Solution brief

FlexPod®

Industry 4.0 FlexPod Engineering Workspace

The need for a state-of-the-art IT infrastructure

Contemporary engineering workplaces

Nowadays companies in the manufacturing industry are experiencing growing pressure for their product and solution development processes to keep pace with constantly increasing market requirements, both in terms of the rapid pace of innovation and also increasing levels of individualization.

Added to this are increasingly complex supply chains and an international division of development labor that make process reliability and compliance with quality standards more difficult to achieve. The requirements for consistent or improved product quality and high-cost efficiency stand in direct contrast to ever shorter development periods and simpler handling of version variety.

If these processes also include a decentralized, inflexible IT infrastructure, innovation is quickly stifled. This is especially true if highly flexible IT concepts are required, such as realizing digital (reconciliation of real and virtual designs) or establishing new "augmented view" concepts for sales and retail or even designing cloud-based services for your own products.

Plus, increasing customer requirements regarding traceable development and quality-assurance data are causing companies to think simultaneously about rapid restoration and long-term archiving solutions.

So if the hybrid cloud is the answer, what are the questions that you should be asking from technical, legal and procurement-related perspectives?

Benefits of the NetApp FlexPod Engineering Workspace

- Centralized engineering design system with flexible high-end 3D CAx resources
- Validated engineering platform for Citrix and/or VMWare-based 3D VDI solutions (Virtual Desktop Infrastructure for 3D CAD applications)
- Consistent data access around the world for collaborative development teams
- Engineering and design data remains in secure locations with extremely fast storage solutions without geographically distributed duplicates
- Integrated data backup and long-term archiving as the backup-to-cloud/cloud archive
- Rapid, high-quality product development
- Extremely short project set-up times with a lot of variety
- Mobile data access for sales, marketing, or service technicians

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The FlexPod Engineering Workspace

The Engineering Workspace is optimized for use in state-of-the-art construction environments for design (concept - design - detailing), modeling and simulation. It is based on a convergent, validated FlexPod[1] infrastructure with powerful Nvidia GRID graphics. The integrated data management capability enables secure CAD and product data management both locally and on cloud-based systems. It forms the perfect basis for development platforms such as Siemens NX/Teamcenter, PTC Creo/Windchill, Autodesk Inventor, SolidWorks or CATIA. The deployed Cisco UCS servers and Nexus network components have sufficient reserve capacity to enable more complex development projects to be handled quickly, cost-effectively and securely further down the line.

[1] NetApp Data Management, Cisco Server/Network, Nvidia Grid

NetApp, Cisco, and their partners specialize in supporting companies that want to make the newly enhanced opportunities in model-based 3D development, networked mobile design solutions, and cloud integration a reality for their business.

The FlexPod Engineering Workspace: a highly flexible design platform in the PLM context:

The convergent FlexPod Engineering Workspace addresses the demand for flexible software usage models, a wide range of CAx applications, and various product data management systems. It also provides global availability with high security standards. Complex applications requiring extensive graphic or computing power can be operated locally or across different sites with a wide range of end devices. The on-demand concept and the possible addition of local and/or public cloud mean that scalable CAx workplaces can be made available flexibly and quickly depending on project requirements.

In addition to an optimized cost structure, this flexibility also allows shorter consultation and decision-making times and a faster approval process.

The result: tangible savings on process costs. This can also speed up secure management of product-development data. External development partners can be connected quickly and there are benefits for administration and data currency. FlexPod's application-centric approach means that both the application and the data can be better protected without any additional infrastructure silos from other manufacturers.

Advantages of the FlexPod Engineering Workspace in product development

Concept – design – detailing

The FlexPod Engineering Workspace has the capacity for highly flexible, cost-effective and rapid provisioning of all standard 2D and 3D construction platforms which were previously subject to complex, widely dispersed geographical distribution. Applied to a 3D-VDI environment, it allows for free resource allocation of computing power, memory, and network capacity. Power-hungry modeling and simulation tasks are served perfectly by the Cisco UCS server-based storage systems and NetApp Flash (Nvidia Grid certified). Frequent checking in and out of components (e.g. a PDM/PLM system) optimally supports the I/O optimized FlexPod Engineering Workspace (integrated compute/graphics/network and storage architecture). Long load times between client devices and servers/storage across the network are a thing of the past.

Complex components

The high-end Cisco Server and Nvidia GRID graphics mean that adequate resources are always available, even for highly complex processing and conversion tasks. Individual computing nodes handle the conversion while newly detailed modifications can be performed at the same time.

Collaborations for teams

High-performance protocols enable development teams to work simultaneously in extremely efficient construction partnerships within the company or with external service providers and suppliers. The CAD/PDM data never leaves the company boundaries, and low bandwidth requirements mean it is available to the construction or project management team on any end device such as thin clients, tablets, notebooks, etc.

Transfer to production

The integrated data backup and object-oriented archiving process means that complex component designs can be stored safely and cost-effectively over time, either locally or in the cloud. If an error occurs during transfer to production, versioned models can be re-supplied quickly and easily.

The FlexPod Engineering Workspace architecture

FlexPod, with extremely quick and reliable NetApp All Flash FAS systems, powerful Cisco UCS servers with Nvidia Grid graphics, and high-performance Cisco Nexus switches, forms the core of this comprehensive reference architecture. FlexPod produces the following benefits for developmental processes and connecting additional system structures such as ERP or MES:

Greatest possible mobility

- Site-agnostic availability of high-performance interactive development environments from a central point and for many end devices.
- Uninterrupted protected access to High-End 3D applications such as PTC Creo, Siemens NX, Autodesk Inventor, SolidWorks or CATIA at any time, in the office or on the move.
- Heterogeneous support for thin clients, via smartphones, tablets, and conventional desktops or laptops: "the Engineering Workplace follows the user".
- Joint development of critical projects can be handled using distributed teams and resources simultaneously or at different times.

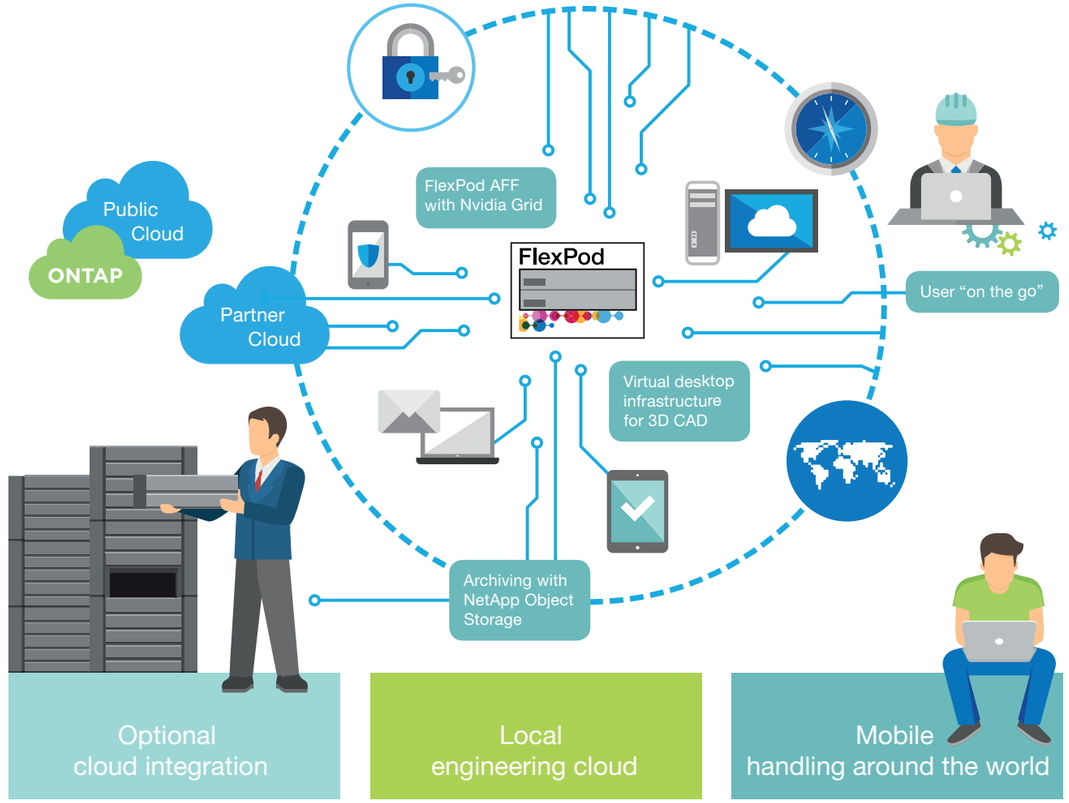
Enhanced information management

- Centralized data storage for improved data backup and exclusion of redundant copies to distributed external units.
- Enhancement with object-oriented data archiving , data storage and cloud-based concepts.
- Validated end-to-end design and central maintenance reduce risk and installation time.

About NetApp

Leading organizations worldwide count on NetApp for software, systems, and services to manage and store data. We help customers capitalize on the value of their data in the hybrid cloud through our Data Fabric strategy, data management expertise, portfolio, and ecosystem. To learn more, visit www.netapp.com

Standardized architecture – many application models



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