

The
COMPLETE
GUIDE *to*
NFC

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Blue Bite

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GETTING STARTED



WHAT IS

NFC

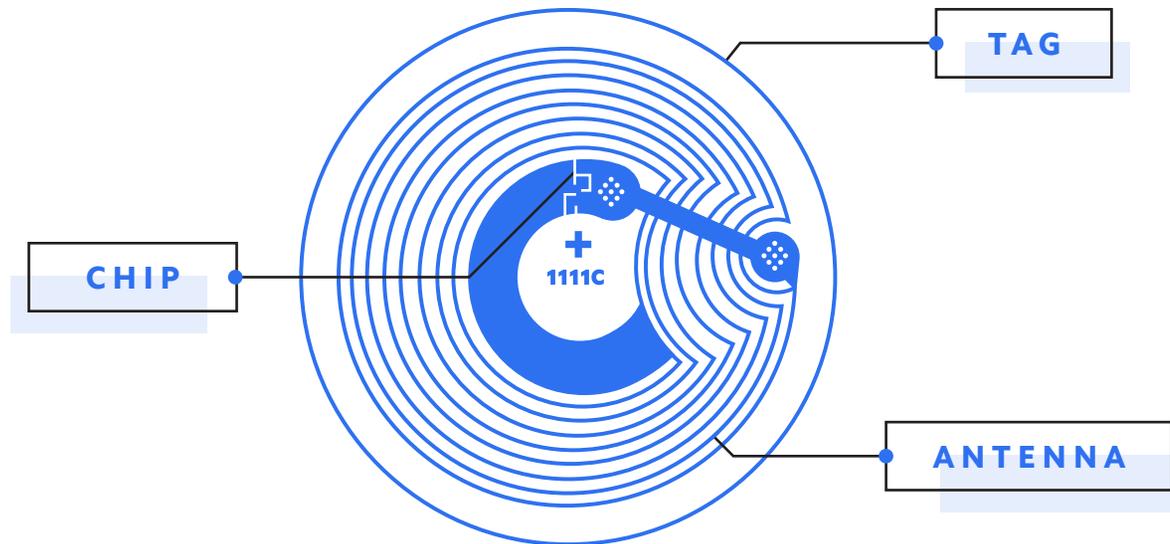
Near Field Communication is a technology standard based on *Radio Frequency Identification (RFID)* that does not require an internal power source to function and can transmit information wirelessly over small distances. As a result, NFC opens up new possibilities for consumer goods.

From a technology perspective, RFID and NFC are closely related, which can cause some confusion over when to use one or the other.

To help with the confusion, we put together an [RFID vs NFC guide](#) that explains where each technology excels.

FORM FACTORS

NFC Chips usually take the form of a sticker. While their appearance may seem unimpressive, their power comes from simplicity. This means they can be used in places where other technologies can't.



Each sticker is made up of two components that work together to form a functional device. Those are the antenna, and a small **system on a chip (SoC)**.

During an interaction, the antenna picks up an external signal and activates the SoC. The SoC includes a tiny **CPU (central processing unit)** and memory for storing information.

The amount of memory is dependent on the device and ranges from **48 bytes to 1 megabyte**.

Due to the relatively small amount of memory available, NFC chips are usually "encoded" to a URL or other text record. The **NFC Data Exchange Format (NDEF)** standard defines how this text is formatted to ensure interoperability between NFC chips and the devices scanning them.



10CM

Read Range (Max.)



15mA

Power Requirements



424 kbit/s

Data Rate (Max.)



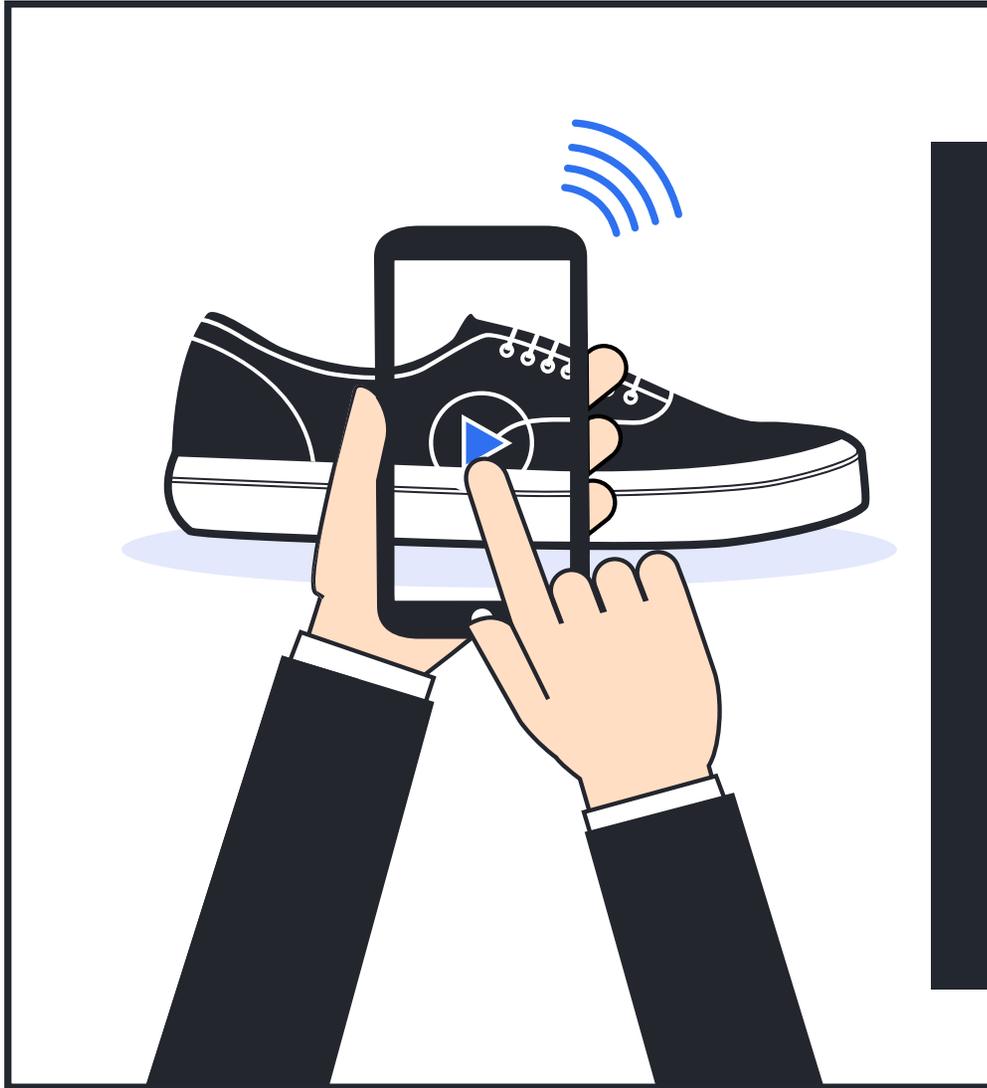
137 bytes

Memory (ntag203)



13.56MHz

Operating Frequency



From a user standpoint, NFC works like magic. To interact, a user simply brings their phone within range of an NFC chip and is instantly presented with the corresponding content. It is also a ubiquitous technology, working across devices from iPhone to Android.

IPHONE



The iPhone has had NFC capabilities since 2014 with the release of the iPhone 6. While NFC was made exclusive to Apple Pay, in-app NFC read capabilities were later introduced in 2017 with iOS 11. Users with an iPhone 7 or newer can read NFC with a scanning app like Decode. *iPhone XS, XS Max, and XR, released in 2018, have the ability to read NFC from the home screen without the need of a 3rd party app.*

	HAS NFC CHIP	CARD EMULATION <i>(Passkit/Apple Pay)</i>	NFC PAYMENTS <i>(Apple Pay)</i>	READS NFC <i>(Decode Supported)</i>
iPhone XS, XS Max, XR	✓	✓	✓	NO APP REQUIRED TO SCAN
iPhone X	✓	✓	✓	✓
iPhone 8, 8+	✓	✓	✓	✓
iPhone 7, 7+	✓	✓	✓	✓
iPhone 5SE	✓	✓	✓	✗
iPhone 6S, 6S+	✓	✓	✓	✗
iPhone 6, 6+	✓	✓	✓	✗
iPhone 5S, 5C, 5, 4S, 4, 3GS, 3G	⚠ NFC NOT FOUND!			



Download the **Decode** app now!

ANDROID

Android devices were first-to-market with NFC support in the early 2000s. Unlike iPhones, Android devices do not require an app to utilize NFC. Instead, reading is enabled from any screen whenever the device is unlocked. Android devices support NFC in its three modes: **read/write, card emulation, and peer-to-peer (P2P)**. NFC card emulation is best exemplified by Android Pay, and P2P by Android Beam file transfers.

Beyond Android's general adoption of NFC, Samsung brought the technology mainstream in their 2012 [campaign](#) for the Galaxy S3 smartphone, launched in partnership with Blue Bite.

For more information on Android's use of NFC see the [Android NFC Guide](#).



	HAS NFC CHIP	CARD EMULATION <i>(Passkit/Apple Pay)</i>	NFC PAYMENTS <i>(Android/Samsung Pay)</i>	READS NFC	WRITES NFC	P2P NFC <i>(Android Beam)</i>
Google						
Pixel 2/2X	✓	✓	✓	✓	✓	✓
Samsung						
Galaxy S9/S9+	✓	✓	✓	✓	✓	✓
Galaxy S8/S8+	✓	✓	✓	✓	✓	✓
Huawei						
P20/Pro/Lite	✓	✓	✓	✓	✓	✓
P10/Pro/Lite	✓	✓	✓	✓	✓	✓
Xiaomi						
Mi8/Mi6X/Mi6	✓	✓	✓	✓	✓	✓
Mi8 SE/Mi5/Mi5c	✗	✗	✗	✗	✗	✗



To view the complete breakdown of NFC compatible Android smartphones, click [here](#).

POPULARITY & GROWTH

The number of new devices supporting NFC has grown rapidly since 2006, when the first devices to support the technology were released.

Mobile handsets equipped with NFC have increased

 **400%** reaching a staggering **1.2B** Units
2013-2018

This represents a tipping point of **64%** of all smartphone shipments. According to HIS Technology this number will increase to  **2.2B** Units by 2020.

Shipments of NFC-Enabled Mobile Handsets





NFC

USE CASES

NFC has many impressive use cases due to its form factor and convenient scan-ability. These use cases break down into different categories.

SNEAKER CON
LEGIT

NIKE X SUPREME
AIR FORCE 1 HIGH
WORLD FAMOUS - WHITE

PAYMENTS



Image: Android Authority

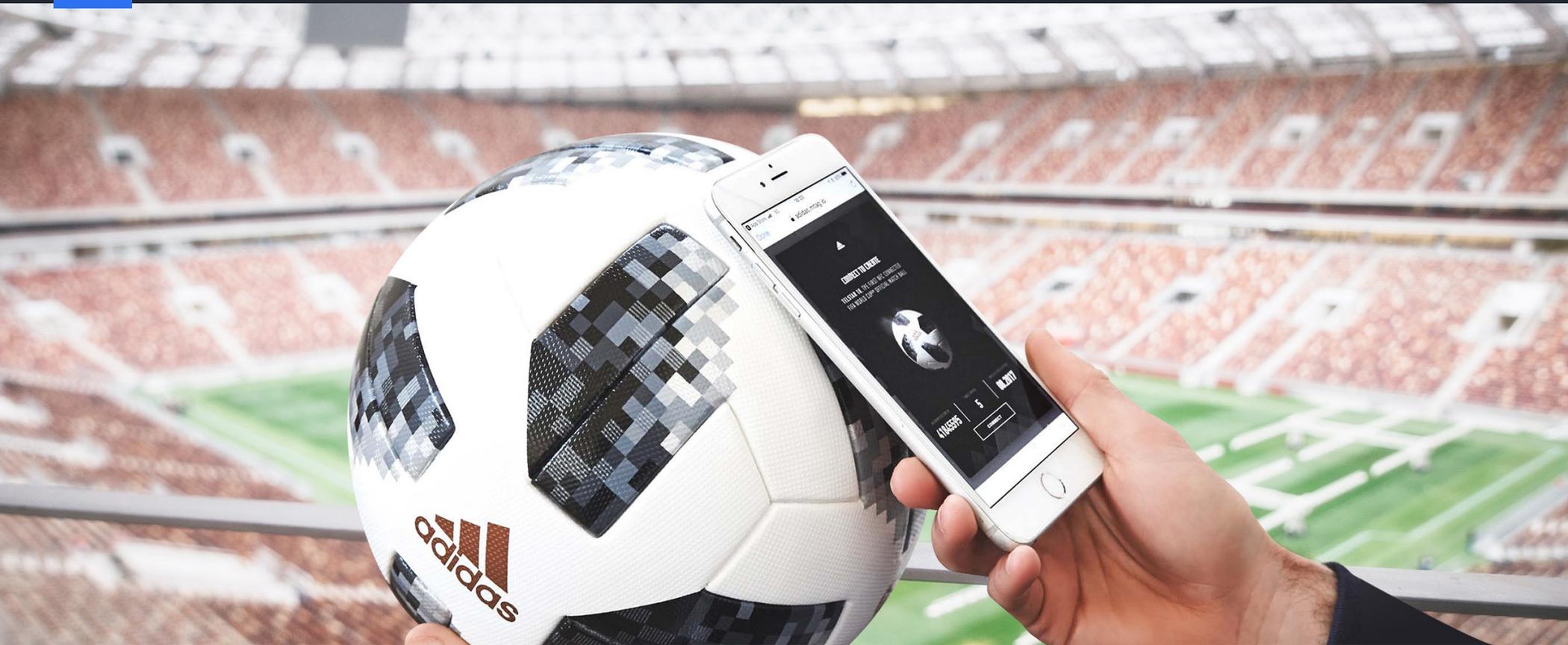
NFC may be most well known for mobile payments, where it powers services like **Apple Pay** and **Google Wallet**. These solutions make shopping simple, with tap-to-purchase and added security.

Instead of using the same credit card number for each transaction, mobile payment solutions leverage the power of NFC card emulation to generate a transaction key that can only be used once, and which expires within seconds.

This technology makes it nearly impossible for bad actors to make unauthorized charges on an account.

Because NFC chips can be embedded into physical products, any item can become its own payment terminal. With just a tap customers can interact with an embedded product to make a purchase. Empowering objects to sell themselves streamlines the shopping experience and eliminates the need to stand in line to checkout.

EMBEDDED EXPERIENCE



While NFC is a great technology for making purchases, it arguably provides more value after the sale, during an item's use. Because NFC tags are small, durable, lightweight, and inexpensive they can be embedded into physical products that would otherwise have no digital connectivity. Once embedded with NFC, those products are able to drive to online

content with just a tap, connecting the physical and digital worlds. This functionality opens up new possibilities where all physical things can have an online identity. This identity is often referred to as an experience because it augments and enhances the experience of owning an item. Because the experiences exist online, their

possibilities are nearly endless. Marketers often take advantage of this, seeing it as an opportunity to provide consumers with relevant content, and as a way to directly reach customers. Examples include: [Parley x adidas](#), [adidas World Cup Official Match Ball](#), [Staple Pigeon](#), and [Sneaker Con Legit tags](#).

EXCLUSIVE CONTENT & USE CASES



1 | Product Information



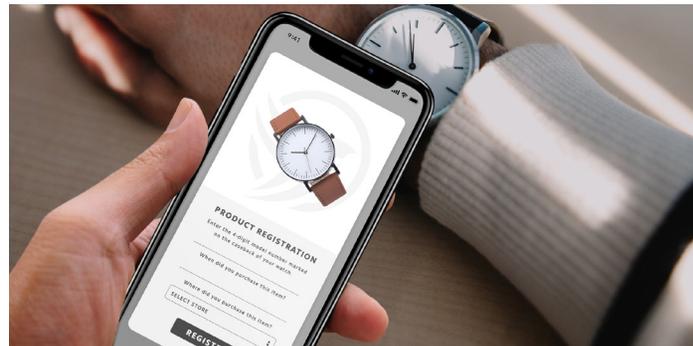
2 | Tutorials



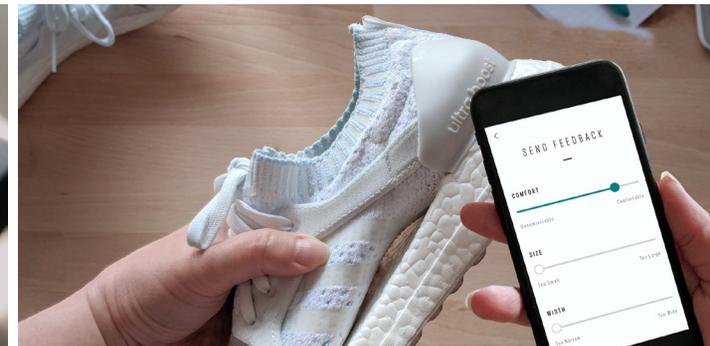
3 | Purchase & Reorder



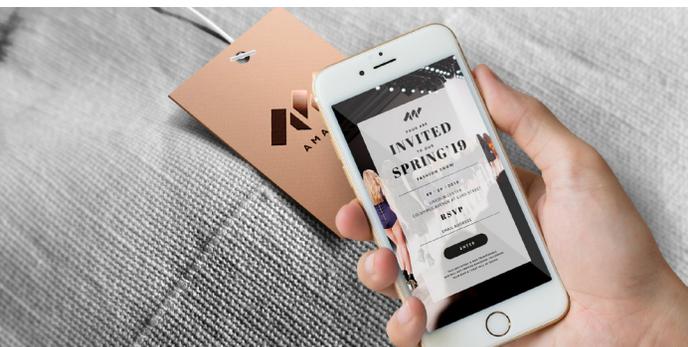
4 | Authentication



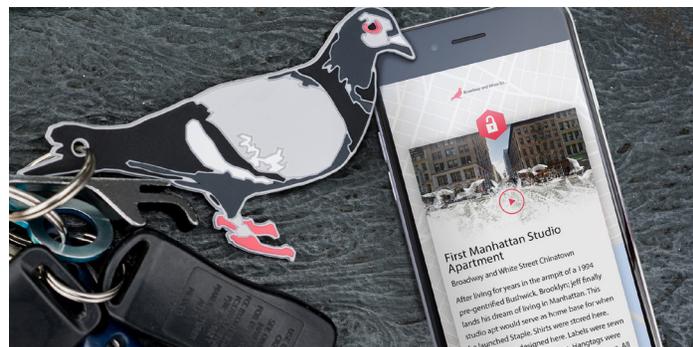
5 | Product Registration



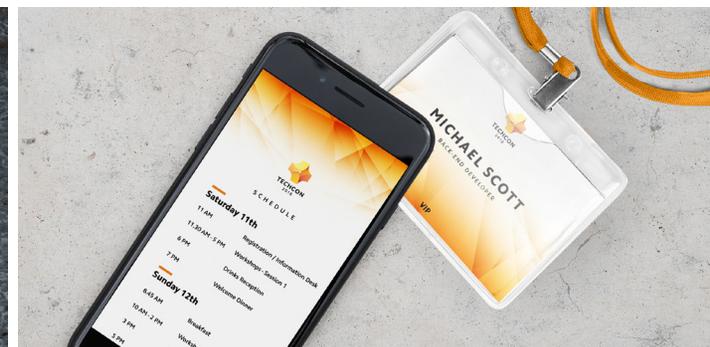
6 | Feedback



7 | Exclusive Content



8 | Gamification



9 | Event Programming & Agenda



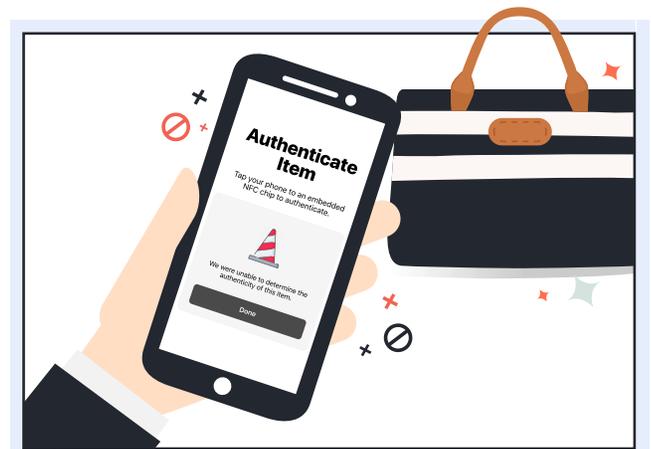
Transforming physical items into a multi-channel experience opens up new possibilities for brands and customers alike. Read how to take your products and content to the next level [here](#).

PRODUCT AUTHENTICATION



Counterfeits have arisen as a real threat to customers seeking legitimate products, especially with fakes increasingly sold on sites like Amazon, Facebook, and Instagram. Some brands try to thwart these efforts with holograms, micro-threading and even QR codes, but NFC provides the most secure product authentication.

Once a legitimate product is embedded with NFC at the factory, it is given a unique digital identity that can be verified by customers (using an app like Decode) before purchase. This also makes it easy for retailers and brands to discover fake merchandise before it reaches unsuspecting customers.





GETTING STARTED

Enable your success with Blue Bite.



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