Las Vegas and edge compute: lessons for operators and other edge node builders

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Las Vegas can make a fair claim to being the world's leading, or at least noisiest, hotspot for edge compute. That makes it worth taking a closer look at its edge activities and seeing if operators or edge node builders can learn anything from them. Singapore and Barcelona are often held up as examples of smart cities but it is hard to beat Las Vegas for the audacity of the 18 000-seater Sphere or the Vegas Loop. The city has a large number of projects underway in well-publicised (some would say over-publicised) future edge compute use cases such as robotics, autonomous vehicles and AI. But there is also activity in less glamorous areas such as traffic management, public safety and education.

Las Vegas has become something of a magnet for operators and other edge builders wishing to test their services before bringing them to a wider market. The city has at least six current edge computing proof-of-concept trials underway, but what is most striking is the city's thinking on the future of edge.

Las Vegas's dense public industrial edge challenges the relevance of metro edge

Las Vegas's Chief Innovation and Technology Officer, Mike Sherwood, has a vision of edge that is as ambitious as the vast building projects that are springing up all over the city. He sees a time in the not-too-distant future when Las Vegas will need between 25 and 30 local public industrial edges, which will deliver a dense, shared compute infrastructure. He argues that the edge will eventually evolve to a cell network-like topology. "It's possible to run everything from a central node but a distributed system of edge nodes will be more efficient and reliable," he says. It is a view shared by Cole Crawford, the CEO of Vapor IO, one of the public industrial edge's most well-known proponents. Vapor.io, headquartered in Austin Texas, is concentrating its deployments in the city, building out three fibre-connected InZone edge data centres in downtown Las Vegas. These three nodes appear as one virtual data centre, spanning three locations. Crawford argues that this topology gives an SLA far beyond what the public cloud can offer, the kind that emergency and other critical infrastructure services can rely upon.

This dense, public industrial edge suggests that the metro edges that have been built out over the past few years in regional Tier-2 or -3 city hubs might not be the edge infrastructure that we will need. Las Vegas is home to several regional public cloud nodes including an AWS Wavelength and a metro edge node in the form of Local Zone, yet it still saw the need to develop public industrial edge compute infrastructure. On the edge of the city is Switch's SUPERNAP, one of the world's largest data centres. It is possible to argue that Las Vegas is unusual and is an outlier, but the city is not unique. Singapore also hosts a number of public cloud nodes and is building out public and private industrial edges because it needed infrastructure in addition to the existing regional, metro edges.

Las Vegas's economy and geography favour it as a location for edge compute but it is attractive to start-ups and developers

Las Vegas does not just contain valuable insights on the future evolution of edge infrastructure. Operators and edge builders can learn from the strategic way the city has capitalised on its existing economy. It helps that Las Vegas is strong in verticals that are seeing early edge compute adoption such as hospitality and entertainment. But the city also has a presence in next-generation edge use cases like robotics and autonomous driving. Amazon's AV unit Zoox uses it as a test bed, integrating the city's traffic management systems into its own management plane. These are the kind of use cases that will need the dense infrastructure envisaged by the city's CTO in the future. The presence of these future technologies makes the city a good place for development and investment, not just for industrial public edge providers, but also for the software developer community who will be attracted by next-generation technologies like robotics and AV. For this community, there is the additional attraction of being close to Silicon Valley in a city with much more affordable housing.

The city's entertainment industry can also be exploited. The vast hotels on the Strip are not just used for gambling and entertainment. The city is also home to a booming medical tourism industry and its range of entertainment options makes it popular as destination for elective surgery. Vapor IO is hoping that local radiographers who work in multiple sites across the city and need to move large media files with them will use its public industrial edge infrastructure. An MRI scan file can reach 30GB and it makes sense to process it off-premises on a public industrial edge. Vegas is also a popular conference location and many technology shows, such as CES and MWC Americas, take place there. Edge innovators with test beds in Las Vegas city can take delegates out of the conference hall to see what they have built.

As an edge computing and technology hub, Las Vegas has certainly made (or is trying to make) the best of the advantages that its local economy and geography bring it, and this is a lesson that could be applied to cities with specialisms in different verticals. Industrial cities or cities with ports and logistics make good locations for public industrial edge infrastructure as these are verticals which are seeing early adoption of edge compute. Singapore and Barcelona are developing public industrial edge infrastructure. But geographical or economic advantages are not by themselves going to build the kind of edge data centre to application ecosystem that Las Vegas has in place. The Las Vegas CTO's office only has three staff and it is remarkable how much attention the edge projects have attracted. The power of persistent edge messaging and marketing should not be undervalued and perhaps that is the most important edge lesson we can take away from 'Sin City'.