







From Flash to iPhone

How to effectively convert and recyle Flash content to native iPhone applications taking advantage of all device features and without leaving coolness behind



About me

- ★ Emanuele Cipolloni, CTO of Barefoot Software Inc.
- ★ Specialized in User Interface technologies

Background:

- 10 Years in Embedded Devices UI Engines development
- 7 Years in the Mobile world



What you're going to see today

Meet the new iPhone 3G



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Twice as fast.



Half the price.



No Flash



Why Flash developers should be interest at all?



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You know already many of the concepts
behind the iPhone UI & SDK
(hint: ⌘-Enter)



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You can re-use the vast majority of graphics



Why Flash developers should be interest at all?

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(hint: ⌘-Enter)

You can re-use the vast majority of graphics
but more important.....



The secret (!!!) sauce of the iPhone



The secret (?!?!) sauce of the iPhone

Before the introduction of the iPhone platform, writing a successful application was only the first of many challenges: making users aware of its existence, promoting it, selling it and making sure the users are downloading the right version for the right handset model all make for a difficult 'to-market' process.



Apple not only created one of the most compelling, complete and stable development environments for any portable device currently in the market, they also created an entire eco-system that will ensure users can buy, install, update and use applications with the same ease already enjoyed by iPod users through **iTunes**.



Is there really a market for native applications?



Is there really a market for native applications?

iPhone users produce an ARPU* 70% higher** and use 80% more of the features provided by the platform.

iPhone users already install more applications compared to ANY other mobile platform.

*Average Revenue Per User

**compared to non-Smartphone users

research based on data released by AT&T in the US



How to be part of the club



How to be part of the club

- Mac (any Intel based model)
- XCode and iPhone SDK (free from Apple)
- iPhone or iPod Touch (optional)
- Certificate (to release)



Let's start



Let's start

UI Models



UI Models

Flash

- ★ D-I-Y
- ★ Complete set UI components
- ★ Easily skinnable (themes)
- ★ Not suitable for Touch screen operations
- ★ One input at a time

UI Models

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iPhone

- ★ Pre made
- ★ Advanced UI components
- ★ Not so easily skinnable
- ★ Designed for Touch screen operations
- ★ Supportd multi touch



Let's start



Let's start

Display rendering models



Let's start

Display rendering models

Flash

- ★ Display List Based
- ★ Controlled by Flash Player
- ★ Vector rasterization oriented



Let's start

Display rendering models

Flash

- ★ Display List Based
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iPhone

- ★ Hybrid
- ★ Controlled by application
- ★ Bitmap rendering oriented



What you are going to miss



What you are going to miss

- No time line



What you are going to miss

- No time line
- No video (unless full screen)



What you are going to miss

- No time line
- No video (unless full screen)
- No support for compressed sounds



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- Fast vectors (well, not in FlashLite.....)



What you are going to miss

- No time line
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- No support for compressed sounds
- Fast vectors (well, not in FlashLite.....)
- No custom fonts



The MVC Model



The MVC Model

★ M = Model (holds data data structures of application)



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- ★ V = View (the UI of the application)



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The MVC Model

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There are a growing number of framework for Flash that support the MVC model

iPhone SDK is built with the MVC from the ground up



The V in MVC



The V in MVC

The fundamental class for UI display and handling is the UIView



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Think of UIView as the MovieClip class in ActionScript



The V in MVC

The fundamental class for UI display and handling is the UIView

Think of UIView as the MovieClip class in ActionScript

UIView == MovieClip



No more slides (for a while....)



No more slides (for a while....)

Code Time



What's new at Barefoot?



What's new at Barefoot?

Imagine a new technology that enables millions* of Flash developers to turn their Flash content and applications into “first class citizen” applications and effortlessly deliver them to the iPhone/iPod Touch while respecting all requirements from Apple?

*2.3 millions according to Adobe figures



What's new at Barefoot?

Imagine a new technology that enables millions* of Flash developers to turn their Flash content and applications into “first class citizen” applications and effortlessly deliver them to the iPhone/iPod Touch while respecting all requirements from Apple?

Welcome to the world of

b.Tween

*2.3 millions according to Adobe figures



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What b.Tween™ does



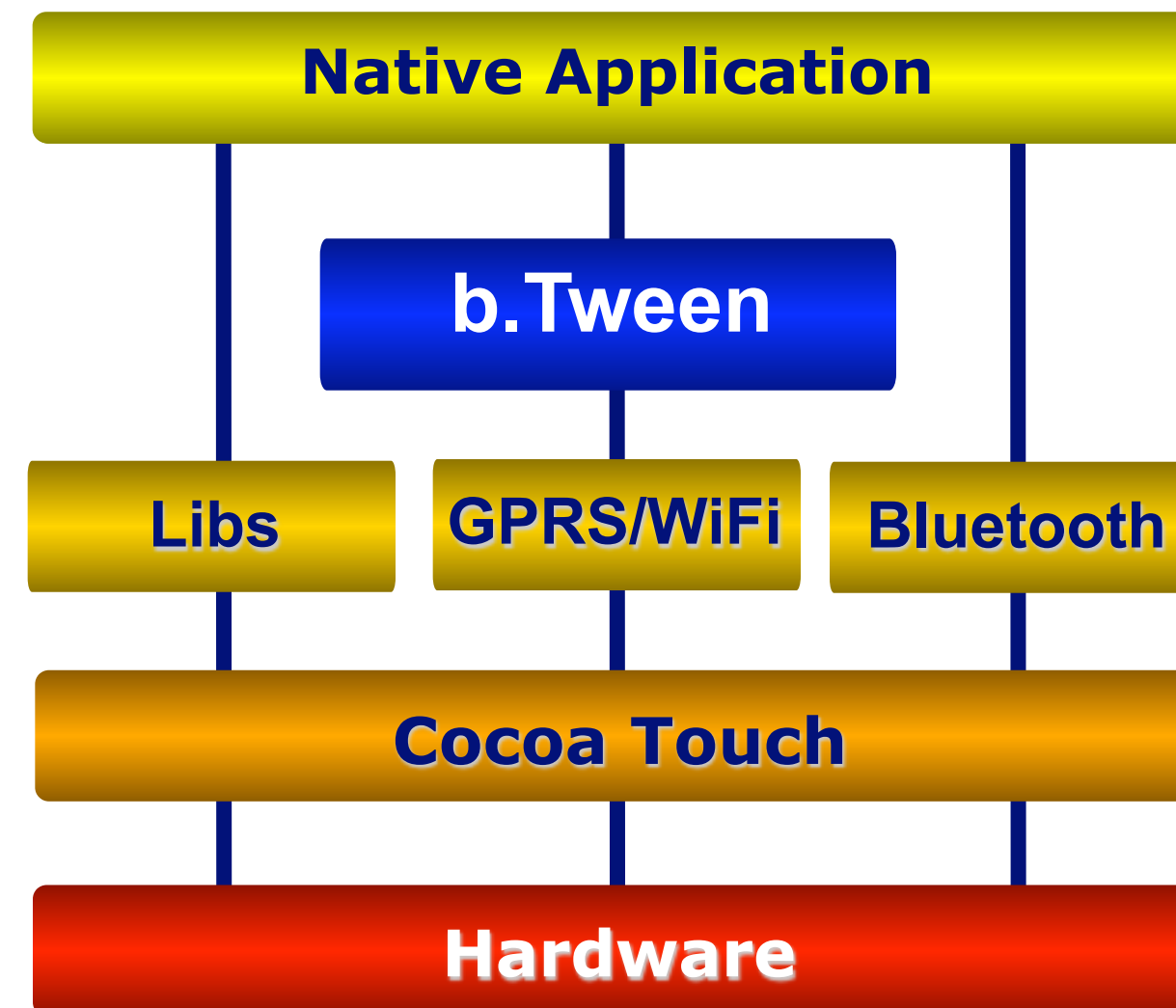
What b.Tween™ does

Flash applications are “imprisoned” within the player



What b.Tween™ does

With b.Tween™

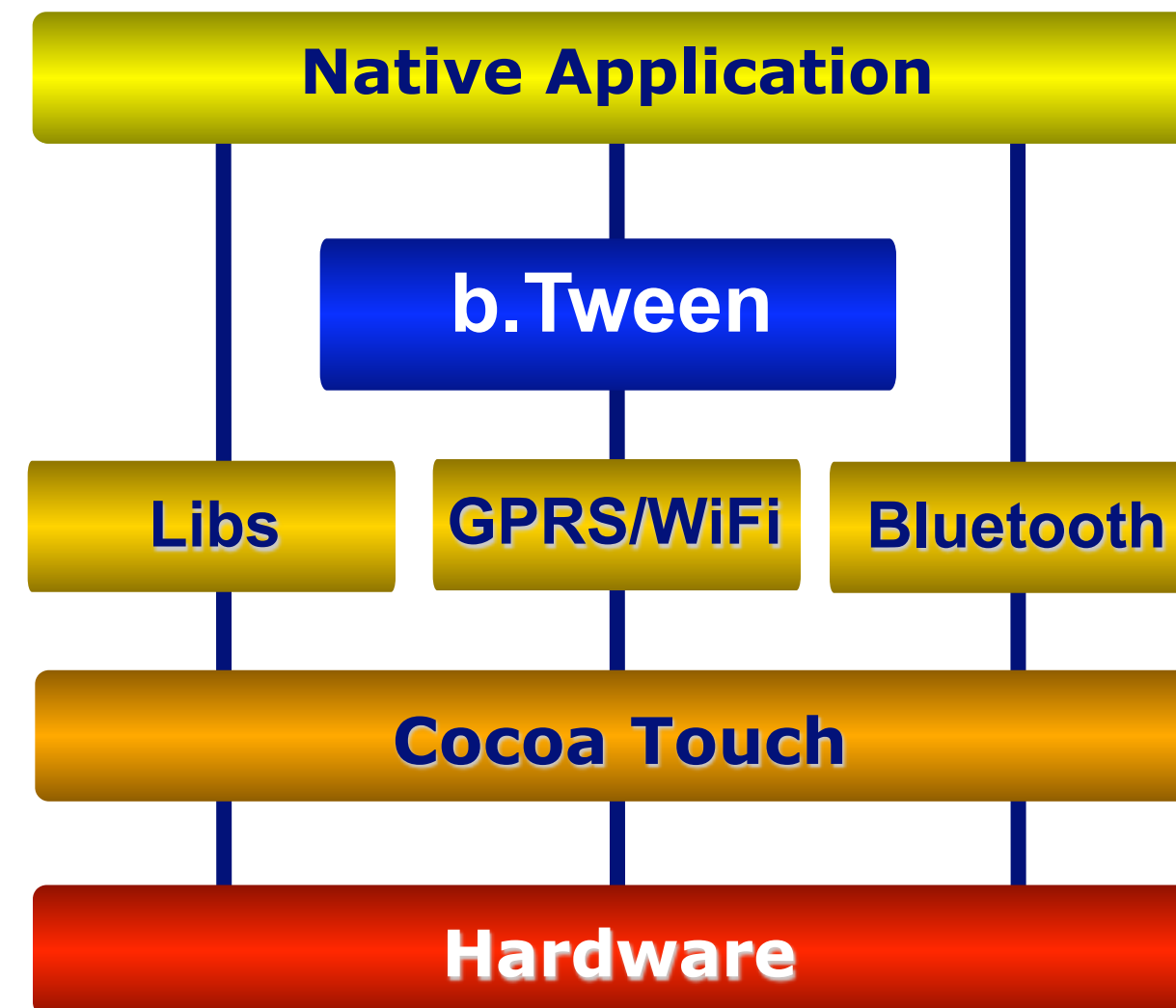


Application is free again



What b.Tween™ does

With b.Tween™

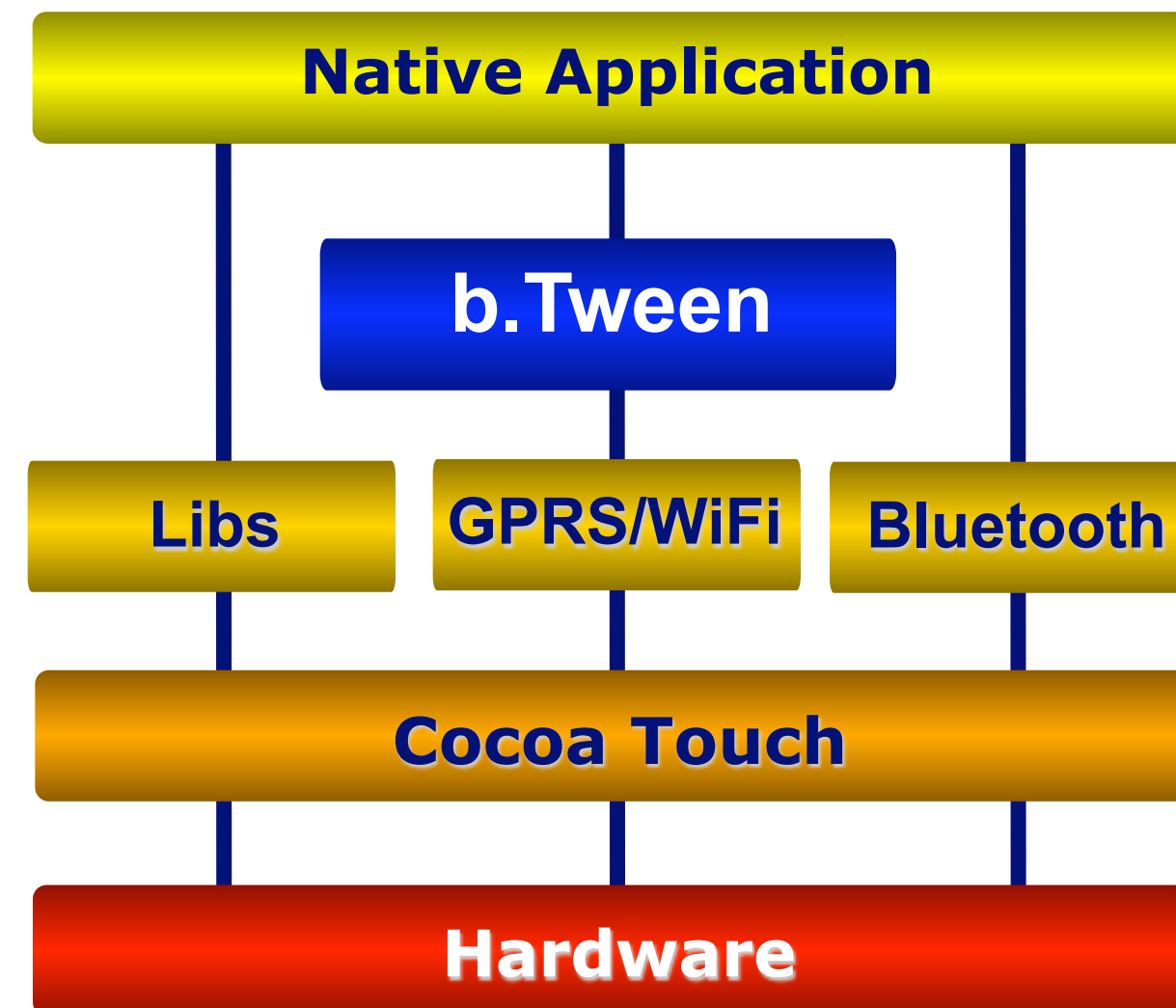


Can access all the features of the hosting platform



What b.Tween™ does

With b.Tween™



b.Tween™ is a platform enabler not an obstacle



Benefits from using b.Tween™



Benefits from using b.Tween™

User Benefits

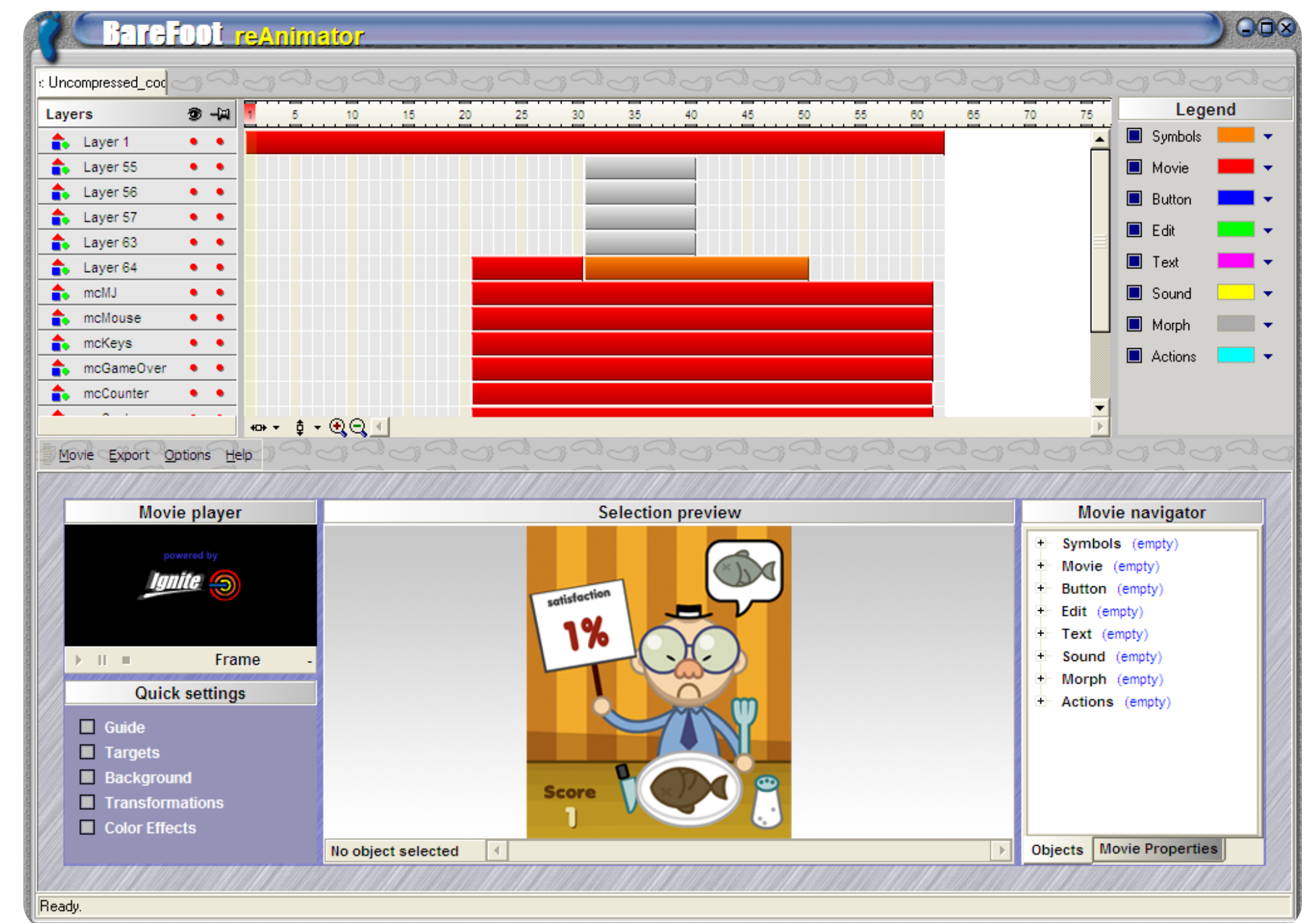
- Legal applications easily accessible from within AppStore library
- Runs native on iPhone/iPod Touch – no plug-in, hack or work around
- Downloads and installs like any another AppStore product
- Access to a huge library of existing Flash applications ported to iPhone/iPod Touch

Developer Benefits

- Re-use of existing Flash portfolio
- Rapid porting process
- Easy access to clients through one of the largest mobile portals – iTunes
- Speed to market – no long development times
- Legally deploy same application on iPhone/iPod Touch

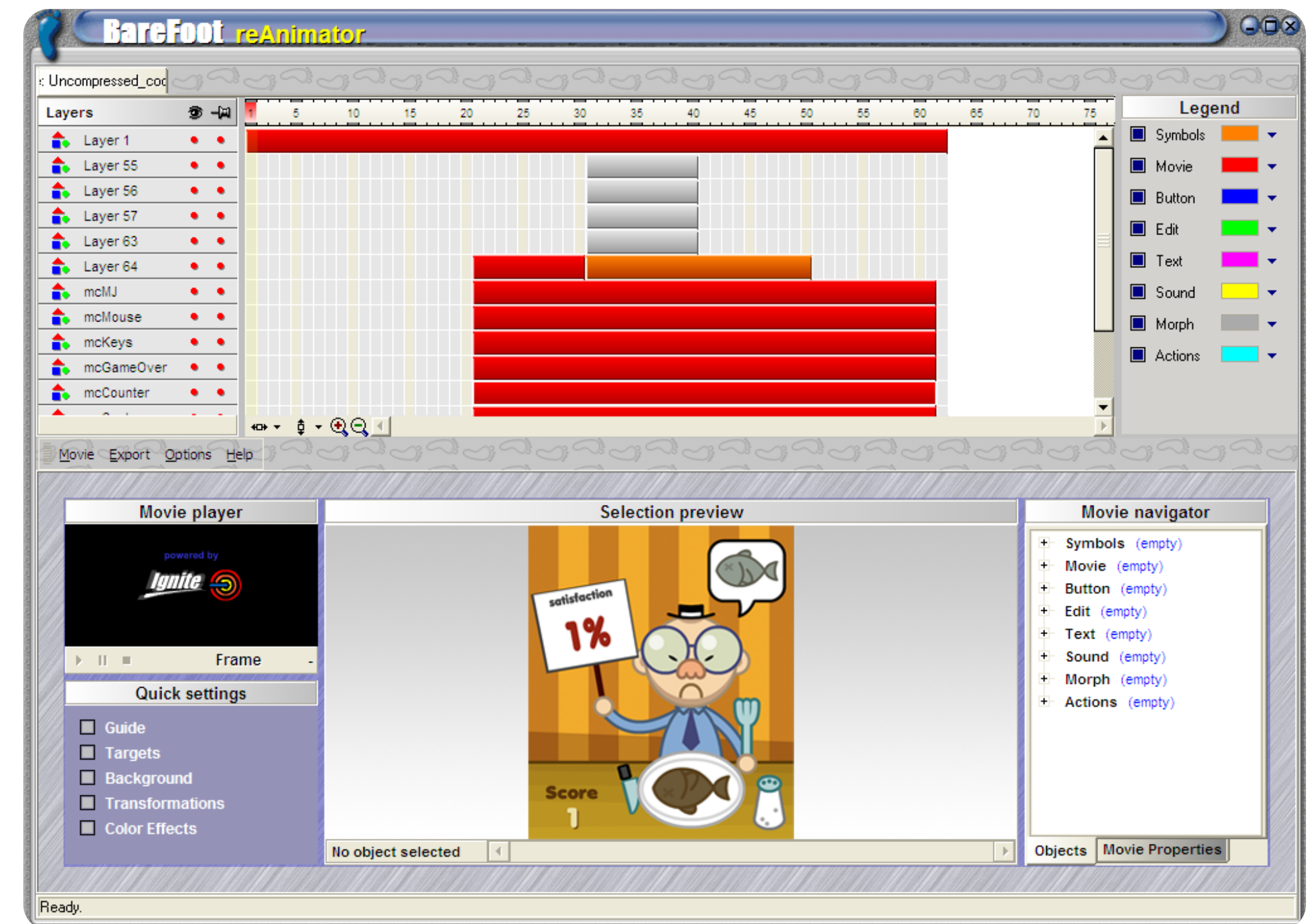


How it happens - Conversion from Flash



How it happens - Conversion from Flash

1. Movie is dissected by reAnimator
2. Resources are converted & exported
3. ActionScript is converted to C++ (semi...)
4. Framed animations are exported



How it happens - Direct API access



How it happens - Direct API access

One function says (and makes) it all:

```
U32 eyeGTCanvas = egtCreateCanvas();
```

- C context based API
- No use of pointers/classes
- No memory leakages possible
- API design maps 1:1 to Flash rendering capabilities



Basics of b.Tween™

b.Tween uses a dictionary based system



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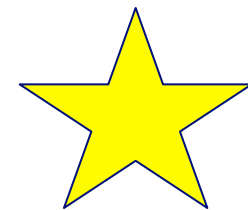
Particle Dictionary



Basics of b.Tween™

b.Tween uses a dictionary based system

Particle Dictionary



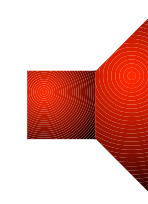
abcd

Sound ID 1

Shape ID 2

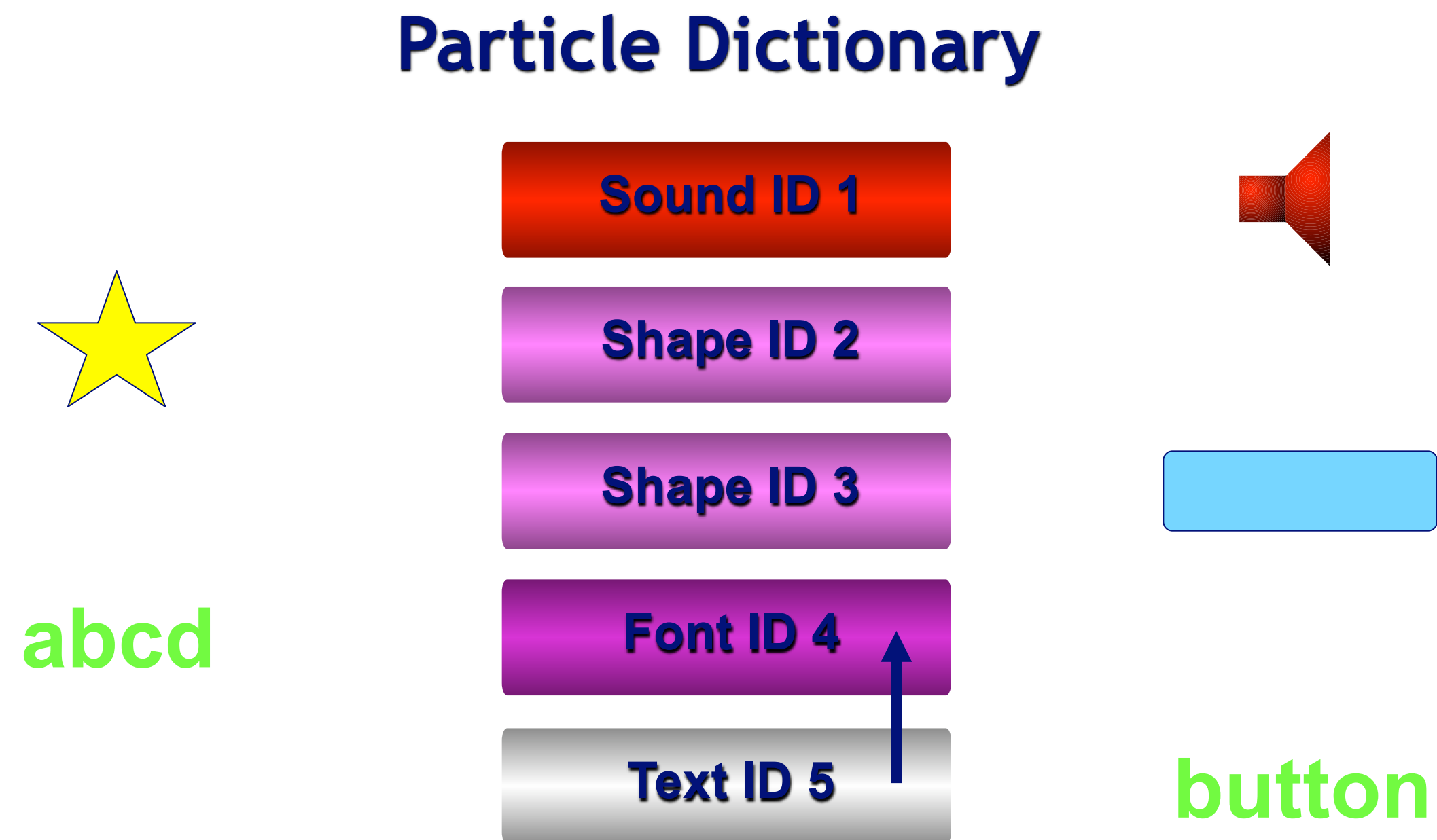
Shape ID 3

Font ID 4



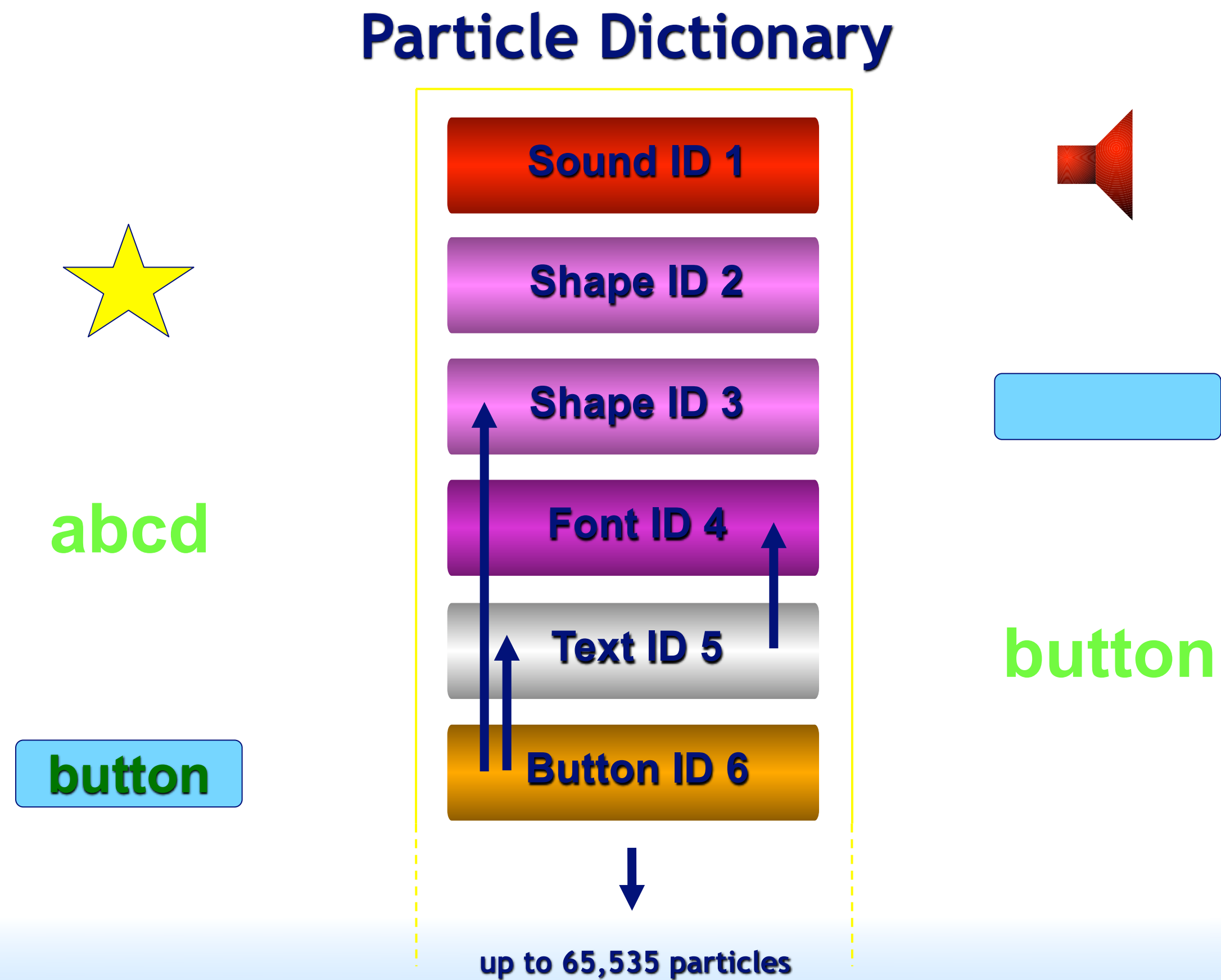
Basics of b.Tween™

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Basics of b.Tween™

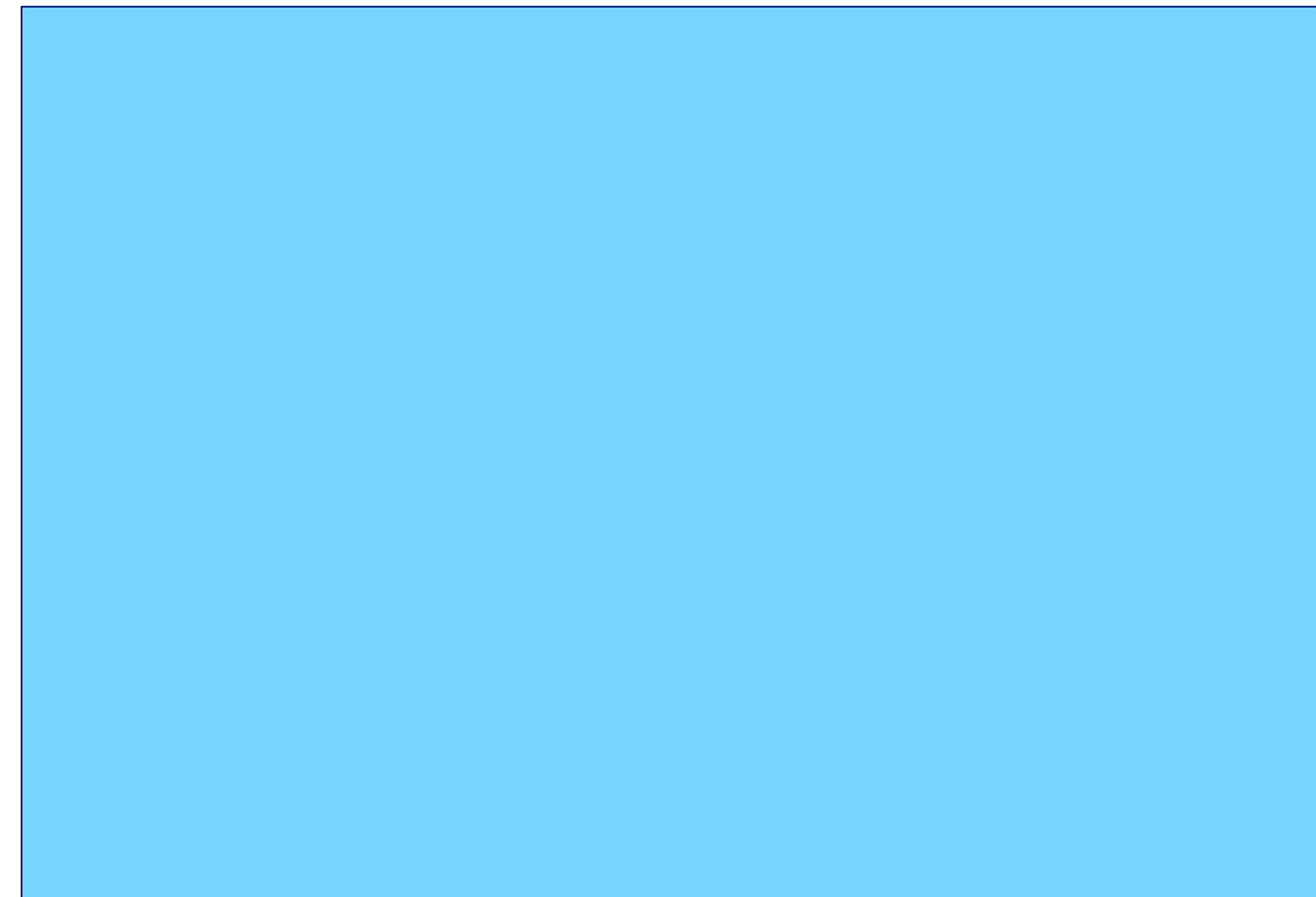


Basics of b.Tween™

Display List



Screen



Basics of b.Tween™

egtProcessDisplayList

Display List



Place Particle

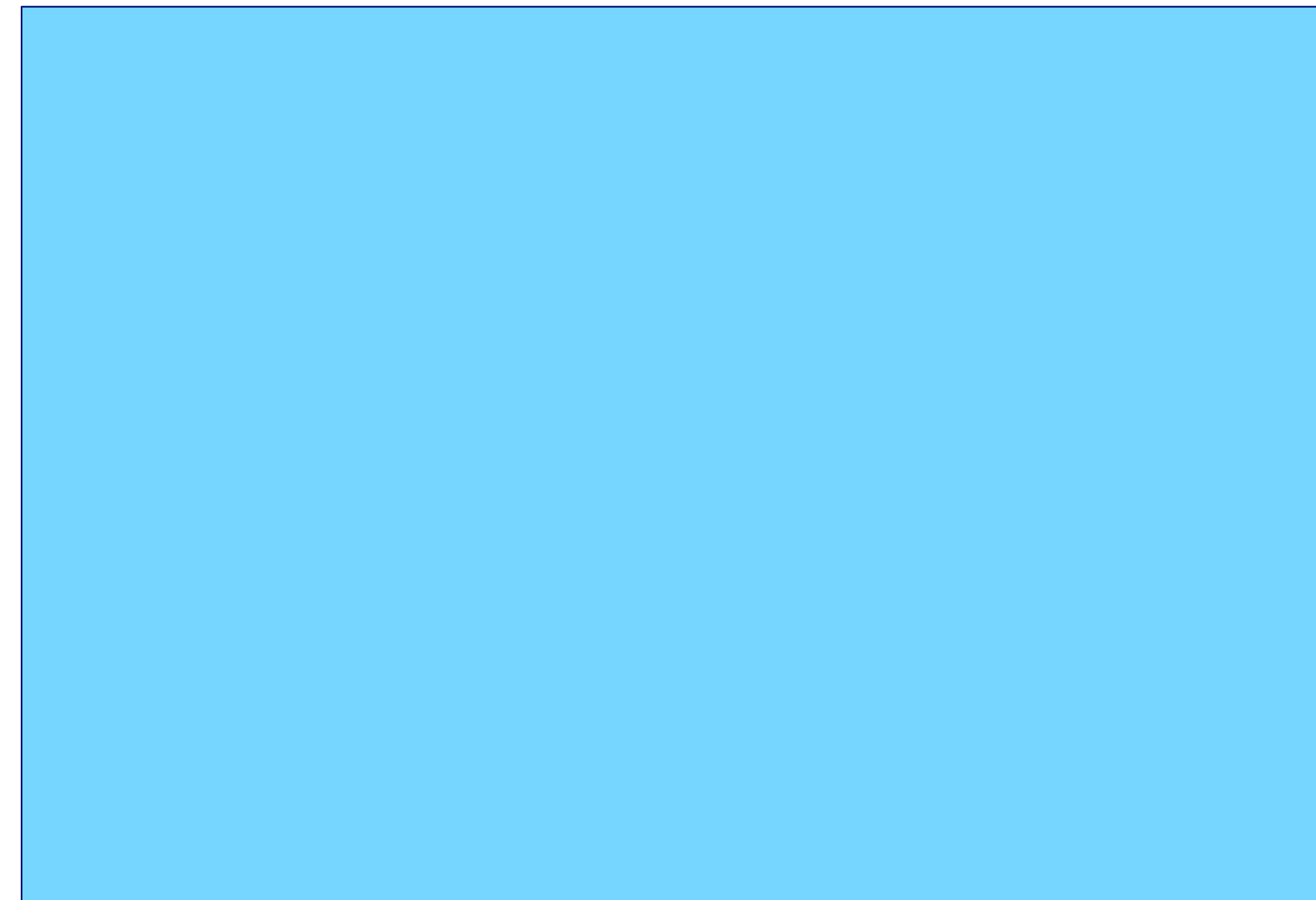
Rotate

Alpha

Scale

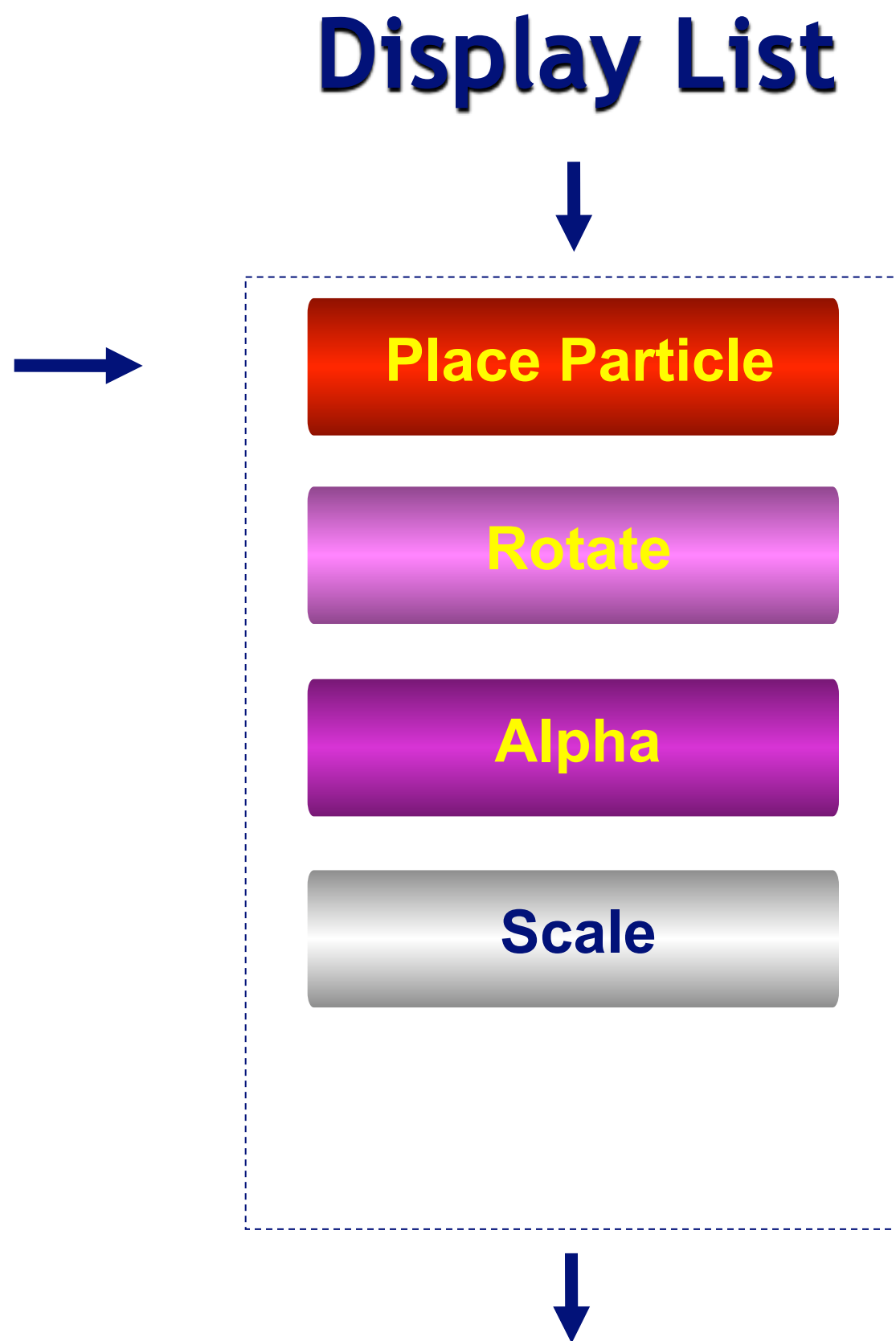


Screen

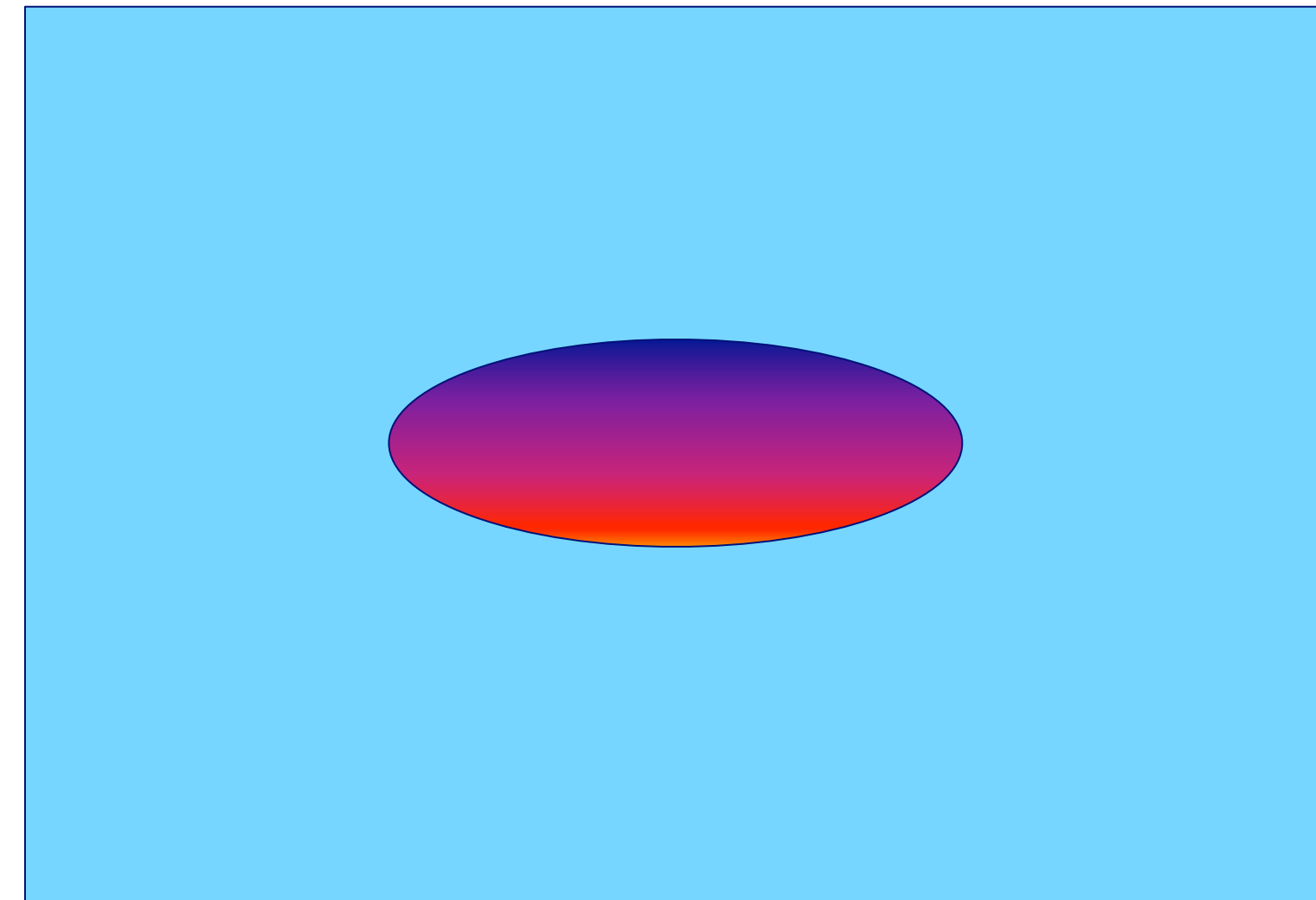


Basics of b.Tween™

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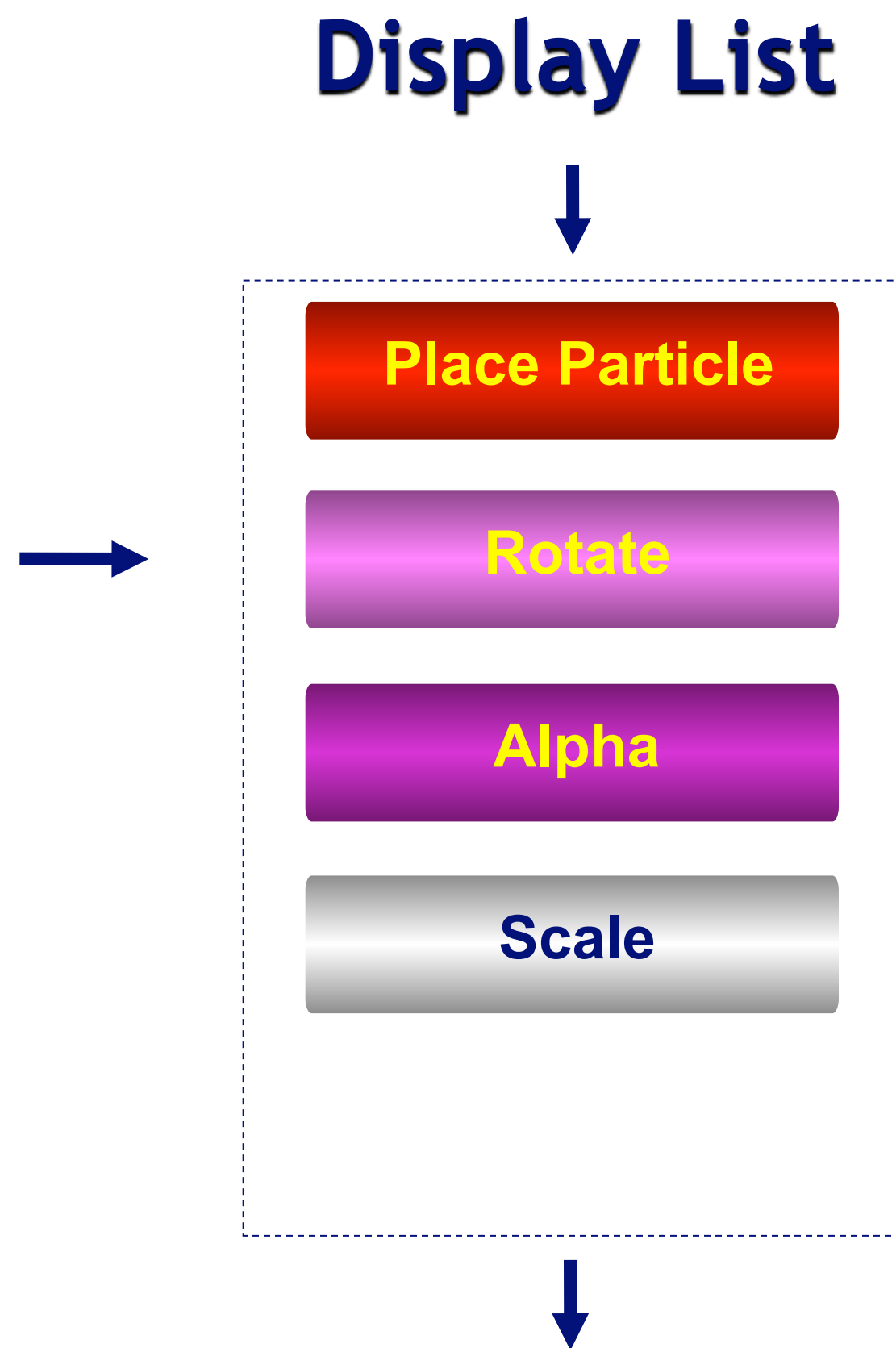


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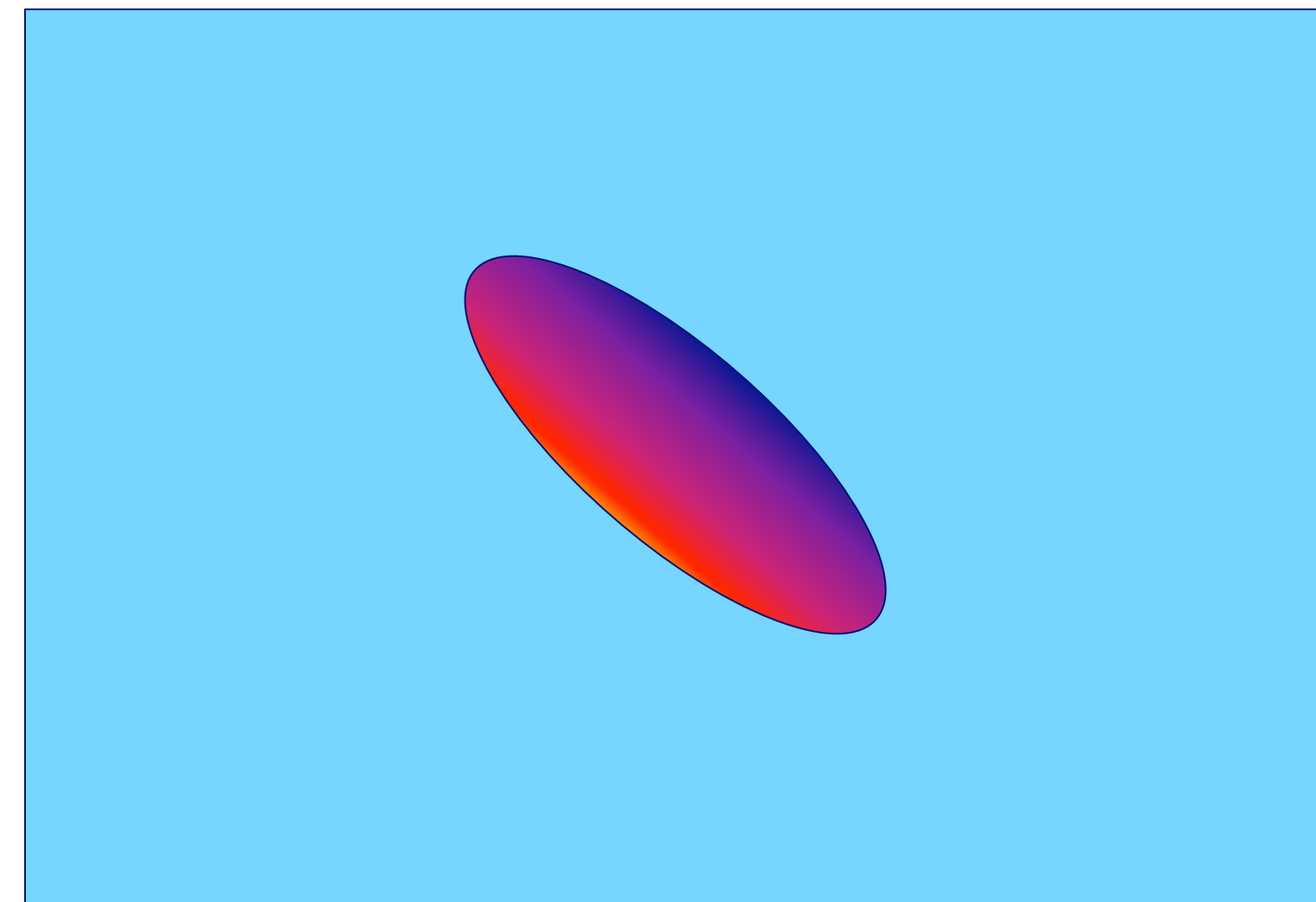


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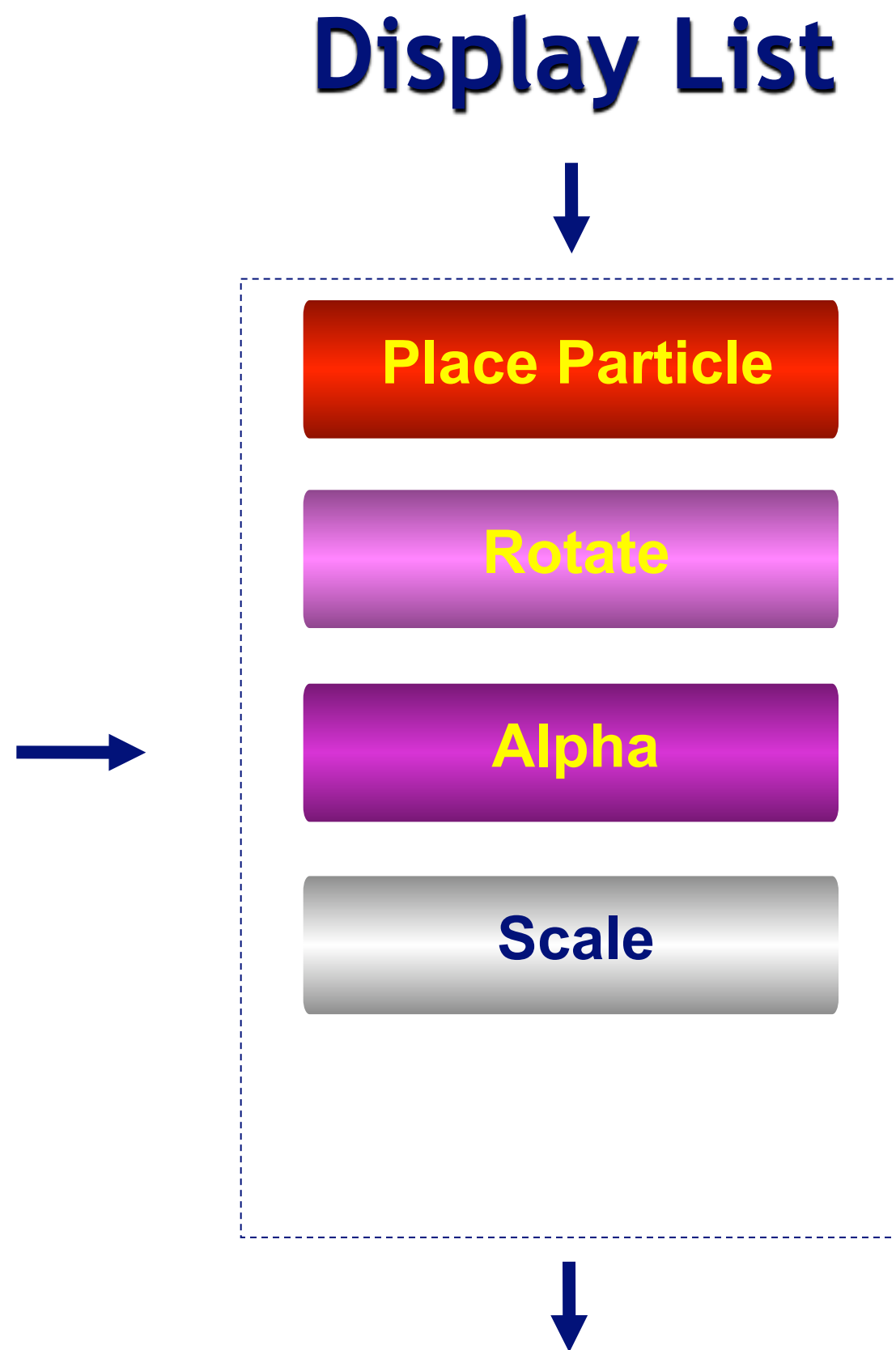


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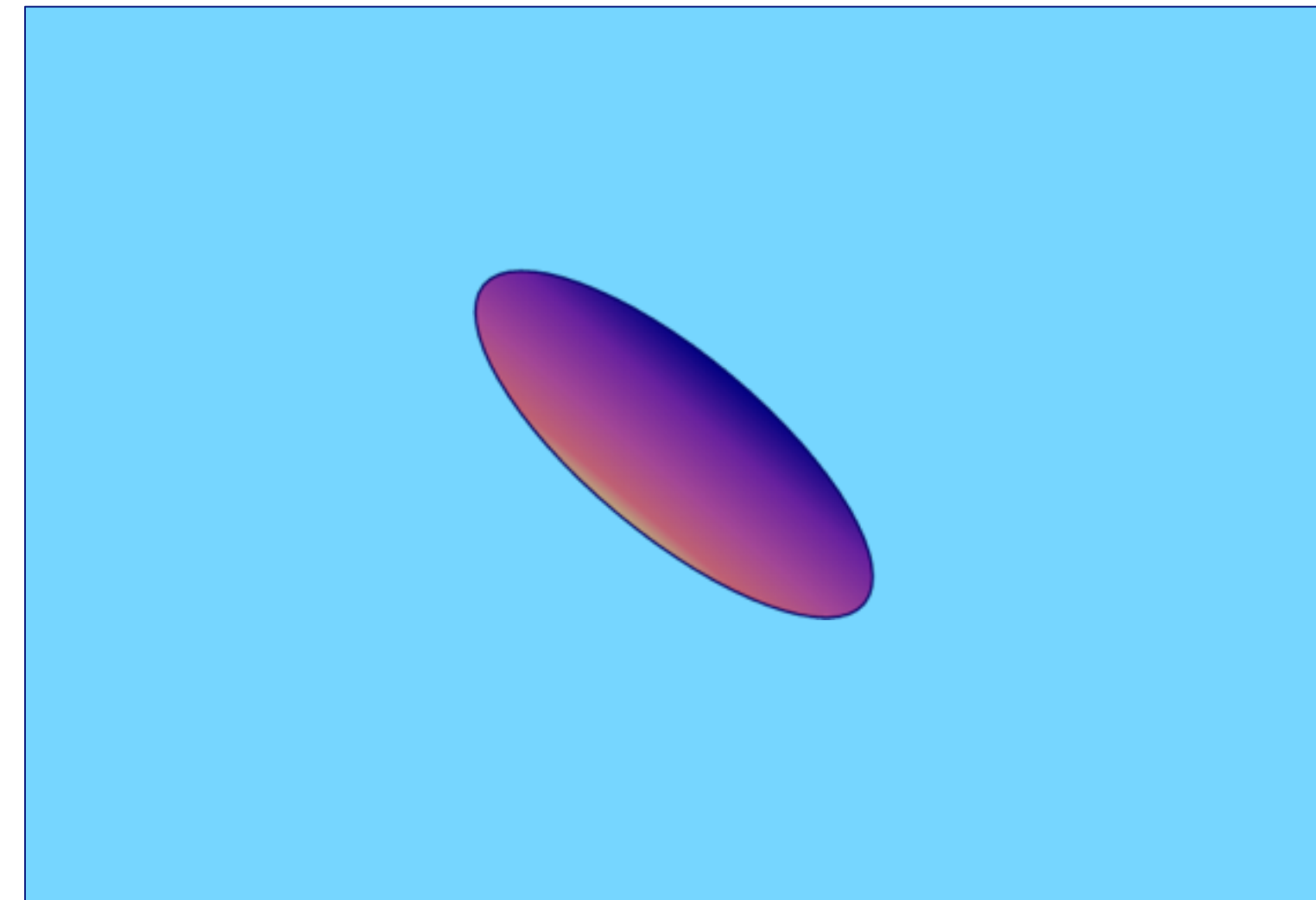


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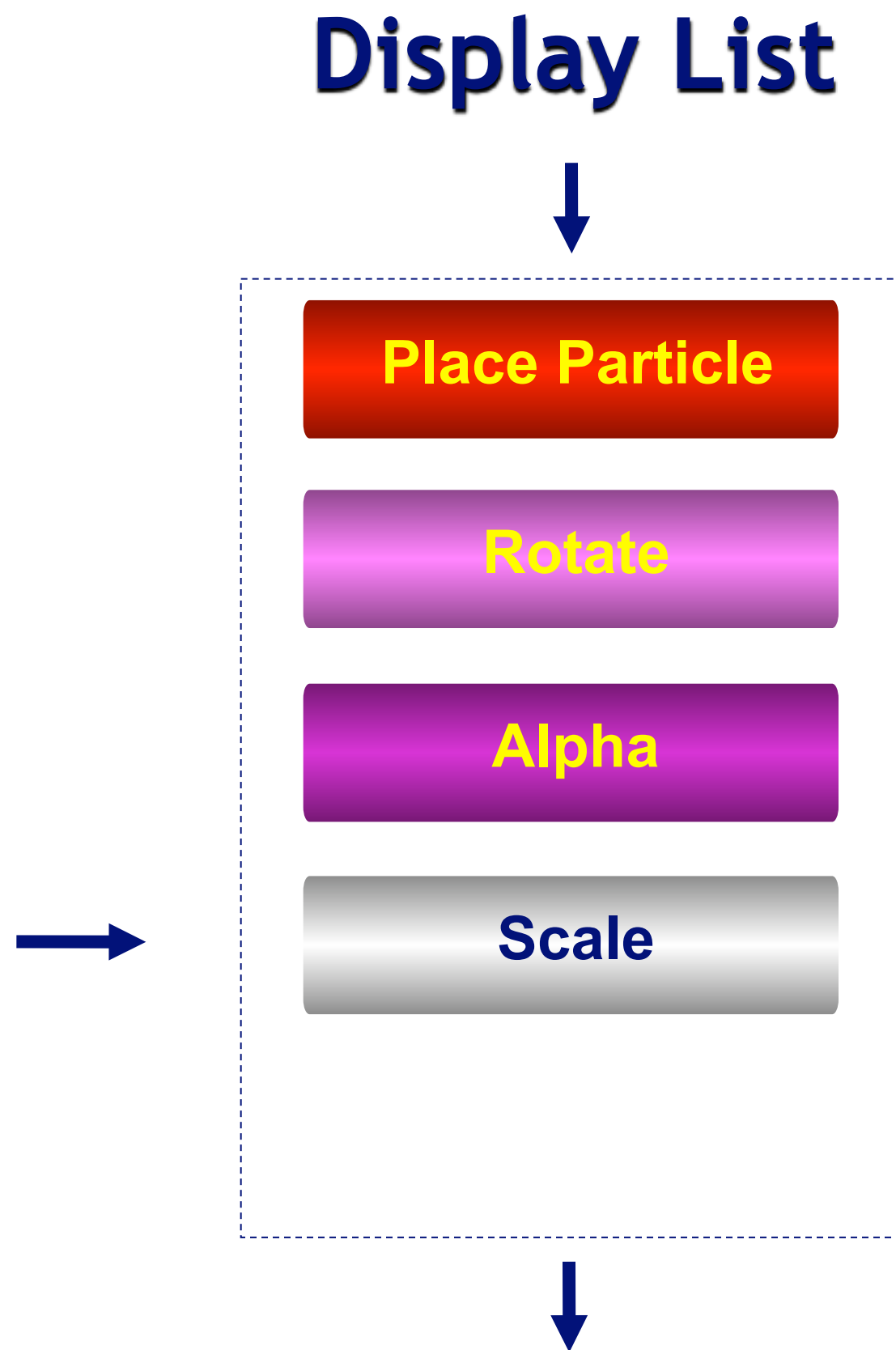


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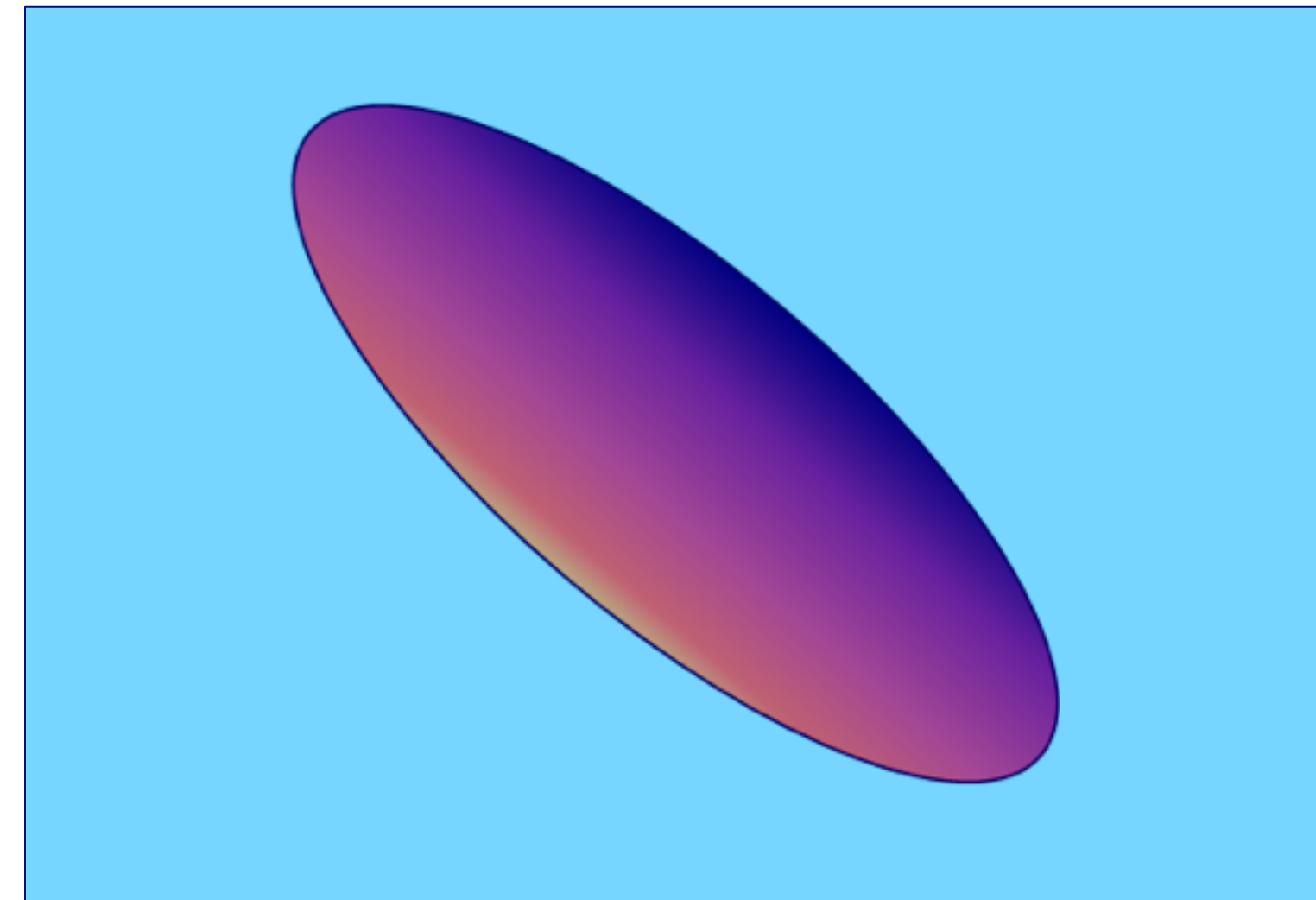


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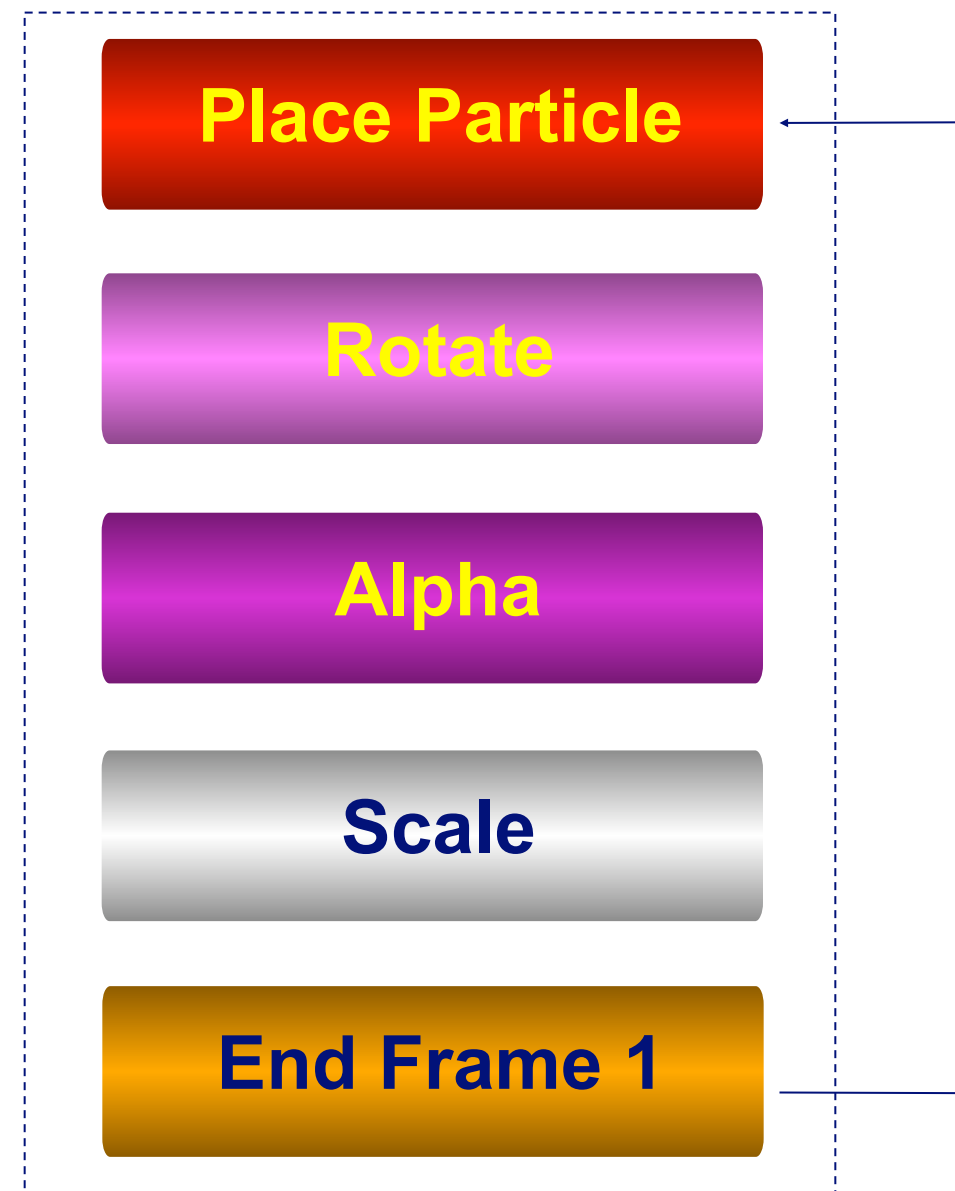
Screen



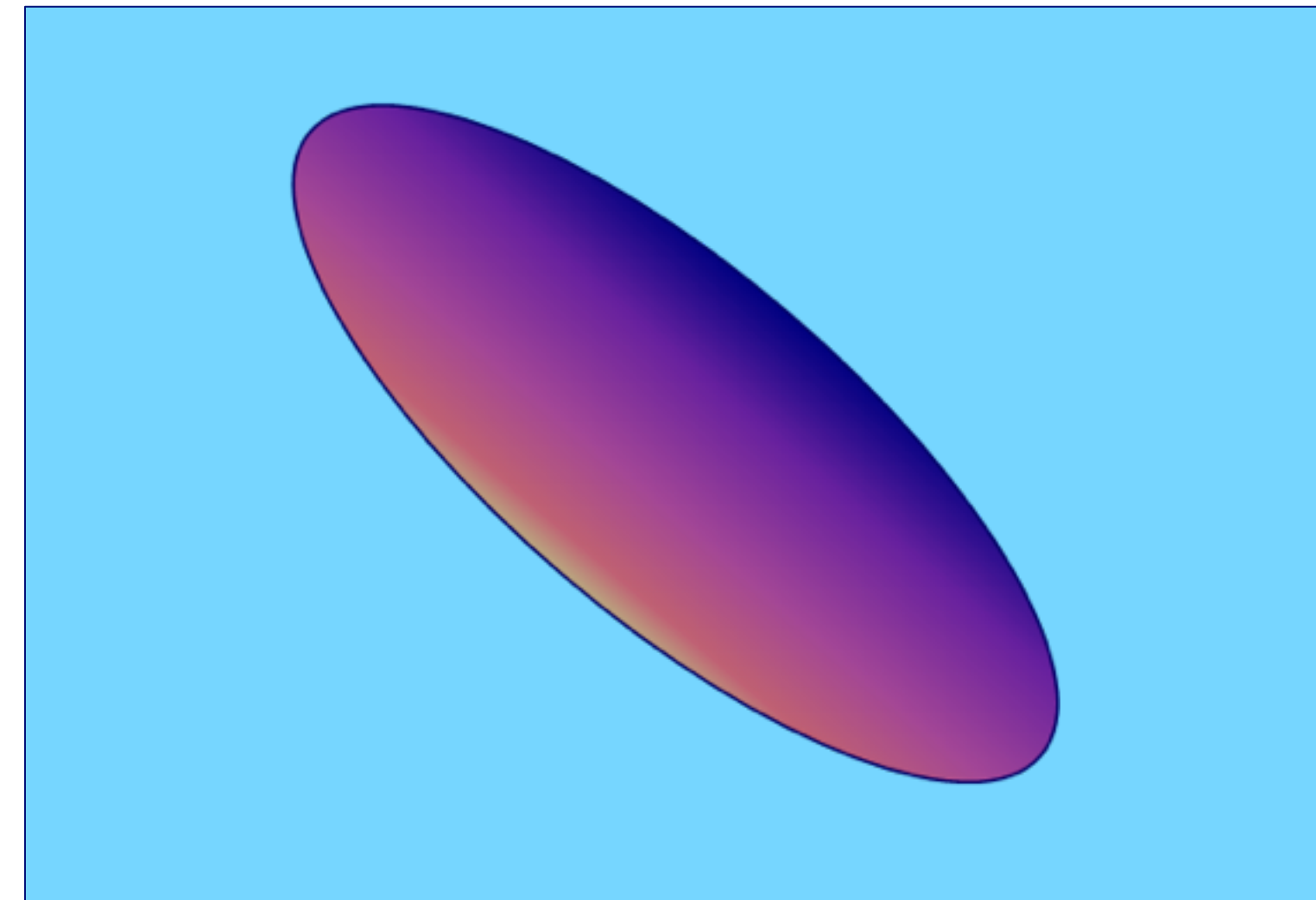
Basics of b.Tween™

egtProcessDisplayList

Display List



Screen



Basics of b.Tween™

Portability features

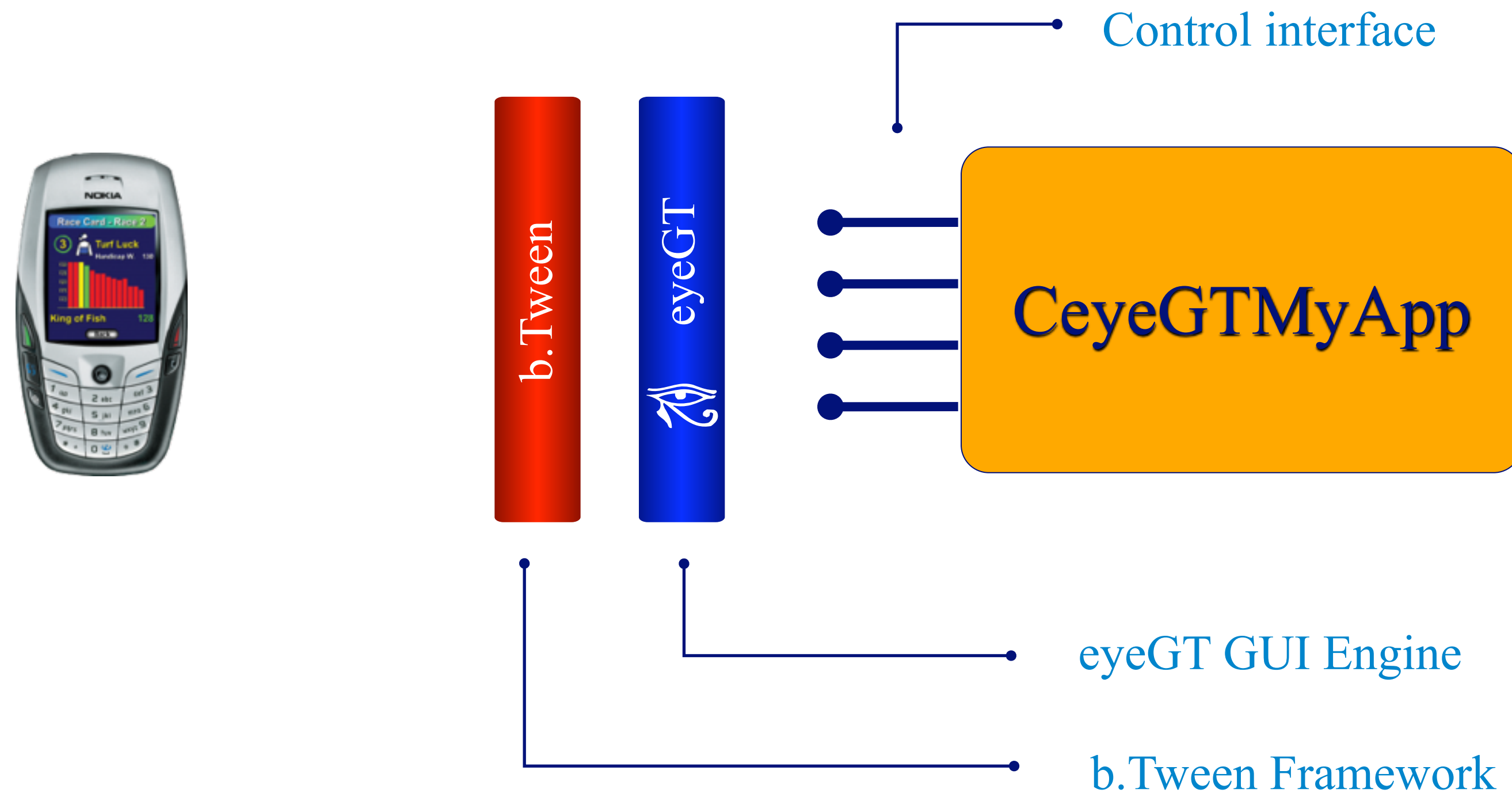
One single class contains the whole application



Basics of b.Tween™

Portability features

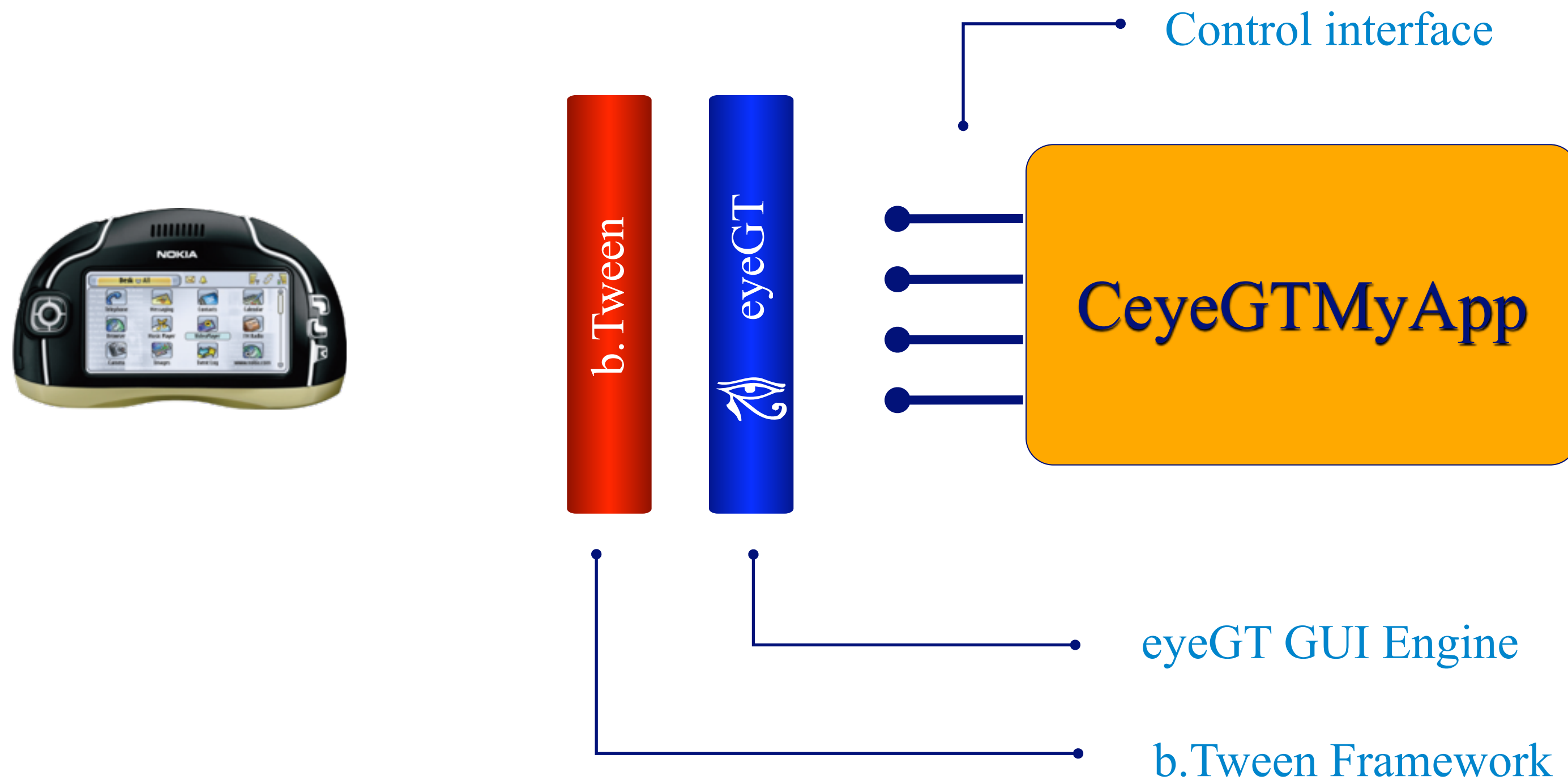
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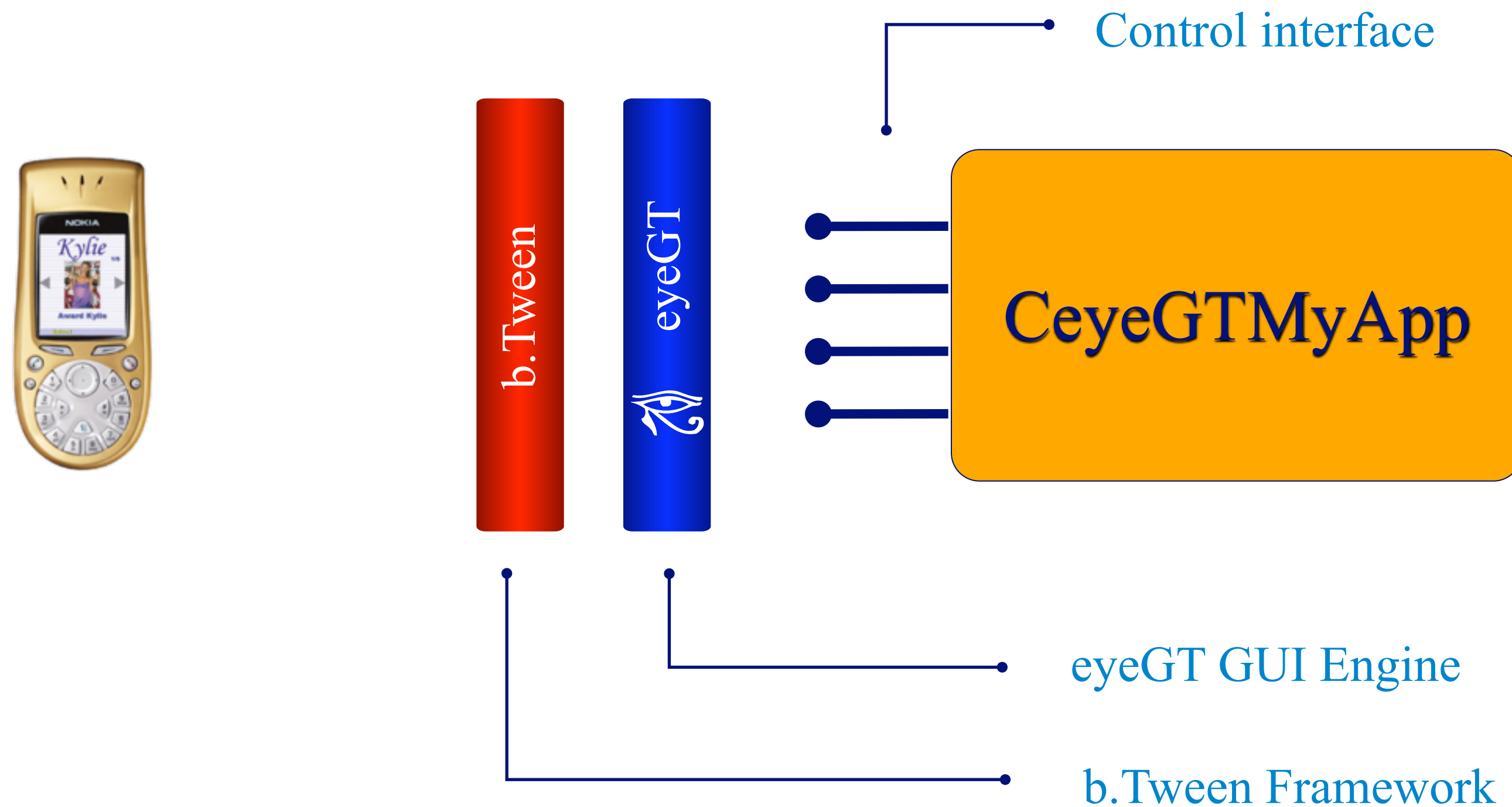
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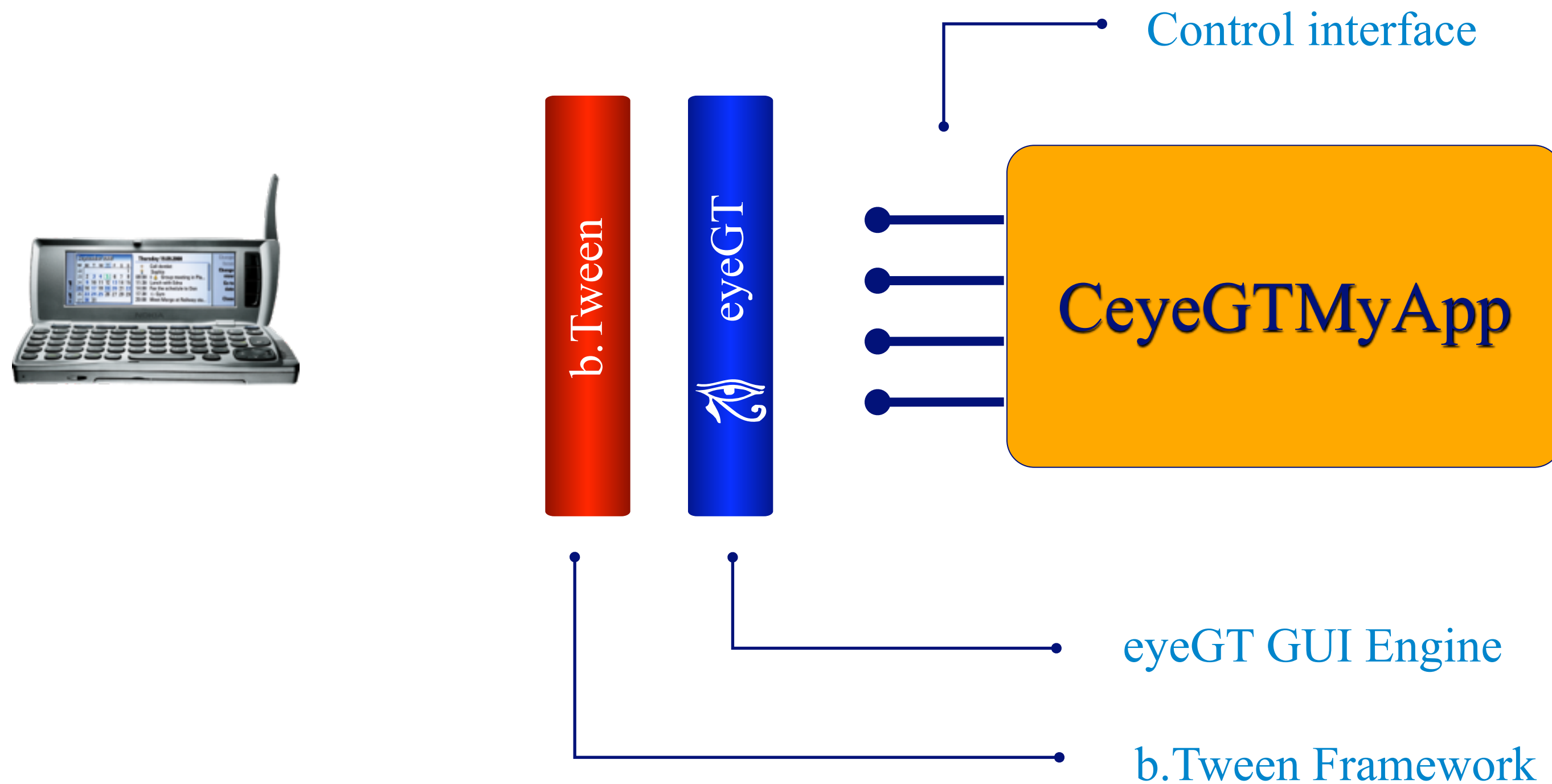
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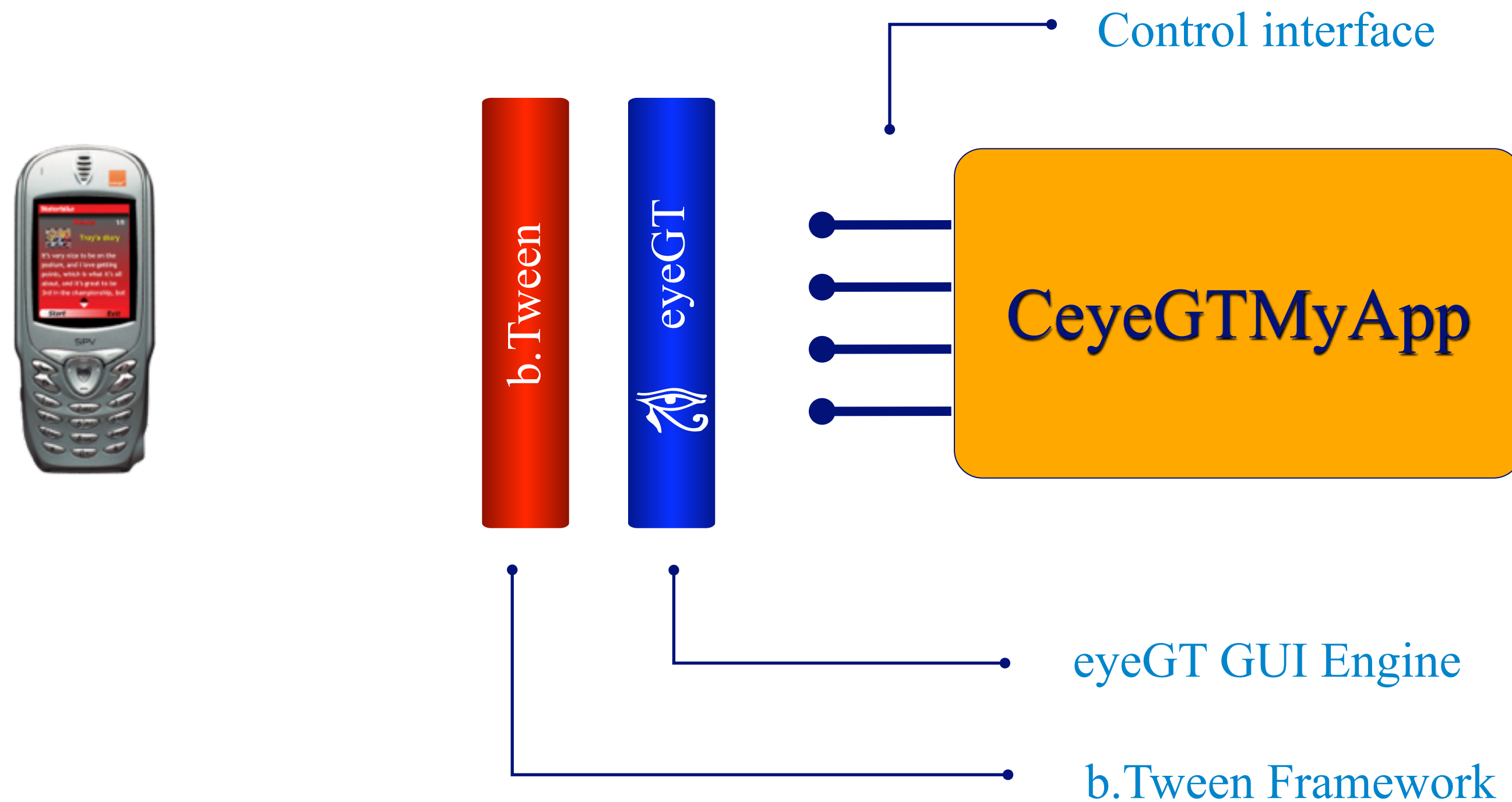
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Basics of b.Tween™

Portability features

One single class contains the whole application



First porting 21 July 2008

Original

Ported



First porting 21 July 2008

World renowned Boulevart™ produced a guide in FlashLite for the Multi-Mania 2008 event. The guide was ported to the iPhone/iPod Touch in less than two days using b.Tween and was enhanced using additional vector graphics and iPhone specific features such as multi-touch and gestures.

Original

Ported



Some more....



Some more....

Code Time



Some more....

Code Time

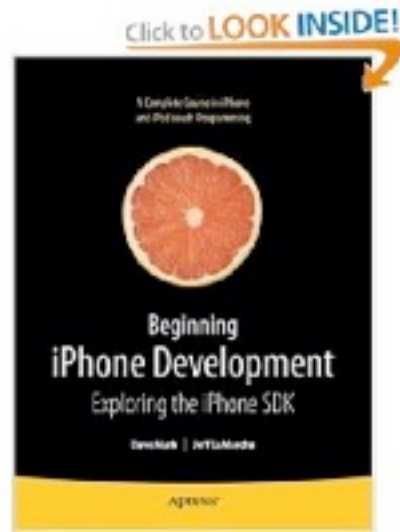
(some example have been stolen with permission from Keith Peters' blog at <http://www.bit-101.com>)



From here: some books that really help

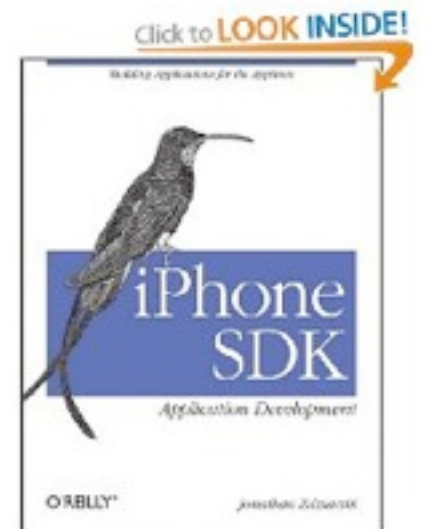


From here: some books that really help



Beginning iPhone Development: Exploring the iPhone SDK

iPhone SDK Application Development: Building Applications for the AppStore



The iPhone Developer's Cookbook: Building Applications with the iPhone SDK



From here: more Flashers at 360iDev

- Keith Peters - “Making Things Move on the iPhone”
- James Eberhardt – “Learning the iPhone SDK from a Flash Developer’s Perspective”
- Scott Janousek – Wicked Cool Things with the Accelerometer



From here: downloads

This presentation and examples code

<http://www.barefootmobile.com/LelesFtp/360iDev/>

Follow my blog for more Flash to iPhone

<http://www.barefootmobile.com/blogs/blinky/>





Thank you!



