

## Q&A with Andrew Schaap



| **Andrew Schaap**

**Chief Executive Officer**  
Aligned Energy

### Background:

Andrew is responsible for developing and executing the company's overall strategy, and brings over 20 years of experience to Aligned, including data center, cloud, hybrid cloud and multi-cloud deployments with over \$3.5 billion in revenue. Prior to joining Aligned, he spent 11 years as Senior VP of Global Solutions at Digital Realty and led the go-to-market strategy, revenue team and product innovation. He also held leadership roles at Sterling Data Centers, backed by Sterling Partners PE, a startup that was sold to Digital Realty.

### | What are key considerations separating data center operators that can generate industry-leading build costs, and those that can't, and why would an incumbent operator or newer operator have an advantage over the next few years in getting there?

Across the industry, reducing build costs and thus lowering the total cost of ownership for the customer is among the highest priorities (if not priority number one), with several management teams routinely suggesting a certain range where providers need to aim in order to be successful. A lower build cost enables you to competitively price your solution for the upper echelon of customers, while maintaining sufficient yields to justify the development. I would also note that schedule is of near equal importance and could just as easily become a potential deal breaker in a competitive bidding process. I believe our current management group and dynamic supply chain will enable Aligned to navigate toward industry-leading build costs over time.

To get there, you can identify current disparities between the large incumbent operators (such as Digital Realty, CyrusOne, QTS, etc.) and the up-and-coming operators – a standard design and an entrenched supply chain. Standardizing your build design and establishing a dynamic supply chain, and key relationships with sophisticated contractors, enables you to drive cost (and schedule) efficiencies when deploying new capacity.

We would note, however, that while a firmly established supply chain is a key ingredient for success, it can also lock you in to a design or process that may not age well. We believe that we are uniquely positioned in our development in that we are building at a time where major cloud providers are beginning to understand what the proliferation of 5G can bring to the marketplace, and what they need to do to retain leadership positions. We can adapt to their needs (driven by our proprietary cooling technology), while establishing ourselves as industry leaders in design and operational efficiency, which should provide a meaningful advantage from a leasing perspective in the coming years.

Akin to a significant portion of failures within a data center being attributable to human error, a comparison can be drawn with developing a highly efficient construction / design process. It is imperative to have experience at the top to implement best-in-class procedures to build at a low cost and on schedule, while maintaining 100% uptime and having no worksite incidents (injuries). We have taken meaningful steps toward obtaining top talent to lead initiatives through the recent hiring of Mike Coleman as Global Head of Design and Delivery, and Billie Haggard as SVP of Operations.

## Recent Aligned Energy additions are key to successful development



Mike Coleman

Before joining Aligned, he served as the Head of Global Data Center Operations at Google, where his primary objective was the design and delivery of the next state of the art data center and to automate the environment completely, directing the day-to-day operations across all data center campuses, edge sites, and PoPs. This was preceded by his tenure as VP of Global Data Center Construction, and Operations at Yahoo! where he managed and supervised the Data Center Engineering and Delivery team in the execution of global data center strategies encompassing the development and construction of cutting-edge data centers; coordinated technical design, construction, value, and performance engineering.



Billie Haggard

Before joining Aligned Energy, Billie served as Operations Director for a global leader in facility and asset management, where he was responsible for all aspects of management, operations, maintenance and training for over 3 million square feet of data center space and 200 personnel.

He has also served in leadership positions with Critical Solutions Group (Director of Corporate Performance), Microsoft Data Center Delivery Group (Director for the Americas) and one was of the first handful of members of CoreSite Realty Corporation, where he served as SVP of Data Centers.



### As deals have become...

increasingly complex, it is imperative to have a management team in place with significant prior experience with large-scale deployments (of which only roughly a dozen existing providers can accommodate). Aligned's management team now boasts significant applicable experience drawn from current industry leaders (on both the provider and customer sides of the market). Along with the recent additions of Mike and Billie, Aligned's management team also includes representation from: **Digital Realty** (Andrew Schaap, CEO), **CyrusOne** (Anubhav Raj, CFO), **EdgeConneX** (Phill Lawson-Shanks, CDO), and **QTS** (Eric Jacobs, CRO).



### | Are there dynamics inside the data center that are creating a shift in customer leasing behavior?

Technology is continuously developing and requiring stronger and more dynamic performance amongst all aspects of the data center – from the chip sets all the way to how the racks themselves are cooled. In a traditional build, the utilization of a pressurized raised floor with cold air being pushed through perforated tiles was efficient when individual racks were accommodating ~5kW deployments. However, increasing and disparate densities have shown this method can lead to misallocations in cooling as the higher density (and thus hotter) racks draw air towards them – creating pockets of inefficiency.

Our proprietary cooling technology, the Delta Cube (“Delta<sup>3</sup>”), does not use a raised floor approach and can more efficiently allocate cooling capacity across the data hall, which lowers the PUE and leads to cost reductions for the client. The Delta<sup>3</sup> enables our design to support racks of varying densities within the same data hall, allowing customers to scale in place (reducing deployment complexity), thus “future-proofing” their deployments.

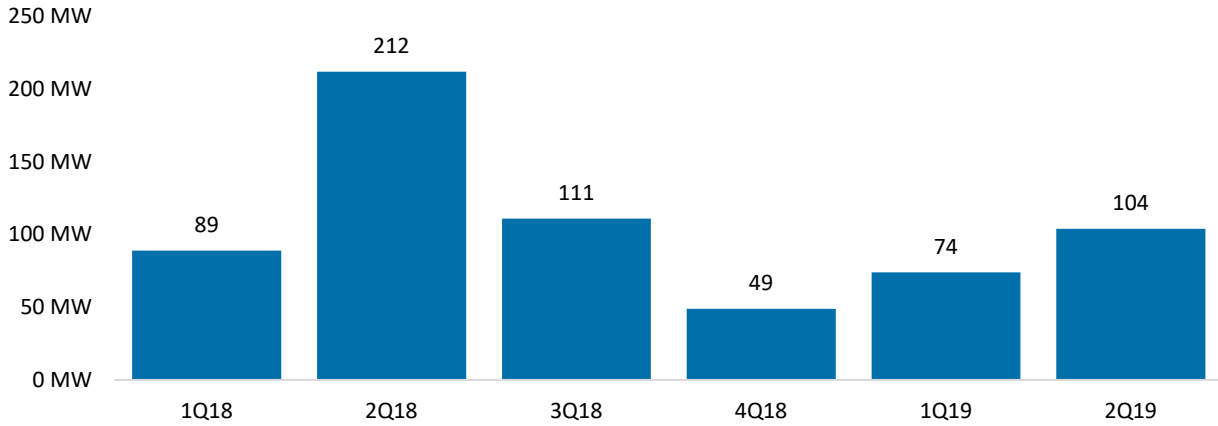
From a development perspective, traditional CRAC / CRAH units are large, onerous machines that are prohibitively expensive – you cannot easily move them once installed. An individual unit, dimensionally, is roughly (though can vary) 12 ft (w) by 9 ft (h) by 4 ft (d), which can produce ~100 kW of cooling capacity. An individual Delta<sup>3</sup>, by comparison, is 4 ft (w) by 4 ft (h) by 4 ft (d), and can produce ~117 kW of cooling capacity at a under half the cost, while using 80% less energy and 85% less water. In perfect conditions, when cooling a static or unchanging technology in a data hall, the traditional CRAC / CRAH unit can typically achieve a PUE in the range of 1.5, whereas the Delta<sup>3</sup> can drive a PUE rating of 1.15. The size of the traditional units make them virtually impossible to move once deployed, and you typically need to outfit an entire data hall at once when building, whereas the size and portability of the Delta<sup>3</sup> enable Aligned to deploy incrementally, allowing us to more efficiently allocate spend.

### | What trends is Aligned seeing in the domestic market as leasing volumes have been relatively suppressed in recent quarters?

Speaking of the market broadly, in 2017 / early-2018 we saw hyperscalers buying up capacity domestically, then late-2018 / early-2019 saw these hyperscalers fill that capacity while turning their attention internationally, which has created a pullback in North American leasing activity in recent quarters (albeit compared to record performances early in 2018) – which we show in an exhibit below. While (optically) the domestic market appears to be a growth suppressor in its current state, our positioning in strong markets and relative size have enabled us to achieve significant growth during this period. We intend to put additional dots on the map in the near term as we expect demand to funnel back towards the domestic market some time in 2020.

I would also say that smaller enterprise deals (<50 racks) are becoming less and less prevalent as the market has become increasingly geared towards larger enterprise and hyperscale deals (these smaller deployments are increasingly heading to the cloud), which suits Aligned well for additional success on the leasing front.

### Absorption Trends 1Q18 - 2Q19

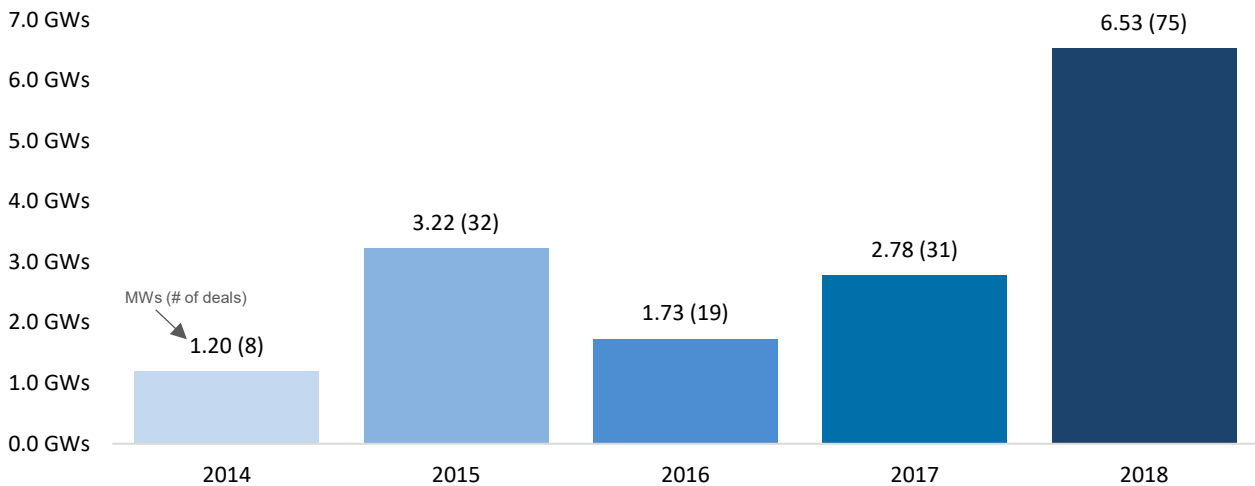


Source: DatacenterHawk

### | Are renewable / sustainability options becoming more important in the deal-winning process?

Customers are increasingly desiring renewable options in their data center deployments to meet internal green initiatives set forth by their respective management teams, as shown by the plethora of corporate renewable deals signed in recent years (shown in the below exhibit). Each of the largest hyperscalers have segments of their respective corporate websites dedicated to messaging their sustainability initiatives, and you continually see renewable agreements gaining prevalence in releases from leading industry reporting groups. You are also seeing some of the public data center providers discussing sustainability initiatives either on their respective websites, in their earnings materials or in the reporting of various green initiatives on which they are working. Below, we show corporate renewable deals as reported by the Business Renewables Center, which includes the likes of Google, Microsoft, Amazon, Facebook, Apple, and salesforce.com, amongst many other major companies.

### Corporate Renewable Deals (2014-2018)



Source: Business Renewables Center

Our mission is to make data center critical infrastructure smart enough to continuously improve both economic performance and the impact data centers have on the environment. We are continuously analyzing options to



reduce our carbon footprint not only to promote a cleaner planet, but also to improve our traction with customers who share a similar mindset.

**| What is your view on private or non-DC developmental capital entering the space? Is it still continuing at a rapid clip?**

Private capital is still entering the industry at a rapid pace, whether it be through funds supporting other start-up opportunities or joint ventures allowing developers to throw their hats in the ring with a proven operator who is looking to de-risk from a capital deployment perspective (or simply wants to retain a portion of their capital to expand their portfolio geographically by bringing additional locations online). We have seen AT&T unload its data centers to Brookfield, which now operates under the name Evoque; we have also seen the public providers engage in JVs for both domestic and international developments and acquisitions, and expect this trend to continue given the demand curve that lies ahead. At this point, there is no material shortage of opportunity in the data center space, so we expect large investment firms to continue to seek opportunities for entry. However, with that said, it will take a strong management team, a differentiated strategy, and an efficient build / design process to rise above the rest, which I believe we have assembled.

— **ABOUT ALIGNED ENERGY**

Aligned Energy is an infrastructure technology company that offers colocation and build-to-scale solutions to cloud, enterprise, and managed service providers. Our intelligent infrastructure allows us to deliver data centers like a utility — accessible and consumable as needed. By reducing the energy, water and space needed to operate, our data center solutions, combined with our patented cooling technology, offer businesses a competitive advantage by improving reliability and their bottom-line.