Demystifying 3DEXPERIENCE

In 2014, Dassault Systèmes announced the launch of 3DEXPERIENCE platform which replaced their V6 product line. Customers and partners still seem to be confused about the differences between the old architecture and the new one, so I propose to take a few minutes to explain the differences between the two and why it matters.

And then there was V6

Building on the success of CATIA V5 and Solidworks as well as their acquisition of MatrixOne in 2005, Dassault Systèmes created the V6 platform. As I described here, V6 was a fusion of placing VPM V6 on top of the MatrixOne foundation and was released in 2008. One of the biggest changes in V6 was the "no files" concept which meant that CATIA V6 no longer could open files off of a file system (file-based), but rather would be connected to a platform called ENOVIA V6 for access to and saving of geometry modified in session ("no files" as the data was stored on file servers and inside the database). This was quite an adjustment for IT departments that were used to file-based ways of working and did necessarily want to be obligated to buy a server. ENOVIA V6 was both this collaboration platform for CATIA V6 as well as the former MatrixOne "Centrals" portfolio for Enterprise PLM management of BOMs, Change, Supplier Relationships, etc. This also was confusing and is why people still refer to the platform as "ENOVIA".

3DEXPERIENCE is born

As confusion continued about the name of ENOVIA V6 being both an application suite and a platform, Dassault Systèmes decided to clear up the confusion by creating the 3DEXPERIENCE

platform and separating it from the ENOVIA apps. In other words, rather than using a letter (V) and a number (6) to refer to the platform which was somewhat cryptic, they decided to rebrand it as a revolutionary platform for 3D (as in three-dimensional, a throwback to the CATIA values) and in the context of the experience economy and thus 3DEXPERIENCE. Put another way, as my friend and excellent blogger and PLM consultant Jos Voskill pointed out to me, it was a move also from V6 being a PLM backbone for CATIA, ENOVIA, DELMIA and SIMULIA apps to a full-blown Platform as you will see in the next section.

Note that the release naming convention changed. The V6 releases were called V6R2008, V6R2009, V6R2009x, etc up to V6R2013 and V6R2013x. 3DEXPERIENCE was in beta at 3DEXPERIENCE R2014, but has since gone through 3 releases (3DEXPERIENCE R2014x, 3DEXPERIENCE R2015x, 3DEXPERIENCE R2016x and 3DEXPERIENCE R2017x) with 3DEXPERIENCE R2018x expected in November 2017. So, before 2014, all releases were known as V6 and after 2014, they are known as 3DEXPERIENCE or just the shorter form R2017x for example.

3DEXPERIENCE platform Components

With 3DEXPERIENCE, the platform was significantly expanded from the V6 footprint with several new capabilities:

- 3DSpace - this is really the equivalent of what was the ENOVIA V6 architecture piece with its own independent architecture and on which applications from the major brands (CATIA, DELMIA, ENOVIA and SIMULIA) are built. This enables the Digital Thread of continuity and consistence of data across all the various processes for design, manufacturing, engineering, and simulation. It includes both centralized and remote file management, secure access to files, and centralized metadata (data about data such as attributes and BOM information). It consists physically of a J2EE web container (read Tomcat superseded by TomEE), a database (Oracle or SQLServer) and the licensing server. It also has an indexing server based on EXALEAD technology for rapid access to data (both file and metadata) stored in the 3DSpace infrastructure. In other words, the platform that was ENOVIA V6 is now 3DEXPERIENCE 3DSpace.
- 3DSwym - Dassault Systèmes had invested in the startup BlueKiwi and had some internal projects for community management that were known as SwYm ("See What You Mean" that were merged to become 3DSwym. It consists of a social enterprise platform featuring blogs and wikis and some skill management as well as ideation. Physically, it is implemented, like 3DSpace, with a web server and a database and has

an EXALEAD-based index for rapid searching through articles. Users on the platform are organized into communities who can write blog posts or wiki articles and comment on them. It had enormous success internally (I ran one of the largest and most active communities, the V6PAC, with over 3000 members and literally 100s of articles) and was thus made available to all Dassault Systèmes customers, initially on cloud at R2014x and later on premises starting at R2015x.

- 3DDashboard - In 2012, Dassault Systèmes acquired NetVibes, then a dashboarding tool which used widgets to display data in a user-friendly way leveraging modern HTML5/CSS3 technologies. While NetVibes.com continues its life in parallel, the 3DEXPERIENCE platform includes a specially adapted version of NetVibes that was named 3DDashboard. This allows the visualization of pertinent business data and nearly anything else in widgets (both delivered by Dassault Systèmes R&D and customizable) which allows for easier access to data. Like the other components mentioned, it has its own web server and database although far smaller for managing dashboard related data. The power comes from the ability of 3DDashboard to pull data out of the various pieces and parts of 3DEXPERIENCE and external apps as well to create unique user experiences and to hide some of the complexity. It is available to all users both on cloud and on premises.
- 3DPassport - With the variety of applications inside the platform already described and with user interfaces that are web-based (3DDashboard, 3DSwym, the ENOVIA application suite) and those which use rich clients (CATIA, DELMIA, SIMULIA), the authentication process was unified into the 3DPassport element of the 3DEXPERIENCE platform. Like the 3DDashboard, it has its own tiny web server and database which is very small for managing passport data. It is a secure manner for accessing any of the apps while maintaining context and implementing a single sign-on for the entire platform.
- 3DSearch - I already mentioned that EXALEAD technology was leveraged for indexed searching on data stored in 3DSpace and 3DSwym. 3DSearch is a user interface component (implemented by a web server) that allows users from the 3DDashboard or other web-apps

to see search results coming from across the entire platform in one place.

- 3DMessaging - Swym had a primitive messaging platform which was rebranded as 3DMessaging to allow communication between users that are connected to the platform. It is still primarily of value to 3DSwym users.
- 6WTags - Also important for searching and classifying information was introduced into 3DEXPERIENCE using tagging technology called 6WTags (What, When, Where, Who, Why and hoW - thus the 6 w's). This is also a user interface component across all of the 3DEXPERIENCE apps allowing users to add their own tags, but more importantly, the platform derives generic tags from the metadata of data stored in or added to the platform. This makes filtering through masses of data very fast.
- 3DPlay - Back in the V6 days, there was a 3DLive Navigator for allowing users to navigate on 3D data without having to open the CAD tool. 3DPlay preserves this feature and is being expanded to include more use cases such as sectioning, measurement, and 3D annotation of data stored in a 3DSpace Collaborative Space or 3DSwym community all from inside a 3DDashboard widget.
- 3DComments and 3DNotifications have been added to the platform in R2017x and following to add comments and give notifications to users. Again, each one leverages a tiny web server and is primarily of use to 3DSwym user communities.

The 3DCompass

Besides this renaming and expanding of capabilities, the other key change with 3DEXPERIENCE was the complete revamping of all user interfaces. Previously in the V6 world, each application had its own login, its own user interface and its own color scheme. As I mentioned above, the 3DPassport resolved the login issue. All of the platform components and apps from CATIA, DELMIA, ENOVIA, and SIMULIA were redesigned entirely from a user interface perspective in a project known as "3DCompass" where blues and greys dominate the color scheme in common across all of the apps. The rich clients (CATIA, DELMIA, SIMULIA) also got an action bar at the bottom of the screen for quick access to functions similar to that of the ribbon bar in MS Office applications. Additionally, a 3DCompass component was added to each app in the upper left corner (thus the name 3DCompass UI above). The idea is that the 3DCompass aids users to navigate the applications to which the user has access: The North quadrant for Social and Collaborative apps such as those from ENOVIA and that of 3DSwym and 3DEXCITE (formerly RTT); the West quadrant for 3D Modeling for apps from CATIA

and Solidworks; the South quadrant for Virtual (plus) Reality (V+R) apps from DELMIA and SIMULIA; and the West quadrant for Information Intelligence apps such as the 3DDashboard and the NetVibes and EXALEAD apps. These improvements makes the learning curve for new users far easier because once they get used to using the paradigm, picking up other apps becomes far simpler.

Industry-based Solutions

The last sea change in the 3DEXPERIENCE era at Dassault Systèmes was the conversion of the packaging and the marketing to an industry-centric approach. In the V6 universe, the Brands (CATIA, DELMIA, ENOVIA, and SIMULIA) each provided applications that were sold individually (the famous trigrams of lore) with specific value propositions, but rarely were they specially tuned for one industry or another. For the most part, other PLM platforms continue to sell their products based on the Brand. For 3DEXPERIENCE, CMO Monica Menghini launched the 12 industries: Aerospace and Defense (A&D); Transportation and Mobility (T&M); Industrial Equipment (IE); High-Tech (HT); Life Sciences (LS), Consumer Packaged Goods (CPG); Consumer Goods and Retail (CGR); Marine and Offshore (M&O); Energy and Power Utilities (EPU); Architecture, Engineering and Construction (AEC); Finance and Business Services (FBS); Natural Resources (NR), each with a Vice President and a standalone marketing organization and product portfolios. Basically, when software is purchased from Dassault Systèmes in 3DEXPERIENCE, it is purchased by Role or Option from an Industry-specific portfolio and the solutions can be mono-brand or multi-brand as required. Said another way, the Brands provide the nuts and bolts and the Industries build custom fit solutions for customers. The solutions are described in broad strokes in the Industry Solution Experience (ISE) (such as "building greener cars", or, say, "optimizing time to market for IE") and further declined in Industry Process Experiences (IPE) (for the "greener cars", two IPEs could be "designing greener cars" and "sustainable manufacturing of greener cars"). The lowest level would be the role-based offers (e.g. Design Engineer, Manufacturing Engineer) or options (e.g. CAD integrations). This was a major shift, but allowed Dassault Systèmes to be unique in offering tailor-made solutions for each of the 12 Industries basically walking in their customers' shoes and walking the walk so to speak.

Conclusion

3DEXPERIENCE is quickly driving towards its 4th anniversary and gaining momentum as more customers move off of the old ENOVIA V6-based solutions as they reach the support end-of-life. In order to help users adopt the new paradigms in the platform, many changes such as new apps, a new UI, and a new industry-based marketing approach were made in order to bring the entire portfolio to bear to meet customer needs. This article tried to explain these changes and why they matter.

Promo Alert: I created Finocchiaro Consulting, LLC to help customers understand 3DEXPERIENCE and aid in the adoption of this new approach as well as providing pertinent and efficient training and security assessments. Let me know if you would like more information at Michael@Finocchiaro.Consulting.