

# FOR CUSTOMER SATISFACTION, RELIABLE SERVICE BEATS LOW COST EQUIPMENT



Desktop Internet Services selects high-performance, highly reliable and scalable Canopy wireless broadband Point-to-Multipoint (PMP) access technology as its network of the future.

## SITUATION

As it expanded into low-density and underserved areas to serve new subscribers, Desktop Internet Services was faced with cost efficiency challenges.

Desktop Internet Services, a fast-growing ISP serving the vicinity around Campinas/SP, Brazil, decided to extend its wireless broadband access service area to include a number of low-subscriber-density neighborhoods. Because the subscriber population of these areas was small and scattered, the company was faced with the costly proposition of deploying many access points to serve few customers. Due to these low customer premise equipment (CPE) to access point (AP) ratios, the company decided to enter the markets using ultra-low-cost WiFi technology to supplement its Canopy PMP access network. While the WiFi technology allowed minimal entry costs that enabled Desktop to provide connectivity to these low-density customers, inherent in the systems were several significant issues.

## SOLUTION

Desktop Internet Services chose to overlay Canopy PMP wireless access technology over its previous network to facilitate higher performance and greater scalability.

While WiFi technology enabled the company to offer connectivity to new areas and new customers, soon after deployment it became clear that the low cost equipment presented challenges in reliability, performance and scalability. Customers were not satisfied with the performance, and trouble calls and costly maintenance dispatches were climbing. With an eye to future expansion and growth, the company decided to replace its WiFi network strategy with proven Canopy technology. The new Cambium Networks equipment is designed to enhance both the technical and the business case for serving areas with low CPE/AP ratios, and to allow the scalability that facilitates cost-efficient growth in the future. These features improve reliability, reduce maintenance costs and improve customer satisfaction.

## CUSTOMER PROFILE

### CUSTOMER

- Desktop Internet Services

### INDUSTRY

- Wireless Internet Service Provider (ISP)

### SOLUTION

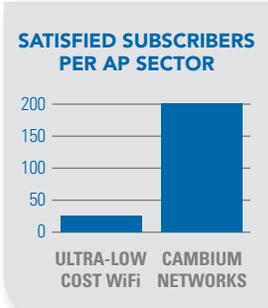
- Cambium Canopy PMP wireless broadband network

### FEATURES

- PMP 100 FSK equipment at 5.4 and 5.7 GHz
- PMP 430 OFDM equipment in 5.4 and 5.7 GHz
- GPS synchronization
- Increased network performance and reliability

### BENEFITS

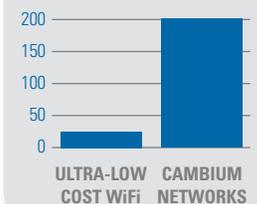
- More efficient scalability
- Rapid deployment
- Cost-effective deployment in low-density areas
- Improved customer satisfaction
- Low total cost of ownership



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**SATISFIED SUBSCRIBERS  
PER AP SECTOR**



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# A COST-EFFECTIVE “ALBUM-STAMP” APPROACH TO NETWORK GROWTH

## RESULT

With the installation of the Canopy PMP overlay, the previous network’s limitations are being resolved and efficient scalability ensured.

Working closely with Cambium, Desktop Internet Services has locked in on an efficient, cost-effective wireless solution that enables sustainable short- and long-term growth. The new Canopy AP clusters provide enhanced performance and reliability, allowing the ISP to serve its residential and business customers with the high-bandwidth and latency sensitive voice, video and data applications they need, even in the hilly, interference-laden terrain around the city and neighborhoods of Campinas/SP. Desktop Internet Services is committed to relying on Cambium PMP and Point-to-Point (PTP) solutions for all future network expansion.

## A RISKY EXPERIMENT

Desktop Internet Services, located in Sumare City, is a fast-growing wireless service provider serving more than 20,000 customers in Campinas City and the greater Sao Paulo area of southern Brazil. Desktop has been relying on Cambium Networks’ world-class Canopy PMP wireless access network technology for more than eight years. As opportunities arose to extend the network to reach new customers in low-density population areas, the very low CPE/AP ratios in these locations became a budgetary challenge. Desktop elected to try to expand into these low-density areas using ultra-low-cost WiFi based equipment, but the experiment has not proven to be successful, presenting reliability, performance and scalability problems that affected customer satisfaction and maintenance costs. Especially troublesome were interference issues caused by the WiFi network’s lack of GPS synchronization.

To solve these problems, Desktop turned to its longtime partner, Cambium Networks. Working closely with Cambium, which has an operations facility located in nearby Campinas and manufacturing facility located in nearby Hortolândia, Desktop is now in the process of replacing or overlaying its WiFi equipment with Cambium Canopy PMP technology.

## IT’S ALL ABOUT GROWTH

Desktop is a communications service provider focused on rapid growth, and the Cambium Canopy solution helps the company scale its network quickly and affordably. Equally

important, the network provides higher performance and greater reliability than the previous technology, enhancing customer satisfaction and providing significant differentiation. “I want the growth the Canopy APs give me,” says Denio Alves Lindo, Desktop’s CEO, “so we are going to rip and replace our current WiFi-based system.”

A key enabler of Desktop’s new Cambium PMP solution is the AP 105 access point. The new AP is exceptionally affordable for deployment in low CPE/AP ratios, and exceptionally scalable when the networks begin their growth cycle. Once each AP reaches the point of more than 10 registered CPEs, its capacity can be increased to support up to 200 CPEs per access point via a simple software license upgrade.

## “ALBUM STAMP” SCALABILITY

Desktop’s CEO has a unique way of describing the updated Cambium-based growth strategy. Referring to the cost-efficient scalability Cambium solutions offer, Lindo calls it an “album stamp” approach. “Cambium enables me to deploy the network at an excellent initial cost and allows me to scale with simple, low-cost software upgrades,” explains Lindo. “I get the ‘album’ at very affordable pricing, and I will buy the ‘stamps’ when I need them.”

Desktop’s wireless broadband access network currently includes more than 250 Canopy APs installed in clusters and over 8,000 Canopy subscriber modules. The company is anticipating installing over 5,000 new Canopy SMs by the end of 2012 as it phases out its WiFi-based systems. The majority of the network is made up of Canopy PMP 100 FSK systems in 5.4 and 5.7 GHz. The network also includes Canopy PMP 430 OFDM systems in 5.4 and 5.7 GHz and “super clusters” with APs and LENS directional antennas in certain areas such as Campinas City. “We are also interested in upgrading to Cambium’s PMP 450 systems on several clusters that have enormous demands for increased bandwidth,” notes Lindo.

## AN ALL-CAMBium FUTURE

The Desktop-Cambium partnership is going strong and continuing to grow. “Once the Canopy system overlay is installed and up and running,” Lindo concludes, “we are committed to basing all our future expansions on Canopy technology because we are committed to growth.”



### THE CAMBium PMP 450: MORE COMPETITIVE GROWTH

Cambium Networks’ new PMP 450 platform shatters the bandwidth barrier that can keep service providers from maximizing their network’s potential and competitive advantage. By delivering up to 90 Mbps of throughput, the PMP 450 delivers the speed subscribers need for triple play voice, video and data services.