

Titanium Blockchain

INFRASTRUCTURE SERVICES



TEIS

WHITE PAPER

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DOCUMENT REVISION HISTORY

Version	Modifications Made	Author(s)
v1.0	Initial Draft	Michael Stollaire/Jason Brink
v1.1	DEXchange Added to Titanium's List of Products and Services	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.2	Titanium BAR Token distribution percentages modified to leave more to reserve, Referral Bonus program added, Storj added as a potential strategic partner, ZCash added as an approved currency to purchase BAR with, Pre-Sale period extended, due to the rapid increase in Bitcoin's (BTC) price causing a subsequent dramatic decrease in Ethereum's (ETH) value and the minimum amount of BTC/ETH raised to consider the ICO a "success" decreased, because of BTC's rapid price increase (doubled in price since release of v1.0 of this White Paper). Also, added a new section: "The EHI Advantage."	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.3	Increased the bonus for using the BAR within The Titanium Ecosystem to 10% from 5%. Also added verbiage to "The EHI Advantage" Section of the White Paper. Added verbiage about a defined soft cap of money that the project must raise for the project to be viable.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.4	Added Table of Contents	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.5	Moved Content, Added New Citations, Client Logos, etc.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.6	Changed security cap to 350,000 ETH.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.7	Added a figure of \$35,000,000 for a hard cap.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)

v1.8	Added emphasis on Titanium being the first blockchain start-up ever, to obtain D&B and BBB accreditation.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v1.9	Replaced old roadmap Figure 1 image with new roadmap image.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.0	Based on audit results, added more corporate information, such as Federal Tax ID, California Corporation ID, etc. Also, added more Titanium Core Team information as well.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.1	Corrected DEXchange information, regarding the number of cryptocurrencies listed, the number of fiat currency pairs supported, and the guarantee that DEXchange will charge the lowest transaction fees in the world, guaranteed.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.2	Added Five-Year Financial Projections for the Titanium Project.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.3	Re-Corrected an Incorrect Statement about the BAR Token, as it will be the only currency that can be used in the Titanium Ecosystem.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.4	Added verbiage for Platform as a Service (PaaS), as an augmentation and synergistic element of IaaS.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)

v2.5	Added additional verbiage, regarding PaaS, more information about what cloud-based issues that Titanium would solve, greater detail as to how Titanium's deployment on blockchain functions and solves current problems, removed a subsection of EHL-based verbiage, pegging BAR to the USD vs ETH, etc.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)
v2.6	Changed ETH:BAR purchase price for the ICO, since the price of Ethereum has more than doubled since the Titanium White Paper (WP) was authored.	Michael Stollaire/Artem Chupkhin (Legal)/Vincent Fullerton (Technical Advisor)

EXECUTIVE SUMMARY

Titanium Infrastructure Services: The Ultimate Strength of the Blockchain... Unleashed™.

- Titanium Blockchain Infrastructure Services (TBIS) finally answers the question: “What if an entire IT enterprise could be decentralized, including data centers, firewalls, load-balancers, routers, switches, network appliances and servers?”
- TBIS intends to disrupt the current market leaders in the provisioning and virtualization space.
- Services Will Include: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Company as a Service™ (CaaS), Bring Your Own Cloud™ (BYOC), DEXchange™, Monitoring as a Service (MaaS), Blockchain as a Service (BaaS), Mining as a Service™ (MlaaS), Instant ICO Incubator™ (III), etc.
- TBIS is developed on the blockchain platform, so all changes in the environment and assets will be recorded on an immutable ledger, to correlate with standard IT change management and ITIL methodologies.
- Follow-the-Sun enterprise management and monitoring services, autonomous healing, and optimized disaster recovery and redundancy mechanisms will allow TBIS to virtually guarantee close to 100% uptime of devices, applications and services, making them a market leader.
- Since TBIS would operate on the blockchain, the days of Distributed Denial of Service (DDoS) attacks and other black hat hacker exploits would effectively be over.
- Most, if not all, of the issues associated with similar cloud server products would be solved.
- The TBIS Administrative User Interface (UI) is intuitive and the simplest to use in the industry, and will be available as a thick client, web-based thin client, and mobility applications on both Apple's iOS and Android platforms.
- UI wizards will allow administrators to create any component of their infrastructure in mere minutes, designed in alignment with their growth factors, technical requirements and business drivers.
- A unique capability to create virtual cryptocurrency miners will be included in TBIS services, allowing customers to spin up emulated ASIC and/or GPU miners with a specified hash rate.
- Mean Time to Repair (MTTR) will be significantly hastened, minimizing the cost of outages.
- Cost of ownership (COO) will be reduced to minimal levels.
- Return on Investment (ROI) will be achieved far faster than with traditional cloud-based solutions.

TITANIUM: The first blockchain start-up ever to acquire both Better Business Bureau (BBB) and Dun and Bradstreet (D&B) Accreditation



D&B Number: [080926636](#)

Better Business Bureau (BBB) - Business ID: [756765](#)

Federal Tax ID: 82-3126792

California Corporation Number: 4073241

TITANIUM: The EHI Advantage

What does EHI stand for? Excellence, Honesty and Integrity, because that is what we stand for.

Unlike 99.99% of Blockchain start-ups and Initial Coin Offerings (ICOs), the Titanium Core Team is not composed of relative newcomers to technology. In stark contrast, the Titanium Core Team has over two-hundred (200) years of combined experience. This is also not the first technology company that Titanium's Founder and CEO, Michael Stollaire, has ever formed. In 1999, Mr. Stollaire founded EHI, a technology consultancy specializing in enterprise infrastructure management, which is still thriving and growing today with Michael at the helm.

Two decades of experience taught EHI's personnel the strengths of infrastructure-based enterprise management, but it also unveiled the weaknesses of several solutions and problems that had to be minimized at several past customers.

Taking these problems and weaknesses under consideration, The EHI Team formulated a new architectural design on an entirely new bleeding-edge platform, The Ethereum Blockchain, which mitigated all of these issues. It was called Titanium, because the objective was to make our clients' technology infrastructure stronger than steel.

Also, EHI and its consultants are known in the industry as top-tier, elite personnel, as shown by their impressive Client List and Testimonials.

Most Blockchain start-ups and ICOs face a very serious problem after they develop a viable product and or service: finding companies and people that will actually purchase them and use them.

Titanium will not have this problem. As EHI's sister company, Titanium will simply inherit EHI's clientele, and since EHI is considered a trusted source of excellent customer service and personnel, Titanium will also be held in high regard.

In the eyes and opinion of Mr. Stollaire, in fact, Titanium is an organic evolution of EHI, and should effectively be considered "EHI v2.0."

What follows is a short excerpt of some of EHI's customers, which Titanium will leverage immediately.

CLIENTS

- Accenture
- Apple
- Applied Materials
- Boeing
- Cargill
- Citizens Bank

- eBay
- ERCOT
- Exelon
- General Electric
- Hewlett-Packard
- Honeywell
- IBM
- Intel
- Microsoft
- PayPal
- Pfizer
- Santa Barbara Bank and Trust
- Synchrony Financial
- The Bank of Scotland in Ireland
- The Federal Reserve Bank
- The Royal Bank of Scotland
- TrueCar.com
- Universal Studios
- Walt Disney

accenture



APPLIED MATERIALS

BOEING

Cargill

Citizens Bank

ebay

ercot

Exelon



Hewlett Packard Enterprise
Smart CID

Honeywell

IBM

intel

Microsoft

PayPal

SANTA BARBARA BANK & TRUST

synchrony FINANCIAL
Engage with us.

BANK OF SCOTLAND





THE TITANIUM TEAM

TWO CENTURIES OF COMBINED EXPERIENCE

Titanium has many excellent assets and advantages, but nothing stands out more than The Titanium Core Team. Combined, The Titanium Core Team holds over two-hundred (200) years of combined experience in global infrastructure enterprise environments. Throughout seventeen years of experience in the technology sector, specializing in enterprise infrastructure management, Founder and CEO of Titanium, Michael Stollaire, made it a habit of identifying the most elite talent in technology, and made sure he kept in close contact with these individuals throughout the years. Over the course of time, Mr. Stollaire called in a favor or two to a handful on the list, to assist him with projects at Accenture, Boeing, Devon Energy, etc. However, with the advent of The Titanium Project, every resource that was accumulated over two decades was brought into the fold, forming an “A-Team” of the finest technology talent in the world.



MICHAEL STOLLAIRE

President & CEO



RICHARD SILVER

COO/Director of
Marketing



CHRISTOPHER SNOOK

CTO



VINCENT FULLERTON

Technical Advisor (Pura
Core Team & NEM
Developer)



STUART SIEGLER

Ethereum Developer and
Enterprise Automation
Expert



JAMES CONNOLLY

Ethereum Developer



JESSE URE

Ethereum Developer



RITCHEY MULHOLLEM

Ethereum Developer

**NILO AMPUNAN**

Senior Enterprise
Management Specialist

**RICHARD WHITAKER**

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Community Manager

BACKGROUND

Since the advent of the idea of an interconnected network in the 1960s, very little has changed regarding internet infrastructure. While today's internet has infinitely more interconnected servers, home computers, and most importantly, users, the functional technological framework has not changed since the first envisioned by the computing pioneers of the '60s and '70s. Of course, server technology has improved since the first network arrays such as ARPANET, but the fundamental infrastructure hasn't changed – it is still based on large data centers and is centrally controlled by large companies who have their own interests at heart; these interests are not necessarily yours.

In 1999, the invention of virtualization software allowed for the creation of virtual machines (VMs) on high capacity servers. This saved companies around the world billions of dollars and allowed for the rapid growth of the consumer webhosting industry as hundreds of low traffic websites could be hosted in a very small amount of rack space as “servers” could be brought into being with the touch of a button. However, even in this situation, a disproportionate amount of power was placed in the hands of relatively few companies. Even today, up to 70% of internet traffic passes through server farms concentrated in Northern Virginia and operated by a single company.¹ While the status quo *works*, it is far from the ideal decentralized and democratized internet envisioned by our technological progenitors and which is only now becoming a possibility.

Welcome to the new world brought to you by Titanium Infrastructure Services (TBIS); We Are the Revolution.

A NEW ERA

Today, the largest transportation company in the world owns no cars (Uber), the largest hospitality company on the face of the planet owns no hotels (AirBnB), the largest retailer carries no stock (Alibaba), and the world's most popular media network creates no content (Facebook). Clearly, we are living in a time of radical change. Why should internet infrastructure be any different?

TBIS is proud to introduce Infrastructure as a Service (IaaS) on the Ethereum blockchain platform. Today the internet, considered collectively, represents an estimated 11.5 million petabytes of data. As enormous as this it, it is dwarfed by the potential of a fully integrated and interconnected global network scattered

¹ As of the time of writing, roughly 70% of all internet traffic passes through Amazon Web Services (AWS) server farms scattered throughout Northern Virginia. This centralization introduces a fundamental weakness to the entire infrastructure of the Internet; TBIS was designed to solve this problem.

Source: <https://www.washingtonian.com/2016/09/14/70-percent-worlds-web-traffic-flows-loudoun-county>

throughout the billions of desktops, servers, and networked devices. It is the leveraging of this system to which TBIS is dedicated. With completed proof-of-concept models created and functioning infrastructure forged by the greatest minds in the distributed computing industry, TBIS will completely revolutionize internet infrastructure.

Just as steel changed the building industry forever, Titanium will usher in a new era of network construction. With TBIS' proprietary IaaS, every device, from enterprise level on down, can be virtualized; routers, firewalls, and specialized equipment such as cryptocurrency miners, can exist in an entirely cloud-based environment. Paired with cutting-edge enterprise management and monitoring technology, this will create a shock-proof internet infrastructure that will be both lightweight and utterly revolutionary in scope. The distributed TBIS system will monitor the health of the network execute autonomous "healing" actions when specific weaknesses are detected. With Titanium Hydra Fault Tolerance, if a device falters, TBIS will have already shifted load away and onto another network of redundant nodes. If a potential security problem arises, the TBIS system will work automatically to limit the potential impact of attacks such as DDOS or other address-specific attacks; it is impossible to overwhelm a piece of equipment that exists only on the ether.

The backbone of the TBIS system is the Service Level Agreement (SLA) which can be constructed to virtually guarantee 100% uptime of all devices, applications, and mission-critical services. The Titanium Control Panel will make it possible for even an inexperienced user to create SLAs that will be able to support enterprise-level support and network infrastructure for any person or company that has decided to be a part of the coming Titanium Revolution.

In short, TBIS IaaS will render current infrastructure services, from web hosting to any network support device, archaic, obsolete and utterly useless. Just as iron supplanted bronze, Titanium is elemental to the future of the internet.

MISSION STATEMENT

Our Mission:

"Our mission is to leverage the power of the immutable blockchain to provide virtual infrastructure services for businesses and individuals, creating a Titanium clad guarantee of reliability which had previously been wholly impossible."

Our team firmly believes in the disruptive power of the blockchain. Already, global business and finance are being transformed and disrupted by blockchain technologies. TBIS has already completed trials that demonstrate that it is possible to

create entire infrastructure systems on distributed and redundant systems. Imagine a world in which businesses no longer need to have a networking closet full of expensive and temperamental equipment that rapidly becomes obsolete, requires tender care and reduces productivity through down time or general digital surliness. All of the decaying equipment with yellowing casings can be replaced with digital titanium for a fraction of the cost of acquisition and maintenance of hardware infrastructure, all while increasing uptime and reliability and completely eliminating maintenance.

TBIS's Infrastructure as a Service (IaaS) is a powerful and timely platform which is needed to usher in a new era of productivity for companies and individuals around the world by providing end-to-end internet infrastructure.

CORE OBJECTIVES, PRODUCTS AND SERVICES

Titanium Infrastructure Services (TBIS) has the following core components:

Infrastructure as a Service (IaaS)

The core competency objective and primary goal of TBIS is the creation and propagation of a shockproof distributed network infrastructure capable of replacing the bloated and inefficient hardware foundation upon which the internet of today is based. *In essence: to build a better internet that cannot be controlled or destroyed by anyone and is open for all.*

This will include but is not limited to:

- a) Maintaining and Enhancing TBIS' existing enterprise virtualization software package which enables the creation of network components such as servers, routers, switches, etc., in a distributed environment
- b) Building and remaining as the *de facto* platform for creating, maintaining, patching and upgrading distributed enterprise IT environments
- c) Making it quick and simple to virtualize entire enterprise-level infrastructure environments while simultaneously decreasing the cost-to-consumer and downtime while increasing network reliability, security, and convenience
- d) Website hosting through the Titanium Virtual Server System will be more reliable than existing shared hosting because unlike a traditional server, which can go down, the TBIS servers will guarantee constant uptime and dramatically increased security
- e) Implement the cutting-edge TBIS Enterprise Management Software with autonomous healing and security functions include in the Titanium Hydra Fault Tolerance Suite for all monitored elements and network components

- f) Platform as a Service (PaaS) or application platform as a Service (aPaaS) is a category of cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app. PaaS can be delivered in two ways: as a public cloud service from a provider, where the consumer controls software deployment with minimal configuration options, and the provider provides the networks, servers, storage, operating system (OS), middleware (e.g. Java runtime, .NET runtime, integration, etc.), database and other services to host the consumer's application; or as a private service (software or appliance) inside the firewall, or as software deployed on a public infrastructure as a service.

Platform as a Service (PaaS)

A completely decentralized development and deployment environment, with resources that enable you to deliver everything from simple Distributed Applications (dApps) to sophisticated, decentralized enterprise applications. You purchase only the resources you need from Titanium on a pay-as-you-go basis and access them over a secure Internet connection.

Like IaaS, PaaS includes infrastructure — servers, storage, and networking—but also middleware, development tools, business intelligence (BI) services, database management systems, and more. PaaS is designed to support the complete web application lifecycle: building, testing, deploying, managing, and updating.

PaaS allows you to avoid the expense and complexity of buying and managing software licenses, the underlying application infrastructure and middleware or the development tools and other resources. You manage the applications and services you develop, and Titanium manages everything else.

Common PaaS Scenarios

Organizations typically use PaaS for these scenarios:

Development Framework

PaaS provides a framework that developers can build upon to develop or customize cloud-based applications. Similar to the way you create an Excel macro, PaaS lets developers create applications using built-in software components. Blockchain features such as decentralization, scalability, high-availability, and multi-tenant capability are included, reducing the amount of coding that developers must do.

Analytics or Business Intelligence (BI)

Tools provided as a service with PaaS allow organizations to analyze and mine their data, finding insights and patterns and predicting outcomes to improve forecasting, product design decisions, investment returns, and other business decisions.

Additional Services

PaaS providers may offer other services that enhance applications, such as workflow, directory, security, and scheduling.

Advantages of PaaS

By delivering infrastructure as a service, PaaS offers the same advantages as IaaS. But its additional features—middleware, development tools, and other business tools—give you more advantages:

Cut Coding Time

PaaS development tools can cut the time it takes to code new apps with pre-coded application components built into the platform, such as workflow, directory services, security features, search, and so on.

Add Development Capabilities Without Adding Staff

Platform as a Service components can give your development team new capabilities without your needing to add staff having the required skills.

Develop for Multiple Platforms—including Mobile—More Easily

Titanium will give you development options for multiple platforms, such as computers, mobile devices, and browsers making cross-platform apps quicker and easier to develop.

Use Sophisticated Tools Affordably

A pay-as-you-go model makes it possible for individuals or organizations to use sophisticated development software and business intelligence and analytics tools that they could not afford to purchase outright.

Support Geographically Distributed Development Teams

Because the development environment is accessed over the Internet, development teams can work together on projects even when team members are in remote locations.

Efficiently Manage the Application Lifecycle

PaaS provides all of the capabilities that you need to support the complete web application lifecycle: building, testing, deploying, managing, and updating within the same integrated environment.

Desktop as a Service™

(DaaS™): The creation of a distributed internet infrastructure also makes it possible to host entire user computers on the Titanium Cloud. Using the custom designed ultra-light TitaniumOS, TBIS users will be able to access their entire computer from any publicly available terminal or smartphone. Through navigating to their personal encrypted Titanium Desktop, they will be able to use their computer just as they would use any website. Titanium Virtualization Technologies will protect their data, ensure uptime and reliability, and make viruses and targeted attacks a thing of the past through implementation of the Titanium Hydra Fault Tolerance Suite.

Leveraging state-of-the-art SHAKE256 Titanium Sponge Cryptographic Techniques, the user's files and TitaniumOS will be future-proof encrypted and yet will remain accessible to the user with the Titanium Key. This will combine ultimate encryption and security while also allowing for ease of access.

Company as a Service™

(CaaS™): This is an automated wizard which will allow a user to start a new business from square one through leveraging the power of Smart Contracts. Anyone who has attempted to start a business in the past is aware of the challenges presented by meeting legal requirements to establish a business.

Through CaaS, TBIS will be able to supply entrepreneurs with the critical support they need to get their business off the ground by completing tasks such as:

- a) Registering for Business Licenses
- b) Creating Business Bank Accounts
- c) Filing Trademarks and Patents
- d) Incorporating
- e) Leasing of office space or equipment
- f) Hiring employees or independent contractors
- g) Securing advertising space
- h) Domain registration and host acquisition
- i) Etc.

From a legal standpoint, these Smart Contracts will save business more than just time in the creation of businesses. Smart Contracts, encoded in the immutable TBIS Blockchain, cannot be tampered with or altered in any way. Once a contract has been signed, it has been etched into Titanium and will exist in perpetuity.

CryptoEscrow™

This service allows the TBIS user to use any supported cryptocurrency to purchase items, auction items, etc. and leverage an Ethereum-based escrow service based on the Smart Contract. This would enable buyers and sellers to conduct transactions free of the worries typically associated with online purchases.

The Titanium CryptoEscrow™ would make it possible to:

- j) Buy and sell online for any amount in any approved cryptocurrency without fear of non-delivery. This system is designed to use a very simple smartphone interface that will require no experience or coding background. It is so easy, your grandmother could do it.²
- k) Generate Titanium Smart Contracts using the TBIS Blockchain and the Titanium DEX (below) to manage payment and logistics. This contract will consist of a two-part SHA256 hash which will be given to both buyer and seller, and only once these two pieces are united and delivery takes place will the funds be released from the escrow.

Bring Your Own Cloud™

(BYOC™): Beneath the surface of the Titanium Infrastructure there will be an entire suite of services that will change the computing world. Central to this effort is the desire to help users create a truly private computing environment. This can be achieved through BYOC.

People can join the BYOC secure computing environment by contributing hashpower to the network. BYOC is based on a PoW ERC20 token which generates an everchanging hash for communications encryption. When a user joins, they will be connected to a service that will download an open source Linux VPN application. Users can opt to use their own cryptocurrency miner as long as it meets the minimum requirements for OS platform, CPU, RAM, etc. Alternatively, of course, one of the many

² How this might work in the real world is that Alice might hire a courier firm to deliver to Bob a guitar he purchased from Alice – under instructions to only hand over the guitar once Bob has given them the pre-image which fulfils SHA256(key) = HASH. Once they have this key they may send a transaction to the blockchain themselves (or have Alice do it), to release the cryptocurrency. The end result is that Bob has his prized guitar, and Alice has received her payment in the cryptocurrency of her choice. However, if Alice does not receive the correct random number from Bob during an allotted time period, the contract is voided, and the cryptocurrency is returned to Bob. An example of such an escrow contract coded in the Solidity coding language can be found in the appendix at the end of this White Paper. With that said, TBIS is actively working on strategic partnerships with other companies (also delineated below), one of which provides an intuitive UI that anyone with basic computer experience can use to create smart contracts. No Solidity, etc. coding experience is necessary. Your Grandmother could do it.

virtual miner emulation choices available via the MlaaS TBIS offering could be leveraged. Please note that the BYOC service can be used for many other functions, such as web servers, file servers, etc. A cryptocurrency mining device is only be used as an example. TBIS will provide a Centos Linux OS ISO image which has a special kick-start function, to bring the device online and initiates a minimum amount of hashing on the local GPU. At this point, the kickstart server can deploy to any server/device you connect in your private cloud environment. For mining hardware, BYOC will facilitate high-end servers being used as cryptocurrency miners.

For an ultra-secure computing environment, users can join the TBIS Instaminer Network. Based on micro-computers, which can be acquired from TBIS, a security context with the peer-to-peer blockchain can be established. If someone attempts to add a device via a method that does not include the TBIS micro-computers, the device will not be allowed to communicate on the network. The TBIS micro-computer will have an open VPN for security and will be able to deploy images to servers and miners in the local environment. Once the security context is established, files beyond the vanilla Centos OS will be obtained via our own git repository and docker swarm infrastructure. In short, the use of the TBIS micro-computer will make setting miners and servers up completely automated.

DEXchange™

Cryptocurrencies and blockchain technologies are centered around decentralization. However, many cryptocurrency exchanges of today are based on centralized systems which are controlled by outside entities. The TBIS Titanium Exchange will provide initial support for the top twenty (20) fiat currencies used worldwide, and allow for exchange trading with the top two-hundred (200) cryptocurrencies as per <https://www.coinmarketcap.com> in an entirely decentralized fashion. Of course, TBIS reserves the right to increase or decrease the number of fiat currencies and cryptocurrencies it supports with future releases of the product. Also, DEXchange™ will charge the lowest transaction fees, and fees in general, in the world, guaranteed.

Instant ICO Incubator (III)™

At TBIS, we know how hard it can be to get everything together for a token launch. If you have a brilliant technical idea, but need the marketing and organizational backing to bring it to life, the Titanium Instant ICO Incubator™ will take the guesswork out your token launch through providing end-to-end launch services. Also, a *Titanium Clad Accreditation* will be created and granted to ICOs that have undergone a deep-dive due diligence by Titanium personnel. There will be no guesswork, as to which ICOs are credible and primed for investment. For instance, where these accreditations are supported, Titanium will require our ICOs to have both a Better Business Bureau (BBB) and Duns & Bradstreet accreditation. Titanium does all the work for you, so your investments are as safe as possible.

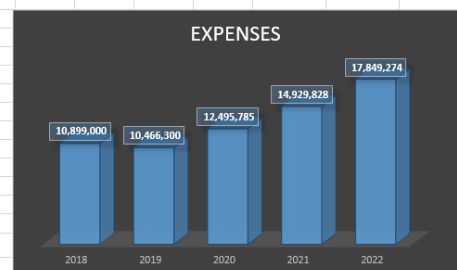
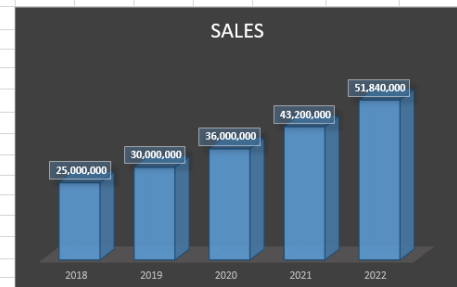
The over-arching goal of Titanium Blockchain Infrastructure Services is to provide the capability for virtualization of equipment, running the gamut from simple routers, to specialized equipment such as cryptocurrency miners. Through virtualization, TBIS will be able to help guarantee that your equipment will stay updated, patched, and ready to function to protect the interests of your business.

For example, in order to remove the hazards associated with new technology being introduced that makes current mining rigs obsolete. With TBIS IaaS, you would simply run a wizard in our UI to replace a GPU-based mining rig with an ASIC mining device. When new ASIC boards are released that are more energy efficient and have a significantly greater hashing rate, the virtual boards can be upgraded, etc., by drawing on our global network of computing power.

FIVE-YEAR FINANCIAL PROJECTIONS

Titanium Blockchain Infrastructure Services Inc
Statement of Income & Expense
5 Year Company Projections

	2018	2019	2020	2021	2022
Ordinary Income/Expense					
Income					
Sales	25,000,000	30,000,000	36,000,000	43,200,000	51,840,000
Total Income	25,000,000	30,000,000	36,000,000	43,200,000	51,840,000
Expense					
Advertising and Promotion	530,000	636,000	763,200	915,840	1,099,008
Automobile Expense	180,000	216,000	259,200	311,040	373,248
Compute, Infrastructure and Internet	2,500,000	2,750,000	3,300,000	3,960,000	4,752,000
Depreciation Expense	25,000	25,000	25,000	25,000	25,000
Employee Benefits	300,000	360,000	432,000	518,400	622,080
Insurance	48,000	57,600	69,120	82,944	99,533
Interest Expense	40,000	40,000	40,000	40,000	40,000
Legal & Professional Services	230,000	276,000	331,200	397,440	476,928
Office Expenses/Leasing	260,000	312,000	374,400	449,280	539,136
Office Supplies	130,000	156,000	187,200	224,640	269,568
Outside Services	1,800,000	2,160,000	2,592,000	3,110,400	3,732,480
Payroll Tax	250,000	300,000	360,000	432,000	518,400
Rent	120,000	120,000	120,000	120,000	120,000
Research & Development	230,000	276,000	331,200	397,440	476,928
Salaries & Wages	2,600,000	3,120,000	3,744,000	4,492,800	5,391,360
Security Expense	50,000	52,500	55,125	57,881	60,775
Taxes & Licenses	1,350,000	1,620,000	1,944,000	2,332,800	2,799,360
Telephone	36,000	43,200	51,840	62,208	74,650
Training & Education	120,000	144,000	172,800	207,360	248,832
Travel	280,000	336,000	403,200	483,840	580,608
Utilities	120,000	126,000	132,300	138,915	145,861
Total Expense	11,199,000	13,126,300	15,687,785	18,760,228	22,445,754
Net Ordinary Income	13,801,000	16,873,700	20,312,215	24,439,772	29,394,246
Net Income	13,801,000	16,873,700	20,312,215	24,439,772	29,394,246



TOKEN MECHANICS AND SALE DETAILS

This Token Mechanics and Sale Details summary does not constitute an offer to sell or a solicitation of an offer to buy TBIS's token, called "BAR", and is provided for informational purposes only in respect of TBIS's platform. The following summary reflects TBIS's current expectations with respect to token mechanics and sale of BAR, which are subject to change.

Soon, the TBIS token (BAR) will be sold. As part of this sale, a fixed pool of BAR will be generated. **No further BARs will be created in the future. BAR will be a deflationary currency.** Once the sale concludes, a portion of BAR tokens will be allocated and given to the TBIS team as an incentive for the success of our platform, and a separate portion will be held as a reserve pool and expenditure fund. The community will hold 60% of all BAR, the TBIS team will hold 20% of BAR (subject to a freeze period), 10% of BAR will be reserved for various community bounties and 10% of BAR will be allocated for the reserve pool.

The BAR cryptocurrency serves several key operational functions with respect to the TBIS platform for its holders:

1. BAR will be the only means of paying for products and services within the TBIS ecosystem.
2. BAR owners will be allowed to participate in milestone completion votes, which will be used to unlock reserves for BAR expenditure.
3. BAR will serve as the primary mechanism for verifying third-party marketplace smart contracts in a decentralized and secure way.
4. When TBIS smart contracts are deployed by users, the BAR that is paid as a fee will be re-sold and circulated back into the ecosystem at market value.

Titanium BAR Token Sale

BAR tokens will be offered at an exchange rate of 700 BAR for 1 ETH, for a sale duration of approximately sixty (60) days. During the first 72 hours, all BAR purchased will be sold at a reduced rate. The sale is slated to begin on **January 1, 2018, at 1PM (GMT-7)**. A hidden, undisclosed hard cap will be cryptographically signed using the keccak256 hashing algorithm and released as part of the smart contract. If this cap is reached, then it will be revealed and the sale will immediately end. Otherwise, the sale ends once the sale period has ended. The cap can be verified by comparing the revealed value with the hash included in the original contract. A security cap of 350,000 ETH will be hardcoded into the contract, as a safety net against unforeseen complications. **This security cap is not the hard cap for TBIS, and is not intended to be reached.**

The TBIS team has pre-determined a minimum goal (denoted in US Dollars) that represents the runway necessary for the core TBIS platform to be finished and released.

If the minimum goal is not reached by the end of the sale duration, then all contributed Ether will be marked for a refund. Anybody who contributed will be able to withdraw their Ether from the sale contract. The soft cap figure will be \$1,000,000. The hard cap figure will be \$35,000,000.

Titanium BAR Pre-Sale and “Early Bird” Bonus Periods

Before the January 1, 2018 BAR token sale, a pre-sale period of approximately one month will transpire. During that time, investors that are willing to invest a minimum of \$5,000 in the project will receive a 20% bonus. This would equate roughly to **1.2 BAR for \$1 USD**.

Three (3) bonus periods will be offered at the beginning of the sale to provide early bird contributors a small incentive. During the first 24 hours of the funding period, the exchange rate will be **1.15 BAR for \$1 USD**, a 15% bonus. For the 48 hours after that, the exchange rate will be **1.1 BAR for \$1 USD**, a 10% bonus. For the 48 hours after that, the exchange rate will be **1.05 BAR for \$1 USD**, a 5% bonus. After the early bird periods, the price of BAR will remain at 1 BAR for \$1 USD for the rest of the sale.

Note: *The exact start date, duration of the discount period, and duration of the sale will be determined by block numbers, and thus are approximated with an accuracy of a couple of minutes.*

Half of the tokens (10% of the total token pool sold) retained by the TBIS team will be frozen for one year (12 months) from the end of the sale, with the other 10% remaining frozen for an additional year (a total of 24 months). This freeze period ensures that no developer tokens will enter circulation before the TBIS platform is live.

Any tokens purchased as part of the sale will be immediately allocated to the buyer, but will be locked from transfers until the minimum goal has been reached. In a short amount of time after the sale starts, these tokens will be spendable in the TBIS mainnet demo app, once the minimum cap is reached.

Referral Bonus

During the pre-sale and general ICO crowdfunding periods, a referral bonus of 5% will be paid to existing Titanium BAR Token owners, if they refer other individuals to the Titanium BAR Token sale that proceed to purchase the minimum amount of Titanium BAR Tokens, equivalent to 0.01 ETH or greater.

Secondary Milestone Voting

The TBIS team is committed to delivering on our promises. We believe in our product, and wish to show good faith by remaining accountable to its success. Thus, we are implementing a completion-based release model. Active users who are involved in the TBIS platform will be given a vote in determining if deadlines and milestones have been met. The TBIS team will open votes for each milestone as they are released, and TBIS users will have a window of time to signal the milestone as “complete” or “incomplete”. If a majority of votes signal the feature as “complete”, the reserves associated with that milestone stage will be released.

In the event that a milestone is deemed “incomplete”, we will engage with the community for feedback to determine our shortcomings, and address those as necessary. The vote will then be repeated after a cooldown period, up to a maximum of three votes in total. In the case of three failed votes, the lock will be released at the discretion of the team, no less than one month after the final completion vote. This protects the long-term functionality of the TBIS platform from being locked over vote manipulation or contentious issues.

The specific milestones that have voter-locked access attached are noted in Figure 1. The TBIS team will lock 30% and 10% of the token sale proceeds until the completion of the first and second noted milestones in Figure 8.1, respectively. **The specific amounts locked may change according to the results of the token sale and the TBIS team’s needs. Once finalized post sale, these numbers will not change.**

OPERATIONS AND ROADMAP

Our team wants to proceed with due care and caution to minimize potential asset loss for users. As these smart contracts are deployed on the Ethereum blockchain as immutable code, it is particularly crucial that everything is thoroughly battle-hardened and easily updateable to handle bugs. As part of the development process, we will source independent professional software auditing for all smart contracts, in addition to our internal verification pipeline – this comprehensive testing routine is allocated its necessary portion of time and is reflected in the paced release schedule. TBIS features will be released in the following order:

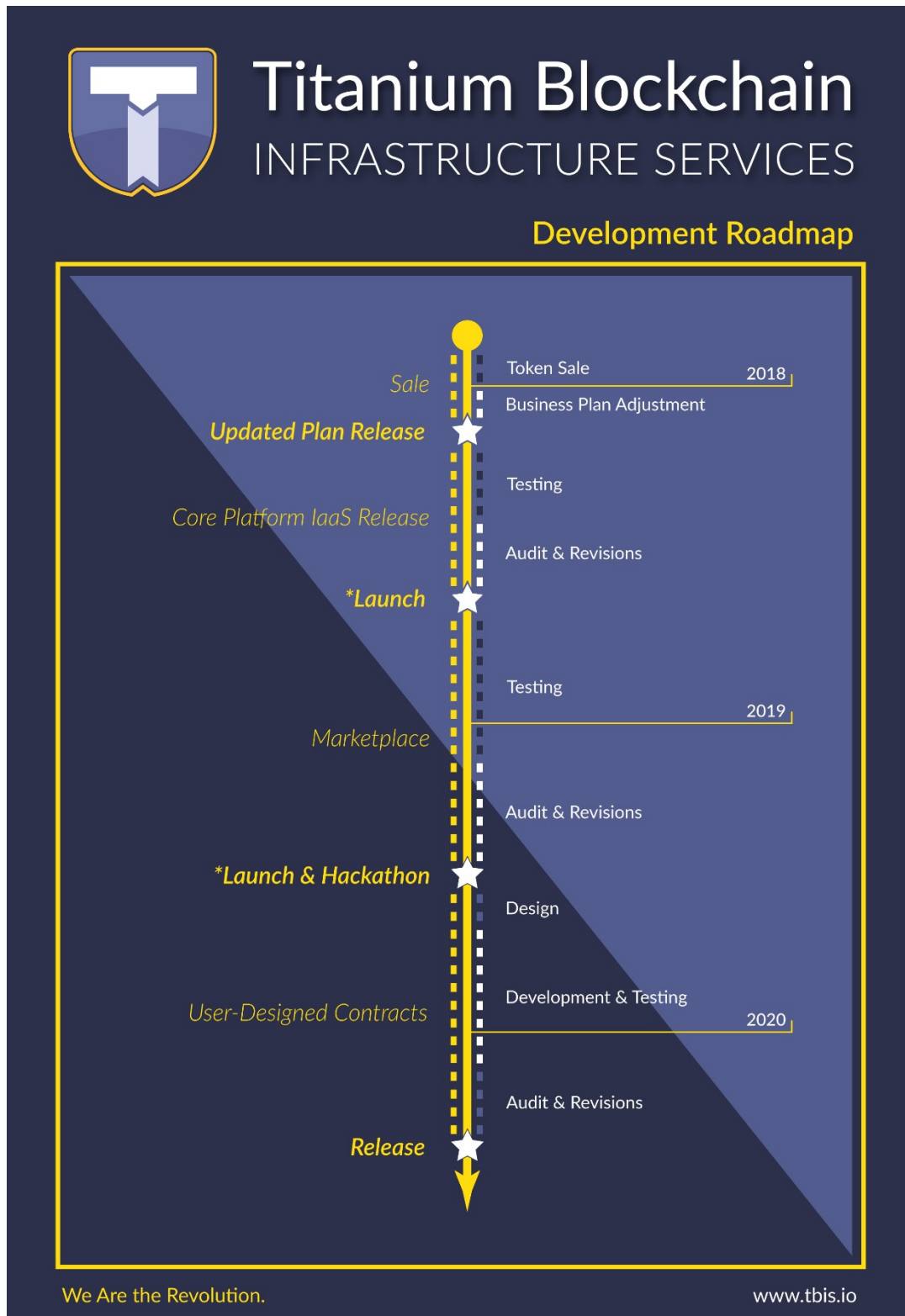


Figure 1: The feature release schedule for the TBIS platform. Vote-based unlocking will occur for the milestones marked with an asterisk “*”.

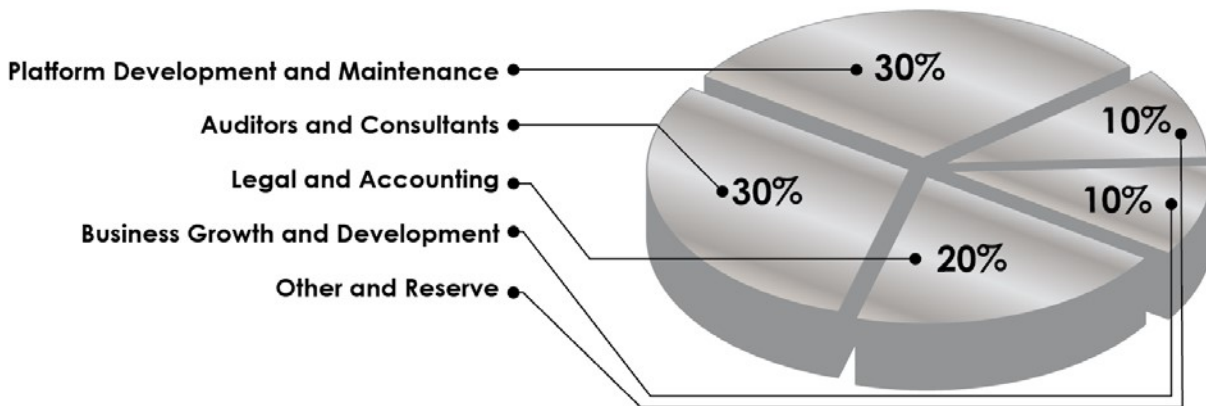


Figure 2: The expected expenditures in percent of total costs for the TBIS platform.

KEY ACTIVITIES

Disclaimer: The projected financial expenditure plan and release timeline are only estimates and serve to illustrate the general plan for the future of TBIS. We reserve the right to make adjustments as reasonable based on available resources and other constraints.

Our projected cost breakdown is shown in Figure 2. We briefly summarize core activities and specific expenditures below.

Platform Development, Testing, and Maintenance

Further development and continued maintenance of the core TBIS platform is the primary cost that TBIS will expense in the near future. This allocation of resources will be put towards the compensation of the core TBIS team, and any future personnel who are signed onto the TBIS team, as necessary. This will primarily consist of Software Engineers, Platform and Infrastructure Engineers, Customer Service and Support Specialists, and Product Strategists.

Auditing

To minimize risks to TBIS users, we have reached out to multiple trusted security and software verification firms which specialize in smart contract auditing. These auditors will be responsible for verifying our smart contracts before deployment,

in addition to the rigorous set of internal testing performed by the TBIS team. Given the sensitive nature of TBIS's platform, we believe that it is better to err on the side of caution and will devote all of the necessary resources to ensuring a safe and secure platform for all TBIS users.

Business Growth and Development

We will be marketing our platform to ensure healthy growth. This is not only important for ensuring that TBIS remains the best platform for deploying smart contracts, but also for marketplace participants, as their ability to earn BAR will depend entirely on the size of the user base. We intend to acquire new users via targeted marketing, first focusing on targeting early adopters and businesses already building on blockchain technology. We will quickly extend our efforts towards additional channels to bring new users to both the TBIS platform and Ethereum in general. We intend to appeal both personal uses as well as businesses. That said, we view business growth in a holistic manner. We believe in demonstrating value first, as well as attracting attention through collaboration. As noted in our roadmap, we intend to organize at least one hackathon to jump start the contract marketplace. For this event, we intend to create voter tokens and to have participants choose winners. These winners will receive free auditing and early availability of their developed smart contracts on the marketplace. We will also form partnerships with other blockchain innovators to create mutual value for our users. We will focus our business development efforts on those technologies with identifiable synergies and compatibilities with TBIS. We put open and honest relationships first, and seek to mutually encourage innovation and growth.

Legal

Our platform will require users have a clear understanding of the rights and responsibilities of all parties involved in using TBIS. Once our token sale has concluded, we will invest the necessary time and capital in developing user agreements for smart contract deployment and marketplace sellers. Future legal costs are also accounted for here.

Future Goals

Bugs and unforeseen flaws are an inevitable risk with any programming code, regardless of how thoroughly they have been vetted and reviewed. TBIS will strive to provide its users with the maximum amount of assurance possible by implementing enhanced security measures in any contract where appropriate. The ability to stop a rogue contract in a structured, pre-determined way will prevent high-value losses and ensure a safe platform for everyone, without resorting to or relying on controversial hard-forks. We also recognize that the

technology landscape is quickly evolving, and that our platform infrastructure must remain agile and adapt to changing conditions. As new technology and solutions such as decentralized hosting and storage stabilize and gain adoption, we intend to move more and more of the TBIS platform to these services. This will ensure that our platform remains the preferred solution for smart contract deployment.

LEGAL CONSIDERATIONS

The most current version of this document, accessible on the web at:

<https://tbis.io/titanium-infrastructure-services-white-paper-2/>

The version available at that URL represents the only valid version of our whitepaper.

BAR are only functional tokens intended to be used to compensate TBIS for use of its platform. These tokens will give access to the TBIS mainnet demo app as soon as the minimum cap is achieved. BAR are not for speculative investment. No promises regarding value or future performance are made regarding BAR. No promises regarding any particular value of BAR are made. No other rights associated with holding BAR are given. Proceeds of the token sale may be spent as the company sees appropriate, which may change as deemed necessary in the maturation and advancement of TBIS.

Our team is investing heavily in the safety and security of the services TBIS provides, as detailed previously. However, we cannot protect against all possible sources of error, especially those in parts of the technology stack we cannot control. Therefore, all risks assumed by using the TBIS platform in any capacity, including but not limited to deploying smart contracts, creating and destroying virtual devices, and collecting BAR through the marketplace are solely assumed by the user. Users must measure the gravity of potential value loss against their trust in the services TBIS will provide and act as they see appropriate. Never trust anything that one cannot afford to lose to any entity, TBIS or otherwise, without fully understanding all of the mechanics involved in the whole procedure. BAR tokens are meant to be held and used by those well-versed in cryptographic tokens, only for the purpose of accessing the services offered on the TBIS platform.

TBIS and its team must abide within the laws set forth in its operational country(ies).

We intend to provide our services in as decentralized a fashion as reasonably feasible, but our legal entity must act according to the rules and bounds encoded in applicable laws. This includes but is not necessarily limited to laws governing financial operations, employment, fee charging, and sales.

POTENTIAL STRATEGIC PARTNERSHIPS THAT ARE UNDER SERIOUS CONSIDERATION

1. BlockCAT:

A simple UI that is an Ethereum smart contract creation wizard, allowing users with no coding experience whatsoever to create smart contracts.

<https://blockcat.io/>

2. Golem:

Provisions decentralized CPU and RAM/Memory resources, at a fraction of the cost of current cloud-based systems.

<https://golem.network/>

3. Sia:

Provisions decentralized storage at a fraction of the cost of current cloud-based services such as Dropbox or Amazon Web Services.

<http://sia.tech/>

4. Storj:

Provisions decentralized storage at a fraction of the cost of current cloud-based services such as Dropbox or Amazon Web Services.

<https://storj.io/>

5. ShapeShift:

A cryptocurrency transformation service, which would allow TBIS to accept most existing cryptocurrencies as payment for our products and services.

<https://shapeshift.io/>

APPENDIX A: Example Solidity Escrow Contract

```
contract decentralisedAuction{
    struct auction {
        uint deadline;
        uint highestBid;          address
        highestBidder;           uint
        bidHash;                 address recipient;
    }
    mapping(uint => auction) Auctions;
    uint numAuctions;

    function startAuction(uint timeLimit) returns (uint auctionID){
        auctionID = numAuctions++;
        Auctions[auctionID].deadline = block.number + timeLimit;
        Auctions[auctionID].recipient = msg.sender;
    }
    function bid(uint id, uint biddersHash) returns (address highestBidder){
        auction a = Auctions[id];
        if (a.highestBid + 1*10^18 > msg.value || a.deadline > block.number)
        {
            msg.sender.send(msg.value);
        }
        return a.highestBidder;
    }
    a.highestBidder.send(a.highestBid);
    a.highestBidder = msg.sender;
    a.highestBid = msg.value;
    a.bidHash = biddersHash;
    return msg.sender;
}
function endAuction(uint id, uint key) returns (address highestBidder){
    auction a = Auctions[id];
    if (block.number >= a.deadline && sha3(key) == a.bidHash) {
        a.recipient.send(a.highestBid);
        clean(id)
    }
}
function clean(uint id) private{
    auction a = Auctions[id];
    a.highestBid = 0;
    a.highestBidder = 0;
    a.deadline = 0;
    a.recipient = 0;
    a.bidHash = 0;
```

}
}