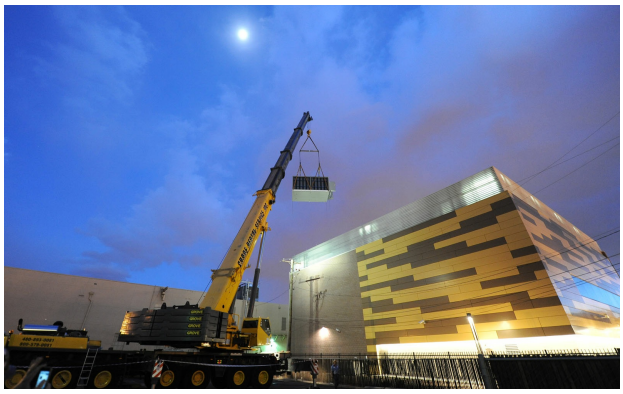
Meet the company building AOL's micro data centers

gigaom.com/2012/07/12/meet-the-company-building-aols-micro-data-centers/

By Derrick Harris

Elliptical Mobile Solutions is hardly a household name in the data center world, but don't bet against it becoming one. The Chandler, Ariz.-based company that started inside a founder's garage builds one of the world's smallest data centers and has already secured some big-name customers including, most famously, AOL (s aol). While bigger data centers seem to be better for webscale companies such as Google (s goog) and Facebook (s fb), many are happy to grow on a lot smaller scale — about 105 cubic feet at a time.



Granted, EMS's boxes are nowhere near as powerful as a massive data center chock full of computing gear, but that's kind of the point. Modular data centers are all the rage right now because they let companies grow capacity as its needed, whether that's a rack at a time inside an IO Data Centers unit or 1,920 servers at a time inside one of eBay's (S ebay) specially designed modular units.

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But modular doesn't necessarily mean easy or flexible. At the smallest, a standard shipping container unit needs 120 square feet of floor space and can weigh 100,000 pounds, while one of IO's units needs 500 square feet.

If you just need a rack full of dense computing power that can go quite literally anywhere you have room, EMS might be your provider. The company's biggest unit, the 42U and roughly 165-cubic-foot R.A.S.E.R. HD, can handle up to 80 kilowatts at a PUE of 1.1. Its mid-range unit — the R.A.S.E.R. DX, which is the 105-cubic-foot unit AOL uses — can support 12 kilowatts and can fit through a doorway. Its smallest product, the C3-S.P.E.A.R. comes on wheels.

Aside from their size, the micro-modular data centers (as the company calls them) are so versatile because they're fully contained units complete with state-of-the-art cooling and fire-supression technologies. EMS CEO Bill Stockwell explained their appeal to me like this: "Can you imagine taking a gallon of milk out of your refrigerator, putting it on the counter, and cooling your whole house [from the coolness it puts off]?" That's how many traditional data centers function, he said, with central cooling that has to handle all the racks within the facility. "We make a refrigerator unit for IT deployment."

Tony Cole, EMS's vice president of North American sales, told me many customers put them inside office building in lieu of building out new rooms capable of handling computing gear. Royal Caribbean puts EMS units on its cruise ships. AOL appears content putting them on concrete slabs outside its offices.

Others that have their own data centers will deploy a micro data center when they want to increase density for a certain application but their current infrastructure can't handle tens of kilowatts per rack. That's what happened with a missile range in New Mexico that bought a load of high-density gear but then found out it would cost $900,000 to retrofit their data center to support it. Instead, they consolidated 10 racks into two R.A.S.E.R. HD units and actually acquired more computing capacity as a result.

Because it's liquid-cooled, "there isn't an IT package on the market today that the R.A.S.E.R. HD couldn't support from a cooling perspective," Cole said.

Currently, Cole said, EMS's micro data centers often act as disaster-recovery sites for mission-critical applications or sometimes get placed at remote offices. But EMS co-founder and Chief Technology Evangelist Simon Rohrich said he sees a shift happening as more companies get interested in owning their own cloud computing infrastructures, but don't have the budgets or expertise to build and run their own data centers.

In this regard, AOL could turn out to be one heck of an important customer as both a use case and a cheerleader. AOL's use case of deploying EMS units globally as part of a single cloud platform shows customers how easy it can be to make 10 racks across 5 continents look like a single location with the right software, Rohrich said. And having the company out in public touting 5 times the computing capacity for 10 percent of the cost is sure to turn some heads, too.

Already, he added, customers are starting to realize they can deploy multiple EMS units at a single location to achieve some powerful systems. Cole noted that EMS has deals in place for 13- and 16-unit arrays already, but suspects bigger arrays will come. The company is still in the early stages, he said, "so people are just kind of kicking the tires."