iBridge
Small Cell Backhaul and Wireless Carrier Ethernet Solution

Multi-Standard, Compact and Versatile
Enabling high capacity and robust small cell deployments
Deploying standardized small cell backhaul that will pass the test of time.
Mobile Carriers are currently experiencing an unprecedented growth in mobile data traffic, which today’s 3G and 4G LTE networks are struggling to satisfy.

By locating small cells close to user demand, significant gains in network capacity can be achieved. A small cell layer of a network can offload data demand from the macro layer by using targeted deployments leveraging existing street poles. LTE provides the HetNet features to support such network architectures with extremely aggressive frequency re-use. The frequency re-uses, and resulting network capacity uplift is maximised through isolation between cells. NLOS wireless backhaul from macro sites (or other Network POPs) complement the environments where capacity gains from HetNets are at their highest.

iBridge is Airspan’s Small Cell Backhaul solution, consisting of a toolkit of wireless interfaces fused together with Smart Software Defined Networking techniques. Small Cell Networks can be rapidly deployed using self-optimizing NLOS wireless backhaul technology, expanded through the use of additional complementary wireless technologies, and ultimately extended with the addition of wireline POPs as the data demand justifies the cost.

iBridge supports tight or loose integration with the access network. It can be run as a standalone small cell backhaul solution or can be tightly integrated with the access to provide a single box, single management solution. In addition, Airspan can supply iBridge modules for integration with 3rd party access solutions.

The integration of backhaul and access technologies is an industry first, and redefines the way in which networks can be constructed.
iBridge is a high capacity small cell wireless backhaul solution which runs on Airspan’s AirSynergy 2000 platform. It can be deployed as an integral part of the access network, or as a standalone small cell backhaul solution. iBridge combines wireless technologies suited to a mix of Licensed, Lightly Licensed, License Exempt, NLOS and LOS to create a hybrid solution capable of fulfilling all wireless small cell backhaul scenarios.

The Power of HetNets
As operators struggle to cope with growing customer demand for higher throughput, they are discovering that layering small base stations into a macro cell coverage area, enables a significant increase in network capacity by filling in coverage gaps and addressing actual traffic distribution where demand is highest. iBridge is the perfect wireless backhaul solution for deploying such networks, delivering deep penetrating high capacity to the pico-layer by adopting advanced QoS and SON techniques.

All-in-One Solution
AirSynergy consists of a single self-contained unit, removing the need for an equipment rack or any indoor equipment. Units are powered from a compact power supply unit based on AC or -48V DC power sources.

Wireless Carrier Ethernet
This Carrier Ethernet based technology also provides a solution for PTP and PTMP Wireless Carrier Ethernet applications (ie. B2B and M2M etc).

Plug & Play
iBridge is a self-connecting, self-discovery, self-optimizing, self-healing system. It utilizes electronically steerable MIMO antenna technology to remove the need for manual alignment during installation. Combined with iBridge’s zero-touch auto-provisioning functionality, it enables a single person ultra-rapid deployment.
**LICENSED SPECTRUM OPERATION**

The iBridge 16r interface operates PTMP, PTP and Relay topologies to deliver a robust trusted backhaul solution in an interference free environment, providing the quality of service required by a Mobile Carrier to confidently backhaul a small-cell network. The latency aware scheduler ensures that time critical data and signalling are delivered reliably. Network wide SON combined with scheduling control in time, frequency and space ensure that intra network interference is avoided and single frequency network operation is possible. Based on the emerging IEEE802.16r standard for small cell backhaul, iBridge promises to be a fully standardized and interoperable solution, reducing the deployment risks for any small cell operator. It can operate down to 5MHz TDD spectrum allocations and up to 2x 40MHz.

**FAT PIPE, STRONG PIPE**

iBridge 11ac adds an IEEE 802.11ac 5 GHz Unlicensed LOS capability to the 16r NLOS licensed band support. Using SDN technology to create a “Fat Pipe Strong Pipe (FPSP)” engine that allows dynamic augmentation of robust licensed band links with large 80 and 160 MHz IEEE 802.11ac pipes. The SDN implementation of FPSP engine is an innovative “Packet by Packet” Ethernet packet classification and selection transport hub which ensures the highest performance whilst maintaining full end-to-end QoS for different traffic types. FPSP software defined networking does this by dynamically selecting licensed or unlicensed radio paths in real-time. This technology operates in Point to Multipoint and Relay modes.

**FLEXIBLE ARCHITECTURE**

iBridge supports deployment various deployment topologies. Macro-launched backhaul networks are supported with a hybrid mix of PTP, PTMP and Relay nodes. Fibre networks can be extended for small cell backhaul using the same hybrid architecture for connecting adjacent nodes. In addition, relay topologies are supported for extending rural access beyond the edge of an existing network.

**AIRFLOW**

Airspan’s Airflow technology is an integral part of the iBridge multi-interface small-cell backhaul solution. AirFlow, compatible with OpenFlow Software Defined Networking solutions, resides within each iBridge node and manages the flow of data across a network of various wireless and wireline backhaul interfaces. Significant capacity improvements are made through consolidating available backhaul connections and routing traffic based on IP Bearer (or service flow) QoS attributes.
SUPPORTING A SMALL CELL DEPLOYMENT LIFECYCLE

An iBridge network can support different topologies as new elements are added to the network, enabling a highly flexible and versatile deployment. Each iBridge node can adopt any network role, automatically changing backhaul role from termination to relay to ensure a dynamic self-adapting architecture. The electronically steerable antennas enable the network to be optimized without the need to revisit already deployed sites (no need for manual antenna re-pointing).

Through the use of Airspan’s real-time iBridge SON Server, iBridge supports self-continuous optimization of backhaul links, ensuring interference between iBridge nodes is minimized. The iBridge backhaul supports self healing, allowing the network to automatically recover in the event of failure. This increases overall service availability and customer satisfaction.
**SPECIFICATION SUMMARY**

**iBridge 16r**
- Operational Frequency Bands: 700 MHz to 6.4 GHz
- Duplex: TDD
- MIMO: 2 x 2 Spatial Multiplexing & STC
- Min Channel BW: 5 MHz
- Max Channel BW: 40 MHz
- Max Transmit Power: 2x +32dBm
- MCS Support: Up to 256-QAM rate 5/6

**iBridge 11ac**
- Operational Frequency Bands: 2.4 GHz and 5 GHz
- Duplex: TDD
- MIMO: 3 x 3 or 4 x 4
- Max Channel BW: 80 and 160 MHz
- Max Transmit Power: +24dBm per Tx

**PHYSICAL SPECIFICATIONS**

Antenna Configurations: X-Polar Omni
- X-Polar Smart Switching Directional
- X-Polar Sectored
- Quad X-Polar Sectored

*Dimensions: 530 x 134 x 85 mm / 20.8 x 5.2 x 3.3 in.*
*Weight: 5.5 kg / 12 lb*
*Power Consumption: <60 Watts*
*Operating Temperature Range: -40°C to +50°C / -40°F to +122°F*
*IP Rating: IP66 or IP67 (Optional)*

*Single RF Node, >1 GHz*
About Airspan

With over 1000 customers in over 100 countries and as a top vendor for carrier-class 3GPP and IEEE broadband wireless solutions, Airspan is recognized as a leader and pioneer in 3GPP and IEEE broadband wireless technologies.

Providing an expansive product portfolio, Airspan offers customers the widest selection of 4G LTE products in the industry with an unsurpassed level of technology to benefit their business case. Airspan has solutions spanning the 700 MHz to 6.4 GHz frequency bands.

Contact Airspan today!

For more information about Airspan, its products and solutions, please visit our web site:

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Airspan has sales offices in the following countries

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