

**Neutral Host Macro  
Mobile Networks:  
*Position Paper***

*iGR* Position Paper



## The Future is Neutral

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In the next three to five years, a new breed of third-party operator (3POs) will emerge as the companies that build, operate, upgrade and maintain the mobile networks used by today's Tier 1 mobile network operators (MNOs).

Radical, right? Not so much, considering that MNOs already:

- Outsource substantial operations today (e.g., call centers) and many around the world outsource network management.
- Rely on outside contractors to build the comparatively few towers they own while leasing space on towers owned by other companies. In some cases, the MNOs divested those towers to begin with.
- Lease fiber for backhaul.
- Share with other MNOs in-building wireless (IBW) infrastructure in airports, stadiums, convention centers and hotels, that was not only built by outside contractors, but is also maintained and operated by third parties. Originally, MNOs put up the capex themselves and took responsibility for building and operating those DAS networks. Two or three mobile operators would then share the same DAS infrastructure. Once the major venues were built out, though, the MNOs grew less willing to fund further installations because that capital was needed elsewhere – for 4G LTE macro buildouts, densification and, more recently, 5G NR macro builds/upgrades.

In part because of this unwillingness, third-party operators emerged and took responsibility for funding, designing and building IBW networks. Once deployed, the MNOs connected to those networks and their subscribers enjoy improved in-building experience.

The key point is this: MNOs do not own these IBW networks; the 3POs own and operate them. Under a pre-agreed QoS agreement with the MNOs, the 3POs lease access to these networks back to the operators.

The same is true of outdoor small cells. In some cases (but not all), 3POs have reached agreements with cities/municipalities and have deployed poles, etc., connected by fiber, that are capable of hosting outdoor small cells. All the MNO has to do is specify the frequency they need in that market and the 3PO will deploy the necessary equipment.

In these cases, the MNO can choose to pay for the added small cell network capacity via monthly recurring charges (operational spending). This approach leaves the MNO to focus its capital resources elsewhere.

*iGR* is not claiming that all of these functions are outsourced by the MNOs all the time in every instance. However, there are multiple examples throughout the wireless



industry of MNOs choosing to outsource the build and/or maintenance portions of their networks while still operating the network as one.

## Neutral Host: The Sequel

But what happens next? How does this model evolve? *iGR* believes that MNOs will migrate their macro networks to neutral host, using a similar model as the IBW networks. Just as they capitalized their tower portfolios to fund 4G LTE deployment, macro network infrastructure could be capitalized to fund the next phase of growth, pay down debt and/or fund the development of new markets and products.

But isn't the network king? Don't the MNOs believe they need to own their network in order to succeed? Network quality has been THE battleground for the last 30 years – MNOs have spent billions improving their networks and millions more trying to convince consumers that their network is the best.

Yes, network matters, but only to the point at which the expense of deploying/upgrading, maintaining and operating an increasingly complex network is overshadowed by the benefits of sharing the physical network infrastructure. The reality is that the large mobile networks are getting better and are harder to differentiate between. Network differentiation is diminishing.

Consumers increasingly expect the mobile network to simply work and want price, customer service, content, added services and, arguably, a sense of belonging. The business of delivering network and the business of serving customers are very different. Companies are starting to emerge that want to own the customer relationship and can capitalize on that relationship, but do not have a network.

To date, MNOs in the U.S. have largely shied away from RAN sharing out of fear of losing control of their network or, perhaps more accurately, their customers' experience of that network – sometimes referred to as "quality of experience" (QoE).

The IBW neutral host model binds the network owner to the MNO's stringent QoS requirements that define QoE. If it works indoors, then why not outdoors?

## Under Pressure

The mobile market is only becoming more competitive with increasing pressure exerted on MNO financials. This fuels the need to optimize the operational model. Outsourcing network build, operation and management, where much of the network is shared, will make network investments more efficient, allowing MNOs to serve more customers who continually demand more data while ARPU's are flat (at best). Note, too, that the advent of new spectrum and technologies further intensify these trends.

MNOs are also being pressured to offer new services faster and over a wider area. The rollout of 5G is a good example; it has become a competitive differentiator. The speed for network deployment is limited today by the physical resources available to actually deploy the network and access to capital. A neutral host model would allow



those finite resources to be shared among the MNOs, thus reducing the time to market.

In this new neutral host model, the MNO still retains ownership and control of their spectrum licenses. Spectrum is really the only scarce resource left in wireless (fiber availability in the right location is still scarce but this is being increasingly addressed). That makes it valuable. So, MNOs will have a 3PO build and run the network that uses that spectrum – and then the MNO will hold the 3PO to stringent QoS/QoE requirements.

Other models may also emerge where the MNO owns their own spectrum and also has access to other spectrum assets. MNOs will therefore provide service across all of those assets.

In reality, *iGR* is discussing the difference between becoming a network operator (the 3PO) and a service provider (MNO). To date, these two functions have been combined. Moving forward this need not be the case. Today's mobile operators will have to decide how they want to differentiate.

## Risk reduction

One key factor with neutral host networks for the MNO is mitigating risk. Just as the tower companies took the risk of building and operating towers out of the equation for the MNOs, so the IBW network operators have done the same.

Now, with 3POs potentially building and operating the macro network, the risk is similarly reduced for the MNO – they will no longer have to worry about deploying the right technology in the right place at the right time to meet demand. This will be the responsibility of the 3PO and covered by the QoS/QoE agreement.

This does not mean that the relationships between the MNO and 3PO will be simple. In fact, these agreements will be complex and will take time to negotiate and mature. The MNOs will want to ensure that they have sufficient leverage to ensure they get a quality network from the 3PO. And, the 3PO will need assurances that the MNO will not simply cancel the agreement and move to a competitor. These agreements will therefore likely span many years and involve shared resources as needed. The MNO and the 3PO will be true partners but partners that have separate and distinct responsibilities.

## The New DIO

This new 3PO is more than a mobile network contractor – the capabilities required mean the new entity is a **digital infrastructure operator**: a DIO, if you will. What will these new DIOs look like? What skill sets will they possess? Simply, they need to have:

- The ability to design and build macro mobile networks
- Sufficient operational and technical resources and expertise



- Customer service/technical support – the DIO can take some of the cost out of this for MNOs
- Access to tower resources
- The ability to bundle data centers, both hardware and software defined switching infrastructure, macro and small cell expertise, extensive fiber networks, (potentially spectrum management) and edge compute into a complete package for the MNO
- Sufficient scale to support a major MNO
- The ability to raise enough capital to support the initial network build and future operations, as well as expand use of the infrastructure into other markets.

The ability to provide total access to mobile, fiber, cloud, data center and edge compute will open up significant opportunities beyond the MNOs. For example, fiber used to provide backhaul to cell towers could also connect edge compute data centers; towers supporting licensed networks for the MNOs could also be leveraged for other services, even the much-touted network slices of 5G NR. The network assets would therefore be leveraged many times over. Just as roadways are leveraged by multiple users, so the digital infrastructure would be used by all interested parties.

An analogy for the DIO are the large oil companies. In past years, the large oil companies were vertically integrated – exploration and production, refining, and retailing were all provided in-house. Today, oil companies tend to provide specific functions and outsource other functions to provide a complete service. Just as the oil industry changed to meet market and economic realities, so the telecom industry can do the same.

The DIO would be able to sell access to its network not just to the MNO, but also to commercial building owners, cable MSOs, municipalities and anyone else who needs mobile network resources.

Finally, the DIO is likely to have access to large amount of capital. Investors are looking for digital assets in which to invest today – fiber, towers, data centers, etc. Several recent transactions have shown there is a large appetite for this type of investment. Pulling all the digital resources together into one entity, that is able to offer services to the MNOs, cable MSOs, utilities, municipalities and new market entrants, would be highly attractive to the investment community.

MNOs will likely not be able to rely on a single DIO; one company probably would not have the resources to fully support one MNO. DIOs could provide services on a regional or functional basis. So just as the large MNOs have regional operations today, the MNOs could outsource to regional DIOs. Similarly, the MNOs may split different functions among multiple DIOs.

The MNOs would therefore have a core group of trusted DIOs that provide all of the necessary network functions across the nation. The MNO would then be left to focus on providing service to a wide range of consumer and business customers.



## About *iGR*

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*iGR* is a market strategy consultancy focused on the wireless and mobile communications industry. Founded by Iain Gillott, one of the wireless industry's leading analysts, we research and analyze the impact new wireless and mobile technologies will have on the industry, on vendors' competitive positioning, and on our clients' strategic business plans.

A more complete profile of the company can be found at <http://www.iGR-inc.com/>.

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