



by John Zarwan

Stochastic Screening: Style or Substance?

Last March, the organizers of the VuePoint conference asked a favour of me. They were having difficulty finding someone to moderate the session on screening technologies and asked me to switch. My immediate reaction was, "You mean there's someone who knows less about screening than I do?" But, willing to be accommodating and not shying from a challenge, I accepted.

Naturally, I researched the topic, initially with help from vendors, later through telephone discussions with panel participants. After some eye-glazing reading, I began to understand their enthusiasm.

Indeed, the marketing efforts of industry suppliers – particularly Creo and, to a lesser extent, Agfa – have generated a renewed interest in stochastic screening, and their competitors have been forced to respond.

As a result, screening technologies have been a hot topic. The VuePoint panel (www.vue-point.com/index.htm) was well-attended. The discussion was lively. The questions were thoughtful and provocative.

More recently, as I spoke with printers around the country on an entirely different topic, many spontaneously mentioned stochastic – both for and against.

But stochastic or FM screening certainly isn't new. It was introduced amid great fanfare and hoopla about 10 years ago, but it never really took off and pretty much fizzled out. So what's different now?

First a brief primer. In conventional AM (amplitude modification) halftone screening, the size of the dots varies based on tonal values. Larger spots render darker tonal values, or more saturated colour, while smaller spots are used for lighter values. The dots are placed on a fixed grid, and the CMYK inks are applied at specified screen angles, creating the illusion of a continuous range of colours.

So-called stochastic or FM (frequency modulation) screening, on the other hand, uses smaller dots of uniform size, modifying the number of dots and their placement to achieve darker or lighter tones. FM screening is sometimes called stochastic screening because the placement appears to be random, although dot placement is precisely controlled by sophisticated mathematical algorithms. (Note, some of the current generation of FM screening algorithms also modify the size of the spots.)

When FM screening first came onto the market, it was of course used in film-based workflows. Although a few printers were able to implement it successfully, it was not widely adopted and had many problems. The size of the dot was so small that it was difficult to transfer the dot cleanly to the plate via the vacuum frame. Similarly, many conventional plates had a problem reproducing the dot. There were also few proofing systems that would satisfactorily reproduce dots that small; and high quality inkjet proofers were really just coming on the market.

As a result, stochastic screening did not gain much acceptance in the printing industry. Few tried it, and fewer continued to use it.

With the advent of CTP, many of these issues have been more or less addressed. The digital plate has first generation dots and is able to hold the fine dot size required by stochastic; the screening software has improved; and digital proofing, including inkjet, has advanced to the point where it is now widely accepted for both conventional as well as stochastic screens.

Adherents claim that stochastic provides the equivalency of printing with a very high line screen, giving results comparable perhaps a 400 or even 500 line screen. With the elimination of screen angles, stochastic is said to be able to produce high fidelity, artifact-free images, fine detail, smoother vignettes, better flesh tones, straight and smooth lines and edges, and eliminate moiré and rosettes.

As a result, FM screening has been advocated for high-end printing applications, particularly fine art or photographic reproduction, or for difficult jobs and particularly demanding customers, such as fashion. At the other end of the spectrum, I'm told that many in the lower resolution

newspaper market are achieving significantly improved quality by using the larger dot size stochastic screening technologies.

Without discussing the relative merits of FM screening, of hybrid screening combining both AM and FM, or of the various screening solutions from Creo or anyone else, there is something very interesting going on here.

More important than all the marketing blather, many printers are successfully implementing new stochastic and hybrid screening processes, not only from Creo, but also from Agfa, Screen, Heidelberg, Fuji, and other suppliers. By all accounts, they appear to be generally pleased with the results.

These printers are finding that implementing stochastic screening differentiates them, allows them to sell something new and, perhaps, demonstrably different, if not better. Unlike CTP, the sustainability of whatever advantages might accrue to a printer is likely to be longer-lasting than that of other technologies.

What is particularly appealing about FM screening from a business perspective is that, unlike CTP, it is difficult to implement. One doesn't just buy software and start printing. Much of the panel discussion at Vue Point dealt with technical and production issues, particularly issues regarding ink but also the need for a controlled, stable production process. Implementing FM screens present substantial challenges. At the simplest level, not every CTP system can successfully, consistently, and reliably image a stochastic dot on an on-going basis; and some plates may have problems with stochastic.

More to the point, though, not every printer is up to it. FM screening requires much tighter control of the production process; tolerances are much tighter, so consistency is particularly important. If your current production process is not under control, you won't be able to implement even 21 micron stochastic. Another area that requires process control is chemistry: FM screens are very sensitive to any instability in the chemical process of plate development.

That means that fewer printers will implement stochastic. Those that benefit from it are likely to continue to see those benefits; the economic benefits are therefore not likely to be dissipated as the technology becomes widespread. Printers who successfully implement stochastic screening may be able to win new business or not lose certain business. But it is not at all clear that printers will be able to charge more for their FM jobs: for the most part they have not been able to get a premium.

It also means that stochastic is not for every printer. It's almost certain that most printers don't have production processes that would even allow them to be able to print stochastic. Unlike CTP, it doesn't appear to be either a must-have or remain-in-business technology. Not every job requires it, and many printers would not benefit by it. It's not at all likely that most printers will face a situation where not having stochastic printing capabilities will mean loss of work or complete loss of a client. Most customers don't have the need, and of those most won't be able to tell the difference.

So, by all means, if you have CTP, consider alternative screening technologies, including stochastic and some of the new hybrid screening technologies, which may be a more appropriate alternative for you. And get your production process to be consistent enough so that you could at least print FM work should you choose to move in that direction. But it's not something that is going to be required in the intermediate term, and not having it isn't going to be your biggest problem in the next year. ☎

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