

- **Architecture**
 - Memory Allocation
 - Garbage Collection (MMgc)
 - Elastic Racetrack

- **Best Practices**
 - Event Listeners
 - Data Transfer
 - Layout
 - ItemRenderers
 - Object Reallocation
 - Timers
 - Asset Loading
 - AIR

- **Demos**

Architecture

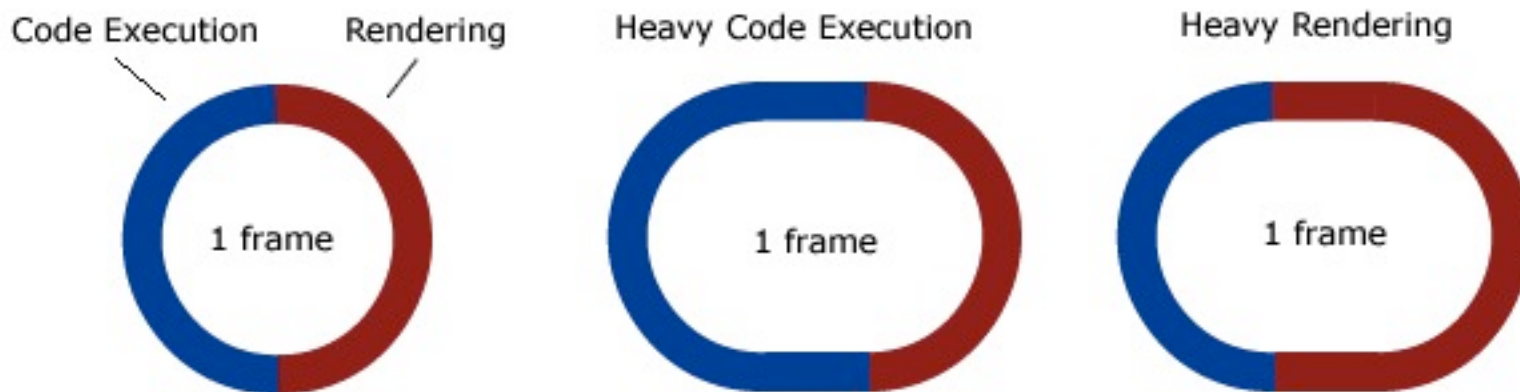


- **Allocating Memory**
 - 4096-byte Chunks
 - Memory Heap
 - 4-bytes per Property
 - Possibly never Deallocated

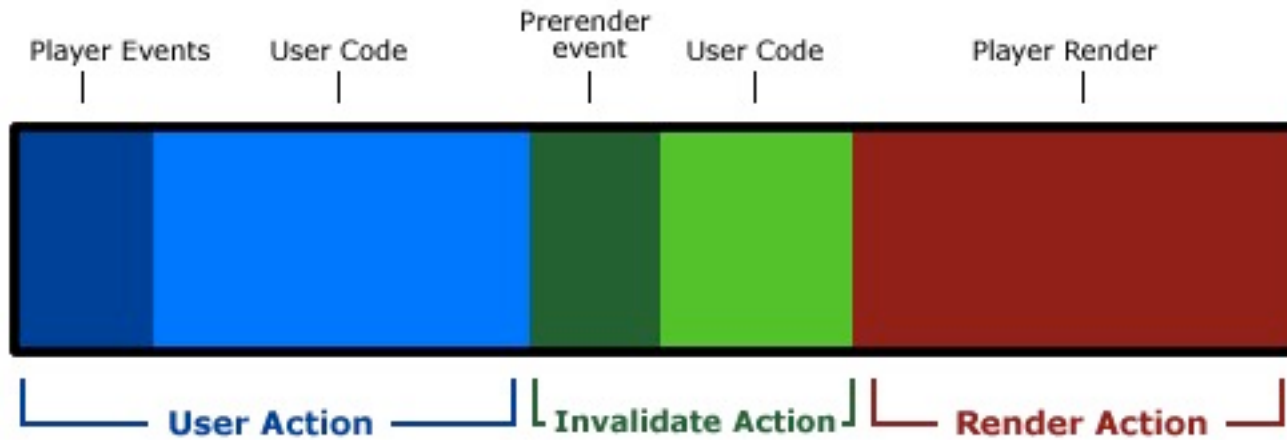
- **Deallocating Memory**
 - Done on Allocation
 - Not during idle-time

- **MMgc (Tamarin Project)**
- **Incremental Passes**
- **Mark and Sweep**
 - Starts at GC root
- **DRC (Deferred Reference Counting)**
 - Doesn't count weak references
 - Weak Listeners
 - Dictionary (Weak Keys)

Traditional Flash Player Elastic Racetrack



AVM2 marshalled slice

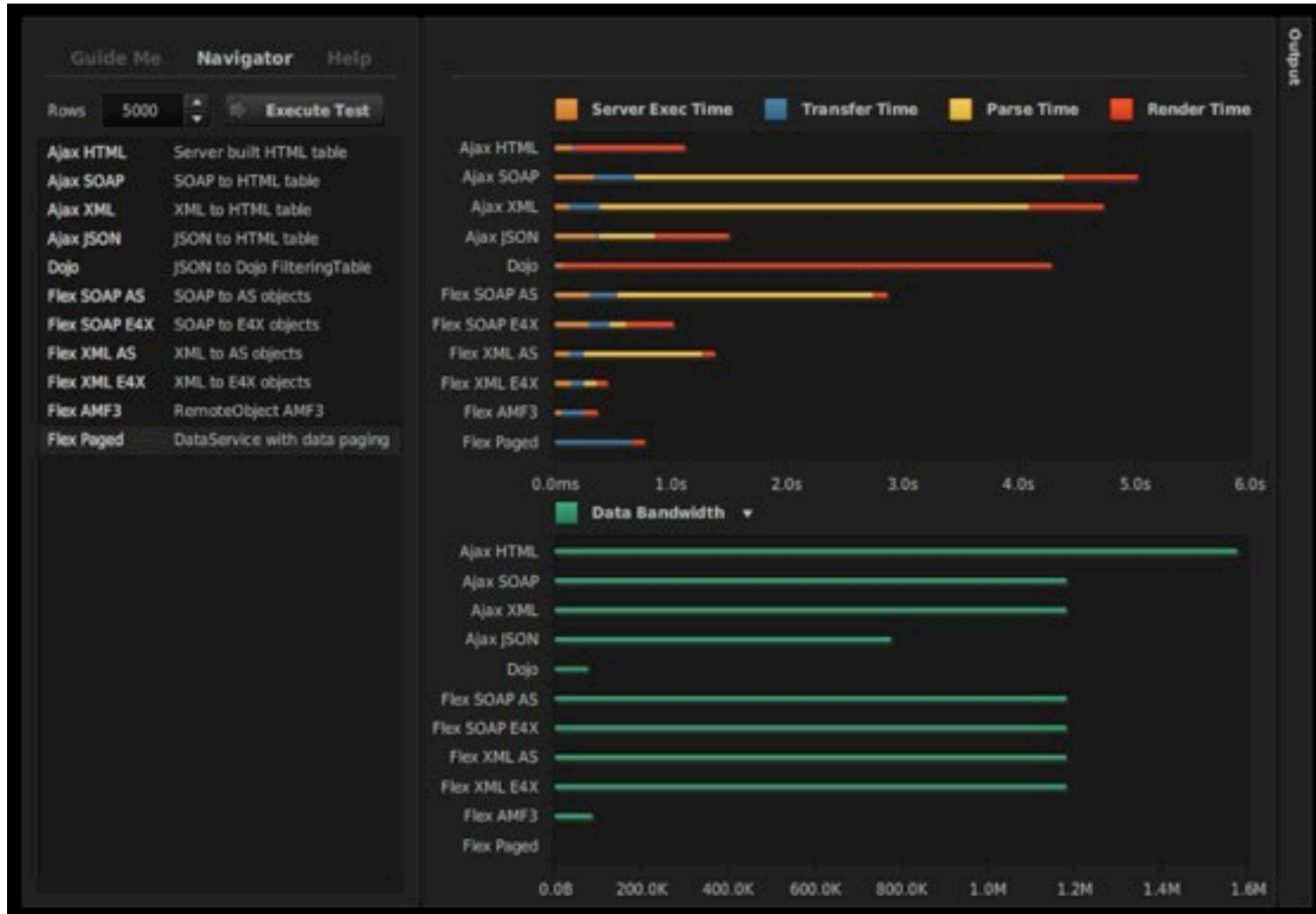


- Using the Invalidate Methods
 - Using flags to restrict updates

Best Practices



- Strong Listeners (removeEventListener)
- Weak Listeners (Beware)
- addEventListener (Note the direction)
 - FlexGlobals.topLevelApplication



<http://www.jamesward.org/census/>

- **Nested Containers**
- **Groups vs Containers (Fx4)**
 - No scrolling
 - No clipping by default
 - Focus management
 - Design Element Grouping
- **Inappropriate Use**
 - Using Containers for Styling

- Repeater vs List
- Repeater children
 - Recycle children
- ItemRenderers
 - UIComponent over Containers
 - TextField vs. Label
 - Flex 4: ItemRenderer class
- Reuse objects
- Object Pool

- Stop Timers
- Beware listeners

- Clean up
- `unloadAndStop()`

- **Running in background**
- **SQLite**
- **Async FileStream**
 - Pending operations
 - Event handlers
- **FileReference**
- **NativeWindow Disposal**
 - Before: Clean up DisplayObject (Listeners, etc.)
 - After: close() - GC Eligible

- **Beware Describetype()**
- **Dictionary(useWeakKeys:Boolean=false)**
 - Use at Discretion
- **Local Variables vs Class Level Variables**
 - Memory Registers
- **Collections**
 - Source Arrays
 - getItemAt() vs getItem()
 - sorting and filtering
 - enableUpdate
- **JIT Compiler**
 - Typed Objects vs Untyped Objects
 - Smaller Methods vs Larger Methods
 - Don't put code in your constructor!

Demos



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A List of resources and references will be provided with the source code and slides on our blogs.

