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Hot Multimedia Tips

by [Francis Preve](#)

My favorite premillennial media buzzword these days is convergence. It's elegant, mysterious, and slightly gnostic — without being too pushy. Anyone can grasp its significance. Anyone can appreciate its simplicity. And everyone will be applying it directly to their online lives within the next five years.

As Web designers, we don't want to get caught flat-footed when all our favorite videographers, record producers, and best boys start setting up camp in our backyard. After all, aren't these some of the folks who inspired us in the first place?

To this end, we've polled the best and brightest developers here at HotWired — as well as some other wildly creative types (and one former rock sensation-turned-streaming guru) — in an attempt to get a handle on the secret techniques they use to create effective audio, video, and animation on the Web. The result is the following must-read compendium of tips, tricks, and general wisdom, guaranteed to help maximize your multimedia efforts.

So why don't we welcome these pilgrims, pass them a frosty mug and a copy of QuickTime 4.0, and get on with the show.

Let's begin!

Anna McMillan, Designer, HotWired



[Anna McMillan](#) is Wired Digital's resident QuickTime and Flash goddess. She's the lass behind recent projects like [Animation Express](#), [StarWars.com](#), and [RGB Gallery](#).

1) When tracing drawings into Flash, scan them in at 300 to 400 dpi, convert them to bitmaps (two colors: black and white), convert them back to RGB, and save them as pict files. Bring them into Flash to trace to vectors (a good trace setting is 500: 5: normal: few corners). After tracing, delete the unused portions of the images (usually the white portions). Remember to optimize your vector images by choosing Modify Optimize: Curves. Tracing images at higher resolution allows you to get an image conversion that is similar to your original bitmap without adding too many curves.

2) Don't be afraid to use layers. In fact, use as many of 'em as you like. By making liberal use of layers, you make it much easier on yourself when it comes time to re-edit and animate. Plus, it doesn't add to the overall file size.

3) When you're using Flash, save copies of the file as you work — especially if you are using a Mac. You'll thank yourself the day you open a FLA you've been working on for a month and you get an error message reading "unexpected file format."

4) Two of a Flasher's best friends are color outline layers and guide layers (both found under the layer pulldown menu). Use color outline layers to show a layer in its outline form — this is great for getting quick and precise positioning, especially if you are working from scanned drawings. Use guide layers for positioning bitmap guides or for testing layers you may want to remove from your final version, because they allow you to keep a layer from exporting (something you may want to avoid for file size, redraw, or composition reasons).

5) Mix and match programs and media. In other words, don't try to do everything in Flash. There are much better illustration programs out there (such as Illustrator or Freehand). Use these to experiment with mixing bitmaps into your Flash work (as backgrounds or fills). Sometimes the resulting combination of flat color vectors and photographic bitmaps can be interesting and rich.

6) Use gradients to add depth and color to your vector images, but don't overuse them, because doing so can add significantly to your file size and rendering speeds.

Taylor, Technologist/Former HotWiredite



[Taylor](#) is a mild-mannered technologist for [Captain Cursor Creations](#). He dresses in traffic-cone orange; speaks in a loud, declarative voice; and does online comic books for a living. He has a freakish, *Good Will Hunting*-like knowledge of cheesy sci-fi trivia.

1) Think back to the days of your youth. You know, those carefree days of yore when you ignored your homework and spent your time camped out in front of the Intellivision. OK, now remember that pile of untouched games? The games so lame you'd just as soon crack the books than play them? Well those sucky games aren't going to get any better just because you've reprogrammed them in Shockwave or Java. Monotonous shooter or level games are as easy to make as badly designed Web pages and just as common. Do something different and spend the time to make interactions that have meaning and context within your own story or site. And grafting your Web site's visual theme onto Asteroids or Mario Brothers isn't enough to engage your audience, either. Be original.

2) Before the Web, multimedia was the big, hot, fancy new thing. As a result, the tools for creating multimedia tend to be a bit more mature than tools made specifically for the Web. Because these tools have been around longer, they often have their own metaphors and internal structures that are different from the way HTTP or HTML function. It's up to you to determine when this difference in structure can be used to your advantage and when it becomes a limitation. In other words: Know when HTML is the best tool for the job and know when to fall back onto other multimedia formats.

3) Bandwidth doesn't limit you, processor speed does.

4) Sound is your friend. If used judiciously and skillfully, it can raise the overall quality of your multimedia. It can even make your multimedia *look* better.

5) Sound is your enemy. If used improperly, sound can become a bleeping, repetitious mess that can frustrate your audience, leading to immediate use of the Back button. Don't let sound drag down your otherwise fine multimedia to its bleeping depths.

6) Anything with talking monkeys in it is a hoot!

Craig Schwartz, Associate Producer, HotWired



[Craig Schwartz](#) (who you might already know as just Shvatz) is an associate producer for [Animation Express](#). Among other things, he's the man who [converted](#) one of Craig McCracken's *No Neck Joe* animations into Flash.

1) Don't use work that isn't yours. Comic-book writer/illustrator Evan Dorkin, creator of *Milk and Cheese*, always cracked me up with the "How to Get Sued" section in his funny books. These one-panel illustrations generally had some heavily protected creation (Disney and Warner Brothers were favorite targets) doing or saying something totally off-color. The reason he *didn't* get sued is because he was parodying these characters, not stealing them. On the other hand, I can't tell you how many excellent animations I have been unable to include in Animation Express because the animators or sound designers used someone else's work in their animation. So if you're including material that wasn't created by you and you don't have the express permission from the owners of that work to use it, you're skating on dubious legal ground. Of course, if you're doing an animated birthday card for your uncle Stuey and you use the Beatles' "Say It's Your Birthday," you

probably aren't chumming the legal waters. But if you're using the same sample on your for-profit Web site, well, stock up on Neosporin and Ace bandages now, because you're going to be in a world of hurt when the law swoops in and takes a bite out of crime.

2) If you're using Flash, apply a layer mask to your animation so it scales properly. One of the greatest things about Flash is its ability to scale movies without affecting file size. That means you can use percentage (versus pixel-based) values to set the Flash movie's width and height so your animation will scale to fill the size of the browser window. Unfortunately, Flash has a bug that causes elements to step outside the bounding box of the Flash movie and remain visible. While this may not be a problem if you've sized the movie to fill 100 percent of the browser window, it gets ugly whenever you use a smaller percentage. One way to combat this ugliness is to apply a layer mask to the animation, which allows elements beneath it to poke through, while hiding (or masking) everything outside the mask. A layer mask can be any shape, but for these purposes, a rectangle set to the dimensions of your movie is the most useful. Make the rectangle a symbol and then place each scene of your animation in its own symbol (rather than on the main time line). Add the rectangle symbol to the main stage of your scene. Directly above the main symbol, create another layer on the stage and place the rectangle symbol inside it. Click on the Modify Layers area in Flash and choose the Mask option. And there you go.

3) Just use a part of the whole. If your multimedia project involves some character animation, pay close attention to the way you animate your characters. Traditional cel animation generally involves redrawing the character for every new frame, making subtle, slight changes to the character in each frame. Given the limited bandwidth available to most people, however, this isn't the best approach for Web-based animation. Instead, segment your characters into as many constituent parts as you can and then limit the action of each frame to a minimal number of segments. That way, only the animated segments have to load, not the entire character.

4) Make sure your animation style fits the technology you're using. Multimedia on the Web can range from cruder than *South Park* (technically speaking) to sophisticated as a dry martini, but there is no single program or plug-in that can accommodate all styles with equal aplomb. If you're working on a photorealistic CGI animation, then you should probably look into using a streaming media format like Real Networks G2, Microsoft's Netshow, or Apple's QuickTime (of course, you'll need to use actual modeling and rendering software during production). If your project requires more simplistic 2-D or 2-and-a-half-D animation, then Macromedia Flash or Shockwave might be the answer. In other words, use the right tool for the job.

5) Interactivity is a privilege, not a right. All too often I'm forced to point and click my way through a multimedia presentation or, worse, an animation for no good reason. Before you make your users wear out their clicking finger consider whether you're adding interactivity because your project actually calls for it or because this is the wild, wild Web, where interactivity is king and passivity is for suckers. No matter how you feel about television, billions of people (yes, billions) watch it simply because it places few demands on them. It's OK to let people sit back in their chairs for a bit and just watch.

Michael Kay, Interface Developer, HotWired



[Michael Kay](#) is our resident interface designer and design troubleshooter. He doesn't believe the adage that anyone older than 30 is useless for creating great Web sites.

1) The big catch phrase for multimedia on the Web nowadays is "rich media." Like a rich dessert, a perfect helping on the right occasion can make everybody smile, but don't overdo it. Otherwise, your audience will get a bad case of Web indigestion.

2) Never make your audience wait. If people have to wait, be sure it's really worth their while. And determining if it's worth their while depends on how well you know your audience. A die-hard *Star Wars* fanatic doesn't mind downloading a 24 MB QuickTime version of the latest trailer, but no person in perfect health would want to wait even an extra second for an animated GIF advertising hemorrhoid cream.

- 3) With a little smoke and mirrors, they won't know they're waiting. Take full advantage of Flash's streaming attribute. That said, a "loading ..." message is a cop-out. By purposely designing delays into the movie, the user can be occupied (reading something or watching a looping graphic) while that giant sound file is loading in the background. Design for a reasonable lowest common denominator — Flash's Bandwidth Profiler can be a big help here (just go to Control: Test Movie). If your multimedia creation runs smoothly through a 28.8-Kbps modem, you're doing something right.
- 4) One program does not do it all. Don't use Flash or Director to create a logo. That's what Illustrator, Freehand, and Photoshop are for. Also: Avoid Java applets when Flash or dHTML will do. They really bog down the browser. In fact, I avoid Java altogether.
- 5) Use your friends and colleagues. Do you know a good illustrator? Use him or her. Good multimedia requires too many divergent skills for one person. You should also talk to other multimedia designers or join mailing lists to share knowledge, frustrations, and tips and to teach each other. Sign up for Macromedia's [Flash mailing list](#) (or check out its [newsgroup FAQ](#)). You can also join [Monkey Junkies](#) or [The Web Design List](#).

Steve Mack, Co-Creative Director, RealNetworks



[Steve Mack](#) is co-creative director for [RealNetworks](#). He's also a veritable streaming-media godling. He's also the former lead singer for the seminal Brit-rock outfit, That Petrol Emotion. Really.

- 1) Compress your audio feeds. No, don't file-size compression, that's what the encoder does. Compress the dynamic range using a hardware audio compressor. I use soft-knee compression (at a ratio of about 3:1 or 4:1, with a quick attack and a medium release) on the way into the computer so I can get a good, hot feed into my crappy soundcard. This gives you a much better signal-to-noise ratio and makes up for the quality of most soundcards. Then I use the software to compress things even further so the encoder gets a consistent level. The [artifacts](#) generated by the encoder are less noticeable this way, and your stuff sounds louder than anyone else's, which is an old radio trick.
- 2) Capture your video at 320 by 240 pixels and *then* resize. This may sound simplistic, but a lot of people capture at smaller resolutions, which videocards aren't very good at doing. When you resize in Premiere or MediaCleaner pro, the anti-aliasing is far superior to a capture card doing it on the fly. Better-quality source video means better encoding.
- 3) Use an external video processing amp. If you've got a broadcast quality card, then you don't need this, but for the rest of us, buying one of these babies for US\$500 or so will improve the quality of your video considerably. If the video is going to be seen on VGA monitors, you're going to need to boost the brightness of the video. It's better to do it using one of these than to trust the controls of your cheap capture card. But be careful with that contrast! Higher contrast may look better on the capture but the frame rate could suffer in your encoded files. The added grit drives the video codecs nuts.
- 4) Use batch processing. This may sound obvious, but it really can save your sanity. Premiere 5.1 and MediaCleaner Pro have good implementations, though make sure you're using the latest version of Media Cleaner pro. (Hey guys, what about that NT version?) For audio batching needs, use Sound Forge or Cool Edit Pro for Windows and Bias Peak for the Mac.
- 5) Perhaps the most important tip is make sure the content you're working on is appropriate. Full-screen, high-action video just hasn't arrived on the Internet yet, and true broadband is still a few years off. Audio is a done deal. It sounds great and works consistently. So consider telling your story with high quality audio and streaming text or images, which scale well. Check out some of the slide-show presentations on the [Sci-Fi Channel](#). They're compelling, and that's what you're after — a good story that keeps people listening or watching.

And Me, Francis Preve



Lastly, here are some tried-and-true techniques from yours truly.

- 1) If creative blockage gets really bad, try turning to Brian Eno's and Peter Schmidt's *Oblique Strategies*. This nifty deck of cards (also available [online](#)) features Zen-like phrases that can often help developers find a new approach to a sticky problem. Failing that, Eno's *Music for Airports* is a handy natural tranquilizer.
- 2) Interactivity for interactivity's sake is a dubious proposition. That said, if you're a Flash aficionado, it's worth taking the time to learn the basic logic and interactivity approaches possible with this format. Some compelling [quizzes](#) and [games](#) can be created in Flash, and careful planning will minimize download times.
- 3) When posting movie files, consider making a thumbnail-sized animated GIF preview. Keep the color palette down to 128 colors or less and the dimensions around 80 by 60 dpi. A slide show or a several-second clip will suffice. It will give your viewers the opportunity to determine for themselves whether to stay or bail, without making them wait for a multimegabyte QuickTime or AVI file to download.
- 4) Choose your sound formats wisely. [MIDI](#), wave, [Real](#), and [MP3](#) are very different file types; each has various strengths and weaknesses. Learn them. For those seeking scripted sound effects, [Beatnik](#) is becoming a powerful, cross-browser alternative to silence.
- 5) QuickTime has a lot of subtle, Flash-like features. If you're looking to animate bitmapped graphics along with audio, video, or MIDI, it's well worth exploring. [Electrifier Pro](#) and [LiveStage](#) are excellent authoring tools for this remarkable, mini OS.
- 6) Embedded MIDI files have a tendency to sound *really* corny. Avoid the temptation to try this gimmick out on your visitors — unless you're [Orbital](#), [The Fat Man](#), or Thomas Dolby ([Beatnik](#)).
- 7) Work in a medium you know nothing about at least once a month. Over the years, I've experimented with everything from audio to graphics to video to text. Each new project teaches me something about creativity I never would have learned otherwise. Explore.

What It All Boils Down To

After sifting through these 30 or so tips and techniques, the thing I found amazing was how many theories these six exceedingly varied multimedia experts had in common. Certainly if such a wide sampling of people in the know all share these beliefs, then these are the things you should really be paying attention to.

Use the right tool for the job. With so many audio and animation options out there, it's important to choose your Web weapons wisely. Flash is brilliant for low-bandwidth, high-impact animations. But if you're working with video, stick to QuickTime and RealVideo for the best results. In the audio realm, MP3 is king for downloading high-res, full-length compositions, but it's far too bandwidth-intensive to use for embedded sound effects. Those looking to add sonics to their Web pages should consider Beatnik for full-featured solutions or QuickTime for more basic effects. Make a point of doing a little extra research during the planning phase of your next site enhancement to make sure you're selecting the right technology for your purposes — or hire a consultant with the chops to make the right decisions.

Keep your audience in mind as you work. You *are* creating for an audience, right? Well, what kinds of things does this audience feel are really worth waiting for? Also, always try to balance technical flashiness with a healthy concern for your viewers' bandwidth capacity. While DSL and cable-based solutions are available to an ever-increasing number of communities, remember that the majority of your viewers are going to be surfing on standard 56-Kbps (or less) modems. The bottom line is the content that engages visitors right away is going to win every time.

Avoid interactivity for interactivity's sake. Television and movies are still the standards for real-time visual entertainment. Would *Star Wars* be better off with Next buttons and

interactive widgets at each juncture? Would *The Simpsons* be improved by adding a Click Here for Bart's Clever Retort button every few minutes? Successful entertainers let their viewers sit back, relax, and enjoy the ride. Besides, if your audience members are passively engaged, they're less likely to click away to another site — and that's your main goal.

And there you have it. No matter what your medium du jour, these tidbits should help keep your file sizes down, your hit count up, and your convergence strategy rolling merrily along.

Francis Preve is program director for [NemeSys Music Technology](#). In a previous incarnation, he was Web Coordinator for a Fortune 1000 corporation. He thinks Austin, TX, would be paradise if it weren't so darn hot.

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