Technology Brief

An Overview of Spectrum® Construction Software Technology and Architecture

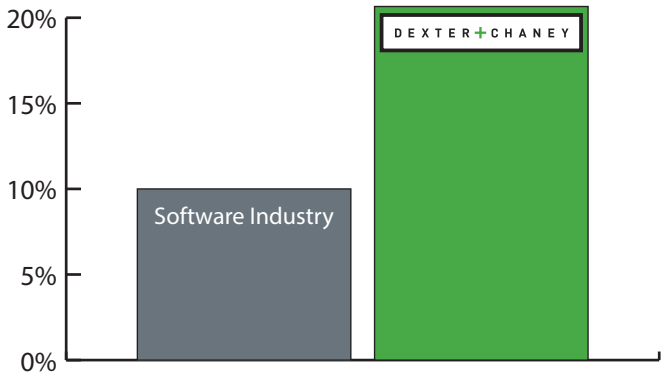
SPECTRUM CONSTRUCTION SOFTWARE

Since its first release in 1981, Spectrum® Construction Software has continuously evolved to deliver reliable, powerful applications that work together to help contractors manage the business of construction. From pre-DOS systems in the 80s to today's cloud computing environment, Dexter + Chaney has consistently been first to market with new technology and software functionality.

Development Principles

The ability to remain ahead of the technology curve for more than three decades is based on three fundamental principles that guide our development efforts:

Investment
Year after year, Dexter + Chaney funnels the investment our customers make in our software back into that software at a rate greater than any other comparable construction software company. While the software industry averages under 10 percent reinvestment in R&D*, Dexter + Chaney regularly exceeds 20 percent. Our growth objectives are grounded in the satisfaction of our customers, not the satisfaction of investors.



Flexibility
At the heart of what keeps Spectrum at the leading edge is the willingness to change—to always look for the best mix of new and existing technologies that deliver the best products and features available. This means not being tied to any one platform, language, or protocol just because it is what everyone else is using. We strive to innovate, not imitate. That means adopting new technologies when they help us deliver a better product to our customers, and staying with proven technologies when they help us develop new features consistently faster than our competition.

Feedback
We understand the impact that new technologies can have on the customers we serve. So every new technology decision and deployment is informed by interaction with our Spectrum users. We actively solicit the input of every customer, communicate our plans in a timely and transparent manner, and provide multiple paths for feedback.

Software Architecture

Modern, multi-tiered software systems such as Spectrum typically use a mix of technologies throughout the product. The technologies that define the Spectrum software stack have evolved significantly over time, as seen in figure 1. This evolution underscores our development principle of flexibility: keeping existing technology that works, and investing in new technology when it works better.

*Source: Strategy&, 2014

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Database

Your data is the most important element of any business software you use. Your ability to count on the security, integrity, and accessibility of your data is paramount. Spectrum has always been built upon a foundation of the most stable and proven database technology available. Today, that is without a doubt the latest version of Microsoft SQL Server. Spectrum systems store, secure, manage, and maintain your data using the latest version of this database technology.

Business Logic

Your business data is constantly changing. The devices used to access that data—from terminals to desktops to laptops to tablets—continue to change. What does not change are the fundamental business rules and logic that make sense for the construction industry. Twenty years ago, Dexter + Chaney employed a fourth-generation language (4GL), PROIV, to build out these business rules consistently across the Spectrum applications. As a result, we were able to bring new features to market faster. But more importantly, we were able to help our customers transition smoothly through the rapidly-changing technology landscape of the last few decades—from DOS to Xenix to Windows to the Cloud—without disruption to the feature set of their business software.

User Experience

If software is hard to use, then chances are it will hardly be used. Dexter + Chaney has always put a premium on the user's experience, and this is especially true with our latest browser-based UI. Spectrum is designed to be operating system and platform agnostic so our users can pick up virtually any device with a web browser and access the full power of the software. Our use of Java and Apache technologies—which, like PROIV, are not tied to a specific platform, OS, or stack—have allowed us to deliver a user experience that takes full advantage of cloud computing. From a desktop in the office to a tablet on the jobsite, Spectrum users access a system that avoids cumbersome windows-based menu structures and provides intuitive navigation, putting information and tasks one click, touch, or swipe away. Our software is not a legacy Windows™-based system dropped into the cloud—it has been designed specifically for the cloud and for the future of business computing.

+ Commitment to Innovation

Spectrum is not dependent upon any one proprietary software development stack, operating system, or hardware configuration. The future stability and development potential of Spectrum are not tied to the fortunes of any one technology provider. This has allowed us to be responsive to new customer needs, agile in adapting to a fast-changing information technology landscape, and first to market with new solutions designed for the changing way we work and share information.

Today, Spectrum users enjoy the benefits of a true cloud-based enterprise software system that puts powerful, integrated applications in their hands—whether they are working on a desktop at the office or a tablet at the job site. By implementing new technology to free Spectrum from device dependence, we have freed the Spectrum user to take their information and applications with them wherever work takes them.

Tomorrow, Spectrum users will remain on the forefront of technology. As job sites become more intelligent and connected, Dexter + Chaney will continue to deploy integrated mobile apps to keep field staff informed and connected. And as the sources of information grow, from site-survey drone video to workers wearing smart PPE, Spectrum will be, as always, poised to help contractors make sense and make good use of all the information at their disposal.

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Figure 1

Spectrum Technology Timeline