

GDC 2009를 통해 바라본 게임 기술 동향

Game Developer Conference 2009

2009년 4월
NHN

1. 게임 개발 기술

2. 게임 프로그래밍 기술

3. 요약

■ Gaming Platforms

■ Online Platforms

■ SW 기술

- Frameworks : SDKs & libraries
- Tools / Middlewares : Game Development Tools & Runtime Environments
- Languages

■ PC Platform

■ Console Platforms

- Wii
- XBOX360
- PS3
- Others ...

■ Mobile / Handheld Platforms

- NDS
- PSP
- iPhone *
- nGage
- Others ...

■ iPhone (AppStore)

- 일 평균 165 apps 등록
- 신규 Mobile Gaming Platform으로 자리 잡음
- 성공 요인
 - Handheld console quality graphics
 - Touch capability
 - Always on & connected to the network
- 향후 발전 방향
 - Social gaming
 - Online multiplayer games
 - SDK 3.0 (VOIP, push notification invites, InApp Commerce)

- **WiiWare**
- **Steam**
- **XBLA**
- **PSN**
- **Games for Windows – LIVE**
- **Others ...**

■ SDL (Simple DirectMedia Layer)

- Free cross-platform multimedia library
- Platform:
 - PC/Mobile - Linux / Windows / Windows CE / BeOS / MacOS / Mac OS X / FreeBSD, etc.
 - Consoles - AmigaOS, Dreamcast, Atari, etc.
- Languages: C/C++
- Game Applications: Mobile games

■ Sexy Framework 1.3 (PopCap)

- Free game development framework for 2D games
- To be registered in SourceForge
- Platform: PC/Windows
- Languages: C++
- Game Applications: PC downloadable casual games

■ Playground SDK 4.0 (PlayFirst)

- Free game development SDK for 2D games
- 2D animated sprites, 3D models, 2D/3D polygonal data, Flash scenes, particle systems
- 5.0 under development
- Platform: PC - Windows(DX7)/MacOS/Web
- Languages: C/C++, Lua
- Game Applications: PC downloadable/web casual games



Dream Chronicles 2



Chocolatier 2

■ CS4 Professional and Flash 10 (Adobe)

- Rich media interactive application middleware
- Vector graphics, video, 2D animations, basic 3D
- Platform: PC/Web, mobile, consoles, etc.
- Languages: ActionScript 3.0, C++ (Alchemy)
- Game Applications: Web-based casual games, mobile games (earlier versions of Flash)



Bejeweled



DOOM 1

■ Director and Shockwave 11 (Adobe)

- Interactive multimedia application middleware
- Support for more than 40 video, audio, and image file formats
- Native 3D rendering with DirectX 9 support
- Advanced physics engine (NVIDIA PhysX) included
- Flash CS3 and Flash 9 content support, Xtra plug-ins support
- Platform: PC/Web
- Languages: Lingo
- Game Applications: Web-based 2D, 3D games



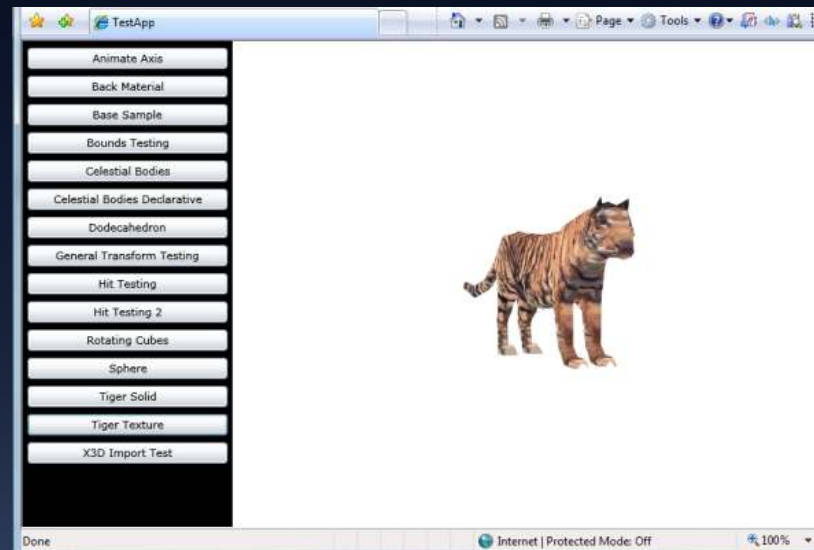
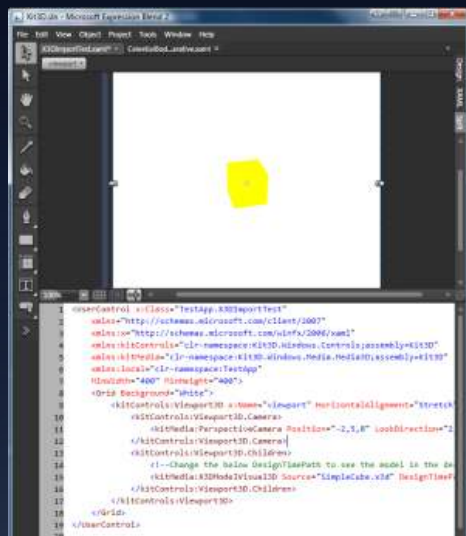
Sunset Racer 2



Quake III

■ Blend3D and Kit3D (Codeplex – MS Open Source Project Community)

- Kit3D: 3D API for C#/Silverlight
- Blend3D: Extensions and design tool for Kit3D
- Platform: PC/Windows/Web
- Language: C#, Javascript
- Game Applications: 3D PC/Web games



■ Torque Engine (GarageGames)

- Torque Game Builder: 2D Game Engine Middleware and Toolsets
 - Level editor (object placement & manipulation), 2D graphics, networking, basic physics, customizable GUI modules, sound (OpenAL)
- Torque 3D Engine: 3D Game Engine Middleware and Toolsets
 - Mission Editor (object placement & manipulation), 3D graphics, terrain, physics (PhysX, Bullet, ODE)
- Platform: PC/Windows/Mac/Web, XBOX360, Wii, iPhone
- Language: TorqueScript, C++
- Game Applications: 2D/3D PC and console games



Turtix



Forge

■ Unity 3D 2.5 (Unity Technologies)

- Multiplatform 3D game development tool
- Integrated Editor, 3D graphics (animated meshes, particle systems, advanced lighting and shadows), terrains, networking (state synchronization), physics (PhysX), streamed audio/video
- Platform: PC/Windows/Mac/Web, Wii, iPhone
- Language: C#, Javascript, Boo
- Game Applications: 3D PC/Web and console games



Monster Trucks Nitro



Mini Golf Action



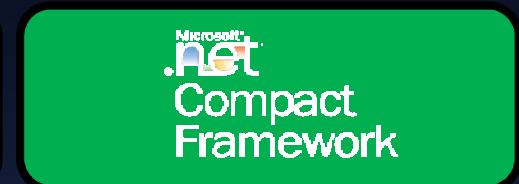
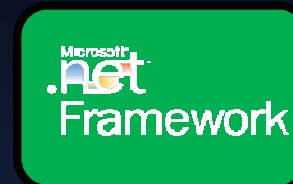
Tropical Paradise (Demo)

■ LightSpeed and Gamebryo 2.6 (Emergent)

- Advanced 3D game development tool and graphics engine
- LightSpeed: Fast prototyping tool with real-time updates, data-driven framework
 - Toolbench : IDE
 - Entity Modeling Tool : entity and behavior system enabling data-driven gameplay design and quick manipulation of properties and behaviors
 - WorldBuilder : level editor
 - Script Engine Integration : Lua Debugger
- Platform: PC/Windows, PS 3/PSN, XBOX 360/XBLA, Nintendo Wii™
- Language: C++, Lua
- Game Applications: 3D PC and console games (casual, FPS, MMORPG, etc.)

■ Game Studio and XNA (Microsoft)

- Game development tool and framework based on .NET platform
- Game Studio
 - Extends Visual Studio 2008
 - Includes the free C# Express Edition
 - Version 3.0 released on 10/31/08
 - Zune support
 - Community Games publishing
- Platform: PC/Windows, XBOX360, Zune
- Language: C#
- Game Applications: PC and XBOX360 games



■ XNA Game Studio 3.1 (2009년 여름 출시 예정)

➤ Xbox LIVE Party

- Live party system을 SDK에서 지원
- 온라인에서의 커뮤니티 강화

➤ Video playback

- Content 파이프라인을 통해 WMV 파일을 사용할 수 있음
- 유저의 비디오클립, 음악 데이터를 게임과 연동

➤ Downloadable Content (XDK Extensions Only)

- 다운로드 콘텐츠를 SDK에서 지원
- Xbox live arcade에서도 다운로드 콘텐츠 시스템 도입

➤ Avatars for XDK Extensions and Community titles

- Xbox 대시보드의 아바타를 게임에서 사용 가능
- 아바타 모델, 애니메이션의 데이터를 SDK에서 제공

■ CryEngine 3 (CryTek)

- Advanced 3D game development tool
- Sandbox WYSIWYP level editor, next-generation real-time graphics (real-time soft particle system, multi-core support), advanced modular AI system (flow graph visual scripting system), networking, physics, streaming content (levels)
- Platform: PC/Windows, XBOX360, PS3
- Language: C++, Lua
- Game Applications: 3D PC and console games (FPS, MMORPG, etc.)



Crysis Warhead

■ Unity 2 MDK (www.moock.org)

- Multi-user development framework for Flash
- Client-side Language: ActionScript 2.0
- Server-side Language: Java
- Game Applications: Casual MMO, multi user games

■ SmartFox 1.6.5 ([gotoAndPlay](http://gotoandplay.com))

- Multi-user development framework for Flash/Flex/Air, Java, .NET, Unity3D, Apple iPhone
- Client-side Languages: ActionScript 2.0/3.0, Java, .NET
- Server-side Languages: ActionScript/Javascript, Java, Python
- Game Applications: Casual MMO, multi user games

■ ElectroServer 4.0.6 (Electrotank)

- Multi-user development framework for Flash
- Streaming Audio/Video support
- Server-side Language: Java, ActionScript
- Game Applications: Casual MMO, multi user games

- Utilizing Flash for Game UI Development
- The Future of Web Games
- Multi-threading
- Game AI

■ Flash의 장점

- 2D rich, animated UI 지원
- Strong community resource, libraries, tutorials
- Designer focused toolset, developer friendly
- Integration with Photoshop, Illustrator, Fireworks
- Rapid prototyping

■ Flash의 단점

- 개발자 부족
- 게임을 위한 component framework 부재
- Game engine integration / resource usage 이슈

■ UI development

- Flash를 활용한 UI 개발
- Scaleform GfX를 통한 game engine integration
 - Unreal Engine 3에서 SWF import 데모

■ Web Game의 성공 가능성

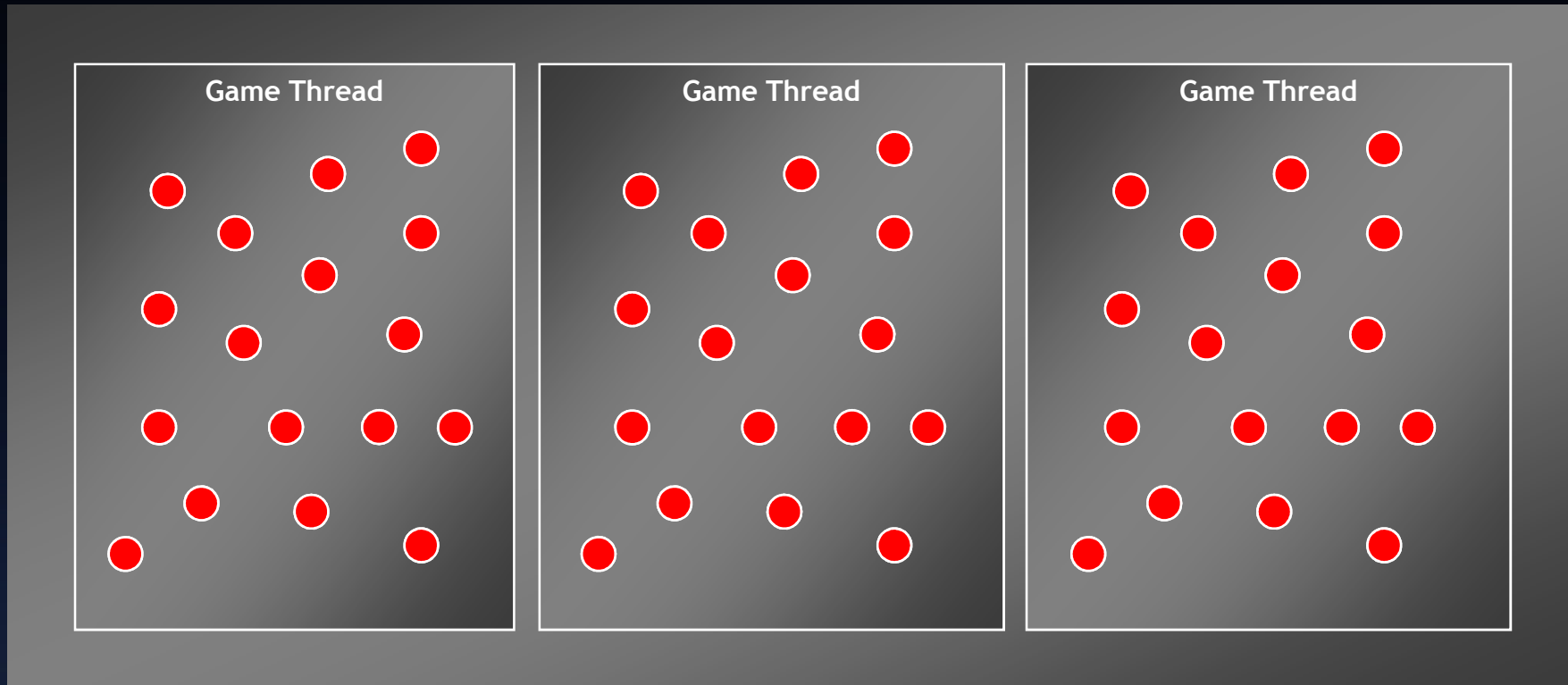
- PC 보급률이 console 보급률보다 높음
- 별도 설치 과정 없이 바로 play 가능

■ InstantAction Technology

- Proprietary plugin technology: <http://www.instantaction.com>
- Developed by GarageGames

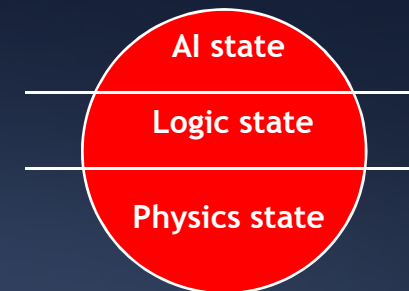


■ Intel Game Threading Model (recommended)



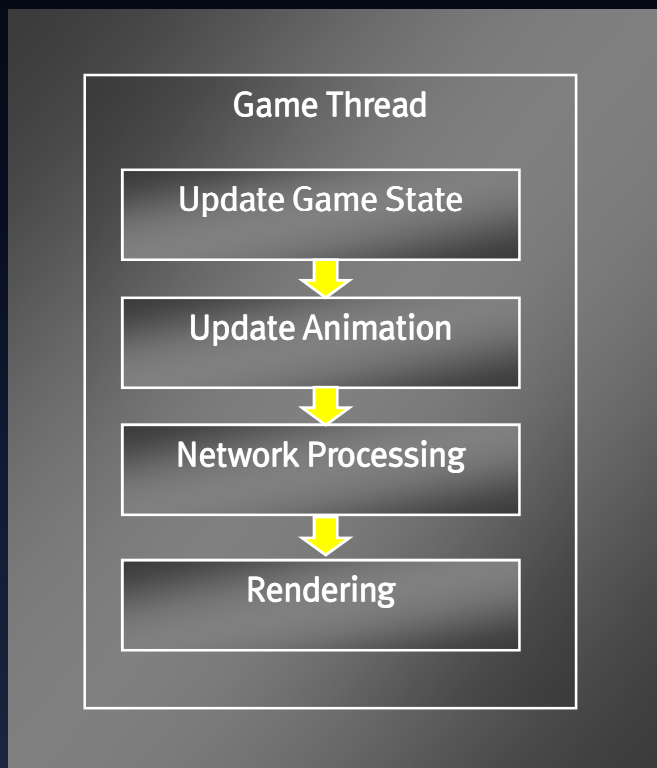
Publish – Subscribe Model
Data distributed threading

**Game Thread = AI process + Physics process +
Logic process + ...**

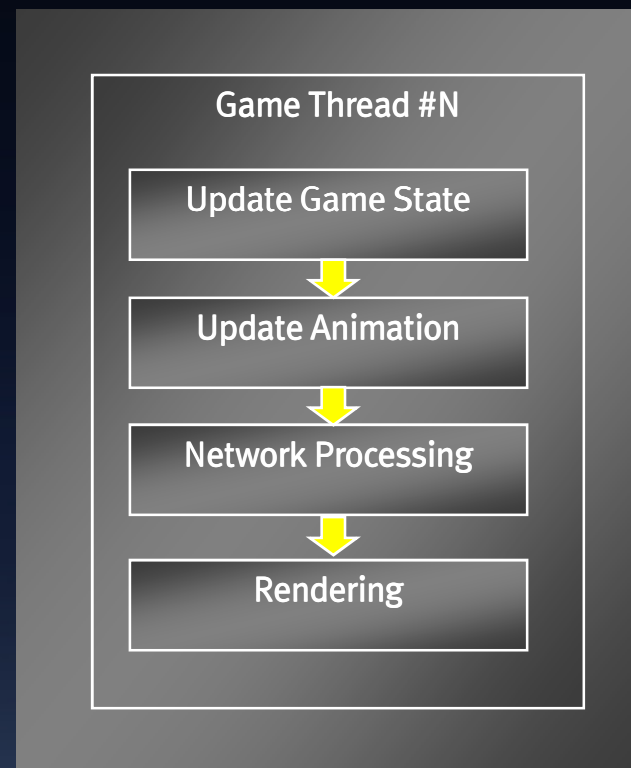


■ Direct 3D 11 – multithreaded rendering

Before D3D 11



After D3D 11



■ AI 개발은 기획자가 개발할 수 있는 스크립트 개발이 필수!!!

- 스크립트 개발을 너무 작은 규모로 기획하거나 생각해서는 안됨
- 재활용 가능한 작은 모듈부터 높은 추상화가 가능한 모듈까지

■ 사용자 경험으로부터 AI 명령을 역으로 정의한다

- 어~ 이렇게 되네~ 어 이렇게도 행동하네~
- 사용자가 재밌어 할 상황을 유추하고 그로부터 만들어야 할 명령을 정의한다.

■ 상태기반 모델

- 새로운 기법을 쓰기보다는 더욱 많은 상태와 상태전이를 가진 상태기반 모델을 사용
- Decision Tree에 상태를 저장한다.
- 최종 AI 행동 결정 후 Decision Tree를 초기화하지 않고 최종 결정으로부터 pop한 후 다시 의사결정을 하도록 한다. 이런 방법이 AI의 창의적인 행동을 더 유도하는 경향이 있다.

- 새로운 handheld gaming platform의 출현: iPhone
- Game Development Tool / Middleware의 지속적인 발전
 - Adobe의 게임 플랫폼 기술 발전: Flash에서의 3D, shockwave를 통한 3D acceleration
 - 개발 생산성 향상을 위한 기존 Tool / Middleware의 발전: Torque, CryEngine 등
- Web Game의 확산
 - Browser 기반의 game 구동 방식 확산
 - 3D engine/middleware의 web 구동: Unity 3D, Torque
 - Server-side middleware를 통한 casual MMO 시장 진출 (Flash의 수익성 강화)

■ 플랫폼 다변화를 통한 해외 게임 수출 확산 필요

- 신규 모바일 플랫폼 지원 확대: iPhone
- Console 시장 진출 확대: WiiWare, XBLA, PSN 등

■ Casual 분야의 신규 시장에 대한 관심 필요

- Casual MMO

■ 게임 개발 기술에 대한 투자 및 양성 필요

- Tool/Middleware 분야의 경우 기술 격차 심화 및 해외 기술 의존도 상승
- 국내의 경우 PC 기반의 중대형 멀티 플레이어 게임 콘텐츠 개발은 매우 우수하나 기술의 제품화 및 공유가 부족함

Thank You