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Time is of the essence – especially on a ground-breaking project with a short delivery cycle and a strict deadline. When LA boutique The Box Creative was faced with creating the 12-minute, VFX-laden, 6K debut promotional sequence for Barco's Escape immersive movie experience, featuring 20th Century Fox's 'The Maze Runner', they quickly turned to Silverdraft's supercomputing Demon workstations for the solution.

With the job completed in just five weeks, Barco Escape, featuring 'The Maze Runner', premiered to audiences across the US in Fall 2014, earning rave reviews from guests and critics – who loved not just being at the movies, but in the movies. Barco and 20th Century Fox have since inked a five year, multi-title per year agreement to release movies in Barco's Escape format, with 'Maze Runner: The Scorch Trials' set to fill screens and enthrall audiences in Fall 2015.

The Box Creative president Jason Chen and CTO Simone Lombardo reveal how their small VFX studio was able to ramp-up and conjure-up the ultra-widescreen magic in rapid fashion.

Tell us a little about The Box Creative?

Jason Chen: We're a technology-based studio, with a desire to work at the bleeding edge of entertainment VFX, and are always looking at new ways to push things forwards. The business was founded by myself and Simone Lombardo, who is our CTO. We have a combined experience of over 20 years in motion picture VFX post production and VR / gaming creation.

We established The Box Creative to take on new challenges in the field of visual imaging for entertainment – as a one-stop-shop environment for motion pictures, games and virtual reality (VR) – as we believe it's only a matter of time before those worlds collide. Accordingly, we have harnessed the processing power of Demon workstations, coupled with a proprietary, real-time cinema engine hybrid pipeline, from the video gaming industry, to deliver feature-quality content at staggering speeds, which we can also easily translate to related entertainment formats.

Can you explain the scale, scope and deadline on the project?

Jason Chen: The Barco Escape system has two additional projection screens positioned on either side of the main screen, which give the audience an immersive, Cinerama-style experience. When combined with Barco's Auro sound system, the final viewing result is really impressive, enjoyable and immersive.

**"Only time travel
could be better"**

Jason Chen, president, The Box Creative

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Our challenge was to create content for the two additional side screens, using the center screen final sequence as a guide, delivered by Method Studios. Our challenge was to match the side screen content to the center screen and expand our angle of view to fit within the Barco Escape format. Wes Ball, the director of



'The Maze Runner', showed us what he wanted on the side screens, in a series of interactive video reference Quicktimes, so we had a brief to create images that would convey the scale and danger of the maze itself. However, post-production on the movie had completely wrapped, so we had little to no access to original on-set data or reference images. Although we were able to use some of the assets that Method Studios had created for the center screen visuals, more times than not our team had to create a lot of elements from scratch.

Creating the images that Wes wanted on the side screens would involve extensive camera and object tracking, the creation of a range CG elements for set extensions, plus texturing, modeling and lighting work – all at 6K. The interesting proposition for us was that we had just five weeks to create, composite and deliver 128 VFX shots. Deadlines have to be met, often under great time pressure, but this was extreme.

As this was all new, our work also encompassed collaborating with EFILM and FOX to spec'-out the final deliverable files. In the end, we delivered two separate 2k files for the left and right side screens.

What technology did you assemble for the task?

Jason Chen: We started from scratch. We purchased ten Demon workstations, configured with Micron SSD Drives. Because our pipeline is GPU based, our Demons had NVIDIA Titan graphics cards, enabling us to leverage the performance of the Crytek cinema engine with our chosen software. We use a variety of software packages such as Autodesk Maya and 3ds Max for CG modelling, animation and texturing, plus the Adobe Creative Suite and The Foundry's Nuke for VFX compositing. To help us bypass the

time needed to build a server, Silverdraft allowed us to use the SAN in their Devil's Playground supercomputer trailer, which also served as our home base for the project.

This combination effectively gave us a turbo-charged pipeline. We knew our artists would get much faster direct feedback by working with each other and using the realtime functionality of the engine itself.

Why did you choose video-gaming engines for cinema post production?

Simone Lombardo: The biggest thing missing from cinema post production today is real-time interaction for digital artists. Traditional renderers take a long time to output each frame – all resulting in longer turnarounds. However, the sole purpose of a gaming engine is to run at least at 30-60fps at 1080p, achieving real-time interaction for the player. Our thinking was, wouldn't it be great to change a texture, or adjust a light, and see the result immediately, on-the-fly, rather than having to wait for a test render that might take hours? So a few years back we adapted an online videogame engine, Unreal Development Kit by Epic, for motion capture purposes, and started to enjoy better levels of performance.

What level of performance did you achieve via the Demon workstations?

Jason Chen: In the beginning we did an initial comparison test of a CG robot in a simple environment. Using a traditional render pipeline environment, the render time for a 2K frame was 12 minutes. However, rendering the same frame using our cinema engine pipeline took less than a second! We put the two images side by side, and they were of identical image quality.

All of a sudden, our digital artists could work at 6K in real-time with direct feedback. They could now build and render entire shots in minutes that previously would have taken hours or even days, using the cinema engine pipeline paired with the Demons. All that sitting-around-time spent waiting for renders instantly evaporated. We knew our team could power their way through the project, and pump through the workload like blazes. Only time travel could be better

How well did the Demons perform?

Jason Chen: All of the software we selected worked universally on the Demon workstations. We pushed the Demons really hard, ran them continuously for the whole five-week work period, constantly

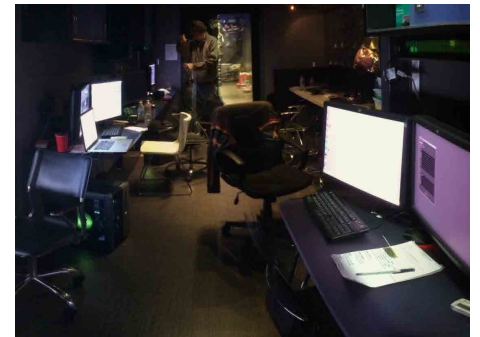
switching between software programs, and they performed extremely well under huge amounts of pressure.

How did the Demons help you save time and money?

Jason Chen: Silverdraft really helped us ramp up quickly and was able to churn out nine Demon machines to the specs we asked for in a remarkable timeframe. We had 15 people working on the project – nine artists and half a dozen production staff – but I can easily imagine a crew being triple that size using an alternative technology pipeline. Using Demons in combination with our own technology and gaming pipeline, our overhead and delivery time shrank massively.

What have you been doing since The Maze Runner project?

Jason Chen: We have been keeping very busy, using our original Demon workstations and our cinema engine pipeline to work on a range of motion picture VFX sequences, content creation for games, as well as R&D for VR and Augmented Reality applications, all coming to a screen near you soon. Watch this space.



What would you say to anyone considering purchasing Demon technology?

Jason Chen: In an age when the entertainment industry is moving forwards in ever-more progressive ways, post companies have to adopt new, flexible and more efficient working practices. The Demon is a super-compact, powerhouse machine, delivering great versatility to run lots of different software plus extreme render power, all-in-all it is a great all-round generalist machine to take you into the future too.



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