



## Next-generation Game Play

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# Unique Game Moments

White Paper

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## 1 WHAT IS NEXT-GENERATION?

Games on next-generation platforms (PS3, Xbox 360 and PC) are superior to their previous-generation counterparts in terms of graphics, online play and scope. However, while advances such as HD, HDR lighting, motion blur or integrated online communities are often described as 'next-gen', in reality they are an evolution of trends started in the early nineties.

Many consumers are realising this and are asking for truly next-generation experiences to justify the cash outlay for hardware and software.

It is argued here that next-generation games will indeed be different. This is because, for the first time, a generation of hardware is able to produce **unique game moments**. Unique game moments are experiences in a game that are not pre-produced, scripted or necessarily even planned. They are moments that make every game a unique experience for the player. They are moments that the player will tell their buddies about and will want to save for everyone to share or admire. They are moments that are produced by the hardware's CPUs, synthesizing little gems of 'real life' in every game.

## 2 CURRENT-GENERATION GAMES AND PSEUDO-INTERACTIVITY

Currently, a game is essentially a pre-produced experience: animators create animations for in-game playback; texture artists paint textures for in-game rendering, game designers write scripts to determine in-game missions; artists create models for in-game characters. Taken together, these elements result in in-game interactivity, but much of this interactivity is *pseudo-interactivity* as it based on playback of pre-produced assets.

Pseudo-interactivity was the obvious type of interactivity to choose for developers of previous-generation games, as the underlying production process could be borrowed from related non-interactive entertainment, such as animated movies or visual effects (where assets are pre-produced, then played back). Secondly, current generation hardware is well suited to pseudo-interactivity, as the latter requires generous permanent storage devices (e.g. DVD) but only little processing power.

However, with increasing consumer expectations, the limitations of the above process have become clear. Firstly, it is becoming prohibitively expensive to pre-produce all the content required to maintain the illusion of interactivity in a game. Secondly, pseudo-interactivity is just that – it only pretends to be truly interactive. In essence, with pseudo-interactivity you can only display what you have previously produced. There is no room for new experiences to happen on-the-fly, or for a game to be different or even surprising every time.

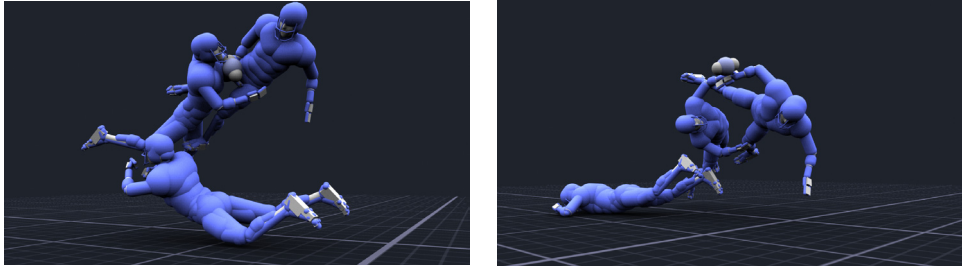
For example, American Football tackles are traditionally pre-produced (through motion capture or key-framing), and played back during the game. However, because in real-life characters can interact in almost infinite ways, played-back football tackles rarely look right (and are therefore usually not shown in slow motion). More importantly, the user does not relate to played-back tackles the same way they do to real-life ones, e.g. when seen on TV. They know the video game tackle is not actually happening; they know they did not really create the tackle - they merely triggered the playback of animation '*Tackle no. 43C*'.

## 3 TRUE INTERACTIVITY AND UNIQUE GAME MOMENTS

The next-generation of consoles is capable of going beyond pseudo-interactivity. This is because of the significant processing power available, thus enabling the hardware to create content and experiences on the fly.

NaturalMotion's *euphoria* technology uses this processing power to create unique game moments and true interactivity whilst the game is unfolding.

For example, instead of playing back American Football tackle animations, next-gen consoles running *euphoria* can synthesize tackles on the fly, taking into account the angle of attack, players' weights and body dimensions, absolute and relative speed, body posture and limb velocities at impact, ground condition (muddy / slippery), and even unique players' characteristics (strength, reaction times etc.). As a result, every football tackle is different and truly unique. What is more, the user genuinely created the tackle – it is their own unique experience.



American Football tackles, synthesized by *euphoria*

#### 4 CREATING UNIQUE GAME MOMENTS

For players to experience unique game moments, the developer needs to prepare the title accordingly. The biggest challenge here is to find the right balance between loosening the grip on a game a little to allow emergent game play, while at the same time setting boundaries for the emergent game play, thus ultimately ensuring the necessary predictability.

For example, a developer might decide to let the outcome of a football tackle be entirely determined by simulation (through *euphoria*). In that case, when the player triggers a tackle on the game pad, the character will try to do its best to comply. However, a different developer might put more emphasis on predictability; in this case, they will ensure (e.g. through subtle cheating) that the initial conditions are such that the tackle will succeed (or fail). In that case, the tackle will still be unique, but the outcome will have been predetermined.

In practice, most games will lie somewhere in between these extremes of the spectrum, maximizing surprises, whilst ensuring ultimate game control.

#### 5 THE ROLE OF UNIQUE GAME MOMENTS

It is argued here that unique game moments will be the defining feature of games, online or offline. This is because unique game moments bring interactive entertainment much closer to real life.

Importantly, the frequency of unique game moments does not correlate with their impact: having experienced a unique game moment even once during a game will permanently change the player's perception of that game. The player knows that *anything* could happen whilst playing, thus greatly enhancing immersion and *suspension of disbelief*.

It is this ability to transform the perception of a game that makes *euphoria* and unique game moments so powerful. Over the course of the next-generation cycle, games without unique moments will start to look stale and outdated.