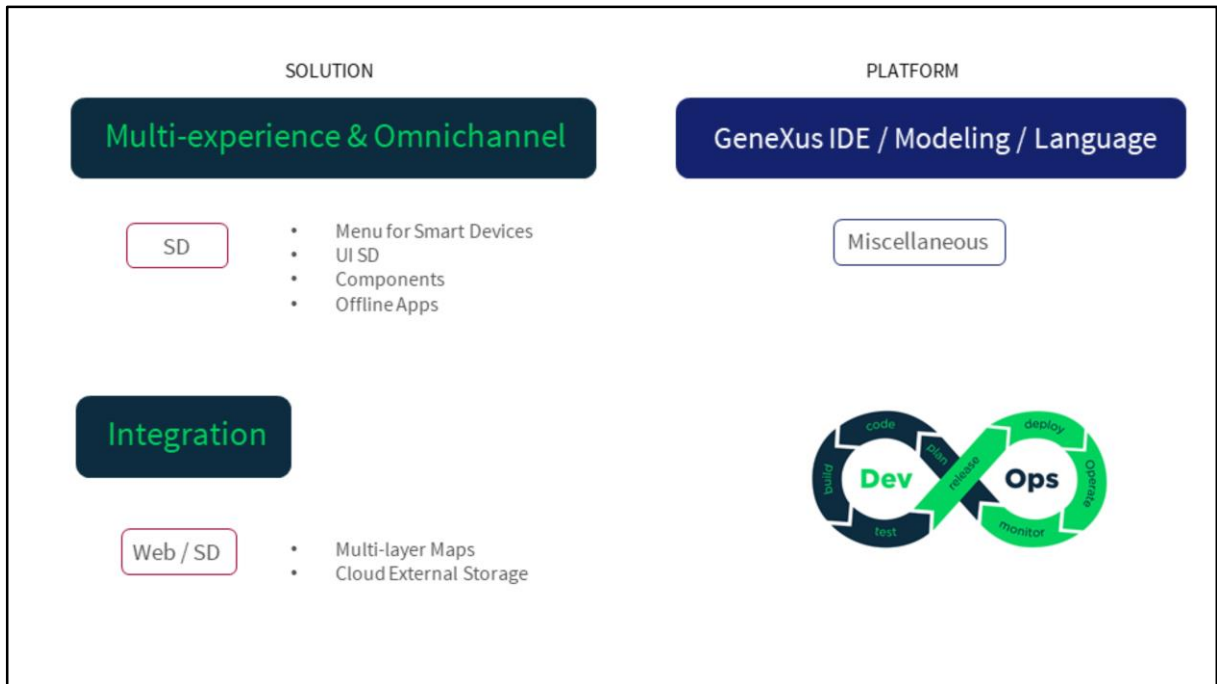


GeneXus™
The power of doing

Web/SD
Miscellaneous

GeneXus™ 16



In what follows we will see more features that have been incorporated from the different upgrades of GeneXus 15 up to version 16.

We will study the new in what we can do with the maps, and also some improvements in what makes the external storage of multimedia files in the supported clouds.

We will see some aspects related to the GeneXus platform.

Menu for Smart Devices

Menu for Smart Devices

New Object

Select a Category:

- Common
- Workflow
- Reporting
- Documentation
- Web
- Smart Devices

Select a Type:

- Menu for Smart Devices
- Panel for Smart Devices
- Theme for Smart Devices
- Work With for Smart Devices

ex Dashboard!

Show application options using different layouts.

Name: MenuSmartDevices1

Description: Menu Smart Devices1

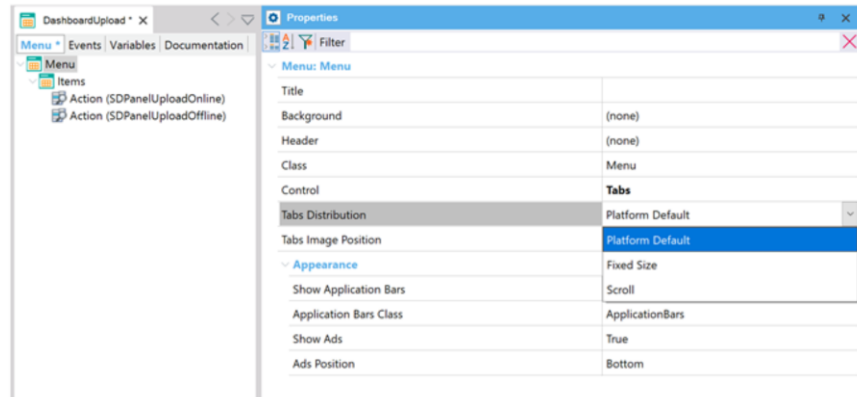
Module/Folder: Root Module

Create Cancel

GeneXus

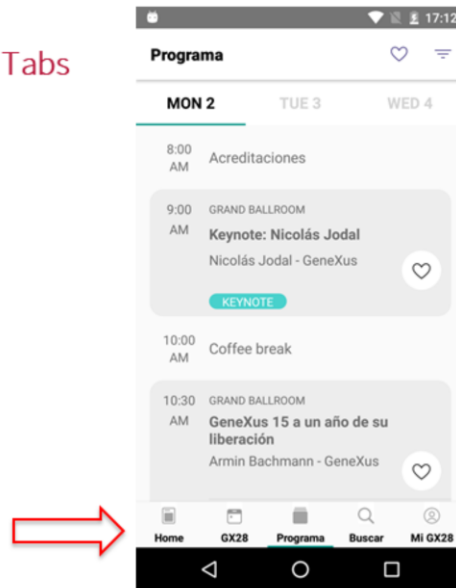
Menu for Smart Devices / Tabs Control

- Tabs Distributions property



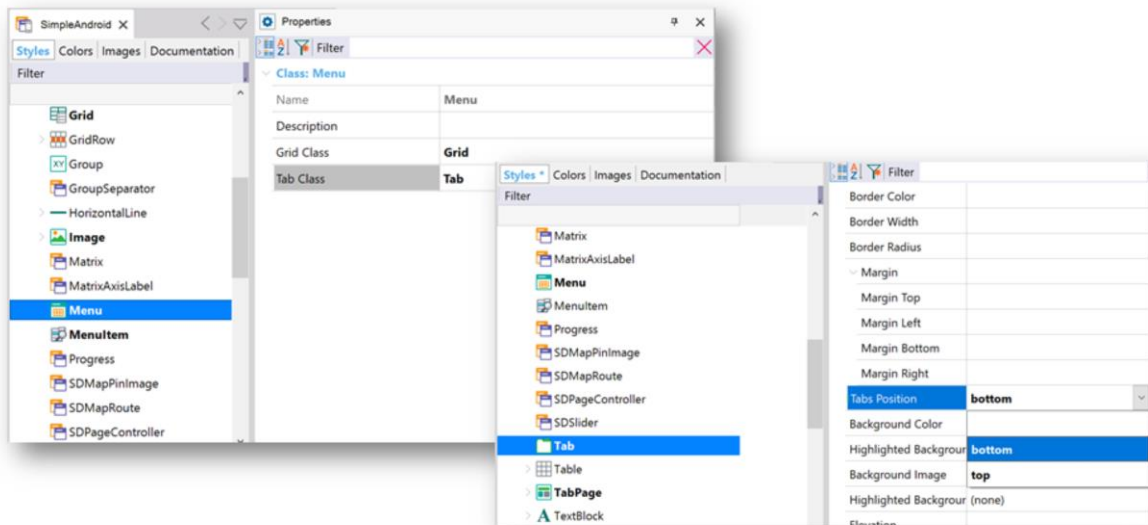
Menu for Smart Devices / Control Tabs

- Control Tabs for Android
 - Top / Bottom



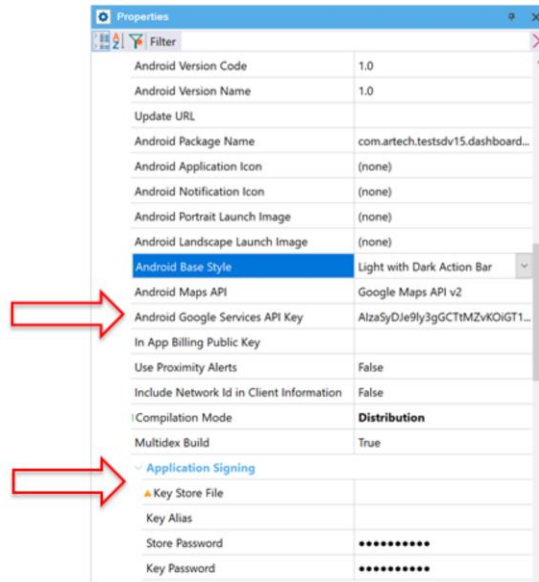
GeneXus

Menu for Smart Devices / Control Tabs / Android



Properties on Main Objects

Also, some properties at Smart Devices generator level have been moved or copied to the main object properties level.



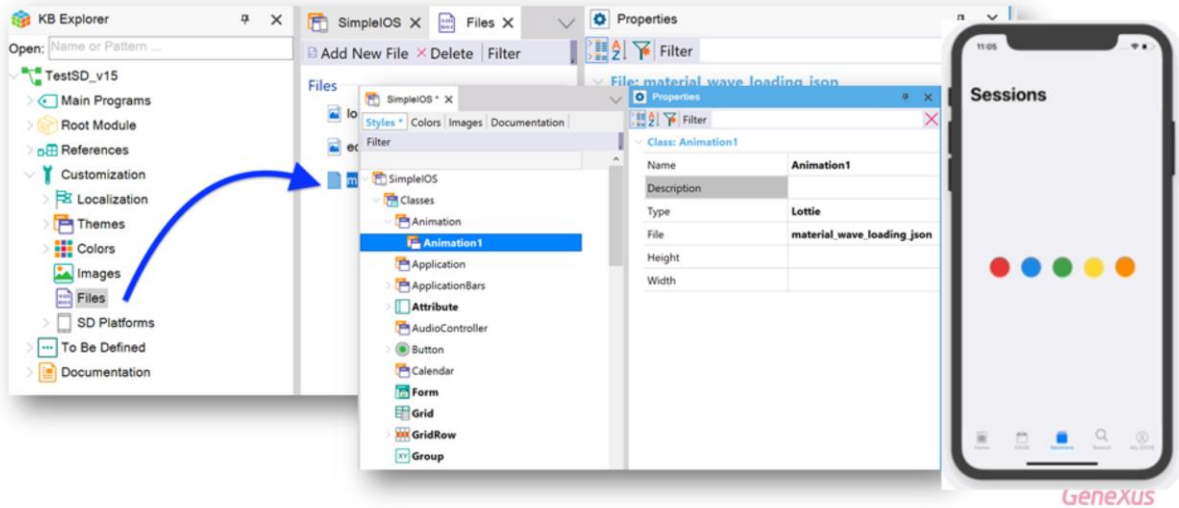
Animations

Lottie Animations

<https://www.lottiefiles.com>

GeneXus

Animations : how to incorporate to the KB



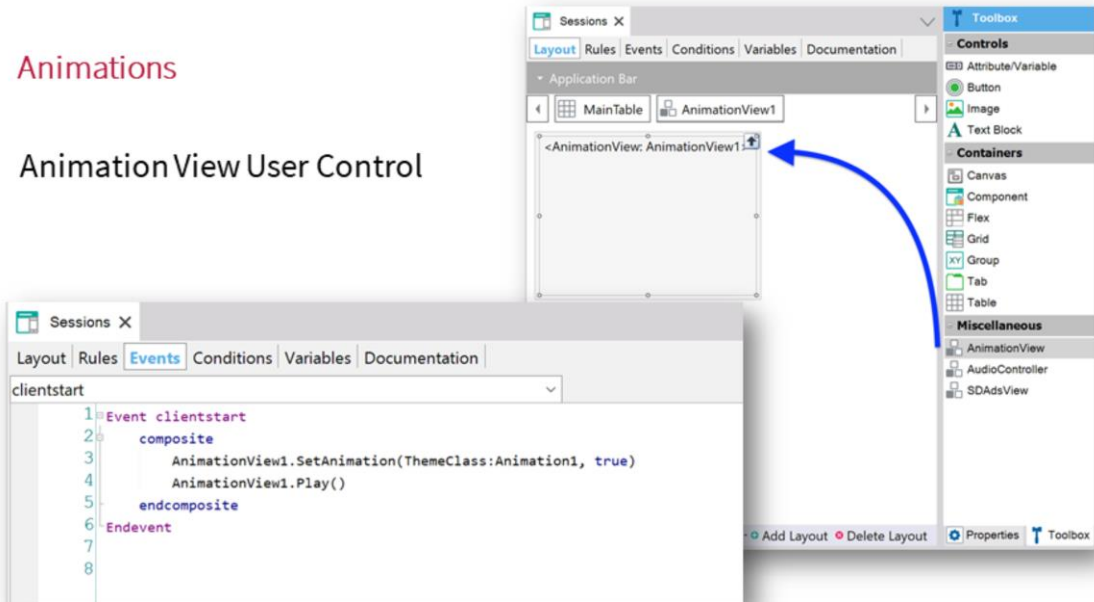
Lottie Animations

There are four ways to make the Integration:

1. Animation View User Control

Animations

Animation View User Control



GeneXus

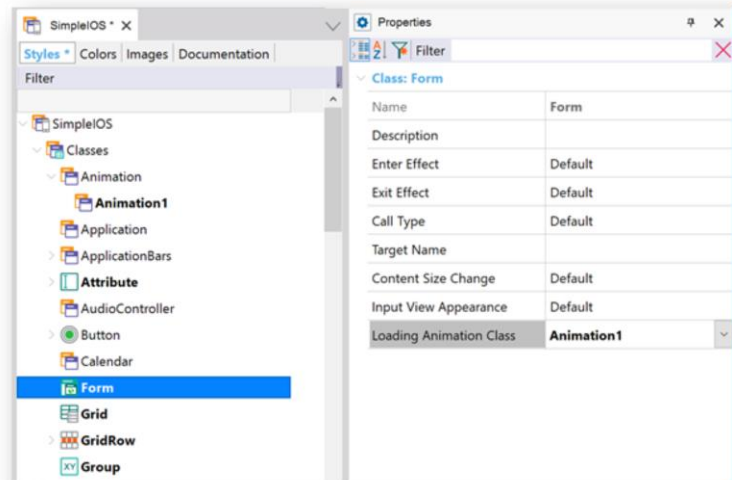
Lottie Animations

There are four ways to make the Integration:

1. Animation View User Control
- 2. Customize the loading of Form and Grids**
- 3. Customize the Launch Screen**

Animations

Customize the loading of
Form and Grids



GeneXus

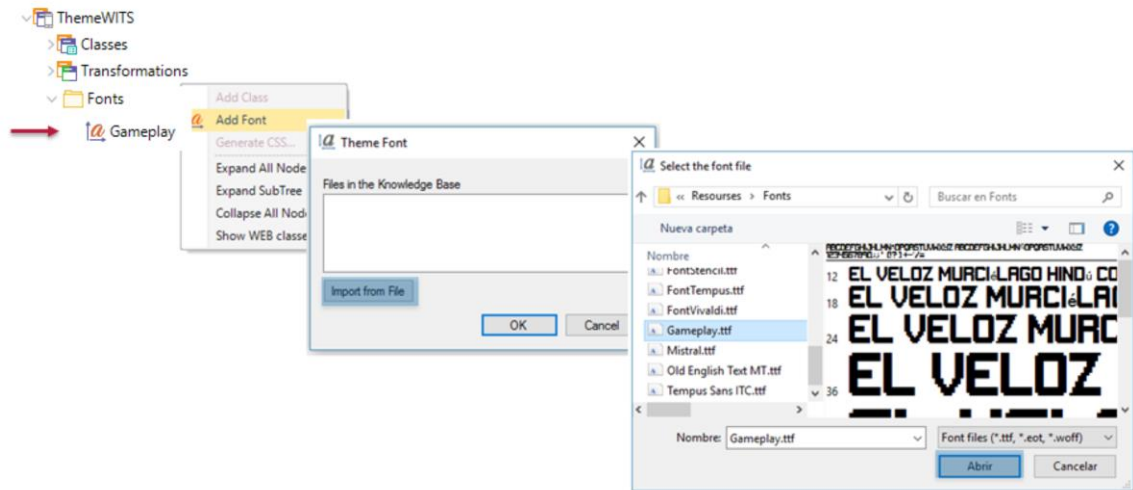
Lottie Animations

There are four ways to make the Integration:

1. Animation View User Control
2. Customize the loading of Form and Grids
3. Customize the Launch Screen
- 4. Customize the Progress Indicator control**

Fonts

Adding Fonts



Adding Fonts

ThemeWITS

Classes

Application

ApplicationBars

Attribute

AudioController

Button

ButtonSectionLink

ButtonStart

...

Transformations

Fonts

Gameplay

START!

START!

Font

Font Weight

Font Style

Font Size

Font Family

Font Category

bold _ 25dip Gameplay _

bold

25dip

Gameplay

Components

SD Components created in runtime too

Panel for Smart Devices

PanelGamePlay * X

Layout * Rules Events * Conditions Variables * Documenta...

Application Bar

MainTable QuizComponent

<Component: PanelGameQuiz>

&Hits &Misses &Temporizer

Hit Miss Time left

Chronometer

Component: QuizComponent

Control Name QuizComponent

Object PanelGameQuiz

Parameters

Panel for Smart Devices

PanelGameQuiz X

Layout Rules Events Conditions Variables Documentation

Application Bar

MainTable

GRID

&RandomSongs.item(0).SongName

Now you can use `Component.Create(...)`!

GeneXus

Offline Applications

Features in GX 16

- More things/functions are generated on the device (offline generators)
- Security Improvements
- Support for multiple offline apps in the same KB
- Synchronization by TimeStamp

Synchronization Receive Granularity Criteria

- By Table
- By Row
 - Using Hash
 - Using Timestamp

Receive By Table

For each table involved in the synchronization, if the table was changed, it sends **all table records** from the server to the device.



Sync
Receive

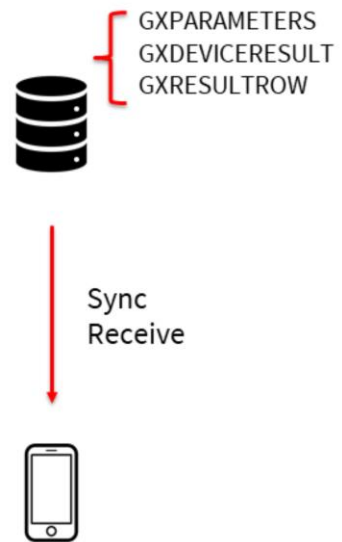


GeneXus

Receive By Row using Hash

For each table involved in the synchronization, if the table was changed, it sends **only the modified rows** (inserted, updated or deleted) from the server to the device.

Differences are computed by using **row hashes**.



GeneXus

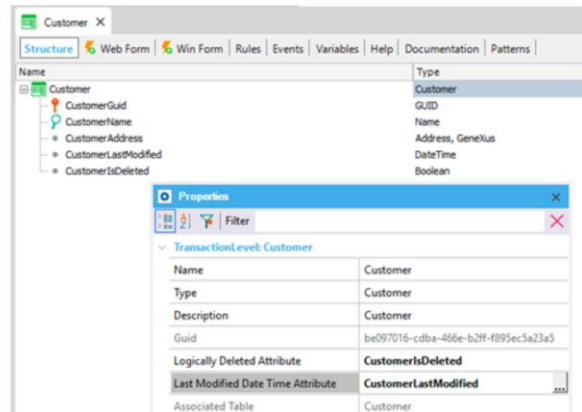
Receive By Row using Timestamp

Sends **only the modified rows** (inserted, updated or deleted) from the server to the device.

Differences are computed by using **row timestamp**.

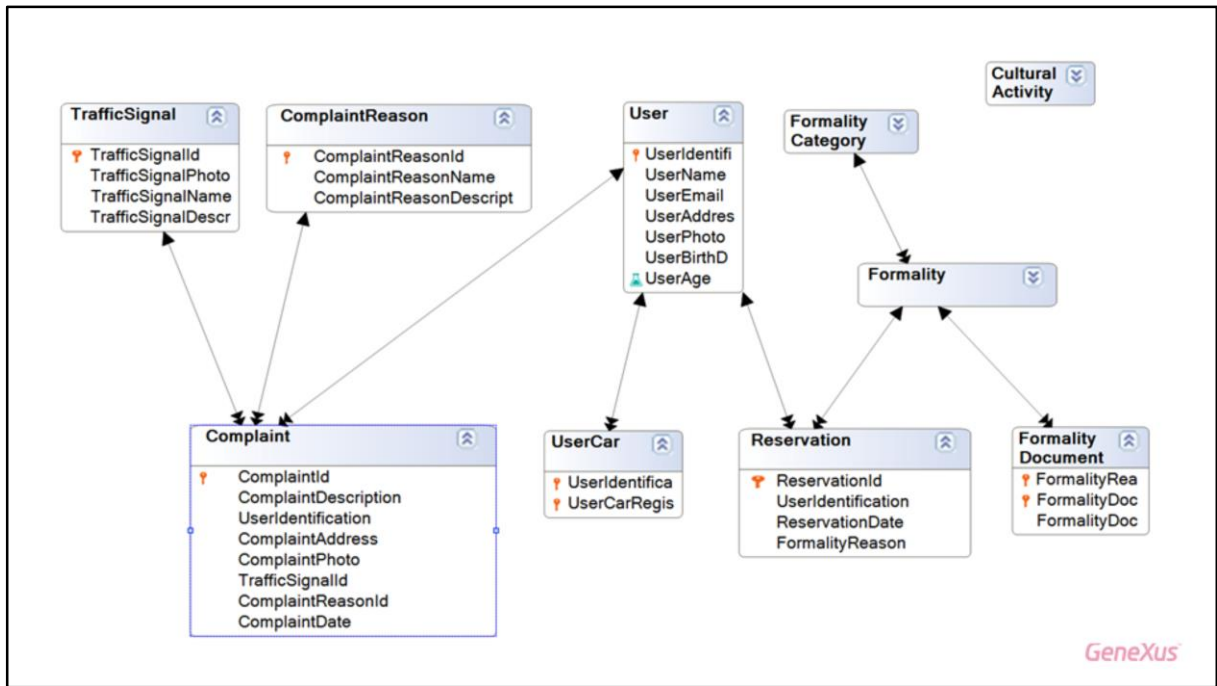
Requires the addition of two attributes:

- Last Modified Date Time Attribute
- Logically Deleted Attribute



Offline Applications

**Special considerations about
Synchronization.Receive**



KB Explorer

Open:

Citizen_GX16UpdCourse_CitizenSolutio

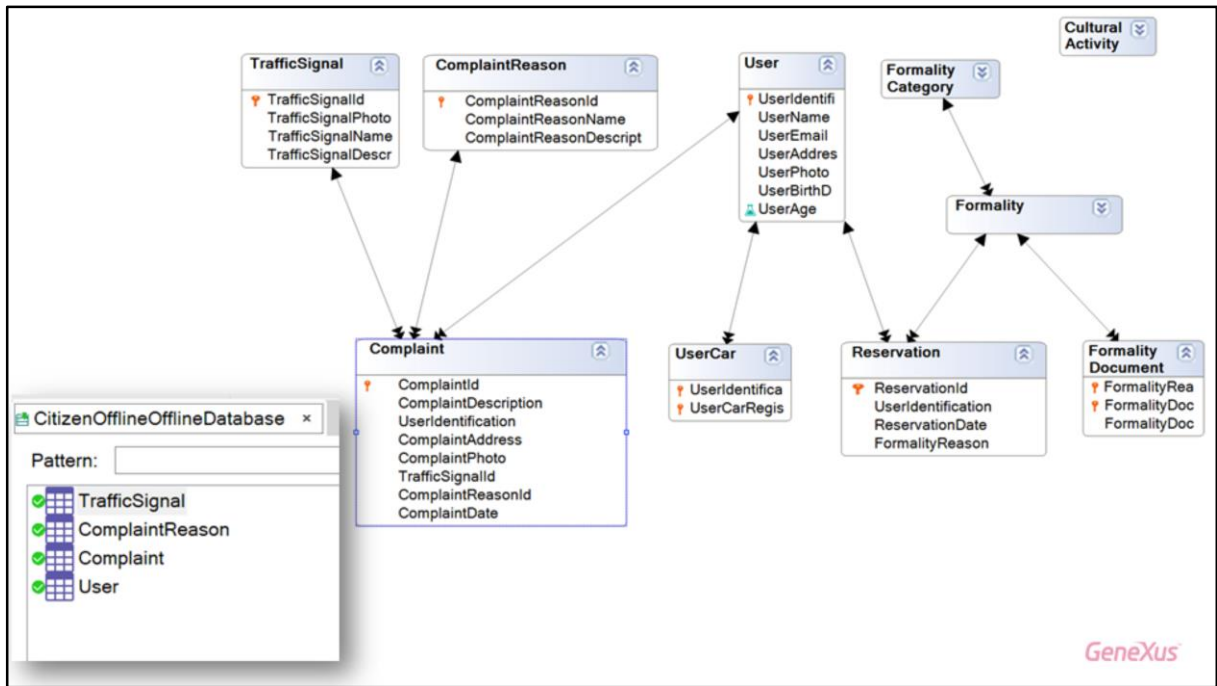
- Main Programs
 - CitizenMenu
 - CitizenOffline
 - CitizenWeb
 - Complaint_DataProvider
 - ComplaintReason_DataProvider
 - CulturalActivity_DataProvider

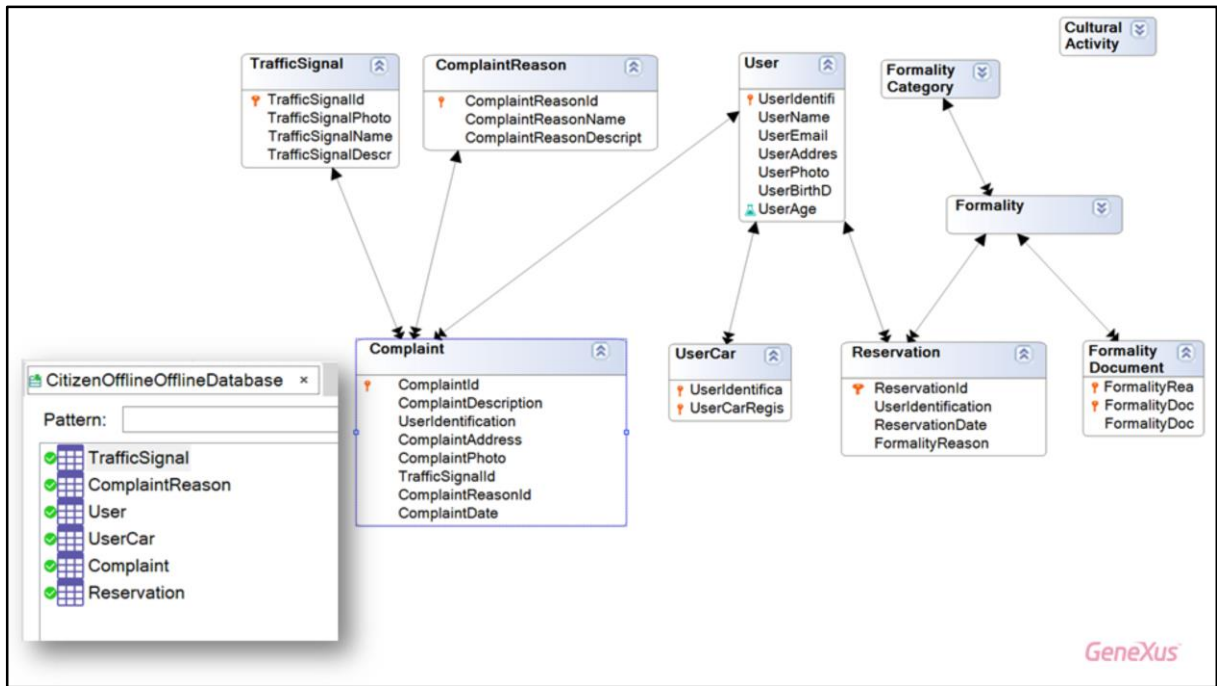
CitizenOffline

Layout Rules **Events** Conditions Variables Documentation

Events

```
1 Event 'Complaint'
2     UserComplaint()
3 Endevent
4
```





Event Synchronize by hash for Complaint (Line: 13)

For Each Complaint (Line: 13)

Order: [ComplaintId](#)
Index: ICOMPLAINT
Navigation filters: Start from: FirstRecord
Loop while: NotEndOfTable

=[Complaint](#) ([ComplaintId](#))

Load into Complaint

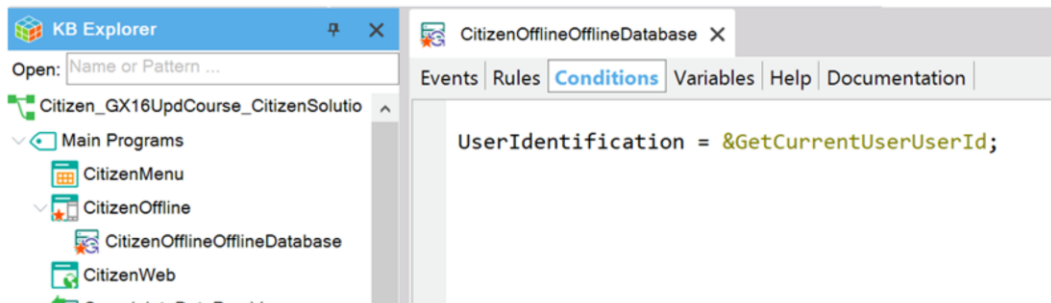
Event Synchronize by hash for User (Line: 18)

For Each User (Line: 18)

Order: [UserIdentification](#)
Index: IUSERS
Navigation filters: Start from: FirstRecord
Loop while: NotEndOfTable

=[User](#) ([UserIdentification](#))

Load into User



Event Synchronize by hash for Complaint (Line: 13)

For Each Complaint (Line: 13)

Order: [UserIdentification](#)
Index: ICOMPLAINT1
Navigation filters: Start from: [UserIdentification](#) = &GetCurrentUserUserId
Loop while: [UserIdentification](#) = &GetCurrentUserUserId



=[Complaint](#) ([ComplaintId](#))

Load into Complaint

Event Synchronize by hash for User (Line: 18)

For First User (Line: 18)

Order: [UserIdentification](#)
Index: IUSERS
Navigation filters: Start from: [UserIdentification](#) = &GetCurrentUserUserId
Loop while: [UserIdentification](#) = &GetCurrentUserUserId



=[User](#) ([UserIdentification](#))

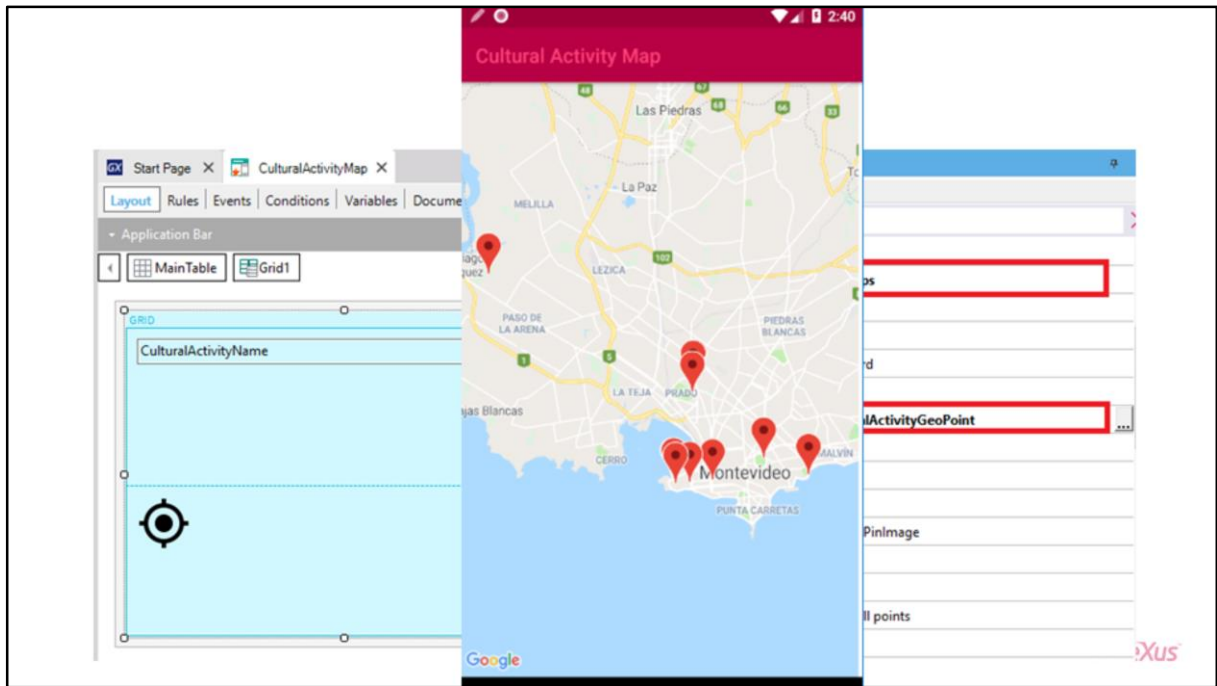
Load into User

reXus

Synchronization Receive Summary

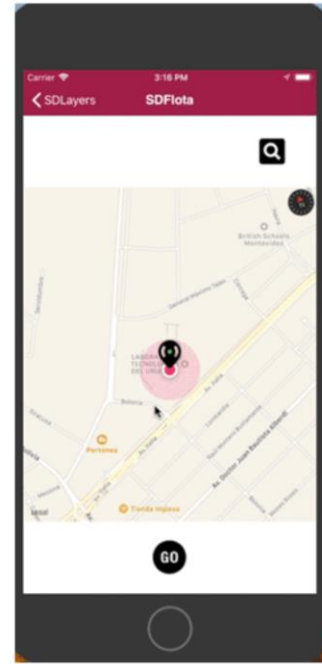
- Check involved tables and their load conditions
 - <Main>OfflineDatabase database report
 - <Main>OfflineDatabase navigation report
- Minimum time between receives
- Data Receive granularity

Multi Layers - SDMaps



<https://wiki.genexus.com/commwiki/servlet/wiki?15309,SD+Maps+Control>,
<https://wiki.genexus.com/commwiki/servlet/wiki?36729,PickLocation%20Method>

Transport application



Maps, tracking & localization Uber-like

Selection Layer

General Class

Control Type

Auto Grow

Show My Location

Map Type

User Can Choose M

Location Attribute

Pin Show My Locat

Pin Image

Pin Image Attribute

Pin Image Class

Show Navigation o

Show Traffic

Initial Zoom

Center

Selection Layer

Location Selection Target Image

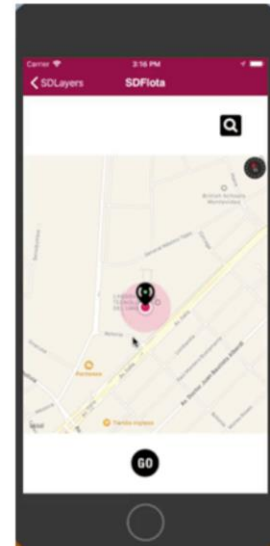
Selection Target Image Class

Directions Layer

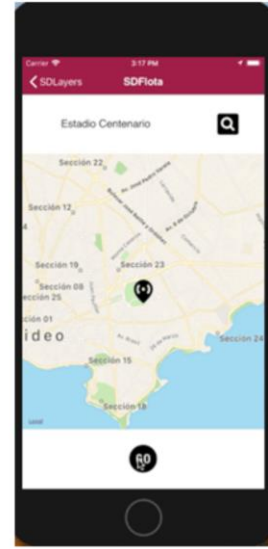
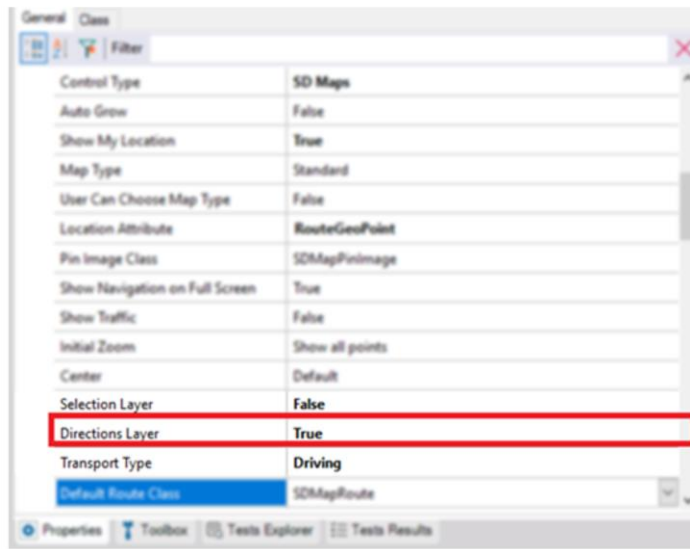
```
event Grid1.ControlValueChanged(&geopoint)
composite
  msg("controlvaluechanged")
  msg(&geopoint.ToString())
endcomposite
endevent

Event Grid1.ControlValueChanging(&geopoint)
...
endevent
```

Show all points
My location
True
locationBlack
SDMapPinImage
False



Direction Layer



Direction - External object

The screenshot displays a software development environment with two main panels. The left panel, titled 'Structure', shows a tree view of the 'Maps' object. It includes a 'Methods' section with two 'CalculateDirections' entries, each with parameters for sourceLocation, destinationLocation, transportType, and requestAlternateRoutes. It also includes an 'Events' section with a 'DirectionsCalculated' event, which has parameters for routes and errorMessage. The right panel shows the code for these methods and events. The first event, 'Go.Tap //GO', calls 'Maps.CalculateDirections(&geopoint,&mygeopoint)'. The second event, 'Maps.DirectionsCalculated(&routes, &messages)', is a composite event that checks if the number of messages is zero. If so, it iterates through the routes, drawing a geoline for each. Otherwise, it displays a message.

```
Event Go.Tap //GO
|
| Maps.CalculateDirections(&geopoint,&mygeopoint)
|
Endevent

Event Maps.DirectionsCalculated(&routes, &messages)
composite
  if &messages.Count = 0
    &i = 1
    do While &routes.Count >= &i
      &geoline = &Routes.Item(&i).geoline
      Grid1.DrawGeoline(&geoline,"Class")
      &i= &i + 1
    enddo
  else
    msg(&messages.Item(1).Description)
  endif
endcomposite
endevent
```

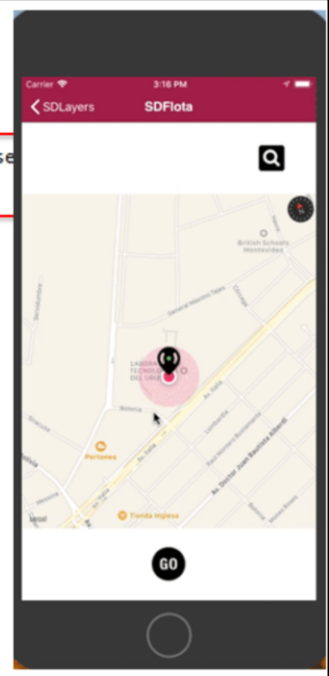
How to programming Transport application

```
Event ClientStart
composite
    &GetMyLocation = GeneXus.Common.Geolocation.GetMyLocation(0,0,false)
    &myposition = &GetMyLocation.Location
    InsertRouteGeoPoint(&myposition)
endcomposite
Endevent

event Grid1.ControlValueChanged(&destinationpoint)
    ...
endevent

Event ImgGo.Tap
composite
    InsertRouteGeoPoint(&destinationpoint)
    Grid1.SelectionLayer = false
    Grid1.DirectionsLayer = true

    Grid1.Refresh()
endcomposite
Endevent
```



IOS Map Providers



Main Object Property – Apple Maps API



Cloud External Storage

Cloud external storage

Storage Provider Property

- AmazonS3
- Microsoft Azure
- Ibm Bluemix
- Google Cloud Storage
- Local (default)
- OpenStack

Generator: Default (Java)

Name	Default
User Interface	Web

General

Use Native Soap	No
Java package name	com.teststore
Use decimal arithmetic	Yes

Java specific

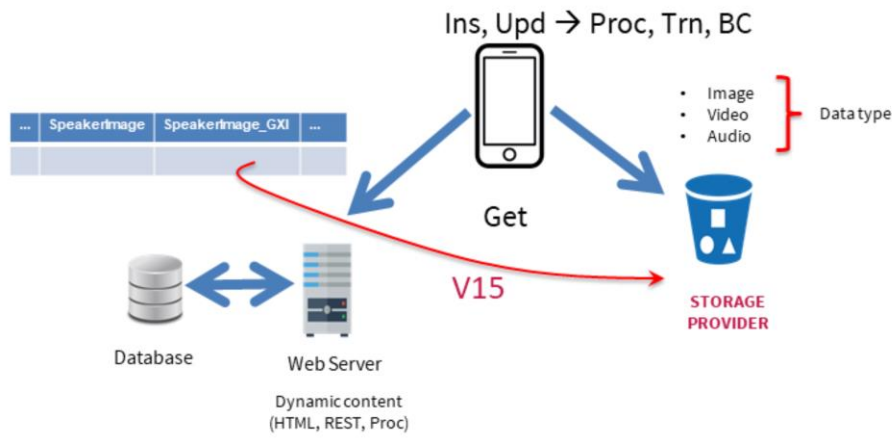
SMTP server (for mail functions)	
Log JDBC Activity	No

Services

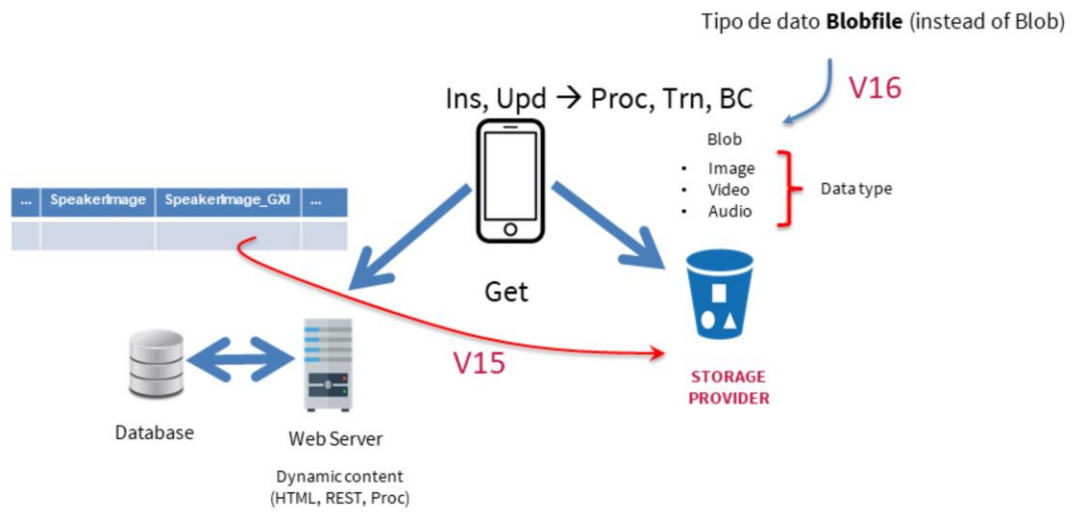
Storage configuration

Storage Provider	Amazon S3
Bucket Name	genexuss3test
Folder Name	test
Storage Access Key ID	1234567890
Storage Secret Access Key	*****
Storage Region	US Standard/US East (N. Virginia)

Cloud external storage



Cloud external storage



GeneXus IDE

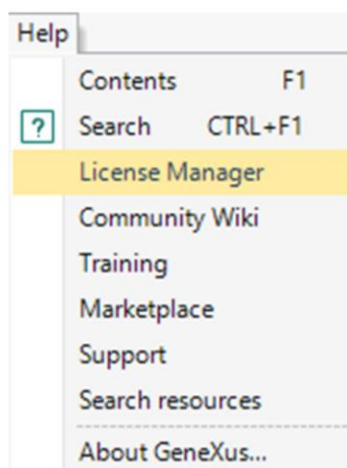
Associated Tables

The screenshot displays the GeneXus IDE interface. On the left, the 'KB Explorer' pane shows a tree structure under 'Entities_Trns'. The 'CulturalActivity' entity is expanded, revealing an 'Associated Tables' folder. The 'CulturalActivity' table is selected. The main pane shows the 'Structure' tab with a table definition for 'CulturalActivity ...'.

Name	Type	Description	Formula
CulturalActi... Id	Id	Cultural Activity Id	
• CulturalActi...	VarChar(60)	Cultural Activity Name	
• CulturalActi...	VarChar(1K)	Cultural Activity Descri...	
• CulturalActi...	CulturalActivitiesC...	Cultural Activities Cate...	
• CulturalActi...	Image	Cultural Activity Photo	
• CulturalActi...	Boolean	Cultural Activity Featured	
• CulturalActi...	GeoPoint	Cultural Activity Geo P...	
• CulturalActi...	Image	Cultural Activity Static ...	

GeneXus IDE

License Manager



Language/Modeling - For each

Foreach *BaseTransaction*

SKIP *expression* **COUNT** *expression*

order *att*₁, *att*₂, ... , *att*_{*n*} [when *condition*]

order *att*₁, *att*₂, ... , *att*_{*n*} [when *condition*]

unique *att*₁, *att*₂, ... , *att*_{*n*}

using *DataSelector*(*parm*₁, *parm*₂, ... , *parm*_{*n*})

where *condition* [when *condition*]

where *condition* [when *condition*]

where *att* IN *DataSelector*(*parm*₁, *parm*₂, ... , *parm*_{*n*})

blocking *N*

Main_code

When duplicate

When_duplicate_code

When none

When_none_code

Endfor

Paging

```
Event Grid1.Load()  
  for each Session  
    skip &pageSize*(&pageNumber-1) count &pageSize  
    order SessionName  
    &SessionName = SessionName  
    Load  
  endfor  
Endevent
```

New SKIP-COUNT clauses for Paging in a for each.

Modeling

Unique Grid Property

Layout Rules Events Conditions Variables Documentation

Application Bar

MainTable Grid1

GRID

CulturalActivityName

Control Name Grid1

Collection

Default Action <default>

Selection Type Platform Default

Enable Multiple Selection False

Pull To Refresh False

Inverse Loading False

Default Selected Item Layout (none)

> Control Info

> Appearance

> Data Selector

> Layout Behavior

> Cell Information

> Refresh timeout

> Data

Orders (0 orders)

Search (0 filters)

Conditions

Base Tm

Unique CulturalActivityName

Data types

- DateTime data type: soporte de milisegundos
- File data type: New GetURI method added (Storage Provider API)
- Video data type: Youtube videos supports start-time through "t" and "start" query strings

<https://youtu.be/frdj1zb9sMY?t=1m51s>

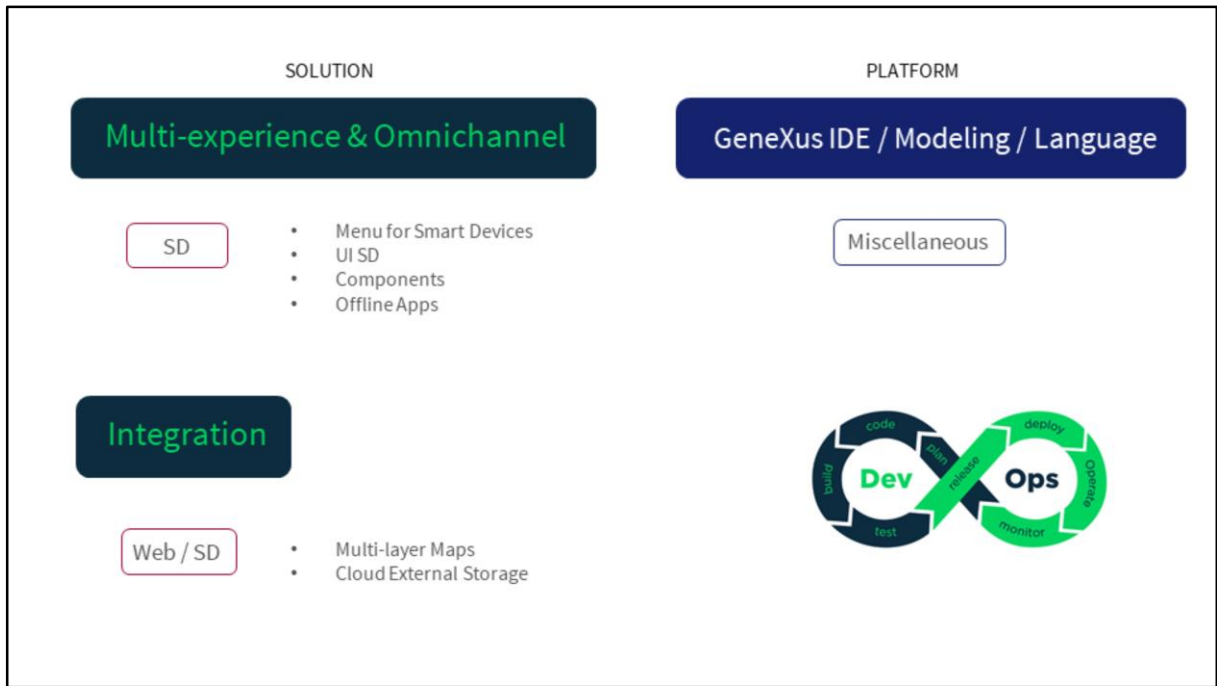
<https://www.youtube.com/embed/frdj1zb9sMY?start=111>

- Blobfile data type

File data type: New GetURI method added

(for cases when working with files returned by StorageProvider API methods (u9)), The consistency of GetPath, GetName and GetAbsolute methods have been improved (Results differ respect to previous versions when working with files returned by Storage Provider API methods) (u9)

<https://wiki.genexus.com/commwiki/servlet/wiki?40420,BlobFile%20data%20type>



In this section we saw all this. Let's see some more aspects of integration.

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