

Internet Topics

Modular Data Center Developments

The overall electricity demand of data centers is forecast to increase worldwide between 2015 and 2020, with an expected average annual growth rate of 4.2% in Europe, 5.8% in North America, 6.8% in APAC, 10.6% in the Middle East and Africa, and 11.2% in Central and South America. The market for modular data centers is also forecast to expand by 23.2%, which is more than double the growth rate for data centers as a whole. In such a favorable environment, the co-IZmo/I modular data center developed by IJ is beginning to establish a significant presence in the growing Japanese and international data center markets.

■ New Module Development

The market for data centers, in particular modular data centers, is expected to continue growing over the next few years. To embrace this market, IJ developed co-IZmo/I ("co" stands for compact, and "I" refers to indirect outside air cooling) (Figure 1). Co-IZmo/I was developed based on the knowledge we accumulated through the operation of IZmo modules, which are used as commercial infrastructure for our cloud services at Matsue Data Center Park. IZmo modules are the first modular data centers that fully utilize outside air cooling and realize high energy efficiency, not only in Japan but in the Asian region. The design and development of these IZmo series products incorporate the expertise in areas such as cooling control and internal facility structures unique to data centers that we have acquired through our experience in operating and using data centers. The fact that IJ's IZmo series are developed based on experience differentiates IJ's products from other modular data centers, giving us a competitive advantage. Co-IZmo/I modules, in easily-transportable 20-foot containers (about six meters long), adopt a cooling system that indirectly uses outside air, providing superior energy saving performance while also allowing installation in areas where the air outside is not very clean. By housing cooling modules and electrical equipment such as batteries used in the event of power outages in a single module, we have been able to cut back on installation time and reduce costs. It is also easy to scale out by linking multiple modules, enabling their use in medium to large data center construction.

■ Customer Deployment

In 2014, we delivered four modular data center units to a research organization in Japan, and one to a company in Russia. Our business with the Russian company began when they contacted us directly after seeing our products mentioned by overseas media. They wanted to install a backup system for plant control, and chose to adopt our product after recognizing its superior quality compared to competitor products, and placing value on the fact that we have actually had several dozen modules in commercial-level operation at Matsue for a long time (Figure 2).

For transportation to Russia, a container ship was used between the Port of Yokohama and Vladivostok, after which the module was taken by trailer to its ultimate destination in an industrial city several hundred kilometers away from Moscow (Figure 3). Although co-IZmo/I is durable enough to withstand stacking, the shock caused to it when it is dropped by crane onto a ship would be too great, so it was transported in a horizontal configuration. We also looked into using the Trans-Siberian Railway for overland freight in Russia, but decided to go with a trailer in the end. Although there were unexpected complications, including a delay of several weeks in the Lake Baikal area due to bad weather, co-IZmo/I has been operating stably up to now in a severe environment that reaches minus 30 degrees Celsius in the winter.

■ Marketing Activities

During fiscal year 2015 we bolstered our overseas marketing activities with the aim of cultivating the global market. As part of this we attended trade shows in Hong Kong in July, Singapore in September, and Hungary in October, and we are currently engaged in business talks with several companies and public institutions in Southeast Asia and other parts of the world. Their needs vary widely.

- Some desire to build a data center for IT business in a short period of time to start operations quickly
- Some desire to place small-scale data centers in a number of distributed locations to improve reliability
- Some desire to build a high quality data center as a platform system for a public institution



Figure 1: co-IZmo/I



Figure 2: Matsue Data Center Park

We believe the acclaim co-IZMO/I has received is due to the fact that it allows for the quick assembly of high quality data centers with little need to secure skilled personnel for special facility design and construction as with building-type data centers.

At the trade show in Singapore, we were able to get a broad sense of the demand for modular data centers in Southeast Asia, such as their use as backups for existing server rooms, and IT consulting firms that wish to provide them to companies in Indonesia, Malaysia, and Myanmar. We didn't see this level of demand when attending the Hong Kong trade show in July, confirming that Singapore is the center for data centers and other economic activities in Southeast Asia as a whole, and the region shows great potential. At the trade show in Hungary, there were many corporate and government attendees from African, Central European, and Middle Eastern countries. The adaptability of our product to harsh environments that go up to more than 40 degrees Celsius or minus 40 degrees Celsius attracted a great deal of interest, as did the commercial use of Matsue Data Center Park and the easy to scale-out functionality.

At the trade show held in Singapore in September, co-IZmo/I and the NEC IA server Express5800 series were jointly awarded with the DatacenterDynamics Converged Critical Environment Future Thinking Award for 2015*1, providing even more momentum to IJJ's marketing activities. I think this will raise the profile of co-IZmo/I and lead to increased recognition of its reliability and quality.

■ Future Activities

We believe that modular data centers will play an increasing role in future usage scenarios, including use as distributed processing infrastructure for IoT and as cache for video streaming networks. To this date, IJJ has focused on providing IT services such as Internet access, system integration, operation outsourcing, and network and data center housing services. However, by providing modular data centers, we are expanding our business into the area of data center facility construction, a service we were previously unable to offer. In addition to facilities, we are also pursuing the development of services and technology for providing internal IT systems, network services, and data center operation as a one-stop solution. With co-IZmo/I gaining ground both in Japan and around the world, from this fiscal year we began offering options for its integrated management and operation from Matsue Data Center Park. We will continue to pursue such business initiatives in developing new technologies that open up new doors in the constantly changing IT market.



Figure 3: Shipment from Module Factory > Loading on Container Ship at the Port of Yokohama > Container Ship En Route to Vladivostok from the Port of Yokohama > On-site Installation Work



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*1 The Critical Environment Future Thinking Award is presented to commend technological innovations and initiatives that represent next-generation, state-of-the-art data center solutions. Combining co-IZmo/I with NEC's Express5800 series modular rack-based servers, which guarantee operation at 40 degrees Celsius, provides superior energy saving performance in hot and humid climates such as Southeast Asia. This configuration also accommodates the high-density implementation and easy scale-out required by cloud services. These acclaimed features led to us being presented with the award.