

Short Takes

High-Speed Connections and Supernatural Signs

by **Stephanie Argy**



People and objects representing information stream through a photo-realistic computer-generated city in British Telecom's commercial "Network," shot by Brad Rushing.

City Lights

For the recent British Telecom commercial "Network," cinematographer Brad Rushing had the opportunity to combine lighting in the real world with lighting for a computer-generated environment in an unusually collaborative way. By working with the visual-effects crew to set lights in the virtual world before the physical shoot began, Rushing established an overall lighting scheme for the entire environment. He then shot live-action performers and objects so that they would not only match the CG elements, but also interact with them precisely.

The goal of the spot was to represent the information flowing over British Telecom's business networks by showing people and objects hurtling through the air in a photo-realistic CG city. The spot opens on a lake, where a man in a boat throws a fish to another man, who throws it up in the sky. The fish flies across the landscape to a city, where a businessman jumps out of a building, grabs the fish, and flies on. As the commercial progresses, businessmen, desk chairs, filing cabinets, oil rigs and other objects related to business continue to fly from one scenario to another, moving at high speed through the city. "There's a childlike spectacle to it that's supposed to put a smile on your face," says director Joseph Kahn.

Rushing knew the concept of the spot several months before he became involved because Kahn, the visual-effects team and the client had been working on a rough CG animatic that plotted out moves and transitions from shot to shot. But the first time the cinematographer saw the animatic, "I fell out of my chair," he recalls. "It made everything I'd done before look like child's play. The shots, the angles, the scale, the scope — I was so taken aback."

Kahn and Rushing immediately began meeting with other key personnel, including visual-effects supervisor Eric Durst and artists at the effects house Syndicate, to discuss how to make the animatic a reality. "We certainly could have made the spot all CG, but it wouldn't have had the same visceral feel," says Rushing. "We decided we wanted as much as possible to be real." The filmmakers decided to build the environments and numerous

background characters as CG elements, and shoot the foreground elements live against greenscreen. From the beginning, an important goal was finding ways to tie the virtual and real worlds together. "The more that CG and live-action elements interact, the more you buy into it," notes Rushing.

To generate opportunities for that kind of interaction, Rushing and David Lombardi, the project's CG supervisor at Syndicate, spent a day working on the animatic together, picking out camera angles, setting CG lights, and ensuring that the lighting felt consistent throughout. As they worked, Rushing kept track of elements that could be applied to the real-world photography. For example, when objects are traveling past an office building, the building's chrome strips would reflect light onto those objects as they fly past, so Rushing noted he would need something to mimic that reflection.

Pre-lighting the animatic was a small part of Rushing's job, but he viewed it as a prerequisite to everything else. "So many things you do as a cinematographer are affected by other people's work," he says. "It's the responsibility of cinematographers to politely inject themselves into everything else!" At the same time, he adds, it's essential to be diplomatic: "Winning friends in the business gives you access to the places you need to be."

Once Rushing and Lombardi lit the animatic, Rushing used it to show his gaffer, Mark Lindsay, and key grip, Mike Dronge, precisely what they would need to do. The shoot took place almost entirely on a Vancouver stage surrounded by greenscreens that at times wrapped 270° around the performers, but the spot had to look as though

Photos courtesy of Brad Rushing. Animatics courtesy of David Lombardi.

the action were happening outdoors. "I thought, 'If I were shooting this downtown, the lighting wouldn't be perfect,' so [the light we created] has an intentional rawness," notes Rushing. "I made sure we didn't just put a Kino Flo by somebody's face, because you would never have that kind of control in an outdoor setting."

He and Lindsay began by envisioning the ambient skylight that would illuminate someone standing between skyscrapers, and then simulated that with three 18Ks and two 12K Pars bounced into overhead 20'x20' bleached muslins. Lindsay then added direct "sun," simulated by four 20Ks.

To light the greenscreen, Lindsay used 86 Kino Flo Image 80s, each holding four K32 tubes and four Supergreen tubes. He wired the Image 80s together and controlled them with a dimmer board. "The greenscreen needs to be one stop less than the keylight, but our keylight would change from time to time, depending how fast we were shooting," explains Lindsay. "We needed to be able to control the luminance of the greenscreen, but we had 86 Image 80s and didn't have the time or manpower to change them manually."

By looking at the animatic, Lindsay and Dronge were able to help Rushing build in the lighting interactivity he was seeking. In one scene, for example, a woman is talking to a doctor who grabs a glowing X-ray image out of thin air and looks at it. The actual X-ray was added later as a CG element, but it had to illuminate the doctor as he pulled it from the air. To simulate the effect, Lindsay built a rig using a 1K Zip and a snoot and operated it by hand so that a little patch of light would swing on and off the doctor at the appropriate moments.

Other effects were achieved by bouncing or blocking light to match what was happening in the CG environment. Rushing asked Dronge to find unusual materials to accomplish this. "I had the guys build glass over black, rather than use a mirror," says Rushing. "They got sheets of insulation that had a metallic surface on one side." Dronge built sliding

blacks that rolled past Lindsay's sun, as though the subject and camera were moving past a building that momentarily cast a shadow. At times, Dronge used unusual cookies. In one scene, a CG motorcycle was meant to cast a moving shadow, so the art department made the key grip an 8"x10" cutout of a motorcycle that the grips slid along in front of lights to cast the same shadow on the real actors.

Rushing was also able to use the animatic to make sure shots would actually work in the real world. "When we began timing out some shots, they were almost impossibly fast," he recounts. Though some shots were altered, Rushing sometimes made adjustments to better accommodate what was planned. For example, to decrease the dolly's momentum so that it could start and stop more nimbly, Rushing lightened its load by taking people off and placing a Libra head on it instead.

Rushing shot the action with a Panavised Arri 435 and Primo lenses, and he stayed mainly in the wide focal range. "When you're up in the sky, you want to see the buildings and the other streams of information," he notes. He used Kodak Vision2 500T 5218, which he describes as his workhorse: "It has all the speed, plus wonderful contrast."

As complex as "Network" was, none of the work was done with motion control, mainly because of the filmmakers' concerns that a motion-control rig wouldn't be able to move quickly enough to match the actions in the animatic. Instead, Lombardi placed tracking marks all over the set and later used 2d3's Boujou and a relatively new program called Syntheyes (from Andersson Technologies) to track them.

At Syndicate, a team of 17 spent almost four months on the job, including about six weeks to create the original animatic. Character work was done in Maya, while the city and all the other elements were built in Lightwave. Everything was composited using Flame and Digital Fusion. To enhance the realism of the city, the effects artists used real-world textures and references. Photographs of buildings in London, Los



Angeles, Vancouver and Belgium helped create a hybrid city of old and new architecture, and high-dynamic-range (HDR) images of skies were used to provide the main ambient light source for the city environment — a CG version of Lindsay's overhead bounced muslins.

Durst says that lighting is always an important part of a CG shot, because the image will look flat and artificial if it's not lit correctly. "It's a matter of getting the right flares, having the light hits things so it doesn't clip the highlights, and maintaining enough difference between the lights and shadows," he explains.

Rushing says his biggest source of inspiration as a cinematographer has always been the world around him, but "Network," with its synthetic, photo-

The commercial offered Rushing an opportunity to combine lighting in the real world with lighting for a CG environment. Below: Rushing takes a light reading on the greenscreen stage.



realistic environment, forced him to pay even closer attention to the real world than usual. "When you begin to think of marrying the artificial and the real, it demands an exploration of what constitutes the real." And the job turned out to be challenging in a way he never expected: "My focus was honed on trying to imagine all the things that weren't there, and I'd never had to spend that much time in an imaginary world before. I thought it was going to be easy physically, but by the end of the shoot, I was exhausted by the long hours of concentration."