



The Legacy Software Conundrum

an industry op-ed by Steve Wright

ILM has recently joined Weta Digital and Intelligent Creatures, all visual effects powerhouses, to obtain a Nuke site license. The interesting thing here is that ILM already has very sophisticated compositing software developed in-house over many years, yet felt the need to purchase Nuke. ILM is finally starting to confront the legacy software conundrum.

What happens in the early life of a large, sophisticated effects studio is that the engineering staff decides that none of the commercial packages is powerful enough or extensible enough to satisfy their needs for sophisticated effects. Since sophisticated effects are the hallmark of the powerhouse effects studio, they decide they must build their own software. This is a reasonable decision - at first.

Fast forward ten years to today, and the legacy software is starting to get long in the tooth. It suffers from unforeseen limitations which adds to production costs. These limitations stem from two sources. First, engineers are very smart but not omniscient, so oversights are made in the basic architecture of the software which later bites them in the butt. Second, hardware has increased dramatically in speed and power over the last decade and the core engine of the software is now out of date and cannot take full advantage of it. The company is faced with a top-down rewrite of the code if they are to keep up. Higher production costs stem from the lower productivity plus the engineering costs required to continuously add new features to the software for each project.

The advantage to switching to a program like Nuke is threefold. First, it has a modern core engine that is highly optimized for today's hardware and is blazing fast. In visual effects production, speed is life. Second, Nuke starts with a very robust "base" of features and functions so the engineering department does not have to add so many new features for each project. And third, Nuke is artfully designed to make it fast, easy, and efficient to add new custom features, which may not be so true of the legacy software.

At first glance it may seem to be a no-brainer - switch to the modern new software and get on with it. The conundrum is that there is a huge downside - the engineering costs of switching - which dwarfs the cost of purchasing the new software. A VFX studio is a tightly integrated network of digital departments that all have to be able to talk to each other and exchange data. After it has been up and running for many years has accumulated a vast library of programs and utilities that not only add features and functions but also "glues" the facility together. Programs that allow the art department to provide elements for the compositors, programs that convert test renders to QuickTime previews for

clients, programs that convert the camera data from the Match Move department for the 3D department, and so on. All of these programs must be updated or replaced completely to work with the new software.

There is another hidden cost of legacy software, and that is staffing. Since, by definition, the software is custom and unique to that facility, there are no trained artists out there that can be hired to start work on Monday. New hires have to be put through an extensive in-house training program, and even then they won't be fully productive until they have crawled up the learning curve quite a bit. Then there is a secondary cost - the studio cannot afford to lay off part of their staff during lean times. Once laid off, the artists will find jobs elsewhere and a new batch of artists must be found and trained. Better to keep them on board during the lean times, but this obviously adds to the overhead. If your software is a commercial package like Nuke you can expand and contract the staff as production needs fluctuate knowing that you can find trained talent when the time comes.

Yet another issue is the point of view of the artists that use the software. Permanent positions are increasingly rare as the industry business model moves towards project hires. Today's digital artists are more itinerant than ever - digital gypsies, if you will - moving between companies from project to project. Getting their next gig is always on their minds, and their chances depend on their production experience and what software programs they have mastered. It is much easier to get that next job if they can say they are experienced with Adobe Photoshop rather than Bob's Personal Paint Program.

There are still a few large studios that use custom in-house legacy software. However, these giants are locked into a slow-motion train wreck as their legacy software gets progressively more costly to use each year. To avoid going the way of the dinosaur, at some point they will have to bite the bullet and make the switch. And the longer they wait the more painful it will be.

Steve Wright