LabVIEW NXG: Version 2.0 is coming

Martin Rowe - May 29, 2017

Every year at NI Week, National Instruments makes a huge splash with a new version of LabVIEW. Because NI Week is a user conference, the LabVIEW faithful stand and cheer when they can save even just a few clicks. Although NI introduced new features in LabVIEW 2017, this year was different because of LabVIEW NXG.

On May 23 2017, NI officially introduced LabVIEW NXG 1.0, the first totally rewritten LabVIEW since LabVIEW 2 in 1992 when the first Windows version came out. The faithful greeted LabVIEW NXG's introduction with blank faces or raised eyebrows.

LabVIEW 2017, also introduced at NI Week, is not NXG. That is, it follows the strain released in 1992. LabVIEW 2017 received some cheers for features such as better integration with other languages, particularly Python, but not to the usual thunderous applause and certainly nothing compared to the most thunderous applause of all: the introduction of undo with LabVIEW 5 in 1998.

So, what's LabVIEW NXG all about? If you're an experienced user, you may already have used the beta version. If you hadn't heard of LabVIEW NXG until now, let me explain.

LabVIEW NXG is a complete rewrite of the underlying code and has been in development for several years. The decision to completely rewrite LabVIEW came about because the LabVIEW 2017 code strain has gotten old and was limiting NI's ability to advance some features. If you buy a copy of LabVIEW 2017, you get LabVIEW NXG 1.0 at no cost.

NI admitted that LabVIEW NXG 1.0 is not ready for prime time. Indeed, LabVIEW NXG 2.0 was on display in the exhibit hall. Version 1.0 lacks many features of LabVIEW 2017. Its purpose is to give users a view of what's coming in version 2.0 and beyond. Just like USB 2.0 was really USB 1.0, the same holds for LabVIEW NXG.

Think of LabVIEW NXG as Windows NT, which was a new technology at the time. Microsoft kept the DOS-based strain of Windows alive with Windows 95, Windows 98, and Windows Me. Windows 2000 was the first of the NT strain to gain popular acceptance because the infrastructure (device drivers and apps) were finally there. Many Windows users—myself included—jumped from Windows 98 to XP. Figure 1 is my interpretation of the LabVIEW and LabVIEW NXG strains. (Don't assume the future versions and years are correct.) Eventually, existing LabVIEW users will migrate, but NI isn't forcing you to do that, said LabVIEW Product Manager Jeff Phillips when I met with him at NI Week 2017. After all, many manufacturing applications will need to run for many more years, especially those that need certification before upgrading.
The need for new underlying code wasn't the only reason NI developed LabVIEW NXG. The company is looking to expand its user base by making it easier for new users to build applications and get measurement data. Beta users I spoke with at NI Week said that NXG will make it easier to get initial measurements than the original strain. For one thing, it incorporates NI's Measurement and Automation utility that you typically use to configure hardware. "Hardware configuration has always been a roadblock for new LabVIEW users," said Phillips.

NI Claims that the new editor in LabVIEW NXG (Figure 2) will let users get to measurements without programming, but it isn't the company's first attempt. Remember SignalExpress, a stand-alone application designed to let you configure hardware and get measurements without programming? It worked (I tried it), but it never significantly caught on. LabVIEW 7 Express also added features to minimize writing code needed to get measurements.
Figure 2 LabVIEW NXG's new editor was surely a hot topic of debate at National Instruments. Will it both expand the user base while not alienating longtime users?

Then there's the issue of measurement instrumentation and drivers. After all, what good is a programming environment without measurement hardware? NI has developed some 400 NXG native instrument drivers for popular third-party instruments. NI hardware such as data-acquisition modules, oscilloscopes, DMMs, power supplies, and switching modules will work under LabVIEW NXG because the NI drivers are compatible with it. The company chose the third-party instruments based on driver downloads. Thus, you can try LabVIEW NXG if you have those instruments or hold off trying it until LabVIEW NXG catches and surpasses LabVIEW's features.

As for porting existing LabVIEW code, NI doesn't recommend that with NXG 1.0 because of its limited features. It's really for you to get your feet wet. According to Phillips, existing LabVIEW code that runs on LabVIEW 2014 or later will run on NXG 1.0 and future versions. If you're running LabVIEW 2013 or earlier, you'll have to bring your applications further along if you want to make the jump. In the meantime, NI will continue to upgrade LabVIEW for some two-to-five years, said Phillips. He expects support to continue for some 10-15 years.

What about Mac and Linux?
LabVIEW began on the Mac and NI has for years claimed it will never abandon that OS. During NI Week, LabVIEW for Mac users began posting on Info-LabVIEW, an e-mail user group, asking if NXG will support the Mac. When I asked Phillips about LabVIEW NXG for the Mac and for Linux, he replied "We need a plan. There just aren't enough users to justify the investment right now." If you want Mac or Linux support in LabVIEW NXG, speak up.

The LabVIEW NXG beta users I spoke with all agreed that users of the existing won't even begin using NXG until at least version 2.0. One beta user noted a feature that NXG has that the old line doesn't: an ability for users to call upgraded DLLs without having to get a completely new executable, as is required with the current strain.

NI admits that LabVIEW NXG 1.0 is a trial version. I'd call it a beta 2 version. If NI is serious about growing the LabVIEW user base with NXG, perhaps the company should make it available as a free
download once LabVIEW NXG 2.0 comes out, which Phillips expects to happen in early 2018. When I made that suggestion to Phillips, he admitted "We hadn't thought of that." Right now, the only way to get LabVIEW NXG is to buy LabVIEW 2017. Given that LabVIEW NXG 2.0 is really version 1.0, perhaps LabVIEW NXG 1.0 should be available to everyone at no cost right now.

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