KEYNOTE INTERVIEW

The rise of connectivity-as-a-service

Tech evolution in telecoms is revolutionising infrastructure assets everywhere, says Christopher Ehrke, partner, Arcus Infrastructure Partners

Q Rapid tech development dominates every aspect of our lives today. How is telecoms infrastructure driving, or facilitating, that progress?

It is interesting to note that many of the tech evolutions that we are seeing rely on modern fixed and mobile networks, as well as data centre compute capacity. Fibre-to-the-home networks, towers and data centres are all benefiting, and will continue to benefit, from a rising tide of tech-driven use cases that simply cannot operate without the backhaul and compute capabilities provided by these underlying core network infrastructure assets.

SPONSOR
ARCUS INFRASTRUCTURE PARTNERS

At the same time, however, technology is poised to create new opportunities for experienced active infrastructure investors that are willing and able to step up their level of operational involvement by investing in more active network and service operations. This is an exciting development opportunity which may ultimately lead to the emergence of a new asset subsector – connectivity-as-a-service.

Q How do you see these developments working in practice?

A classic example of active asset management taking advantage of market innovations would be our telecoms business TDF in France. TDF is run by an extremely tech-savvy team which is at the forefront of innovations currently underway in the sector.

TDF is expanding its focus outside of its classic tower hosting, broadcasting and fibre business to become more active in a range of areas, such as: indoor and specialist coverage, using distributed antennae systems and small cells; road and railway connectivity, for

example by developing a metro system in Rennes; smart cities, such as the initiatives it is currently working on in the city of Vichy and as the prospective provider of smart city solutions to the Paris Olympic village; the internet of things; public safety mobile radio networks, such as Tetra/Tetrapol; and edge computing, where, in particular, it is discussing partnerships with mobile network operators and the big hyper-scalers to provide connectivity and hosting infrastructure for their customer solutions through its growing portfolio of edge data centres.

The company is also actively deploying technology to improve its own operations and efficiency, for example installing solar panels on its towers for energy self-production. In addition, it is enhancing revenue management through monitoring of rental space on towers using drones, as well as using AI extensively, including, for example, tools that link into weather forecasts to automatically adjust the positioning of satellite dishes to make them more effective during changing weather conditions.

Other examples include advanced remote site management, not only in mainland France, but across the French overseas territories where TDF operates. In short, the use of new technology is helping us become better asset managers of this essential infrastructure.

Q What other connectivity use cases are you seeing emerge?

In a smart city environment, the use cases really multiply. There is security, including smart surveillance and disaster early-warning systems, home security systems and crowd management. Then you have the vast realm of healthcare, with the evolution of telemedicine, real-time air-quality information and the surveillance of infectious diseases, just as a few examples.

Mobility should witness significant advances in the form of autonomous

Q What opportunities does data represent for infrastructure businesses?

It is anticipated that generally the amount of data being created, processed and stored will continue to rise exponentially, fuelled by the development of new use cases and greater connectivity. Clearly this has implications for data centres and backhaul networks. It is also clear that having access to high-quality data – for example traffic flows around a city, or real time loading of public transportation systems – will increasingly underpin the most efficient use possible of expensive infrastructure assets.

But I do not believe data ownership – even of the kind of infrastructure datasets mentioned above, which may be commercially valuable – should be an infrastructure asset class in its own right, or one that we would be particularly interested in owning. We are aware of infra investors buying into, for example, public land registries, and we know that investors have also looked at the ownership of map databases, particularly the 'root' maps typically maintained by government – which are very interesting propositions, but not for us.

In a public context, outside of private campuses and similar, we would suggest that governments and other public or regulatory bodies need to think very carefully about the uses to which data being generated from infrastructure assets and geospatial databases is put. There is an essential question of trust here, and it is very important that high-quality, but almost certainly anonymised, data is made available to those looking to help to optimise the many aspects of daily life, which rely on good and well-managed infrastructure.

In a smart city environment, and indeed in most contexts, we believe the best option is to make such data irreversibly anonymised, completely open-source, and have it owned and managed by a public authority, rather than any private sector party.

vehicles, real-time public transit information, intelligent road management and smart parking. In energy, the range of use cases covers building energy automation systems, dynamic energy pricing and smart street lighting.

With water, you are talking about consumption tracking, leakage detection and control, and water quality monitoring. In waste, it is digital tracking and payment for waste disposal and the optimisation of waste collection routes.

There isn't an area of public infrastructure that won't be impacted by smart city technologies, which themselves require upgrades in the underlying comms infrastructure, but it isn't all about smart cities. There is huge potential within industrial campuses – or so-called 'industry 4.0' – as well.

Through the installation of sensors and using 5G technology with fibre backhaul and compute capacity on site, a manufacturer of car parts, for example, can today immediately pick up on tiny irregularities within the production chain, such as sound or visual discrepancies. This allows for immediate adjustments, facilitating predictive maintenance, resulting in less downtime and waste and ultimately enhancing efficiency.

Meanwhile, dedicated networks with low latency and on-site compute capacity can provide the foundations for other aspects of site automation, including driverless vehicles, automated stacking, real-time data analysis and critical communications. Through discussions with large industrial production site owners and port operators, for instance, we sense growing demand for these types of solution along with questions as to how they should best be designed, financed and maintained.

Q How is this technology impacting the evolution of the telecoms sector?

The big change on the horizon for wireless telecoms, specifically, is software defined networks and ultimately the use of OpenRAN. This effectively means the revamping of existing mobile network infrastructure to push certain active elements into the realm of software thanks to the decoupling of hardware and software, virtualisation of signal treatment and open interfaces between network functions.

"There isn't an area of public infrastructure that won't be impacted by smart city technologies"

OpenRAN provides the ability to move signal processing and network access into the cloud, with the advantage of eliminating bottlenecks in capacity and allowing for the sharing of certain active elements through network slicing and remote-control capacity. This approach has already been used for new network deployments, including notably by Rakuten in Japan.

It is not going to happen overnight, and MNOs will struggle with the complexities of managing parallel legacy systems, but it is critical to think ahead, nonetheless. The impact of automation, scalable networks, synergies with edge computing, elimination of hardware vendor dependency and even energy savings will result in a significant reduction to the total cost of operation and is thus being actively trialled by MNOs that continue to face investment and margin pressure.

These evolutions have the potential to impact the towerco model, eliminating income from base station space rental as well as increasing the opportunity to serve MNO customers through network node located edge data centres. As mentioned previously, TDF is already providing mobile edge computing capacity to its MNO customers and is trialling the use of OpenRAN technology in the context of its indoor coverage projects.

It is essential, therefore, to adapt traditional business models accordingly, anticipating changes by staying on top of technological developments and customer needs, and considering playing a more active role in providing open access network services for mobile operators and the customers of tomorrow.

Q Highlighting just one area of your strategy, what impact are these changes having on the role of data centres?

One big theme in the data centre sector is the rise of the edge strategy – the drive to bring compute capacity closer to eyeballs or users. Traditionally, most European data was computed in the data centres located in core markets in the outskirts of Frankfurt, London, Amsterdam and Paris. Data was doing the round-trip to wherever the question was originally asked.

This obvious inefficiency is now leading to the development of data centres located close to the network edge, which is another investment theme supported by tech developments. These facilities will serve ever-increasing demand from streaming services, cloud companies and enterprises for facilities through which they can distribute new low-latency applications and services such as 5G, gaming, IoT and edge computing. ■