## LTE infrastructure poised for growth; small cells could play a bigger role towards the backhalf of '14

Almost every network equipment vendor we met with sounded optimistic about operator spending in the year ahead. With LTE rollouts continuing around the globe, and beginning in earnest in places like Europe, China, Africa and CALA, we believe this will be a solid year for LTE infrastructure spend (with 3G also getting a lift in emerging markets as a lower cost alternative, especially on the handset side). Until now, LTE spending has been limited to developed Asia and North America. As we have suggested in past notes, many operators have made commitments to LTE this year. What was not known however, was the significance of that spend and if some operators would choose to roll-out in an iterative process, or do so more quickly. Our checks indicate that it will be significant across many operators in a number of geographies, as many understand the operational advantages of the all-IP architecture of LTE and feel more confident about the overall macro environment to make those improvements. And increasingly for those that have already rolled out LTE coverage, densification and newer technologies continue to make headway into their everyday vernacular.

Small cells have ridden the hype cycle in past years but from what our checks say, we believe they could see initial, meaningful deployments in the back-half of 2014 and in earnest in 2015. Over the years we have mentioned Spidercloud as a key player in the small cell space – even hosting them on one of our tech talks last year. The company continues to grow quickly, deploying their solution in the UK (and elsewhere) as part of Vodafone's densification/in-building coverage effort. Spidercloud's solution, while still a single operator solution, has a total cost of ownership that is less than typical DAS and the set-up time is also greatly shortened by comparison. After discussions with management, we believe the year is setting up nicely for the company, and with multiple operators trialing or deploying their solution and work being done on a multi-operator solution, we believe the future remains bright.

### Cisco – More work to be done

Our conversations with Cisco's mobile networking sales and business leaders at MWC – and with our industry contacts – suggest that Cisco's service provider business overall is still in "transition" mode. While Cisco pre-announced the CRS-X core router in 2013, the company is yet to ship the CRS-X to the telcos or ISPs in their production networks.

Further, while Cisco's higher-end edge router ASR 9k (suited for metro core versus for lower-end metro access edge use cases) is seeing double-digit order bookings trends, we continue to note an air-gap in Cisco's low and mid-range access edge router portfolio – with the company's legacy 7600 routers etc seeing growing competition from Juniper's MX and Alcatel Lucent's 7k series at the US telcos – e.g. at AT&T, etc, and from Huawei at the Tier-1 telcos in Europe, China, and in Latin America.

On the mobile networking side, a key insight from our MWC conversations with Cisco management was the focus on readying the company's mobile packet core, small cells, and SON (Self Organizing Network) SW solutions portfolio for upcoming Telco NFV and Mobile Cloud opportunities [refer to our recent FITT report on Big Data Networking in which we discuss the Mobile Cloud topic and SW themes around mobile services orchestration, service creation on the fly, etc].

We get the sense that Cisco is buying time on the NFV front – by noting at their MWC Q&A and keynote sessions that NFV rollouts are still an "early stage" architectural transformation at the Tier-1 telcos in the US, telcos in Western and Northern Europe, etc.