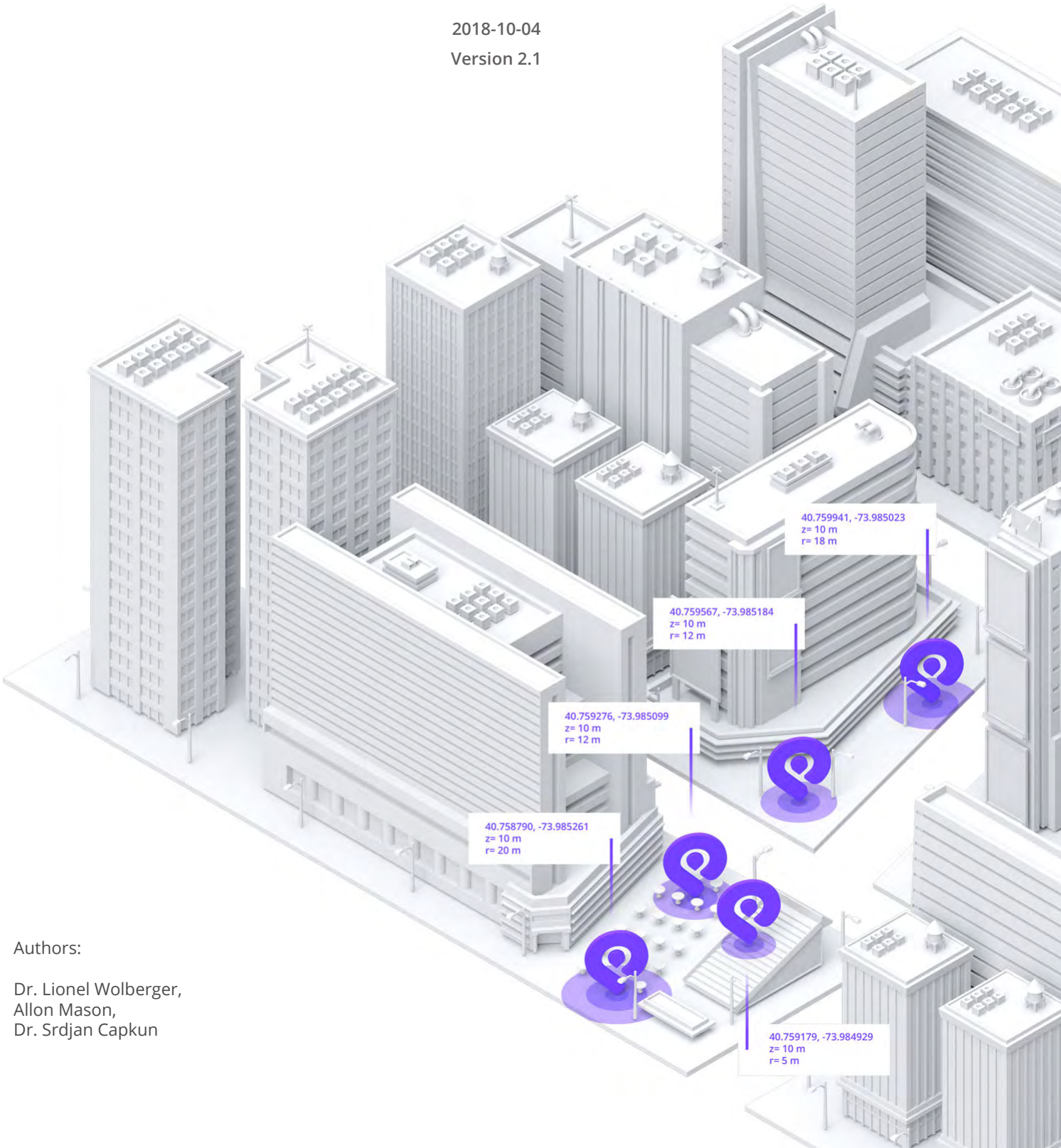
Platin

Proof of Location Blockchain

WHITE PAPER

2018-10-04

Version 2.1



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01
Overview

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1.1 Preface

This white paper is intended for people who would like a detailed introduction to how Platin works. It outlines the business and technical considerations we tackled in our approach to creating Platin, the solutions we chose and the reasoning behind our decisions. There are the main topics covered:

- Why we made Platin: the problems we solve
- Location credentials: what they are, and how they are privacy preserving
- Blockchain: How Platin's blockchain works
- Overall architecture: Platin›s blockchain enables speed, extensibility, flexibility and moveable security while maintaining transparency and accountability
- Incentivizations: how Platin›s token economics and game-theory-powered incentives work together
- Secure location: the three pillars of location security in Platin
- Associating claims with digital assets: using Platin to power your business

If, after you read this white paper, you want more details regarding the business of Platin, a Token Economics Paper is also available on platin.io. And for those technical readers wishing more details on Platin's engineering, a Yellow Paper will be made available along with links to Platin's Github repo.

1.2 Overview

Platin is a lightweight, secure, verifiable, decentralized and blockchain agnostic Proof of Location (PoL) protocol that finally makes cryptocurrency so real that you can see, feel and touch it. To achieve that, Platin decentralizes the location services marketplace with secure location capabilities and proof verification for any digital asset such as cryptocurrencies and secure documents fueled by Platin›s own PTN coin. Platin makes available to businesses worldwide its secure, decentralized and incentivized peer-to-peer location protocol.

Platin's architecture uses decentralized peer-to-peer protocol for location-centered operations. Platin provides GIS extensions to well known blockchains , including Ethereum/Solidity, EOS and others. These extensions can be used by developers to request and define secure location proofs on the blockchain. The Platin Plexus™ is scalable and robust, providing pluggable and modular security that evolves over time as needs arise. Platin's Proof of Location protocol has the potential to transform every industry, from retail to ride-sharing and from supply chains to the disintermediation of large scale international humanitarian relief efforts.

The Internet and the World Wide Web was not invented just for GAFA (Google, Apple, Facebook and Amazon) or MNOs (mobile network operators) to track and sell our location data. Platin's

1.3 Problem in a Nutshell

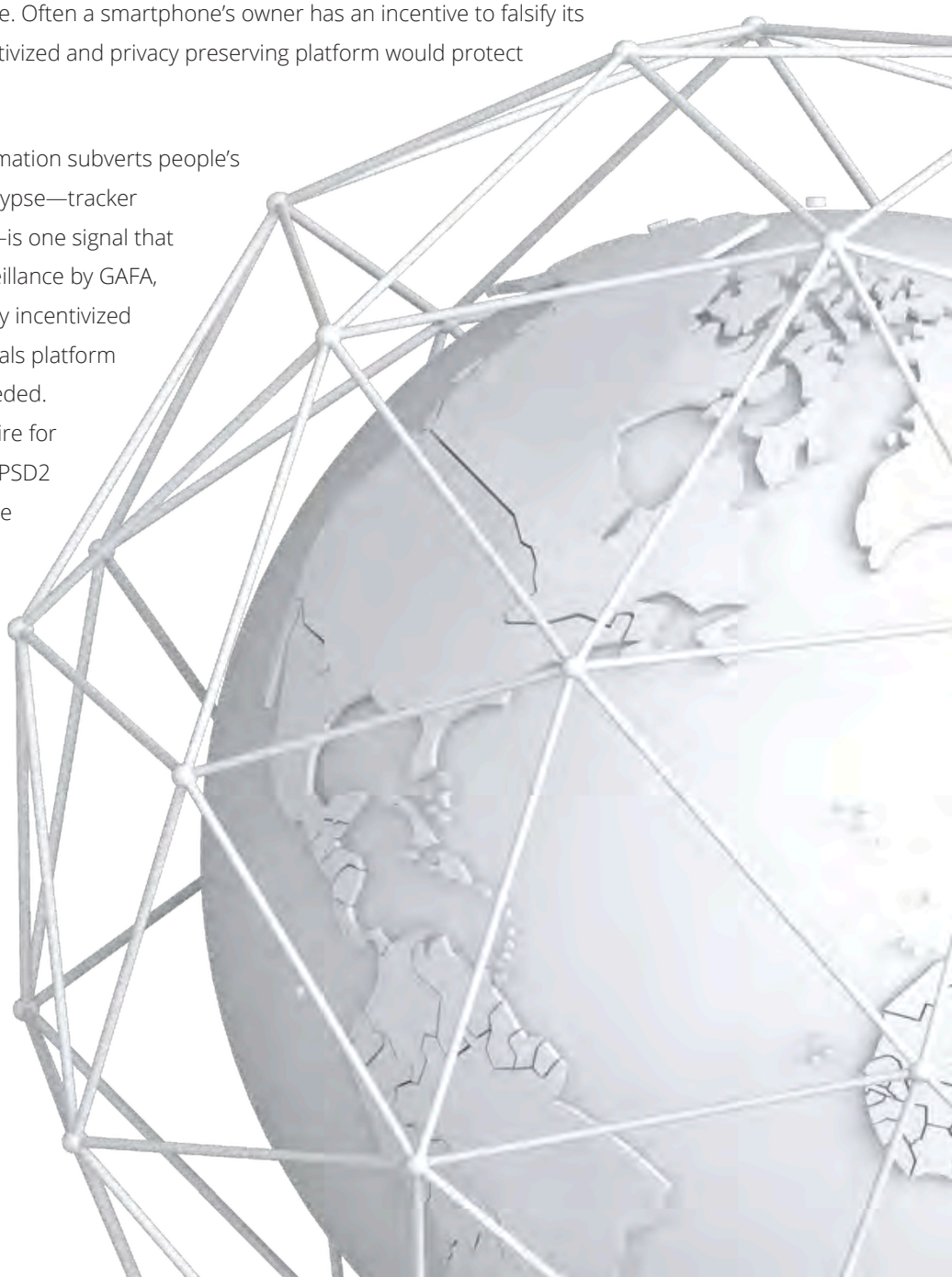
Location information enables digital systems to connect with the real world. Navigating via GPS is just the beginning, enabling local services, emergency interventions, the tracking of business assets, enterprise location intelligence and geospatial analysis that accelerates business models, and more.

Yet such systems must cope with fake and missing location identifiers, caused by users on VPNs, web-proxies, TOR networks, GPS spoofing apps, shared account credentials, ad blockers and dozens of other tools.

This paper discusses the problem and solution and shows how location credentials can be handled in a better way while decentralizing location value from GAFA back to the private individual.

First let's review the current state of the centralized location ecosystem.

Silos govern the current location information market. Insecurity characterizes the existing location information market; it is prone to spoofing and abuse. Often a smartphone's owner has an incentive to falsify its location. A decentralized, securely incentivized and privacy preserving platform would protect against such attacks.



Indeed, poorly consented location information subverts people's basic rights to privacy. Today's adblockalypse—tracker blockers installed by millions of people—is one signal that people are unhappy with constant surveillance by GAFA, MNO and CDM. A decentralized, securely incentivized and privacy preserving location credentials platform could provide credentials only when needed. This usage would be fair to people's desire for privacy, and would conform with GDPR, PSD2 and other on-coming regulations that are responding to privacy rights complaints.

Tim Berners Lee invented the World Wide Web to open up such siloes and connect all information, regardless of network. Recently Sir Tim has spoken repeatedly against the centralization of web services. In this spirit the W3C is standardizing digital credentials such as location. Its Verifiable Claims Working Group formed in April 2017 is dedicated to making "expressing, exchanging, and verifying claims easier and more secure on the Web." Platin's team

works with Sir Tim and other W3C members in this Working Group to codify the creation, storage, presentation, verification and user control of location credentials.

A decentralized, securely incentivized and privacy preserving location credentials service is being rolled out today by Platin. It is only possible today—not last decade or even last year—due to our increasingly mature communication infrastructures, ever more powerful smartphones with rich mobile sensor detection, DLT (distributed ledger technology), game theory-based incentivization via tokens, maturity of crypto-currency exchanges, and advancements in privacy preserving zero knowledge proofs. These affect the handling of location credentials past, present and future. The past is the realm of DLT cryptography ensuring immutability, accuracy and auditability of claims. The present is the realm of assurance and reliability of claims, made possible by advances in smartphone sensors, secure proximity RF, artificial intelligence and opportunistic networking. And the future of the platform is ensured by game theory incentives for distributed systems.

The maturity of these relatively new technologies along with ongoing growth of location-based services in urban outdoor environments, shopping malls, museums, and other indoor settings; the mass adoption of social networking, gaming, along with emergency services, tourism services, intelligent transport services, assistive services, and more, means the time has come.

The time for Platin is here.

1.4 System-at-a-Glance

The Platin system is a collection of inter-cooperating subsystems that enable privacy-preserving location credentials on a scale and security assurance level never before possible. End users can enjoy Platin-powered apps that make digital assets become real, such as a crypto coin or other digital asset appearing as really present on top of a desk at a street corner. Developers working with the Platin protocol find that Platin has a short learning curve. By using Solidity GEO and other Ethereum oriented methods, programmers can stack, extend, and re-use Platin PALs (Platin Algorithms) to enable use cases bound to location behavior that were unimaginable before Platin, such as offering a discount to rental car drivers if they visit certain local tourist sites. For businesses, Platin is a way to earn revenue, monetize existing infrastructure and track activities.

In this “system at a glance” section we fly over Platin’s full stack. Like an airplane flying over a city, we will see all the main sites and attractions to understand how they work together.

For end users, Platin is a mobile app that allows its users

to see, feel and exchange cryptocurrencies, as for example in the diagram below: An individual running the Platin Pocket™ sees a Platin coin on the street via augmented reality. she waves the phone and, in a movement like capturing a Pokémon Go™ Monster, attempts to touch the coin to take possession of it. The end user now owns the coin and it appears in her wallet for her personal use.

Figure 1. Platin Scenario where collecting the coin requires scanning verification of nearby celltowers, wifi routers and Bluetooth devices.

This scenario is supported on the Platin protocol by configuring the proper Platin Policy and transferring PTN to it. This policy is composed of PALs: plug-and-play algorithms that are simple to configure and deploy.

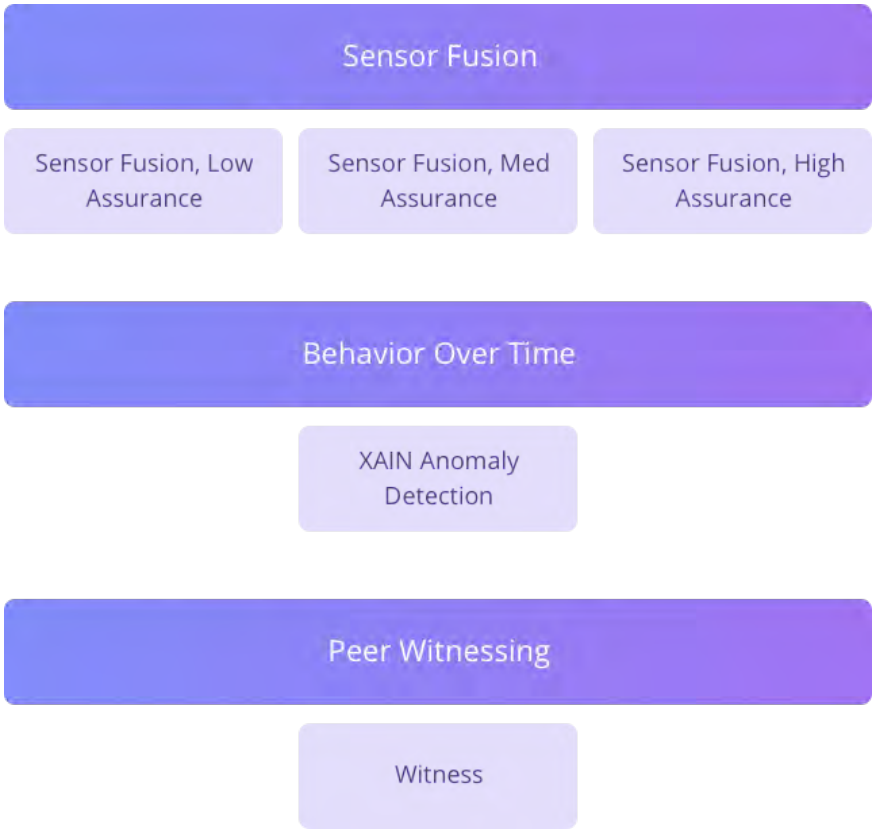


Figure 2. Proof of Location policies are composed of PALs, modular algorithms that can be selected and added as needed.

The Platin Protocol is standards-compliant to integrate efficiently into the current world of geospatial activity and location-based services. The relevant services are summarized below.

Token & BC Overhead	GEO + Spatial Sources	Trust Anchors (Crypto Key Mgt)	Beacons / Witness Mgt. (Platin Anchors)
Crypto Exchanges	Map Services	Digital Asset PKI Identifiers	Point of Sale System
Crypto Wallets	Sensor Maps e.g. Cell Towers	W3C Credentials	Supply Chain Management
Solidity IDE / Testnet	Sensor Maps e.g. WiFi	TLS Certificates	

Figure 3. Relevant Non-Platin Services that Integrate with Platin

The Platin Pocket™ is the mobile application that provides wallet capabilities, location anomaly detection and serves as the user interface for Platin mining. Its high level architecture is a typical smartphone application, using the typical hardware and sensors found in any smartphone.

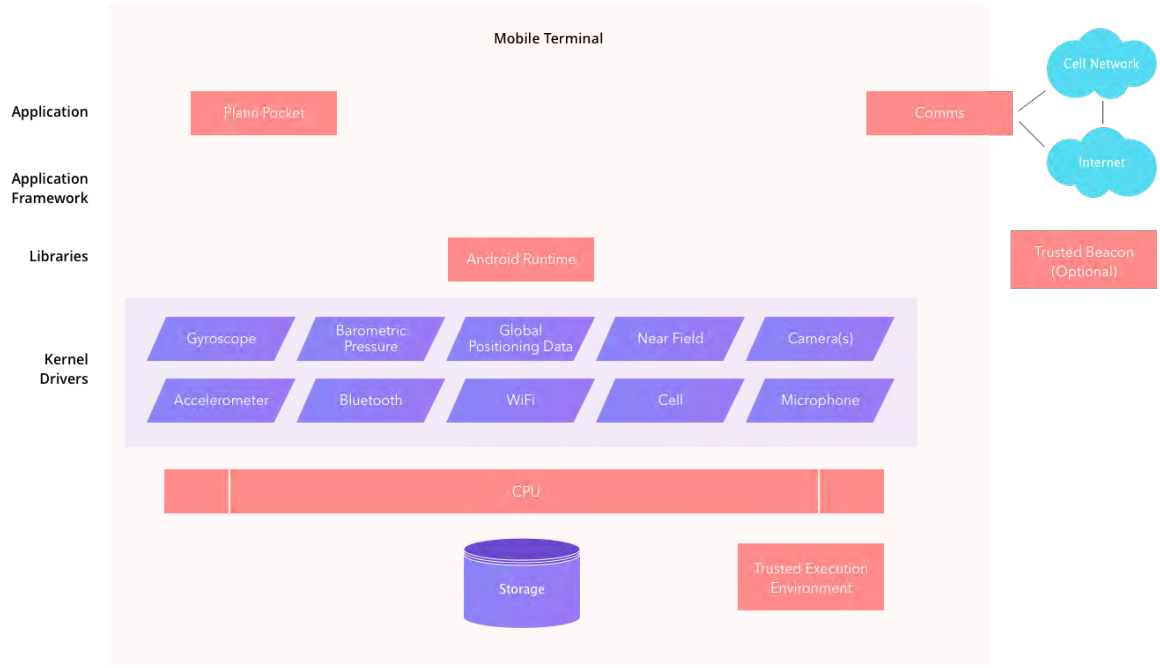


Figure 4. Platin Pocket™ Mobile Application, Internal View

1.5 Free and Open Source

Platin is an infrastructure protocol providing incentivized, decentralized secure positioning

for the web3 economy. As such Platin follows the tradition of FOSS that has long been an essential part of the location and geospatial landscape. Anyone can use the system and its utility services, inspect the code that enables its functioning and fork it if desired. We work this way because it is the right way to deploy such a global protocol. In addition, some enterprise value propositions can be built on the platform, in the same way that Red Hat monetizes FOSS Linux, providing SLA and QoS guarantees in return for remuneration.

An example of Platin's FOSS approach is its contributions to the W3C's Verified Credentials standard, a technology intended for broad adoption on the World Wide Web that supports immutable, reliable yet privacy preserving declarations in a distributed way. This standard is codified by groups of the World Wide Web consortium and Platin's representatives devote their time to completing this standard, which will be interoperable and open to all users.

Check out our code in git, and get involved!

Our high level flyover is concluded. Let's take a closer look at the platform that is Platin.

02

Why Platin?

This section reveals why we made Platin and includes sample use cases of how Platin can help your business.

2.1 Digital Assets Lack Something

The computer age introduced digital artifacts to our everyday lives. These artifacts lack something, making it difficult for the average person to deal with digital assets—no matter how much moral excellence a digital asset may have, it still feels less than real.

Take money as an example. A seemingly random string of letters and numbers represented by a QR code (see below) is difficult for most people to understand and use as money. People literally cannot "grasp it" and so, mentally cannot either. I can print a copy of it, and so can you—then who has it? How do I protect it? It is these confusions that cause digital assets like Bitcoin to fail the "grandmother" test, meaning that my grandmother cannot understand it and so does not use it.

Physical assets, on the other hand, are easy to grasp. The money pictured below can be held in my hand, put on a table, and manipulated as surely as any other physical object. It is unique, there is only one, and it cannot be copied. It passes the grandmother test.

Figure 5. A QR code representing money: a Bitcoin address, "16rC-mCmbuWDhPjWTrpQGaU3EPdZF-7MTdUk," worth nearly $1 Billion USD at the time of this writing.
vices that Integrate with Platin

Figure 6. Photograph of a paper Federal Reserve Note representing one hundred U. S. Dollars, serial number LG04727792.

Pikachu, a creature from the "Pokémon Go" game, shows us how we may bridge this gap between virtual and real. Pikachu, though a virtual artifact, is more "graspable" than the QR code above. The game by Niantic harnessed the power of ordinary smartphones, with their screens, audio and sensor capabilities, to make Pikachu real enough to see him and capture him, passing the grandmother test.

Figure 7. Screenshot of Pikachu standing on a sidewalk. Pikachu seemed so real that 750 million people downloaded the app and at the time of this writing 65 million were still looking for Pokémon monsters.

Location and AR are the critical smartphone capabilities that makes Pikachu feel real. However, its location data is not secure and, as a result, the game is plagued by spoofers, people who sit in their homes but simulate their presence on a street, falsify their location, and capture Pokémon monsters fraudulently.

Similar location fraud plagues other location-based services, such as Uber drivers who use location spoofing to artificially inflate ride fares. In fact, the potential for spoofing and false claims goes up as you move from games to taxi fares to money itself in the form of cryptocurrency.

2.2 Digital Assets Made Real With Location

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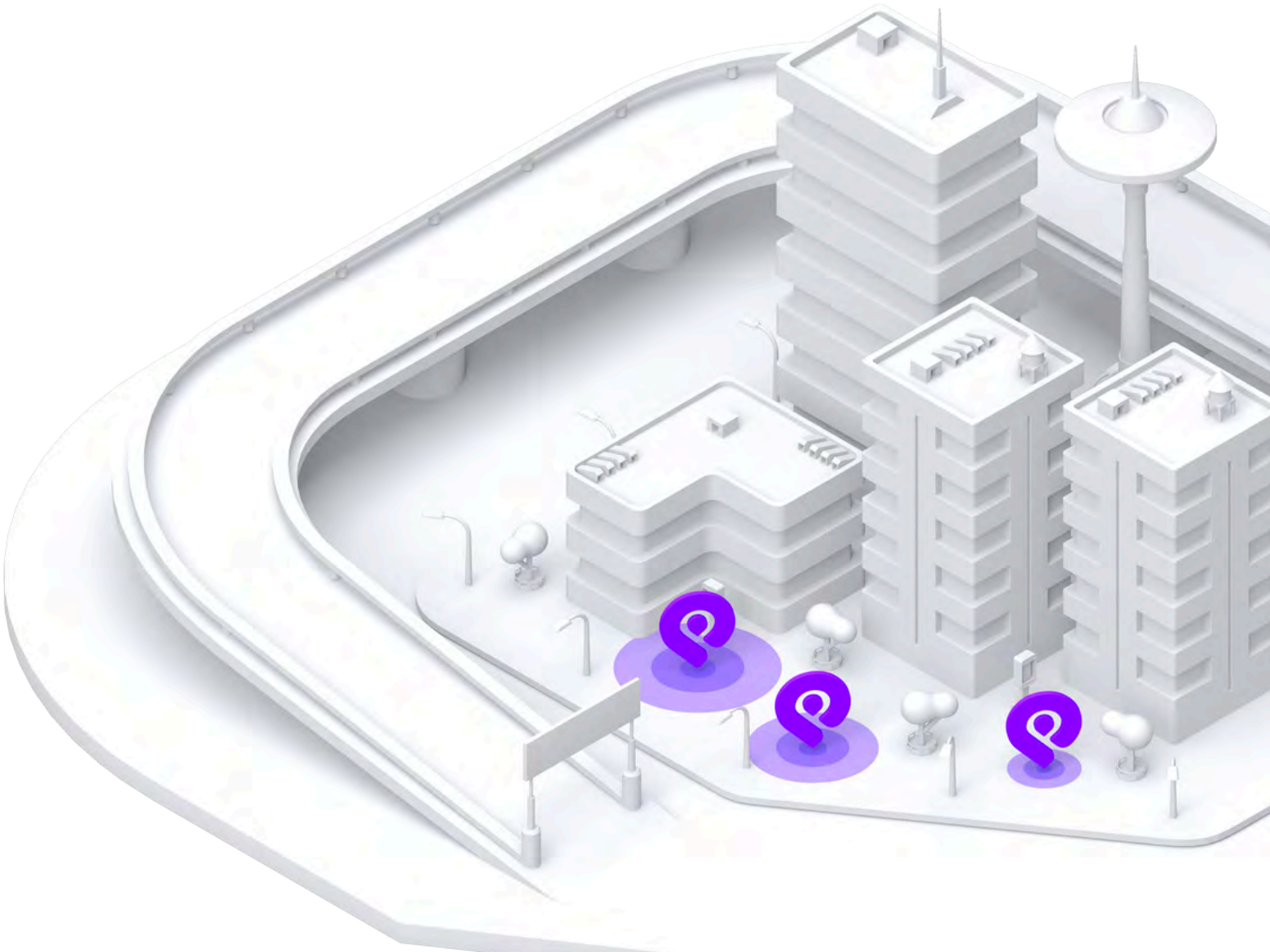


2.3 Simple Use Cases

The ability to locate something or someone is a basic human need as is found at the heart almost every form of economic activity. A few examples:

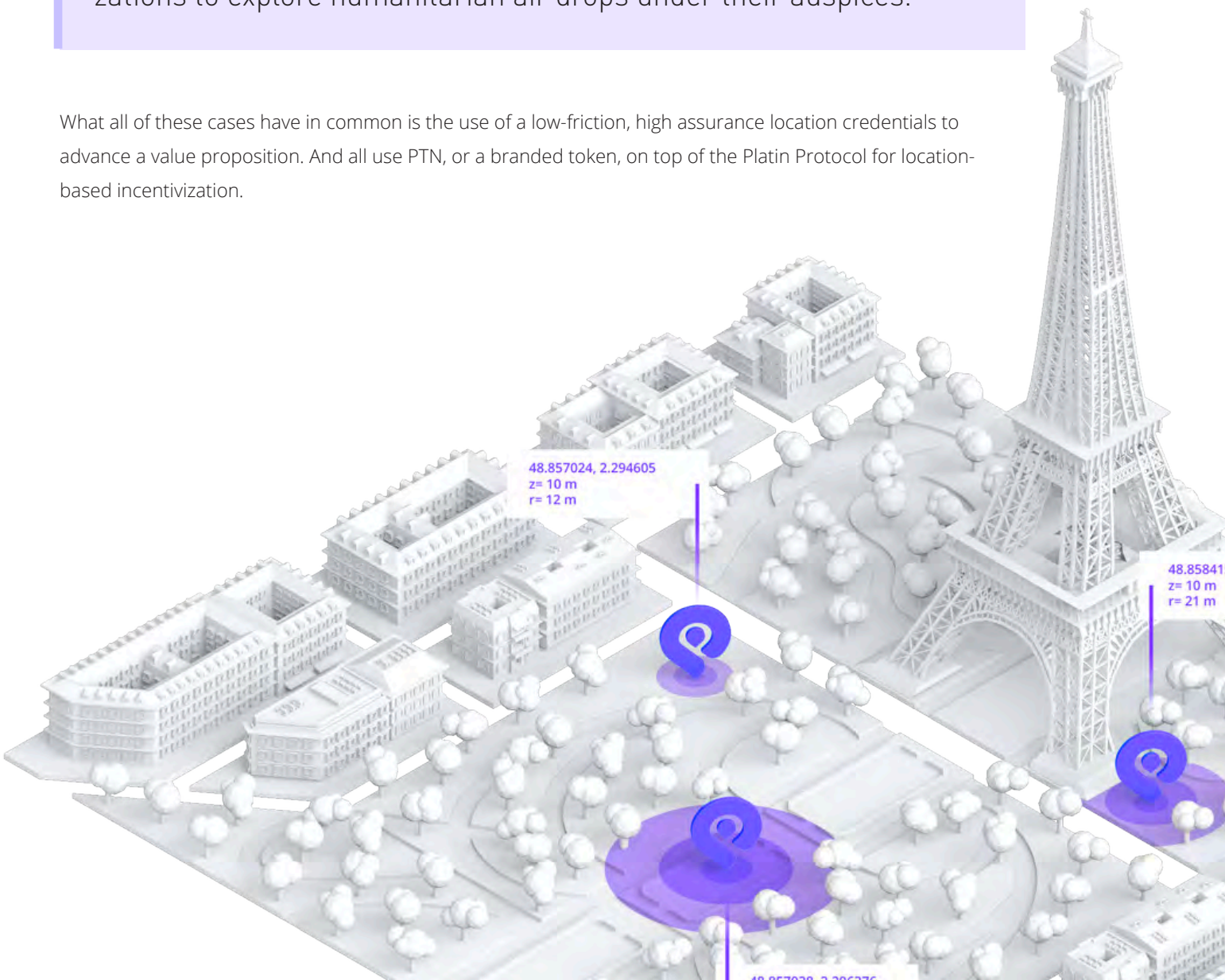
- **Lawrence leaves cash on his dining room table for the cleaners.** The cleaning crew enter the apartment, clean it and collect the payment for their services. There is another payment at the end of the day as well. Lawrence is assured that the crew was present at my location both those times.
- **Olivia proves to her bank that she is present at her home and office.** The clerk uses this proof to grant Olivia a loan. The bank is assured of meeting their KYC and AML requirements surrounding identification as it relates to physical location.
- **Coffee Roasters Chain drops their branded CAF coins at the doors of all their cafés to attract customers.** The Coffee Roasters Chain, present in all major cities, issues a CAF "branded coin" on Platin's blockchain, taking advantage of its low cost, high throughput and native location capabilities to promote Coffee Roasters Coffee by dropping their tokens at the doors of every branch, a few times a day. The people who turn up collect the money and spend it in the stores or use them to purchase discounted coffee beans. Coffee Roasters has drawn more people to their locations, has successfully promoted foot traffic, and has ensured uptake and trading of their CAF token.
- **Antonio prevents speculators from manipulating his national currency.** Anthony is the Treasurer of a South American Nation. Trade within his economic zone is regulated with geo-fencing. The ledger handling currency exchanges recognizes where the transaction was made, and trades made with outside communities are disincentivized or blocked altogether. Antonio protects his currency's value from speculators who are not physically vested and involved in our community.
- **Thomas subsidizes his automobile fleet.** Thomas manages a fleet of automobiles on behalf of his corporation. He adds to the drivers' software a location protocol witnessing layer. As the cars are used, the software contributes location witnessing validations to the system, and earn cryptocurrency just by driving, subsidizing the cost of the fleet.
- **Evelyn records her fitness record.** Evelyn's insurance company gives Evelyn a discount if she makes her fitness routines visible to them. Using Zero Knowledge cryptography, an immutable record of Evelyn's fitness is stored in her personal data store. The insurance company can gain assurance that Evelyn is meeting her weekly movement goals, without Evelyn revealing unnecessary details about her exact location.
- **Daniel helps diffuse urban traffic.** Daniel's fleet of self-driving cars are routed via different parts of the city where strategically-placed PTN coins can be collected by his cars. While the new routes add 10-15 minutes the drive, Daniel's cars are compensated in PTN (or branded municipal tokens) for having accepted modified routes that reduce traffic congestion.
- **Humanitarian Aid.** Platin is setting up a humanitarian task force to focus on airdropping crypto assets on needy communities and communities affected by natural disaster and catastrophic events such as war, economic collapse, earthquakes, famine and other.
- **Characteristics:** Airdropping crypto assets to populations affected by catastrophic events; Real-time aid

distributed directly to affected populations; Help citizens and avoid inefficient aspects of government, NGOs and endless red tape; Ensure fair & even distribution; No waste: unclaimed coins revert back to donors; No hoarding - enforces throttling, rate limiting & per wallet limitations.

- The Puerto Rico disaster, like most, enabled many bad actors to siphon off humanitarian aid and funds before they can reach the needy. In fact, today philanthropy overall is reduced because people suspect even large organizations such as the Red Cross of not delivering all the value to the target community. Platin enables direct delivery to the people on the ground, disintermediating middlemen.
- The law of unintended consequences means it will take time and experience to perfect disaster recovery coin drops. Platin intends to facilitate the community development of a set of best practices - for instance - people may be spread out at the time of a storm but then may cluster together at aid centers afterward. It does no good to leave most of the aid out in disaster areas that could incentivize people to return to unsafe areas (gas leaks, waterborne, diseases, etc.) before repairs/remediation and end to any immediate danger.

Note: Platin has signed letters of intent with international aid organizations to explore humanitarian air drops under their auspices.

What all of these cases have in common is the use of a low-friction, high assurance location credentials to advance a value proposition. And all use PTN, or a branded token, on top of the Platin Protocol for location-based incentivization.



2.4 Development Team

The Platin team is truly global. The founders are based in Israel. Platin software developers are based Platin's Tel Aviv and Kiev offices, which include, a team of full time Platin employees, experts in blockchain (Ethereum, EOS), mobile (Android, iOS), full stack programming, designers and 3D modelers, Solidity developers and more. Platin's Japan team leads partner relations and business development.

2.5 Economics

Users of the Platin protocol pay for its use using the Platin coin (PTN). In this way Platin behaves like Ethereum, the leading open-source, public, blockchain-based distributed computing platform co-founded by Vitalik Buterin. PTN, like "Gas" in Ethereum, measures how much "work" an action or set of actions takes to perform: for example, to collect a sensor fusion location report may cost some fractions of a PTN. An operation on the Platin platform costs a certain number of PTN, with operations that require more computational resources costing more PTN than operations that require fewer computational resources.

> Note PTN is a utility token enabling incentivized proof of location operations. PTN holders have a right to access and drive usage of the platform by running in EVM-compatible code (i.e., smart contracts), paying usage fees. The tokens may be used for payments and transactions relating to location claims. PTN is not an investment vehicle.

2.6 The Decentralized Location Market

Platin is a leading player in the Decentralized Location services space. We are proud to share this space with some other companies engaged in similar services.

2.6.1 Foam.space

Foam.space 's go-to-market consists of deploying radio beacons that stakeholders pay to operate, which then participate in a proof-of-stake consensus system that interacts with a map of the world. Foam operates on Ethereum smart contracts. They propose Crypto-Spatial Coordinate (CSC) Ethereum smart contract addresses with corresponding addresses positioned in physical space that are verifiable both on- and off-chain. CSCs are verifiable both on- and off-chain. They are related to token-curated registries, which people can stake.

Table 1 below highlights some differences between Foam and Platin.

Table 1: Foam vs. Platin

Item	Foam	Platin	Comments
Blockchain orientation	Ethereum enthusiasts; born as a blockchain company. Uses mainly Ethereum.	Cryptocurrency enthusiasts; born as a blockchain company. Uses Ethereum, EOS, or the Platin Plexus™	Ethereum experiencing scalability issues; costly Gas; Plexus has very high TPS and its protocol is fully location aware.
Security Anchor	Low power wide area radio networks e.g. LoRA; Two-way secure time synchronization	Sensor fusion, behavior over time and peer to peer witnessing.	Platin's team has decades of experience in cryptography and security
Sensor dependency	Low power wide area radio networks e.g. LoRA; single point of failure	None (uses all available sensor modalities)	Platin can use Foam's RF beacons as one of many other sensors and signals. LORAs do not handle many nodes with simultaneous positioning and has no medium access control/coordination.
Rollout (go-to-market, first deployments)	Radius around deployed beacons, curating points of interest	Airdrop geographics	Platin has no need of new hardware or custom infrastructure which can be slow and costly to deploy.
Privacy / standards	Not announced yet	W3Cstandards protocols, ZK proof operators	Platin uses privacy preserving ZK W3C compliant protocols, deeply embedded within the Platin Protocol

While Foam and Platin can engage in "co-opetition" to develop the market for trustless location claims, Platin envisions Foam tapping into the Platin Protocol and APIs to for their own location based needs.

2.6.2 XYO

XYO network is the reverse ICO of a hardware-oriented company, formerly called XY Find It, that sold small Bluetooth tracking tiles for finding lost items, like handbags and keyrings. Their first Kickstarter campaign in February 2014 raised over $200K. They have since sold many of these keychain beacons. Pivoting to blockchain, they proposed an architecture and hired some blockchain experienced developers to build and promote the new approach. XYO's communication strategy is strongly hyped, with emails and content consist of phrases like

Table 2: XYO vs. Platin

Item	XYO	Platin	Comments
Blockchain orientation	A hardware consumer device company that pivoted into blockchain	Blockchain and security company first	XYO is a reverse ICO.
Satellites	Plan to launch satellites	Uses existing satellites with enhanced security	Platin's team has decades of experience in cryptography and security
Communicatio	Hyped	Technical	Satellite systems are extremely costly, difficult to launch and secure.
Hardware based	Insecure Bluetooth beacons; launching a satellite	Hardware independent	Bluetooth BLE devices are not secure, can be replayed, spoofed.

"Mission Status: Critical, Mission Impact (on a scale of 1-10): 1,000." They recently began speaking of launching a satellite network to replace GPS.

While XYO and Platin can engage in "co-opetition" to develop the market for trustless location claims, Platin can use XYO's insecure Bluetooth beacons and satellites for its own location proofs.

2.6.3 Fysical

Fysical is predominately a data analytics company. It is the reverse ICO of a data aggregation company originally called "Beacons In Space." Beacons In Space aggregated locations of retail Bluetooth beacons. They then expanded to purchasing data, and recently pivoted to the blockchain and rebranded themselves as, "Fysical." Fysical plans to enable a distributed marketplace of data with more transparency into data provenance. They claim that people will be paid for the use of their mobility data, while also protecting anonymity.

Table 2: XYO vs. Platin

Item	Fysical	Platin	Comments
Blockchain orientation	A data aggregation company that pivoted into blockchain	Blockchain and security company first	Fysical is a reverse ICO.
Security	Statements provided by data provider	Security enabled by Platin	
Bulk	Bulk imports of location data from third parties	Location data from Platin users as well as third parties	

2.6.4 Principal Platin Differentiators

Security	High-value assets can be leveraged on Platin due to security being baked in from day one by experienced, proven team, full-time cryptographers who are part of early core team hires.
Interoperability	Very flexible leveraging of existing infrastructure due to being hardware agnostic.
Coverage	Can be used anywhere on earth rather than limited to areas of prior deployment.
Early Mover	Great market timing, one of the first Proof of Location solutions out of the gate.
Platin Team	Committed, tireless co-founders, core team, blockchain evangelists, security specialists, with proven business traction, proven ability to recruit, manage and deliver while providing business value to stakeholders.
Experience	Platin's CEO and CTO have decades of experience with secure cryptographic systems, tech innovation and delivery of large scale systems; Platin's advisory team includes security experts at world-class universities such as the Technion and ETH Zurich.
Standards	Other tokens depend on the creation of new standards and new technologies (e.g., time synchronizations). Platin uses proven, deployed and standardized ISO and W3C accepted standards such as Simple Feature Geometry and others
Visualization	Other projects focus on visualizing a map of staked claims. Platin focuses on visualizing the location of digital assets, such as cryptocurrency, branded coins and others depending on the underlying business case.
Security	Competitors focus on their own hardware and less on the security of their software components. On the converse, Platin is a security- and privacy-focused entity in all regards.
ZK	Platin has already released its first location Zero Knowledge proof, and will soon have ZK-Snarks and Starks implementations as well as new innovative proofs. No other PoL player has made any announcements on the subject of privacy preserving zero knowledge proofs or location blinding.
Tokens	Other project tokens staked to places and hardware beacons, leading to slow growth (one location at a time). Platin tokens earned by Sensor-based Mining (faster global uptake), and Staking secure beacons (can be software based, faster deployment)

2.6.5 Summary

Together, the above listed companies work with Platin in "coopetition" to make the location space more mature and enable a mutual benefit proposition for service providers and consumers of location-based services.

03

Platin Token Sale / ICO Economics

This section describes various aspects of the Platin Token Sale.

Platin TGE:

October 28, 2018
12:00 GMT

3.1 Disclaimer

This document contains forward-looking statements, subject to risks and uncertainties that could cause actual results to differ materially. Final obligations will be determined by the actual signed SAFT agreement, and in any contradiction between this document and the SAFT the latter shall prevail.

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Platin tokens are not a medium of exchange but provide utility within the Platin PoL protocol. Platin tokens are not intended to be a regulated financial product of any kind. Purchasers and holders of the Token will not receive any profit, income, return or other benefit purely by virtue of holding the Platin Tokens.

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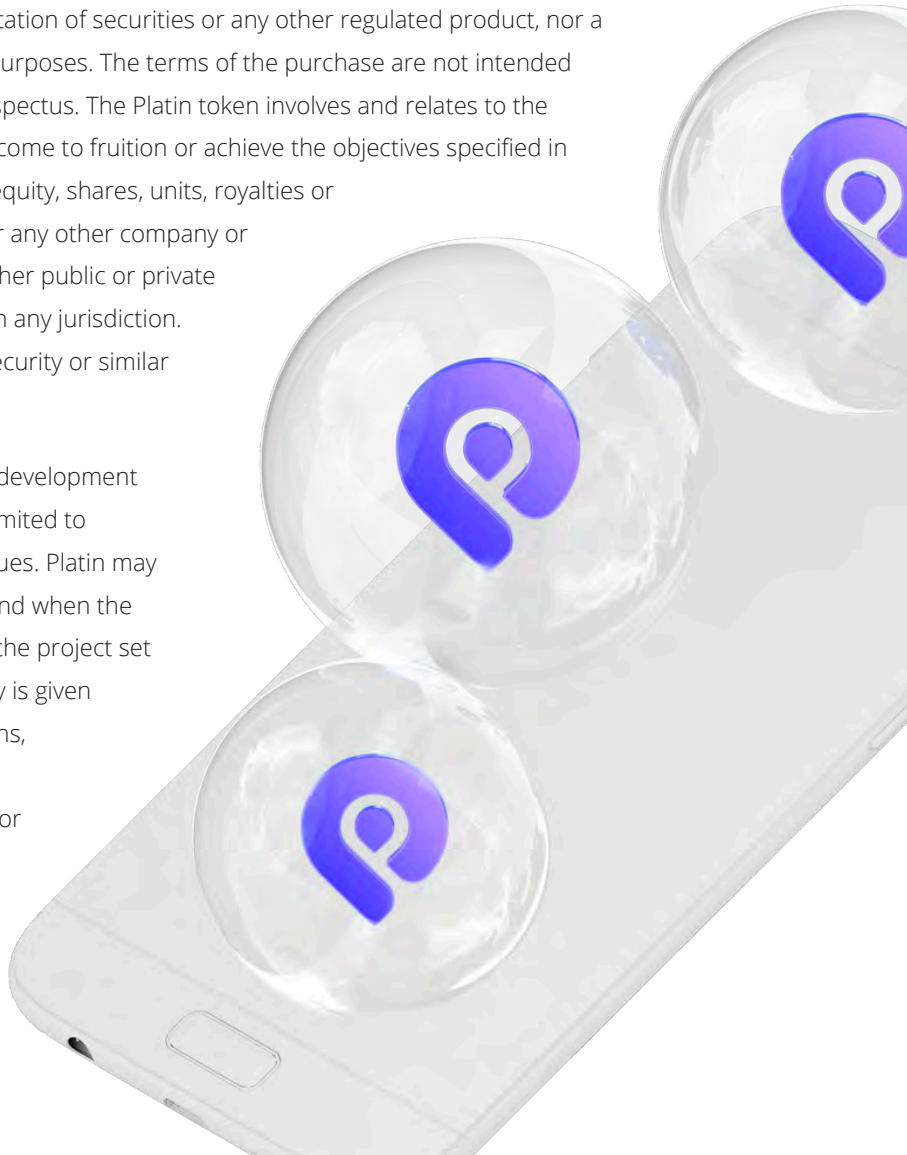

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(iii) neither this document nor the Platin tokens are endorsed by any government authority.

3.2 Reasons for the Platin Token Sale

- Incentivization of the ecosystem: early adoption fuels development
- Early purchasers enjoy a significant price advantage, in exchange for funding early development
- Early stakes more valuable
- Early location proofs earn more

3.3 Token Sale Details

HARD CAP
$18 Million

TOTAL SUPPLY
1 Billion PTNX

SOFT CAP
$3 Million

ALLOCATED FOR SALE
300 Million PTNX

TGE
October 28, 2018

Instruments:

Platin SAFT (private sale only); Instrument for public sale is TBD.

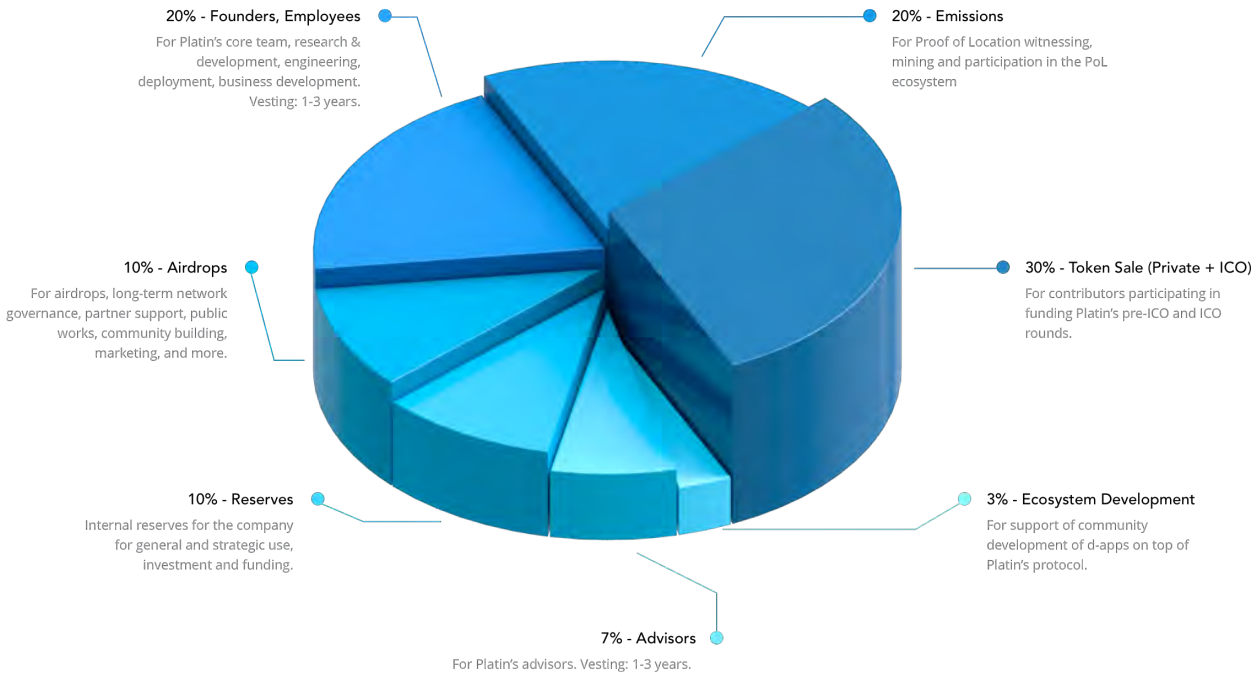
Unsold tokens:

At this time Platin will not burn unsold tokens. Instead, any unsold tokens from the token sale allocation (including both the private and public sales), will be allocated as follows:

50% - Will be allocated to "Ecosystem Development".
50% - Will be allocated to "Proof of Location Mining".

3.4 Token Distribution

The Platin Token will be distributed to seven major participating groups in the Platin Network. This allocation is written into the TGE smart contract itself. Each of the following allocations below is an integral component of the Platin ecosystem:



3.5 PTN vs. PTNX Tokens - What's the Difference?

PTNX is an ERC20 token issued for signal harvesting, that is equivalent to 1 PTN, the native token of the Platin Plexus blockchain used on the Plexus and for other location proof activities. At the time of the Plexus go-live, holders of PTNX tokens will be given 1 PTN for each 1 PTNX held. The PTNX utility tokens will co-exist with PTN utility tokens.

3.6 The Utility of the PTN/PTNX Tokens

The PTN/PTNX utility tokens enable secure and verifiable location proofs to be requested via Platin's Proof of Location (PoL) protocol on the blockchain, or to enable the coupling of and representation of geographical information within secure digital assets. These tokens are also the mechanism underlying incentivization for participating nodes to witness, verify and attest to location claims. Proof of Location exists primarily as a result of the PTN/PTNX (PTN/X) tokens.

The application of incentives to Platin's Proof of Location protocol is one of the insights that founded Platin, and is based on game theory models that are working in other cryptocurrencies. They both encourage actors to nurture Platin's strong, safe, peer-to-peer operation and discourage bad actors by punishing those who act maliciously.

Platin's fungible utility token, the PTN/X, with its smallest unit pli, is the primary continuously operating incentive unit on Platin's blockchain. PTN/X is fungible, meaning it can be exchanged for other currencies, empowering it to incentivize and mold the behavior of platform participants. Varying amounts are rewarded to nodes that run Platin Policies (with their associated PALs) of varying complexity. A simple policy pays minimal fees. An elaborate policy, such as one requiring AI-powered location history analysis or zero knowledge credentials, rewards higher fees. Baking these fees into Platin's consensus and incentive structures ensures that the Platin ledger does not become bogged down with low value, high bandwidth work or malicious attempts to create artificial bottlenecks.

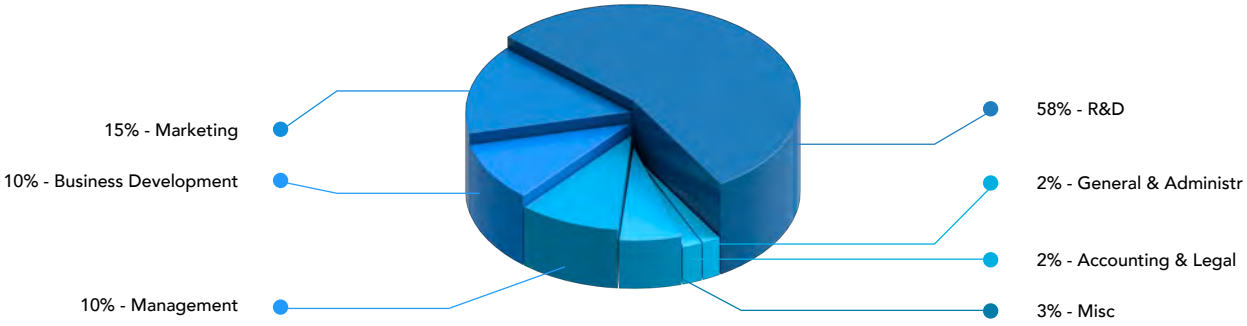
Nodes can earn PTN/X by participating in attestation and secure location witnessing. Secure beacons, whether standalone or integrated into IoT devices, can continuously earn PTN/X over time. The rate of earning correlates with the number of Platin policies that request a validation from that beacon. Therefore, beacons in more populous areas have the potential to perform witnessing more frequently and, as a result, earn more PTN/X.

Platin received a legal opinion stating that the Platin token is incontrovertibly a utility token. The legal opinion is comprehensive and includes a number of tests used by various jurisdictions.

3.7 Use of Funds

Following is a breakdown of Platin's planned expenditures for each success scenario in Platin's fundraising activities:

	Current	$3m +	$8m +	$13m +	$18m hard cap
Engineering	Continue development with our current team on the PLatin Oracle/ Verifier	Expand core dev team. Accelerate work on the Platin Plexus/ETH fork. Consider a secondary issuance in conjunction with the release of the Plexus	Hire additional talent including team leaders in blockchain, mobile and crypto	Expand hiring of talented teams of engineers and designers to build PoL consumer dapps	"Aqui-hire" established dev teams through strategic acquisition of tech companies.
Research	Continue our use of PhD candidates to work on formal verification. Continue Technion & other academic research projects	Keep our current approach but expand to UC Berkeley, strategically engage the distributed PoL. Deepen ETH Zurich, HKUST ties	Contract a team of academics to research and refine the Platin consensus algorithm, followed by implementation of zero knowledge proof operators within Platin	Offer competitive salaries to attract experts on formal verification to work exclusively on the protocol. Set up a working group at ETH Zurich	Sponsor a leading computer science department with endowed professorships and extensive grants to graduate students in the field of distributed PoL
Communication and Marketing	Continue working with our distributed team on a need-basis	Expand both distributed and in house marketing teams. Hire a dedicated community manager to deepen SM interactions and community education & engagement	Hire CMO and expand marketing and PR teams	Hire senior marketing team leaders serving APAC and EMEA	Hire VP marketing staff each for American, APAC and EMEA
Dev Conferences, Hackathons		Host one annual developer conference or hackathon	Host one developer conference in Silicon Valley and one hackathon in Switherland	Conduct three annual developer conferences (EU, US, Asia) with one focusing on Platin Play - distributed PoL for AR & location-based gaming	Host quaterly developer conferences, hackathons and lead monthly meetups in US, EU, Asia on PoL, protocol dev, dapps, airdrops and more
Business Development	Core team continues ad-hoc meetings and biz dev efforts only with most strategic/ prioritized	Hire a strong VP Business Development to assistin interfacingstrategic partners, vendors and service providers	Expand the business development team with one senior and one junior business development responsible for APAC and EMEA	Hire dedicated business development VPs each in American, EMEA and APAC	Expand the business development team with additional senior senior staff in American, APAC and EMEA
Humanitarian Airdrop Task Force			Establish humanitarian airdrop task force at Platin HQ for global location evaluations and to establish last-mile relationships	Expand task force in cooperation with humanitarian aid organizations	Expand special distributed task force across American, APAC and EMEA. Expand commitments from a larger number of humanitarian and organizations
Urban Airdrop Task Force			Establish urban airdrop task force at Platin HQ for global location evaluations and to establish last-mile relationships	Expand task force; secure commitments from leading retailers	Expand special distributed task force across American, APAC and EMEA. Expand commitments from a larger number of consumer and retail businesses



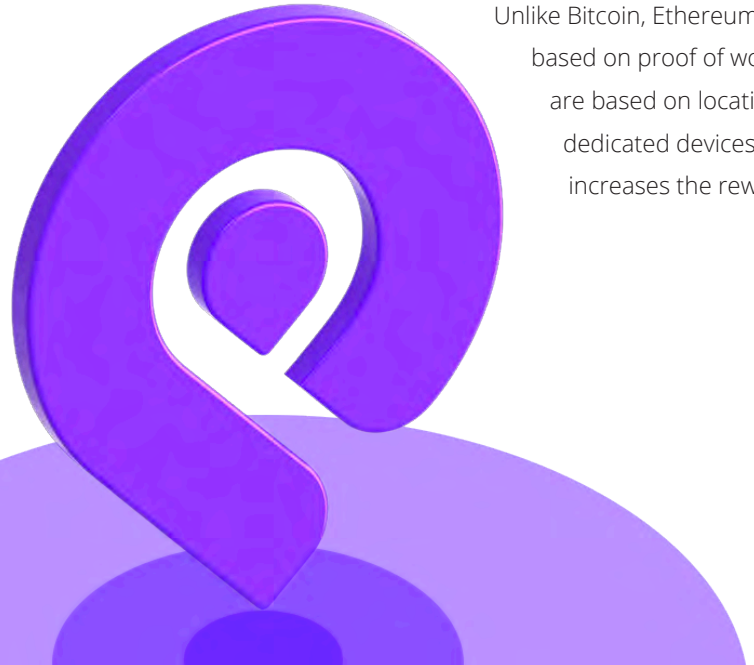
3.8 Future Token Issuance

Platin will not issue any future tokens. The 1 billion PTNX tokens created during the token generation event will be the only PTNX/PTN tokens to ever exist.

3.9 KYC/AML Compliance

All participants in Platin's token sales (both the private pre-ICO sales and the public ICO) will undergo strict KYC/AML verifications at platin.io/kyc. Platin has partnered with Onfido, the world leader in KYC/AML processing, to verify investors, whitelist ETH addresses and provide end-to-end coverage of the regulatory requirements and verification aspects for backers of the Platin token sale. The KYC/AML verifications include but are not limited to passport authentication, address verification, source of funds verifications, verifications against sanctions list, politically exposed persons (PEP), and more.

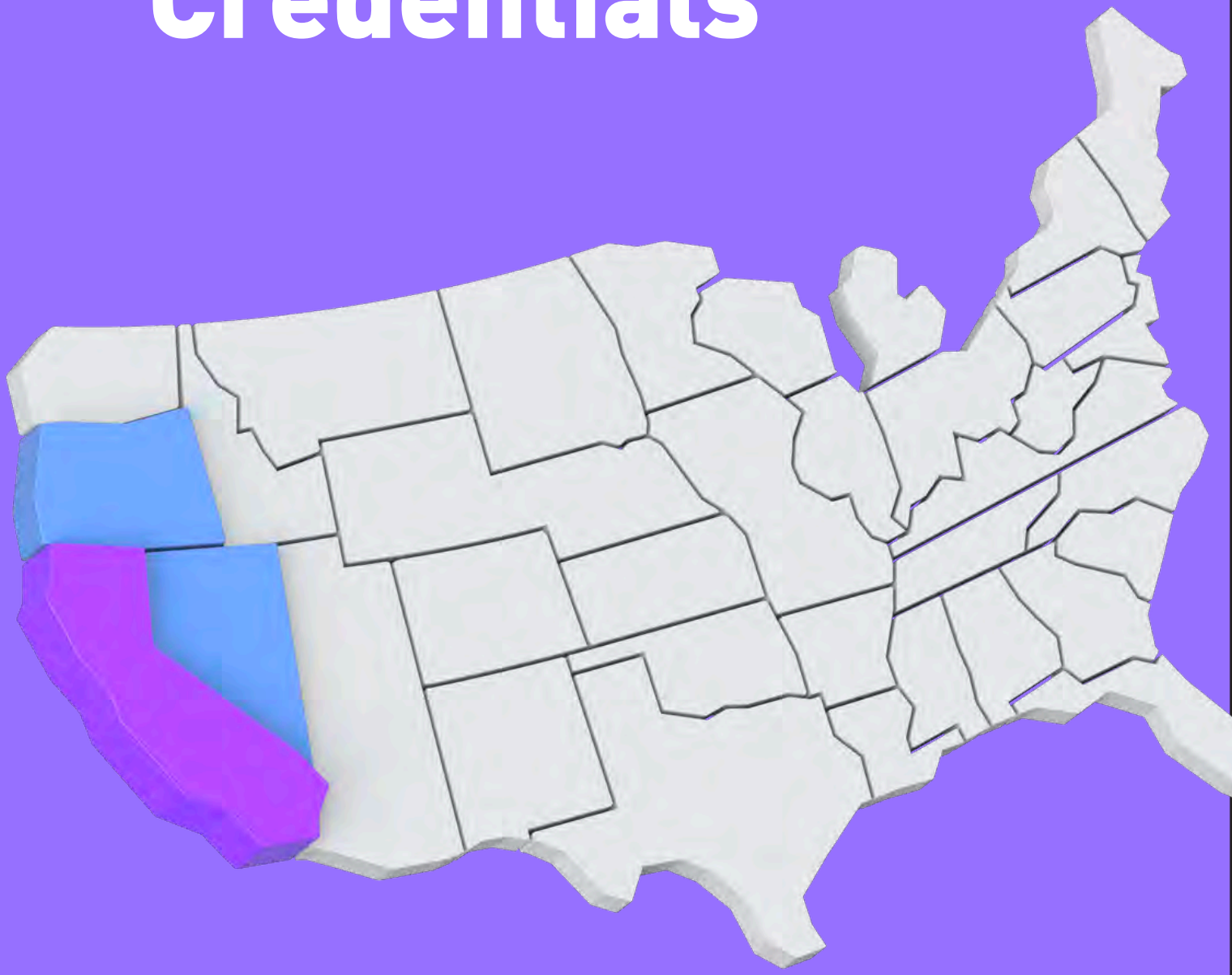
3.10 Token Emission Schedule for PoL Miners



Unlike Bitcoin, Ethereum and other blockchains where the incentive for mining a block is based on proof of work (PoW), incentives for Proof of Location (PoL) mining in Platin are based on location witnessing on smartphones, secure beacons, IoT and other dedicated devices. As more nodes participate in PoL mining and mining "difficulty" increases the reward for each node decreases.

04

Location Credentials



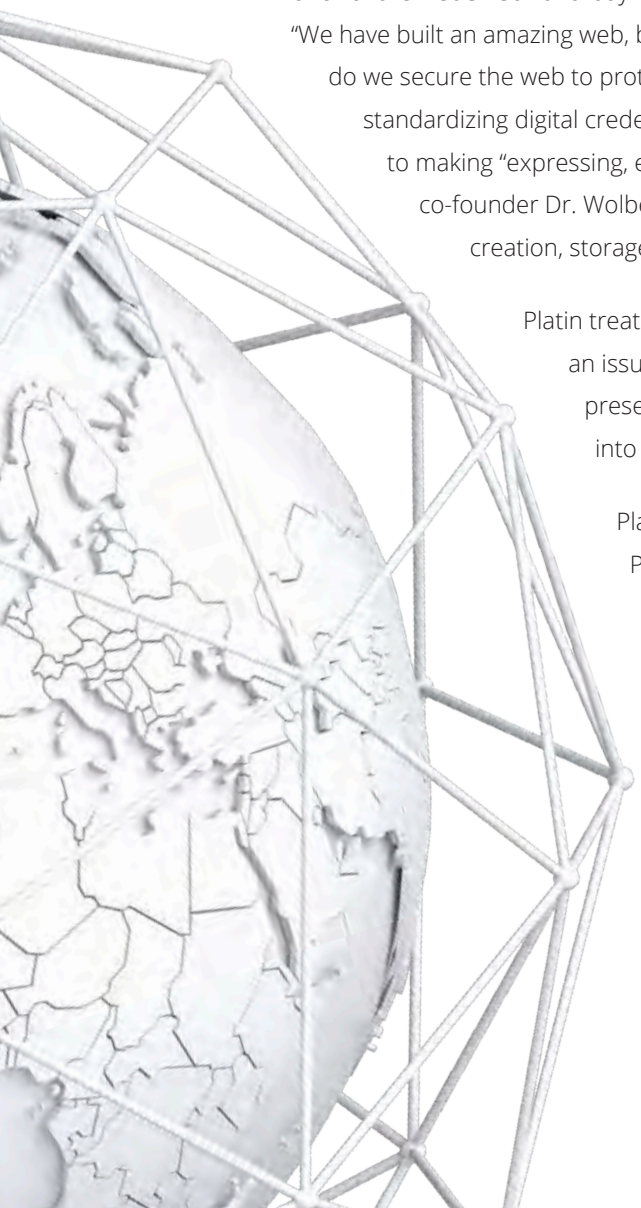
4.1 Location Before Platin

A typical location credential, the kind done by most people's mobile phones several times a day to one's cellphone mobile network operator, Google search, and other service providers, looks like this:

> device d is at location (x,y) at time t

This type of location statements are the least privacy preserving, and the most troubling to many people, particularly Sir Tim Berners-Lee, the inventor of the World Wide Web and director of the consortium (W3C) that oversees its continued development.

4.2 W3C Credentials and Platin



In honor of the web's 25th birthday its inventor Sir Tim advocated at the United Nations and other public forums, "We have built an amazing web, but we still have a lot to do so that the web remains truly for everyone… How do we secure the web to protect our personal information?" As a direct result of his concerns, the W3C is standardizing digital credentials. Its Verifiable Claims Working Group formed in April 2017 is dedicated to making "expressing, exchanging, and verifying claims easier and more secure on the Web." Platin's co-founder Dr. Wolberger works with Sir Tim and others in this Working Group to codify the creation, storage, presentation, verification, and user control of location credentials.

Platin treats location as one such verifiable credential, being a set of claims created by an issuer about a subject—a person, group, or thing—in a decentralized, privacy preserving way that is supportive of self-sovereign identity and can be integrated into the typical web browser.

Platin's Proof of Location protocol is compatible with the latest standards. Platin's continuing work with the W3C ensures Secure Proof of Location credentials will be available in people's everyday digital life, via their ordinary web browsers and phone apps.

Platin applies three strategies for enhancing privacy while Proof of Location credentials are shared: data minimization, selective disclosure and progressive trust.

4.2.1 Data Minimization

Data minimization is a policy of minimum data collection and/or access for maximum value. Services using people location data shall limit the amount of shared data strictly to the minimum necessary in order to successfully accomplish a task or goal.

Since data minimization is largely a policy decision, the fact that Platin relies on a shared ledger greatly enhances its ability to promote data minimization and invoke it via community enforcement and transparency. Platin also supports minimization through organizational processes, documentation and sample code.

4.2.2 Selective Disclosure

Selective disclosure is the ability of a Platin Pocket™ user to granularly decide what information to share. Selective disclosure is a means by which data minimization can be achieved. Data formats and cryptographic operations are harnessed throughout the system: to format the location claims, inspect those claims, and store them safely.

Platin location statements are constructed so as to ensure privacy as well as interoperability. They extend the technology behind TLS—the "green padlock" you see on your browser when you connect securely and privately with a company—with certain Zero Knowledge cryptographic routines.

- In the Platin Pocket, Public/Private key pairs are computed, with some other mathematical calculations required to curate the essential ingredients of the operations we are about to perform. A related "Proof of Correctness" is created, the computational algorithm that will be used to validate the location information. A location claim is formatted, comprised of the public key and the proof of correctness. A cryptographic accumulator is constructed in order to enable zero knowledge queries further on. It is a one way membership function, embedding the location data as part of a membership set. The operation can then answer a query as to whether a potential candidate is a member of a set without revealing the individual members of the set.
- In the Public Log a Platin Algorithm (PAL) is executed, and the relevant public keys are aggregated for use in validating the signatures. The PAL also commits to some given value while keeping it temporarily hidden, making the calculation binding. The PAL can then verify the proof of correctness and record the result on the Public Log.
- The Ethereum ledger records the successful conclusion of the Public Log.

By following this process, Platin and other services in the Location Credentials community can leverage location information for more and more value, while still preserving privacy.

4.2.3 Progressive Trust

Progressive trust is the ability of an individual to gradually increase the amount of relevant location data revealed as trust is built or value generated. As trust grows, an individual may choose to share more and more location data; conversely, if trust is eroded, a person can shut down access to their location information.

Trust scores enable progressive trust in the Platin platform. Handled in ways similar to location credentials, trust scores are a specialized credential that represents the trust relationship between parties, between a given Platin Pocket and the Platin Plexus, a Pocket to a specific Secure Beacon, a Beacon in relation to another Beacon, etc. Machine evaluation of trust scores enables the platform to support both increasing trust, where two entities may increase the amount of shared information between them, or decreasing trust, where for some reason trust has been lost and a party is deprecated in its ability to vouch for certain proofs.

4.3 Public Maps and Privacy

Location information is gathered and stored by many commercial and governmental services under a wide variety of databases, terms, licenses and trust chains. Other services such as search engines generate their own databases that mirror internet content with enriching contextual information added. Mapping services work alongside to fulfill the critical function of visualizing correlations between data sets. Often these geographic or geospatial information (GI) are locked into silos and are difficult to access. Some charge fees while others are monetized by the mining and sharing of people's personal data. Still others are operated by oppressive regimes or are used by attackers to cause harm.

Platin is aware that its information will be discovered and accessed by these services, so Platin implements ongoing procedures to ensure that abuses do not creep in and users are protected while enabling transparency. This section details some of those procedures and methods.

> Note Platin is guided by its work with the W3C Working Group, and was founded by longtime advocates for individual privacy rights and data sovereignty. We work closely with the relevant thought leaders on the process of sharing location credentials and information with proper consent and preservation of dignity.

Platin is a stackable protocol that operates within the GI ecosystem and so interacts with these GI services. The Platin smart contracts are written with this ecosystem in mind. Its PALs can use and contribute to open data tracking of Wi-Fi access points, cell towers, Bluetooth beacons and other publicly known sources that contribute to sensor fusion such as wigle.net, opencellid.org, and wikibeacon.org.

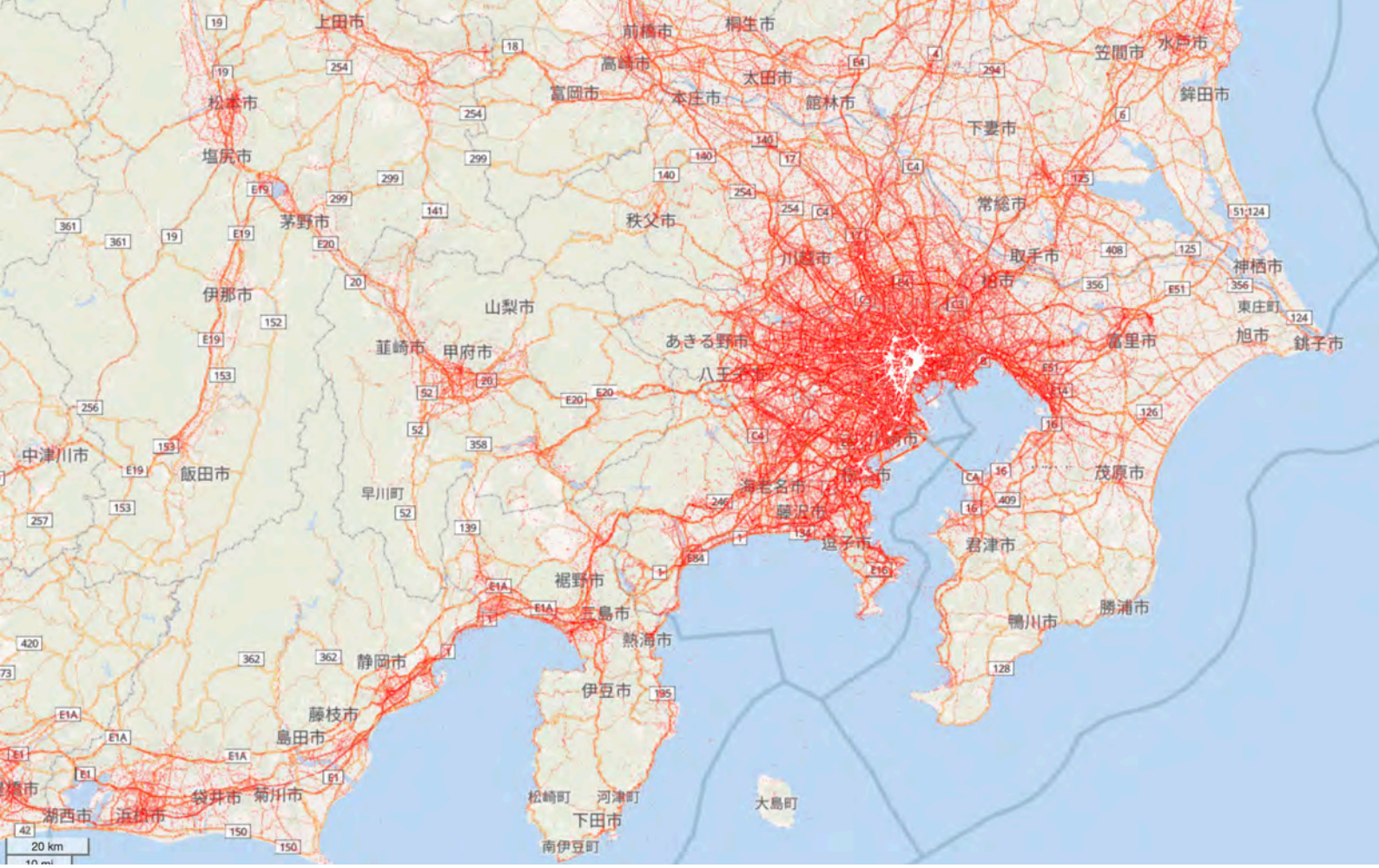


Figure 8. Heat map of cell towers in the Tokyo area. From unwiredlabs OpenCellID site, image by Google Maps, ZENRIN.

Location services such as Platin must deal with the implications of affecting actual human movement. Since Platin's use cases such as coin drops and "Pokemon Go" style competitions have this impact, Platin builds-in safety features to mitigate the possibility of accidents. These include rate limiting, the ability to limit the rate at which a set of policies can be fulfilled; density limits, limiting the amount of Platin digital assets within a particular area density; place information to assist developers in knowing what types of human activity occur in that place (e.g., is it a private field, an urban area, or the middle of a lake); monitoring of the platform for hazards, and so on.

In the end Platin implements ongoing oversight and transparency to ensure that location harms do not creep in and instead best practices continue to spread in the GI space.

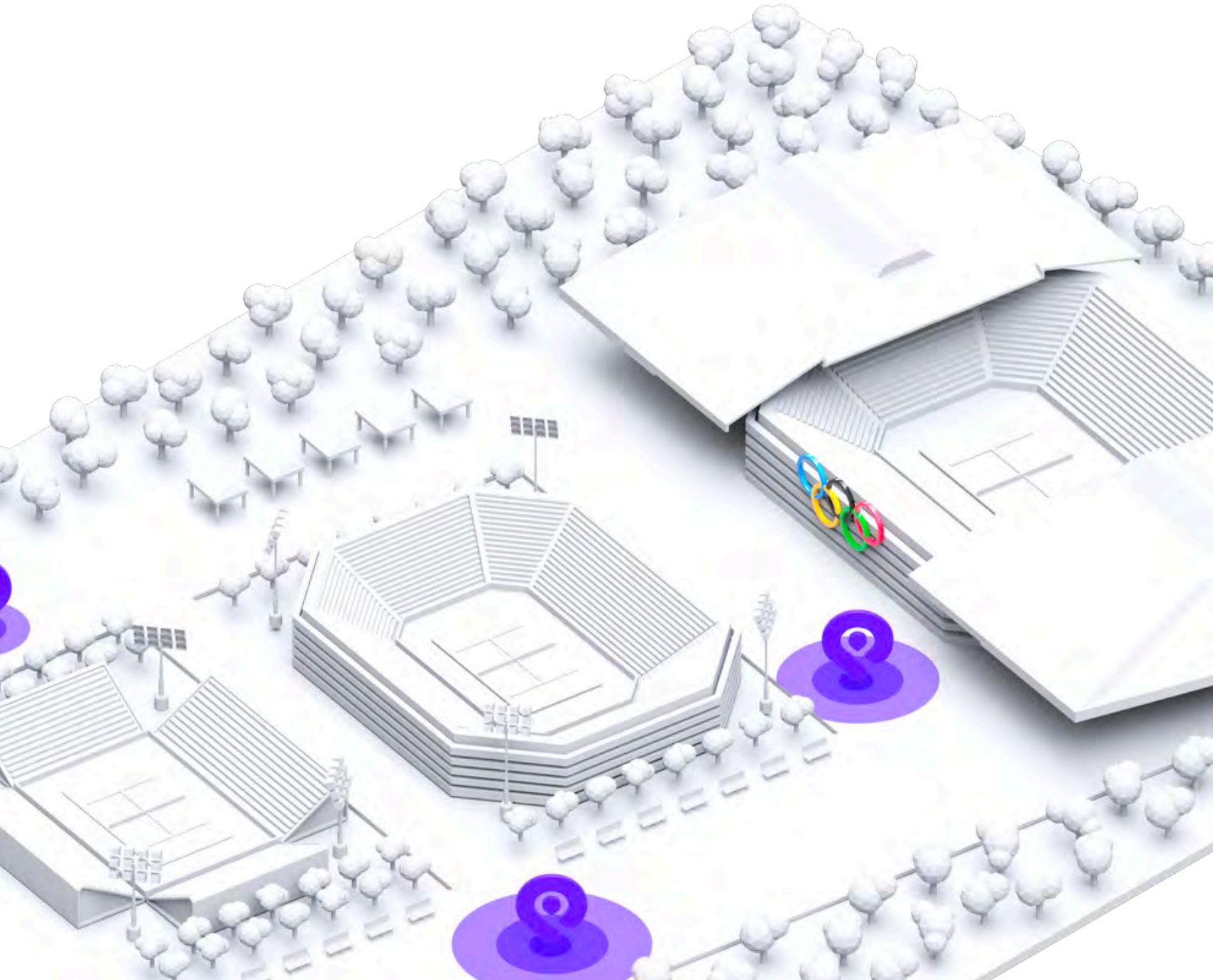
4.4 Calling the Platin Protocol

To request and consume secure location credentials in your application, call the Platin API. The API is broken out into easy-to-understand API calls that simplify working with Platin's secure location credentials.

Some features of the API include:

- Query for location information on a variety of categories for up-to-date information about a given location such as: coin drops on that location and their status (completed, in progress), secure beacons in the area, attesting witnesses in the area.
- Setting and querying information relevant to the location claim, such as location, radius and time of availability.
- Integration of place identifiers, to enable cross communication with other geo-spatial APIs.
- Queries for various Platin Policy properties, such as the cost of the call, security assurance level, and PALs included.

Protocol API calls function as any other activity on the Platin Platform, and have to be paid for in PTN to complete properly.



05

Decentralized Ledger

In this section we dive a bit deeper into Platin's blockchain technology.

5.1 Blockchain

Platin harnesses the power of blockchain to enable its operations. The following are the primary aspects that characterize Platin's blockchain:

- Is robust; able to scale
- Developer-friendly
- Has conversion and trading tools
- Has a good consensus model
- Is Immutable
- Is reliable: has a testnet and proven track record.
- Has high participation rates and a vibrant supportive community.

The Platin™ system began development using Ethereum smart contracts and an Oracle architecture. Since then, Platin™ fine-tuned this architecture to be a general purpose location engine that interfaces with other blockchain software.

Platin's first release uses the Ethereum blockchain, and we are extending the solidity language to SolidityGEO™ to optimize the handling of location and geographic information.. Ethereum remains our primary blockchain since its critical components—the Ethereum Virtual Machine, solidity programming language and active community—are ideal for Platin's core feature set.

Platin also operates on the EOS. EOS is a newer blockchain that has the potential to work more quickly than Ethereum, at greater scale and with lower (or no) user fees. Platin will optimize geospatial operations on EOS as well.

In the end Platin will develop and roll out a custom blockchain technology best suited to its operation. This blockchain will complete the best optimized software stack dedicated to location operations, top to bottom. We call this the blockchain the Plexus™; its seeds have already been planted.

5.1.1 Geography for Smart Contracts

Platin's mission requires geographically secure positioning enabled by blockchain technology. To enable this, Platin contributes to the blockchain community extensions and simplifications of geography for smart contracts.

SolidityGEO™ extends Ethereum's Solidity language to create a highly flexible, powerful and extensible contracts for binding location-based behavior to any digital asset. GEOS™ builds on EOS's C++ implementation to enhance EOS contracts.

These extensions integrate concepts from existing Geographic Information Systems and ISO standards in order to specify a common handling, storage and access model for location data on the blockchain. The extensions are based on "ESRI Shapefile Technical Description" (http://www.opengeospatial.org/standards/sfa) and (http://portal.opengeospatial.org/files/?artifact_id=25355). We also use Simple Features as defined in ISO standard 19125.

Platin's SolidityGEO™ and GEOS™ help simplify and define performance of geo-fencing, zero knowledge air-drops, location-based three factor authentication, requesting secure location verifications, geolocating assets with strict Platin Escrow capabilities, any of the use cases supported by Platin™, and more. Both are to be released under a free and open source (FOSS) license.

5.1.2 EVM Compatible Software

As mentioned above, Ethereum offers a programming language suited to Platin's Proof of Location tasks. The following is an example of a Platin location Policy, written in solidity, which in turn creates the EVM-compatible bytecode necessary to execute the contract.

Developers can view Platin's solidity code on Github. See https://github.com/platinprotocol

> While some of Platin's code is available for inspection on Github, most of Platin's private repos will be publicized in the near future.

5.1.3 Semantics and Security

The Platin ecosystem thrives on community participation in writing PALs (Platin Algorithms), which in turn run on secure encrypted computational engines. To ensure the health of this environment, Platin's software semantics have security and privacy by design and enforce opinionated best practices.

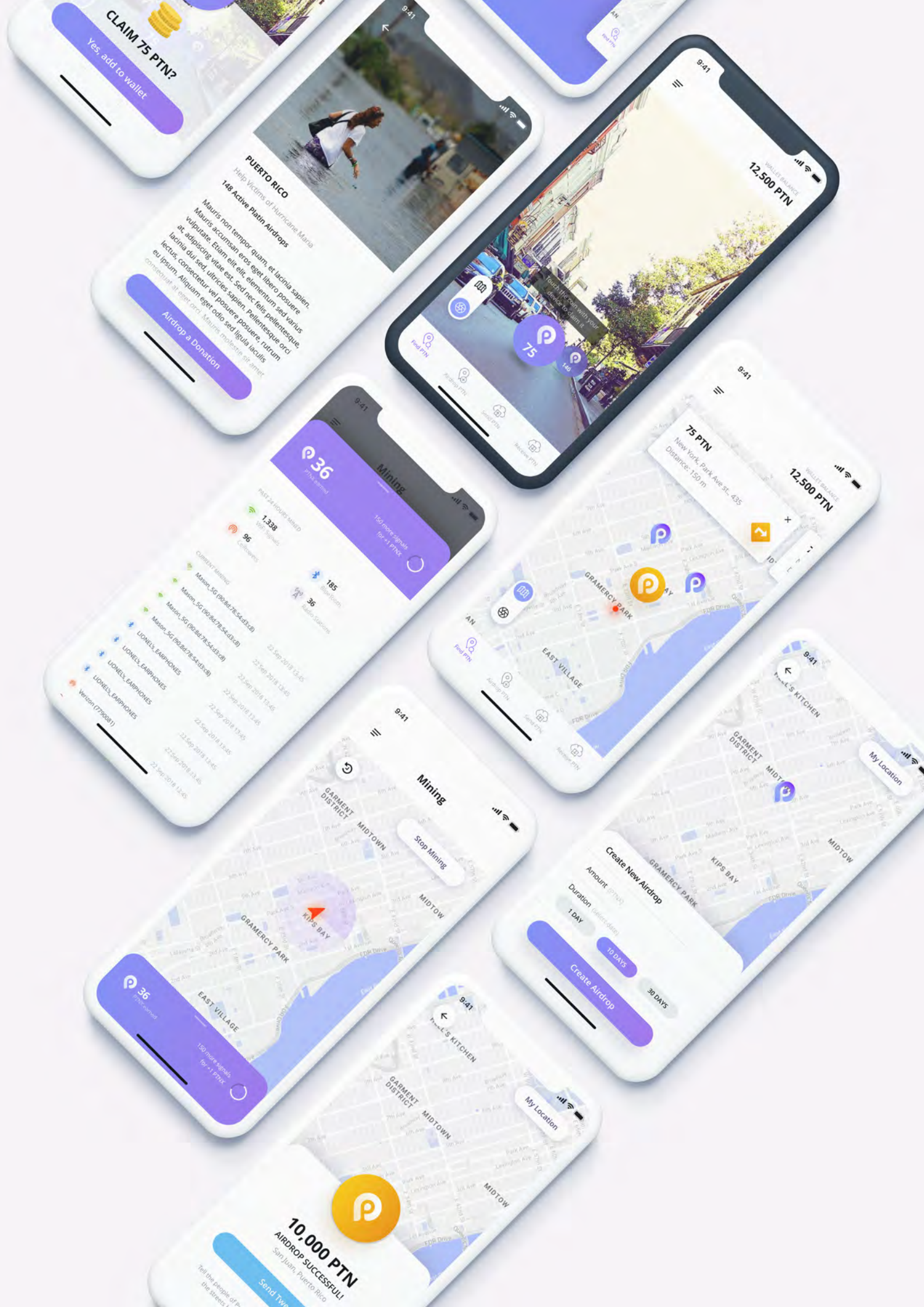
Platin builds-in the lessons to date regarding static analysis of location-oriented software as well as broader pitfalls in logic and purpose. In addition to the basics of missing input validation, reentrancy avoidance, integer value limits, and loop length limits, Platin's semantics prevent security vulnerabilities and bad practices by protecting developers regarding:

- Transaction ordering dependence. The system validates dependence and warns developers of possible poor dependencies.
- Timestamp inconsistencies. The system uses secure time and makes clear to the developer how latencies in processing could be windows for attack
- Call-stack depth. In general we work to reduce cyclomatic complexity, being the number of linearly independent paths through a program's source code.
- Examine the "unhappy" cases and exception handling, as for example using "send" or "transfer" instead of the pull payments pattern.
- Include dynamic parts in the code, so these cannot be swapped out in future versions.

5.2 Platin Pocket™

The Platin Pocket™ app runs on smartphones and provides a simple user interface and experience (UI/UX) to mediate interaction. As with all aspects of Platin, the app is built and deployed with security and privacy by design.

Users operate or own nodes, but it is technically the nodes that earn the money. Nodes earn PTN coin in providing witnessing and attestations to location claims. There are several types of nodes: Pocket (mobile), full node, and secure trusted beacon node.


CLAIM 75 PTN?
Yes, add to wallet
9:41
PUERTO RICO
148 Active Platin Airdrops
Help Victims of Hurricane Maria
Mauris non tempor quam, et lacinia sapien. Mauris accumsan eros eget libero posuere vulputate. Etiam elit elit, elementum sed varius at, adipiscing vitae est. Sed nec felis pellentesque, lacinia dui sed, ultricies sapien. Pellentesque lectus, consectetur vel posuere posuere, rutrum eu ipsum. Aliquam eget odio sed ligula iaculis
Airdrop a Donation
12,500 PTN
Touch this coin with your device to claim it
75
140
Find PTN
Airdrop PTN
Send PTN
Receive PTN
36
PTNs earned
Mining
150 more signals for +1 PTNX
PAST 24 HOURS MINED
1,338
WiFi Signals
96
Cell towers
185
Bluetooth
36
Radio Stations
CURRENT MINING
Maxon_5G (90:8d:78:54:d3:c8)
LIONEL'S_EARPHONES
Verizon (7790081)
22 Sep 2018 13:45
75 PTN
New York, Park Ave St., 435
Distance: 150 m
WALLET BALANCE
12,500 PTN
GRAMERCY PARK
EAST VILLAGE
FDR Drive
Mining
Stop Mining
GARMENT DISTRICT
MIDTOWN
KIPS BAY
36
PTNs earned
150 more signals for +1 PTNX
Create New Airdrop
Amount (PTNX)
Duration (days/date)
1 DAY
10 DAYS
30 DAYS
Create Airdrop
My Location
10,000 PTN
AIRDROP SUCCESSFUL!
San Juan, Puerto Rico
Send Two

5.2.1 Platin Pocket™ UI/UX

The Platin Pocket™ app provides the user interface to the Platin wallet, direct sending and receiving of PTN tokens, geographic airdrop capabilities for PTN tokens with basic policy definitions, and more. The Platin Pocket™ also serves as the mining interface for PTN coins, showing how many witnesses and verifications a node passively attested to, and the node's cumulative earnings of mining rewards. The Platin Pocket™ is a powerful, privacy preserving app that enables Platin's three pillars of secure location: Sensor Fusion, Behavior Over Time and Peer to Peer Witnessing.

Following are pre-release shots of the Platin Pocket™ application for iOS.

> The mock-ups above showing PTN coins being collected. PTN coins are the utility tokens fueling location proofs for any digital asset or crypto-currency.

5.2.2 Function

The Platin Pocket™ enables a device's owner to securely install the application, connect with the Platin distributed system and benefit from Platin in the way that they choose.

The application mediates on its owner's behalf all the critical processes such as hosting and executing PALs in order to earn PTN currency.

> Note Platin Pocket™ resource consumption is similar to that of a typical navigation application such as Waze™ or Google Maps™.

The app's high level architecture is that of a typical smartphone application, using the typical hardware and sensors found in any smartphone.

The Platin Yellow Paper describes the operation of the application in greater depth.

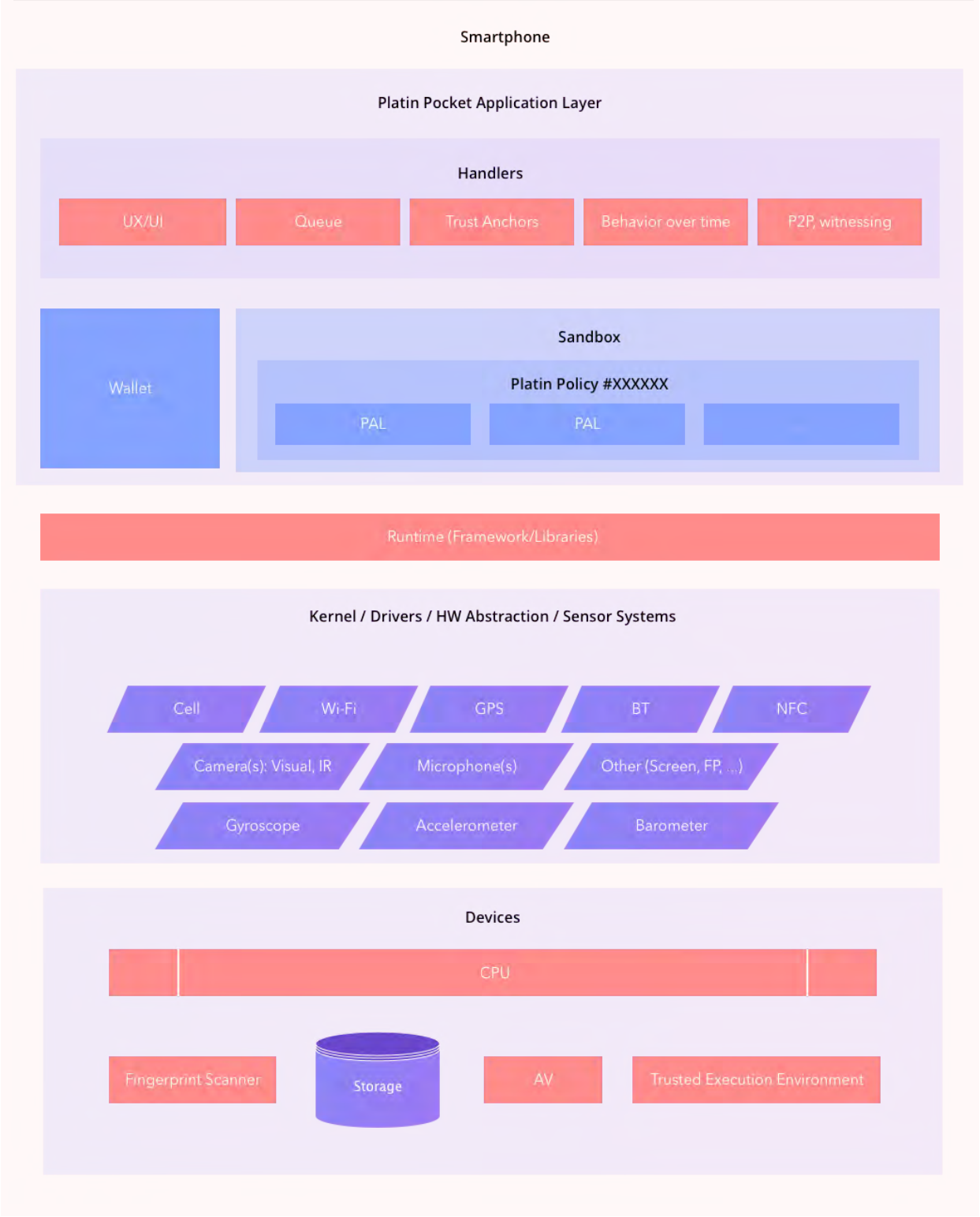


Figure 9. Platin Pocket™ Application, Internal High Level View

5.3 Platin Plexus™

Platin's blockchain is called the Platin Plexus™ . The Plexus will be built on state of the art blockchain technologies.

Platin is extending classic Solidity to create Solidity GEO to smooth the handling and coding of geospatial semantics and zero knowledge functionalities, all while remaining compatible with the W3C Distributed Identifiers and Verifiable Credentials standards.

06

The Platin Verifier

The Platin Verifier is an open software service that anyone can run to conduct location proofs. The bulk of Platin's location processing is done on the Platin Verifier, introduced because a secure location protocol requires scale, computations, low latency and privacy that cannot be met by any blockchain today.

The Platin Verifier operates in the following way:

- Coordinate validation of location proofs and manage cryptocurrency transfers between parties involved into location proof generation. This activity consists of hosting policies, PALs, and any associated witnessing or signal harvesting.
- Communicate with the appropriate ledger (Ethereum, EOS, etc.) for token transfer via payment channels
- Host Platin Policies along with PALs and their code. Claimants are provided with PAL descriptions from an instance of the Platin Verifier.

The Verifier hosts the following critical operations:

- Support signal harvesting operations: receive and store harvested signal data and/or their proofs in a distributed storage. Pay token rewards to miners.
- Coordinate PoL validation: Assure that coordinates obtained by a device are correct with sufficient probability by executing the server side portion of the PAL code and producing a validation result. This feature relies on the distributed storage.
- Assess and conclude the secure proof of location, for ledgers that cannot host smart contract EVM code e.g. Bitcoin, IOTA, etc. Verify the location proof and push the concluded transaction into a blockchain, in order to release funds to the address of the claimer.

The Platin Verifier is an open software service that anyone can run to conduct location proofs.

6.1 Scalability

The Verifier allocates a unique address and associated state machine for each Platin Process. This machine then functions as a channel, much as payment channels and side channels function on other blockchains. The channel is bookended by a pair of significant transactions. The first is the initiation transaction, which serves as an anchor for the entire activity and inaugurates the machine. The final one is a settlement transaction, which publishes the channel's outputs and closes it out.

To understand a channel, let's examine the trivial case of the uninspected location claim, "I am at location X,Y." The unverified claim has no witnesses, no security validations, or any security at all. The channel is initiated with its anchor configuration, key material and algorithms. The uninspected claim is received. The settlement process then formats the claim for privacy-preserving publication, publishes it and destroys the channel.

Channels are the heart of the Platin ecosystem and we expect them to do much, much more. The power of the Verifier and its open architecture really shines when you add the Platin Algorithms, or PALs.

6.2 PALs: Platin ALgorithms

A platform is only as useful as the applications that run on it: like the apps that run on your smartphone, PALs are algorithms: lightweight software components that run in both the Verifier and on a mobile phone. They can do anything from requesting a location (e.g., 10 Main Street, New York, NY) to requesting audio witness signals from nearby nodes. The PAL store makes available all PALs with information about their provenance and popularity, and PALs can be combined in a channel in endless ways.

Some examples of PALs include:

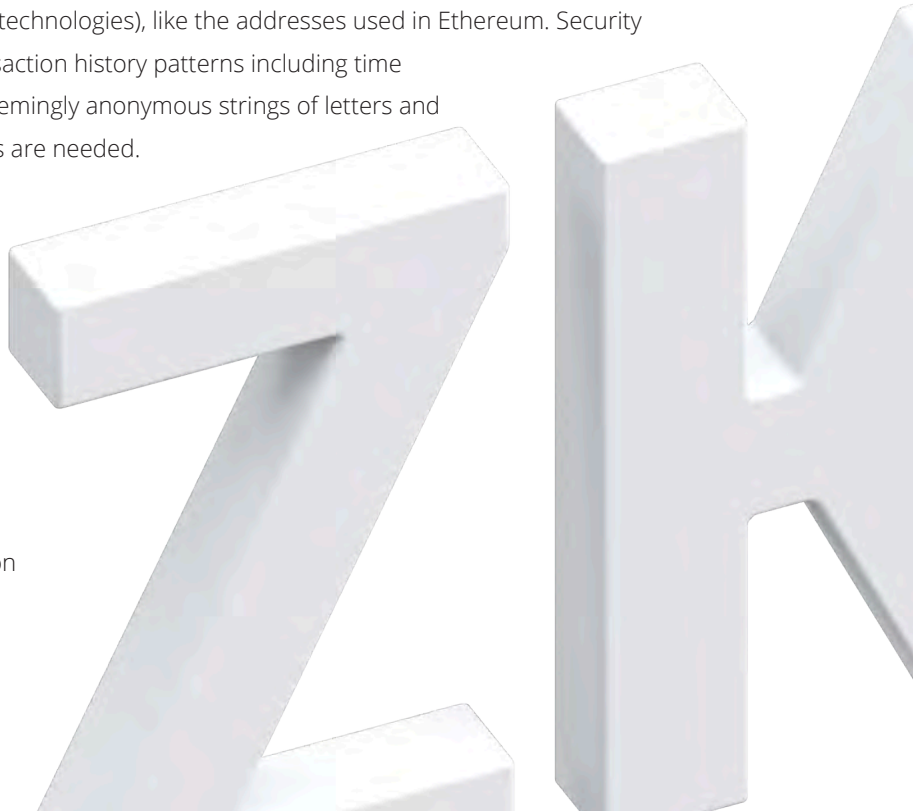
- Checking hashes,
- Collecting secure beacon messages from near the client
- AI inspection of behavior over time
- Collecting audio near-supersonic signals
- Multisig and time controls.

PALs enable speed, extensibility, flexibility and moveable security. They are implemented in a transparent way, with secure signatures to prevent tampering.

6.3 Zero Knowledge Within Platin

Platin's Platform features zero knowledge (ZK) implementations to preserve privacy, such as ZK-SNARKS, ZK-STARKS and CL Signatures.

ZK is needed because obfuscation is not enough. Obfuscation refers to the use of seemingly random mixtures of letters and numbers on DLTs (distributed ledger technologies), like the addresses used in Ethereum. Security specialists know that analysis of IP addresses, transaction history patterns including time zone, service providers, and so on can link those seemingly anonymous strings of letters and numbers back to real people. More robust methods are needed.



Location data differs from currency balances. Currency balances need to be forever traceable all the way back to the genesis block, by all users. Location claims need be accessible until they are validated, consumed, and later (optionally) audited. These are sharply restricted time and visibility requirements as compared with currency balances. Furthermore, currency balances are their transaction history, while location claims are independent

attributes and not linked in that way. In the case of a coin placed at a location, the coin is associated with location information, much as a restaurant rating is associated with the restaurant: the location is an attribute.

> Note The Platin Platform offers Zero Knowledge Proof Operators (ZKPO) in a wide range of privacy and security assurance levels, from in-the-clear GPS declarations all the way up to completely blinded ZK and CL-Signatures compatible with W3C credentials.

Platin renders location attributes as credentials that are effectively tamper-proof, whose authenticity can be verified in an automated fashion. ZK can be applied when the credentials are shared and inspected, with the PAL assisting in privacy enhancement, provided that it can understand and work with the data in question. For users who select ZK in W3C formats, Platin standardizes the location data in such a way as to ensure confidentiality—the hidden part of the location claim cannot be understood by anyone for whom it is unintended—as well as to ensure integrity—the claim and its verifying elements can be validated as authentic and the revealed part of the location information cannot be altered without such alteration being detected.

The Platin Yellow Paper shows the detailed implementation of each type of Zero Knowledge Platin Algorithm (ZK PAL). Each ZK PAL enables the mathematical calculations required to curate the essential ingredients of the operations required, the proofs that are performed to validate the PAL, the credential itself formatted in a privacy-preserving manner, and the computational primitives compatible with the Verifier's trusted execution stack.

This ensures that each device involved in the Platin protocol is indeed in the hands of its rightful owner and making honest claims, without revealing anything about the owner, their history, location or other sensitive data.

6.4 Trusted, Private Computing

The Verifier assures privacy-preserving computation and decentralized (aka trustless) operation by running its state machines in confidential enclaves. It achieves this goal by being security by design and privacy by design from the processor up to the application layer. The Verifier offers transparent data encryption, key management and secure compute features ensuring that each channel is working only with its creators and users—the verifier sysadmins only see the existence and bare facts about the channel, and cannot access the channel's exact activity, even if under subpoena. This is achieved by creating a secure application layer encrypted connection from the PAL participants directly to the protected channel in the Verifier. The authorization for trusted connectivity is managed using the same cryptographic keys anchoring the Platin wallets and Ethereum smart

contracts. Connectivity between nodes is protected by TLS.

The Verifier performs like an internal confidential application from a performance and connectivity aspect. Its secure computing model allows the strict partitioning and role based access that is a standard feature of secure data centers.

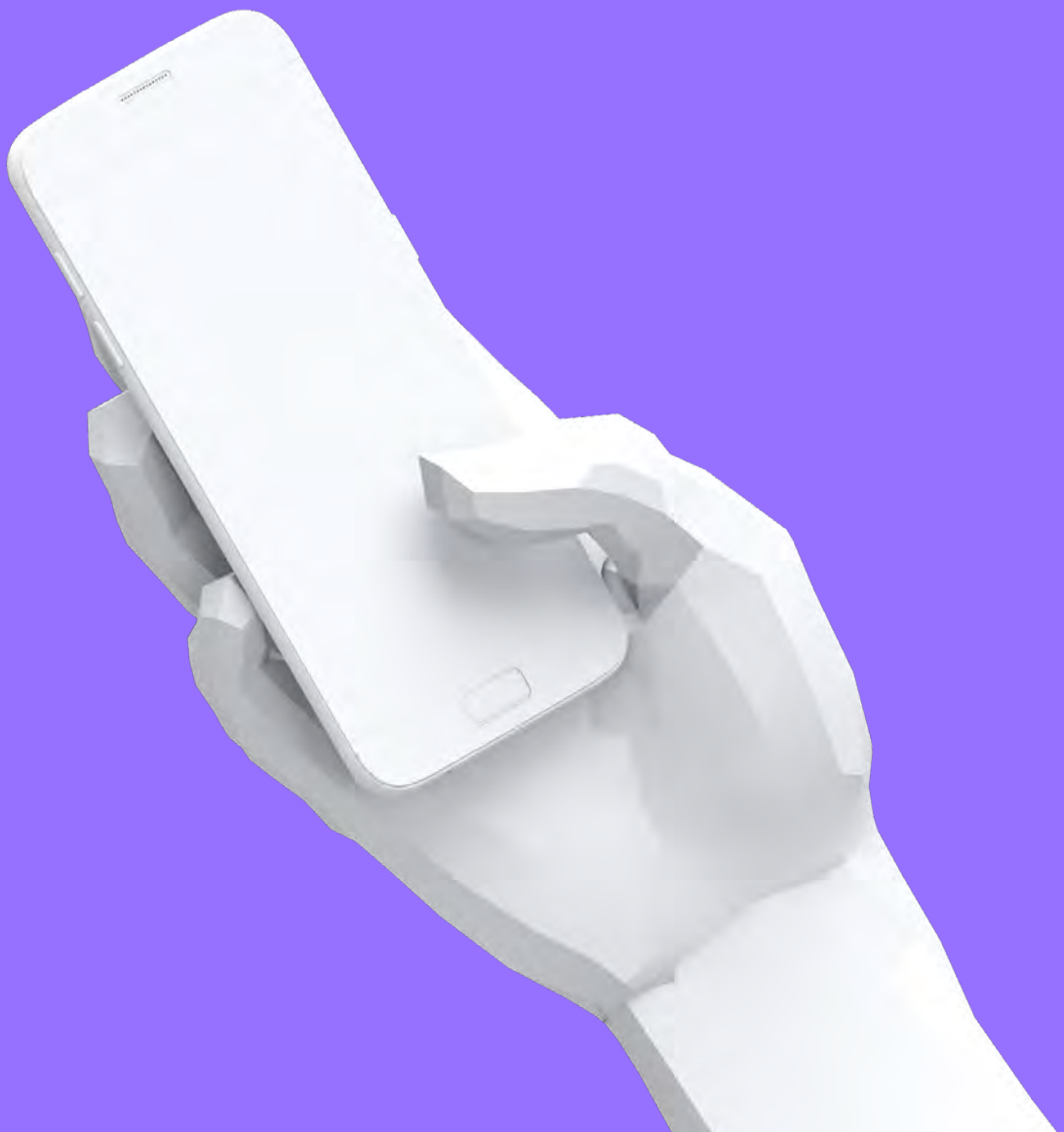
6.5 Anchoring

Some Platin™ information is stored off-chain, such as complex geometries or behavior over time logs. To make sure that this data is immutable and that its integrity is protected, Platin will with store a signed address on the blockchain or commit a hash of the data to the blockchain. Output from Platin processes is anchored to the blockchain by the most suitable method: either as a merkleized chain, as hash commitments broadcast periodically to the root blockchain (i.e., Ethereum) or Plasma-compatible blockchain computations.

07

Incentivizations

The application of incentives to Platin's Proof of Location protocol on the blockchain is one of the insights that founded Platin, and is based on game theory models that are working in other cryptocurrencies. They both encourage actors to nurture Platin's strong, safe, peer-to-peer operation and discourage bad actors by punishing those who act maliciously.



Platin's fungible utility token, the PTN, with its smallest unit pli, is the primary continuously operating incentive unit on Platin's blockchain. PTN is fungible, meaning it can be exchanged for other currencies, empowering it to incentivize and mold the behavior of platform participants. Varying amounts are rewarded to nodes that run Platin Policies (with their associated PALs) of varying complexity. A simple policy pays minimal fees. An elaborate policy, such as one requiring AI-powered location history analysis or zero knowledge credentials, rewards higher fees. Baking these fees into Platin's consensus and incentive structures ensures that the Platin ledger does not become bogged down with low value, high bandwidth work or malicious attempts to create artificial bottlenecks. Platin allows arbitrarily complex location validations to be processed, so it is important to measure the work done directly instead of just choosing a fee based on the length of the policy being processed.

Nodes can earn PTN or pli by participating in attestation and secure location witnessing. Secure beacons, whether standalone or integrated into IoT devices, can continuously earn PTN over time. The rate of earning correlates with the number of Platin policies that request a validation from that beacon so beacons in busier, more populated, areas have the potential to perform witnessing more frequently and, as a result, earn more PTN. Secure beacon PALs can share analytics, enabling participating businesses to project revenue as for example "How much can a vehicle in my fleet earn as it drives around a metropolitan neighborhood running a secure beacon?" These models will be shared as they mature.

PTN pricing can also enforce disincentives. For example, creating overly aggressive policies that hoard location proofs will be made to cost more PTN.

Preventing large swings in token price and maintaining the cost effectiveness of everyday transactions is achieved by protections similar to Ethereum's price adjustments around Gas. These transparent, robust and adjustable mechanisms rest on the three main approaches to token stability:

- Static price fallbacks: a fallback price since static pricing changes relatively slowly
- Price indexing: An index based on a gross moving average
- Real-time demand pricing: market forces dictating how much people are willing to pay and how much nodes are requesting

7.1 Incentive Prices

Just as the Wei and the Satoshi are the smallest units of an Ether and a Bitcoin, respectively, pli is the smallest indivisible unit of a PTN. The Platin pli is also an acronym describing the function of the pli within the Platin incentive mechanism: the Performance Linked Incentive.

Note: PTN is a utility token enabling incentivized Proof of Location operations. PTN holders have a right to access and drive usage of located digital assets on the platform by paying transaction fees in PTN. The tokens may be used for payments and transactions relating to location claims. PTN is not an investment vehicle.

To better understand the structure of the PTN: a single PTN token is divisible into one billionth, or ten decimal places, as follows:

> 0.0000000001 PTN = 1 pli
> 1 PTN = 1,000,000,000 pli

Platin's incentive model is based on nodes running the Platin Pocket™, providing witnessing to surrounding location claims within proximity. Depending on the complexity of the transaction and policy, each transaction on the Platin blockchain may include a different gas price, which is paid to miners and participating witnesses.

7.2 Signal Harvesting (Mining)

The enormous field of digital signals that surrounds us everywhere enables Platin users to engage in Proof of Location mining. Radio waves, cell tower signals, WiFi, Bluetooth and other signals in a node's vicinity are harvested into Merkle trees. Like harvesting wheat growing in a pasture, Platin nodes collect signal meta data and measurements and receive a reward in PTNX utility tokens (the ERC-20 variant of the PTN utility token which is dedicated to compensating participating nodes in signal harvesting and location data mining).

Signal harvesting is truly democratized cryptocurrency mining, representing a low cost, low friction way to quickly become involved with PoL mining as the data collected by harvesting enables the Platin Plexus to perform secure location verifications for future PoL requests.

7.3 Gas Price Tables

Pricing structures in Platin are dynamic in order to accommodate changing market conditions and maintain proper gas levels. At any given moment a clear list of prices will be available for transactions.

The following tables provides sample lists of gas prices to securely query a location claim.

Table 4: Platin Prices for Sensor Fusion, Sample

Modality/Credential	Gas Price	Unit
GPS	10,000	pli
Wi-Fi	30,000	pli
Cell Tower (GSM/LTE)	40,000	pli
IP	50,000	pli
Bluetooth	80,000	pli
Radio	100,000	pli
Barometer	120,000	pli
Temperature	150,000	pli
Magnetic Field	180,000	pli
Accelerometer *	240,000	pli

** A smartphone's accelerometer is used to cross-check GPS data to assist in anomaly detection for prevention of location spoofing. Splicing the two makes a location spoof attempt easily detectible.*

Platin supports analysis of past location history, done in a privacy-preserving fashion: on the device.

Due to the opportunistic nature of peer-to-peer witnessing, and the costly incentivization of participating nodes, Policies containing requests of peer witnessing pay much higher gas prices than Policies only requesting sensing modalities, DB queries and Behavior Over Time.

Table 5: Platin Prices for Behavior Over Time analytics, Sample

Window Duration	Gas Price	Unit
1 day	100,000	pli
5 days	500,000	pli
10 days	1,000,000	pli
30 days	3,000,000	pli
n days	n*100,000	pli

AI-powered analytics done on the device can also include other local information.

Table 6: Gas Prices, Local Database

Database	Gas Price	Unit
Call History	1,000,000	pli
Address book	2,000,000	pli
Calendar	5,000,000	pli

A node agreeing to witness other nodes is compensated at a higher level.

Table 7: Platin Prices for Secure Witnessing, Sample

Database	Gas Price	Unit
1 witnesses	30,000,000	pli
2 witnesses	60,000,000	pli
3 witnesses	90,000,000	pli
n witnesses	3n*10,000,000	pli

Platin may specify gas prices also by type of peer witnessing performed (NFC, audio, camera, Bluetooth, QR, environmental sensors, etc.). Each one will require a different effort and incentivization rates will be adjusted accordingly.

Table 8: Platin Prices for pecific Sensor Witnesses, Sample

Database	Gas Price	Unit
Bluetooth	5,000,000	pli
NFC	5,000,000	pli
QR	5,000,000	pli
Audio	5,000,000	pli
Camera	5,000,000	pli

7.4 Blockchain Costs

Since Verifier operations ultimately are recorded to a blockchain ledger such as Ethereum Mainnet, an ability to pay the proper amount of gas must be supported by the system. The system maintains a Platin Blockchain Transfer ratio that is updated and maintained by a securely signed internal pricing mechanism.

7.5 Token Economics

Platin's Token Economics paper will be published soon. This paper will provide a detailed analysis of the Platin token economics, structure and expected behavior. Please register on https://platin.io to be notified once the Token Economics paper is released to the public.

08

Secure Verification of Location Claims

One of the key mechanisms that underpins the security of Platin is secure verification of location claims. Platin supports a wide range of localization techniques and takes a pragmatic approach to location verification - it therefore provides a good tradeoff between user effort, service availability and security.

Platin relies on sensor fusion on mobile device, user's behavior over time and peer-to-peer observations. In addition, Platin leverages trusted anchors to increase the confidence in asserted location claims.

One of the core strengths of Platin is **diversity of sensing modalities and witnesses**, and their **smart aggregation** that will make it challenging and costly for adversaries to successfully claim fake locations. In addition, Platin rewards honest behavior, therefore disincentivizing cheating. Platin does not rely on a single technology but on a range of sensing, communication and positioning technologies.

8.1 The Three Pillars

The three pillars of security in Platin are as follows:

8.1.1 Sensor Fusion

Platin makes use of on-device location-relevant sensors such as GNSS (e.g., GPS, Galileo), Bluetooth, accelerometers, WiFi and cellular-network observations. Both Android and iOS allow for these sensors to be combined in different ways and provide sufficient precision. Platin combines different sensors' values in a robust manner to counter simple spoofing attacks. It will further, where available, use trusted computing technologies such as ARM TrustZone [TZ] and Intel SGX [SGX] to protect location reporting from on-device manipulations (e.g., [NDSS14]). A dedicated user can still jailbreak the platform and spoof the measurements [REF], as well as spoof the GNSS, BT, WiFi and cellular signals that the platform receives [REF][REF]. Such spoofing, although feasible, comes at a cost for the user. The user needs to relay cellular signals, generate GNSS signals and emulate BSSIDs and WiFi access point MAC addresses, as well as make all these signals mutually consistent. Such an effort would be justifiable only if the reward is high.

In order to thwart these spoofing attacks, Platin will analyze consistency among sensed values, user behavior over time and use peer-to-peer witnessing.

8.1.2 Behavior Over Time

Platin will track mobile device locations over short time windows and user behavior over longer periods of time. Short time observations will allow Platin to implement anomaly detection techniques and evaluate the validity of location claims. Platin will also peer into users overall behavior over time, including their location and prior coin claims, and use these to build up users' reputation scores. All this will be done securely and in highly privacy preserving manner that protect users' identities. These scores will increase when users behave honestly and decrease when suspicious activity is identified. To incentivize honest behavior, high scores will be rewarded.

XAIN Technologies	XAIN technology, in partnership with Platin, brings the strengths of modern machine learning algorithms, particularly reinforcement learning, to Platin's secure Proof of Location. XAIN enables Platin's PALs to send advanced machine-learning based algorithms to the node and return an assurance that the history of behavior is within expected ranges.
Artificial Intelligence	New and existing developments in artificial intelligence enable to secure both sensor fusion and behavior over time. With the availability of large quantities of data one can train AI models that capture and classify fine nuances in high dimensional data, thereby allowing sophisticated pattern validation in an efficient yet secure manner. Techniques like federated learning can help to ensure privacy and gain expertise from the data, without actually sharing the data. The partnership with XAIN enables Platin to delve into established AI expertise and technology to create custom and optimized solutions.

Anomaly Detection	To enable secure Proof-of-Location one needs to be able to distinguish between regular or expected behavior on the one hand and irregular or unexpected behavior on the other. One important technique to realize a system that can make such distinctions is machine learning based anomaly detection. Its overall goal is to find a model that represents the "normal" state of a particular subject, i.e., regular location behavior over time. With the support of sensor fusion such patterns become increasingly difficult to forge since even slight deviations from correlated behavior of different sensors can be detected.

8.1.3 Peer-to-Peer Witnessing

Users will be able to act as witnesses for each others' locations through the use of short-range communication techniques such as Bluetooth, WiFi, ultrasound and camera. Platin envisions that most of this interaction happens without any user involvement. Platin relies primarily on Bluetooth beaconing mechanisms, but will integrate any new types of proximity detection technologies that become available. Some witnessing will be more interactive and involve user interaction (e.g., the use of QR codes). Users' efforts in verifying other's location claims will be rewarded.

8.1.4 Potential Attack Vectors

The Platin system is built with security baked in from the start. To understand how the Three Pillars cooperate to protect the system, let's examine two possible attacks.

Attack Scenario #1: A Fortune 500 retail chain has issued its own cryptocurrency, and is offering free money at a new store opening in a major city. The coins are worth about $10, so hackers are motivated to spoof their location to collect the coins. They pay a local citizen to record the signals at the site and share them over the internet. They set their phones to fake locations, label a local Wi-Fi APN to the name of the APN on site, install the Platin Pocket™ and attempt to claim the coin.

Prevention: The Verifier detects that the sensor fusion and behavior over time are fraudulent. The claim is denied.

Attack Scenario #2: A national cryptocurrency establishes a tax-free zone, using Platin Proof of Location to determine if a person is physically in the zone when a transaction takes place. This includes digital transactions, such as ordering goods from online retailers. Total tax savings over a year may add up to thousands of dollars, attracting attackers. They raise a botnet of virtual Android mobile phone instances. They "train" these virtual devices on fake GPS and mobility data from the region, then install the Platin Pocket.

Prevention: Real witnesses in the region and other nearby nodes regularly cannot be detected by the botnet virtual devices, failing witnessing proofs. Furthermore, behavior over time is often inaccurate. The claims are denied.

8.2 Trusted Anchors

Trusted anchors are dedicated devices and high-trust users that provide witnessing and beaconing and witnessing services for Platin. They record beacons from users and provide beacons and challenges to the users. These challenges will come in a form of location- and time-unique beacons and interactive challenge-response protocols over the wireless and ultrasonic channels, as well as in the form of a visual challenges, where the user will be asked to scan QR codes or take photos to prove its presence in a particular location. Platin anchors will also be integrated within different IoT devices like Amazon Echo [ECHO], Apple Homepod [POD] and leverage different sonic and wireless secure proximity verification technologies such as [SEC] and [3DB].

8.3 Secure Proximity Verification

Future radio technologies such as WiFi 802.11mc/az [MC][AZ] and Ultra Wide Band 802.15.4f/a [15A][15F] all allow peer-to-peer distance measurements. This means that soon all devices will be able to seamlessly measure their mutual distances and establish proximity, therefore naturally supporting witnessing. In addition, some new 802.15.4f-compatible radios also offer full spoofing protection, preventing proximity manipulations by users [3DB]. This means that in the future, secure proximity verification could become fully integrated within all main mobile platforms therefore enhancing the imperviousness of Platin to location manipulation attacks.

[NDSS14] Claudio Marforio, Nikolaos Karapanos, Claudio Soriente, Kari Kostiainen, and Srdjan Capkun, Smartphones as Practical and Secure Location Verification Tokens for Payments, In Proceedings of the Network and Distributed System Security Symposium (NDSS), 2014 [PDF (PDF, 865 KB)]

[SEC] Nikolaos Karapanos, Claudio Marforio, Claudio Soriente and Srdjan Capkun Sound-Proof: Usable Two-Factor Authentication Based on Ambient Sound 24th USENIX Security Symposium, 2015 [PDF (PDF, 1.7 MB)]

[TZ] https://www.arm.com/products/security-on-arm/trustzone

[SGX] https://software.intel.com/en-us/sgx

[ECHO] https://en.wikipedia.org/wiki/Amazon_Echo

[POD] https://www.apple.com/homepod/

[AZ] http://www.ieee802.org/11/Reports/tgaz_update.htm

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[15A] http://ieeexplore.ieee.org/document/5394030/

[15F] http://www.ieee802.org/15/pub/TG4f.html

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[GPSSPOOF] https://www.theverge.com/circuitbreaker/2016/7/28/12311290/pokemon-go-cheat-gps-signal-spoofing

[GPSAPP] https://www.phonearena.com/news/Heres-how-to-easily-fake-your-GPS-location-on-Android_id62775

09

Conclusion

What we do with our location information is deeply shaped by the format of the location information. Your location is known to the people around you, but they only see your physical presence and may not know your name. Your phone's location is known to your mobile telephone network operator, but you cannot share this, say, with your insurer, even if you wished to. When your friend wants to know where you are, you have a whole set of expectations that differ when your bank, your insurer, your search engine, your browser, your delivery service, your doctor, your lawyer, your mother want to know where you are: Your cellphone provider knows where you are, your package delivery service knows where you are, your cleaning lady knows where you are, your mother knows where you are, and on and on. Each bring about in you a different set of desires as to whether you wish to share your location or not.

Platin enables a new way of sharing location information. You decide who to share it with, and how. Privacy-preserving easy to use PALs lock up your information with cryptography so that your information only does what you wish it to do. And you can earn money for participating in the system. Such a privacy-preserving location protocol is a game-changer. Yesterday, location claims were made separately, insecurely, without one claim being able to be used with another.

9.1 Statement of Facts

- Platin is a utility token.
- Platin's pre-ICO was private.
- Platin's TGE and public ICO are scheduled for 28-Oct-2018

9.2 Platin Roadmap

Location Credentials and Proof of Location unleashes efficiencies of scale and new economics and value based on sharing resources better, more effectively, and with more granular control. This is the dawn of the location marketplace. It is powered by Platin. Start using Platin, get involved.

May 2017	Platin founded by Allon Mason and Dr. Lionel Wolberger, two Cornell University graduates
Oct 2017	Platin leads Technion project in network security lab, signal harvesting and Ethereum Solidity smart contract development.
Jan 2018	Platin selected by Tokyo Metropolitan Government for two-month blockchain accelerator along with IOTA, Factum and other leading blockchains, in residence Jan - Mar 2018
Feb 2018	Platin publishes its whitepaper and token economics
Mar 2018	Lead Technion project in algorithmic location fraud detection.
May 2018	Platin secures $1.5 million in private funding
Jun 2018	Platin partners with Tel-Aviv based SignulariTeam VC
Jul 2018	Platin unveils SolidityGEO at TechCrunch Zug in Switzerland
Aug 2018	Platin Labs founded
Sep 2018	Platin's TGE and ICO smart contracts in audit

Oct 2018	TGE Smart contracts release to mainnet
Oct 28, 2018	October 28th Platin TGE and public sale launch at 12:00 GMT
Nov 2018	Platin PTNX token listed on exchanges
Dec 2018	Platin Pocket Beta (Private)
Jan 2019	Platin SolidityGEO (beta) launch
Feb 2019	Zero Knowledge (beta) claims launch
Mar 2019	First commercial geo airdrops
Apr 2019	Platin Pocket Beta (Public)
May 2019	Platin Merkle Tree
May 2019	Platin support for EOS Mainnet
May 2019	Platin support for Ethereum Mainnet
Jun 2019	Platin SolidityGEO GA launch
Jul 2019	First humanitarian geo airdrops
Jan 2020	Platin Plexus Testnet
Jan 2020	Platin ZK in Solidity GEO
Jan 2020	Tokyo Airdrops Beta (prep for Olympics)
May 2020	Platin Plexus Mainnet
Jun 2020	Launch and listing of Plexus native PTN token
Jul 2020	Summer Olympics Airdrops

10

The Team

10.1 Core Team

Allon Mason

https://www.linkedin.com/in/allon/

Allon Mason is an entrepreneur, an early Bitcoin supporter and blockchain evangelist bringing to Platin many years of experience in online marketplaces, product management, product design & development, cross-functional team management and business development. Previously, Allon cofounded and acted as CEO for successful endeavors including online hiring platforms XPlace.com and VREX.
Allon conceived, developed, implemented and lead his prior projects and companies, which included online marketplaces, SAAS and web services, real-time collaboration, web accessibility utilities and online payment and escrow systems. Prior to founding Platin, Allon served as CEO of XPlace, one of the world's leading online project marketplaces, and VREX, a marketplace for augmented reality(AR), virtual reality(VR) and mixed reality(MR) talent.

Allon has been involved in the Israeli tech industry for more than a decade, mentoring young entrepreneurs and educating others on blockchain utilities, cryptocurrency technologies and his vision around the democratization of mining.

Dr. Lionel Wolberger, PhD., Co-Founder, CTO

https://www.linkedin.com/in/lwolberg/

With over 15 years of extensive experience in the development of new ideas and true "full stack" experience on mobile, PC, web, and cloud in everything from games to e-commerce, Lionel is also a world-class expert in privacy, video technology and security with experience in multiple companies as well as serving on standards boards in W3C and Oasis.
As a leader of new technologies deployment charged with transforming and deploying cutting edge services, Lionel conceived, implemented and led engineering teams to create, modify and deliver demos, prototypes and products such as Cisco DRM, eBooks, Interactive Television and VideoGuard Everywhere.
Services enabled by Lionel and his teams are used by tens of millions of people on almost every continent (Cox Cable, News America Marketing, European Cable, DirecTV). The DevOps and CI/CD Agile transformation that he helped lead changed how Cisco delivered its flagship $500M revenue product to enterprises such as AT&T and Vodafone.
Dr. Lionel Wolberger chairs the W3C Committee for Decentralized Identity on the Blockchain and interacts regularly with Sir Tim Berners Lee, the founder of the World Wide Web.

Prof., Dr. Srdjan Capkun, Platin Advisor on Secure Location

https://www.linkedin.com/in/srdjan-capkun-89199991/

Prof. Dr. Srdjan Capkun (Srđan Čapkun) is a Full Professor in the Department of Computer Science, ETH Zurich and Director of the Zurich Information Security and Privacy Center (ZISC). He was directly involved in founding two startups in the location security space, proximity detection for secure login (https://futurae.com) and secure proximity radio (https://www.3db-access.com).
Dr. Capkun has 15+ years of research and industry consulting experience, and his work on location security and wireless venues has been recognized worldwide with seminal publications in leading journals.
He was born in Split, Croatia and received his Dipl.-Ing. degree in Electrical Engineering / Computer Science from the University of Split in 1998, and his Ph.D. degree in Communication Systems from EPFL in 2004.
Prior to joining ETH Zurich in 2006 he was a postdoctoral researcher in the Networked & Embedded Systems Laboratory (NESL), University of California Los Angeles and an Assistant Professor in the Informatics and Mathematical Modeling Department, Technical University of Denmark (DTU).

Mykhailo Tiutin, Chief Blockchain Architect

https://www.linkedin.com/in/mykhailo-tiutin/

Mykhailo (Mike) is an experienced blockchain architect and Java team lead with a demonstrated history of delivering large scale solutions. He is a strong engineering professional and is skilled in Solidity, Scrum, PostgreSQL, SQL, Oracle, and Agile Methodologies.
Most recently, Mike was the CTO at Betexlab.com where he created architecture, drafted smart contracts and backend, and also managed PoC development and product development. In addition, he took on the role of CTO at Vareger where he concentrated on R&D projects, PDP plans for developers, and managed customer consultations on blockchain solutions. Mike has also acted as a Technical Advisor for Propy.com where he architected a smart contract based registry and transaction tool and for Cronica.io where he assisted with blockchain solution consulting, designed product descriptions, and created solution architecture.

Oleksandr Zalizniak, Platin Lead Engineer

https://www.linkedin.com/in/ozalizniak/

Alex's ability to tackle challenging technical projects and his keen interest in developing modern solutions led him to join the Platin team. At Platin, Alex is responsible for designing solution architectures, DevOps and infrastructure management, project and product management, and working on the backend for Platin's mobile apps, Plexus blockchain, Ethereum interfaces and more.
Due to his extensive software development experience and full-stack engineering capabilities, Alex is dedicated to being involved of all aspects of software development and is focused on discovering unique and insightful ways to optimize projects within Platin.

Previously, Alex worked on projects where he was responsible for development, authoring requirements, producing technical documentation, project planning, managing dev teams, as well as coding and handling quality assurance for mission-critical components. A number of these projects were for banking services clients with high security standards.
In addition to this work, Alex took on the role of Backend Senior Java Developer on several e-commerce projects large-scale projects allowing Alex to gain a great deal of hands-on technical experience in building highly available and scalable solutions.

Vadym Fedyukovitch, Platin Chief Cryptographer

https://www.linkedin.com/in/ozalizniak/

Vadym leads Platin's work on private verification for location claims.
Vadym was working in industry and academia with past projects including zero knowledge interactive proof systems, non-interactive proofs, identification protocols, electronic commerce systems, general software development. Originally trained as a theoretical physisist and a mathematician, Vadym's major results are polynomial representation for graphs, extension of Schnorr protocol with verification of polynomials of higher degree in challenge, and recently applicability of zkSNARK for polynomial representation.

In 2017 and 2018, Vadym worked as a Software Engineering Consultant for Samsung Research SRK on the implementation of an identification protocol, working with libraries implementing bilinear pairing on elliptic curves and conducting research on the applicability of SNARKs for company projects. Prior to that, Vadym was also a consultant for GlobalLogic, Kiev working on an Android project with Texas Instruments as well as a Software engineer with IntroPro, a DirecTV R&D center supporting TV receivers, a Linux-based MIPS system.

Alexa Fukuoka, Senior Relationship Manager

https://www.linkedin.com/in/alexahuth/

For more than a decade, Alexa has been helping to guide teams using clear communications and proactive project management. In addition to her work with Platin, Alexa is the International PR Representative for Startup City Fukuoka where she helps startups to realize success within Japan and abroad. This includes sharing advice with aspiring entrepreneurs, making helpful introductions within the community, and producing content that inspires potential founders to start up in Fukuoka.
Before coming to Japan, Alexa worked at the Software Engineering Institute as the writer and editor for the C-suite. Other projects included facilitating an internal reorganization, assisting the Organizational Effectiveness Group, and creating a project showcase for external and internal stakeholders.
She has earned both a bachelor's and master's degree in Professional Writing from Carnegie Mellon University.

Anatolii Kucheruk, Lead Blockchain & Solidity Developer

https://www.linkedin.com/in/anatolii-kucheruk-00441339/

Anatolii has 15+ years' experience in software development and related fields.
He started as a freelancer and contractor performing complex solutions for the retail market: accounting, warehouse and POS software and devices, underlying network and system setup including assembly, repair and hardware programming.
Anatolii then became a full stack web developer focusing on the DevOps and DBA layers, including PostgreSQL and network and system administration.
He later focused on development with social responsibility including software and databases for social workers and researchers working to prevent alcoholism, drugs addiction, HIV/AIDS, HEP and TUB epidemics. In parallel, Anatolii focused on a number of Universities infrastructure projects, databases and data warehousing solutions.
For the last couple years Anatolii has focused on R&D for blockchain and Platin's™ Proof of Location blockchain – the Plexus™.

Anastasiia Babicheva, Lead Android Developer

https://www.linkedin.com/in/anastasiia-babicheva-91245686/

Anastasiia is a skilled Android developer with extensive experience in working on Android apps for startups and larger companies . She has worked with and managed distributed teams while focusing on implementing the latest Android development methodologies and best practices.

Bogdan Ivanov, Senior iOS Engineer

https://www.linkedin.com/in/bogdanivanov/

Bogdan is an iOS/mobile engineer with experience that spans dozens of projects for international and multi-national organizations and large enterprises. A an expert in Objective C and Swift as well as core Apple frameworks, Bogdan has a passion for delivering high quality apps.

Ivan Fytsyk, Android Developer

https://www.linkedin.com/in/ivan-phytsyk-52410377/

Certified Java and seasoned mobile developer leading various projects, mostly within startups. Passionate about mobile client architecture, AR and machine learning.

Mykhailo Savchuk, SolidityGEO Developer

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I work on SolidityGEO, Platin's™ Solidity extension. SolidityGEO allows for the smooth handling and coding of both geospatial semantics and zero knowledge functionalities. In this role, I use my experience in the Solidity language, as well as in blockchain development, Java, Spring, and SQL to develop projects for Platin™ and our partners. In addition to my work on SolidityGEO, I am also focusing on writing smart contracts and scalable applications for the Platin Plexus blockchain.

Yaroslav Semelyak, UI/UX Expert

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Yaroslav has over 8 years of hands-on work experience in UI/UX design, rapid prototyping, and front-end development for rich Internet applications and mobile devices. Yaroslav practices user-centered design principles basing design decisions on user needs and business goals

Alona Verekshaka, Senior Front End Developer

https://www.linkedin.com/in/alona-vereshaka-86529a154/

Alona brings over 7 years of web development experience to her position as Platin's front-end developer. She has a strong academic background rooted in mathematics and focuses on building highly-complex full-stack solutions including building, maintaining and updating all of Platin's web services.
In prior projects, Alona has worked extensively with database architectures including (but not limited to) SQL, NoSQL and MongoDB. In addition, she has worked extensively with JavaScript libraries such as React.js, AngularJS, and Vue.js as well as Node.js (Express & Sails) and old PHP frameworks such as CI (CodeIgniter) and Symfony.

José Sanches, 3D Concept Artist

https://www.linkedin.com/in/jose-sanchez-07982616b/

José is a graphic designer at Platin with more than five years of experience specializing in lettering, 3D modeling and corporate branding.

 José uses both traditional and more innovative tools and techniques to develop creative solutions with a distinctive look and feel.

At Platin José focuses on creating compelling visualizations and renders of airdropped digital assets, scenes and cryptocurrencies while maintaining Platin's brand guidelines.

Kenneth Lefkowitz, Business Development

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Kenneth Lefkowitz heads business development for Platin and has over twenty years of experience leading a wide range of businesses. He sits on the board of trustees of technical standards but still likes to take apart a car's V8 engine. His passion is leading teams of people, nurturing diverse but unified company culture, and most of all keeping promises to customers. Kenneth is based in New York City but is also regularly in Israel, Europe and Silicon Valley.

Tushar Thakker, Immersive Reality Dev. Lead

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Tushar currently leads the immersive reality development work at Platin, making cryptocurrencies and other digital assets real, interactive and visually engaging for everyone.
Over the years, Tushar has gained expertise in enterprise architecture, data centers, big data and artificial intelligence for various organizations, but Tushar's real passion lies in immersive tech and has been a proud immersive reality enthusiast since the early days of AR/VR.
Tushar has more than 15 years of experience working at various Fortune 100 companies such as Oracle, Dell-EMC, PepsiCo as well as various governmental groups around the world.
Tushar is a certified and practicing PMP and author of the book Pro Oracle Fusion Applications (https://www.amazon.com/Pro-Oracle-Fusion-Applications-Administration/dp/1484209842/)

Leonid Muzyka, Full Stack Engineer

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Leonid is a full stack engineer with extensive experience in a variety of technologies focusing on both servers side development and web apps. Leonid has held managerial positions in the tech, retail and postal industries. Leonid has a BSc. in economics and studied for his masters in applied mathematics and computer science.

Yulia Vidomenko, Account Manager

https://www.linkedin.com/in/yuliavidomenko/

As an Account Manager for Platin, Yulia ensures that the development team is always in sync. Her experience is rooted in creating and refining business processes while fostering positive customer relationships. Tapping into these skills, Yulia helps to align teams with Platin's overarching goals and assists in identifying growth opportunities. Within Platin, Yulia helps to create an atmosphere of positive collaboration and focused on product success.

Dimitris Chatzopoulos, Advisor, Device-to-Device Ecosystems

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Dimitris received his Diploma and his M.Sc. in Computer Engineering and Communications from the Department of Electrical and Computer Engineering of University of Thessaly, Volos, Greece.
He is currently a PhD student at the Department of Computer Science and Engineering of The Hong Kong University of Science and Technology and a member of HKUST-DT System and Media Lab.
During the summer of 2014, he was a visiting PhD student at Ecole polytechnique federale de Lausanne (EPFL). His main research interests are in the areas of mobile computing, device–to–device ecosystems and cryptocurrencies.

Hananya Goodman, Researcher

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Hananya Goodman, Head Librarian, Sami Shamoon College of Engineering, Ashdod, Israel, has, for nearly twenty years, provided comprehensive in-depth engineering research information to faculty and students, including software, electrical and industrial engineering. He holds a Master's degree from Simmons in Library and Information Science.
He has been affiliated, in various capacities, with Harvard, Yale, Boston University, Hebrew University and Cisco. He has published academic articles and books and holds a BSc from the University of Wisconsin and MA from Brandeis. He is proud to have volunteered several years at the Albert Einstein Archives at the Hebrew University of Jerusalem.

Iuliia Osypova, Recruiting and HR

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Iuliia (pronounced 'yu-li-ah') is an HR and recruiting expert at Platin specializing in tech. Iuliia focuses on technical recruiting, team building, career development and HR Policies.

Eran Shay, Platin Non-Executive Director

https://www.linkedin.com/in/eran-shay-27826512/

At Platin, Eran leverages his experience in the fields of corporate finance, business & strategic planning, valuations, and regulatory support to assist in Platin's planning and policy creation. Eran is the founder of Benefit Business Solutions Ltd, a Gibraltar-based fintech consultancy firm. Prior to founding the consultancy, he served as a Director at Deloitte for 15 years, leading the Financial Advisory Services practice at the Gibraltar offices.
In the past, Eran has led several Initial Public Offerings for companies on the London AIM and Main Stock Exchanges, and he has been involved in numerous M&A transactions. This background makes him a well-informed representative of Platin's stakeholders.
In addition to his role at Platin, Eran also serves as the President of the Gibraltar-Israel Chamber of Commerce and holds a Master's in Banking & Finance from Middlesex University, London.

Marc X. Ellul, Legal Counsel

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Marc X. Ellul has 25 years' experience as a Gibraltar lawyer. He is the Managing Partner of Ellul & Co. (www.ellul.gi) and heads the firm's fintech team. He is Chairman of the Gibraltar Finance Centre Council. Representatives of all of Gibraltar's financial services industry associations are members of this Council whose objects are to promote the economic interests of Gibraltar by developing the finance center.
The Council meets regularly with the Minister for Commerce, Government officials and the FSC and has an important role in shaping finance canter policy and legislation. He was also Chair-

man of the Company Law Reform Committee which updated the Companies Act in 2014 and he formed a part of team which drew up the AML guidance notes for Gibraltar lawyers.
He now mainly practices as a corporate, funds, tax and fintech lawyer. He is actively involved in blockchain work in Gibraltar advising on the set-up of regulated cryptocurrency exchanges, token sale (ICOs) and on the establishment of digital asset investment funds.

Itzik Ashkenazi, Advisor, Networking

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Itzik Ashkenazi, Chief Engineer - Networking Lab at Technion - Israel Institute of Technology
Chief Engineer - Laboratory of Computer Communication and Networking (LCCN) Technion - Israel Institute of Technology
Dates Employed Nov 2015 – Present Employment Duration 2 yrs 3 mos Location Haifa
Manage the LCCN lab (http://lccn.cs.technion.ac.il/) that is part of the Computer Science Faculty in the Technion. In the lab I manage Research projects ,Projects with leading networking companies in the Industry as well as participate and contribute to Open Source projects.

The projects are in the following areas:
Research of IP Networks
Research of Routing protocols such as: BGP, OSPF - using advanced networking simulations tools
Investigation and implementation of advanced algorithms that improve networking performance
Research future networking technologies such as: SDN, NFV, OpenStack, IoT
POCs and Prototype projects with the Industry and Standardization organizations like MEF

Robert Scoble, Advisor

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Robert Scoble, technical evangelist and author, helps companies get going for the next transformation, coming in the 2020's, when self-driving cars, AI, cryptocurrencies, digital assistants, and AR will deeply change the world.
Robert Scoble authored the book "The Fourth Transformation: How Augmented Reality & Artificial Intelligence Will Change Everything" tracing the technological evolution into the worlds of Virtual Reality, Augmented Reality and Mixed Reality, that will become pervasive in less than ten years.

Robert writes about the technology that allows us to go from merely observing something to truly, sensorially, experiencing it, even a digital asset such as a Bitcoin. Some things need to be seen to be believed, and this is now happening with cryptocurrencies. What already exists will blow your mind and make you rethink the world around you.

Avishai Ziv, Advisor, Alignment CEO

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Avishai is the acting CEO of Alignment Group, the largest collective of Blockchain and crypto technologies worldwide, focusing on covering all aspects of ICOs and TGEs.
Prior to heading the Alignment Group, Avishai lead Earnst & Young's High-Tech group for eight years where he serviced hundreds of businesses from start-ups to multinational corporations.
As a Management Consultant at E&Y Avishai focused on growth/profitability, corporate structures, strategic planning, corporate-level fundraising & development services, aiding numerous IPO's on exchanges such as NASDAQ, the Tel Aviv Stock Exchange and various European indices, and more.

Gadi Rotenberg, Security Advisor

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10+ years of R&D and consulting. Leader of wide variety of full cycle projects, from planning stages to delivery, that involved working with contractors and high performance on tight schedules.
Out-of-the-box and creative problems solver with abilities to quickly perceive advanced and complex topics and use innovative technologies.

Mike Winston, Advisor

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Mike Winston, CFA is the founder and Managing Principal of Sutton View, an employee owned hedge fund sponsor and advisor. Sutton View was founded in 2012 and focuses on event-driven and intrinsic value investing. The firm has advised one or more of the largest academic endowments in the world. Mr. Winston was an early investor in cryptocurrency and remains active in financial applications of blockchain technology.
Prior to Sutton View, Mr. Winston worked as a portfolio manager at Millennium Partners LP where for five years he and a colleague managed a $1bn merger arbitrage and event driven capital allocation. Mr. Winston received an MBA in Finance and Real Estate from Columbia Business School in 2005, and a BA in Economics from Cornell University in 1999. At Columbia he completed the school–s program in Value Investing. While at Cornell he studied for a year at the London School of Economics and twice won the Eastern US division for policy debate. He began his career in 1999 with Credit Suisse First Boston. Mr. Winston is a CFA Charter Holder, and a member of the Economic Club of New York.

11

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12

Change Log

Version	Major Changes	Signed
1.04	• Clarify how Platin works with blockchain, either Ethereum, Eos or a forked and new blockchain dedicated to Platin's use; how this does not conform with the Ethereum Oracle architecture pattern originally described. • Update competitor section	LW
1.05	• Added updated team section	AF
2.01	• Team section new format • Token sale economics • Updated PoL diagrams • Added Platin Roadmap • Updated Platin Pocket UI	AKM
2.1	• New open source policy section • Additional details on Platin's SolidityGEO™	LW