IMPACT REPORT

Your datacenter, your castle: iFortress builds impenetrable prefab datacenters

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The founders of iFortress believe that the most vulnerable part of a digital infrastructure is the structural layer (as opposed to cyber security) of the datacenter. In addition to human errors, they consider fire, physical attacks and natural disasters to be the largest threats to the infrastructure – a prolonged outage could pose an existential threat to business. This argument led to the inception of a secure and resilient prefabricated modular (PFM) structure nearly two decades ago. More recently, iFortress has been gearing up for international expansion to meet demand for the next generation of efficient and secure datacenters that support IT infrastructure upgrades and expansions.

The 451 Take

In the fragmented and still relatively little-known world of PFM datacenters, it is difficult to stand out from the crowd. IFortress does so by addressing all of the typical reservations that datacenter operators may have with using prefabricated facilities – its offering is highly secure, and flexible in space and equipment configuration, and it has a decade of operational experience and a stable of high-profile customers. Its proposition of lowering datacenter project risks via guaranteed timelines and costs while maintaining high levels of design flexibility in the fit-out of the facility should resonate well with a large part of the market, where survivability, and not extreme cost efficiency, remains the primary focus.

Context

New Jersey-based iFortress was founded in 1998 to develop a secure, expandable structure that could be installed virtually anywhere – externally as a stand-alone datacenter, within a warehouse-type environment or internally in smaller spaces (including office buildings). After extensive testing of physical resilience, the company installed its first PFM datacenter in 2004. It is privately held and employs about 150 staff; its datacenters are distributed by partners in Europe (by Data Center Technology in Norway) and Asia (by KOLON-iFortress in South Korea).

After having finished several highly custom projects, iFortress started marketing its products to the general market based on standardized components. The company is planning on further international expansion, where it sees ample opportunities to bid for. Current reference customers include the US federal government, General Dynamics, HP, IBM, Johnson & Johnson and Samsung, among others. For enterprises that don't want to take on the burden of running a datacenter, but would prefer an on-premises IT infrastructure, iFortress offers its facilities as a managed service in the US.

Technology

The building methodology iFortress has developed uses steel frames and interlocking steel panels (2ft/61cm wide and 10cm thick) to create a tightly sealed space that is physically secured against external impacts, including dust, water, fire, wind forces, seismic shocks and blasts. The panel system is granular by nature, which means iFortress can create structures of virtually any size, ranging from micro-sites with a few cabinets and supporting infrastructure to large facilities housing many hundreds of racks. The company says multiple third parties have performed rigorous testing of fully assembled facilities on various occasions, and the product has met the requirements of high-security organizations, including US government agencies and military branches.

The company offers two types of installation options: kit-based or pre-assembled modules. The kit-based option allows for flat-packed shipping and manual assembly that doesn't require cranes or other heavy-duty vehicles. This furthers the operational safety of a critical site during an expansion. On-site assembly of the structure takes about one week, depending on size; mechanical and electrical fit-out takes another week – after two weeks, the facility is ready to accept IT systems. This version, branded xSite iTX, can be installed on a concrete slab (or parking lot or rooftop) outdoors, or indoors in a warehouse, office or industrial environment. The structure is also stackable.

For larger sites and those that need rapid deployment, iFortress offers its PFM option, called iShelter iTX. The preconfigured modules are joined and interlocked on-site. Similarly to xSite, iShelters can be stacked. The company says xSite and iShelter expansions do not disrupt operations, even when adding a second floor. Other than assembly, the two product lines share the same architecture, and can yield identical performance.

The intellectual property of iFortress revolves around the delivery and structure of the facility, not in designing or manufacturing power and cooling equipment. The company is highly flexible in its options, and employs M&E systems from various suppliers – iFortress creates a suggestion of 'best configuration' for each set of customer requirements, taking on the complexity and responsibility of such choices if needed. Utility-only (without IT space) installations are also available. The company can integrate its facility with any type of cooling, including next-generation indirect fresh air cooling units, such as Excool and similar technologies.

The company has publicly quoted prices of $170-230 per square foot (or $1,830-2,500 per square meter) for the structure, not including M&E equipment, depending on the scale of the installation. Like some other PFM vendors, it says that it can be cheaper than a traditional build; however, the real savings come from sizing and specifying the

facility to current and near-term needs, as opposed to the traditional practice of planning and building capacity up front for multiple years out. Depreciation can also be accelerated to seven years, and no property tax is due on the facility – a practice that is accepted by authorities, the company says.

Competition

Although iFortress is not new to the market for PFM datacenters, it is still relatively unknown to most operators – it only started raising its profile in recent years. 451 Research tracks more than 50 PFM datacenter suppliers worldwide, although their level of activity varies greatly. Its positioning as a high-security facility sets iFortress apart. Additionally, its finely granular capacity-increment approach will likely be perceived as a good fit for small and medium-size sites.

Cannon Technologies, a UK-based vendor, has a versatile and fine-grained PFM architecture that shows similarities to the products of iFortress. Cannon's Granular Modular Data Centre can accommodate virtually any use case, from freestanding legacy equipment to strictly laid-out high-density containment systems. When its in-row chilled-water cooling units are used, Cannon can dynamically add cooling capacity to the operation, to cover for expansion or to handle higher-power racks. Cannon is also similar to iFortress in its high-security engineering for military and financial customers.

CommScope, a US-based structured cabling and connectivity provider, also sells a highly granular PFM facility architecture, albeit with a focus on extreme cooling efficiency, which introduces some design rules to the layout of the facility. CommScope's Data Center on Demand scales from one cabinet (e.g., remote microsites) to 30-rack sections that can be joined to create facilities of any size. CommScope puts emphasis on using fresh air cooling and promotes elevated set points.

There are many other suppliers competing for projects. Schneider Electric, the Paris-based energy management giant and datacenter equipment vendor, is pushing hard to advance its PFM datacenter business. It acquired PFM datacenter specialist AST Modular in late 2013 to tap into its manufacturing and project expertise. Emerson Network Power is another datacenter equipment heavyweight seeking growth with PFM datacenter projects of all sizes, in all geographies and verticals. It has an appetite for full custom projects, too. Australian Datapod uses 20-foot ISO containers as building blocks to create larger facilities that withstand harsh environments, and has won deals in mining and government projects.

While iFortress offers finer granularity, stronger physical security and more options in configuration of the space than containers do, containerized and custom-enclosure PFM datacenters (typically larger than shipping containers, to make it easier to work in) cannot be dismissed. In fact, such form factors command the majority share of revenue, according to data collected by 451 Research. HP, Dell and Huawei are among the largest vendors globally (albeit with very different go-to-market strategies), but there are numerous ICT suppliers and specialists offering containerized/custom-enclosure datacenters.

SWOT Analysis

Strengths

The architecture iFortress has developed ranks highly in its protection against external threats of various sorts. It is also flexible in space buildout and M&E configuration, and can be installed in various locations, indoor and outdoor.

Weaknesses

High levels of security and flexibility are likely to come at a cost. IFortress fares well in cost against traditional highly available enterprise datacenters, but likely loses some of its competitive edge when compared with cost-optimized PFM facilities. In any case, the company is still relatively unknown, despite its long history.

Opportunities

We anticipate that demand for PFM datacenters will keep growing steadily in the coming years. Operators are still learning about their PFM options. Enterprises and midmarket service providers will need next-generation datacenters, since many operators will want existing and inefficient facilities to be decommissioned in the coming years.

Threats

There already are dozens of PFM datacenter suppliers vying for PFM sales, which creates a lot of noise and can lead to customer confusion. Barriers to entry are still low, and without a clear leading pack of vendors with highly advanced technology and economies of scale, the market remains attractive for additional entrants and DIY operators. Despite adhering to high security standards, some operators may still not view a PFM facility as a 'proper' datacenter.

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COMPANY MENTIONS (PRIMARY)

iFortress (/search?company=iFortress)

COMPANY MENTIONS (OTHER)

AST Modular, Cannon Technologies, Data Center Technology, Datapod, Dell, Emerson Electric, Emerson Network Power, General Dynamics, HP Inc, Huawei, IBM, Excool, CommScope, Johnson & Johnson, Samsung Electronics, Schneider Electric (/search?company=Schneider+Electric)

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