[Connectivity Business,](#) by Douglas Yu

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Towercos looking to capitalise on prospective edge computing growth are increasingly installing micro data centres at the base of their facilities.
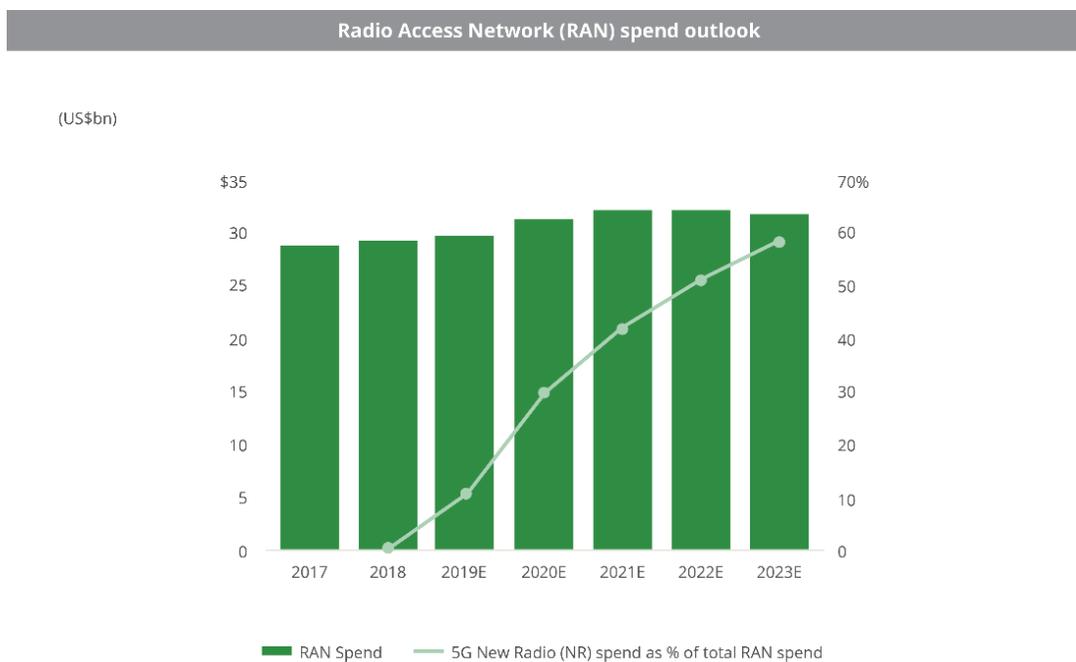
While edge computing is still relatively new to the towers sector, mostly taking place at a network's centre – analysts expect it to be increasingly deployed at the base of towers to reduce latency.

The global edge computing market will be worth US$6.96bn by 2024, according to research company Market Overview, growing at a 34% CAGR from US$1.27bn in 2018.

"The development of processing-intensive applications involving IoT, artificial intelligence, and machine learning, which consume larger data sets and perform massive algorithmic parallelism on models has promoted the demand for localised computer, data storage, and network resources," it said.

"Therefore, along with IoT, the adoption of AI and machine learning also supports the growth of edge computing."

However, edge computing faces similar security challenges as IoT, such as the lack of a common security framework.

**Radio Access Network (RAN) spend outlook**

(US$bn)



Legend: RAN Spend — 5G New Radio (NR) spend as % of total RAN spend

5G base station revenues in the US will increase by a 55% CAGR between 2019 and 2023, reaching US$18.7bn by the end of the forecast period.

*Source: Cowen and Company, Dell'Oro Group*

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**Expanding edge computing to underserved areas**

US private infrastructure owner **Vertical Bridge** is among the first towercos in the country to dip its toes in edge computing.

In 2017, it partnered with Texas-based cloud and colocation services provider **DataBank** to develop micro data centres at the base of communications towers.

Legacy wireless network architecture typically has a cloud interface at the city or regional level, thus traffic is transported long distances at considerable cost and with significant latency.

"Edge computing can create an important distribution point for the cloud at a lower cost," DataBank CEO Raul Martynek said. "There's just one jump to the micro data centre at the base of the towers, so not only is the latency for accessing the cloud reduced, but it opens the possibility for real-time applications and a richer, more immersive experience for end users."

Investment firm Digital Bridge, which is Vertical Bridge's largest investor, told Connectivity Business that it has deployed DataBank's data centres at some of its towers in Kansas City and Minneapolis – "the Tier 2 cities that are arguably underserved by the largest providers in the US", and it plans to expand the edge compute technology to more domestic markets later this year.

Digital Bridge's managing director Jonathan Mauck declined to provide further details, but said that DataBank "continues to explore both organic and inorganic opportunities to grow".

In early 2017, Digital Bridge also acquired California-based **Vantage Data Centers** Management for US$1bn, which Mauck said will work closely with DataBank on deploying edge computing in the US.
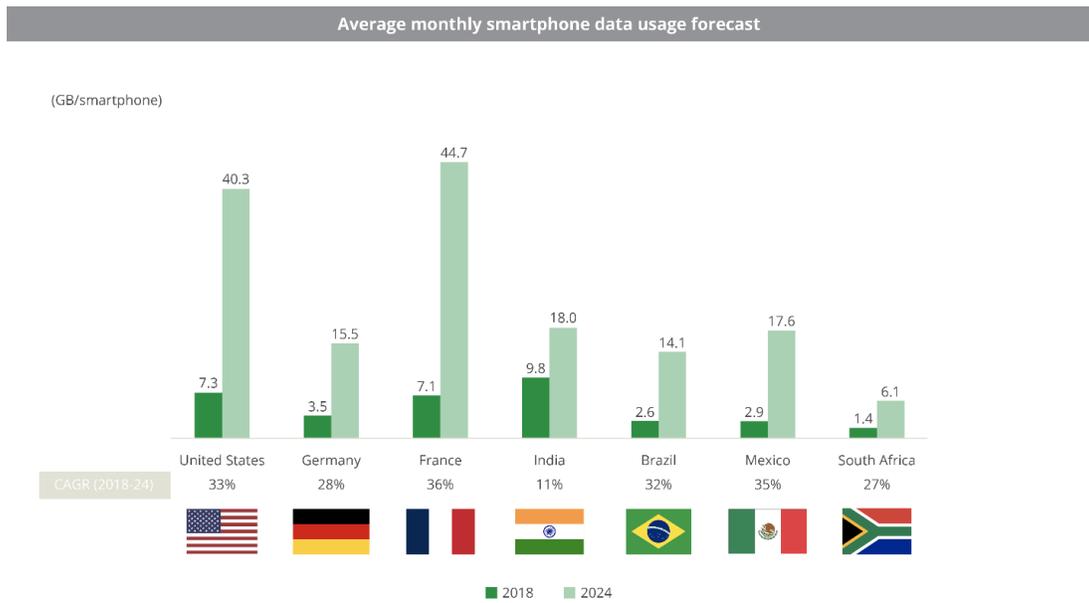
He noted that these two companies have a close partnership because they overlap on the equity side, saying that "we are able to take a tower where we have multiple [wireless] customers [such as Sprint (NYSE:S)] and provide a data centre to that location through collaboration or joint venture".

Major public towercos have also started to get into edge computing by acquiring data centres.

American Tower (NYSE:AMT) made its first data centre deal this April by acquiring Georgia-based Colo Atl.

SVP of corporate finance and treasurer at the towerco, Rod Smith, was quoted saying: "We're looking for more innovative things to do … we bought [Colo Atl] not because we want to be in the data centre business, but we bought that to learn more about how data centres operate," from a cost efficiency perspective for example.

He noted that towers that have had small data centres installed at their bases have seen revenues rise.

**Average monthly smartphone data usage forecast**

(GB/smartphone)

| | United States | Germany | France | India | Brazil | Mexico | South Africa |
|---|---|---|---|---|---|---|---|
| 2018 | 7.3 | 3.5 | 7.1 | 9.8 | 2.6 | 2.9 | 1.4 |
| 2024 | 40.3 | 15.5 | 44.7 | 18.0 | 14.1 | 17.6 | 6.1 |
| CAGR (2018-24) | 33% | 28% | 36% | 11% | 32% | 35% | 27% |

■ 2018  ■ 2024

Average monthly smartphone data usage will drive the need for small data centres installed towerco bases.

Meanwhile, American Tower's domestic competitor SBA Communications (NASDAQ:SBAC) also partnered with edge computing company Packet towards the end of last year, while Crown Castle(NYSE:CCI) provided an initial investment to edge computing startup Vapor IO in March 2018.

Vapor IO and Packet also announced a separate deal last year to offer 5G-as-a-service to wireless operators by combining the former's data centres and the latter's on-demand computing devices.

## Advantages over public data centres

Small data centres have several advantages over public data centre providers, such as Equinix (NASDAQ:EQIX) and CyrusOne (NASDAQ:CONE), in providing edge computing to towercos, according to Packet's co-founder and CMO Jacob Smith.

He told Connectivity Business: "The underlying technology is pretty much the same, but they focus more on hyperscale developments where the public clouds such as Amazon (NASDAQ:AMZN), Google (NASDAQ:GOOGL) and Microsoft (NYSE:MNSF) get pre-deployed and work for most people … while we focus on specialised, often subscale – anything from a rack to 20 racks of equipment would be a normal deployment."

Smith noted that towers are an "interesting sector", and the company sees private towercos such as Vertical Bridges and big enterprises as a major revenue source in the next couple of years.

"SBA has around 25,000 sites in the US and South America, of those maybe 2,000 are suitable for mobile edge data centres," he said. "SBA is only one of the many partnerships we are developing. We have a repeatable business model we can stamp out in a short period of time in response to our customers."

Packet, which raised US$9.4m led by SoftBank (TYO:9984) in its series A funding in 2016, plans to raise more capital soon, according to Smith, because "investments are tied to growth, and our growth is going well".

He added: "We're venture-backed which is pretty rare in the infrastructure space, especially the cloud. I think SoftBank has a good understanding of our vision, and so does other Series A investors – Dell (NYSE:DELL), Samsung (KRX:005930) and Third Point.

"Our run rate is modest – probably around US$50m by the end of 2019, but we're doubling every year."

| Global edge computing market outlook |
|---|

(US$bn)

34% CAGR

$7.0

$1.6

2019        2024
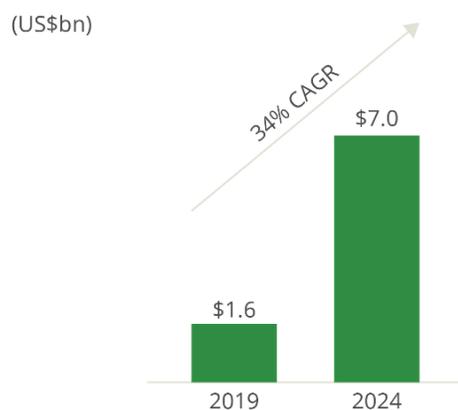
The development of processing-intensive applications involving IoT and AI is fueling the growth of edge computing.

*Source: Market Research World*

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Additionally, Digital Bridge believes private data centres providers outshine their public counterparts in capital structure.

Mauck said: "There's more efficiency in the private markets today around capital access … I also think that data centres generally are infrastructure deployments, so you need to have a long-term perspective on your capital deployment. You can't really be strategic and think about quarter-to-quarter results," which is frustrating many public players.

**Economic uncertainty**

Like small cells and IoT, the telecoms industry is still trying to figure out the economics of edge computing, since it can be complicated for towercos to maintain, monitor and manage a large amount of small data centres installed at the base of their sites.

Mauck noted: "Even when you are deploying content or compute to one of those data centres, it may not be the right data centre that [some mobile users] have access to. So, there's still some potential inefficiencies around that."

He added: "There won't be real investment going into edge computing until it is economically compelling for the content owners and the carriers."

**BY DOUGLAS YU**



Douglas Yu is a Senior Financial Journalist for Connectivity Business. His coverage includes telecommunications and satellite services providers, fibre networks and data centres, small cell and tower companies, technology and infrastructure equipment manufacturers, capital providers and investors in the public and private capital markets.

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