

Deep Dive – FireMonkey

Today Embarcadero
reinvents application
development!

Introducing... FireMonkey!

PULSAR 2011



LOADING..

../Program Files/Pulsar/Xfile.dhx

FireMonkey is...

App Development Platform

C++Builder

Delphi



Windows

Mac OS

iOS



Microsoft®
Silverlight™

Managed

RIA



FireMonkey is not ...






HTML5/CSS3



Game Engine



VCL and FireMonkey

	Win	Mac	iOS
VCL			
FM			

FireMonkey Overview



- Cross-platform
- Modern themed/skinned UIs
- Real-time image and animation effects
- Direct2D, D3D, Quartz and OpenGL
- Native Delphi and C++
- 100% Object Pascal Framework

FireMonkey technology



- Mac
 - HD use Quartz
 - 3D rendering on Mac is OpenGL
- Windows
 - Direct2D for HD
 - Direct3D for 3D
 - FireMonkey use GDI+ for HD vector forms/controls, when Direct2D is not available

“FireMonkey” Architecture

- TFmxObject = class(TComponent)
 - Create, destroy and release object
 - Cloning, storing and loading object from a stream
 - Child object manipulations (add, remove, search)
 - Free notifications
 - Abstraction layer for tab order
 - Support for FireMonkey resources
 - Support for FireMonkey animations
- IControl
 - Handles Focus, Mouse and Keyboard events
 - Implemented by Tcontrol and TControl3D

“FireMonkey” Architecture

- IRoot
 - Interface for top-level containers
 - Handles Focused, Captured, Active controls
 - Implemented by TCustomForm
- IScene
 - Container interface for 2D objects
 - Implemented by TForm, TCustomLayer3D
- IViewport3D
 - Container interface for 3D objects
 - Implemented by TForm3D, TViewport3D

“FireMonkey” – HD, 3D, and GPU

- FireMonkey takes advantage of GPU whenever possible
- HD Form can be rendered on a computer without a GPU with a few restrictions:
 - No TViewport3D, No Shader based Filters
- A 3D Form requires a GPU - performs sophisticated transitions and manipulations of the user interface...

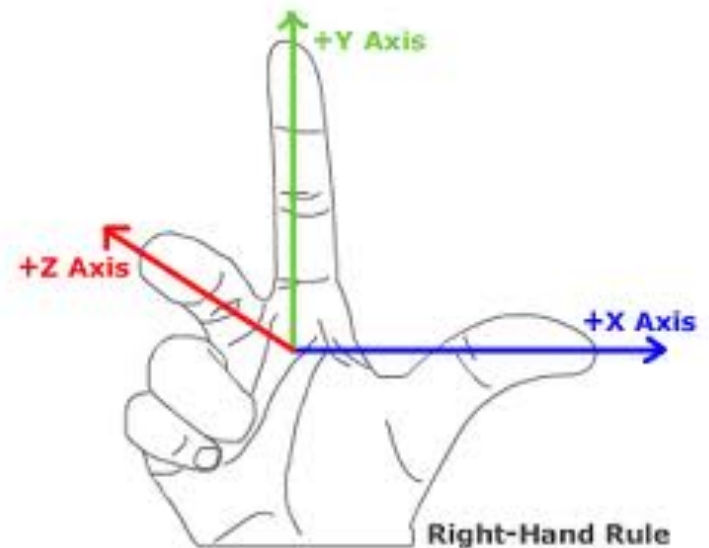
... in other words, a 3D form may be the best choice for building a sophisticated HD user interface

“FireMonkey” Architecture

- FireMonkey Stylebook
 - Any object inherited from TBaseObject
 - Set StyleName to identify
 - Found using FindStyleResource method from parented object
 - Stored In / Loaded From a stream file
- FireMonkey Styles
 - A collection of FireMonkey resource style
 - WPF type of implementation
 - Styles can be inherited, saved, loaded
 - Look and Feel style files for Win7, MacOS, iOS and custom themes

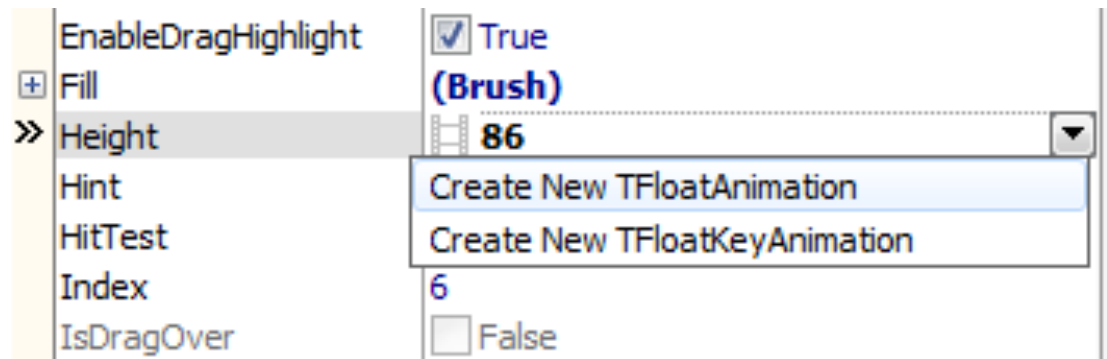
3D Programming

- One object model to target multiple platforms
- FM uses right-handed orientation in 3D
- Hardware acceleration
 - Windows – DirectX
 - MacOS – OpenGL
 - iOS – OpenGL ES



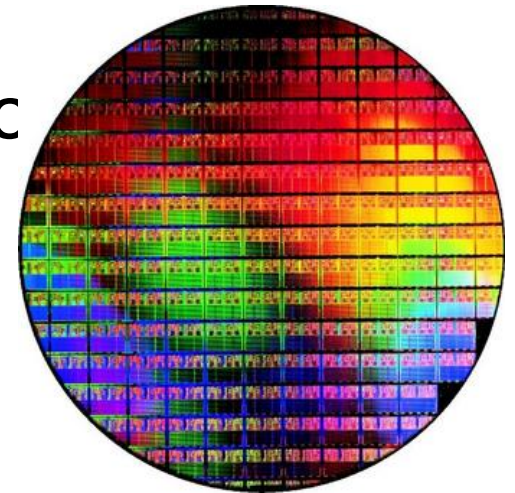
“FireMonkey” – Animation

- Used to modify property values over time
- Machine speed independent
- Can be looped and / or reversed
- Can follow a variety of time / value curves
- Can be triggered by MouseOver, Focus, Visibility, etc.



“FireMonkey” – Effects / Filters

- Can be applied to bitmaps
- Can be applied to controls
- Can be triggered by MouseOver, Focus, Visibility, etc.
- GPU shader based implementatic



FireMonkey and Cross Platform

- FM is a platform that supports
 - RTL
 - GUI
 - Database
 - Operating System
 - Compile / Run on all platforms we support *
- * subset for mobile platforms

Fire Monkey - Demos

- Your first FireMonkey App
- Windows
- Mac OS X
- HD / 3D
- GPU/Shaders

Summary

- FireMonkey – The Next Generation Application Platform
- Fully harness the powerful GPU graphics hardware
- Rapidly build visually spectacular applications
- Invest in one platform and deploy to numerous Osss
- Delphi and C++ compiled, native executable
- Fully programmable animations and effects

- Your imagination is the only limit !!!

- Go FIREMONKEY !!!