



Courtesy of Nelvana Limited

Saving Production Costs with Toon Boom Harmony

Creating quality animation on time and on budget requires a masterful blend of art and technology. Toon Boom Harmony software solution provides all the input, output and integration tools that animators need—including digital animation with virtually no clean-up.

What puts the “boing” in *Gerald McBoing Boing*? What puts the groove in all the keen teens in *6TEEN*? Animation, of course—animation with Harmony. Montreal’s Toon Boom Animation Inc. launched its Harmony software for animators worldwide late 2004, and the animation production solution has already earned praise from leading companies like Ottawa’s Mercury Filmworks (providing animation for *Gerald McBoing Boing*) and Toronto’s Nelvana Limited (*6TEEN*).

Animation tends to be an art form with a split personality. One half is fanciful, with its head in the creative clouds, while the other half is focused on no-nonsense, well-grounded production that must meet demanding schedules. Making the production end realize the visions of the creative end, on time and on budget, has always been a challenge—but a little Harmony in the studio has made creating quality animation faster and easier.

Nelvana’s animated show *6TEEN* follows the minimum-wage adventures of six teens toiling in the most sacred of adolescent hangouts—the mall—while leaning on one another for friendship and support. Michael Lahay, Techni-

cal Producer for Nelvana, says that Harmony provides the support his animation team needs.

“The quality goals for *6TEEN* were to create a cut-out style show with a higher overall production quality by using Toon Boom Harmony’s advanced animation and compositing tools,” Lahay says. “While development and design began in Flash, we were able to successfully transfer our production to Harmony. This gave us the ability to not only build hierarchies of these complex characters, but create

a final product that would have needed multiple software packages to achieve.”



Courtesy of Nelvana Limited

Toon Boom’s Harmony solution offers animators all the production tools they need in one, integrated system. “Harmony eliminates the need to stop production, work in other applica-

tions to clean up drawings, apply special effects or render, and continue working in the main application used for production,” explains Joan Vogelesang, Toon Boom President and CEO. “Harmony is a vector-based animation system, which means you can output animation for any distribution medium, be it the Internet, television, film or HDTV, without any loss of quality,” she adds.

Start to Finish

Professional animation houses like Nelvana and Mercury Filmworks are enjoying the benefits of a sole software like Harmony that can take the production process from start to finish.

"If you want to follow a traditional animation workflow in Toon Boom Harmony, you can do so," says Joan Vogelesang, Toon Boom President and CEO. "All of the tasks in the digital production stage can be started and completed in this single solution. In fact, if you want to do the tasks outlined in the production stage preceding it, you can do those in Harmony as well! Har-

mony makes many options available to you, including a paperless animation workflow."

Mercury Filmworks is an award-winning innovator of animated content development that has always embraced advanced production techniques. Mercury has been using Toon Boom Concerto/Harmony to supply quality animation for *Gerald McBoing Boing*, a new series based on Dr. Seuss' classic character, licensed by Cookie Jar Entertainment Inc.



Courtesy of Mercury Filmworks

"With all our projects combined, including Gerald McBoing Boing, we produce a total of 45 – 60 min of animation a week, or 40 to 60 seconds of animation per animator per week," says Mercury's Line Producer, Kyle MacDougall. "Our entire team consists of 140 people in the studio, operating on two shifts between 7:00 a.m. and 12:30 p.m."

It's a busy place. With two series in production and several more in development, the Mercury staff includes one Director, one Assistant Director, two Animation Directors, one Art Director, one Technical Director, four Animation Supervisors, seventy-five Animators, six Key Animators, eight Composers, six Technical Setup Artists, four Designers, two FX Designers, eight Layout Artists, eight Storyboard Artists, two Key Color Background Artists, four Background Painters, two System Administrators, two Production Coordinators, and two Production Assistants.



Courtesy of Mercury Filmworks



Toon Boom's Harmony allows animators to lay out 2D vector-based imagery in a 3D environment, build multi-plane moves through the space, and create cinematic camera effects with a virtual camera. Mercury's Kyle MacDougall advises "Using the built-in script editor you can reach unprecedented levels of automation without leaving the software. To further add to their usefulness, scripts can be run by anyone, even the most novice user, as they appear on the main GUI as a button. One click and the script runs. You can't ask for anything more straightforward."

Compositing

- Integrate** animation, backgrounds and traditional effects.
- Adding** digital effects to 2D elements (lighting, shading, blurs, etc.).
- Adding** digital lens effects (depth of field).
- Adding** 3D elements (toon-shaded props/characters, CG sets, particle effects).
- Doing** all final camera work (pans, trucks, multi plane, etc.).
- Last pass** check for continuity (animation and backgrounds).
- Overall** show quality control.
- Render** scenes for edit.

By doing everything in-house from design through to compositing using one software package, Harmony, we've limited the delays for changes and revisions that normally would come from outside the studio.

Offline Editing

- Loading** rendered sequences.
- Conforming** rendered output to leica.
- Finalize** pacing of show.
- Adding** digital transitions (cross dissolves, wipes).

Mercury Filmworks – Harmony Workflow Gerald McBoing Boing

Savings and Advantages Over A “Traditional Workflow”

PRE-PRODUCTION

This stage provides definition to the animator’s vision.

The script determines the final design and number of characters, backgrounds and props.

The storyboard is an essential reference for production. It contains a graphic representation of what will be animated. Several drawings can be used to illustrate what is going on in a shot.

Corresponding dialogue and additional information are written under these drawings as a guide.

The dialogue of each character is recorded and mixed to obtain the voice recording.

Music that needs to be in sync with the animation should be recorded at the same time.

Using the storyboard and the voice recording, an animatic on which final animation will be based can be created. The animatic, essentially a draft version of the animation, provides a sense of the scene planning and timing of the animation.

Harmony has given the ability to condense the time required for character, prop and layout design and setup by streamlining the process from rough to completed colour. This has eliminated positions in clean-up and opaquing resulting in time and labour savings.

PRODUCTION

Artwork

Rough character and prop designs are traced off and cleaned up as vector lines on a Wacom Cintiq tablet in Harmony.

The clean-up process also includes breaking the character down into separate parts or elements i.e. head, eyes, pupils, torso, arms, hands, etc.

The artists analyze the storyboards to create all variations of parts needed to fully animate the character or props i.e. speaking mouths, various hands, eye positions, parts to accommodate different angles.

Once all the parts are drawn, the artists use an approved colour reference guide to add final colour to all the character’s separate parts.

Through analysis of the boards and the creation of a thorough database we’ve eliminated a lot of the line mileage necessary for a traditionally animated series.

Templates of characters make it easier staying on model.

The ability to create reuse for each character and their separate parts creates significant savings in time and labour.

Setup

A setup technician is responsible for the final character construction.

Construction includes assembling all the raw vector artwork onto motion tracking “Pegs” and putting them into cohesive limbs that all rotate and distort (stretch and squash) properly. The character is then ready to be placed in an animatable scene.

A project folder for each episode is created in the Harmony database. Each project contains a number of scene folders which match the scene count in the storyboard and leica reel.

An approved leica reel is broken down into separate Quicktime movies for each scene, and imported in Harmony.

The Quicktime gets separated onto two tracks: audio and image.

The imported leica and storyboard are used as reference to set the stage for each scene.

All appropriate background elements and props are imported to the scene and arranged to match the established board panels.

Characters are then imported from a network based library, placed and scaled to fit into the scene.

Panels from the leica are brought into Harmony as a guide for animators for posing, scale, proportion and placement.

The ability to change colour and line thickness at any point in production creates an amazing amount of control not seen in productions.

Because characters and props are coloured before animation begins we ensure the consistency of colour throughout the show.

Animation

An animator is assigned a scene and opens it from the database using Concerto/ Harmony.

He/she uses the leica’s broken-down audio and images as reference. The animator manipulates the characters much like a virtual stop-motion puppet to create all the key poses needed for the scene.

The key poses are approved or sent back for revision by a senior animator. Once the key poses are approved, the rest of the animation is completed.

Any additional FX needed for a scene is created by an effects animator. The approved scene is opened and the FX are animated in a traditional style using a Wacom Cintiq tablet to draw directly into the digital environment.

All camera moves and pans are able to be created at this stage.

The completed scene is submitted for approval from the Animation Director and supervisors. Any final revisions are addressed by the animator or directly by the supervisors and the scene is sent to compositing.

Ramp up time for the animators to hit quota (40-60sec/wk) is 4 to 6 weeks.

Combined three positions into one; posing, animation and inbetweening.

Since the animators have animated their scenes using clean and coloured artwork, this eliminates the need for these positions whether they be traditional or digital i.e. Clean up Artists, Cell Painters.



Direct To Digital... and More

Harmony allows animators to follow a traditional animation workflow as well as a completely paperless animation workflow. With digital production, animating can begin right away. Artists can draw characters directly into Toon Boom Harmony, and voilà—the clean-up stage virtually disappears. With Harmony, drawings can be modified at any stage with little effort. Better still, elements of work can be stored in template libraries, allowing creations to be used across animation projects. Venerable animation company Nelvana Limited has found that these features are especially beneficial for its cut-out animation workflow on *6TEEN*, which Nelvana produces in-house. “While most of our development is done using traditional tools, all production artwork is drawn using Wacom Intuos or Cintiq tablets,” says Michael Lahay, Nelvana’s Technical Producer. “Drawing digitally keeps the image clean, which saves time while preparing the artwork for animation.”

“For all of our digital productions we keep both a master design pack and a reuse library,” Lahay says. “These contain not only the characters broken into layers for animation, but also expressions, hands, cycles, animation and poses. Because *6TEEN* is such a design-heavy show with a difficult drawing style to maintain, we have focused our reuse on animation. The reuse library is mostly made up of posing and drawing from animation. As each episode is finished, animation reuse, poses and drawings are collected and catalogued for the reuse library.”

“The goal of reuse is to help the animator focus his time on the important scenes and raise the quality of the animation, not simply to finish an episode faster,” Lahay notes.

Maintaining files using Harmony also makes final rendering easier. “*6TEEN* is rendered as a Targa sequence, from there our intranet stitches the frames together into a Quicktime with a filed guide for review,” Lahay says. “Once the scene is approved, the Targa frames are delivered to post.”

Feature-Rich

Nelvana, too makes good use of the efficiencies that Harmony can provide on its show, *6TEEN*. “We have a range of footage requirements ranging from 40 to 60 seconds a week,” says Michael Lahay, Technical Producer for Nelvana. “Each episode is 22 minutes long and takes four weeks of animation and two weeks for design.”

The staff breakdown for the production of two episodes of *6TEEN* (produced simultaneously), includes one Production Coordinator, one Director, two Animation Supervisors, two Assistant Directors, one Technical Producer, five Designers, one Background Colour Key Artist, one Colour stylus and one Background/Layout Artist, four Storyboard Artists, two Technical Setup Artists, one Key Poser, sixteen Animators, three (Final Cut Pro) Editors and a System Administrator.

Nelvana’s animators are finding Harmony to be feature-rich. “While morphing is possibly Harmony’s most powerful tool set, I would say that the fact that all of Harmony’s animation tools were built on top of Opus, already a successful compositing package, is its most positive feature,” says Nelvana’s Michael Lahay. “This gives us the ability to not only create animation that would normally require several different software packages, but it also enables us to adapt the software to the production. With Harmony, we can make anything from cut out animation to traditional without having to compromise or change the style to suit the tool.”

Designs are easily shared via Harmony. “All of our templates are scene planned and delivered via our intranet into each scene as the animator begins his animation,” Lahay says. “This avoids searching for designs and reuse needed for each scene. Also, catalogues of designs and reuse are made for the storyboard artists to use for reference. After the storyboard is complete additional notes for reuse are added to anything that could further save time during production.”

Nelvana uses Harmony’s lip-syncing features too. “All lip-sync is done by importing the sound file into the scene and using the sound scrubbing tools. The animator will complete the animation, then break down the dialogue as they replace the mouth positions with designs from the template library,” Lahay says. “Most of the mouth positions needed are contained within the template of the layered character and simply need to be swapped. Additional artwork for expressions is also stored within the template for each character.”

When it comes to being a one-stop animation solution that smoothes out the wrinkles—and animates them as well—Harmony lives up to its name. Nelvana’s Michael Lahay observes, “Using the same software package for all aspects of design not only streamlines production but prevents any inconsistencies that may appear while moving artwork from one piece of software to another.”