

"OPERATORS ARE FACED WITH THE NEED FOR HIGHER CAPACITY BACKHAUL, AT THE SAME TIME CUTTING OPEX COSTS."

HSPA AND ENHANCED SPEED MOBILE NETWORKS ARE BEGINNING TO DRIVE HEAVY DATA USAGE AT THE EDGE OF MOBILE NETWORKS, AND MOBILE OPERATORS ARE REALISING THAT THEIR EXISTING BACKHAUL INFRASTRUCTURE WILL NOT BE UP TO THE TASK OF SHIFTING THE TRAFFIC FROM THE EDGE OF THEIR NETWORKS INTO THE CORE. WHILE THERE'S A HOST OF SOLUTIONS OUT THERE, KEITH DYER HEARS WHY ANDY SINGER, PRESIDENT OF RADIO WAVES INC, A MANUFACTURER OF MICROWAVE ANTENNAS, THINKS THAT HIGH QUALITY MICROWAVE LINKS PROVIDE THE BEST ANSWER.

Mobile Europe:

Andy, it's been a year since we last spoke at this length. In that time data usage of 3G networks has really begun to

BACKHAUL DEMANDS SPEED AND QUALITY

take off, and there are now a host of live commercial HSDPA networks. Mobile internet use, as well as increased music and video downloads and streaming are finally giving mobile operators a nice problem. They anticipate a bandwidth bottleneck on the backhaul, and are planning right now how to get around that. What's your view on that market trend?

Andy Singer:

It's true that growing usage of HSPA and WCDMA networks

is driving the need for an increase in backhaul capacity. The end users are taking up offers for high speed data, taking and sending high spec photos, streaming video and increasing their internet browsing. There's a lot more usage and you can clearly see the market driving forward strongly for mobile data. So operators are faced with the imminent need for higher capacity backhaul, but at the same time they want to cut operations costs. But if they add more leased lines, or more fibre, then that just adds to

that ongoing expense. Point-to-Point and Point-to-Multipoint Microwave, for a relatively small capital expense, can give a substantial reduction on opex, and I think this explains why we are seeing a surge for a demand for microwave.

Mobile Europe:

Of course, Microwave isn't the only option for leased line replacement, so what would you say the advantages are?

Andy Singer:

If you make a comparison with



Green belts in quality - fault rates are down to 0.1%

the other would-be similar options, then you are probably looking at Free Space Optics (FSO), Satellite and WiMax. FSO has several things against it that are clearly the reasons for its lack of success, despite many predictions to the contrary. It has a limited range, it has deep fade in fog and rain, and it also suffers from a lack of commercial experience. Satellite is dealing with issues around SDH radio, and it offers a lower capacity. There are also quality issues in urban and suburban areas and of course it's not very cost effective for most areas, although clearly it has useful applications in rural and remote areas. WiMax is easily and rapidly deployable but again it has limited bandwidth, and if the capacity is going to be shared with other users making use of high bandwidth services, is there really going to be the high capacity

“SO OPERATORS ARE FACED WITH THE IMMINENT NEED FOR HIGHER CAPACITY BACKHAUL, BUT AT THE SAME TIME THEY WANT TO CUT OPERATIONS COSTS”

operators need for backhaul? Compared to this, point-to-point Microwave is very proven and scaleable, and is relatively inexpensive. There's also new products available offering increased capacities - up to a GB as we move forward into the future.

Mobile Europe:

Along with drive in demand for mobile backhaul, the other big networks theme recently has been on network sharing. Yet mostly that has concentrated on the radio access part of the network. Could you envisage a situation where operators share the capacity on the backhaul link as well?

Andy Singer:

Well, there is an interesting model we see currently in the US, which is the business that FiberTower are making for themselves. FiberTower has built out a network of Point-to-Point Microwave links, then they have gone to the mobile operators and instead of the mobile operators building the network they lease capacity from Fiber Tower. From our point of view, whether capacity is leased or owned by the operators, that still drives a demand for microwave radio links.

Mobile Europe:

Yet can available frequencies support the range and capacity required for



Andy Singer - meeting the demand for cellular backhaul

Microwave backhaul?

Andy Singer

Now obviously, along with this huge increase in the need for backhaul, operators are looking for frequencies that are available to them. A lot of the Microwave bands are getting pretty full. So a lot of people are looking at licensing the 31.8-33.4 GHz band, and this is very new. I mean, even within the last two months we have received a surge in interest and orders for antennas in this band. The other area we speak to our customers about - and an area that is certain to be exploited - is the E-band, the new technology I just mentioned. Here we work with our global partner Bridgewave Communications in the 71-86 GHz range. Now, depending on propagation factors such as climate and

environment, E-band can give you a 1GB link over a range of between one and four miles. The thing about that is that in most cities across Europe, that is more than enough for the required link.

The other nice thing about the E-Band is that many countries are applying a "light regulation" touch to the licensing of the band. In some cases there are online databases established into which an operator or other applicant can enter their proposed usage data and so on. Now, if there are no conflicts with existing plans, many people can have their license within literally 15 minutes, for what is really a nominal administration fee. Certainly this is something we have seen in the USA, and in Europe CEPT (European



Microwave antennas have a host of applications

Conference of Postal and Telecommunications Administrations) is suggesting E-band is opened up across the continent.

Mobile Europe:

So are mobile operators the only likely users for high capacity Microwave links, or are there other potential users for the technology who could also benefit from this

services, many of them enterprise users - for example universities or hospitals that need to share large amounts of data between sites. The 1GB nature of the link, where the client needs a relatively short hop, offers great capacity for a really nice price, and that is really attractive for a while host of users.

Mobile Europe:

And that leads us into another topic that we touched on the last time we spoke. A year ago, you were really enthused by the innovation and usage around the 5 GHz unlicensed band, what are you seeing in that area that justifies that enthusiasm?

Andy Singer:

Well, we're seeing a continued demand for the unlicensed spectrum bands. Distributors can carry the radios on the shelf, and that makes the services very quickly deployable. It's amazing what applications people are using Microwave for. Mobile operators are using it for temporary types of installation where they are not sure if they need a permanent or a high capacity solution - and they can go down this path before investigating a

licensed link if needed. Communities are using it for area networks, and Wireless ISPs are utilizing the spectrum, with some companies in the US making a business out of selling internet capacity using these networks. And of course [WiMax operator] Clearwire is building a nationwide network at 5 GHz, making good use of unlicensed spectrum.

In fact there's so much usage that people are starting to get more worried about congestion, but we have developed a product for that. Traditionally 5 GHz has been about standard performance dishes, but now we are marketing high performance dishes for unlicensed spectrum, with better side lobe performance and a much higher front-to-back ratio.

Mobile Europe:

With all of this growth in demand for microwave, how do you make sure that a company like Radio Waves can meet the market needs, given the competition that's out there?

Andy Singer:

It's like any market. There are people who buy cars who just

light touch licensing regime?

Andy Singer:

There's a large spectrum of users for these types of

“A LOT OF THE MICROWAVE BANDS ARE GETTING PRETTY FULL. SO A LOT OF PEOPLE ARE LOOKING AT LICENSING THE 31.8-33.4 GHZ BAND, AND THIS IS VERY NEW”

“POINT-TO-POINT MICROWAVE IS VERY PROVEN AND SCALEABLE, AND IS RELATIVELY INEXPENSIVE”

want something with four wheels that will take them from A to B. Then there are people who want a car delivered to their specification, delivered on time, delivered to the quality and performance they expect with the right service support once they own the car. When it comes to Microwave antennas, those latter people are our kind of customers. We are fixated on impeccable service, quality and customer support. If we say we can deliver something to you in three weeks we will deliver it in three weeks. We won't have pretended we can have it with you in two weeks just to win

the business, then take four, six or eight weeks to deliver the product. So although we may cost a little bit more out of the box than some competitors, when you look at the total cost of ownership, we really have a value offering. We really are the high performance and quality manufacturer in the market place, with support close to our customers.

Mobile Europe:

You've also prided yourself on operating close to the European market, despite being a US based company, and on always differentiating on quality.

Andy Singer:

Just this year we have again increased our manufacturing capacity in the UK to get closer again to the European market, and we have started producing a number of six foot dishes from that facility to meet a specific demand for six foot, as well as two and four foot, dishes.

We've also increased the number of OEM partners we work with to reach our markets - adding Codan this year. Codan is a company known for their high reliability Microwave radios, making our integrated antennas a perfect match for a reliable microwave solution. We're also working with MNI to enable the quick delivery of their solutions for point-to-point-Microwave.

We also retain our relentless drive on quality. Last year when we spoke I think we were at about a 0.2 % production return fault rate. We now have that down to 0.1% and we have a number of Lean 6 Sigma green belts in the company. We'll have some black belts by the end of the year. We will also have ISO14001 certification by June 2007, which added to our RoHS compliance, means we will be committed to the best environmental practices.

All of this backs up our claim to be the high quality, high service, high performance supplier in the market.

ABOUT Andy Singer

Andy Singer, President Radio Waves, Inc.

Prior to joining Radio Waves, Andy held senior marketing and product management positions with a number of antenna and R.F. system companies, including RFS(Alcatel) and Allen Telecom Group. Andy began his career as an antenna design engineer and has a B.S.E.E. and M.B.A. degree. He has received multiple patents in regards to remote tilt antenna systems. Andy is a well-known speaker and writer in the industry. Andy has had numerous articles published in industry trade journals. He is a member of a number of industry organizations such as the IEEE and the Radio Club of America.

ABOUT Radio Waves, Inc.

Radio Waves offers a diverse range of reliable and innovative microwave antennas. Microwave and broadband wireless antennas are available that cover 1.3 GHz to 86 GHz for Point-to-Point, unlicensed ISM, UNII, 802.11 Wi-Fi & 802.16 WiMax broadband wireless bands at 2.4, 3.5 and 5 GHz, LMDS, Point-to-Multipoint and broadcast microwave applications. Radio Waves is known globally for their rapid delivery and reliable microwave antenna designs."



Towering ambition for Microwave