

# **AUSTRALIA'S WONDERLAND**

## **Sydney, Australia**

**Tool — Borland Delphi Developer**

**Industry — Entertainment**

**Application — Space Probe Seven**

### **OVERVIEW**

Thrill-seeking visitors to Australia's Wonderland, just outside Sydney, will find a challenge with the park's newest ride, Space Probe Seven. Plunged into a nightmarish scenario revolving around a futuristic alien invasion of earth, the ride hoists brave-hearted visitors up a 210-foot pole, where they are given several seconds to gather their wits before plummeting straight down the pole at speeds of up to 120 km/h. • Using actors and sets, a design studio filmed video footage of real-life news' readers from Channel Seven (which co-sponsored the ride), covering the worsening disaster. They then worked on creating an atmosphere to go along with the storyline. People waiting in the ride queue pass through bunker-like tunnels filled with smoke machines, air cannons, buzzing neon signs, fans, hazard and strobe lights, and even a simulated laser scan of their body before they reach the point where they can actually get into the ride's carriage. The video and effects are all controlled by an application created with the Borland Delphi application development environment. "We were trying to create this feeling of anxiety that something's gone wrong," said Pollard Productions' Director Roger Cameron, whose background in theatre and special occasion's lighting made his firm an easy choice for Wonderland officials designing the ride.

"Our job was to play the video and make sure that certain things could happen at certain points in the movie," said Bold PC software engineer Kieran Sharp, who wrote the Delphi application synchronizing the video and real-world events. "Whenever the movie didn't need processor time, we queried it on its time and checked it against a list of events. If an event was due to happen, the program would flick switches," he said. Once the events had been linked with the video, a second application allowed them to be played back. Throughout the ride, six Digital Venturis 486/66-based computers running a number of event-synchronized videos control the multimedia experience from start to harrowing finish.

The Delphi application had a strict set of design guidelines. "We had to be able to remember the state of up to 16 switches for each frame of the video, which runs at 25 frames per second, and we had to be able to insert and delete events," said Bold technical director Thaddeus Robertson.

### **SITUATION**

Cameron realized that the easiest way to design the multimedia experience and to ensure it would be the same for every visitor was to investigate the implementation of computer-based control systems. "We'd moved away from the idea of using too sophisticated a control system," Cameron said. "We basically wanted to use straight on-off contactors to turn lights and other effects on and off as visitors progress through the tunnels." Cameron wanted a way to synchronize the video that had been shot with the barrage of lights and other effects rigged among the tunnels through which the ride's queue passes. He was referred to Sydney-based multimedia developers Bold Pty Ltd, who specialize in developing corporate demos and other multimedia projects. "I gave them a written breakdown of what I wanted to see happen in the tunnels," Cameron said. "They put it in very quickly." The team at Bold first converted the video footage to MPEG format. Then, using the Borland Delphi development tool, the team at

Bold built an application that let producers link real-world events to the MPEG video footage. Incorporating Apple Computer's QuickTime for Windows video software, the Bold tool allowed producers to pause the footage and insert events linked to specific points in the video.

## **SOLUTION**

The choice of Delphi to develop the application was easy, Sharp said. "We'd been using Delphi for some of our presentation software in the past. It was fairly easy to use, and we thought it would be quick to get this project going in Delphi." He said the Delphi interface allowed the developers a high level of flexibility in designing the system. "The interface makes the work a lot quicker because you can just shove the components around until they look right. The only thing you have to worry about is the logic of the programming behind it." "The interface we were using was largely standard Windows components," Sharp continued. "The components that come with Delphi were largely sufficient for the job." Sharp said the only custom programming that was required came in while the team optimized the interface between Delphi and QuickTime for Windows.

Robertson said that the company chose Delphi over Visual Basic for several reasons. Most importantly, he said, "Delphi allows us to get the bare bones of an application very quickly. You can get an application with about 4 mouse clicks, then customize it from there. You spend less time working on how to wrap up an application and more time on functionality and content."

Robertson said that the built-in database support of Delphi made it an excellent choice for data-intensive programming projects. "Object Pascal is nicer than BASIC," he said. "You can do more with it." He also noted that, while Visual Basic applications need a separate .DLL file on the client computer to run, Delphi distributes all application components in a single .EXE file -- a "major, major advantage." "It's a much neater solution," Robertson said.

Signals to control the special effects devices were sent through I/O boards linked to momentary on-off switches. As well, an analogue interface card allowed a number of lights to be dimmed "in sync with the lights dimming on the video, to give the impression of a Sydney-wide blackout," Sharp said.

This type of interface requires hardware-level addressing, a task that Delphi handled without difficulty. "Delphi allowed us to easily incorporate assembler code into the application," Sharp continued. "It was really useful considering we were using I/O boards. Delphi handled the assembler code just like any other procedure."

The Space Probe Seven project was a new type of venture for those involved. "We've all learned things that we would incorporate if we were doing the same thing again," Cameron said. He thinks this type of computer-based multimedia show will become more common as rides -- and audiences -- get increasingly sophisticated.

## **CUSTOMER COMMENTS**

"We couldn't have done it without the computer control. The degree of reliability and the ability to repeat the same queues at the same point in time was crucial to the project. I think it's the way things will move. These days, to just get on the merry-go-round is not enough. They need to keep people entertained all along the way. And the best part of the project? In the last week when we were frantically debugging, they let us go on the ride as many times as we wanted."

Adapted from Borland @ [www.borland.com](http://www.borland.com)