

# **Case Study - Primal**

## **Introduction**

Primal is the biggest budget game Sony Cambridge have released and the 2<sup>nd</sup> biggest budget 1<sup>st</sup> party game for SCEE as a whole (Getaway was the biggest budget production to date.) Our initial agreement with Sony was for music work only as Sony had an in-house team of Sound Designers dealing with all the other aspects of the games audio assets.

Having worked on several scores for Sony Cambridge already, we felt that it was time to take the music production onto the next level. Primarily we wanted to ensure that the score was more cinematic than anything we had done to date, and the best way to achieve this goal would be to model our methodologies on film.

## **The Influence of Film on Primal**

A film composer will usually develop most of the thematic material he is to use before even attempting to apply any musical ideas to picture. This differs greatly with our approach (and many other game composers). Historically, when scoring a game we will take each level / cut scene on its own merits and compose for it as a single entity. The use of "leitmotivs" (themes to identify key characters) helps to bind together a production into something much more coherent and understandable.

However, modelling film methodologies can only progress so far. There are inherent differences between the ways each are developed:

### **DEVELOPMENT DIFFERENCES**

A film will be completed and edited into a final cut (pretty much) before the composer will become involved. Prior to this, the film will survive with a temporary track of existing contemporary music. A game is a constantly evolving entity, with elements being added and taken away throughout its time in development. The composer needs to be less of an isolated entity within games, as he will need to respond to these changes.

### **DIFFERENCE IN PLAYBACK MEDIUM**

The playback medium of a film is a known constant before a composer begins his composition. Every game has the ability to develop new and contrasting means to playback audio, requiring the composer's input early on from both a technical a creative standpoint. For example, the **API** (written early on in the games development life cycle) will need to support the game composers chosen method of playback.

### **PROMOTIONAL DIFFERENCES**

A film will often remain a closely guarded secret until it is released, with much of the content not being seen until its premiere. In contrast it is more common in the games industry for playable demos to feature key graphical and sound content early in its development at shows such as E3 and ECTS.

## **The Progression of the Primal Score**

As indicated above, our first job on Primal was to create the audio for a selection of the earliest cut scenes for a playable demo to be shown at E3. This work (synthesised scores for 3 cut scenes from the realm of Solum) was completed in early May of 2002, although work in earnest did not really begin until mid August.

## THE SYNTHESISED ORCHESTRA

The technology behind our synthesised compositions has changed markedly since Medieval 2 in order for us to keep up with technological advancement in the field of music. Rather than using a separate hardware sampler, we now use a dedicated computer running "Gigastudio 160" software. This had many advantages, with the main being somewhere in the region of ten times more RAM available in which to store samples. As a result of this upgrade we also invested in some new libraries, dedicated to use with Gigastudio 160:

- ◆ Gary Garritans Orchestral Strings
- ◆ Voices of the Apocalypse
- ◆ London Orchestral Percussion
- ◆ Peter Sidelaczecks Advanced Orchestra - Woodwind
- ◆ Peter Sidelaczecks Advanced Orchestra - Brass

Along with Gigastudio 160 and all these sample libraries, we also bought a new Lexicon PCM 91 for artificial reverbs. In its price range, this is probably the best hardware reverb on the market at present.

The setup was much the same as our methodologies on Medieval 2. All the instruments were panned according to their correct position on stage during a performance along with the use of real-time MIDI controllers on the brass and strings in order to help them sound more realistic during playback. Although our new synthesised orchestra sounded better than anything we'd produced previously, we felt that on a quality title like Primal, the only way we could do it justice would be to get the score performed live, although it was not going to be easy to convince Sony to outlay the "severe amounts of cash" such an endeavour requires.

## THE LIVE ORCHESTRA

Through a rather opportunistic visit to Abbey Road recording studios on the 31<sup>st</sup> July to sit in on a recording session for an upcoming film, it was possible for Sony to see the merits, first hand, of using a live orchestra and the deal was sealed. This visit was the culmination of several months of budget preparation proposals, so we already knew how we wanted to proceed, should the live budget receive the green light.

Through the web, we contacted James Fitzpatrick at Tadlow Music (<http://www.praguephilharmonic.org/>). James is an "orchestral fixer" who basically schedules and budgets recordings with the Prague Philharmonic (amongst others.) We felt that in order to bypass some of the Musician Union bureaucracy and to keep the cost of the recording within reasonable constraints, recording in Prague was the most appealing and cost effective option. The icing on the cake was James procuring the services of Nic Raine (<http://www.musicweb.uk.net/film/raine.html>) to

orchestrate and conduct during the Primal recordings. While we felt that our orchestration had developed significantly since the days of *Medieval I*, there can be no substitute for the many years of experience that Nic could bring to the project.

## **New Working Practices**

### **CUE SHEET MEETING**

It is the norm in the film world for a composer to meet with a Director, prior to penning any music, to discuss a “roadmap” for the film’s musical progression with detail about where a cue should be, its style, length, function and key moments. In order to echo this, we met with the team Chris Sorrell (the Creative Director) Jean-Baptiste Bolcato (the Producer) and the complete audio team on the 17<sup>th</sup> and 18<sup>th</sup> of September to discuss where and how long each of the cues should be. I would like to think that this process was driven by creativity, but the sad-but-true reality is that the budget would only allow for the recording of 85 minutes of music so we had to be judicious in the length and placement of each cue.

Once this process was completed, we met with Nic and James and formulated a plan of action on how to proceed. The only way it would be possible to complete the vast amount of work that lay ahead, would be to put in place a rolling approval process with Sony. We would produce a synthesised version of each cue and send it to Sony for their approval. Once we had received a “thumbs up”, we then sent the synthesised cue to Nic Raine, along with a MIDI file and a text file explaining its context.

### **MUSIC PRE-PRODUCTION**

Borrowing further from the film world’s armoury of techniques, we spent some time putting together themes and ideas for main characters within the game. We plotted a strategy for the “sound” of each of the realms as well as scoring key melodic fragments that would form the basis of some of the more significant characters leitmotifs. This was a crucial process and though it took considerable time to get right, was worth it in the long run. Some of the cues practically “wrote themselves” as it was obvious, in many situations, that a specific theme needed to be used purely based on the emotional content of a specific scene. It was the difference between starting with a blank canvass and having a scene already pre-sketched.

### **LIVE PERFORMANCE**

We spent the period between September 16<sup>th</sup> and October 19<sup>th</sup> writing the music in earnest with Nic Raine orchestrating on our rolling approval basis. We then had 3 days to prepare for the actual recording sessions in Prague that took place between 23<sup>rd</sup> and 26<sup>th</sup> October. The orchestra were fantastic and provided an unparalleled degree of drama and emotion to our score. In light of the comparison between the live and synthesised versions of the Primal score; it is not hard to understand the reason why most films use live orchestras, despite the immense expense involved. It generally took the orchestra three run-throughs of each cue in order to secure a satisfactory recording. The first would be quite poor, the second would be impressive and the third would be the take that we would generally go with. We had a lot to record in 4 days so we could not afford to be too fussy about each take, and besides, a lot of the recording can still be tidied up in editing after the recordings were completed.

### **EDITING / MASTERING**

The final stage before delivery was to mix the choir elements together with the orchestral recordings. Four days (and nights) were spent in total at SRT (<http://www.soundrecordingtechnology.co.uk/main.htm>) based locally in St Ives, Cambridgeshire. Through the seemingly miraculous capability of digital audio, it was at this stage possible to edit the recordings in order to remove clicks and unwanted musician noises as well as tidying up the timings of some of the more difficult sections of the score. Finally, the score was ready to begin the process of implementation into the game.

## **Dynamic Loading and In-game Music**

Our approach to in-game music on Primal was quite different from work we had undertaken in the past. The Medieval series saw a much simpler approach to in-game music implementation. Standard two-minute tracks were written to be played constantly in the background to create mood but without any interactivity what so ever. We generally refer to music used in this way as “wallpaper music.” From our involvement on C-12 Final Resistance, we had started to develop an idea of implementing shorter and more dynamic cues into our scores in order to benefit from the enhanced potential quality of CD audio, but still allow the score to be interactive and responsive to on screen action.

Primal in-game music follows on in this same pattern. The music can provide atmosphere during long exploration sections, as well as providing key sonic clues to the player during run-time. We were careful to not over saturate the ambience of Primal with too much music as this would detract from its potential impact when it formed the main emotional element during more plot driven sections of the game.

## **Nexus Cut Scenes**

### **Sound Effects**

Our initial involvement in producing Sound Effects came about as a result of the huge workload the audio team at Sony had to contend with, and identifying that it was not going to be possible for them to complete it within the time frame they had available. We agreed to produce all of the sound effects for one of the realms - Nexus, including full mixes of sound effects, music and Foley for cut scenes, and all in-game sound effects.

### **PRE-PRODUCTION**

A new audio programmer joined the audio programming team and together they embarked on extensive redesign work of the API from the Medieval 2 engine. This was Sony Cambridge’s first foray into the world of PlayStation 2 and with their designs set firmly on dynamic loading throughout, a new approach toward audio handling was necessary in code. Through buffering audio into RAM, the API still supports audio streaming from disk providing us with the sound quality of CD audio and the opportunity to better both of the Medieval series games. We were involved in some of this process to ensure that the kind of functionality we felt we would need was made available.

As we were not working onsite and particularly without any prior knowledge of the sound design created for the rest of the game, it was important throughout the creation of sound effects for Nexus that we worked closely with the audio team at Sony Cambridge. There were key areas of crossover

where sound effects needed to remain consistent – character vocal sounds and Jen’s Vambrace sfx to name but two.

## FOLEY

Most of the cut scenes we worked on in Nexus were dialogue driven with a small amount of movement from each of the main characters in each. With not much opportunity for spot sound effects, the small clothing and footstep movements of each became more important than would ordinarily be. We managed to find the perfect sound for Jens leather trousers in an old jacket of Bobs that we moved in front of the microphone in time with the onscreen movements. The footsteps were harder to get right. Jen’s footsteps involved the movement of a large garden slab into our live room so that the best **signal-to-noise ratio** could be obtained. Again, the footsteps were recorded in synch with the onscreen footage, with Barn providing the movements in a particularly effeminate pair of shoes he had at the back of his wardrobe. Scree did not have Foley throughout the rest of the game’s cut scenes and so the trend continued throughout Nexus for continuity purposes.

## GARDEN AMBIENCES

The function of the garden ambiances on Nexus was to provide an audio flavour of what each of the main realms would be like, in much the same way as the “Hall of Heroes” on Medieval I. They were drowned in reverb to give a ghostly feel, as there was no visual representation to synchronise with a lot of the audio content.

## DUBBING

Dubbing is a film term and refers to the mixing of all three main audio elements (Dialogue, Sound Effects and Music) into a final soundtrack. This will involve automation of each of these various elements in order to bring forward the most important perceived element at any one time. Orchestral music, such as that in Primal, has a huge **dynamic range** requiring the use of automation techniques to bring out quieter sections and control the louder moments. The dialogue of Primal was played back separately from the audio stream for each cut scene (i.e. they were not mixed together.) This was to aid the implementation of other languages onto the same disk. To this end, all the other audio elements were dubbed into a satisfactory overall mix, but it was only possible to control the volume of the dialogue from the code.

## **Dialogue Effects**

One of the final tasks we were involved with on Primal was the processing of some the dialogue with artificial effects.

Jen’s speech was the major component of this work as it was necessary to make her dialogue sound different when she was in demon form. This was a difficult process and many techniques and effects were tested until we found a specific sound we were all happy with. The job was further complicated by the fact that the process needed to be scripted due to the sheer volume of files involved.

Other characters needed similar treatment to further “demonise” their sound. Abaddon and Arella were both processed in different ways to create an “other worldly” sound to their dialogue. In addition a few select lines from Abdizur, Iblis and Herne were also processed (mainly with pitch shift) in order to give more impact to their initial appearances in the game.

## Lessons Learned

### KNOWLEDGE

The live recording has given us a much greater understanding of how to get the best sound out of an orchestra. We have been able to compare the finished scores produced by Nic Raine with our MIDI files to see where he has made changes. We can also compare our synthesised recordings with the live versions in order to better understand the relative balance of each section within the orchestra and improve our mixing.

### IMPERFECTIONS IN CURRENT DEVELOPMENT PRACTICES

The development of a game differs from the development of a film and it is not always possible to leave the audio creation until after the content creation. As discussed earlier, there are very good reasons why this is the case (e.g. getting the correct implementation technology in place early on.) This can lead to problems late on in development, as it is often the case that content will need to be altered for game play reasons. The knock on effect can lead to specific cues written for earlier versions of cut scenes no longer working in terms of their structure. Editing of the music cue is a possible solution, although most definitely not desirable as it is very rarely seamless. The best solution is to re-record but throws up problems, other than the obvious cost implication, with sound consistency between the new and the old recordings. The most practical solution is to take more suitable cues from elsewhere in the score but, again, this is not desirable because the reuse of the music is a wholesale lift and leads to wasted audio budget (through the discarding of recorded cues.)

As with film, the bigger picture implies that the development of game needs to change to allow for a longer period of time at the end of the production cycle. All of the art assets would be locked and this time could be used for solid development and polishing all of the audio assets. This would give the composer time to record the entire score **after** the development of the game, thus allowing for art assets to be changed without the domino effect on audio. Of course, there is a huge cost implication involved with extending the development length of a game further, but if the rest of the development team can move onto a new project, costs could at least be minimised.

### DUBBING

Advances in the power of consoles, together with a greater level of complexity in game software, has led to an increase in the volume and complexity of a games audio assets. This in turn, has made the process of game dubbing more difficult. The engineers responsible for game dubbing should learn dubbing skills by attending courses and sitting in on film dubbing sessions to become more familiar with techniques used. In line with that, better run-time tools need to be made available to make the mixing and automation process much simpler to perform where audio content is to be mixed at run-time by the game software.

### DIVISION OF LABOUR

In order to raise the bar on the quality of each games soundtrack, it is no longer possible to expect one individual to produce an entire soundtrack on his / her own without significantly compromising on quality along the way. As with film, the process of audio creation needs to be split into specialised jobs. This has already been happening at a gradual rate over the past few years in games, with the job of "musician" being replaced by a "composer" and a "sound designer." However, it is wrong to assume that a competent composer will also be skilled in the areas of dubbing or mastering, for example. That's like assuming that because someone is a good portrait artist, they can use

Photoshop. Dubbing and mastering are highly technical and skilled disciplines requiring many years of practice to achieve competency. Many such skilled individuals will work on a film soundtrack to bring their particular area of excellence to the table to produce a professional and polished product as result. It is time that the games industry followed suit.

The biggest problem is finding the right person for the job. In the case of the dubbing engineer, the job of “dubbing” a game will be different in many ways from the job of “dubbing” a film. The underlying principles will remain the same, but the tools of the trade will need to be different to accommodate the difference in delivery media. There is probably no-one in the world with the exact skill-set to do this job properly at the moment (not least of all because the tools don't exist as discussed above), but the search should begin in the audio domain (where there is a cross-over of complimentary techniques,) not in the studio for the first available programmer.