

DEMYSTIFYING



NON-FUNGABLE TOKENS

THE NIFTY LITTLE UTILITY THAT'S CHANGING
HOW WE WORK WITH DIGITAL INFORMATION



WRITTEN BY CHUCK PALM

Demystifying NFTs

The NiFTy little utility that is changing how we interact with digital information

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Introduction

This book is for the novice as well as the seasoned NFT Aficionado

If you fancy yourself something of an NFT trader, or just looking to get your bearings on this well-hyped bit of tech, then welcome, I hope you will be educated, somewhat entertained, and informed. That being said, if you're here to learn how to make millions trading NFT commodities, or think we're going to teach you something about getting rich quick by buying well-dressed gorilla trading cards or other various pop art icons, think again.

I'm all for someone learning how to make a buck, but a word of warning; there are plenty more schemes designed to take your money, with little to show for it, than you will likely make holding a one-of-a-kind JPEG made with the skill of a grade schooler. But hey, I'm often wrong about these things!

I'm a well-known technophile. I dig new and exciting technology, Cryptocurrency, Blockchain, NFTs , AI, and other shiny new tech trends excite me. I buy a lot of gadgets and

have almost 99 % of my home lights and appliances automated with some kind of voice control system. I even have a radio segment, and podcast on new technology trends called “*Top Tech Talk Show*”, and have written other books on these topics. (You can find the links to these at ***AllTheTopTech.tech***)

This should give you enough background to understand why I dig crypto-related tech. Not for the potential investment value, but because they have great utility and versatility. In other words, you can do a lot of cool things with this tech!

Most people look at the average NFT, the way that they may look at a trading card for a sports team or a comic book collection. It’s a fun hobby, but not to be taken too seriously. I’ve collected comic books, baseball cards, even rare beer cans, but, like a lot of older investors, I’m still shaky on the value of an intangible digital commodity. It may be my age, but I feel like the impermanence of an asset that needs electricity and an internet connection to view or show off makes NFTs difficult to embrace. After all, a lot of revolutionary inventions have wiped out entire markets, whole collections of vinyl albums, 8-track tapes, cassettes, CDs, Floppy Drives, DVDs, (both Blu-ray and HD-DVD) and let's not forget physical hardware, like floppy drives and DIAL-UP MODEMS! All of these were replaced with newer, better versions of data, video, or music collections, and in some cases, making them all the more available, giving nearly instant access to our stored files. All this resides on a different

layer of networking called a blockchain, using blockchain technology. We have been able to see cryptocurrency have legs of its own and begin the evolution of tokenization. The NFT model is just a partner application to crypto.

Most people, when they think of NFTs, think about a unique, one-of-a-kind type of serial numbers associated with data. That is tokenization in a nutshell. Serializing data simply means that I've assigned a serial number to a block of data, and that in its mature form is an NFT.

Let's use the antique collector as an example. If you have an antique shop, and you keep a catalog of all of your items online so people can search the database and find what antiques they may have been looking for from anywhere in the world. Serializing that data, or tokenizing it, is making a unique set of digital fingerprints that can follow that item from now until forever. An antique is something that is rare. By definition, there are few of them left, and they are coveted because of that. Creating a fingerprint in the form of a serial number is the main purpose of making an NFT, or a token, from that antique. So, when you sell your antique to somebody online, they inherit that serial number, like you would on a refrigerator or an appliance. There was only one of that kind ever made, and it was born on a specific date, and it has all these specific features. All of that data is associated with that serial number.

You could do that as an antique collector, and then sell the antique to somebody with an NFT certificate that will always

be able to prove the Provenance of that device, or of that antique.

Let's look at another business, transportation. NFTs could help them with everything that they need to keep track of, their inventory of vehicles, seats, parts, accessories, headrest monitors, any of the assets of a company that as a business owner, it's important for you to know. You could potentially know the value of your company at any given time, primarily because the value of things changes with up and down markets.

For example, if you have a bus, there are thousands of pieces that are assembled to make that bus. So, there's not just the one physical item of "a bus". There are seats. There's a steering wheel, there are brake pads, there's another 1000 engine parts for each one of those items. They all have a serial number, and generally that's how replacement parts are ordered. When you have something unique like Wi-Fi antennas, or L.E.D. screens in the headsets of each of those seats, you've added value to that original bus, and a fluctuation in the market would be, say, I want to buy another bus, how will I value that? How do I know it fits into my inventory? Maybe I want to sell my bus company, how do I find the value of it?

There are millions of parts and serial numbers, so you could have millions of tokenized assets of that one bus. All could be grouped together in an NFT. So, creating a database of serial

numbers as one entire bus, for example, would give you those million parts and each value would be associated in that database, giving you a new updated value to that original item. You could then know, at any moment in time, how valuable that upgraded bus you own, and instantly know the value of your company's assets.

Another favorite of mine is actively being tested at the University level, regarding transcripts and diplomas.

This is a game changer for students and employers to get a whole new level of verification, but achievements. Utilizing this new NFT process in the higher education system, your transcript of your college history becomes a collection of files in data that's stored at the university, from the first day you registered for your classes. You took classes like chemistry, algebra, biology and so forth. You had to achieve levels of proficiency to be able to move forward and take the next classes. If your transcript was an NFT, a collection of that data, every grade that you received, every paper that you've written, every course number that associated with your diploma is now a record inside of an NFT that can be validated. And, because it is immutable, it cannot be changed. Once it's created, I can be amended, but the previous data cannot be altered. If someone attempts to modify it, all kinds of bells and whistles go off to alert the people that your NFT is no longer valid and they just reset it back to the previous state. So, your college transcript when you graduate could be an asset that you can show to a

potential employer, a researcher, an associate professor, or some other university to prove that you deserve to go on to get a master's degree or doctorate. It can then be transferred, even translated and sent to a foreign university for some sort of fellowship or other case study. The use of tokens in verifying skills and achievements not only removes the chance for fraud, but streamlines the application and verifications needed for the grant process.

What this Book is NOT

As I said earlier, this is not a book about how to make millions buying and selling NFTs as commodities or collectables. Like almost all book authors, I am not giving any investment advice, and in fact, you should take any suggestions to invest in ANYTHING online with a grain of salt. In other words, don't do it! If someone suggests you buy anything like a Beanie Baby, (90s kids) or a tulip farm (old European reference), you would and should be treated as suspicious.

NFTs References to Previous and Future Web 3 Books

You are reading one of at least 4 books written with the intention of making the wild and wooly world of Web 3 more understandable. There are currently 4 books in publication,

or due to be released soon. This book may reference any of the “Demystify” book series, partially in a shameless effort to sell more books, and otherwise intended to offer additional study references, easy to follow concepts, and overall, a great fun and educational experience for you, the dear reader!

Demystify Books

The Web 3.0 Series

Demystifying Cryptocurrency

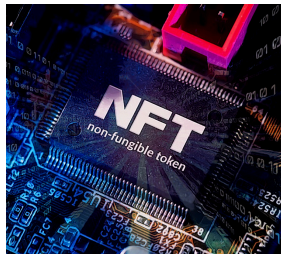
Demystifying NFTs

Demystifying AI

Thanks for your support, drop me a line anytime at
chuck@chuckpalm.com.



Chapter 1 - Why am I



pro-NFT?

Most people don't think of the "T" in NFT as being a token. Tokens are the next evolution of data storage and retrieval. I think if I was to predict what an NFT will become, it will just be called a token, and people will be amazed at the kind of data that they will be storing, how they retrieve it, and never worry about misplacing it, getting corrupted, or manipulated again. This tech could add value to almost any organization, system, or inventory tracker, just to name a few.

NFTs are not a huge breakthrough, technologically speaking, but more of an organizational breakthrough. I love it when things are organized, and I can find exactly what I'm looking for. -Admittedly, I'm really bad at it myself, thinking that I

know precisely where I put something, like my car keys, only to discover I left them in the pantry when I put the groceries away. This is super-frustrating when searching for project files or related client data. Especially given that my mind loses track when I have to go off on a search for data that *I KNOW* I put in that folder, with the name that was totally relevant to the project, with the client's name, that now I have also forgotten. Now I've forgotten the reason I needed that file to begin with? Where was I? Oh yeah, finding stuff that I misplaced.

OK, so, what's the point of sharing my frustrating story about data storage? Because, for some of us, the way we store data and related files is not logical, graphical, or in any way associated with the way people think. When I was just getting started in tech, I worked at the help desk at IBM End User Support Desk, a call center here in Tampa. This was the early days of graphical operating systems, like Windows 95, and many of my callers were already familiar with programs like Word, Excel, Lotus, and the like, and had a good idea of how computer systems store files that were created using those programs. Then there were those who were not, usually over 40, and forced to learn how these things worked, and forced to conform to the new standard for handling data. What the hell is a "hard drive" anyway?

The way we used to store paper files, in file cabinets, sorted alphabetically, in manilla folders with the project name, was the standardized method of data retrieval. Now, introduce a

digital representation of a hard drive (or 2 or 3), a drive letter, and a “File Explorer” program to someone who grew up with the hard-copy, steel cabinet, finger-busting drawers with flimsy locks, and you’ve just created an existential crisis of epic proportions in someone who already feels overwhelmed, overworked, and too old to be looking for another job. Say hello to my average tech support caller.

I used to use the analogy when trying to explain to users that a hard drive was like an old vinyl record, except the grooves were directories that listed the location of those actual manilla file folders. For those of you under 30, that is why the file icons look like little folders.

The only way I could make sense of this method was to tell those little stories, about how I filed that information, and even how I would remember what I was working on the last time I used that program. I know it’s hard to believe, but those applications did not even have a “last opened” or “recently used” option until many years later.

More to the point, I don’t often think the way most people think. It took me a long time to realize this, and it was a big eye-opener when I did. I tend to think graphically, remembering things that I did with pictures, references, landmarks, and other visual cues. This makes living in a pre-graphical user interface world pretty frustrating for a guy like me. I fell in love with a program from Microsoft called “Visio”, that allowed me to express ideas using flow-chart like

icons and network diagrams to convey an idea, so, having data and files sorted in a graphical and digital file cabinet made my world much more streamlined, and gave me the flexibility to create images from ideas, and link things together that made my work easier, even if it was unintelligible to some people around me.

What does this have to do with NFTs ? Simply put, I get how the NFT storage system works! It thinks the way I do! I can totally see the usefulness of associating data with a file, a graphic, a news post, or a video, and maybe even my own, unique metadata about the client added to it, like “that bald guy that likes Chinese food”, so I can wrap it all up in a serial numbered container, store and sort how I want, and retrieve it from anywhere!

Now I don’t have to conform my thinking to someone else’s standard, and I can search for my unique NFT using any term I associated with it, and group things together that might never have been associated that way by someone else. Yes, NFTs can do that as well as make an NBA player's trading card more valuable, because all the data, images, stats, and links are stored in a binder, with a unique serial number, and locked in a digital safe deposit box, where you get the only key.

A Brief History of NFTs

[The Evolution of NFTs : A Brief History - MoneyEcon](#)

It's widely accepted that NFTs as we know them now, were born in 2012 as a project referred to as "colored coins". Not too much was known about why, but Bitcoin creators started to add a "color" code to their mined coins, in an effort to set them apart from the rest of the blockchain coins that were mined. This made the addresses unique on the bitcoin network, but alas, it never really caught on. The most interesting fact about this was that even though they weren't widely adopted, the idea had some merit, and of course, the gaming industry caught on and ran with it.

Definition of an NFT

What is the actual technical definition of an NFT? Allow me **this one time** to use unadulterated technobabble to make a point.

This is how the geeks of the Web3 movement define an NFT:

Non-Fungible Tokens

Just for fun, let's use the TECH dictionary definition of the NFT standard, and see how many of your heads pop!

NFTs evolved from the ERC-721 standard. Developed by some of the same people responsible for the ERC-20 smart contract, ERC-721 defines the minimum interface—ownership details, security, and metadata—required for the exchange and distribution of gaming tokens. The ERC-1155 standard takes the concept further by reducing the transaction and storage costs required for NFTs and batching multiple types of non-fungible tokens into a single contract.

This is what happens when you Google a term like NFT, without any context. I promise I won't do that to you again! Here is something a bit easier to wrap your head around:

NFTs are bits of code, wrapped around some form of media on a website, like a video, music, JPG, or other digital asset, grouped and bound together, and are unique from one another, with a proof of ownership, much like a unique serial number. Because they are created, or minted on a blockchain network, they are easily verifiable, traceable, and trackable to their origin. This also ensures their security and integrity, since blockchain networks self-correct, making them much harder to falsify or hack. Because they are unique, they are not “fungible”, meaning they cannot be traded evenly, one-for-one, thus making them rare and collectible, in some forms of artwork or digital media. For more practical contracts, this means multiple parties can assure custody of items, like real estate, automobile sales, or multiple-party

transactions, making sure all criteria of the contract are met before releasing funds.

The use of NFTs in business can facilitate certain difficult processes in chain of custody, production, and sales information, assuring the origin of materials and integrity at time of delivery.

In the management of digital records, creating NFT traceable data assures it has not been altered, or otherwise tampered with, and gives proof of identity, verifying the originator to the user tasked with researching and providing quality assurance of any process.

See? Not confusing at all!

In short, **NFTs are pretty nifty!** Don't get too caught up on trying to understand the tech behind it, it will hopefully make more sense as we delve into it more in this book.

Minting NFTs

Today, NFTs are “minted”, usually on an Ethereum network, and the associated data is ‘locked-in’ on a blockchain network that is forever linked together in a serialized binder.

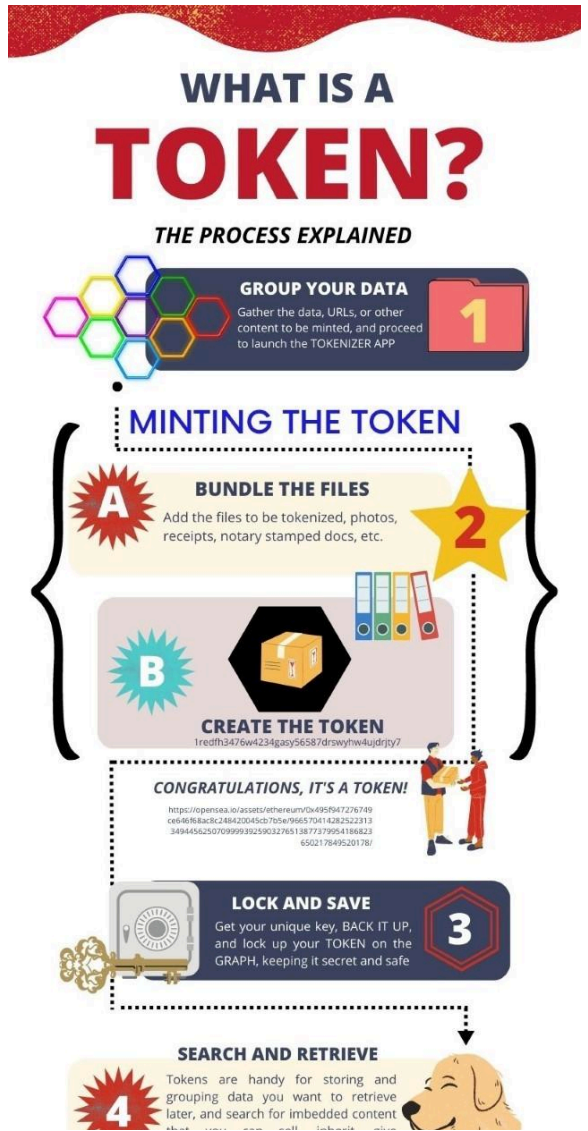
Minting new NFTs involve a self-directed effort to create the asset, and the intent is to make your data, in whatever its raw form might be, totally and forever, a unique bundle of code, always wrapped up in a nice, little databit-flavored biscuit,

called a *token*. We'll discuss this more later when we talk about what an NFT actually does.

NFTs are not databases. They act like data that you might retrieve from some special archive in a digital Fort Knox, and do a lot of what you'd expect from a database, but, because they wrap up other bits of data in code, give themselves a serial number, and track every move they make, they behave more like a Fed-Ex package. Once they are on the move, they are traced, scanned, forwarded, and delivered, with great fanfare, and report back to headquarters every minute detail of their journey. When you finally get to open your package and reveal the prize inside, you go about your day, not giving this marvel of a light-speed delivery service a second thought.

NFTs are probably the most misunderstood little digital creatures on the net. At least when it comes to their purpose, their reason for being as it were. They are a necessary function to the operation of any blockchain. Yes, there is more than one blockchain. Probably the reason they are so confusing to so many is that they have so much potential! BUT, by far, the main thing they are known for is how they are tied to digital tokenized assets, like trading cards, digital artwork, or digital content. You've likely seen some of these around the web or in the news, bad monkey art, or super-stylized photos of celebrities or people who think they are important. I'm not really impressed or convinced. So, what ARE they good for? ***Fig 1. How to "mint" an NFT***

They have real world uses for virtually every industry, and we're only starting to scratch the surface. Take a look at the infographic on this page, (fig 1) to get an idea of how they're born.



Let's shift gears – what does any of this have to do with how NFTs can be used to make a real difference in our dreary existence in the world? Aren't NFTs a lot like baseball cards? Or any collectible for that matter, like the Beanie Babies of the 90s, or pet rocks? Just a novelty, likely to pass with little more than a whimper? Au contraire!

What do ALL collectables have in common that makes them valuable? SCARCITY, RARITY, or UNIQUENESS. This is the defining feature of an NFT: from its birth, it is given a unique “name”, and will forever remain the one and only of its kind. Serialized tokens are the very essence of an NFT, which gives it some pretty amazing superpowers. They can become searchable safe deposit boxes in a digital bank, forever locked in the vault, and you will be holding the one and only key. **SO DON'T LOSE IT!**

No, seriously, don't. We'll also talk about why that is a good thing later on.

CryptoKitties and Ethereum

In 2017, the CryptoKitties game was launched on the Ethereum blockchain. CryptoKitties provided users to buy &

sell unique virtual cats, each with their own distinct appearance & personality traits. The popularity of CryptoKitties quickly skyrocketed, & the game's success brought NFTs into the spotlight. Wait, what? Someone made some bad drawings of cartoon cats and started to trade them online for actual money? Stranger things have happened, but the skyrocketing popularity of this still defies logic. At one point in the early creation of these cats, the Ethereum Blockchain, where the transactions were placed, nearly came to a screeching halt! In early 2017, 95% of all transactions on the blockchain were attributed to NFT trades of this digital litter of kittens. Axiom Labs, during a hackathon at the ETH Waterloo convention in October 2017, unleashed the CryptoKitties into the wild, and by 2018, Dapper Labs was spun off, trying to herd these cats onto a reinforced Ethereum blockchain, and a legend was born.

Hopefully, that had less TECHNOBABBLE, and you get the picture. It's pretty cool when you think about it. NFTs, like almost anything, have value, because of the normal process we use to place value on other things. They are either unique, in high demand, or have a utility use that we need. Do we really need more "bad monkey art"? We could get into "Maslow's Hierarchy of Needs", but someone has already done that HERE:

<https://www.simplypsychology.org/maslow.html>

A note:

NonFungible.com, which tracks the NFT market, says CryptoKitties had been bought, sold and resold more than 2.8 million times as of the first week of August 2021, bringing in more than \$40 million.

So, the short answer is, NO, we don't need more bad monkey art. BUT we do need things like "personal security" and "resources", even "property", and those things can be addressed in a digital environment with...you guessed it, NFTs!

Summary

- The technical definition of an NFT is mind-boggling. Suffice it to say, it is a collection of digital properties that are unique and are given a unique serial number. The collection of this information together is called a token.

- The uniqueness of any item makes it collectible; value is associated with scarcity, rarity, and its one-of-a-kind status.
- Digital items that are verified as unique can become collectible, and therefore worth something to another collector.
- Humans do not actually “need” NFTs or, for that matter, any other collectible, but they satisfy us and establish bragging rights.



Chapter 2 - NBA



Top Shots

Become “Top Dogs”

Dapper reached out to the NBA in 2019, to produce and sell video clips of basketball highlights in the form of non-fungible tokens (NFTs). This bold move has now generated over \$230 million in gross sales since its inception.

Launched in 2020, NBA Top Shot is a partnership between the NBA and Dapper Labs, the creators of CryptoKitties. High-profile investors include the NBA legends Michael Jordan, Kevin Durrant and Klay Thompson.

Scarcity Rules

Even if you are an NBA fan, or even a superfan of LeBron James, why do you care if someone takes a video clip of someone, and puts a glitzy frame around it, and some obscure stats, and puts it for sale online? Do you have ESPN? Ever watch SportsCenter? If so, chances are, you've seen LeBron imitating Kobe Bryant's famous reverse-slam dunk, so why is it valuable? Ever hear of instant replay?

NBA Top Shot Moments

Moments are more than video highlights that you can see on TV or YouTube.

Some NFTs , which represent real-world items, like art or music, each NBA Moment is an NFT that's officially licensed by the NBA and minted with a unique serial number and data, including game and player stats. Again, uniqueness is what makes Moments valuable.

How Much Did You Say?

Famous digital artist Mike Winklemann, better known as “Beeple,” crafted a composite of 5,000 daily drawings to create perhaps the most famous NFT of 2021, “EVERYDAYS: The First 5000 Days,” which sold at Christie’s for a record-breaking \$69.3 million.

One of the most valuable NBA Top Shot Moments is a game highlight of LeBron dunking from a November 15, 2019 game, with only 49 minted copies. According to the site *Cryptoslam*, one of those minted Moments is currently on sale for \$1 million!

Although they’ve been around since 2014, NFTs are gaining notoriety now because they are becoming an increasingly popular way to buy and sell digital artwork. The market for NFTs was worth a staggering \$41 billion in 2021 alone, an amount that is approaching the total value of the entire global fine art market.

Why all the fuss? It boils down to scarcity. This particular digital player card was only “minted” 59 times. Don’t you want to own one? Yeah, me neither. Or at least so I thought! As of September 2021, NBA Top Shot had more than 1 million registered users. Data from NFT marketplace tracker DappRadar suggests that more than half a million NBA Top Shot had exchanged a total volume of nearly \$1 billion on the platform since its inception.

NFTs are also generally one of a kind, or at least one of a very

limited run, and have unique identifying codes. “Essentially, NFTs create digital scarcity,” says Arry Yu, chair of the Washington Technology Industry Association Cascadia Blockchain Council and managing director of Yellow Umbrella Ventures. This stands in stark contrast to most digital creations, which are almost always infinite in supply. Hypothetically, cutting off the supply should raise the value of a given asset, assuming it’s in demand.

In February 2021, a clip on an NFT sold for \$387,600. The owner of 3/59 did not even sell a #1 printing (minting). The sale broke the NBA Top Shot record for the most expensive Moment ever purchased.

Hey, wait, what did I do with that Nolan Ryan rookie baseball card? I bet if I could find it now, it might be worth something. Ohhh.... I get it now! (wink wink).

Perceived vs. Actual Value

“An NFT, as its name suggests, is non-fungible, which means that one NFT cannot be traded or exchanged for another NFT, as each token is unique and therefore has a different value. It is therefore distinct from its fungible counterparts, whether they come in the form of crypto or fiat currency. Whereas one dollar can be exchanged for another dollar and one Bitcoin can be exchanged for another – due to each unit having the same value – NFTs are not interchangeable.” [From Coinmarketcap.com](https://www.coinmarketcap.com)

So, unlike baseball cards or old comic books, NFTs are identifiable by their serial number, and immutable, meaning unchangeable. They are also counterfeit-proof, but does that mean they have any real value?

I have a pretty old and rare edition of “Daredevil, the Man Without Fear” comic, and it’s in fair condition, so, how does that compare? Let’s examine the world of collectables.

There are coins, comics, state spoons, commemorative plates, Hallmark Ornaments, Faberge eggs, or even beer cans. Every collectible faces the same conundrum; “how much is it worth”?

There are two main reasons I stopped collecting comics, beer cans, and Hallmark Ornaments: someone else made me! I could have been a millionaire if I had only kept all those collectables, at least in my own mind.

My mom, when I was little, sold off a box of comics at a garage sale. It was in the early 1970s, and honestly, not many of them were worth much. Twenty years later, however, I came to regret not protesting more about her raiding my stash!



She did the same thing a few years later to my boxes of beer cans. I know, but wait, there was a memory associated with each and every one, that my father and I cataloged on index cards, and he either had a funny story about how bad it was (he was not much of a beer drinker, but, his son wanted the cans, so...) or he told me how he got his friends and other family members involved in our newfound obsession. Even back in the 70s, there were hundreds of different style beer can labels and brands, and we had almost 800 unique cans, sorted and stored in cardboard boxes. Well, when I went into the Army, mom cleared out the garage, and donated the cans to a recycler, and almost \$2000.00 worth of collectable beer cans were crushed, along with my dreams. Ok, maybe it was not that dramatic, but I was really miffed!

So, why did I go around for years in the 90s trying to reclaim some of that rare comic art that I loved so much in my youth? Nostalgia. The X-Men, Iron Man, Captain America, the Hulk; they are the stories of extraordinary people with amazing powers that did incredible things, and I loved everything about them. The anticipation of getting the next edition and seeing how “Cap” got out of those binds that Red Skull put him in, just before he blew up the factory...it was an epic for the ages! At least that's how I perceived it. When I got home from Germany in the late 80s and found that the U.S. Post Office had lost my box of army mementos, including another batch of comics, it was almost more than I could bear! I was ROBBED! Some postal worker saw what was in the box, and absconded with my collection of rare, hard-to-find, and

incredibly important literature! Or so I believed.

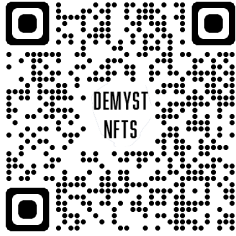
Those things had value TO ME! It did not matter that none of them were actually collectables yet, they got me through a lot of long nights in the Radio Shack (not the store, an actual shack in a field in Germany). The *actual* value of replacing such items was probably less than \$200 at the time, but who knows, today, in good condition, they may have doubled, or even QUADRUPLED in value! Woo hoo! \$800! I'm rich. Ok, maybe not so much.

Notwithstanding the odd one-off collectible edition, which was rare or had some first appearance of a new hero, chances are that comic collections were not a good investment, or even a decent supplement to a college fund. The second reason I stopped collecting was that if I tied some special memory, or an unforgettable storyline to a comic, my PERCEIVED value is most likely far greater than the ACTUAL value, or saleable value, if priced according to market demand! The value of any item, collectable or otherwise, has a lot to do with demand, scarcity, condition, and collectability. That is a lot to account for. The ACTUAL value is whatever someone who wants it, is willing to pay, at the moment in time when they purchase it! Essentially, NFTs are like physical collector's items, only digital. So instead of getting an actual oil painting to hang on the wall, the buyer gets a digital file instead. They also get exclusive ownership rights. NFTs can have only one owner at a time, and their use of blockchain technology makes it easy to verify ownership

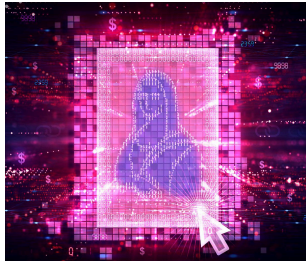
and transfer tokens between owners. The creator can also store specific information in an NFTs metadata. For instance, artists can sign their artwork by including their signature in the file.

Summary:

- People collect all kinds of crazy things. Why should NFTs be any different?
- NBA tradeable NFTs are still among some of the most valuable traded sports memorabilia in the world.
- Perceived value is different from actual value by the size of the audience willing to purchase your collectible item. Actual value may be only the recyclable value of aluminum in the cans, but the perceived value is greater if there were fewer of those cans made in that year.
- Millions of dollars are exchanging hands every day for online collectibles in the form of NFTs.
- My mom sold my beer cans and comic books for pennies on the dollar. Not that this is important information, it just means I can't let go of the past.



Chapter 3 - What is



an NFT?

What is it **NOT**?

What an NFT is ***NOT***

NFTs are not just digital versions of something that is collectible, like a trading card, or rare comic book. It may look like that on the surface, but rest assured, the hype around unique digital artwork, and one-of-a-kind NBA player cards are only scratching the surface of this real treasure of functional, traceable, verified, unique, and *mostly* secure technology. Before we get into all the NiFTy things we can do with this tech, let's talk about what an NFT is not.

First, NFTs are not cryptocurrency. That is to say, just because they live on the blockchain, and they have to be digitally “minted” not “mined”, they may act like they are a crypto, but each one is unique, making them non-fungible, not being able to be swapped for another. Crypto coins are “mined” when they are created, a bit of a play on the idea that they require some effort, in the way of sacrificing some of your computer power to help maintain their existence on the blockchain, and you are rewarded with a shiny, new, digital coin.

The true definition of an NFT is pretty broad. It could be called a collection of information by itself, but it is not a database. A database is generally associated with one item or one particular file, or 1 record of similar information. An NFT is more like a file cabinet. It serves the purpose of collecting all the different databases or different data sets that we want to associate with it.

What NFTs are not Doing

An NFT doesn't do anything by itself. It has to be interacted with. It has to be queried. It has to be used, traded, or opened up. It has to have permissions that can be assigned to somebody else, even for a short time, for them to be able to

see the information, or the tokens that are wrapped around it.

If we use the scarcity model with what an NFT is, in regard to trading cards or comic books, they have an assigned value based on their condition, their scarcity, how many were published, what date they were published, maybe particular characters or heroes that were involved. In that way, an NFT doesn't change value based on any set criteria like collectible commodities, except for scarcity.

Scarcity doesn't affect its value over time, but it does based on what was added to it. So, if I remove an NFT from circulation, (dubbed “burning” an NFT) it would be that any other NFT that's similar to it, but not identical, which, by the way, is the definition of “non fungible” meaning it cannot be exchanged one for another. If I remove something that is similar to it from circulation, the value of my information stored in an NFT may actually go up. So, by itself it's not an indicator of value. It has to be compared to something else that is similar. But again, it is unique. That is truly what non-fungible means; it is unique in the world.

Industries that can benefit from NFT data storage

I see applications beyond the financial, educational, healthcare, art, music and even beyond the commodities (tradable) implementations of it. Any business that has an inventory, any business that has clients, or that stores records of what they've done, would be able to store that data as an N. F. T. (Which should be just about *ANY* business!)

They could then use analytics on those data sets to determine the future buying habits of your clients or their future needs and predictive models that could come from studying the interaction between your business and your clients.

Medical Industry

The medical field is probably the most ripe for NFTs , because of all of the different types of data that must be tracked in patient healthcare. How that information is stored and sent to other people outside of the patient's permission base is a major challenge, because we have privacy concerns there. You have treatments and contraindications on drugs, and you have surgeries and procedures that have been

performed historically on the patient to consider, so there's important data that goes with that. You have images that are stored separately from medical records, things like CAT scans and x-rays, M.R.I.s, the list goes on and on. It's pretty clear

that the medical industry probably stands to benefit the most from it.

Auto Industry

The auto industry is an obvious choice, because they deal with a lot of parts, but all those parts make up the whole. They make up different automobiles or they make up different inventory in the organization as well. Think of the NFT as a digital representation of the automobile itself, all the features, all the add-ons, the upgrades, any of the bells and whistles are just another database number. But when they're put inside the NFT, that's your unique vehicle.

Now let's use the electrical vehicle as an example. There's battery packs and different motors that are electrical motors that need servicing and eventually need replacing. The lifespan of those items may be impacted by how much you use it, how frequently you recharge it. All of those fungible items, things that are not unique get that can be exchanged. Replacement parts and batteries and such are just another database number that's part of the whole NFT, the non-fungible part, which *is* the car. So now look at the car as

that file cabinet containing all the different database entries (file folders) from every single part in your automobile.

Broadcast Industry

Broadcasting is just that. It's very broad and the best example of challenges that we face in media stems from where is the media? When was it created? Who was involved with the creation? Where is it stored? Media wranglers are actually people that keep track of information when it was created, where what chip number is stored, and on what reel was used to create this video or segmentation.

A short example would be assembling a radio program from multiple contributors all over the nation or even all over the world. And they each have a deadline. They have to submit their data to a central database for the broadcast to go out on time. Currently, It all goes to a producer, one email address for assembly. If that person is sick or unavailable, how do we know who has submitted their data and who can retrieve it if it's in somebody's email inbox that has no access to it? Sometimes, unfortunate things happen, and your show could suffer because you are relying on 29 separate segments that need to be assembled before the deadline of the broadcast.

The radio station has news to deliver to all the listeners, and all the different moving parts including the music lead-ins,

the weather report, the submissions from local stations and their commercials, all the channels content, you get the picture.

What if every single item should be tokenized in that data chain? Then, at some point, if a segment is missing or unavailable or rerouted, you could easily set out a query as to where this segment is, or where that music bed lives and whoever had to replace the producer that is responsible for assembling the show will have ease of access to all that information, because it's nothing more than tokenized data stored on a blockchain.

So how do we know that NFTs are going to be around for the long term? We see a lot of these collectible NFTs like crazy ape pictures or crazy ducks or what have you. How can we be certain, with all these business use cases, university higher education cases, and big industry data systems, that this tech is here to stay? Simply put, this is a technology that is already in use, and one that's going to be around for a long time to come. Mainly because of the huge investment already made by those big businesses.

If we look at the usefulness of the first computer ever built, it was simply as a data and storage and retrieval device for databases. Computers have all kinds of functions now, but they all rely on data that is stored somewhere and the ability to display it when it's called upon. Not much has changed since the first computer hit the market. The only thing that's

changed is the features of the database, the fancy graphics and retrieval information. Where I go to get that information, whether it's a website or a corporate database or a military installation, storage and retrieval is the function of all computing knowledge. It has to be put somewhere! It has to be retrieved for people who are seeking knowledge. NFTs are the latest flavor that make it much easier for us to group data to prove that it belongs where it says it lives. If we requested that data 50 years ago without NFTs , we would be back to flat file databases printed on Green Bar paper.

Who Will Benefit from NFTs? Anyone who publishes anything on the web.

As part of the definition of what web 3.0 is, I would refer you to book three in this series, Demystifying Web 3.0. With that in mind, web 3.0 is about proving your ownership of data published online, and nothing does this better than NFTs.

Construction workers are not likely to see much use for NFTs , because their job is to build things from wood or steel or pieces. However, the building supply company would probably benefit from storing design elements like part numbers from a particular tile or a unique pattern of wallpaper, but wood is wood if you are in construction. If you're a carpenter and you're building something unique, you get a flat piece of wood and you make something interesting out of it. Once you create that item, then it could become an NFT or a digital representation of that piece of furniture online.

Libraries are another form of database, and they do pretty well in the physical universe in keeping track of things in the actual building. But by digitizing each book the publishers of those books most definitely would have the benefit of using NFTs for retrieving information on the author and how many books were published by that person. It's likely that all the digital books created will never be printed, so the modern file system will be, and most likely already is using a tokenized file system.

Intellectual Property as NFTs

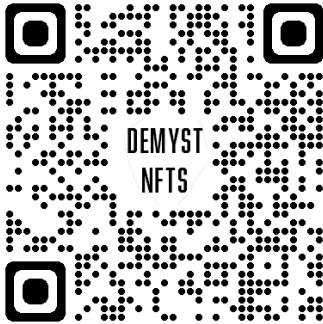
If you create a unique document, piece of digital art, or other published content online, how can you prove that you are the creator? The one and only soul responsible for its online existence? Well, making a permanent, immutable record with a serial number that's locked in a database is a pretty good start. Anything that's worth protecting is worth the extra effort to protect. Not to say that an NFT is better than a record filed with the patent office, a trademark, or any other Intellectual Property efforts should not be overlooked. There are tons of ways to ensure you're the owner of your IP, but it is certainly a great idea to add the extra layer of tokenization to provide you some peace of mind that you know who and when people access your creation. Did I neglect to mention, **YOU CAN DO THAT** with NFTs ! NFTs are not only tradable

digital art, but media, books, videos, assets, anything really, (yes, I mean ANYTHING) that is published in digital format and stored somewhere online can be made into an NFT.

That is to say, that a simple PDF, on how NFTs are minted, that I store in the cloud somewhere, can be MINTED into an NFT. That's actually a pretty big deal when it comes to proof of ownership. This could be the most important update to the Internet since Web 2.0 and the ability to publish data to a public forum.

Summary

- NFTs are being used to store all kinds of data, like a database, but they are not a database.
- NFTs function like a database, but include multiple records, which means they act more like a file cabinet.
- There are tons of case studies where NFTs are being employed to store and retrieve similar data, or group information together in unique ways.
- Proving ownership is the definition of web 3.0, and this is where NFTs excel. Intellectual property will be forever changed because of the tokenization of data.



Chapter 4 -



NFTs -

What Are They Good For?

Absolutely Everything!

NFTs offer unique opportunities across various industries for creators, consumers, and businesses. Here's a brief overview of just a few NFT applications:

- Music: NFTs enable artists to mint digital music, album art, and memorabilia, providing royalties and direct fan connections. John Legend and Kings of Leon are currently using NFTs for their music.
- Virtual real estate: NFTs signify ownership of virtual land on platforms like Decentraland and The Sandbox.
- Gaming: Play-to-earn games utilize NFTs for in-game assets, letting players monetize achievements. In play-to-earn games like Axie Infinity, players can earn NFTs as rewards, opening up new possibilities for trading and revenue generation.
- Food and drink: The "foodverse" allows trading of recipes, ingredients, and dishes as NFTs .
- Supply chain: NFTs promote transparency and traceability by tracking product authenticity.
- Decentralized finance loans: NFTs serve as collateral for DeFi loans.
- Art and collectibles: NFTs represent digital art and collectible ownership, enabling artists to sell on marketplaces.
- Fashion: NFTs denote ownership of digital fashion items, appealing to younger generations and allowing use in virtual worlds.
- Web3 identification: NFTs function as digital identity tokens, providing access to exclusive online content and services.

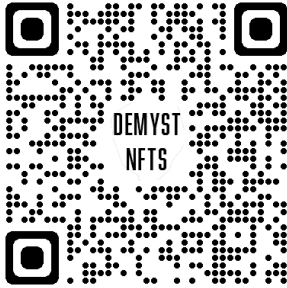
- Film: Studios employ NFTs for revenue, promotion, and funding projects, like Warner Bros.' "Lord of the Rings" NFTs and Netflix's "Stranger Things" NFTs .
- Both big Hollywood productions and indie films can benefit from NFTs for generating revenue, promoting their work, and funding projects.
- Fashion: Fancy brands like Gucci and Prada have jumped on the NFT bandwagon, creating digital collections that appeal to tech-savvy youngsters.
- Create unique assets and properties from online data, mining for NEW NFT assets
- Prove Identity or ownership of virtually any asset
- Real estate: NFTs can streamline property transactions, transfer land deeds, and keep track of property value changes.
- Medical records and identity verification: NFTs can safely store medical records and even help issue NFT birth certificates for newborns.
- Intellectual property and patents: NFTs can safeguard ownership of brilliant ideas, inventions, and creative works.
- Academic credentials: NFTs can represent academic achievements, proving attendance, degrees earned, and course completion.
- Voting: NFTs can provide a digital identity for voters, helping to prevent cheating and voter fraud.

- Execute contracts (like Real Estate transactions, or multi-party contracts)
- Virtual real estate: NFTs make it easy to buy, sell, and develop virtual land in the exciting world of the metaverse.
- Prove provenance, location history, or integrity of a chain of custody
- Digital art, unique works, books, PDFs, Videos, clips, and other media
- Digital Apps - created to run on the various Blockchain networks
- Wealth repositories, offsets for investments in NTF tradable assets
- Collectors' markets - NFT Galleries
- NFTs are being used as unique member-level tickets for events, entitling holders to special access to extra features, content, and merchandise.

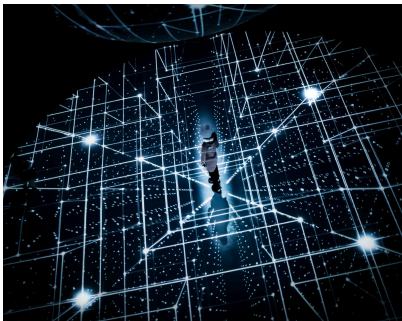
You can see why someone might become a bit excited about how we can use NFTs in everyday life. The possibilities are not endless, but nearly! We only need to provide a bit of context as to how they can improve our encounters with data on a day-to-day basis.

Why do I NEED NFTs ?

Well, let's be clear. It's not like your life is going to change that much, if you don't use NFTs for something. BUT how much would it change if you could address some real world problems, using the SAME TECH that makes NFTs ? And how about getting some piece of mind about stuff that you own, in the process? Let's dive into how NFTs are created, managed, and used in day-to-day life.



Chapter 5



Are NFTs Making a Difference?

“It’s not an exaggeration to say that the decentralization of data, and access to financial information, with the subsequent serializing of all collected information, is going to have a huge impact on world economies. This will likely democratize and normalize access to that information in third world countries where banking and proof of identity have been out of reach for millions of people, who are currently sharing email accounts and phone numbers.

“I really believe tokenization will equalize the game for the first time in history, and the Lords and Serfs will meet on level playing fields, with access to the same resources.” - Chuck Palm

Immediate Impact of NFTs on Business

NFTs are being implemented every day now in corporations all over the world. Why? The simple answer - verifiable and traceable access to usage and user statistics. If you're a banker, it's important to know who, when, and how often people are accessing information on their accounts. In fact, it's probably the most important thing to your banking business. Fraud, anti-counterfeit measures, identity theft, which is only scratching the surface of what NFTs and DAPPS are currently addressing.

What about shipping? How many shipping companies do you think would jump at a chance to verify dispatch info like, time, location, quantity, temperature, integrity of the crate,

and hundreds of other variables that can be tracked using a tokenized asset? How about the weather along the route? Maybe if the shipper had to change vehicles in mid-transit? All super valuable data, now at their fingertips, because NFTs are making tokenization a reality.

Now that you've learned a bit about how NFTs are changing the digital landscape, let's shift into how many other places they are already being utilized, and what additional use cases we can think up.

Talking NFTs like a Pro

Let's make some simple statements that you can use to clarify, if not to yourself, then maybe to others, that you have a grasp of NFTs and why they are becoming more important. NFTs are becoming mainstream and mundane, just as the hype and hoopla seems to be dying down. Take a moment to familiarize yourself with the use cases below, and then you can sound like a tech expert at your next cocktail happy hour.

Quick Facts about NFTs

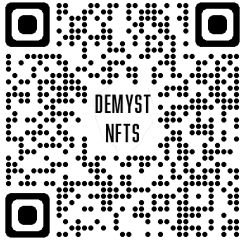
- NFTs exist on a blockchain, which is a distributed public ledger that records transactions. You're probably most

familiar with blockchain as the underlying process that makes cryptocurrencies possible.

- Specifically, NFTs are typically held on the Ethereum blockchain, although other blockchains support them now as well.
- An NFT is created, or “minted” from digital objects that represent both tangible and intangible items, including:
 - Graphic art
 - Videos and sports highlights
 - Collectibles
 - Books and Instructional Videos
 - Online Classes
 - Virtual avatars and other video game content
 - Unique Designer Sneakers
 - Music and Online Performances
 - Tweets on Twitter (co-founder Jack Dorsey sold his first ever tweet as an NFT for more than \$2.9 million.)
- NFTs are being used to track assets in a company or supply chain
- NFTs are now purchased as tickets to events and can track the owner’s access to features offered by the Event planners.
- NFTs are now part of online software, and used to track users and features,

including access to sensitive data, inventory, or real-world assets that require maintenance or updates like fleet vehicles.

- NFT games are wildly popular, allowing players to earn as they play, and in turn, giving the game companies undivided attention while players “learn as they earn”
- NFTs are being used to sell physical Real Estate, with the transfer of funds being streamlined, and execution of contracts happening in seconds, instead of weeks.
- Digital Real Estate in the Metaverse is already up for sale, and transactions are happening every hour.
- You can buy your name, or custom URL for your company, using NFTs as a short linking service, and claim it in-perpetuity.



Chapter 6 - What



Problems are

NFTs Solving in the
Real World?

Some of these we've already touched on, but a couple of these bear a bit more attention.

Retrieval engagement and user experience

I think the idea that finding an NFT is a lot like the needle in the haystack. Just stumbling on something that you find valuable as a collector is the reason that hobby collectors collect things. The search is half the fun!

And NFTs make that search so much easier as well. They are grouped in places like websites that store exchangeable NFTs , online marketplaces to auction off your NFT or outright sell whatever is associated with that NFT. And once again, the uniqueness of the data that's stored within the NFT is the value point. What the actual value is what the seller and the buyer agree upon.

Retention and Retrieval Engagement

As an employer, turnover is a huge expense, not just because of the time it takes time to train a replacement, but the hiring process and vetting them out, having to check and their validate their records from the university or from a previous employer, it can take time and money to invest in a new hire that may not work out! When that is complete, and they are a valued asset in your company, you don't want them to go away! Employee retention becomes an entire department dedicated to how I keep my best people and keep them

happy. The rewards programs historically have been centered around money or other incentives, but they don't address the things like job satisfaction, camaraderie, esprit de Corps, or other fun factors that are difficult to manage. Rewarding your employees with recognition and recognizing their achievements is crucial to keeping them on task, and in their positions! They're proud of these achievements, and hopefully they would revel in the joy of sending or posting these achievements in a place where they would be recognized by their peers. Job satisfaction for the entrepreneur is all about their clients being happy with their service. But perhaps when you, the employer and you have people creating for you, your employees don't get any recognition outside of the company. So, they have to get it from within and their peers are the only ones that know how talented they are. Awarding them with an achievement NFT or with a bonus that has something that is digitally representative of a fun project or an icon in the corporation something that represents that spirit of working together. You are showing your employees not that not just that you appreciate them with a gift certificate or another kind of monetary benefit but that you value them as a team member and that they are important to creating the end result that your clients are paying for! If corporations don't start looking at employee benefit reward programs they will easily see the loyalty of their employees waning and they'll leave the company to find more satisfaction outside the workplace, and it will justify them seeking a new job, and maybe making more money somewhere else.

Are NFTs Bad for the Environment?

When people discuss NFTs or cryptocurrency, they have all kinds of questions and concerns. My new favorite is “Are NFTs bad for the environment?” If I’m honest, this one baffles me. If you take it the way it’s meant, you could make the argument that everything we do as a race is harmful in some way to nature. But I would argue it depends on the context, and what you do with the resources, or better, how you act once you profit from your new found gains. Ultimately, you have to decide for yourself how you impact the world you live in, and what you advocate for. Personally, I believe that if you want to earn money and change the world with it, you should do what will make you happy, within the boundaries of the law. If you say that the ACT of MINTING NFTs is evil, because it uses resources that could be used to make the world a better place, how do I know that you’d use those resources in a fashion that would make the world better for everyone? If I use energy that was made to be consumed, and I pay for it, or don’t steal it from someone else, what I do with it should be entirely up to me. If I buy a solar panel to generate that energy, do I have to atone for the plastics, rare elements, or other natural resources that were used to make that panel, to appease someone else’s beliefs? You see where I’m going with this, it’s not an easy argument to win. So, here’s my take on it:

“We have the potential for some very impactful environmental concerns when we talk about cryptos or NFTs . In my opinion, these are some concerns that NFTs can actually help with. Some of the things that have been brought up in the news recently were energy consumption, overcrowding in the crypto space, environmental sustainability and so on. I bet you wouldn't think that the world of finance would lead that, but they actually are benefiting in the crypto space because the NFT marketplace has made it more profitable to deal in crypto. The finance sector has been known to be heavily reliant upon expensive and dirty electricity. One of the major shifts in one of the top cryptos in the universe was actually in the Ethereum market, when they moved to a proof of stake model. The impact on the market was negligible, but it put a lot of crypto-miners working as a side gig out of the game. This will continue to be a balancing game.” - Chuck Palm

What is Proof of Stake?

Proof of Work basically means now that I have mined the Ethereum coin, I had to prove that I did the work on the blockchain before I could get rewarded, which basically that meant I'm taking care of the Ledger, of the actual transaction database, that actually *stored* all the transactions that happened in Ethereum that has been managed, requiring a ton of computational cycles.

A ***Proof of Stake*** model is a simpler model to reward, requiring less energy because, all they have to do is show that the work was done, and it's verified, but since they already invested in the process, there are fewer blockchain transactions there, reducing the cycles by as much as 90%.

The key difference between them is how the blockchain algorithm qualifies and chooses users for adding transactions to the blockchain. With proof of work, those who work the hardest get rewarded the most with new coins, while with proof of stake, those who stake the most coins to the network get rewarded, which takes less energy, and requires stakers to invest in the process before they get rewarded. *(See Chapter 8, The Merge Explained)* This means an energy savings so that these supercomputers that are made with these huge graphic processing units (GPUs) that take up a lot of heat and space and energy are reduced, so that an average laptop could mine Ethereum now. The same thing is

happening with Bitcoin, and when you look at the NFT market, it is easier to group that information, and trade those tokens, and redeem that token for cash, or in this case, Ethereum crypto, reducing concerns over sustainability.

There are similar concerns to these issues of energy and sustainability from a population perspective. These are huge concerns for population centers all over the planet, because people like to congregate together, which means more energy drains in one locale. Since we have communities and families that are closely knit, some suggest that we're finding that it might not be sustainable, from a food production standpoint, to support large communities. Right now, because of communities and cities, you can have access to resources like energy, transportation, workspaces, and living space. If you spread out, you also have to spread those resources, like utilities, energy, water, roads, etc.

I am not a population scientist, but I have traveled, and I can tell you, for the most part, this country does not have the daily concern about the water going out, or power blackouts, the way most 2nd and 3rd world countries do. So, from that perspective, do we have actual 1st world problems in providing enough energy to support the Internet, the phone companies, or access to clean water and power? Spend a month in a former Eastern European block and get back to me. Ethereum mining can now run in the Arctic with simple solar arrays mounted on small huts. You should google it, it is a fascinating experiment.

How Does V.R. Play into NFTs?

Virtual reality is a hot button topic right now. There are many companies trying to create a new world inside the digital world that allows creative people to express themselves in unique ways and interact with each other and collaborate in unique ways. There are companies that work with these collaborative efforts, maybe in designing new software or creating new virtual spaces. There's even real estate for sale inside the digital world that is highly coveted. There are transactions typically taking place at the NFT level, so, when I want to sell an item that maybe a physical representation of an antique vase, I can create an NFT that describes all the features, colors, patterns, anything that is unique to that vase, and assign the token, then bring it into virtual reality space, and use a virtual auction house that allows people to see a representation of it before they bid on it. They can then interact with it in that virtual 3D space, so that they know that they're getting exactly what they're looking at. All of this is in a high resolution virtual world, with amazing detail. This is the next step of how NFTs will change how people interact with the physical world. So some good examples are; virtual art galleries, virtual auction houses, virtual home tours for new home buyers, apartment renters, condos, and other estates that might be in the physical world. You'll see every single detail that includes detailed explanations of the

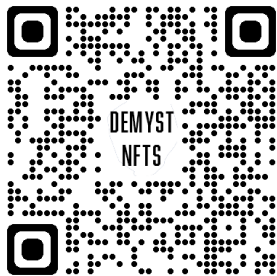
walkthrough instead of just pictures, which is how it's being done now.

Summary:

- **Employee retention can be enhanced, and perhaps even advanced with NFTs, and gamifying is a fun way to engage and motivate employees to stay with your company.**
- **NFTs can actually help reduce energy costs using the proper protocols and blockchain technology.**
- **Proof of work protocol meant you had to prove you did the job before you got paid. Proof of stake protocol means you had to invest for the opportunity to mine Ethereum**

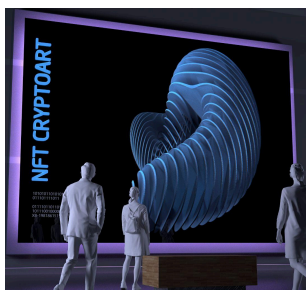
coins and were rewarded accordingly.

- **Ethereum 2 was an upgrade that reduced energy consumption dramatically and made a more “equitable” trading system**



Chapter 7 -

Minting NFTs



for Fun and

Profit

In the unique trading card world of NFTs, like baseball cards or NFL Basketball cards, collectors find these attractive because they're scarce, and the companies are making them in limited quantities. They're having fun with the graphics or videos or some representation of the sports highlights, so there is a collective desire that's inside the picture of the NFT, designed exclusively for the collector.

There are places like Openseas.IO that have an NFT trading gallery that will assist you in creating your NFTs. The

non-fungible part of these NFT tokens is what makes it unique and potentially has value.

Making Your Own NFTs

To start with making your own NFT, you have to include unique data that you own. Something that you've written, a photo that you've taken, or some art that you have created. It could be music, pictures, video, PDFs, or virtually any digital media that you yourself have created and can prove provenance.

The NFT Gallery provides a platform on which for a small fee you can create your NFT out of your data, and it immediately has value, because you are the creator, and there is no other you!

My NFT Creation Story

My first book, *Demystifying Cryptocurrency*, was made into an NFT version, with my signature, and some fancy cover art.

I went to OpenSea.io and created an account. Once that was complete, I uploaded a PDF version of my book to my website and created the artwork that would represent my cover with a gold embossed signature on it. The gallery at OpenSea.io hosts the NFT once it's minted and gives you a permalink you can send to those who want to purchase it. Since there's only one digital asset, and this NFT is created in a series, for my book, I created 50 copies, and a separate "first edition". I then embedded the secret PDF link from my website into the NFT creation form and pulled the trigger. Now I could send people the link to purchase my book online as a collector's edition! That's the cliff-notes version. I'll go over the process in more detail later.

NFTs for Content Creators

The process for creating NFTs on OpenSea.IO was more difficult than I would have hoped. Before you can create an account, you must purchase some Ethereum cryptocurrency, with a supported wallet. I will go into that process later, but if you are unfamiliar with it, I will go into how to create a wallet and purchase crypto in my book, *Demystifying Cryptocurrency*. Once you have your wallet linked with your account, you will use it every time to log into your gallery. They will store your collections of purchased NFTs, and any of those that you have created. For those that you create, you

will be given a unique serial number, or a hash, that is unique to your NFT.

Once you purchase an NFT, the amount of Ethereum is deducted from your wallet, and you are given a link that proves ownership. If you delete or forget your password to your wallet, you will lose it, with no recovery! It is imperative you understand how to manage your wallet passphrase, and where you should and should not store it. It is a minimum of 12 words, not characters, intentionally made to be difficult to remember or duplicate.

Once you have your key for your NFT, you can list it for sale, trade it, or give it away. Just know that once it is transferred, you have no further access to it. With that said, as the creator, you can assign a small percentage fee for resale, and you will get a commission if someone sells your original works to someone else. The gallery will charge you a nominal fee for your transaction and creation of any other NFTs, as part of their service.

Since NFTs are truly unique, you have to understand that the serial number, identifier, or token as it is called, is also unique, and must be locked away in your wallet. Once the token is created, there are no copies. If you delete it or "burn it", there is no way to get it back. If I deleted 20 of the 50 NFTs I created, burning those potentially could increase the value of those that remain, due to scarcity. A final word about minting NFTs, once they are created, they cannot be

modified! That would be like trying to add a mustache to the Mona Lisa! It is by this very fact that they are immutable, that makes them unique, and very difficult to duplicate or forge.

The NFT Creation Process

Trading cards and artwork are not the only digital media that is being created as NFTs. The music industry has embraced tokenization of content to allow artists more control over how their music is bought and sold.

My very first NFT I minted was at OpenSea.io when I created my book *Demystifying Cryptocurrency*, in digital format. I did not anticipate the amount of time it would take, and it made that process cumbersome, as I was not prepared for all the information I would need to gather. I would suggest you go through the helpful videos and learn how your NFT gallery creates content from your digital artwork, so you can be better prepared than I was.

Once I connected my wallet to OpenSea.io, I had to fill out the form that described what my NFT was all about. Knowing how tags and metadata affect the ability of your content to be found, I was not prepared, and had to research the best hashtags and descriptive information that would be easiest for my book to be found online in this format.

I then proceeded to upload the artwork, which had to be in a specific format and resolution, and make sure that it looked the way I wanted to before I set the rest in motion. I then had to upload the link to the file that would be protected by the NFT, until the purchase was made so that the buyer would have access to my book. I decided I would like to create a single first edition NFT of the book and created a second file that had a unique cover with my signature. After creating those copies, it was pretty straightforward, and I was given an opportunity to place it in a special gallery where it might be found by people browsing for similar content. I was given a unique ID for the token, as well as a link to allow me to market my own NFT to other readers or friends and family. I wanted to gift the NFT copy of my book too. You can find a copy for purchase at this link =

<https://opensea.io/assets/ethereum/0x495f947276749ce646f68ac8c248420045cb7b5e/96657041428252231334944562507099993925903276513877379954186823650217849520178>

I know what you're thinking, that is ridiculous. That is why I used a free link shortener tool that you can type in and not lose consciousness between typing in all the characters.

Here is the friendly link address:

<http://tiny.cc/Demyst-Crypto-Book-NFT>

Here is an interesting side note about trading in NFTs. Almost two years ago I created the NFT for my first book, and at the time of writing of this book, because of the change in price in

Ethereum, the actual initial value of my first book would have doubled, if you owned a digital NFT copy! It's still not too late. Go get yours now, and appreciate how your investment appreciates!

How Does Music Play into NFTs ?

Music distribution has long been the bane of artists: Labels take a lot of money; Spotify only plays top hits in playlists and self-promotion is a high effort. 90% of music streaming revenue goes to the top 1% of artists. In total the music industry generates about \$42 billion (about \$130 per person in the US) in revenue and less than 12% actually goes to the artists.

Artists are beginning to take more control and support NFT music streaming services. They can create unique songs, and turn them into NFTs , and even limit the number of copies that can be made, creating a scarcity marketplace.

They can also be paid royalties on certain platforms that support NFTS as music. This allows the artist to track their sales more efficiently, and group people according to their purchase history, and even send them updates and incentives, truly embracing the fan experience. When fans embrace the artists NFT creation, they can also promote their favorite music and resell it to create more fans, and the artist

can be notified, make their royalty, and collect information about their fan base for future marketing purposes.

Another opportunity for an artist to create something unique is grouping it together with other NFT assets. A musician might create an album of work that is centered around a theme. They will have the ability to sell one NFT with several songs attached to it, telling their story. Once again, the artist has more control over the content, the royalties, and the rights to the creation of that music. Also, their original vision of creating something grouped together that tells a story will remain in that format forever once the token of that album is created. You can even have unique cover art for the album that is an individual NFT, or part of the group of the original token.

One potential downside to creating any unique piece of art as an NFT is having that asset be burned, and never to be recovered. The person who minted the original NFT may still have the assets, and can recreate that copy, but its date, original token, unique placeholder, and all the things that make it a special collectible would be gone. Musicians should take care not to limit their audience, by limiting who can hear their songs. Just one collector's opinion.

Finally, some advice for any artist that creates an NFT. Once you create a series of tokens, or copies of an original, don't limit your ability to sell those copies, like you would buy a print of a painting. If you make 1000 copies, each individual

copy may be considered less valuable, but it is likely that if you make 50 copies, and they sell out, you will never achieve the kind of revenue that would have been possible by selling more of that individual item. You can always make a second edition that looks and feels just like the first, but it will never again be a first edition. That may also be considered to be a strategy for when you're selling first edition copies, who knows what collectors will glom onto.

As of the printing of this book, more platforms have opened up for musicians to place their songs into a streaming service as an NFT or upload entire albums for sale with a token address. I suspect as more artists become familiar with this process, music, artwork, literature, even high-end photography or unique photos will join the ranks of NFT distribution and tracking.

Summary:

- You can mine your own NFTs, just be ready to fill out a lot of data to support your ownership of the digital content you are creating.
- NFTs can be made from groups of different content that you own.
- There are galleries that charge a nominal fee, but be prepared to have a digital wallet with some Ethereum ready to pay for the service.



Chapter 8 The



Merge

How did it impact

NFTs?

The Merge – Why did it Happen?

NFTs are no different, most of the new technology responsible for their creation has already seen upgrades, including the Ethereum platform on which they are born. Recently, an upgrade to the Ethereum network, dubbed “The Merge” brought about cheaper, faster, and better minting of digital tokenized assets, (also known as NFTs), as well as a more efficient and less energy consuming blockchain

network, where all the relevant info on the NFT assets are stored. But, for all the hype, hand wringing, and gnashing of teeth, The Merge may have well been “The Purge”. The new Ethereum network was better, faster, stronger, and more green, but investors didn’t care. At the height of the crypto winter of 2021, Ethereum, Bitcoin, and hundreds of Altcoins (any cryptocurrency NOT listed here), plummeted. The Merge was not the cause of the dip, but it did not help, as many thought that it would. The argument between the sleeker Ethereum 2.0 and the older blockchain that Bitcoin was running on was moot. Many investors who had no idea why they purchased crypto, other than it seemed like the thing to do at the time, bailed when they heard the news that many of the Crypto Exchanges were overextended, committing fraud, or just being managed poorly. So, like most panicky investors, they started to jump ship, causing a run on the exchanges, who were hard pressed to make good on their promises to keep matching funds for all the money that they were now playing games with. FTX was the most famous of these, but months before, the TERRA-LUNA collapse is most likely the first crack in the armor that set the stage for many other scandals, abuses, or simply dumb investment plans that came to prominence in late 2022.

Regardless, the diehard, true believers kept *HODLing on, and some markets survived, some even grew, despite the nervous nellys running for greener pastures. NFTs, not being cryptocurrencies, were a refuge for some, and collectors from all over the world became investors, buying digital art,

trading cards, rare tweets, and even memberships and tickets for events, as intangible, non-fungible assets. Some of these less than savvy collectors were taken, meaning ripped-off, because they jumped on a bandwagon without knowing where it was going, why they were going there, or even who was driving!

**HODL was a phrase that was a typo in a forum by an early Bitcoin forum by a user named Gamekyuubi, that later became so well known, the use it now as the acronym Hold On For Dear Life — or don't sell your crypto.*

The Merge Explained

Ethereum finalized 'The Merge' at block 15537393 on September 15, 2022, at 1:42:42 EST. The significance of the Merge was that Ethereum moved from a proof of work model to a proof of stake model, reducing the electricity required to mine Ethereum coins, and allowing for a 99.95% reduction in energy usage for the mining process. A cloned version of the Ethereum blockchain was running side by side using the proof of stake model concurrently, to test and verify that the software upgrade would run without a hitch. When the switch was thrown, and the new Ethereum blockchain was made active, it went off exactly as planned. The consumers, however, did not notice, and seemed not to care, as the prices remained virtually flat through the end of the year.

Why Should I Care about The Merge

To me, one of the beautiful things about the blockchain is that it is highly adaptable and maintained regularly. Most people would consider the Merge a necessary upgrade, not just because of the energy savings, but because of future usage and fees for minting things like NFTs.

It is much more user friendly and more environmentally friendly and since the database Ledger transactions are all happening on the Ethereum backbone, it is necessary to occasionally upgrade the code. This helps keep Ethereum stable and monitor for glitches and install improvements. There is an Ethereum council which monitors the blockchain, and they decided as a body to move to a *Proof of Stake* concept as a way of answering some of those concerns.

The simplest way to understand this is to think of the miners as investors. They have to spend a lot of energy and expense on fast computers, processors, and Internet connections in order to maintain the old version of Ethereum. As described in my book *Demystifying Cryptocurrency*, miners are doing nothing more than breaking the code that they are given to verify blocks or *transactions*, to prove that the blockchain that Ethereum runs on is still stable, and they're efforts are rewarded by being given a percentage of Ethereum, hopefully recouping their investment during the process. Now, in a

proof of stake model, they are required to make an investment, to be given the opportunity to mine coins. They still perform a service for the blockchain, but they are rewarded based on how much they stake in advance and receive their reward once their work has been verified.

It was predicted that the Merge would benefit people already mining Ethereum coins, and companies as well as regulatory bodies and countries would support the effort to reduce energy consumption, and the value of Ethereum would reflect that. Whereas Ethereum has increased in value, it still is less than 10% of the value of a bitcoin.

The Hype

The media hype behind the Merge was almost to be expected. Every time new technology hits the marketplace, the only stories that seem to make the news are those of doom and gloom. The first sci-fi epic movie (talkie) ever created, called Metropolis, was set in a dystopian future of 2026, where a robot was in control, and everyone was a slave and was scared for their life. Every version of AI and future sci-fi films are set in a similar environment where machines take over control of man. So naturally, every news cycle about technology has a dystopian central figure or technology. AI has certainly filled that role in the past few years, but no more than in 2023. With the advent of large language models

and ChatGPT to name one brand, the media loves to hate technology advancements, and always predicts the worst possible outcome.

This scenario has already reared its head in crypto, with the government planning its own competitive central bank digital currency, and the Federal Reserve trying to prohibit the legalization of crypto exchanges and even future investments in Electronically Traded Funds, (ETFs) primarily in Bitcoin, the demonization of digital currency has been spread by the media and the governments of the world who do not want to give up control of the international banking systems, inflation, lending rates and fees, it's no surprise that the media came out against the Merge and took the side of the argument that predicted "we're all doomed, we'll never make it", to quote the character "Glum" from the early 70s cartoon "Gulliver's travels. "

And with most of the hyped stories in the mainstream, the negative returns and predictions of crashing markets did not happen. Well, except for Terra Luna, FTX, BlockFi, Genesis, Celsius, etc, etc.

In virtually every case of a collapse of a crypto exchange, it has been due to fraud and mismanagement. Should we count how many actual banks have had the same allegations against them and have been bailed out? I don't have that kind of space in this book!

Ethereum and NFTs

The Ethereum blockchain is second in popularity and price to Bitcoin and has been around almost as long. Ethereum, as a blockchain platform, has many flavors, and new spinoffs are happening every week, in the form of new Altcoins.

Ethereum is open-source code that virtually anyone can use to create digital assets, and when it comes to NFTs, it's the most popular. This is mostly because it has the added features that give itself over to adding trackable assets, especially in software, known as DAPPS (or Digital Apps.) This feature known as tokenization is why Ethereum is gaining usage and popularity in the application design community, and frankly, has me the most excited about the future usage of NFTs in solving real world to digital issues. I believe that tokenization is the future of software development, and will be a part of everything you do, on or offline, when it comes to data management. It's with that in mind that we can assign additional value to the Ethereum blockchain as the home to more than 99% of all minted NFTs. Bitcoin NFTs became a thing in mid-2023, and still have not really caught on at the time of this publishing.

Did We Win?

The Merge did little to benefit those who had already invested a lot of money and time maintaining Ethereum ledgers, and a lot of the smaller operations went out of

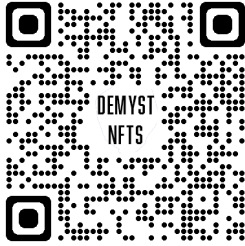
business because they could not afford to stake as much against their efforts and reap the rewards. Financial markets did not respond in any great fashion either, or their funds have not seen the kicker that a *“Bitcoin Halving” would have.*

. Overall, I think it was a good idea to Merge and change the process, but I'm not sure that the juice was worth the squeeze, or all the angst.

***(See The Halving in the next chapter)**

Summary:

- The Merge was a mostly energy efficient move to create a better blockchain platform for Ethereum that allowed people to put up money to have the privilege to mine Ethereum coins.
- Proof of work to proof of stake meant that only those who paid for the right to mine Ethereum coins were given the chance.
- The Merge helped lower the energy requirements, meaning that you didn't need really expensive computer hardware.



Chapter 9



Decentralized

Applications

Just to remind you, a blockchain is nothing more than a fancy database that is aware in real time of the information that is being stored in it. Creating a unique token or serial number for applications may be the next version of the blockchain that will be making waves. These decentralized applications or “Dapps” are being created to leverage the speed and agility of information stored as NFTs on a blockchain. There are already several companies that are combining this with AI to benefit from real-time usage of statistics to provide solutions to complex problems with a lot of moving parts.

People are writing applications that are verifiable, secure, and are able to compare data sets that may be used to provide information on the fly and calculate its relevance to a real-time scenario.

What makes these applications unique is that they're not just stored in one place. They are accessible from multiple points of entry, all over the world, and because the data is constantly being updated or managed, the speed of access to that information is greatly enhanced, if it's not all stored on just one database or website.

Using tokens, or the “T” in Non-Fungible-Token, we can address entire concepts with one serial number, and compare that data set to another, that may be sensitive to market conditions or information that's being retrieved and added on a continual basis, making it much easier and useful to calculate or predict certain outcomes. It doesn't take much thought to realize how important that could be, even when trying to track down things like viruses, updates to medical information, terrorism, banking, or investing. I could go on and on.

Back to the scenario about bus inventory of parts, you could see how this data can be useful to a business owner for fleet management or asset allocations, tied into his accounts receivable, giving him assessed value at any point to be able to borrow against his net worth for his business. Without these datasets being tokenized, there are few applications

existing today that could give you such instant access to information in real time that you would be able to prove your market valuation to a banker or a lender. And, since his entire inventory in his fleet is tied to his accounting system, which is tied to his routes, he can predict how much money the company will make next month, next year, or next quarter and could exponentially grow his business with the help of some simple statistical analysis.

Of course, tying AI into this process would make it infinitely more valuable. At the risk of sounding redundant, I am certain the media would make another Frankenstein's monster story out of this and take the hype to a whole new level. What most people still don't understand about the generative AI models that we are currently using is that they have no capacity to think on their own, and when they conceptualize given parameters, they are still below an infant's level of understanding. Anybody who has studied AI has come right out and said we are a long way from thinking machines. That does not mean, however, that we should ignore safety or remove all boundaries from any AI application. If you are working with software as a service, or "SAAS", And you tie in some AI algorithms, you can see how a decentralized data structure could potentially think ahead and consider scenarios that we are too distracted by all the other shiny objects in our day-to-day life to be able to anticipate, or predict.

Logical thinking should prevail, and we should take extreme caution by setting boundaries, guidelines and protocols to prevent any machine from getting out of control, period. That's why they put guardrails around robots that build cars. This is no different, use the tools we have with the available technology, but don't build things that are designed to kill you. Besides, if we've already thought about it, and have put it into motion, it's likely that it is going to be considered safe. If not, robots from the future would come back and try to kill us all to prevent it!

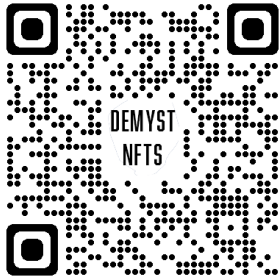
People have pointed out that AI is often biased, or prejudiced, or even easily manipulated by false data. What programmer in history has not had some preconceived notions going into writing applications? We do our best as humans to provide a useful platform, and something safe for our children to be able to benefit from, and we often fall short. That is the human condition. But, consider for a moment that we have the ability to ignore all these other biased factors and stick only to the parameters when searching datasets for a particular result, so we can compare it to numbers that do not have a bias. If applications that were designed to think ahead of us were decentralized, and they could rely on tokenized data that does not change and is immutable, the results could be miraculous in the study of advancements for treatment of disease and other maladies of humankind. When designing such systems, we could take into effect human bias, and manipulative information in the way of news, or polling results, for example, that might predict

one political candidate winning over another. Since that information is constantly in flux, if the AI was aware of sample bias, we could get much better results from predictive algorithms. Currently, pure statistics are not pure, and questions are designed to get the preferred answer that the pollster has been paid to acquire.

Summary:

- DAPPS, or “Decentralized Apps” are blockchain specific applications designed to work independent of location. Generally OK, they are cloud based, and are somehow related to cryptos, NFTs, or other related technologies that use a blockchain database as its backbone.
- SAAS, or software as a service, benefits from decentralization when processing huge amounts of data. Distributed data processing also alleviates internet traffic concerns and expensive computer cycles.
- AI is not futuristic, autonomous, self-thinking robots designed to supplant human colonization of the planet. But it does sound like a good sci-fi plot!
- Responsible programmers should consider ethical concerns when writing something that affects human lives

directly, especially in the fields of healthcare and finance. AI is not exempt from ethical exploitation, or hype and fear mongering.



Chapter 10 -



What is a

Tokenized

Asset?

Simply put, a tokenized asset is anything that has been digitized, serialized, and stored on a blockchain. This is a much better definition for an NFT. NFTs are often mistaken for what they are used for, instead of what they have been designed to do. The most practical use of an NFT is to group items under one serial number, or separate items into multiple serialized assets. The third letter in NFT stands for token. Anything that you have made into a digital asset can be tokenized and become a tokenized asset. This is where the

rubber meets the road as far as NFTs are concerned. Keeping a database and keeping track of all assets allows you to group them in unique ways, and experiment with how, where, and when you can retrieve that information. This at the center of it is how NFTs are valuable to gamers, collectors, programmers, inventory specialists, data miners, asset managers, real estate people, medical information scientists, bankers, and dozens of other industries that we are just now beginning to realize will benefit from this technology that lives on a growing blockchain.

How Will Using NFTs Change Real World Assets?

When we think about the example of creating a digital version of an antique vase, and storing it in a virtual space, I think of the NFC tags that people use every day now. They are on credit cards, inventory, shipping containers, doorways, access badges, and dozens of other technologies where a short wireless signal can be received to interact in the real world with a digital device. If you've ever tapped your card to pay for your coffee at your favorite little coffee shop, you have used an NFC. Same with your phone, if you've ever used tap to pay, or received a credit card payment on a digital device on your phone if you are a merchant, you know the convenience and benefits of using NFC tags, and how they

would relate to the real world. Same with QR codes, in the way that we use a digital device to scan something in the real world, and perform a function in the digital world, like go to a website, or transfer funds. Making purchases with QR codes, or reading menus, is no different than using an NFT to identify a real-world object that has a digital value associated with it. These digitized assets, when they are serialized and turned into tokens, they are an NFT of actual, real-world value.

How Does This Affect Real World Security?

Radiofrequency ID (RFID) tags are based on the same technology that NFC chips are utilizing, with one big difference, they can be scanned at a greater distance, and if not secured properly with good coding and even better physical security protocols, they may be subject to hacking. The truth is, any wireless technology may be vulnerable to hackers, but there are ways to protect your data. Unfortunately, the best way is a good password policy. See the chapter on passwords in the book demystifying cryptocurrency for more details about my opinion of passwords. In short, they suck.

RFID scanners are often used to crack the code on digital ID cards like credit cards, that have chips for card scanner

readers that allow you to make purchases by tapping on the credit card device, at restaurants, gas stations, etc. A lot of fear over this technology has spawned an industry of RFID blocking wallets, a simple billfold that has a copper lining, or other wireless scattering material to prevent people from stealing your card numbers and codes that you use to authorize purchases. The same technology can be utilized to digitize real world assets by placing an RFID tag inconspicuously on a physical real-world object that has a value. You can also geotag a photo, digitize that, and keep it with the Proof of ownership for the real-world valuable object, so you can create an NFT, or tokenized asset, and store that on the blockchain. There are already companies designing digitizers that can take a 3D rendering photograph of an object, and embed it with geotag info, location, date, time, proof of ownership, like receipts and other credentials that you can upload as part of the new tokenized asset. They even make GPS trackers with RFID that would allow you to show exactly where a physical object is in space-time or track its movement in the supply chain. This would be best utilized in inventory tracking, supply chain issues, point of origin, and manufacturing information that you would otherwise not have on a physical object. Once we start collecting data at this level, NFTs will prove their value almost instantly.

The equipment cost for this kind of technology is ridiculously small, and you could even use most cell phones as a scanner, or RFID writable device. I have personally used small stickers that have QR codes printed on them, and an RFID chip inside

that has contact information or website links. With your newly minted NFTs that have trackable technology, identifying your digital objects in the real world and vice versa can be done in an instant, and prove that you are the one owner, since the information in an NFT is immutable, or unchanging. We have even used them to track rubber ducks on cruise ships for one of our clients' podcasts called "Cruising with Bevis" (found at CruisingWithBevis.com). Apparently, this is a common activity for frequent cruisers to hide little rubber ducks on ships. Once again, real-world objects are being digitized, serving a commercial purpose, and having some fun at the same time!

If you ever want to sell an asset, and it happens to be digitally represented in cyberspace as an NFT, there is a simple matter of transferring ownership of the NFT to the purchaser, which can be done on an auction site, or a simple trade between two parties. There are already three and four- and five-way contracts that have been set up digitally on the blockchain, so multiple owners can participate in the purchase of a real-world expensive object, like real estate. The applications are limited only by one's imagination, and the complexity of these transfers is drastically reduced by showing ownership on a digital contract for real world purchases.

Use Case for Tokenized Customer Service

Billions of dollars are spent every year on customer service, especially the help desk industry. Whether it is returning items, defective product complaints, refunds or exchanges, customer service issues affect every level of every business. The customer relationship experience could greatly benefit from the use of tokenization.

Imagine tokenizing your call center. A call comes in with a customer who is not happy about a purchase that they have made through your website, or even a physical location. The process of collecting information about that sale has to begin at that moment, when they are already aggravated and put out by the fact that your product did not perform as advertised. The computer response unit voicemail hell is the first experience you give them, instead of a friendly voice assuring them that their problem will be addressed in a timely manner to their satisfaction. You force them to vocally fill out forms before their problem can even be addressed, guaranteeing that you are making them even more aggravated by the moment. Now you get to the meat of the problem, the amount, the date and time of their purchase, and what product, and even more specifically, information about their receipt invoice number or other automated information that is already part of your sales software system. Finally, if you're a good customer service company, you have an actual human being that they can speak to and

understand, and the process of trying to make them a happy customer again begins.

The customer who is just about fed up at this point repeats most of the information that you just made him go through an automated system with a robotic voice to fill out. All you really need is their invoice number, or imagine it was all gathered in advance under a tokenized NFT that has been stored somewhere in the cloud for you to access every bit of data pertinent to the return or defective product. If this tokenized information is complete, not only do you have all their demographic data, their purchase history, other items that might be related to this one, or a gauge of how much this customer has spent with you in the past year, you have information like where it came from, who manufactured it, how long did it take to get to you from the warehouse, what was the shipping time and costs, etc. And now offer your customer a drop shipped return, a coupon or gift card so they may purchase the correct product, a return receipt, packing slip or other RMA information that they will need to correct what they perceive to be your mistake. You're solving your customer's problems faster, they are happier not to wait as long on hold, or the entire process is automated online, and you look like the hero that you are. Associating customer history with purchases and trends gives your customer service reps the opportunity to provide a little something extra, in the way of a bonus item, a percentage discount for their trouble, or even a mystery gift at a later time. Your CRM can then follow up with the customer, sending them an email

invitation, or some other bonus that ensures you have created a relationship with them that will last a lifetime.

Tokenization not only keeps customers happy, but your customer service reps as well. Giving your employees enough information to solve problems on their own frees up time for you and the management of what normally is an unpleasant experience, empowers your people and gives them job satisfaction. Rewarding your best employees is easy, because you can see the results within your statistics, and you might be wise to reward those employees based on your customer satisfaction reports, as well as giving them recognition for a job well done with their peers in that department. This can also drive satisfaction for your employees to encourage greater participation, and their colleagues will likely perform better knowing that rewards are given for a job well done. Using an NFT as an incentive for your employees to do better gives them a point of pride, shared camaraderie, and the result is a happier, more productive employee!

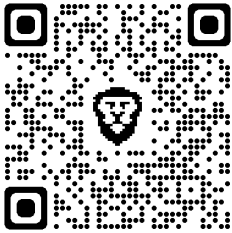
Using a more content aware CRM system that includes tokenization shows how happy your employees and your customers are, allows you to reward both, and increases sales, customer satisfaction, job satisfaction for your employees, and reduces follow up with ridiculous customer surveys and employee reviews. These things are important to recognize, but easier to manage when your data is tokenized and aware of other factors that go into overall customer / employee satisfaction, and a better insight into your

customers buying habits for things like social media, advertising, and product development.

Summary:

- A tokenized asset is anything you create in a digital platform that you own, and wish to profit from, track, or contribute to a larger body of work. It literally means the “T” in NFTs.
- Both my first book and this book are available for purchase as NFTs, in a limited quantity with a digitally signed cover!
- You can create a digital representation of a real-world asset, make it an NFT, and track it online. You can also put it up for auction and leave a virtual representation of that physical object in cyberspace.
- There are tons of examples of use cases for NFTs, but one of my favorites, after getting my start in tech at IBM's helpdesk, is a customer relationship management tokenized system. All aspects of customer complaints and

satisfaction could be tracked and cross referenced.



Chapter 11 - NFTs



on

a Bitcoin Blockchain

I would be remiss if I did not mention that NFTs are now being built on the Bitcoin blockchain. This has created some controversy, mainly due to the culture of Bitcoin and its management, by the Bitcoin council. As much as the banking

industry is all about control of their information, they have hundreds of thousands of employees managing millions of bytes of data of financial information that they have collected on their customers. The banking industry regulates everything to the penny, and reports to the Federal Reserve, the IRS, and other major government bodies that keep track and try to prevent fraud and system failures.

Cryptocurrencies are not all equal. For example, 1 Ethereum coin is less than 10% of the value of 1 Bitcoin. Since Bitcoin is completely independent, there is no one person to blame, or one entity to go after should it have any failures or issues that need to be addressed. Enter the Bitcoin council. They are generally volunteers that decide when it is time for an upgrade, a bug fix, or other related customer service issues. They may be rewarded in other ways for their efforts, but this is a thankless job. Now imagine being responsible for the blockchain data, that is nothing more than a Ledger of transactions created on the Bitcoin blockchain network, and somebody comes along and says "hey, I have a great idea, let's add billions of more transactions to the blockchain by selling NFTs! Everyone will love it; we will be heroes!" Wrong.

Updates to the Blockchain

In November of 2021, the blockchain for Bitcoin was upgraded, in what was dubbed the Taproot update. It was deemed necessary to focus on privacy efficiency and smart contracts and was critical by many of the more conservative Bitcoin investors. Many still argued whether it was necessary. On January 31st of 2023, a second upgrade called the ordinal protocol was applied and let people trade NFTs on the Bitcoin blockchain and this protocol attaches the NFT data to Bitcoin transactions. This was not well received by Bitcoin investors and was deemed not central to what they perceive to be the main mission of Bitcoin. I fall somewhere in the middle of these philosophies, simply because I believe NFT information should be part of a blockchain, as I have described in this book. The functionality of such features does not add too much to the block chain to make it run slowly or less efficiently, in fact I believe just the opposite to be true. Adding tokenization to the Bitcoin blockchain increases its usefulness and its value.

More and more countries are adopting the Bitcoin standard as their only crypto that can be used for legitimate purchases on or offline. There are a few exceptions, like Switzerland and other more progressive countries, that are looking at central bank digital currencies with skepticism. I cannot say Bitcoin, Ethereum, Solana, or any other of the various flavors of cryptocurrencies are more bulletproof, or robust, but I can

say Bitcoin is the only cryptocurrency currently treated like money, and not a commodity. That being said, EFT funds are finally being authorized by the SEC, and will allow people to bet on the futures prices of bitcoin, at least we have that to hang our hat on.

There are still Bitcoin ATMs popping up in various countries, and certain foreign banks are supporting Bitcoin transactions backed by Visa and other major banking credit card systems, but it is still far from being widely adopted and usable as money. Remember from demystifying cryptocurrency, money is valuable, currency is only valuable to what point we agree on its cost and usefulness. That's why there are futures markets for trading world currencies, because perceived value plays a big role in how investors look to the future of stable investments, and currencies are far from stable.

We are almost a year away from NFTs on the blockchain, and the jury is still out. Will they become popular enough to support the transactions and bandwidth necessary to maintain the blockchain? Time will tell. I'm an advocate of advancements in technology when it benefits a larger amount of people, less so when it is a narrow advancement for a smaller audience. An example of this is the euro dollar. When it was adopted, all of the countries had to go through a currency conversion. The Germans lost billions of dollars of wealth, just due to the switching of one standard of currency to another. Overall, I don't think the Germans took kindly to

losing money just so Europe could spend the same coin from land to land.

I have been called a futurist, with an optimistic bent, and I tend to think most technological advancements, when they are intended for good, can help us embrace a larger economic ecosystem.

As far as NFTs go, the future looks bright. You better get some shades.

The Future of NFTs

NFTs as a tradeable commodity, or collectible, have slowed down in the past two-year period. This is primarily due to fear and uncertainty and doubt in crypto exchanges, and other fraud cases that have been forefront in the news. None more prevalent than Sam Bankman-Fried and the FTX exchange. This was not the first instance of a crypto exchange making the news by creating an unstable environment for trades, the Terra- Luna fiasco was a bigger scandal in that once the information was discovered that it was not as stable as a stablecoin should be, its market value imploded. This is kind of capitalism at work, and understanding that all trades are risky, and speculation of value is the downfall of many a Wall

Street mogul, people never cease to amaze me in how they react to bad news. FTX was another case entirely, where mismanagement, fraud, nepotism, illegal investments, and a hedge fund run by a 20 something's girlfriend that had no experience in managing vast amounts of wealth, was set loose upon the world, and their house of cards eventually failed. Whenever a business is managing billions of dollars of investments from their clients with a wealth management system as robust as Quicken, you can easily predict the inevitable doomsday. That last bit was sarcasm; they did not even use QuickBooks. And then for the CEO, Sammy, to commingle funds with Alameda research, run by his one-time girlfriend I have dubbed "Sweet Caroline", common sense would have told you this was a recipe for impending disaster. The problem is, these kids running cryptos in their parents' basement are being dubbed as wunderkind, instead of being investigated by the SEC. Was there fraud perpetrated with political donations to both parties from FTX? Were his parents complicit with their connections to politics, and their credibility in question as professors at Stanford University? Was anybody even looking at this poorly dressed, sloppy-haired weirdo when they gave him billions of dollars to play with on crypto market prices? There is enough blame to go around, and enough content for another book entirely. Today, I will leave it at that.

What I will say about the future of, is it has little to do with the instability of lesser crypto coins. Ethereum is a massive network blockchain database system that is managed by

some pretty smart people, who have taken extra measures to ensure its robustness and viability, no matter what they throw at it. There are a lot of cooks in the kitchen, however, and that always leads to a funny tasting soup. I will say that even with all of its quirkiness, the Ethereum network is the second most stable cryptocurrency on the planet currently, at least in as much as it is backed up by Big Crypto investors and programmers, as well as a usable software platform that other cryptos that have based their coins on the Ethereum blockchain. I have great optimism about the future of NFTs as a utility, less so as a collectible platform, but you cannot deny the use cases that Ethereum has already established itself as the leader of the pack.

Companies Using NFT as a Rewards Systems

When major corporations adopt a technology like blockchain, or NFTs, you can count on more scrutiny, more press, good or bad, and more attention from the software development industry. Software as a service (SAAS) has already started using blockchain to solve major database management problems, and you can bet if the commercial market can find a way to leverage it to make money, wild horses will not be able to keep them away.

Starbucks launched its Odyssey program in December of 2022. A blockchain based loyalty system with beta testers, the program was launched as an extension of the Starbucks rewards loyalty program integrating web 3 technology with NFTs on the blockchain.* Odyssey contains coffee themed NFTs that show real world experiences. Loyal customers have access to a range of benefits including free drinks. Starbucks once told me they did not need loyalty programs, because they were so popular. Looks like the worm has turned on this one.

Global sportswear monster Nike introduced its Swoosh web 3 enabled platform for digital sneaker collectibles in November 2022. Purchasing a NFT in advance of a major sneaker release, granted the holder early access to the collectible sneakers in the real world. Yet another example of how a firm is using a digital tokenized asset to relate to greater sales in the physical world. Leave it to Nike.

Not to be outdone, Adidas reported \$10.95 million combined with \$4.75 million in royalties on the release of their NFTs . 30,000 Adidas NFTs were produced and sold within a few hours of going on sale.

Tiffany and company now has a jewel encrusted pendant for CryptoPunk NFT owners. The luxury jewelry brand announced at the NFT launch on July 31st, 2022, when you purchase a cyberpunk NFT, the owners may have their NFT crypto punk realized as a custom Tiffany pendant. Each

pendant costs 30 Ethereum which translates roughly to \$69000.00 as of December 31st, 2023. When it was released a year and a half ago, it was worth \$55,830. Even with the crypto winter scare, and collapse of many crypto exchanges, this still looked like it was a pretty good investment. Tiffany has made plenty of money on these real world NFT examples.

DraftKings, a major online sports book adopted the Ethereum layer 2 model, built on proof of stake, and have added autographed NFTs to their own blockchain. The PreseasonAccess collection includes several NFT editions that are only accessible through Autograph.IO and the DraftKings marketplace. Sports cards meets betting? Looks like a good bet to me.

Social media mega-firm Reddit entered the NFT space in July 2022 with the launch of the Reddit Avatars collection, a limited-edition collectible stored on the Polygon blockchain, which is based on the Ethereum model. In six months, \$12 million worth of these avatars have been sold. Currently, OpenSea.io is one place you can purchase them, and they still seem to be going strong.

Porsche released an NFT project during Miami Art Week in December 2022, with FanZones subsidiary *Road to Dreams*. The digital world meets the real world meets the art world.

**** Statistics provided by Forbes from an article published in March 2023.***

Summary:

- NFTs are now available on the Bitcoin blockchain. The jury is out if this is an effective use of what Bitcoin purists think is the only stable money in digital format, or if it is a good practice of added value.
- There are plenty of crypto scandals to go around, but Terra-Luna and FTX are probably the impetus of the crypto winter Of 2022-2023. The CEO of FTX, Sam Bankman-Fried, is still awaiting sentencing after being found guilty on all charges for defrauding FTX's customers at the time of this book's publication in January 2024.
- If history is any indication, NFTs will continue to go strong, just maybe not in the form of trading cards and artwork. Their usefulness is far greater to the blockchain, and commerce at large. The future of NFTs relies on programmers creating apps in which they can be useful on the blockchain.

Chapter 12 – Parting thoughts

I am always on the lookout for good value. I tend to buy cigars when they're on sale, tennis shoes when I need them, but only for a good price, and invest in financially conservative things that are a “sure bet” to increase in value. Nothing in this book should be taken as investment advice. I am not a financial planner, advisor, or guru by any stretch of the imagination. I may have doubled my own investments in cryptos in the past few years, but it is a miniscule amount, since there is no “sure bet”, and I'm not a very good gambler. I never advise friends or family on which cryptos to purchase, but I will point out factual news that may impact the cost of any given digital financial scheme, and trust me, there are plenty of schemes.

Take everything that you read about cryptos with a grain of salt, many of the so-called news people tend to parrot what they hear or read about, and I can tell you from experience as

a correspondent for The Tech Report on Westwood One - ***America in the Morning***", (heard every weekday morning on hundreds of radio stations worldwide, and available at ChuckPalm.substack.com), unfortunately, the scams far outweigh the real investment opportunities.

There is a lot of fake news when it comes to cryptos and investment opportunities, especially with NFTs. If you did not bet on Beanie Babies, or don't own a ton of Pogs, or Pokemon cards, because you think they would pay for your child's education, then you are smart enough to see a scam coming at you a mile away. So please be sure to investigate thoroughly any purchase that may be speculative in nature, and invest in NFTs with great trepidation, and never with funds that you cannot afford to lose.

Grandma was right, "if it's too good to be true, it probably is."



Shameless Self-Promotion

This is my second book, ever. It's also the second book in the *Demystify web 3.0* series. The third book, *Demystifying Web 3.0*, should be released by the end of the first quarter of 2024. I know, you're thinking, “*how the heck did you manage to get two books published in 90 days*”? The real answer is this book took about six months to get 50% of the way through, then I hit a creative wall.

2023 was a challenging year for most people, but for me personally, I made it a transformational year. Some of you

have seen my social media posts, and my shows where I have shamelessly bragged about losing weight and trying to turn around a bunch of health problems. But the biggest problem any writer faces is “writer's block”. I personally experienced this six months ago when trying to finish this particular book. I was on a mission to find a way to set aside the time, and frankly, I failed. With all the other shows, both radio and podcast, I had what I thought was zero time left to dedicate to writing any books. And I still have two more in my head that I'm desperate to get down on paper.

An old friend called me and said, “hey I have a book writing system that you might be able to use for podcasts. Well, I love a good challenge, so I sat with him, and in the first 40 minutes, we came up with 75 episodes for the Cigar Talk Show. I thought if it was that easy for somebody like me, perhaps I could spend the time to get enough content to finish this book and start the web 3.0 book. As you are now reading, it was a resounding success! I shifted gears yet again and decided to work with my buddy to publish a book writing software that was unlike any other. Book Framing was born, and just a few months later, we are about to publish our 10th book using this amazing system that cuts down the time to write a non-fiction book by 90%! In fact, it was not just easy and super effective, but it was actually kind of fun. To think I might be able to have two books come out in the same year was amazing, but it looks like now I will have four books out in less than six months.

I would invite you to take the same challenge, and visit us at [Fraimworx.com](https://fraimworx.com) and write your book that makes you the subject matter expert, and allows you to create a podcast series that will give you more than one year's worth of social media, as well as establish you as the subject matter expert in your field. Not only will this lead to more bookings as a speaker, and opportunities to share your wealth of knowledge, but you will passively become an expert in your field. Nothing establishes you as an expert faster than being the “one who wrote the book”!

My first book, demystifying cryptocurrency, remained as an Amazon bestseller for all but three weeks of the last 18 months. I have also won a Florida publishers award, for best business book of 2022. I did not become an author to sell more books, but hopefully to close more business this year. I have started back into podcast production full time, using Fraimworx, as a system that not only creates 50 episodes, or one for each week of the year, 2 weeks' vacation, but can be sliced up for enough social media posts that you can put it on automatic and not worry about creating content three or four times a week. Best of all, once you have your podcast series complete, Fraimworx can create your book from that content as well! I hope you will take advantage of this, and please let me know what you think of this book, and the Fraimworx content creation system!

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