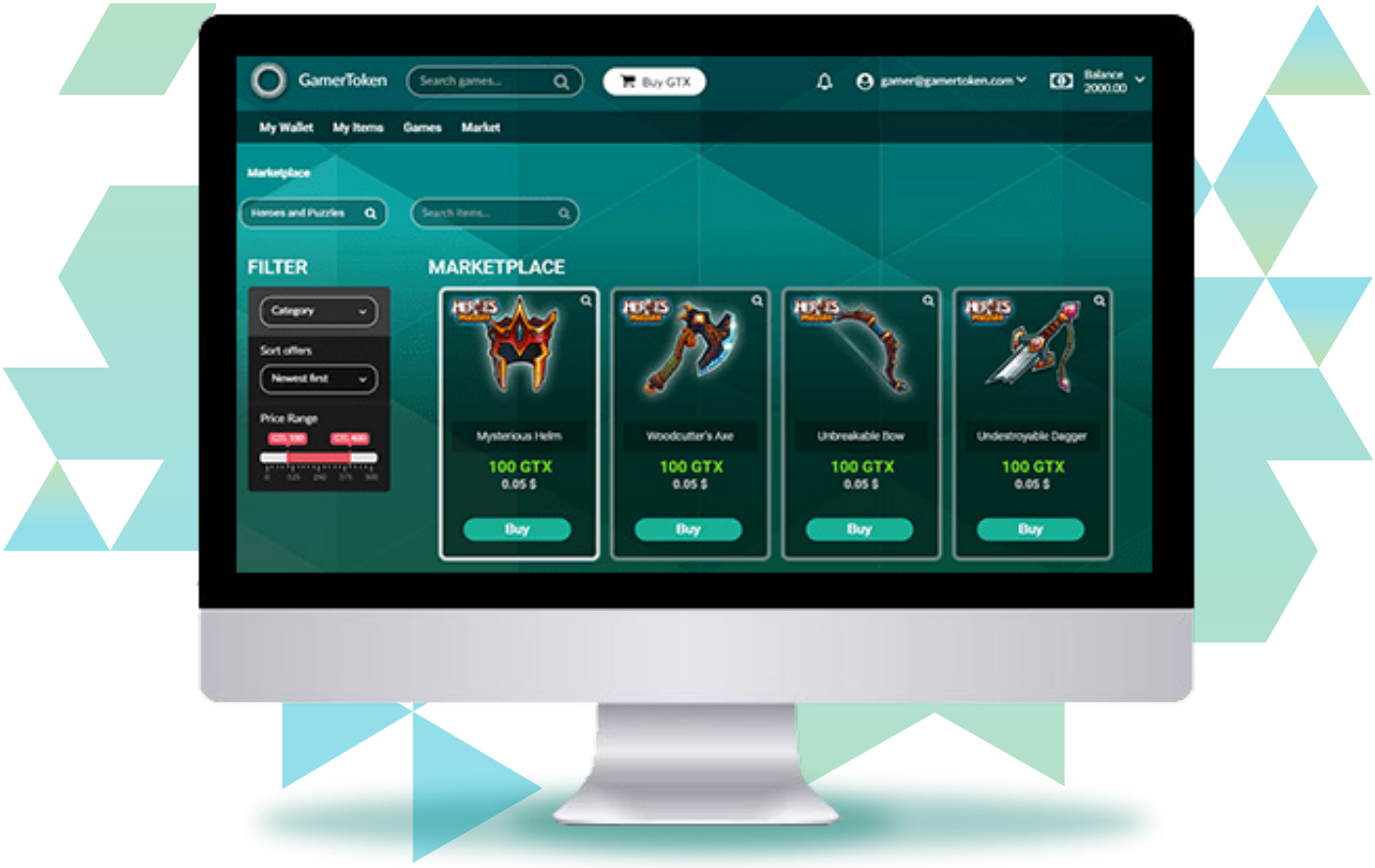
When it comes time to clean out old inventory, gamers have extremely limited choices for exchanging items within game economies or other exchanges. Generally speaking, game items cannot easily be exchanged for real value. Each game's economy acts as a walled garden, making items non-transferable outside the games. In the real world, consumers can liquidate their existing assets, such as cars, homes, and other belongings, to make way for shifting preferences, thus capturing more overall utility. We believe it should be the same way in the digital world.

A Marketplace Founded and Supported By Developers and Publishers

Existing third party marketplaces that do support external commerce often operate in the dark, outside of the control of the game creators and publishers. This gives rise to fraud, hacking, and exorbitant fees. These marketplaces don't have support from game publishers and have no influence on the development of the game. We want to unify this fragmented set of secondary markets and create an ecosystem that is open to all publishers and

developers. In order to connect the economies of multiple games together and empower gamers to buy and sell digital assets, we will introduce a blockchain-powered marketplace where all gamers, publishers, and developers can participate and get their fair share.

This digital assets marketplace will function based on a traditional API, giving game industry participants the tools they need to buy, sell, and manage digital assets. Gamers will now have access to a universal marketplace where they can earn supplemental income via GamerToken - by selling their special items and excess inventory. Proceeds from items sold will go primarily to the gamer that sold them. A portion of the sale will be allocated to the game developers and/or publishers who originally created or licensed the items. The goal of this decentralized marketplace is to act as a neutral economic hub that promotes free trade and provides rewards for gamers in a safe, sustainable manner.



We believe digital assets and rewards on the Marketplace will beneficially link game economies together, promoting growth and stimulating community engagement. Developers and publishers will be able to list unique, non-fungible items and characters in GamerToken. In a later phase, they'll be able to list other game items, beta keys, and design contests. Smart contract powered trades and payments will lead to greatly reduced fees and increased transparency within the Marketplace.

Enhancing Items and Characters with Non-Fungible Tokens Based on ERC-721

As players increasingly wish to individualise themselves within their gaming communities, we believe it is essential to build a system that supports them; a system that introduces unique and exclusive items to further meet gamers' needs and desires. We want to provide developers with the ability to enhance the security and uniqueness of their digital assets. Non-fungible tokens ("NFTs"), using the proposed ERC-721 Ethereum token standard (finalized in Q1 2018), are a perfect use case for enhancing exclusive in-game items. They can be thought of as similar to traditional tokens, with the significant difference that each ERC-721 token is unique and independent. This allows token-ownership history to be tracked.

Unique ERC-#721 tokens for non fungible Characters and Items

Tracking of ownership of these tokens is enabled through our Universal API, vastly easing the integration process. By adopting ERC-721 for in-game, tradable assets or characters, all parties automatically receive a variety of benefits and properties, including cryptographic ownership, verifiable rarity, access to a global, fair marketplace with atomic swaps, and more.

With the combination of ERC-20-compliant tokens for purchase and reward and ERC-721 tokens for unique items, together with the canonical OpenZeppelin implementation, we will create a strong ecosystem where items harness real value.

Creating True Digital Scarcity

Understanding non-fungibility is best understood through the example of artwork - an original piece of art cannot be considered as the exact equivalent of any other piece of art. Currently, game items are fungible; cosmetic items (skins) for characters, can be minted an infinite number of times by a game's developer, making them less unique and their value unpredictable. If instead some skins were made into non-fungible tokenized items, then they could be issued in limited quantities - making them uniquely valuable and identifiable on the Ethereum blockchain.

Non-fungible tokenized items owned by pro-gamers could become highly sought after for their nostalgic value, like traditional sports memorabilia previously owned by pro athletes. Just as Lebron James' signed jersey worn the night he won the NBA Finals is worth more than an 'off the shelf' Lebron jersey, cosmetic items worn by eSports world champions could become highly desirable. Powered by smart contracts, cosmetic items created on this universal marketplace as non-fungible tokens are verifiably rare, and can be tracked by players and developers as they get exchanged throughout the community.

This will give gamers a superior sense of ownership and security as they will have unprecedented control over their rarest items. We believe these specialized types of tokens are an obvious next step for representing in-game items; by making in-game items non-fungible tokens on the Ethereum blockchain, every actor in the system benefits:

- Developers can cryptographically verify ownership of in-game items, minimizing the possibilities of external scams. They also get automatic inclusion into the global ecosystem of tooling that manages these in-game items and access to technology that enables atomic transfers, without the need to develop it on their own.

- Publishers can dictate the rarity of legendary cosmetic items across their games using smart contracts, creating trust between themselves and gamers, as well as introducing digital scarcity among rare items. Publishers also get visibility into ownership history, usage within games, and purchasing habits on secondary markets.

- Gamers can transfer their hard-earned, in-game digital assets between games. They'll experience less friction when purchasing in-game items and migrating between games, making them more likely to spend tokens, thus further stimulating the economy. They can also trust in the verifiable scarcity of in-game items, without worry that the developer will unnecessarily create more, diluting their value. Furthermore, gamers can create their own unique content to be added to games, in exchange for token rewards.

To support the global marketplace for in-game items, developers integrating GamerToken into their games will be able to utilize the Ethereum blockchain to track their high-value or rare in-game items using non-fungible token standards. By operating on these shared standards, all parties can immediately and easily participate in the global marketplace. Besides enabling never-before-seen interoperability between developers and gamers, adopting an NFT standard for rare items allows gamers and developers to capture additional dimensions of value.

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GAMERTOKEN IN DETAIL

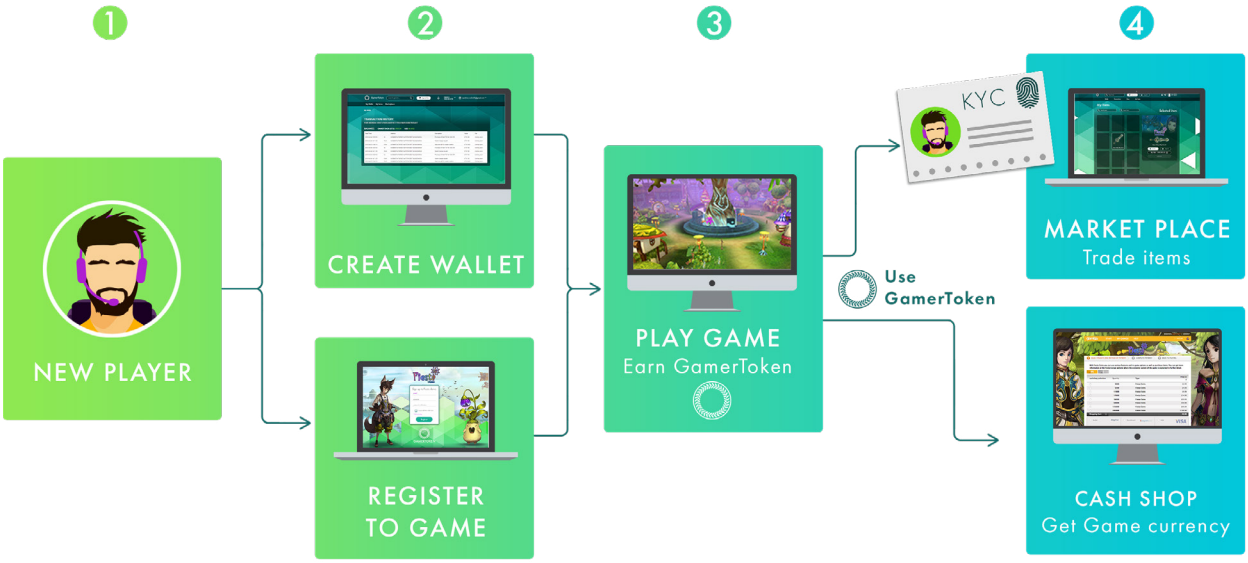
In cooperation with developers and publishers, GamerToken has been designed by gamers, for gamers. The various use cases, processes, and mechanisms have been critically analysed. A working product demo has already been implemented and launched on a test server for the popular, MMORPG (Massively Multiplayer Online Role Playing Game) 'Fiesta Online'. Further testing is underway with our launch partner, as we optimize processes and features.

ONBOARDING THE ECOSYSTEM

Account Creation

Every user participating in our blockchain-based system generates a public and private key pair (account) in order to cryptographically manage their in-game assets and GamerToken. The public key is their unique identifier and their address on the Ethereum blockchain. The private key is used to sign transactions that affect the network state.

If a user doesn't have an account yet or doesn't know how to set it up, our API offers an account creation workflow to automatically create one during the game's onboarding process. This ensures that registering for a game is no more complex than before. If the user already has an account, then he/she simply needs to sign-up with our wallet and provide their public address. Once the user has set up their wallet, they are able to acquire GamerToken through our global Token Store with different crypto and fiat currencies.

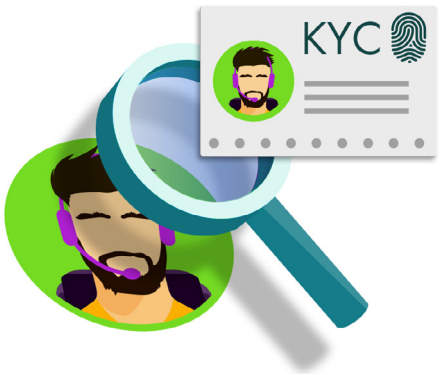


The Onboarding Process

User Wallet

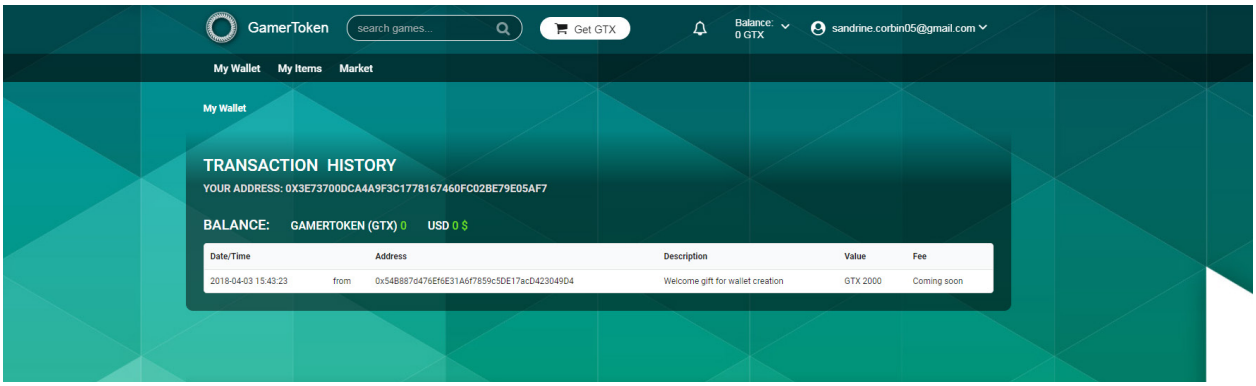
Once the wallet is created, the user is able to receive in-game rewards and items to fill it. Within the wallet, the user is able to look up their transactions as well as their unique non-fungible items. This account will also be used to trade items on the marketplace.

The ecosystem is open for everybody to join - just a valid, verified email address is required for entry. Any activity that might move GamerToken outside of the ecosystem, like using the Marketplace, requires compliance with regulations including age verification—to satisfy this, a KYC ('know your customer') process is required.



IN-GAME REWARDS

Earning GamerToken through in-game actions and achievements will give players a more tangible sense of accomplishment. Being able to reward players for defeating a raid boss, reaching a level cap, interacting with advertisements, or participating in a daily lucky-draw are some ways developers will be able to integrate GamerToken directly into their games and stimulate deeper engagement.



Each developer is free to decide reward requirements and reward levels. By granting this level of autonomy to developers, we provide them with the power to imaginatively utilise rewards in innumerable ways. Implementation itself is simple; the developer integrates our API and creates a developer account to hold the GamerToken funds that power the gamer rewards. Once rewards are defined, the rules of those achievements will be automatically transformed into smart contracts which distribute the tokens. If the reward mechanics need to be balanced, the developer is able to deploy new smart contracts with the adaptations needed.

NEW STREAM OF REVENUE FROM MARKETPLACE SALE PROCEEDS

The marketplace will provide developers with an easy-to-use, back-end solution for creating non-fungible items. When game items are sold on the marketplace, a portion of the proceeds go to the developer or publisher who can then choose to put that GamerToken back into developing more content or rewarding players. These item sales create a new stream of revenue for the developers while also increasing the engagement and transparency of the game's economy.

PREVENTING BAD ACTORS

Tokens will be staked by vendors of virtual goods and services to promote market safety and prevent bad behavior. Those issuing virtual goods and services should be held accountable to fairly delivering value to gamers in the long term. A game developer or publisher is able to change direct attributes of an environment around virtual goods and services to affect their value. This possibility puts gamers at risk, so it is important to set prospective financial penalties for bad behavior.

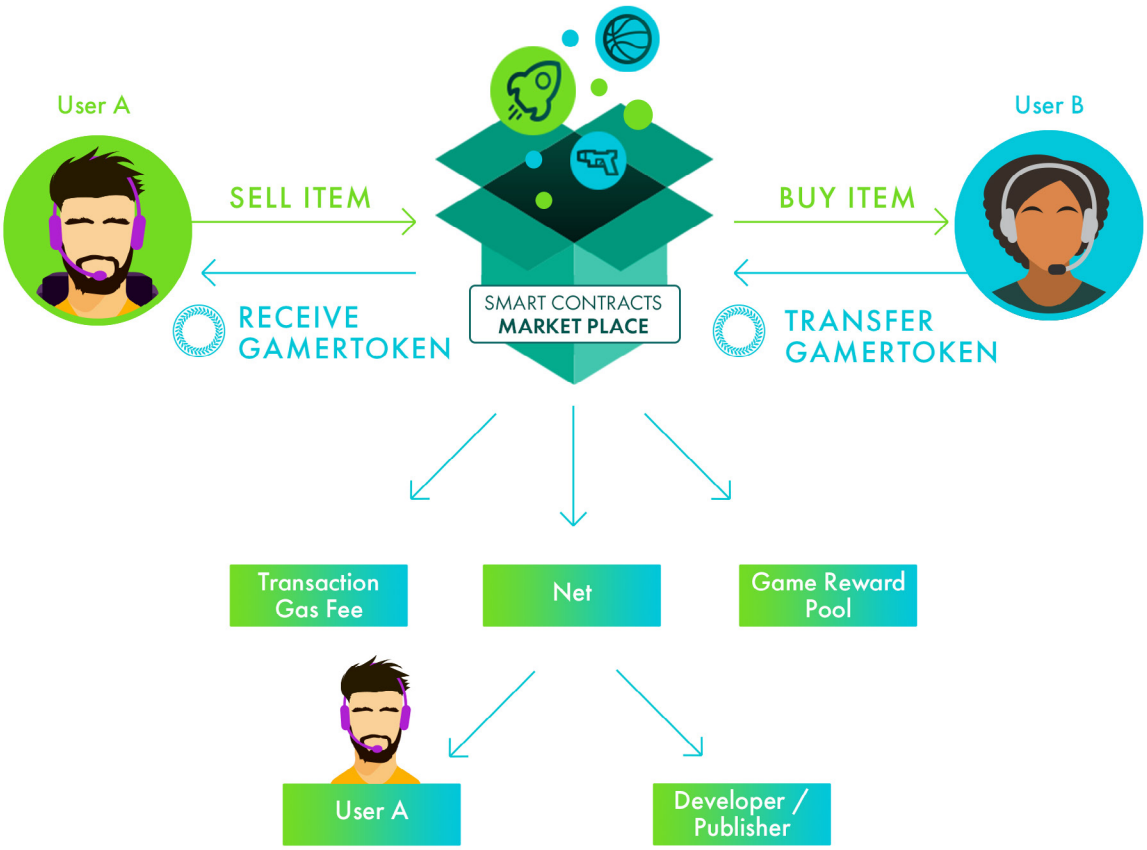
When vendors of virtual goods and services first join the marketplace ecosystem, they are required to stake a minimum amount of GamerToken to begin listing items on the marketplace. As the ecosystem matures, staking requirements will scale to the size of the in-game economy on the marketplace. This stake can be claimed against by leaders of the gaming community who represent an interest in protecting fairness for gamers. Arbitration will initially be handled by a board of community-approved representatives, but will eventually utilize a decentralized solution.

Community leaders who wish to challenge the stakes of virtual goods and services vendors will be required to stake to prevent fraudulent activity. Initially, key, long-standing members of the respective game communities will be eligible to stake. After demonstrating that they understand the needs of the community and have a firm grasp on how the in-game economy functions, staking requirements may be reduced for community leaders.

ENSURING HIGH-QUALITY CONTENT

The GamerToken ecosystem enables designers of virtual goods and services a straightforward method of creating new content and collecting royalties. It adds the prospect of bounty rewards in addition to existing social and in-game item incentives, allowing developers to crowdsource content from the community with a fair and understandable structure. Through events such as design competitions, this process aims to unlock a plethora of community-created content.

Partially as a result of the financial incentives, many designers are expected to participate in the ecosystem - causing a degree of network congestion. To prevent low-quality ideas (for virtual goods and services) from flooding the design events, participants may be required to provide a minimum stake or entry fee.



Marketplace Economics and Shares

LOWER USER ACQUISITION COSTS FROM MARKETPLACE ACCESS

Game developers are always looking for new ways to acquire power users and increase player lifetime value. Developers listing their items on the universal marketplace will gain instant access to an active community of gamers. This highly engaged player-base will provide additional exposure to games within the marketplace ecosystem. Developers who choose to integrate GamerToken rewards for in-game achievements can reduce the barrier towards players making their first purchase. We believe this will reduce user acquisition cost and open up developer's games' economies to millions of new players.

REWARDING PLAYER BEHAVIOUR AND CROWDSOURCED GAME CONTENT

Whether it's earning tokens for defeating a raid boss, completing a difficult quest, or reaching a late-game milestone, developers will be able to integrate GamerToken into their games to reward valuable player behavior. In addition, developers will also be able

to reward item designers through the marketplace. Some of the best game modes and cosmetic items throughout gaming history have come from within the community. Crowdsourced game content, such as skin designs and custom maps can be extremely beneficial for the community while cutting down development costs for developers.

We want community creators to be incentivized and compensated for the creativity and work that goes into their game asset design. Crowdsourcing content reduces costs for developers, improves the quality of their games, and stimulates community engagement. Community-wide design contests for items and maps can be launched and voted on by the community. The best designs will be immortalized in their respective games and rewarded with exclusive, non-fungible in-game items or GamerToken.

BENEFITS FOR GAME PUBLISHERS AND DEVELOPERS

PUBLISHERS

- **Join an ecosystem of high spending players**
- **Unique gaming currency**
- **Lower user aquisition costs**
- **Universal payment service provider**

Game publishers stand to gain immensely from the introduction of unique items and reward-based engagement mechanisms. Exclusive character customisation options lead to enhanced community loyalty. By adding GamerToken into their game economies, publishers will not only be able to track and follow their most valuable items and open new streams of revenue, but also will be able to react to the needs of their community.

Fraud is also a major dilemma for publishers to deal with across their games. The global in-app purchase fraud rate (the number of virtual-good downloads that take place without revenue changing hands) was 7.49 in 2015[12]. While the US was comparatively lower (only 1.5 digital goods thefts for every legitimate purchase), some regions in Asia, such as China, experience rates as high as 273.2. This, along with the online scams that try to steal players' entire accounts, is a substantial loss of revenue for publishers.

Rising user acquisition costs are also a major issue facing game publishers. Bringing in new gamers and keeping them playing is a crucial challenge. The marketplace provides heightened clarity around players' spending habits, giving publishers the ability to create tailored reward systems. This can lead to increased player retention and lower user acquisition costs by reducing the barriers to trying multiple games within a portfolio suite of games. Additionally, just like developers, publishers will earn a portion of marketplace item sales.

DEVELOPERS

- **Lower transaction fees**
- **increase security and transparency**
- **Tailor rewards to increase retention and playtime**
- **Integrate the game in a larger ecosystem**

When it comes to existing third party marketplaces, publishers have a rocky relationship. Having no clarity on who items get sold to and how they're acquired can be a major legal headache. A neutral, universal marketplace overseen by publishers will reduce grey market trading. Instead of a shadowy marketplace that operates in the dark, game companies will be able to establish a secure and sustainable ecosystem that better benefits the gamers. Fees will be reduced and hacking owners of non-fungible items will become a lot more difficult, because players will have secure control over transfers. All trades within the marketplace will be able to be tracked on the blockchain, allowing publishers to better understand users' behaviour and games' economies.

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STRATEGIC PARTNERSHIPS AND EARLY ADOPTERS

The more games and players participate in the GamerToken ecosystem, the more attractive it will be for others. To bootstrap the ecosystem, the Laurel Foundry will onboard new publishing partners and grow the ecosystem through incentives. Publishers that join the marketplace ecosystem will also receive membership to the GamerToken Foundation. The foundation will provide development support to developers who choose to integrate GamerToken directly into their games. As more games join the GamerToken ecosystem, it strengthens. The GamerToken Foundation will be responsible for managing the identity of participants on the marketplace and serve as a discussion hub for key strategic initiatives.

The launch partner of the GamerToken ecosystem will be the Gamigo Group, a leading game publisher based in Europe. Within the Gamigo ecosystem, they publish a variety of RPG and FPS games that use virtual in-game currencies. As a result of numerous game company acquisitions over the past 5 years, the Gamigo Group has multiple in-game virtual currencies and a large player base that will be able to benefit from unification and greater transparency.

Having Gamigo as a founding member is a huge advantage as it guarantees a genuine,

active business use-case, with access to a huge game portfolio, a solid reputation, and a multi-million player gamer-base. All of Gamigo's top titles (including recently launched, growing FPS - Ironsight) will be supporting GamerToken for purchases in their stores and rewarding players for valuable in-game actions. Implementation and testing has started with a new version of Fiesta Online, one of Gamigo's largest titles, with more games to follow in the near future.

To boost the amount of GamerToken players will receive, Gamigo will make available a large selection of unique non-fungible items and will be allocating 5% of each in-game purchase into a pool to additionally reward players for beneficial activity and player loyalty. Gamigo believes integrating micro rewards into their games will help expand their community and encourage new players to try their games.

Apart from Gamigo there are many game companies, large and small, that are looking for ways to reward loyal players, enhance their cosmetic items, and link their games together in a more efficient way. We will be offering GamerToken grants to qualified, small, game developers as well as large publishers and developers as an incentive to list their items on the marketplace and use GamerToken inside their games. We are currently speaking to a variety of publishers and developers, encouraging them to join this global ecosystem and to introduce new lines of non-fungible cosmetic items.

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TECHNOLOGY & FEATURES

GamerToken aims to use the Ethereum blockchain to unify in-game spending and the exchange of digital assets on our global marketplace. Our goal is to become the global transactional currency for trading items in the gaming ecosystem and rewarding gamers for playtime and in-game achievements. By unifying the ecosystem, GamerToken truly empowers gamers to own value that they create.

FEATURES

We will create:

- GamerToken, an ERC-20-compatible token on the Ethereum blockchain,
- ERC-721 non-fungible token infrastructure for denoting in-game assets,
- ERC-735 compliant in-game achievements,
- A universal API that:

  - integrates the ecosystem using traditional methods,
  - creates and manages user wallets, GamerToken, and digital assets,
  - creates and manages publisher reward mechanisms, and
  - makes and validates GamerToken payment transactions.
- A global marketplace
  - to exchange digital gaming goods,
  - supported by the Universal API,
  - and delivered to gamers, publishers, and developers as a web app.
- A token store
  - to buy GamerToken
- A creators' portal
  - enabling simple ecosystem integration for publishers and developers.

THE GAMERTOKEN

GamerToken is a finite-supply token representing a transactional and reward currency used throughout games in the network. It is used to reward player actions, purchase in-game currency and transact on the marketplace.

The finalized ERC-20 standard results in a poor user-experience because it requires two separate Ethereum transactions to process a payment; first, a contract needs user-approval to accept an ERC-20 token, second, the user must instruct the contract to debit their account in exchange for some good or service.

The primary cause of this issue is that during token transfers, ERC-20 does not inform the receiving address about their new tokens. Proposed standards, ERC-223, ERC-*777*, and ERC-827 solve this issue in similar ways. They provide a function that notifies the receiver of token transfers. Using these proposed standards, the interaction would only require a single user-transaction, thus simplifying the experience while reducing transaction costs and system overheads.

GamerToken will implement whichever standard receives the most community consensus and allows for single-transaction payments.

NON-FUNGIBLE IN-GAME ASSETS / ERC-721

Tradable in-game assets are represented as ERC-*721* non-fungible tokens. This standard allows a smart contract to track token-ownership at the individual token level: each item has a unique identifier and, optionally, unique properties stored as metadata. By using this

open standard across all games in the ecosystem, we facilitate a global marketplace that can atomically transfer in-game assets in exchange for GamerToken.

The ERC-721 standard has been finalized in Q1 2018. The canonical OpenZeppelin implementation will be the basis for the in-game items within the GamerToken ecosystem.

Developers can track ownership of these tokens through our Universal API, vastly easing the integration process. This API offers developers all of the information necessary for tracking item-ownership, as well as detailed ownership history and historical prices.

The non-fungible items can be acquired in the normal games store (marked as "unique non-fungible") as well as acquired and traded via the Marketplace

Strategic guidelines for the non-fungible ecosystem will ensure its success:

- Although there are no technical limits for the amount of items that exist, developers should spawn a limited amount of items—this underlines their uniqueness.
- The cost to create new non-fungible items serves as an entry barrier, disparaging the creation of an overabundance of items—non-fungible items should remain "special".
- Metadata stored on the chain cannot be changed—item properties are immutable.

Visual representation of the NFT item in-game would be possible with the support of the game developer by creating specific assets for these special items.

Use Case Examples

THE ESPORTS STAR

A regular fungible item of user X becomes legendary because he won an eSports championship in 2017. It will be possible to convert it into a non-fungible item and add specific metadata to it to highlight this noteworthy event.

THE ENTREPRENEUR

A player can offer their non-fungible items to other players for rent. This includes cosmetics, as well as (potentially) entire characters - creating a new revenue stream for in-game markets.

UNIVERSAL API

To integrate with the GamerToken ecosystem, developers need to only integrate a single API to create unique game items, buy in-game currency, and process marketplace transactions, all supported by the Ethereum blockchain.

We will offer the Universal API and SDKs for interacting with the GamerToken and the various in-game assets owned by the user. The Universal API provides convenient access to the rest of the network, saving developers the countless hours they would have to spend building payment-infrastructure, marketplaces, trading logic, and more.

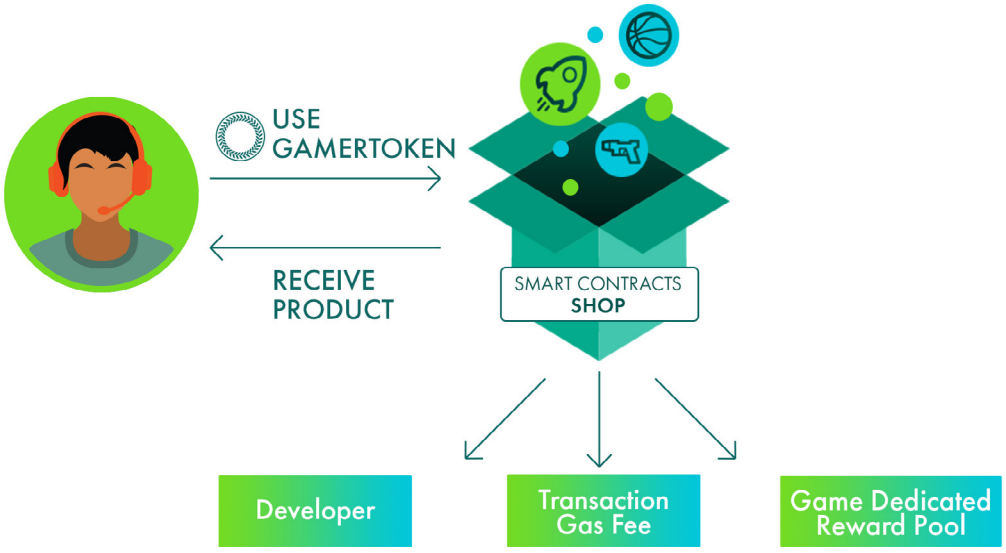
HANDLING GAMER PURCHASES

Developers need to be able to react to gamers purchasing game content and trading in-game items via the global marketplace. These events are exposed as traditional webhook events which a game server can listen to and operate on.

PAYMENTS WITH GAMERTOKEN

GamerToken can be used for the purchase of dedicated in-game currencies and items.

Developers can integrate their games with the Universal API in order to accept payments in GamerToken, much like existing payment network APIs. From there, they can accept GamerToken in exchange for in-game items or game-specific currencies.



REWARDING GAMERS

Developers can easily reward gamers for in-game actions from the dedicated game reward pool—by calling the Universal API or using the Reward Contracts directly—indicating the rewarded user and the reason for the reward.

Reward Pool

A percentage of purchases made with GamerToken in the Marketplace and in in-game cash stores, will be used to replenish the GamerToken reward pool used to reward gamers for their activity in the games. In addition publishers and developers can make more GamerToken available if they wish. Rewarding users is implemented as a smart contract from which approved contracts ("Reward Contracts") can transfer tokens after reward criteria have been met, as decided by the developer and publishers of games in the network.

Reward Contracts

Game publishers and developers that wish to reward gamers for in-game actions can deploy reward contracts. These contracts simply state, in code, which rewardable action has to be fulfilled, and how many GamerToken this action is worth. This allows publishers to easily and transparently reward players the correct amount of GamerToken based on their actions.

MARKETPLACE

The global marketplace is the open market that allows publishers to offer in-game assets in exchange for GamerToken. These assets can be utility items, cosmetic items, beta keys, game levels/maps, unique merchandise, and more.

Gamers can sell their in-game assets through the global marketplace in exchange for GamerToken. In addition, within the marketplace there will be an auction and bidding system for items. Gamers can discover other games that support GamerToken and unique ERC-721 assets. Powered by smart contracts, the sale proceeds of an in-game asset are split between the seller, publisher, and developer.

The marketplace is implemented as a web app, communicating with the Universal API that interacts with smart contracts on the blockchain. These smart contracts are responsible for auctioning items; they transfer ownership of the unique items, accepting payments in GamerToken.

If desired, developers can integrate the marketplace directly into their games via the universal API and provide a native marketplace interface.

TOKEN STORE

We will create a central token store where users can join our ecosystem by buying GamerToken. Within the the store, users have the option to use various fiat and digital currencies to process their transactions.

PUBLISHER CREATOR PORTAL

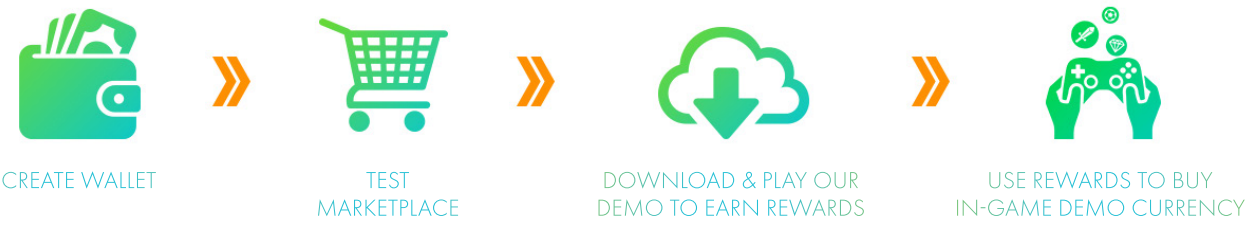
Publishers will manage their non-fungible in-game assets via the creator portal. This webapp, powered by the Universal API, makes it easy for publishers to create new content and for developers to integrate the content into their games. The creator portal will also provide a publisher-friendly interface for managing the reward contracts that calculate reward values for the various game titles.

–06
TESTABLE DEMO

We currently have a working demo of our product, which readers are invited to try. Demo-users can play a game (Fiesta Online), receive tokens as in-game rewards, exchange tokens for in-game currency, and view the resulting transactions on the blockchain. For more detail:

- Use the GamerToken demo wallet, credited with free demo tokens
- Earn demo tokens for completing in-game achievements

- See transactions and wallet balance update based on in-game rewards and demo shop purchases
- View the transactions on the blockchain in the demo wallet
- Use the marketplace to buy, sell, and trade unique, tokenized assets



WALLET: https://wallet.gamertoken.com
CRYPTO MMO: https://join-fiesta.crypto-mmo.com
MARKETPLACE: https://wallet.gamertoken.com/dialogs/market

SCALABILITY AND BLOCKCHAIN PERFORMANCE

The network described in this paper must be able to support numerous games and a high frequency of state transitions, currently not possible on the Ethereum mainnet. Scalability in Ethereum is an open problem, being worked on in parallel by a variety of researchers with a variety of approaches.

The ideal solution is most likely an application-specific trustless Plasma chain running on Proof-of-Authority consensus using publisher nodes as validators, but this technology is not yet production ready.

Until then, we will pursue the creation of an Ethereum-based sidechain, connected to the main chain with a trusted or trustless relay. This approach enables the GamerToken network to run at a reasonable scale, while allowing gamers to continue to directly own their digital assets and transfer them back to the main chain through a relay.

Data not primarily intended to be stored on a blockchain like private data (e-mail addresses, logins) will be stored off-chain in traditional databases. The public blockchain strictly manages in-game asset ownership and marketplace transactions.

A sidechain is a fork of the Ethereum main chain, exclusively running the smart contracts that the operators are interested in. The side chain can also use alternative consensus models, like Proof-of-Authority, which allows the operator to propose blocks that are immediately valid, allowing for much higher throughput than, for example, Proof-of-Work. This trusted block production is balanced out by a relay, which allows users of the

sidechain to withdraw their assets back to the main chain in the event of a dispute. Users can also use the relay to withdraw their assets in normal situations as well, if they'd like to use smart contracts available on the main chain, or perhaps even transfer them through a separate relay to another, unrelated side chain.

Relays come in many implementations, but in general they can be trusted or trustless. Trusted relays are operated by a single (or small number) of trusted parties, but allow users to provide fraud proofs in the event of a dispute. Trustless relays generally function with crypto-economic guarantees, allowing anyone to operate the relay, at the cost of protocol and operation complexity.

We will continue conducting research into Ethereum scalability solutions, and work directly with Consensys and other researchers to implement an ideal solution in the short term, while preparing the infrastructure for an ideal, fully-trustless solution in the long-term.

SECURITY

Server Endpoint Security

We will be leveraging a mix of Artificial Intelligence Based Advanced Threat Prevention powered by Machine Learning and Host-based Intrusion Detection System that is powered by OVAL (Open Vulnerability Assessment Language) and XCCDF (Extensible Configuration Checklist Description Format) interpreter used to check system configurations and to detect vulnerable applications. This allows us to have audit rulesets that can be compliance mapped with PCI DSS v3.1, CIS security controls.

We also utilise service-aware policies, event history, and command history; we will be able to control and capture 100% of activity pre- and post- policy violation, thus giving full transparency of the actions and events happening on the entire system.

Security of In-game Purchases and Billing Systems

All interactions with the billing/payment systems will be done server-side and secured with multi-level access controls and transaction auditing.

This will be achieved using a mix of network filtering, Anti-DDoS protection and a.i.-based advanced threat prevention powered by machine learning to protect the billing systems.

GamerToken API Security

The security of the GamerToken API has been a core component from its first reversion. Instead of just blacklisting of allowed communications, GamerToken will be secured by advanced network-level access controls, audit trails, whitelisting, and blockchain.

Bots

Bots are nearly always an issue in the software and gaming industries. All incoming and outgoing traffic to-and-from our APIs, portals, and billing systems are interrogated and scrubbed by encryption technologies, advanced anti-DDos protection systems, and next-generation web application firewalls.

Development and Deployment

We are utilising Security Development Lifecycle, automated and manual code reviews to insure compatibility, integrity, reliability, and security at all stages of development. The whole development and deployment life cycle is guided and guarded by automated tools, from the first developmental stage until the deployment of software, infrastructure, and other assets.

SMART CONTRACT SOURCE CODE

To ensure we comply to token standards, our smart contracts will undergo a two phase audit. The first audit review will be done by our partners at the Consensys Token Foundry and the second review will be a third party code-review and legal audit.

After successful audits, we will publish our smart contracts in the public GitHub Repository at https://github.com/gamertoken and share our progress via different media channels. Please visit our website https://gamertoken.io for the latest updates.

–07
TEAM

The team of The Laurel Foundry consists of a combination of experienced technical, marketing, and game specialists. Together, they have over fifty years of cumulative experience in the games industry.

The team has been hard at work, preparing the project for months. They've been having thorough discussions, and working through various changes and optimisations to ensure that the product is the best that it can be. The team is proud to have the first game running that showcases the primary features of GamerToken. But they're eager to continue working hard to get a better, faster future, and thereby actualise the groundbreaking GamerToken vision.

TEAM MEMBERS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The Laurel Foundry GamerToken team is closely cooperating with the Consensys and Token Foundry team. Special thanks to **Chris Gonsalves**, **Wayne Chang**, **Matt Condon**, **Stuart Hunter**, **Tyler Ward**, **Jay Thakrar**, **Harrison Hines** and, **Alex Sinclair Lack** who are of great help in supporting us.

–08
ROADMAP

Q2 - Q3 2017

PRE-LAUNCH PHASE
- Research, requirements, and concept of the GamerToken
- Definition, Ruleset, and logic of the GamerToken Mechanics
- Legal counsel and security policies
- Foundation, key building blocks, and basic setup
- Crowdsale preparations

Q4 2017

PROTOTYPE DEVELOPMENT
- Setup and configuration
- Smart contracts programming
- Rule test, verification, and adaptations

Q1 2018

MINIMUM VIABLE PRODUCT
- Fantasy MMO game integration of GamerToken
- Wallet and API Development
- Marketplace working Demo
- ERC-721 non-Fungible Item extensions
- Reward system

Q2 2018

PHASE 1: LAUNCH
- Public Announcment
- Early access for Founders (Crowdsale participants)

Q3 2018

PHASE 2: LAUNCH
- 1st Game Crypto Beta
- API and Reward system build upon increasingmain KPIs
- Marketplace Interfaces and game SDK

Q4 2018

PHASE 3:
- Onboarding new developers and publishers
- New game integrations
- First global tournament and rewards
- Further development and refinement

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DISCLAIMER & RISK ASSESSMENT

GamerToken IS A UTILITY TOKEN Issued by 'The Laurel Foundry Limited' a limited liability company incorporated under the laws of Malta with company registration number C-85340

The following section describes the risks that potential participants should consider before deciding to purchase GamerToken. The risks described below are risks that are specific to GamerToken and the Token Issuer´s business operations and business environment. General risks to which each company is exposed, as well as risks and uncertainties which are not currently known to the Issuers or which the Issuer deems to be immaterial at present, could have a negative impact on its net assets, financial position and results of operations. These risks may affect the future tradability, usability and value of the GamerToken.

The risks described below are the primary risks:

- **Market and Competitive Risks:** We are issuing our GamerToken within a highly competitive market environment. In view of the expected growth rates, the Issuer cannot rule out the possibility that further providers will decide to enter this market segment, nor is it clear how many publishers and developers will adopt the GamerToken and how many gamers and/or publishers and/or developers will use it and how frequently they will use it. This may affect the future value of the GamerToken. The GamerToken shall be used within the offerings of game publishers. We will cooperate with the Gamigo Group, an established publisher, but intend to offer the GamerToken in cooperation with further game publishers.

- **Technical Risk:** GamerToken is a technical product and may contain undetected software bugs, design errors, or hardware errors, which could manifest in a way that could diminish performance, security, create malfunctions, or even disable products. GamerToken is based on blockchain technology, smart contracts, ERC-20 compatible and ERC-721 standards, and Ethereum; all of these are new technologies that will also see further development and evolution that might affect value, technical use and tradability of GamerToken, even larger changes of the technology stack might be required.

  The publishers we cooperate with may experience malfunctions and/or the failure of the computer system and/or the networks. The publishers may be subject to various technical default risks, such as attacks, hacks, distributed denial of service attacks (DDOS), problems with distribution, marketing and payment partners as well as problems in the sphere of the game and technology development partners, this might also directly affect the gamers and other sector participants. These may lead to substantial losses and also harm the GamerToken.

- **Security Risk:** If our security is compromised, or if our platform or business is attacked, and this leads to denied access of our products and services or loss of user data, our users may stop using our products and services altogether or use them less frequently, which could seriously harm our business.

- **Compliance Risk and Tightening of the Legal Framework Conditions:** We are confronted with a large number of frequently changing and constantly increasing legal framework conditions. There may in particular be risks with regard to data protection, consumer protection, the protection of minors and gambling. Also the regulation regarding utility tokens and use of blockchain technology and smart contracts is still very unclear, will probably change and might result in increasing legal framework conditions. We may also be subject to regulatory investigations and proceedings in the future or there may be new regulation, which could cause substantial financial loss and may require us to change our business model in a way that could seriously harm our business, as well as potentially reducing the tradability and use cases for GamerToken.

- **Tax Risks:** We receive ongoing tax advice in order to identify any risks at an early stage. There is however a

risk that the tax treatment of business transactions may result in additional tax payments. Furthermore, the legislature could also amend the tax law in such a way that losses incur. Also, regulation might result in taxation being applied to users and partners.

- **Loss of Key Personnel:** The issuer is dependent on qualified personnel. Should key personnel leave the company or partner companies, this could have a detrimental effect on the general business activities of the issuer and thus on the GamerToken. If we do not succeed in attracting, hiring, and integrating qualified personnel, or if we fail to retain and motivate existing personnel, we may be unable to grow effectively and our business could be seriously harmed.

GamerToken is meant to be used within the GamerToken environment which includes the games of the partners, the Marketplace and the Tokenstore.

–09
CONTACT

If you have any questions, complaints, and/or ideas to improve GamerToken, please don't hesitate to contact us.

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Company Registration Number: C 85340
Registered Office: Valetta, Malta

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