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# Open Access FTTP Networks in the US

## Strategies for success

In partnership with:

# Contents

# Introduction

This white paper examines the role of open access networks in the US fiber market and assesses how operators can achieve success with their rollouts. It comprises four sections:

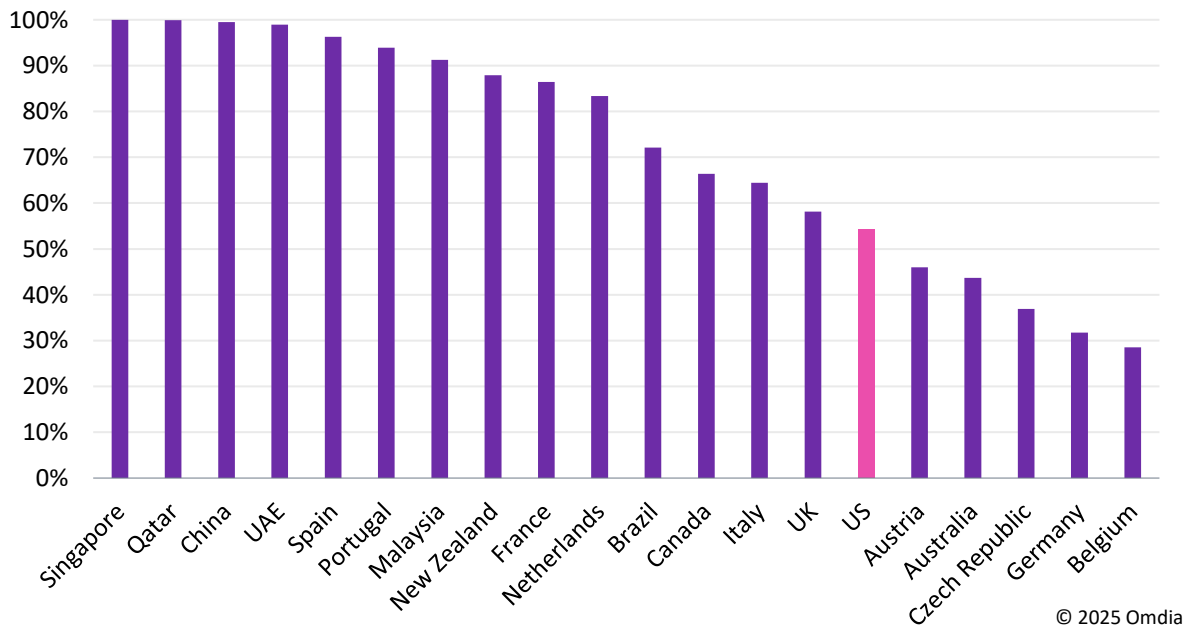
- The first section provides an overview of the status of the US fiber-to-the-premises (FTTP) market and analyzes why the open access network model is well suited to the country.
- The second section of the white paper is based on interviews conducted by Omdia with open access network providers in the US. It analyzes the lessons learned from the different deployments and the keys to success for open access networks.
- The third section assesses the solutions that open access network providers need in order to be successful in the US market.
- The final section offers some conclusions.

# Why open access FTTP networks are an attractive choice in the US

## FTTP coverage in the US has grown, but investment opportunities remain

There has been considerable interest in investing in FTTP networks in the US over recent years, and FTTP coverage of total country premises has grown from about 40% at end-2019 to about 61% at end-2024. However, there is still room for more FTTP network rollouts in the US. One indication of this is that the FTTP coverage rate of total country premises is lower there than in many other markets. FTTP rollouts in the US offer the benefits of high ARPUs, and the competitive environment is also relatively benign.

**Figure 1: FTTP coverage of total country premises, end-2023**




Source: Omdia

Open access networks play an increasingly prominent role in driving growth in FTTP coverage in the US. Omdia defines an open access FTTP network as one where there is separation of the underlying infrastructure and retail service provision. Open access network providers are not active in the retail market and provide access to the underlying infrastructure, either to retail service providers directly or in a three-layer model via a netco. In the US the interest in open access has broadened, and there is an increasing number of rollouts in the country with the involvement of a large variety of investors such as pension funds and private equity firms. Some have plans to pass millions of premises. Examples of open access networks in the US, along with examples of the funding raised and homes passed targets, are shown in **Table 1**.

### Table 1: US, selected open access network providers

| Open access network provider | Details |
|---|---|
| Tillman Fiber | In July 2024 Tillman Fiber secured $1bn in additional funding for FTTP rollout in Florida. This capital raise added to an initial investment of $250m from Northleaf Capital Partners. |
| Ubiquity | In December 2024 Ubiquity announced additional funding of $420m for rollouts in its core markets in Texas, California, Arizona, and Nebraska. |
| Intrepid Fiber Networks | Intrepid Fiber Networks is backed by infrastructure investor Brookfield Asset Management. In July 2024 the company announced debt financing of $290m to finance inaugural deployments in Colorado and Minnesota. |
| SiFi Networks | SiFi Networks has received equity commitments from Dutch pension fund APG. It is rolling out FTTP open access networks in several US states. |
| Silver Star Communications | In 2023 Silver Star Communications launched the privately funded SilverLight Fiber Network in Jackson, Wyoming. The company also launched an open access network in Rexburg, Idaho in 2023. |
| Gigapower – AT&T and BlackRock joint venture formed in 2022 | Gigapower had an initial rollout target of 1.5 million premises, though toward the end of 2024, AT&T said the joint venture was looking for expansion opportunities. |
| Metronet – acquired by a joint venture of private equity firm KKR and T-Mobile in 2024 | Metronet intends to pass 6.5 million premises with FTTP by 2030. |

Source: Omdia

# The financial community sees open access networks as an attractive, long-term, and stable investment

Building FTTP networks is a long-term investment. The network construction process takes time as does driving subscription take-up. FTTP costs per premises passed in the US can easily exceed $1,000, even in urban areas. As a result the business case for FTTP rollout in the US typically has long payback periods. However, this matches the timelines of players such as pension funds and infrastructure investors, which look for steady long-term returns. Pension funds have typical investment horizons of around 10–13 years. Retail operators, on the other hand, would likely have more difficulties in justifying to shareholders the capital-heavy investment required to build extensive FTTP networks in the US.

Pension funds and infrastructure investors specifically favor open access network models. These kinds of investors lack expertise in the retail market and so are happy to use models under which the network owner provides only wholesale services. In addition, open access FTTP networks are attractive to these investors because they reduce the risk of network overbuild in comparison with a vertically integrated and closed network with only a single retail service provider. The reduced overbuild threat is particularly attractive for organizations with little appetite for risk.

Open access is also attractive for governments and public authorities, because it lowers investment cost, offers citizens a healthy choice of retail operators, and delivers sustainable, future-proof infrastructure, eliminating the need to run multiple physical networks in parallel. It also helps from a resource perspective: the skills required to build, operate, and maintain telco networks are scarce, and there does not seem to be sufficient influx of new workforce. Having a single infrastructure reduces the competition for resources and helps keep operational costs down.

# Open access networks in the US drive higher take-up rates with appealing ARPU

Achieving high FTTP subscriber take-up rates is a particular challenge in the US because cable operators hold a much higher share than in, say, Europe where there has historically been more room for open access FTTP networks to grow by taking subscriptions from lower-speed DSL offers. Open access models can resolve this challenge because they drive higher subscriber take-up rates thanks to the competitive open environment with differentiated retail offerings. In general, open access network providers in the US are aiming for subscriber take-up rates of 45% and above.

Furthermore, though the open access model does offer lower ARPUs than a vertically integrated and closed network model, wholesale ARPUs in the US are still likely to be at an attractive level simply because retail ARPUs in the US are higher than in many other developed markets. A reasonable benchmark is that wholesale ARPUs in the US will be equal to around 50% of retail broadband ARPUs. In this context AT&T in the US had a retail FTTP ARPU of $71.71 in 4Q24, while BT in the UK had a retail broadband ARPU of £40.6 ($52.5). It can be seen that wholesale ARPUs with open access models in the US will still be more than respectable compared with retail ARPUs in other countries.

# Open access models offer the benefits of rapid rollout and reduced financing commitment

Tier 1 mobile operators in the US are expanding their FTTP coverage through the use of open access networks. This raises a question: Why have these operators not rolled out their own FTTP networks?

One answer is that many open access networks have already achieved funding from different sources and already have substantial coverage. This momentum allows players such as T-Mobile and AT&T the opportunity to increase their FTTP coverage much more quickly than if they had deployed fiber themselves.

These operators are looking for capital-light ways to increase their FTTP coverage whereby financing of the fiber deployment is kept off their balance sheets and is shared with other parties.

# Changes in the US retail market favor open access network rollouts

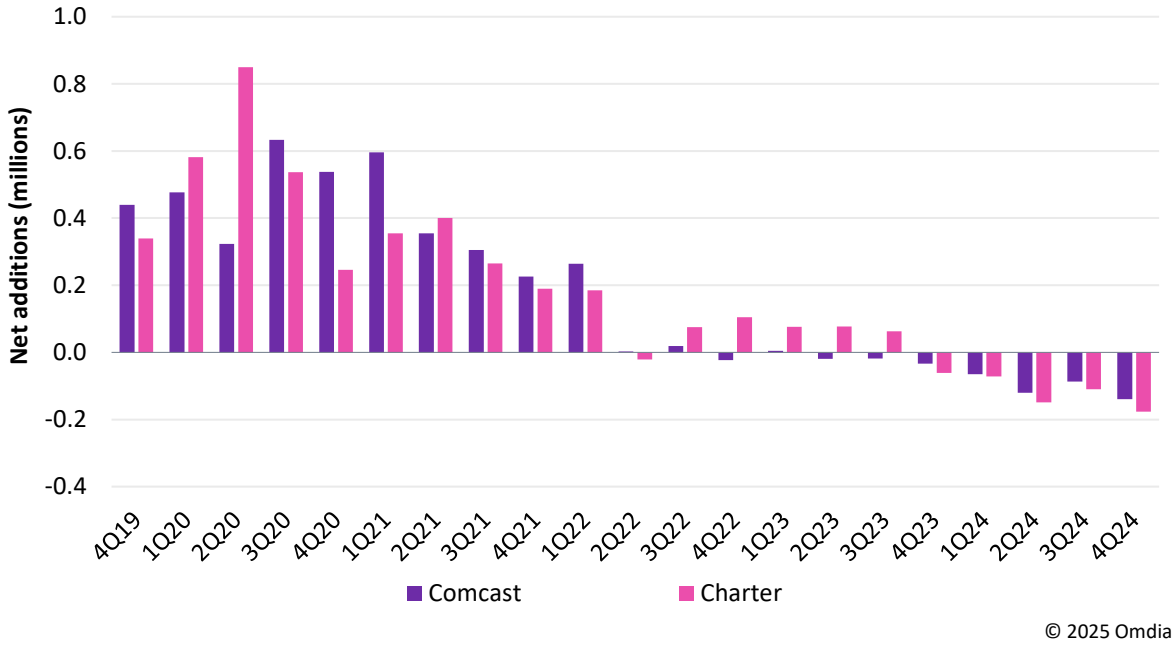
### The retail FTTP business is lucrative and poised for accelerated growth

Offering FTTP via open access networks could be attractive to Tier 1 mobile operators because there is still room for growth in overall broadband subscription numbers. Players such as T-Mobile and Verizon have used fixed wireless access to expand their broadband coverage, but in the long run this approach leads to capacity challenges in the cellular network. FTTP, by contrast, offers a long-term solution and, unlike fixed wireless access, can support retail multigigabit access offers, which are already common in the US market.

### Cable broadband is coming under increasing pressure

There may be opportunities for open access networks to attract the retail arm of cable operators. It is clear that cable operators are losing subscriptions; for example, as **Figure 2** shows, both Comcast and Charter lost broadband subscriptions in each quarter of 2024.

**Figure 2: Leading US cable operators, broadband subscriptions quarterly net additions, 4Q19–4Q24**




Source: Omdia

These subscription losses are partly attributable to inferior broadband performance versus FTTP alternatives. This, combined with the very high build costs involved in rapidly transitioning from DOCSIS-based cable to their own FTTP network, might encourage some cable operators to focus purely on the retail market and offer FTTP on open access networks rather than continue to invest in their own infrastructure.

### Offering FTTP will help Tier 1 mobile operators' mobile businesses

Tier 1 mobile operators are seeking to become open access network tenants. One factor at play is the success of MVNOs. Comcast's mobile subscription base has quickly grown to around 25% of its total broadband subscription base. However, this still remains below the level achieved by some cable operator MVNOs in other developed markets, which has sometimes even exceeded 50%. In order to help head off the threat to their mobile bases, Tier 1 US mobile operators can offer FTTP broadband access. This can be an effective way to lower mobile churn, and Verizon has previously stated that postpaid mobile customers that also take its Fios FTTP service have an improved rate of churn of 50% versus postpaid mobile-only customers.

# Lessons learned from interviews with open access network providers

Omdia conducted three interviews with different open access network providers across the US:

- Silver Star Communications has long been active as a vertically integrated broadband service provider. More recently, the company has launched a separate division, SilverLight, which is responsible for the company's growing open access FTTP deployments. The company's FTTP coverage is in Wyoming and Idaho.
- SiFi Networks is an open access network provider, one of whose investors is Dutch pension fund APG. The operator has network deployments in the states of Florida, California, Illinois, Wisconsin, Ohio, Michigan, and New York.
- Intrepid Fiber Networks is headquartered in Colorado and is currently deploying open access FTTP networks across various locations in Colorado and Minnesota. The company is backed by Brookfield Asset Management, a leading infrastructure investor.

This section discusses the lessons learned from these interviews.

## Open access networks offer reduced investment risk

Our interviews highlighted how attractive the open access network model can be in reducing risk. Silver Star Communications noted:

> *While the initial payback period for an open access model was slightly longer than with a vertically integrated model, we chose open access because it offers a lower risk and better long-term return because of lower overbuild threat.*

This demonstrates that for investors with particularly long investment timelines, an open access model can work well.

Another way in which open access networks can reduce risks for investors is through upfront commitments from retail operators. There are different kinds of guarantees, including ones where such players will always be paying for a given number of subscribers, there is a charge for every serviceable address, or there is a penetration guarantee.

Overall these kinds of guarantees and commitments can offer substantial benefits. SiFi Networks noted:

> *Upfront commitments and guarantees are an important part of the open access fiber business case and bring certainty to the rollout while reducing the costs of capital.*

All interviewees expressed satisfaction with their current deployment stage and market performance. Intrepid Fiber Networks noted that it was pleased with the speed of its deployments and had already completed rollout in one local market. Rapid rollout is important because it gives its retail service provider tenant, T-Mobile, more premises to sell into.

Intrepid Fiber Networks also noted that it was achieving the typical expected subscription take-up rates for this kind of build, for example, above 20% after one year. In addition, the interviewee said that in some cases, take-up rates had already reached 20–30% just six to eight months after deployment. Going forward, for those open access network providers working with Tier 1 mobile operators, there is an expectation that because these players will expand and ramp up their FTTP broadband marketing efforts, this will help further drive subscription take-up.

## Active wholesale access is more attractive than passive wholesale access

All the open access network providers we interviewed offer active wholesale access and provide their own optical line terminals (OLTs). In no cases has this raised concerns with retail operators that might have wanted to use their own OLTs and pay lower wholesale fees for passive wholesale access. This demonstrates that both the large and small retail players that are active on the networks of the operators we interviewed are happy with the flexibility that active wholesale access can provide. Open access network providers should also be prepared to offer aggregation and transport as part of their wholesale offerings. All three operators we spoke to offered some level of centralized Layer 3 wholesale, and this reflects the size of the US market and the fact that retail players will not have their own networks in all locations.

It was clear from our interviews that open access network providers recognize the benefits of providing data and control to retail operators. According to SiFi Networks:

> *There are big benefits in providing visibility and control to our retail service providers. This includes information such as error rates at the ONT* [optical network terminal] *and allowing the flexibility for them to take actions such as rebooting the ONT.*

This kind of visibility and control can help retail operators keep their customers happy but also minimizes unnecessary costs for the open access network provider.

## Different models for in-home connectivity can work well depending on the particular open access network deployment

The three open access network providers had different models for provision of in-home connectivity. There is no one-size-fits-all model here: different operators can face quite different circumstances.

For its open access deployments, Silver Star Communications provides the ONT but leaves the responsibility for the Wi-Fi router and additional mesh Wi-Fi units to retail players. Silver Star Communications notes:

> *We bring fiber into the property at the most suitable location rather than where copper has traditionally entered the property. This still leaves room for our retail service providers to benefit from their own differentiated Wi-Fi installations.*

Installing the ONT can benefit Silver Star Communications because it allows the operator to establish contact with the customer and build loyalty to the network. In addition, this model also allows retail operators to offer their own differentiated installations. For example, one retail player on the network offers a custom Wi-Fi installation in partnership with a local supplier.

Intrepid Fiber Networks also provides only the ONT and leaves the Wi-Fi router and any additional mesh Wi-Fi units as the responsibility of the retail operator. Intrepid Fiber Networks noted:

> *We have encouraged our retail service providers to use Wi-Fi routers from the same vendor we use for our OLTs and ONTs. The retail operator can then check on the health of their Wi-Fi hardware through the same systems we use to check the health of our equipment.*

This improved visibility of Wi-Fi performance can help improve end-user satisfaction and also reduce costs to Intrepid Fiber Networks since the retail service provider is in a better position to resolve more issues itself.

SiFi Networks has a different model: it provides an integrated gateway that acts as ONT and Wi-Fi router. SiFi Networks' model still offers flexibility to retail players since they can provide their own Wi-Fi router if they prefer to do so. SiFi Networks also notes that it is examining promising areas such as offering connected-home-related applications via the customer premises equipment (CPE). Such applications could be sold to end customers via the retail service provider and could provide additional revenue and opportunities for differentiation in the retail market.

## Open access networks should ideally have up to five retail service providers

All interviewees agreed that it is possible to have too many retail players on an open access network. One open access network provider noted that another open access network of which it is aware has as many as 20 retail operators. However, this high number of tenants makes it difficult for each retail provider to make a profitable business. In addition, such a high number of retail players has the potential to confuse customers. If there are 20 retail service providers competing, there will be a natural consolidation over time. The open access network providers we interviewed favored having fewer retail operators on their networks:

- SiFi Networks noted that it had 9–10 retail service providers on its networks, but not all of these were active in all the cities the operator serves. The operator said that there are different breeds of retail players; for example, some specifically cater to market niches such as enterprises and multidwelling units and are well placed to drive take-up in this segment. T-Mobile is also one of the tenants on SiFi Networks' network.

- Silver Star Communications has four retail service providers on its open access network, and this includes a different range of operators including one that is focused specifically on serving customers on open access networks, a regional retail operator, and a local retail player. In

addition, Silver Star Communications itself also has a separate retail arm that is offering services to end subscribers. This operator does not have a Tier 1 mobile operator on its network but is still confident of achieving strong subscription take-up rates.

- Intrepid Fiber Networks has T-Mobile as a retail service provider on its network. The operator envisages it will eventually have three to five retail operators per market serving end customers. T-Mobile could be complemented with different retail players, for example, those that have a strong local brand or strong business offering.

A further consideration is whether to offer so-called anchor tenants an exclusivity period, typically of one to three years, without competition from other retail players. This model is quite common.

Intrepid Fiber Networks noted:

> *Exclusivity agreements can be important when coverage is initially quite low and avoids multiple retail service providers competing for a smaller pool of potential customers. Exclusivity agreements can also encourage large retail service providers such as mobile operators to sign up on the network.*

However, exclusivity agreements need not be required, and Silver Star Communications' network had three retail operators from day one.

# The solutions that open access network providers need to be successful

## Comprehensive solutions that reduce integration complexity

Nontraditional telecoms players have been attracted to the potential for open access FTTP network deployments in the US. However, they may lack the expertise in complex rollouts of physical infrastructure and in procuring network hardware. An additional challenge is that open access network providers will often want to roll their network out quickly, for instance, to avoid the threat of another player rolling out first in a potential coverage area.

In order to address these challenges, open access network providers would benefit from working with a vendor that offers a complete portfolio of solutions. This could include using so-called network-in-a-box solutions: IP routing products, OLTs and ONTs, and in-home equipment such as mesh Wi-Fi hardware alongside associated software and network automation tools to reduce the integration complexity of operations support systems (OSS). Vendors that can provide such a diversified portfolio of offerings offer the benefit of convenience. Working with a vendor that supplies both OLTs and ONTs can be much less complex than having to integrate OLTs and ONTs from different vendors. On the other hand, in light of future mergers and acquisitions, multi-vendor management capabilities will become a key capability.

## The ability to offer symmetrical bandwidths of 10Gbps and beyond

Open access network providers and their retail operator tenants both stand to benefit from the ability to offer multigigabit access that can be supported through rollouts of XGS-PON FTTP networks with shared symmetrical capacities of 10Gbps. In addition, there is the opportunity for operators to benefit today from even higher bandwidths with 25GS-PON technology, which can be supported on the same equipment as XGS-PON. In this case, the business case is significantly improved because fewer equipment refresh cycles are needed and return on investment is improved.

Rolling out 25GS-PON will also give operators a large speed advantage over DOCSIS-based cable competitors, and this can help drive overall subscription take-up. Differentiation versus cable is particularly important for open access networks in the US, because they will need to attract cable

churners given the high retail broadband market share that cable broadband enjoys. Retail players will also be well placed to capture a slice of the lucrative enterprise and mobile backhaul market thanks to the launch of symmetrical broadband plans with speeds of 10Gbps and above.

## Software-based wholesale solutions to respond to evolving market needs

Open access network providers need the flexibility to offer wholesale services that can serve many different kinds of retail players including very large national players, much smaller players, and even niche players that target specific market segments. Software-based wholesale access is now available that can deliver more differentiation and better network insights to retail service providers. Through network automation, flexible models, and programmable interfaces, open access players will be able to cater to the widely varying needs of retail operators and ensure a quick time to market when requests come their way.

Retail operators might prefer a model based on a wholesale network portal that provides them with the capability to manage their own subscribers. In this way the retail service provider's own OSS and support teams can resolve different issues that may arise. This can deliver the benefit of more satisfied customers for retail operators while at the same time reducing costs for the open access network provider. This cost reduction comes from the fact that retail players will have better visibility into the underlying cause of problems and so may therefore be less inclined to contact the open access network provider to resolve issues.

## Wholesale aggregation platforms: Allowing smaller providers to enjoy scale

One challenge for smaller open access network providers is that their size may make it difficult to sign up larger retail operators. Potential tenants such as T-Mobile and AT&T may not see the benefit of signing up on a small open access network because of the associated startup cost and complexity of joining several of these networks.

These challenges could be alleviated with the development of wholesale aggregation platforms. These have developed in some markets, for example, in Scandinavia and the UK. Such platforms offer retail players easier access to the different open access networks that have signed up for them. Wholesale aggregation platforms will be particularly useful in the US. Though there are many open access networks, potential tenants with nationwide mobile coverage would derive significant benefit from the development of wholesale aggregation platforms that also offer nationwide access to FTTP networks.

# Conclusions

- Open access networks of different kinds are an attractive option in the US and will play an important role in expanding FTTP coverage. Such models are set to account for tens of millions of FTTP premises passed in the US in the coming years.
- Pension funds and infrastructure investors are very interested in the open access model, which offers benefits of improved subscription take-up and lower risk and limits the need for direct involvement in the retail market. These investors should continue to seek open access network investment opportunities in the US FTTP market, which has significant room for growth.
- Own-funded FTTP rollout may be prohibitively expensive and time-consuming for traditional operators, but the retail fiber market is a lucrative one with room for subscription growth as cable customers churn. US operators such as Tier 1 mobile players should therefore at least consider either offering retail broadband access over third-party-owned FTTP infrastructure or working with other investors to fund FTTP rollout.
- Open access network providers and their retail service provider customers will benefit from wholesale solutions that offer flexibility. Providing better data and control to retail operators can reduce wholesalers' costs and deliver more satisfied retail broadband end subscribers.
- Open access network models have many flavors in the US and beyond, for instance, in terms of providing the CPE. Each deployment is different, and a careful examination of peers' strategies in the US and beyond can help operators find the strategy that best fits their particular circumstances.
- Solutions, such as network-in-a-box type offerings, that help open access networks rapidly increase coverage are important in helping such networks attract retail service provider tenants. Technologies such as 25G PON are also important differentiators that can drive overall take-up on the network.

# Appendix

## Final note

This white paper is sponsored by Nokia. Nokia has achieved a market leading position in the US OLT and ONT markets and is providing essential infrastructure for some of the largest and most advanced open access networks in the world. The Nokia Altiplano network automation platform helps operators to run fiber networks: today 1 out of 8 of all Altiplano deployments are wholesale-only, open access, neutral host networks.

Omdia thanks Nokia for making this possible and emphasizes the independence of its conclusions.

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