



**Wireless Aspirations?:** If you ask the cable operators, they'll tell you they're already in the wireless business considering a vast majority of data consumption is done via Wi-Fi connections in the home (which they control) as opposed to trafficked over mobile networks in a wireless setting. However, what the final outcome will be regarding offering connectivity outside of the home is one of the bigger questions in telecom today. Three of the four largest cable operators in the US now have MVNO agreements with wireless providers that is primarily being used as a tool to increase bundling and reduce churn rather than materially contribute to free cash flow. DB's cable equity analyst, Bryan Kraft, estimates Comcast will exit 2017 with ~400K mobile customers – that is a pretty impressive figure considering it was launched this year. Charter is expected to launch its MVNO in mid-2018 while Altice won't be much behind CHTR's launch.

We believe CHTR, CMCSA and ATUS are utilizing the MVNO route to learn more about the industry, the impacts a quad-play offering has on subscriber trends, potential efficiencies that could be valuable should cable look for wireless owner economics, explore the inner workings of the network, etc. For now, we believe cable is happy operating within its industry while getting a look at the adjacent industry that will be converging within the next several years as we approach the rollout of 5G. If these three cable companies find that it can grow revenue faster by bundling wireless we see an eventual move to a facilities-based solution. If the answer becomes that wireless is more of a defensive strategy that potentially reduces churn but doesn't offer as much revenue and gross profit upside, then an MVNO deal may prove to be more than sufficient.

As we discussed in the wireless section, DISH Network is likely to have a major role to play both in the future of video (linear vs OTT) as well as wireless and the convergence of video and telco. With respect to how that plays into a Pay-TV context, DISH has continued to assert that it sees the value in keeping its video and spectrum assets under common ownership. Perhaps this owes to a view that future growth of OTT could be amplified if OTT could work as seamlessly in a wireless context as it does over an in-home WiFi setting.

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### Satellite: Market Weight Relative to the DB Index

While the residential broadband and mobility segments of the satellite industry are performing well and have positive growth trajectories, many other lines of business across Network Services and Media continue to face mounting headwinds with moderate growth from other strategic services failing to make up the gap. Given the slow moving nature of the industry, we expect all of these trends to directionally continue, which bodes well for the likes of EchoStar, ViaSat and potentially Inmarsat, but presents ongoing challenges to Intelsat and SES as they await the inflections in growth from HTS capacity that has been launched in the last several quarters.

#### Business Trends

Within residential broadband, EchoStar's Jupiter-2 (launched December 2016) and ViaSat's ViaSat-2 (launched June 2017) are significantly improving speeds and capacity available in the market place while also improving customers' value proposition on a cost per bit basis. With the launch of Jupiter-2 (a 220 Gbps throughput satellite), EchoStar became the first residential satellite-based Internet provider to offer speeds meeting the FCC's definition of "broadband" – 25 Mbps download and 3 Mbps upload. With the launch of ViaSat-2 (a 300 Gbps throughput satellite), ViaSat is only months behind getting that designation itself when the satellite goes into commercial service early in 2018. With those speed increases, EchoStar and ViaSat have a highly competitive product that should address many of the ~20 million unserved and underserved households in the US (even before attributing any value to the

*Cable companies contend they are already large wireless providers, given the vast troves of data being consumed over in-home WiFi and more limited out-of-home hotspots. That's an interesting assertion, but the recent moves of Comcast, Charter and Altice point to an astute understanding that the future of technology convergence is going mobile and cable needs to more meaningfully solve for its out-of-home solution in the future. The future question is whether cable will remain "renters" of the wireless business or whether the big guys will want to have owner's economics.*

*We see underlying growth accelerating for the likes of SATS and ViaSat, with Intelsat still awaiting the return to EBITDA growth, though we think they are getting close.*

*SATS and ViaSat were capacity constrained (sold out), slowing growth. With capacity now refreshed growth should accelerate.*