COMMENTARY

CIMdata®

Siemens NX X: SaaS-Based MCAD

Key Takeaways

Deploying CAD in a SaaS environment provides ease of initial deployment, automatic upgrades, and flexible scalability. NX X is installed on the desktop via the cloud (similar to MS Office 365), and as an option it can be streamed remotely.

NX X provides built-in data management but also can be deployed in a Teamcenter Share, Teamcenter or Teamcenter X environment.

Siemens delivers seamless scalability from startup to global OEM with 100% data fidelity from browser to desktop.

Through Designcenter, Siemens delivers complete, transparent compatibility across its MCAD solutions—the data models are identical among NX, NX X, and Solid Edge—no data migrations, updates, or translations are needed.

NX X enables the rapid adoption of new capabilities—delivered with instant updates and through flexible licensing.

Value Based Licensing tokens provide the flexibility to use what you need—when you need it.

NX X deployment streamlines a company's ability to digitalize their business.

Introduction

Siemens has introduced a new way to access the NX suite of mechanical CAD capabilities as a cloud-based Software as a Service (SaaS) offering called NX X, that can be installed as a desktop app with the option to be streamed remotely. NX X is part of Siemens' Designcenter, a software suite that brings together its portfolio of design and engineering software including Solid Edge and NX in one unified offering so that companies of any size can design and collaborate using the industry-leading Parasolid modeling kernel. Available immediately, NX X complements NX. This delivery option provides mechanical CAD capabilities with complete data model compatibility—that is, the CAD models, drawings, and other data produced in each can be directly opened and worked on without migration, update, or translation

of the CAD models. NX X is NX.[1] As shown in Figure 1, NX X is part of the NX family and sits at the heart of a full product development environment.

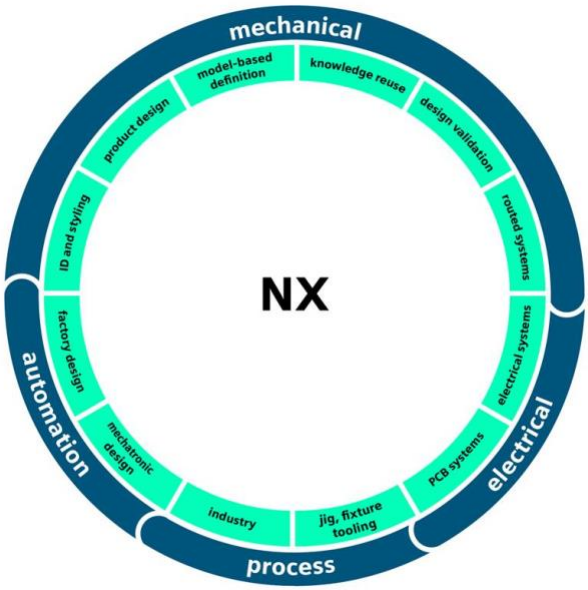

Figure 1—NX X Fits Into a Full Product Development Environment

NX X data management is provided with the CAD product. This internal data manager is built on Teamcenter X technology and manages the data in the cloud. In addition, Teamcenter Share, is provided with NX X to support ad-hoc data sharing. For companies that have deployed a Teamcenter or Teamcenter X PLM environment, NX X can work within that preexisting context. These data management options provide flexibility and consistency for managing NX X data regardless of it being used on premises or on the cloud.

The SaaS delivery model has some inherent advantages over the typical deployment of CAD running as a dedicated program installed on each user's computer. SaaS subscription licensing provides low initial cost of acquisition and deployment. The subscription cost is spread out over time as opposed to occurring in large, periodic lump payments-enabling better budget management. The flexibility of the SaaS licensing model is also important—companies can readily adjust license use as their needs change, moving licenses from user to user based on need. Cost and scalability of licenses, data storage, and computing resources are critical issues for many companies. A SaaS model enables companies to adjust more rapidly and flexibly to evolving business needs and that capability can mean the difference between financial success and failure. Implementation, upgrade, and maintenance also tend to be streamlined, with the vendor maintaining and upgrading the software. NX X is a cloud SaaS deployment that is delivered, managed, and updated by Siemens. This results in less disruption for users and IT support organizations.

Another very important benefit of SaaS is that it enables access to the software at work, from home, and on the go. Supporting today's highly mobile workforce who do not have to be tied to a particular Internet connection location promotes broad real-time collaboration across globally distributed teams, which is becoming a much more important and prevalent strategy for companies that must more rapidly create today's innovative products. Some people are concerned about security issues with a SaaS environment. However, CIMdata (and many others) consider this to be a false issue since the hyperscalers that provide SaaS environments have robust security strategies and substantial security-focused resources that address software, data, infrastructure, and physical security. When a company manages its security on-

[1] Research for this paper was partially supported by Siemens.

premises the level of security is only as good as budgets and staff skills can deliver—and these are usually significantly lower than the SaaS hyperscalers deploy.

Siemens' goal is to deliver seamless, consistent, scalable CAD SaaS from NX to NX X from on-premises to desktop to browser. All built to use and share the same data model for product definition. To reiterate a main precept of the continuous Siemens CAD experience, NX X is NX, just via a different delivery model—there is complete, seamless data model and user experience compatibility regardless of the deployment method used—providing complete data reuse from previous versions of NX, without any translation.

NX X Value

So, what does NX X deliver in addition to on-premises NX? Some key capabilities provided by NX X in the SaaS environment are described below.

Because it is implemented in a SaaS environment it is easy to deploy. A local install, just like MSOffice 365, is all the users need to do. The software a person gets when the NX X license is delivered is always the latest version available. This points to another advantage; in that the software can be updated by Siemens without disrupting users, assuring they always have access to the latest version of capabilities. Value Based Licensing is yet another flexibility option users. This licensing strategy is based on a "floating token" concept through which users can access add-on capabilities in NX X (see Figure 2) using any currently unused tokens. A user with a core seat NX X license may want to access add-on capabilities for industrial design, styling, design validation, PCB design (and many others). If the tokens are available, the user can simply check-out the desired capability using tokens and use it as long as required. Once they return the tokens to the token pool, other users have access to reuse those tokens to access the broad suite of NX X add-on capabilities within Value Based Licensing as needed. Tokens also provide access to new NX X add-on capabilities without additional cost. CIMdata applauds this flexibility as it enables companies to take advantage of the many NX X applications without having to deal with complex and time-consuming licensing rules—people can use what they want from the NX X suite when they need it and only for as long as they need it.

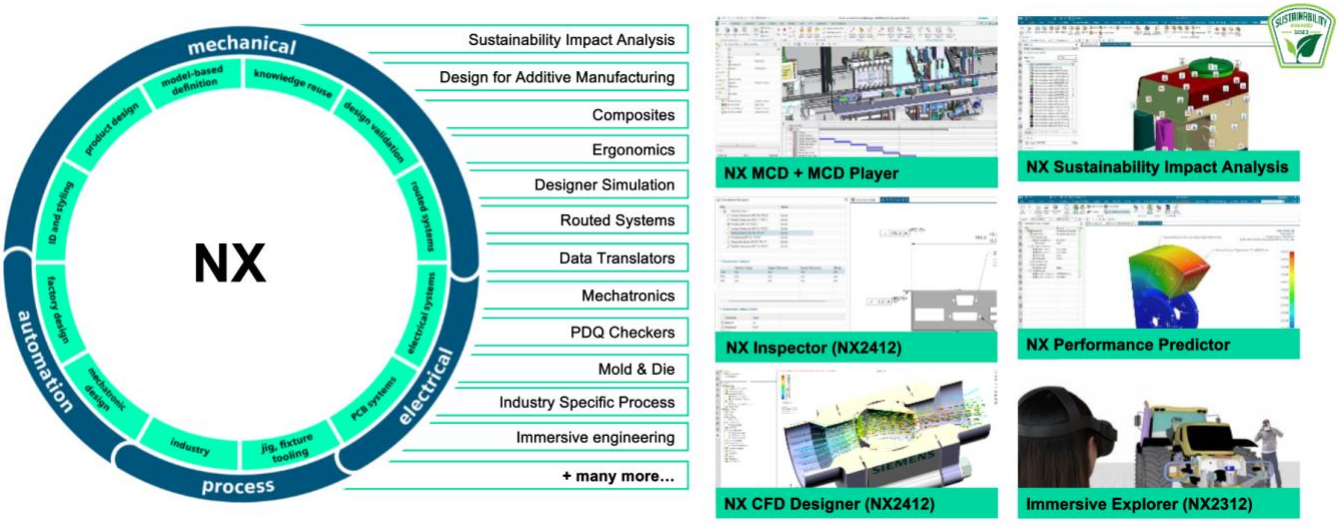

Figure 2—Tokens Provide Access to NX X Capabilities Including Advanced Features

Due to its SaaS implementation, NX X is both scalable and flexible in terms of how, where, and when it can be used in support of diverse product development strategies.

NX X offers 4 tiers of modeling licenses—to support basic, low level prismatic machined parts and simple surface models; then support for more refined, styled surfaces and Model-Based Definition; and advanced

surfacing and subdivision modeling and more sophisticated surface modeling capabilities. These are all integrated across the product design continuum of mechanical and electrical/electronic product components. Again, the value-based token licensing enables any user to access additional add-on NX X capabilities if tokens are available.

Siemens includes data management with NX X to support data sharing, and collaboration across the value chain. NX X provides additional data security through its SaaS hosting and Teamcenter Share. Data is as secure as any other data stored and processed in a modern hosting service, providing the high level of protection and availability that hosted services provide. Just one example of enabling collaboration with NX X is the case of Helixx, a UK-based e-mobility technology startup, that has adopted NX X to help achieve its vision of delivering safe, affordable, zero-emission final mile electric vehicles. Mr. Steve Pegg, CEO and co-founder, Helixx, notes that "Helixx was founded to transform the quality and standard of mobility for citizens in heavily congested cities with globally designed, but locally manufactured mini commercial electric vehicles. Having access to cutting edge product engineering software and the associated digital twins, wherever and whenever we need it, is fundamental to achieving our vision. Siemens' NX X provides the full capability of NX via the cloud, enabling us and our partners to access live design and manufacturing data instantly. Building the future of sustainable mobility and transportation is challenging, but with Siemens' NX X available as a core part of our toolkit, we're able to meet those challenges head on and build a cleaner future."

CIMdata finds several aspects of the NX family, including the updated NX X, to be compelling. Value-based licensing certainly is an attractive option that allows companies to share NX X capabilities more cost effectively without having to purchase licenses that may otherwise remain idle for periods of time, Scalability across the value chain provided from on premises to desktop to browser, provides flexibility for deploying CAD. This is supported by the common data model among these various forms of NX, enabling them to share data regardless of use models. Data model consistency is further enhanced by the NX families ability to read and modify CAD data created from the 1980s to today across the Siemens CAD solution family.

Conclusion

NX X in a SaaS delivery environment provides fundamental benefits, allowing NX CAD to be used in a flexible SaaS environment. The continuum of NX and NX X provides a flexible and scalable CAD deployment opportunity for companies disparate needs. Siemens has stated that NX X will continue to expand with additional capabilities from the Siemens portfolio such as electrical design being integrated into the NX X SaaS delivery model.

Another example of NX X use to is provided by Dovetail. Headquartered in Australia with operations in Spain, Dovetail is currently the only company worldwide converting Cessna 208s to zero emission battery electric propulsion, and the only company designing a hydrogen-electric retrofit for the Beechcraft King Air, the most successful aircraft in its category. NX X helps Dovetail develop these propulsion systems using seamless collaborative workflows between teams based in Spain and Australia. "Whilst a lot has changed in the world of aviation, the fundamental structure of an aircraft hasn't changed much. Therefore, it makes perfect business and sustainability sense to retrofit capable aircraft with new generation, zero emissions drivetrains that take a significant step towards cleaner air travel. This helps us collectively achieve net zero and saves costs. As we've grown, we've realized the need to invest in software that helps us create digital twins of the propulsion systems we design, is easily accessible worldwide and increases collaboration between our design teams in Australia and Spain. Siemens' software is at the heart of our

ability to deliver zero emissions air travel, whilst enabling aircraft operators to reduce operating costs by up to 40%," said Mr. David Doral, CEO of Dovetail Electric Aviation.

NX X can be deployed by and is appropriate to be used by all sizes of organizations. The token license model provides a level of flexibility that is very compelling for all companies, but especially those with a need for managing their CAD resources more efficiently. The value of NX X for companies of all sizes is clear. This value is monetary, but also manifests in convenience, flexibility, and freedom of use. CIMdata recommends that enterprises consider Siemens solution suite when evaluating and selecting CAD solutions.

About CIMdata

CIMdata, a global strategic management consulting firm, provides services designed to maximize an enterprise's ability to design, deliver, and support innovative products and services. For more than forty years, CIMdata has provided industrial organizations, providers of digital technologies and services, and investment firms with world-class insight, expertise, and best-practice methods on a broad set of product lifecycle management (PLM) topics and the digital transformation they enable. CIMdata also offers research, subscription services, publications, and education through certificate programs and international conferences. To learn more, visit www.CIMdata.com or email info@CIMdata.com.