Using Flash Animations in Virtual & Enhanced Reality

Presented by Chris Brady, CEO

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Presentation Highlights

- Examples of how the VGK product platform can be used in various applications
- VGK platform architecture: GAM, VGK, WIM modules, GPU API
- VGK platform support: OS, CPU, GPU, Networking
- VGK – Engine architecture: Robustinator Parser, Renderer, ActionScript, Window Manager, GPU Rendering API
Corporate Overview

- Focused on the VGK product platform (engine dev kits) that enables multiple, parallel Adobe Flash animations to run in 2D/3D virtual worlds and in standard user interfaces
- Headquartered in Toronto, Ontario, Canada
- Founded in November 2008 by Chris Brady
- Leveraging our past experience in developing safety critical, real-time embedded OpenGL device drivers for commercial aircraft cockpit displays, Microsoft OpenGL general device drivers for Vista, and test suites for line-by-line code testing
AMI’s Management Team

- **Chris Brady, CEO**
  Over 28 years of engineering and management experience; An independent programmer in the 1980’s, a core team member at ATI Technologies (1989-94), and subsequently Founder, CEO & President of ALT Software (1994-2007) reaching over 100 staff in 2007. Strong business development, sales, and product development expertise.

- **Bob Starr, Vice President of Sales**
  Over 29 years of high tech sales/marketing experience; A key leader in many companies including 11 years at Yamaha Systems Technology and 3 audio S/W startups. Most recently as part of the Java marketing team at Sun Microsystems.
Software Development Skills

- C/C++ applications for command and control
- OpenGL, 2D and Flash multimedia user interfaces
- Real-time, Linux and Windows operating systems
- Connection to real world sensors and devices
- Adobe Flash animation
- Flex/ActionScript programming
Who IS NOT our Target Customer

- Those who are creating a self contained Flash game or application to run in a browser
- Those who are creating a website incorporating Flash animations
- Those who are using Adobe AIR to create a web-centric RIA application
- Those for whom the Adobe Flash Lite player completely meets their requirements
- Happy Flash users
Who IS our Target Customer

- Those who are using Flash now and need to have control over where Flash animations are located and when they are animated by the Flash player
- Those who are using Flash now and need to support multiple Flash animations in parallel in a single application, and that talk to each other
- Those who require a special purpose Flash player
- Those who have an existing 2D or 3D application, and they wish to add Flash animations, preserving their investment in application development costs
- Those who, for whatever reason, do not wish to use Adobe engines
Target Vertical Markets

- **Enhanced Reality**: Flash animations superimposed over existing safety, security, and industrial control applications
- **Simulation & Modeling**: Flash animations are added to change the appearance and shape of objects
- **Consumer Electronics**: Flash animations to run on iPhone, Blackberry, Android, and other portable platforms
- **Flash Gaming**: Display in game dynamic Flash-based advertisements from a network server
- **3D Games & Applications**: Perspectively placed Flash animations for billboard advertising, object skinning, menuing, and Flash videos
- **Digital TV, STB operators**: Flash based menus and content from the OEM; want to display Flash-based local advertising and branding messages
VGK Product Platform – Basics

- Permits Flash animations to be added to a software application
- Simple Flash animations, basic Flex and ActionScript
- VGK – Engine is a Flash compatible player
- VGK – 910 Compatible Engine interfaces to the Adobe Flash 9 or 10 player
- VGK Database for configuration, schedule, time, Flash_Object location and rendering options
- Importers for a variety of image data in various formats
- GAM input API sources Flash animations, bitmaps and audio
- GAM output API combines Flash animations in memory surfaces for multiple physical displays
- GAM output API to select between OpenGL, OpenVG, 2D GPU or 2D software rendering APIs
Multiple Flash animations running asynchronously on multiple Flash engines

Flash animations can be completely stopped resulting in 0% CPU/GPU utilization

Management of the Flash player rendering

Combining of Flash animations into a 3D virtual view

Animation Tester displays any single Flash animation frame

Unique sensor and device data

WIM API exchanges data with Flash animations

Simulation and Testing API
 VGK – Engine Architecture

- **Robust SWF/FLV File Parser:** Enables real-time Flash file analysis and translates data into a VGK Engine compatible stream.

- **GPU Rendering APIs:** OpenGL and variants, OpenVG, 2D H/W GPUs, 2D S/W Renderer

- **Windows Managers:** Win32 API, Linux API, SDL, EGL, GLX, GLUT, Symbian, X-Windows variants

- **Independent Rendering Modules:** Text & Fonts, Flash Video, Audio, 2D Bitmaps, Transition Effects, Buttons, Cameras, Color Management, Shadows, Gradients, Mathematics, Matrix Handling, Rectangles
VGK impact on CPUs and GPUs

- VGK supports multiple Flash players in parallel
- VGK sources Flash animations from memory, file system, or networks
- Each Flash animation requires a different level of CPU and GPU horsepower
- Load balancing between CPU and GPU becomes important for peak performance
- VGK Product Platform can be tuned to take advantage of multiple CPUs and GPUs in a system to achieve the best resource performance tradeoffs
Demo – Clock Flash Animation
Demo – MultiFlash Cube
Demo – Virtual 3D Building
VGK Platform Summary

- Adobe Flash/Creative Suite is used to author Flash animations
- If you are happy with the Adobe Flash platform, by all means use it
- VGK is used to place Flash animations into a variety of applications
- VGK supports devices from 100 MHz CPU with “dumb” framebuffers to high end desktop systems
- Development team experienced in safety critical OpenGL aircraft cockpit display software
Thank You!

Please contact me at ChrisBrady@animatedmedia.ca with any questions about today’s presentation.