



**nVISION 08**  
THE WORLD OF VISUAL COMPUTING

# UI Composer™: NVIDIA's New 3D UI Suite

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# Introducing UI Composer

- Background
- Reality
- Pillars of UX Design
- UI Composer
- Examples
- Large Scale Development
- Conclusion & Q&A



# Background

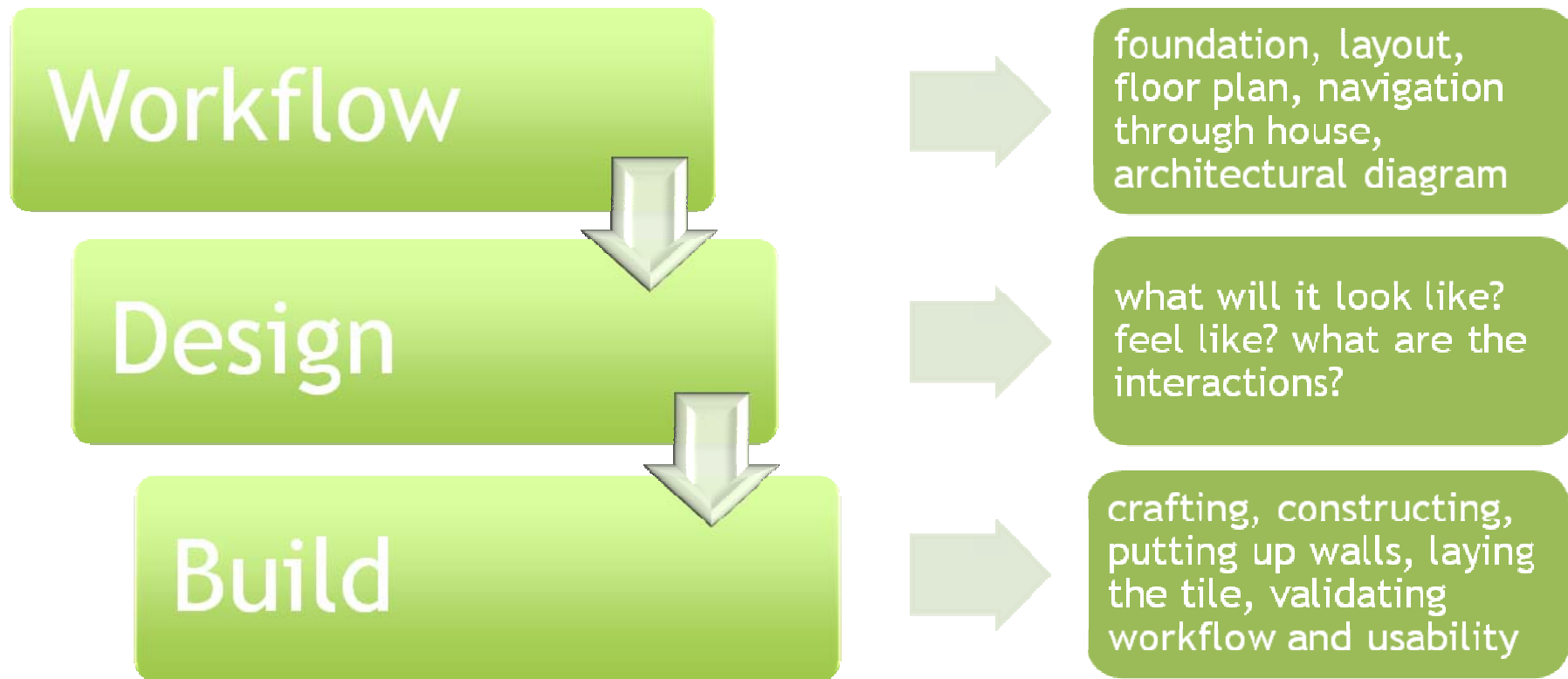
- NVIDIA acquired Anark Gameface, a multi-media authoring tool that seamlessly composites 2D, 3D, Text, Video and Audio
- Anark Gameface has been shipping to AAA game development studios worldwide since 2004
- Thousands of users
- PC, XBox360, PS3 and NOW Tegra (APX2500)!
- UI Composer is Anark Gameface redesigned for embedded devices

# Reality

- The iPhone has set the bar for User Experience (not just UI!)
- 3D has much higher visual effect (shaders)
- 3D can be hard and expensive to create
- It can be difficult to find resources with 3D experience
- Need to deliver on short timelines
- UI Composer addresses these issues (and more!)

# Pillars of User Experience Design

- Designing a user experience is analogous to constructing a building



# Workflow

- Who is the homeowner? What are their needs? (Who will be using the application)?
- Is this a business? Home? Library? Hospital? This will determine needs/usage patterns. (Is this application designed for entertainment, business, medical, home use)?
- What are the goals (to entertain, inform, usability, safety)?
- What sort of foundation will make people successful?
- UI Composer allows you to plan and design the foundation, layout, floor plan and navigation of your application.

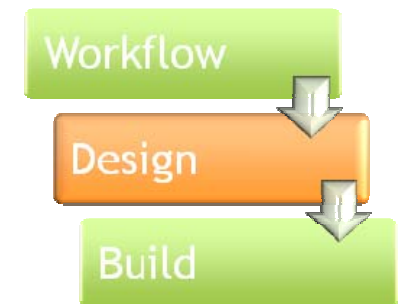


# Design

- **UI Composer Studio** aids in designing the aesthetic, the style, the “furniture”, “carpet” and “drapes” of your application.
- **Form follows function**
  - Functionality allows you to get from A to B, but is this enough?
  - Take the iPhone for example, functional - sure, but the form provides the WOW factor!
  - Form engages users, makes them want to use the application, to be involved. This is how Apple attracts and retains loyal customers.

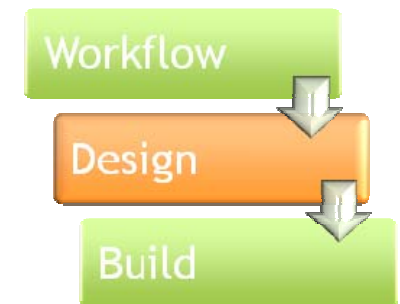
*"It is the pervading law of all things organic and inorganic,  
Of all things physical and metaphysical,  
Of all things human and all things super-human,  
Of all true manifestations of the head,  
Of the heart, of the soul,  
That the life is recognizable in its expression,  
**That form ever follows function. This is the law.**"*

Louis Sullivan, "The Tall Office Building Artistically Considered", published Lippincott's Magazine (March 1896).



# What is Designer Driven Workflow?

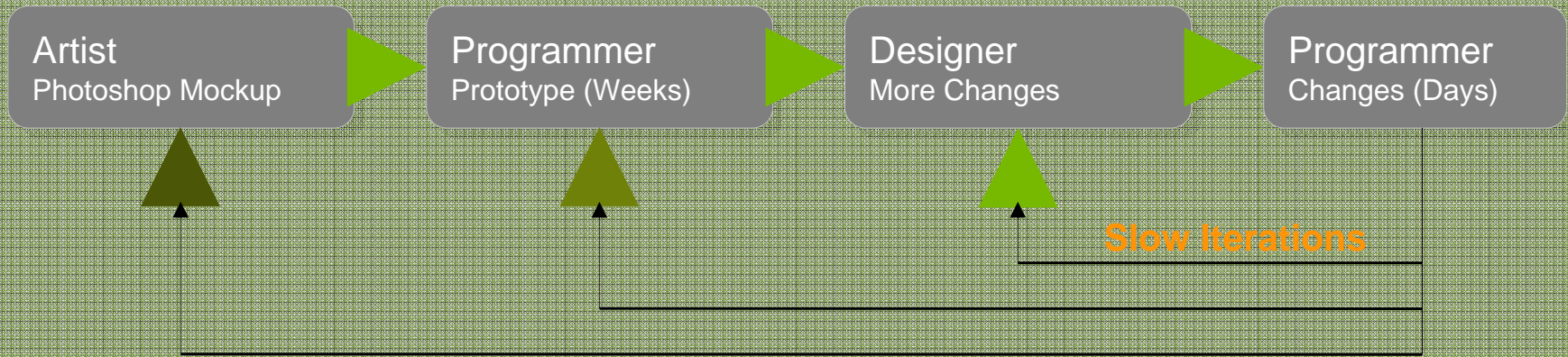
- Designer in the driver's seat
  - Classically, programmer controls interactivity
  - Typically, internal UI teams are "gated" by programmers
- "WYSIWIG" is ideal
  - "What you see is what you get"
  - Authoring environment specifically suited for artistic flow
- High speed iterating
  - 2D & 3D user interfaces are complex to describe
  - Prototyping & revisions
  - Artists need to cycle on concepts
- Best results - least time
  - Remove obstacles to creative flow
  - Connect testing closely to creation - "test early"



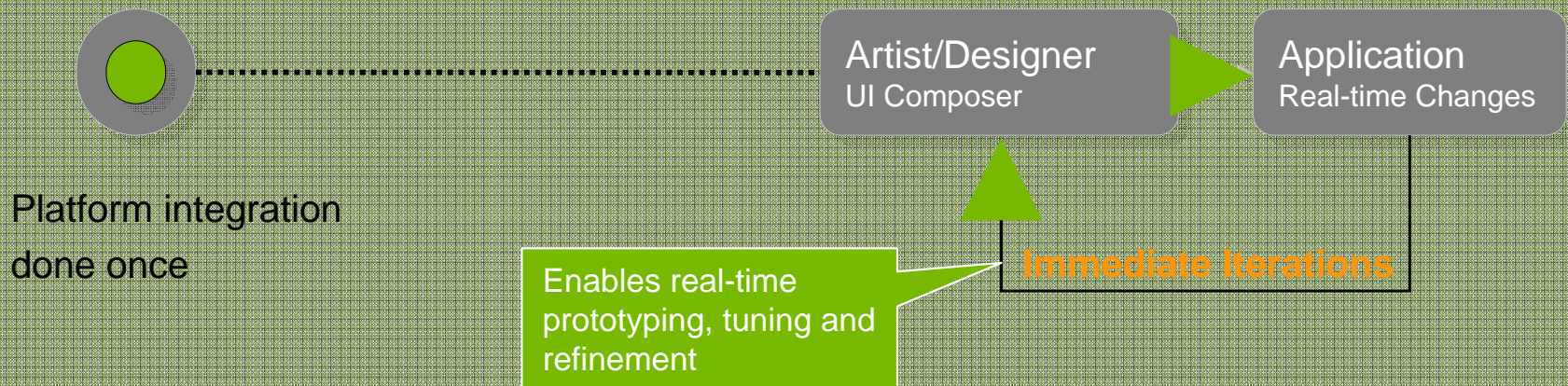


# Designer Driven Workflow

*Traditional: Programmer Driven (Long Development Cycles)*

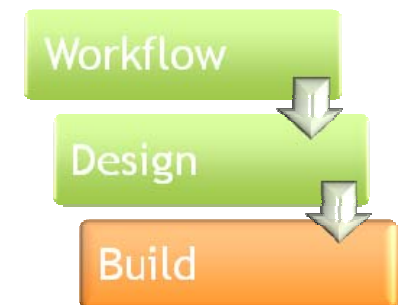


*UI Composer: Designer Driven (Rapid Development Cycles)*



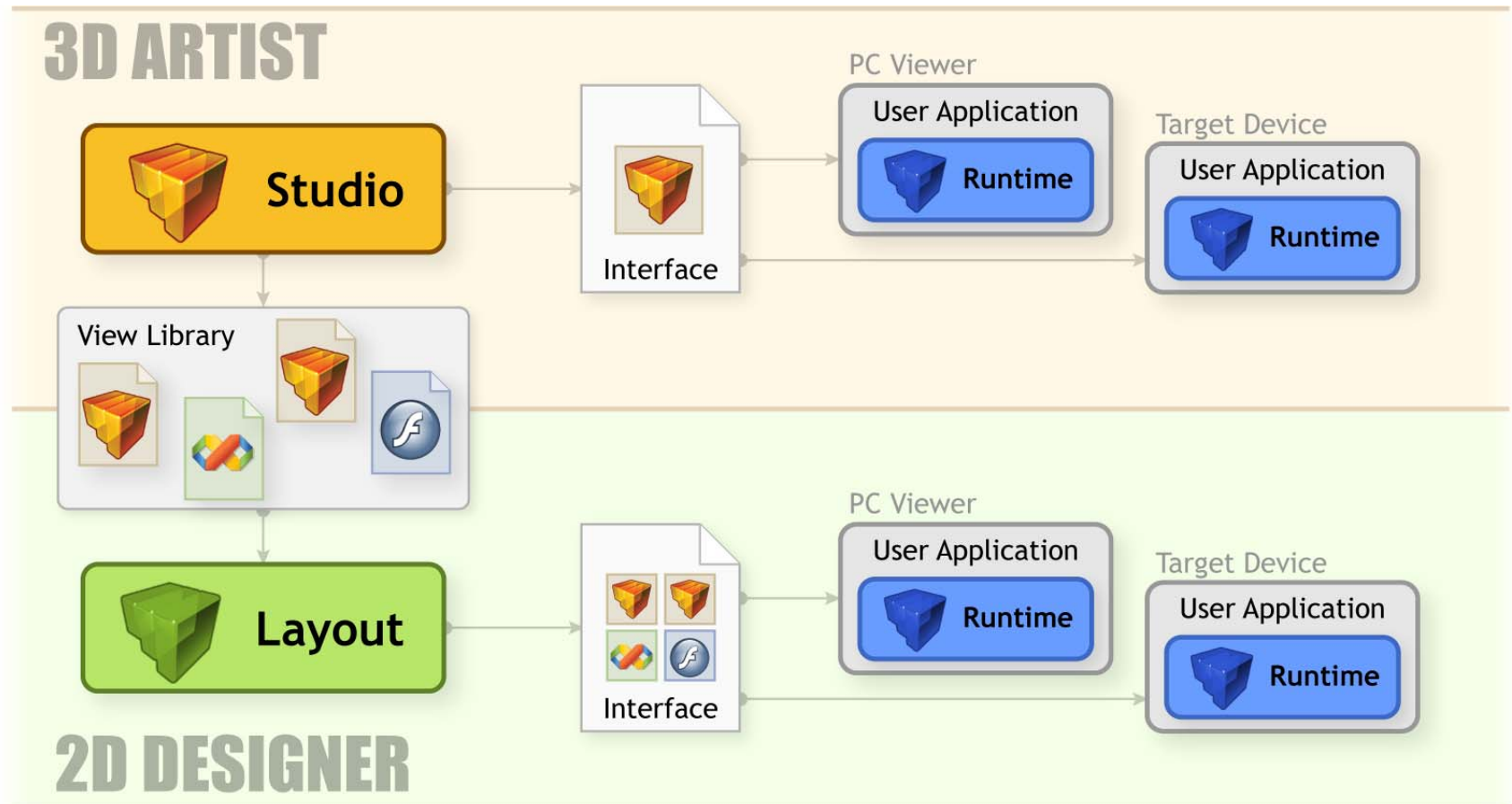
# Build

- Crafting the application = Coding, Integrating, Testing, Debugging, Profiling
- Using standard Development Tools (Visual Studio, gcc, etc)
- Platform specific conditioners and optimizers (Tegra)
- UI Composer Analyzer for debugging and profiling
- UI Composer Simulator for artists and designers
- NVIDIA PerfHUD and other tools for profiling
- Documentation and Examples

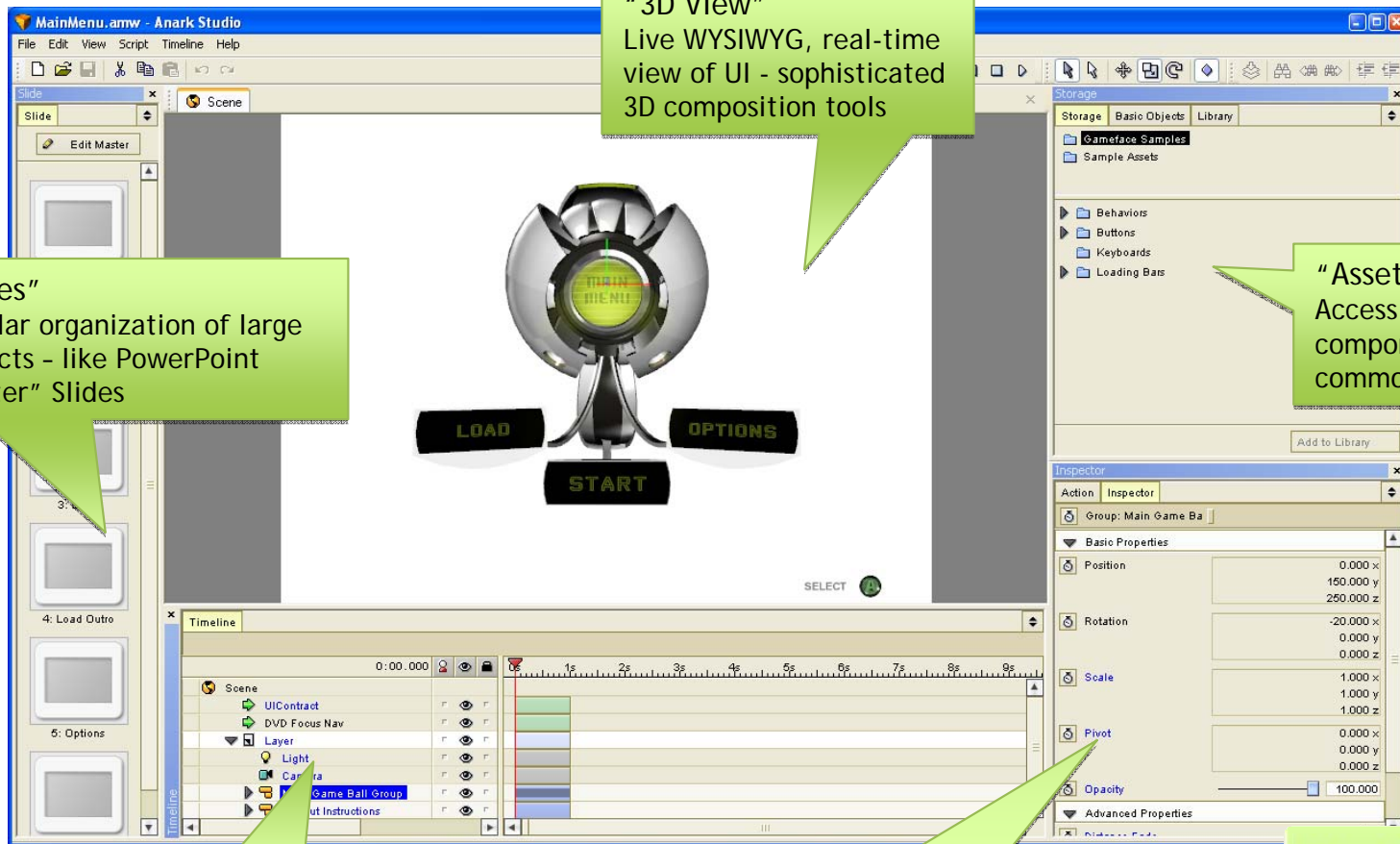


# What is UI Composer?

- Suite of tools, runtime libraries, documentation and support to enable designer driven development of compelling user experiences



# UI Composer Studio



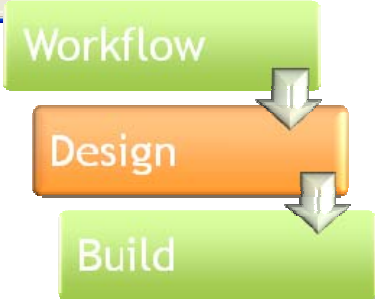
"3D View"  
Live WYSIWYG, real-time view of UI - sophisticated 3D composition tools

"Slides"  
Modular organization of large projects - like PowerPoint  
"Master" Slides

"Asset Library"  
Access to reusable components. Organize commonly used assets.

"Timeline"  
Accurately define animation key frames similar to After Effects or Flash

"Inspector"  
Control fine details of presentation data  
Create artist-friendly interactivity (Action/Events)  
Animate any value



# UI Composer Toolchain

## Dynamic Data

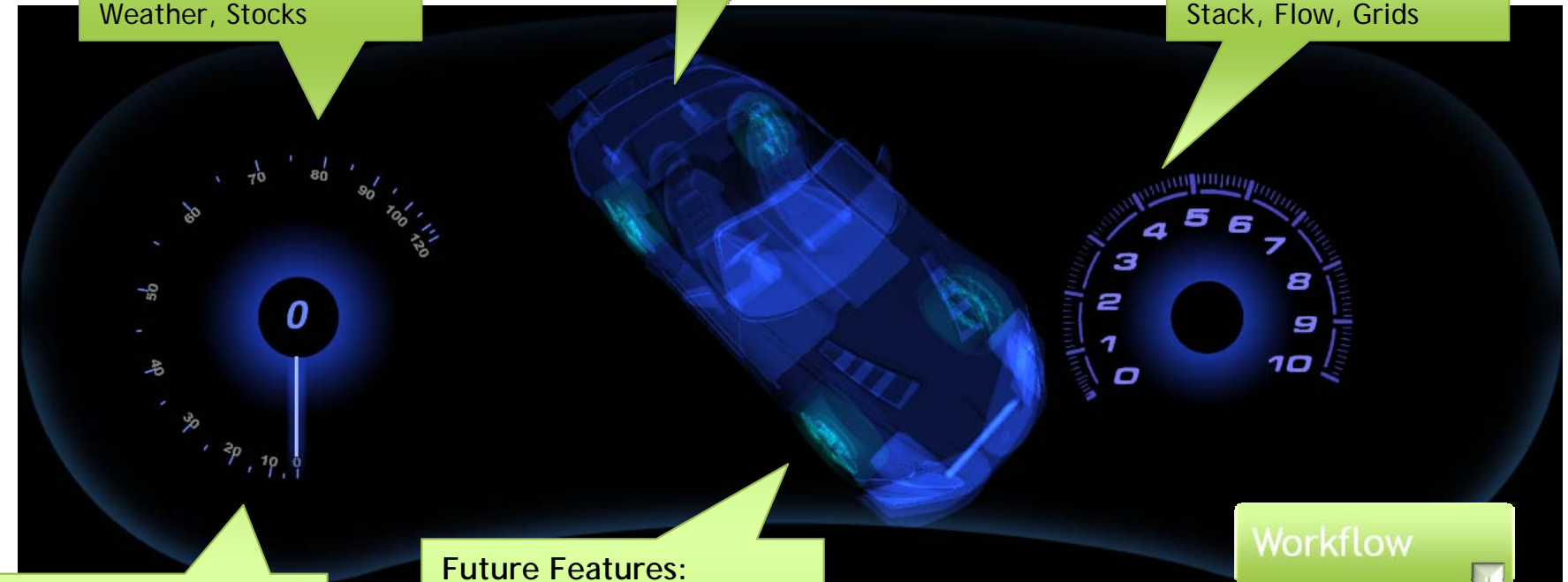
Examples: Speed, Temperature, Fuel Consumption, Media, Weather, Stocks

## Multi-resolution

Repurpose content for multiple resolutions devices, orientation changes

## Layout/Alignment

Containment controls: Stack, Flow, Grids



## Skinning

Rebrand, repurpose or reuse content  
Examples: 3D Models, Textures, Colors

## Future Features:

*Post-effects*  
*Drag and Drop Animations*  
*Built-in Gesture Support*  
*Transitions*  
*Flow Control*

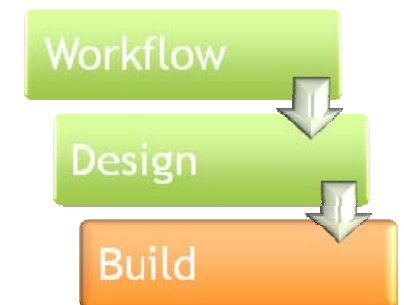
Workflow

Design

Build

# UI Composer Runtime

- Lightweight C++ codebase
- Proven in the field
- Embed into any application to provide UI Composer playback
- Built on UI Fusion framework
- Strong memory management



# Example

- Automotive HMI with Interactivity



# Large Scale Development

- Next Generation UIs can be very large
  - Dozens of screens and controls
  - Must establish common, reusable control set
- Components/Templates
  - Self contained
  - Re-usable
  - Time independent
  - Interactive
- Component change management
  - Update all components across all screens
- Automation
  - Command line control of authoring environment



# Documentation and Support

- World Class Application with Training Videos, Tutorials, User Manuals, Examples
- Frequent updates
- Agile roadmap
- DevTech++

# Conclusion & Q&A

- For more information
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  - Neil Trevett ([ntrevett@nvidia.com](mailto:ntrevett@nvidia.com))
- Questions?