

Introducing the new Zebra Apple NFC VAS SDK

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Sales Engineer



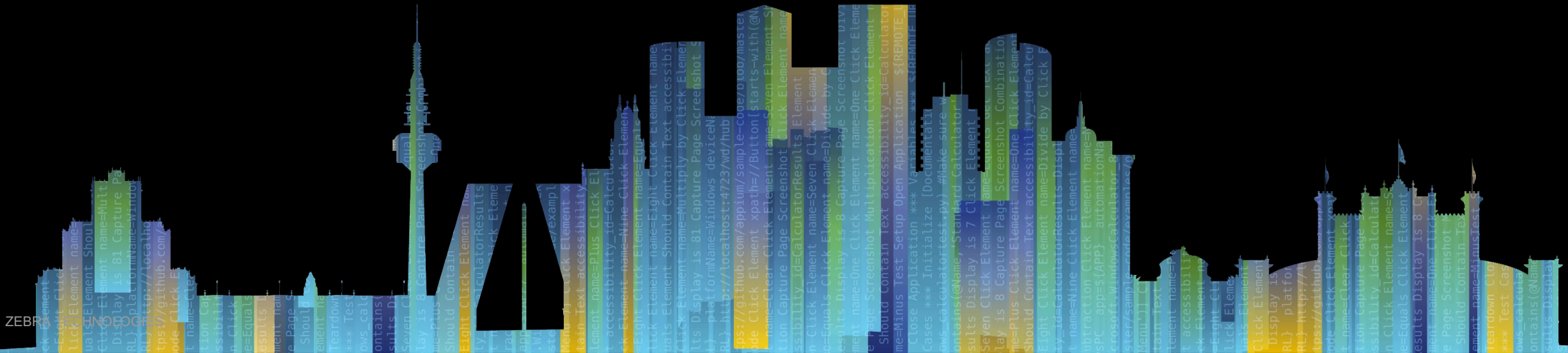
Agenda

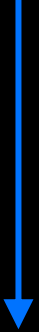


- Digital Wallet Technology
- Apple VAS / Google Smart Tap
- Zebra VAS SDK
- Setup and APIs
- Security Consideration
- What Differentiate Zebra VAS readers from Competition?



Digital Wallet Technology





How is the world changing with Wallet technology?

“You can forget your keys but not a phone”

- 99% Smartphones globally will be capable of making contactless (NFC) transactions/payments by 2027 (2)
- 85% of consumers use NFC technology
- There are 3.4 billion people in the world with a mobile wallet (1)
- The number of people with Mobile Wallets is projected to exceed 5.2 billion by 2026 – over 60 percent of the world’s population (1)
- 75% increase of Apple Pay activations on iPhones in the USA in 2022
- Wallet Expansion, Mobile Driver License (mDL) support by Apple, Google and Samsung

1. Press Release: August 2022; Juniper Research
2. NFC Forum

What is Wallet technology?

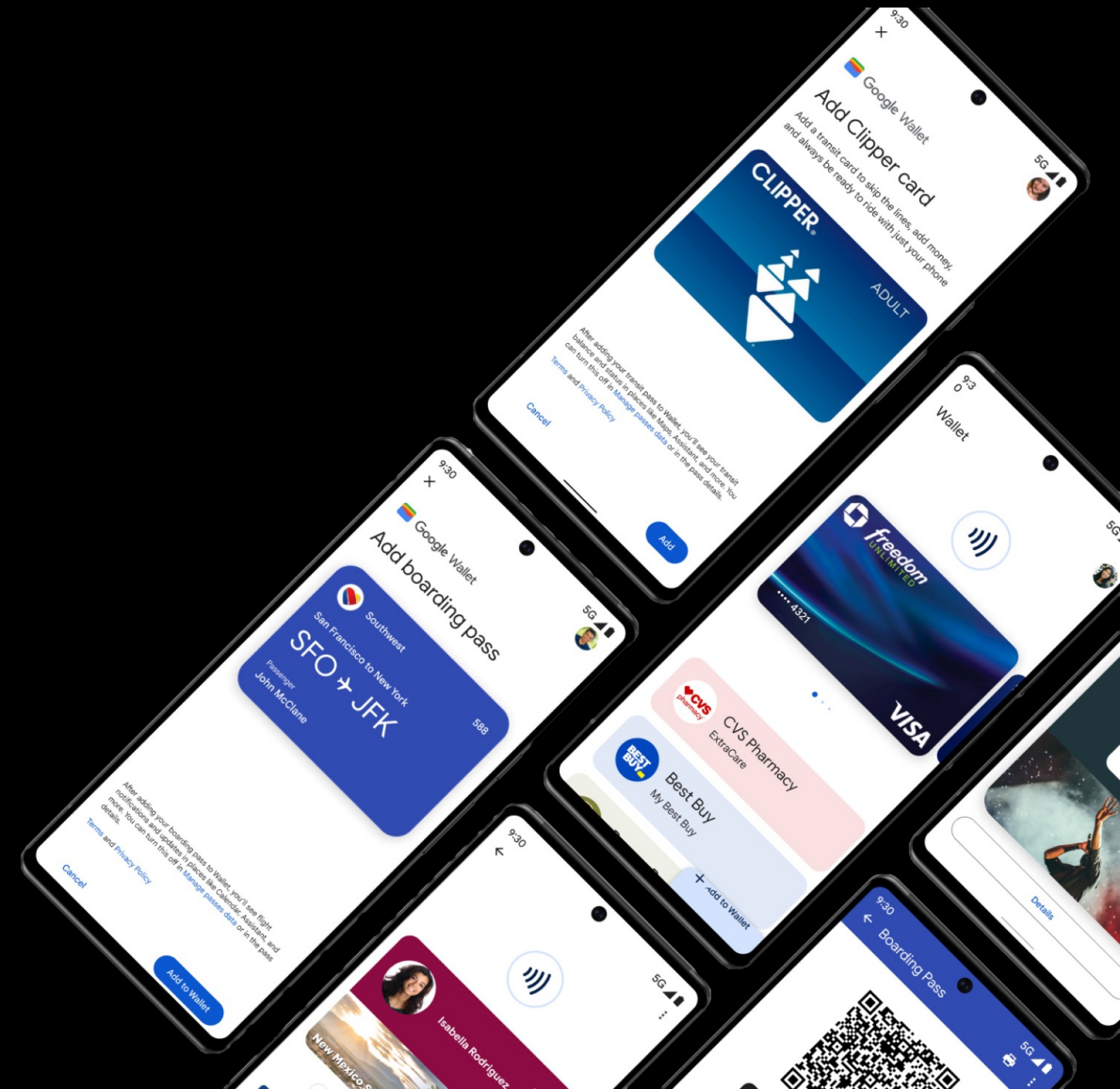


- Wallet is a digital equivalent of physical wallet
- Can store Credit Card Information and as well as non-payment digital information
- The none-payment Wallet items are part of Apple Value Added Services (VAS)
- The equivalent of Apple VAS is Google Smart Tap

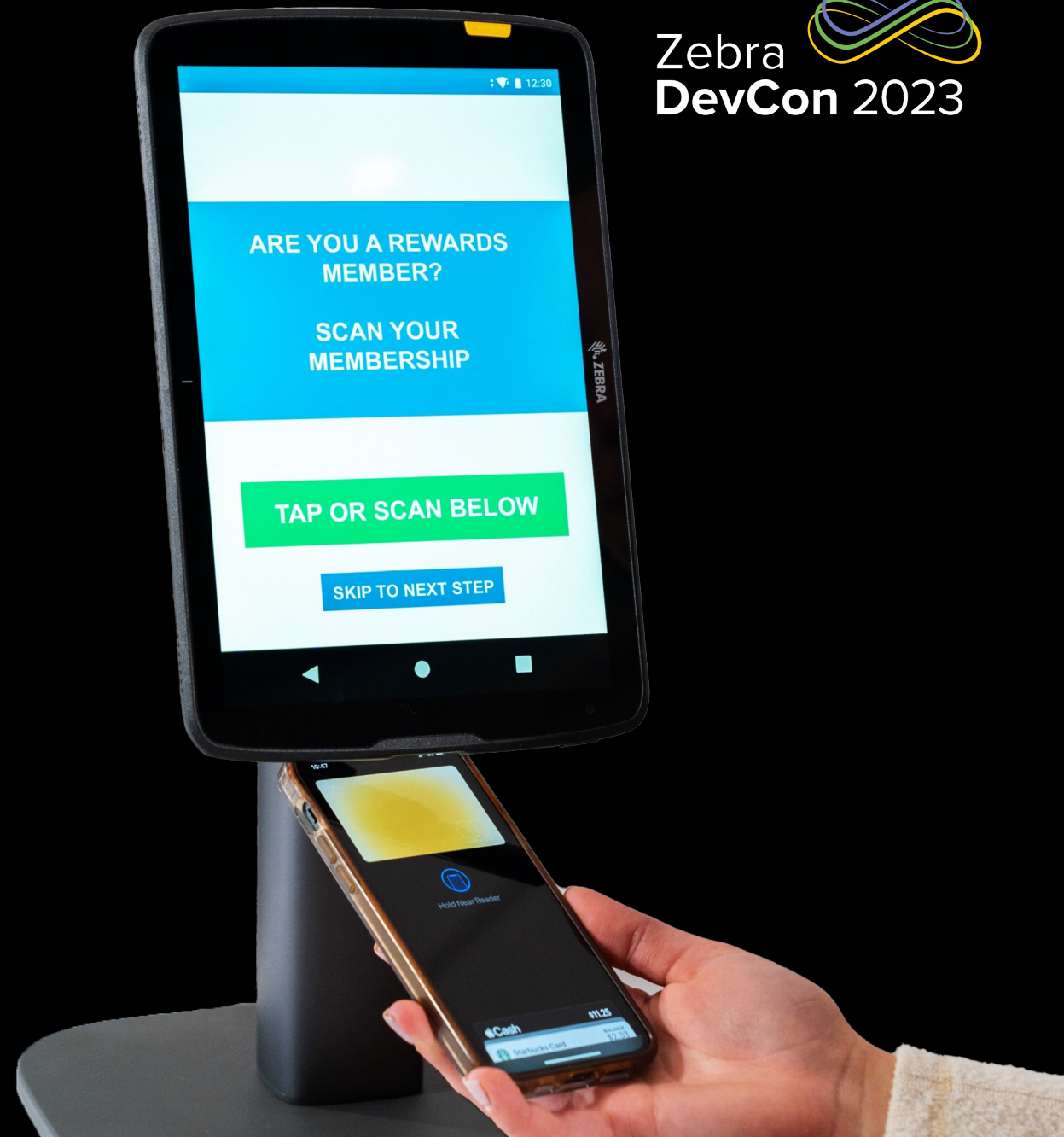


What can you store inside your wallet?

- Event tickets
- Mobile Driver license
- Boarding passes
- Loyalty cards
- Health Insurance cards
- Transit tickets
- Credit Cards
- Ski tickets
- And more...



Now, accepting the **world of non-payment related items in mobile wallets** is as easy as **deploying Zebra mobile devices** in your business



Where can you put Apple VAS and Google Smart Tap to work?

Just about anywhere!



Hospitality

- Concierge services
- VIP access
- Membership cards
- Digital passes
- Student cards

Sports and Entertainment

- Event ticket validation
- VIP access
- Team/club loyalty card

Transportation (transit)

- Transportation ticket validation (rail, bus, tram)
- Boarding passes
- Airport lounge access

Retail

- Loyalty cards
- Membership cards
- Points cards
- Gift cards
- Coupons

Healthcare

- Insurance cards
- Health account cards
- Personal authorization

Law Enforcement

- ID validation

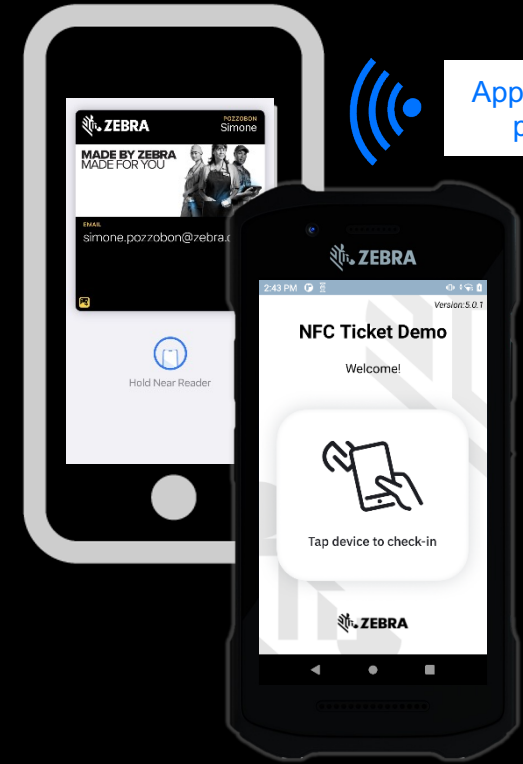
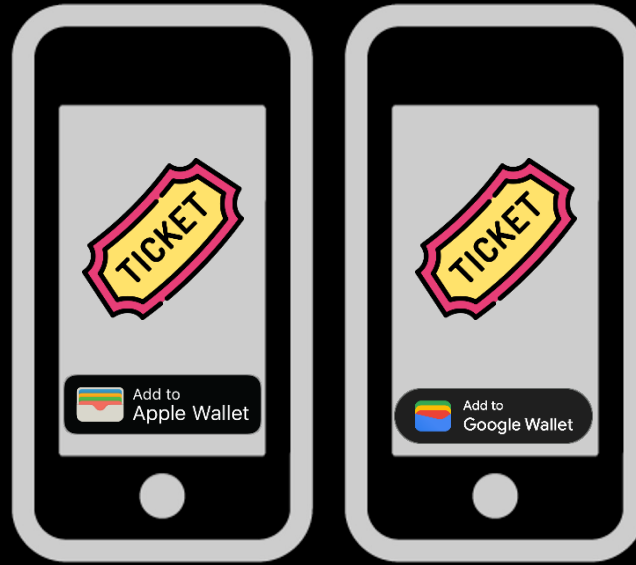
NFC-Enabled Pass journey

2

Add the NFC-enabled ticket to your wallet



Buy digital ticket



Apple VAS/Smart Tap protocol is used

Validate the pass using Zebra device

1

3

Apple VAS / Google Smart Tap



Apple VAS (Value Added Services) is a technology designed by Apple to provide NFC enabled passes (nonpayment Apple Wallet items) on Apple devices



Reader requires a specific hardware that support Apple Enhanced Contactless Polling (ECP).
The device MUST be certified by Apple.

Zebra worked closely with NXP
to develop this chip



Smart tap is a Google proprietary near-field communication protocol for conveying data between an Android mobile device and an NFC terminal.



Does NOT require a specific hardware

Zebra VAS Certified Portfolio



Durable

TC21/26
(SPECIFIC SKU)
TC22/27



Rugged

TC53/58



Ultra-rugged

TC73/78



Rugged with maximum display space

ET40/45

Apple VAS / Smart Tap integration

Google Standard NFC API could be used, but...



Apple grants you access to VAS technology only after a strict approval process. Getting access to Google resources is easier, but there's still a validation process behind



Customer Application should support all the pass functionality including private / public key storage and operation on it. Encryption / Decryption is not handled by the NFC chip but by the customer application



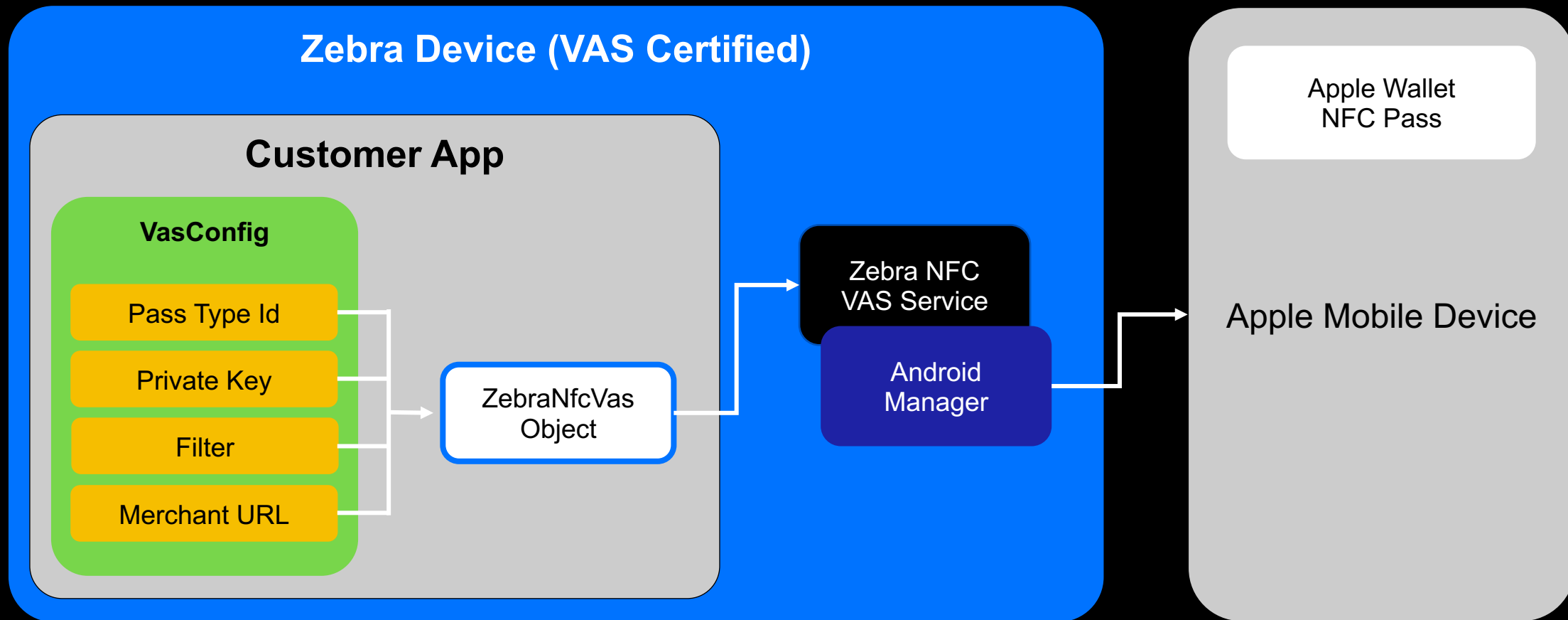
Zebra SDK – Read NFC passes has never been easier



- The SDK is designed to help build the application with following capabilities: connect with the Apple device, extract the data from the Apple Wallet and work on this data and provide the feedback to the application running on the Zebra reader
- Zebra Apple VAS SDK is not providing any of the capabilities or functionalities to help create of the Apple Wallet passes

**Apple VAS SDK is ready.
Smart Tap will be available soon**

VAS Data and Interaction Sequences



Information associated with a pass

Values required to read a pass

Pass Type Identifier

- Used to search for passes in a user's Apple Wallet. Only passes matching this value will be retrieved.

MerchantID

- Hash value calculated internally by the SDK from the Pass Type Identifier.

Private Key

- Used to decrypt NFC message from the pass. This key is obtained at the time of pass creation.

Merchant URL (OPTIONAL)

- Used mainly on loyalty cards. When customer is not a loyalty member yet, this url is used to redirect the user in a sign-up page – Specific APIs are required to support this.

Filter (OPTIONAL)

- Passes can be issued with a specific bit-mask to be used for filtering.

Where can I download VAS SDK?

- DOWNLOADS

Collapse Versions

VERSIONS

APPLE VAS SDK PACKAGE

- 1.0.0

Release Date: July 2023

- ET40

- TC26

- TC73

- ET45

- TC27

- TC78

- TC21

- TC53

- TC22

- TC58

Software

apple-vas-sdk-1.0.0.zip

 Download 9 MB

Apple VAS SDK package V1.0.0

You can download the Aar library from the following link: [VAS SDK](#).
This page can be reached from the Support and Download page of your device
under the Developer tools tab (e.g.: [TC22 Support And Downloads](#))

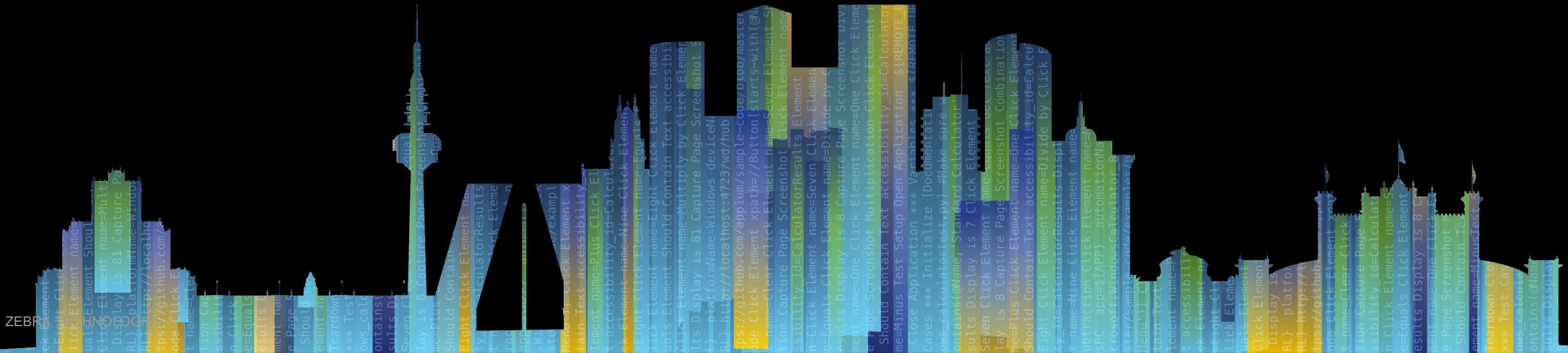
What's inside VAS SDK?

- Zebra NFC VAS service APK
- Demo APK w/ full source code
- Aar library to be imported in your project

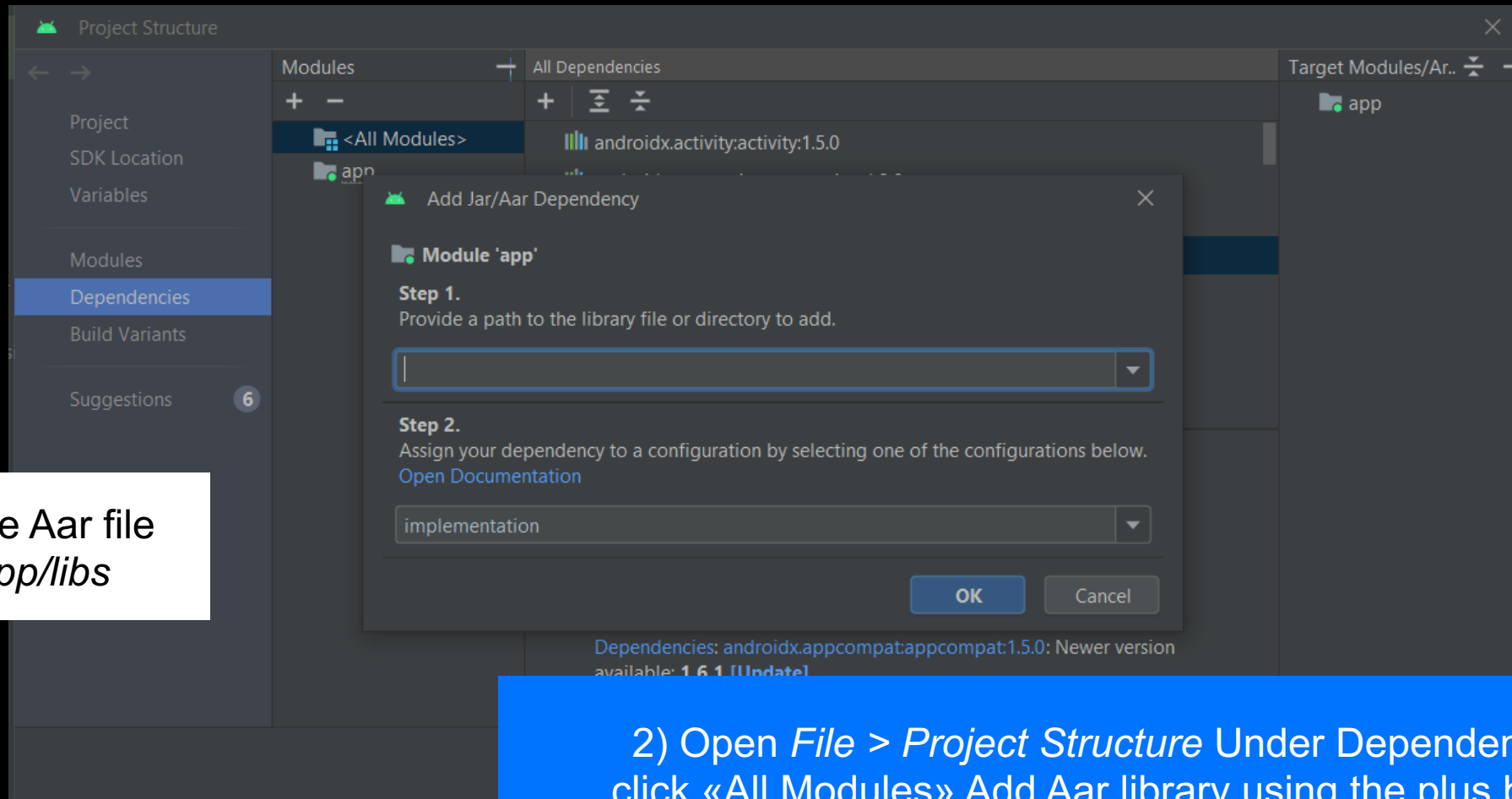
Zebra NFC VAS service **must** be installed on the device.

The demo app or any other app developed using our SDK won't read passes data without this service.

Setup and APIs



Add VAS Library into my Android Studio project



1) Copy the Aar file under *app/libs*

2) Open *File > Project Structure* Under Dependencies click «All Modules» Add Aar library using the plus button

Start using SDK

```
public class AppleVASActivity extends AppCompatActivity implements IZebraServiceConnection {  
    ...  
}
```

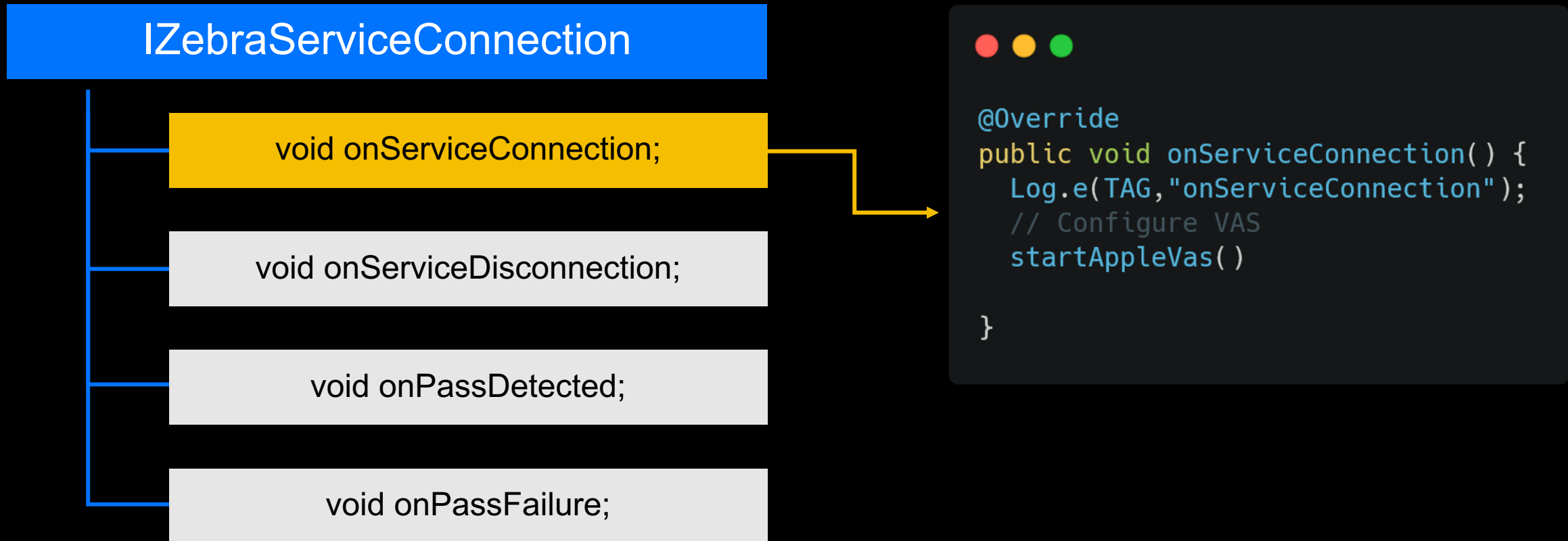
1) Implement
IZebraServiceConnection
interface

```
private ZebraNfcVas vasSDK;  
  
@Override  
protected void onCreate(Bundle savedInstanceState) {  
    vasSDK = new ZebraNfcVas(this);  
    vasSDK.init();  
}
```

2) Init ZebraNfcVas object

IZebraServiceConnection interface

After SDK init, onServiceConnection callback is triggered



Configure VAS SDK

```

● ● ●

// Configure Zebra VAS NFC on successful connection of service
private void startAppleVas() {
    // 1 - Create an AppleVasConfig object.
    // This is the object that the SDK uses to know how to interact with a presented NFC pass.
    vasSDK.createAppleVasConfig();
    // 2 - Set the appropriate configuration values in the AppleVasConfig object
    vasSDK.setPassTypeIds(...);
    vasSDK.setPrivateKey(...);
    vasSDK.setFilter(...);
    vasSDK.setMerchantURL(...);
    // 3 - Create the ZebraNFCVAS object.
    // This holds the instance of a VasConfig object for pass detection operation.
    vasSDK.createZebraNfcVasConfig();

    //...next slide
}

```

Configure VAS SDK

```

// Configure Zebra VAS NFC on successful connection of service
private void startAppleVas() {
    // ...previous slide

    // 4 - Set the AppleVasConfig object into the ZebraNFCVAS object
    // This informs the SDK about the configuration data to use when reading the NFC pass.
    vasSDK.setVasConfig();
    // 5 - Call connectToReader - This establishes the connection with the NFC reader.
    vasSDK.connectToReader();
    // 6 - Call enableReadPassMode
    // Only reader/writer capabilities are enabled and polling is configure to read Type A and Type B cards.
    vasSDK.enableReadPassMode();
}

```

Disable pass read in background

```
● ● ●  
  
@Override  
public void onPause() {  
    super.onPause();  
    Log.i(TAG, "onPause called & Reader Mode Deactivated .....");  
  
    // Call disableReadPassMode before the app goes to the background or when the activity ends  
    // This returns the device to the default NFC Forum polling mode.  
    vasSDK.disableReadPassMode();  
}
```

And finally...let's read passes

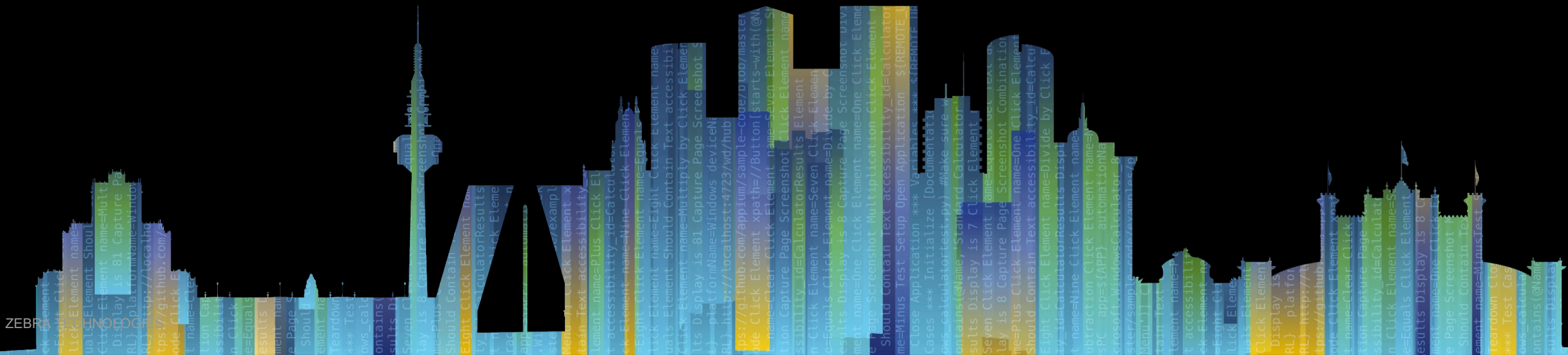
```

// Callback Api with pass object from library on Tag detection.
public void onPassDetected(Pass pass) {
    Log.v(TAG, ">>> PASS DETECTED <<<");
    if (pass != null && pass.getPassType() == Pass.Type.AppleVas) {
        if (pass.getResultCode() == Pass.Result.Success) {
            // Read pass data (decrypted already)
            pass.getPayloadMessage();
            // ...
        }
    }
}

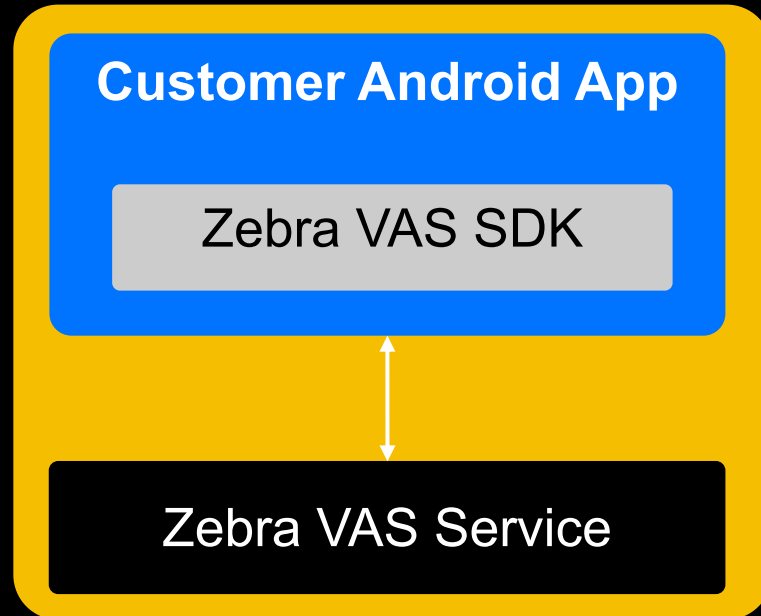
```



Security Considerations



Security components



Service authenticity check:

- VAS Service code and binary are secured by secure-dex process.
- Service is signed by Zebra (unprivileged) key.
- SDK validates the service by checking signature of service before proceeding further.

Zebra Apple VAS SDK has implemented advance security features helping to protect the private key operations and connections with authorized VAS service with the business application

Zebra DevCon 2023



What Differentiate Zebra
VAS readers from
Competition?



1. First to Market

First Android™ Full NFC chip (reader/writer, Card Emulation, supports all NFC cards technology) with support of Apple VAS



2. Out of box Capabilities

Supports ECP1.0 protocol (for event ticketing) and ECP2.0 protocol (for transit ticketing, mobile ID). Additional ECP2.0 certification might be required.



3. Easy Adoption and Shorter solution Time to Market

No custom SDK to support VAS transactions. Standard Android NFC stack (APIs) can be used to access and operate on VAS data. However: for the customers/partners with limited time to market and limited Wallet technology knowledge Zebra provides comprehensive Apple/Google VAS SDK with Demo Application.



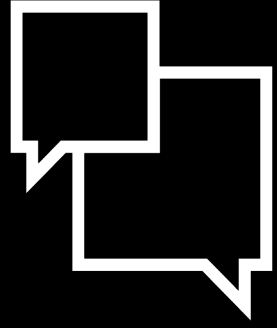
4. Portability

Easy or NO Merchant Application Maintenance when moving across Android versions.
No Apple VAS recertification needed with new Android OS once hardware/product is certified



5. Scalability and Longevity

Zebra Enterprise NFC Valued for enhanced NFC performance and capabilities. NFC chip and Android support from NXP up to 10 years. (Zebra devices life cycle applies)



Questions

Demo App

Generate your own pass



- Scan the following QR Code using your iPhone
- When prompted, enter information in the fields (e.g., name, email address, phone number)
- Follow instructions on the iPhone for pass installation

Come here and let's validate your pass!

Thank You

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