Customer Profile

Customer	Kajima Corporation
Address	1-3-1 Motoakasaka, Minato-ku, Tokyo, Japan
Founded	1840
Incorporated	1930
Capital	Over 81.4 billion Yen
Employees	7,546 (as of the end of March 2015)
Business Content	Construction, development, design and engineering projects, etc.
Website	www.kajima.co.jp

*In the United States, Kajima has a foreign branch (Kajima U.S.A. (KUSA)) located in Atlanta, Georgia.**

There are also a number of additional affiliated companies, and Kajima undertakes construction, development, and real estate projects.

**See http://www.kajimausa.com/ for more information.*

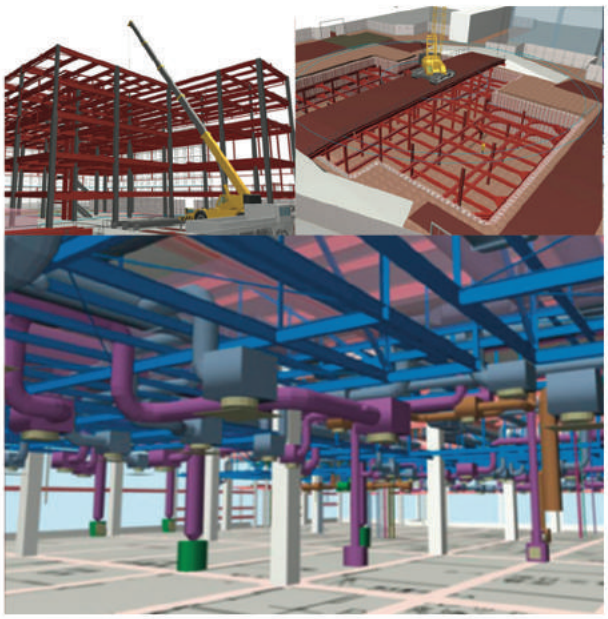
Implementation

"Lenovo's mobile workstations provide a superb balance between processing power, portability, cost, and performance, and have been used for past several years."

Kajima Corporation
Mr. Yoshihiro Yasui,
General BIM Manager,
BIM Promotion Group Chief,
BIM Promotion Office,
Construction Management Headquarters

Global BIM® Platform from Kajima Corporation Enabled people around the world to share BIM Data with each other.

Starting in 2010, Kajima Corporation introduced a system of laptop PCs paired with large displays for the client environment, this was used by employees due to the improved performance and reduced costs provided by these systems. Also, after The Great Tohoku Earthquake in March 2011, there was an increasing focus on low-energy and battery-operated devices such as laptops to allow continuation of operations in the event of a disaster. At this time, Kajima decided that all user devices would be laptops unless there were special extenuating circumstances making these devices inappropriate.



The "Global BIM" platform from Kajima Corporation created an environment which allow internal and external stake-holders sharing and managing the data

In addition to the 12 inch laptops already supplied to each employee, Kajima also supplies staff with tablets (approximately 3,000 units) and mobile workstations (approximately 2,000 units) based on the content of the operations conducted by each employee.

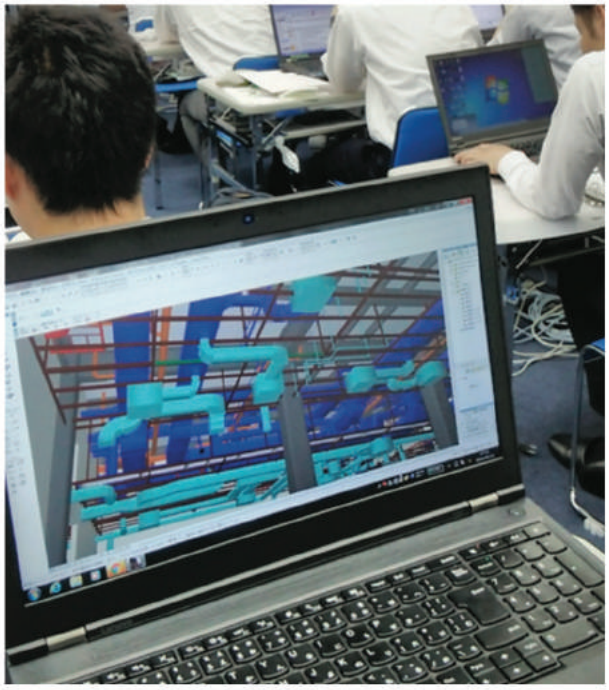
Global BIM®, a cloud-based BIM platform for sharing BIM data among project team members both inside and outside Kajima, is the main reason of mobile workstations deployment. With Global BIM®, a number of functions such as creating new data, editing data, converting it into 3DCG for visualization, and sharing it through the cloud are available. These functions can be used for both 3D CAD data and a variety of BIM data attributes, and the system supports comprehensive operations for BIM data through the combination of Graphisoft's ARCHICAD® software and BIMcloud®.

Also, the system foundation at the core of the Global BIM® platform is NTT Communication's Enterprise Cloud software, a high-quality cloud platform with solid security features.

The system helps Kajima, its customers, design offices, modeling companies, specialist construction staff, and all other parties conduct operations such as visualizing buildings, simulations, confirmation, and develop building blueprints and implementation plans for each stage of execution, all through the Global BIM® platform.

In April 2015, Global BIM® was updated and released as Global BIM® 2.0, a further evolution of the system. As part of Global BIM® 2.0, Kajima was committed to develop a specialized application called BIMcloud Team Client®, and this application allows Kajima to share its software licenses of ARCHICAD® with cooperating companies.

Approximately 2,000 ThinkPad W Series Distributed to the Construction Department for Use with Global BIM®.



ThinkPad workstations have been deployed in BIM implementation training for construction department.

Yoshihiro Yasui, the General BIM Manager and BIM Promotion Group Chief in the BIM Promotion Office at the Construction Management Headquarters, made the following comments:

"At this company, we don't limit the concept of BIM to merely a digital tool, but instead consider it as a method for improving operations.

We are constantly considering how we should be implementing the latest ICT in our construction business, and continually putting these ideas into practice. One initiative in this category is Global BIM®.

At Kajima, we launched BIM implementation starting from the Construction Department which supports our production lines. Currently, linkage with Design and Maintenance management is becoming more noticeable. Global BIM® is an important core system that supports application management for BIM data, and as such, further reforms will be implemented in the future."

At Kajima, although it is now possible for multiple project personnel to participate in BIM work processes using Global BIM®, a high performance device that can handle 3D CAD data is crucial for accessing this system. Lenovo's ThinkPad W Series mobile workstations were deployed to all employees involved in construction processes to fulfill this need and provide a client environment that maximizes the merits of the Global BIM® platform.

At Kajima, computer hardware updates were carried out every year, and in the past few years the following models have been used: ThinkPad W520, ThinkPad W530, ThinkPad W540, and ThinkPad W541. (As of April 2016, a total of approximately 2,000 laptops were in use. *(As of April 2016, a total of approximately 2,000 laptops are in use.)*

The ThinkPad W Series is designed for professional use, and features an NVIDIA® Quadro® K2100M mobile graphics card and high-efficiency graphics chip (GPU) that supports OpenGL, a high-capacity...

...frame buffer. Through the synergy of these features with its Intel® Core™ i7 processor, 3D CAD applications such as ARCHICAD® can be operated without any system issues.

Lenovo has built a strong partnership with ISVs (Independent Software Vendors) and guarantees continuous stable operation and optimized hardware platforms. The workstations Kajima used have passed the strict testing of OS and graphics vendors, as well as various other ISV companies, and have received a variety of ISV certifications from these organizations.

Ken Endo, BIM-IT Group Chief in the BIM Promotion Office at the Construction Management Headquarters, made the following comments:

"As a mobile workstation for employees handling the operations, in addition to office software (Microsoft Office® 365) and Adobe's Creative Suite (Photoshop®, Illustrator®, and Acrobat®), these devices can run a wide variety of applications such as ARCHICAD®, which supports BIM work operations, construction-related 3D CAD applications, a drafting CAD application we have been using for some time called BricsCAD®, and proprietary engineering applications developed at this company. Especially in the course of handling BIM data, a high-performance processor and large volume of memory are essential, and external graphics solutions are crucial for running 3D CAD applications comfortably.

With the considerations such as portability, lightweight and low-profile design, appropriate cost for introducing a large volume of devices, and the highly-regarded durability and reliability of Japanese Engineering, we have continued to use the ThinkPad W Series for four product generations."

"These systems are not limited to being playback devices for VR systems, and the ThinkPad P50 deployment is scheduled to be the next generation user device in fall 2016."

Kajima Corporation
Mr. Ken Endo
Construction Management Headquarters
BIM Promotion Office
BIM Promotion-IT Group Leader

Introduction of High-End ThinkPad P50 Mobile Workstation Combined with Head-Mounted Displays (HMDs) for Use with the Latest VR System

At Kajima, VR technology is being rapidly introduced as a solution for getting an intuitive sense of construction spaces.

For example, to allow users to easily confirm the construction space, a system is recently being tested that allows users to wear HMDs and conduct confirmation operations for the interior in the way as they were actually walking within the construction space. This approach is just as effective as using actual equipment. For this VR system, the high-performance HMD (the Oculus Rift, produced by Oculus VR) is being used for walkthrough confirmation of interiors in terms of aspects such as plumbing and interior design.

Also, there is a motion controller on-board that can detect hand movements, enabling users to interact with structural elements and tools in front of their eyes.

Ms. Kondo made the following comments about this VR system using the Oculus Rift:

"Just with the perspective of the building interiors rendered in 3DCG, it's impossible to accurately grasp the distances between areas inside the construction space and the sense of volume of the structure. For this reason, we have up until now spent more than ten million yen creating actual model rooms mainly for buildings such as hospitals and lodging facilities that require detailed confirmation.

Through the implementation of this newly-developed VR system, we can easily provide a variety of different virtual spaces such as maintenance routes which are difficult to execute on high elevated positions, which can then be used for confirming workability and grasping the finished form.

In the future, we will consider applications of combining reality and the virtual world in the form of AR (Augmented Reality) and MR (Mixed Reality)."

ThinkPad P50 laptops are high-end mobile workstations for professionals, and these devices are currently in use as playback PCs for VR.

The ThinkPad P50 workstations provided to Kajima feature Intel® Xeon® E3-1500M v5 family processors. The Intel® Xeon® E3-1500M v5 is a mobile workstation version of the Intel® Xeon® processor series, which has an established reputation in desktop machines. Featuring the latest semiconductor manufacturing technology combined with proprietary micro-architecture, these chips offer both faster processing capabilities and superb power efficiency than ever before.

In addition to the cutting edge processors, the ThinkPad P50 also features the latest NVIDIA® Quadro® M2000M graphics cards, 16 GB of DDR4 memory, and 512 GB SSD (M2 type) storage. This spec makes this mobile system capable for the tasks that used to be handled by desktop workstation only. Also, the capability of running 3D applications on discrete graphics card makes ThinkPad P50 an ideal operating environment for VR-type applications which rely on constant and stable 3D performance.

Experience the VR system powered by ThinkPad P50 mobile workstation and Oculus Rift + Leap Motion

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Rieko Kondo, BIM Manager and Section Chief of the BIM Promotion Office at the Construction Management Headquarters, gave the following comments about the ThinkPad P50:

"Although Oculus VR strongly recommended to use desktop machines, we have confirmed that the system can also run on ThinkPad P50 mobile workstations. Through the combination of an Intel® Xeon® processor and high-end graphics cards that are comparable to a desktop computer, the ThinkPad P50 achieves high frame rate, low latency video display. As a result, there are no issues with VR experiences getting disorienting in the middle of using the Oculus Rift. In the future, as VR application are increasingly promoted, we hope that Lenovo, together with peripheral and software vendors, will develop products with hardware and software combinations to achieve optimum performance."

"The VR system, in combination with the ThinkPad P50, provides a VR experience with a high frame rate and low latency, resulting in smooth and natural video display."

Kajima Corporation
Ms. Rieko Kondo
Construction Management Headquarters
BIM Manager & Section Chief
BIM Promotion Office

ThinkPad P40 Yoga: A New Option for Device Deployment in the 2016 Fiscal Year

Kajima Corporation plans to start distribution of ThinkPad P50 devices as the next-generation mobile workstations used within the company in fall 2016. In addition, Kajima is considering making the ThinkPad P40 Yoga multi-mode mobile workstation a new option for users to fit with the various working styles of employees.

At Kajima, both the ThinkPad P50 and ThinkPad P40 Yoga were taken through their proprietary benchmark testing process, and Kajima confirmed that in terms of application loading time, standard model data configuration time, 3D rendering, related system functionality, and other operations, both models have demonstrated significant improvement on performance compared to the mobile workstations they have used.

The ThinkPad P40 Yoga is a 14 inch mobile workstation with a display that can be rotated 360 degrees for ultimate customization, and also features a slim design that fits easily in a bag and a light weight of just 1.8 kg (3.97 pounds). This model also has a NVIDIA Quadro discrete graphics card in addition to the CPU graphics processor, and this configuration meets the high-level performance requirements of the Global BIM® platform. Mr. Endo made the following comments:

"Employees who frequently travel outside of the office strongly requested the slim and lightweight mobile workstation, and with the ThinkPad P40 Yoga, their wish can come true. For employees who are mainly involved in sales activities and on-site presentations, a laptop like the ThinkPad P40 Yoga that can be easily transported anywhere and even used as a tablet as well is ideal. In terms of performance, the ThinkPad P50 makes no compromises, and will be the standard model throughout the company, but for employees who require a lot of portability for their workstations, we are considering making the ThinkPad P40 Yoga an option."

Kajima is also focusing on virtual desktop technology as an initiative to further improve employee mobility. Recently, with the shared virtual GPU (vGPU) solution, supporting for virtual 3D CAD workstations is becoming a real possibility.

Mr. Yasui made the following comments, and sharing his outlook for the future:

"By making the virtual desktop environment for the Construction Department, employee's devices can be changed over from mobile workstations to ultra slim laptops and tablets. At present, the cost for this kind of system is far greater than a physical workstation. So we have not made the switch, but from a mid- to long-term perspective, I think implementing this solution could be worthwhile for us.

For example, if we develop an on-premises virtual foundation for desktop environments and use Lenovo products for both the server and the client side, this would provide a universal support and maintenance window, which could further improve the cost to benefit ratio of the system. I hope in the future Lenovo will propose a one-stop solution for a virtual desktop system like this that covers everything from the servers to the client side and provides a superb cost-performance ratio."

For more information about Lenovo Workstation, please visit
www.ThinkWorkstations.com
www.Lenovo.com