The Workflow

Small screen, big effects

The gap in quality between TV and film visual effects has narrowed and the technological resources are interchangeable, yet budgets remain worlds apart. **Adrian Pennington** reports on the UK's burgeoning TV VFX sector

AS A mark of how far movie-style VFX for TV have come, consider that the average *Doctor Who* episode in the last series contained up to 100 shots — the same amount produced by Mill Film for its Oscar-winning work on *Gladiator* in 2000.

"In 2004 when the BBC tendered *Who*'s visual effects work there was virtually no reference material available," recalls Will Cohen, CEO at Milk Visual Effects. "The only VFX for TV were graphics sequences in documentaries or reconstructions in drama docs."

A decade ago VFX for TV formed a cottage industry in relation to feature film effect, but now TV commissioners can base entire shows around CGI characters and environments. *Doctor Who*, along with HBO's sprawling fantasy series, *Game of Thrones*, has helped spawn a new TV genre of sci-fi/fantasy in which CGI is embedded in the storytelling. BlueBolt was the lead vendor on the first season of *GoT*, completing around 300 shots with photo-real CG environments and CG dragons.

Will Cohen formed Milk Visual Effects last April with fellow members of The Mill's defunct TV division

The ambition with TV

The international success of these shows have helped ignite a wider creative renaissance in TV drama. A-list directors like Steven Soderburgh, Ridley Scott and David Fincher find the freedom to tell expansive stories outside the confines of Hollywood, while cable and internet giants like HBO, Showtime, Starz and Netflix — which has just signed four series from Disney's Marvel — have the appetite and deep pockets for subscriber-netting episodics.

The UK's VFX for TV industry remains tiny in comparison to the US which built a sizeable one on the back of shows like *Smallville*, but growth is promising in light of the recently introduced TV tax regime which gives producers a greater incentive to locate work here.

Dneg, a beneficiary of Starz, made the decision to shoot the 16-hour sci-fi series *Outlander* in Glasgow, bagging the series' potential 2000 VFX shots. The facility also hopes to entice more work currently shot and posted in the US, to its London or Singapore studios.

"We are interested in shows that shoot in the States but put their VFX into the UK," says Jonathan Privett, who heads Dneg TV. "That would be a real development for the sector."

The budget differentials remain vast. Privett estimates that for a major US TV series the VFX budget could be $2-3 million spread over 16 hours, whereas for a tentpole 90 minute feature the figure is more like $50-100 million.

On the other hand, TV VFX work tends to be more predictable than the fickle nature of film projects which require massive scaling up one day and possible famine the next. The collapse of LA's VFX stalwart Rhythm & Hues on completion of *Life of Pi* is testimony to that.

According to Cohen, a film VFX house may ramp up its staff and pipelines to create hundreds of shots only to have the show's editorial slash its requirements. In TV though, the facility faces multiple but regular transmission deadlines ensuring a core spine of work to sustain the business.

"The ambition with TV will always match that of a feature but the challenges are time and budget," says Cohen, who formed Milk last April with fellow members of The Mill's defunct TV division. "The time between series deadlines are very condensed and you have to stick with what you come up with first time. On film, you might have the luxury of creating a hundred iterations of an object. In contrast, on TV you have to go with version seven."

This demands an economy of storytelling he says, where a facility must find a way to communicate multiple plot points in short sequences. "TV is a slightly more forgiving medium," he adds. "There is lots of stuff you can get away with on a TV screen that you couldn't if the shot were blown up to a 90ft screen. That is a huge difference."

Privett, who left Rushes with VFX producer Louise Hussey to help set up Dneg TV also in April, agrees: "If you're doing a green screen shot for example, then the gold standard is 100% perfection but if a tiny bit of detail is lost somewhere then on TV you probably wouldn't worry about it, whereas on film you would go the extra mile. That is the compromise you make when your budget is a hundredth of what it would be for a feature."


Doctor Who has helped spawn a new TV genre in which CGI is embedded in the storytelling

Since 2000, the quality gap between television and feature film effects has shortened and the techniques and technology pipelines to produce them have become virtually indistinguishable. "We needed to develop tools to create 30 creatures a year for *Primeval* [at The Mill] in order to hit the TV schedule which meant devising really light rigs, but that technology and experience is transposable back to features," says Cohen. "Deconstruction tools for TV are another element that easily crosses over."


Milk's creations for *Doctor Who* included a framed painting that is revealed to be a full 3D environment

Adds Hussey: "In TV, you don't have six months of creatures work, you might have four weeks. Instead of several months of heavy effects design, you might only have time for a quick, simple effect."

A collaborative approach

Artists, however, enjoy a more direct relationship with the lead creatives on a TV job. Instead of dealing with layers of VFX supervisors and decision by committee, by working hands on with the TV director, facilities can obtain approvals faster and the whole experience feels more collaborative. "There's not as much prep time, not as much time to complete the shot and you have to think about your approaches much more carefully," says VFX supervisor Hayden Jones. "Not only do you need to create the effect to deadline but when a client wants an alteration you need to make those changes quickly."

Dneg piggybacks its TV arm on the pipeline and rigs of its mammoth feature film business and found its TV wing useful in establishing a relationship with major directors. Ridley Scott, for example, placed the VFX for *Exodus* at Dneg after the facility worked on the pilot for Scott's TV project for Sony Television, *The Vatican*. Other projects include the BBC's *By Any Means* and *Death in Paradise*.

"For TV, we run a slightly stripped down version of the pipelines but it's not really too disimilar," explains Privett. "The fact that we have a fantastic pipeline in place will help us to do TV VFX faster and better than our competitors."

Dneg, which employs 900 people in Fitzrovia, 50 on TV and the rest on features including *Jupiter Ascending, Godzilla*, Wally Pfister's *Transcendence* and Alex Garland's *Ex Machina*, has the luxury of exchanging artists between TV and film jobs.

"If we need an effects artist for a week we can pull one away from features," says Hussey. "We have the ability to cherry pick specific sets of skills, which is harder in a

A decade ago VFX for TV formed a cottage industry in relation to feature film effects, but now TV commissioners can base entire shows around CGI characters and environments

The Workflow

boutique company because you'd have to hire that person from the market and they might already be working for companies like us."

Doctor Who's high-profile 50th

Milk has completed shots for the third series of *Sherlock*; creature animation for David Attenborough's *Natural History Museum Alive* in 4K 3D for Sky Atlantic; and is in pre-production on BBC/Space's *Jonathan Strange and Mr Norrell*. It is also working on the feature *Hercules*. The facility is synonymous though with *Doctor Who*, having worked on all seven series since 2004 and just landed series eight with a possible two more to follow.

The 129 shots in 3D for the 75-minute special *Doctor Who* 50th anniversary episode: *The Day of the Doctor* was the team's first

"The ambition with TV will always match that of a feature," Will Cohen, CEO of Milk VFX

chance to stereo treat a TV drama. "Because we are dealing with four times the amount of data, the time spent compositing and rendering is longer and the cost was probably double the normal spend," explains Cohen. "We updated CG models or created new assets of the TARDIS, Daleks and spacecraft and matte-painted plates were reworked with a stereo depth."

Milk's creations included a CG fly-through of the besieged Gallifreyan city Arcadia and a framed painting that appears to be a two dimensional object but which, when the camera moves around it, is revealed to be a full 3D environment with depth. Milk also created flying fighter machines Dalek Pods, following initial design by the BBC's art department. Milk refined and animated the model in Maya, textured in Mari and rendered it with Arnold before marrying it in the CG environment, itself a mix of traditional matte painting and 3D geometry.

"A lot of the tricks you can get away with in 2D you can no longer do in 3D," says Cohen. "Instead of 2D matte painting you are exploring the geometry of the scene and lighting it in 3D which is more complicated, technically demanding and more time consuming in terms of set up and rendering, and it requires more crew."

"You rescale elements in 2D so you can tell how large an object is. In 3D, though, extreme rescaling doesn't work so that is one example of a technique that is removed from your box of tricks. 2D elements will often not work in stereo as they have no depth."

Murray Barber, VFX supervisor, was tasked with developing a tornado effect which could be controlled easily shot to shot. "The hardest thing to create is something that's not been seen before," he says. "It's a process of trial and error until we come up with a look that the director likes and it fits into the storyboard." TVBE

www.milk-vfx.com