EchoStar XIX. Photo courtesy of Hughes Network Systems

Powering a connected future

Hughes Network Systems is a leading satellite networks and services company providing high speed Internet through their network HughesNet. As of October 2018, Hughes is the largest satellite Internet service provider in the Americas, supporting more than 1.3 million subscribers. Dave Rehbehn, VP Marketing, International Division spoke about their recent progress in the APAC region, and the company's key advantages over competitors.

Question: We're keen to hear as much as we can about the JUPITER system, which has recently been selected by Kanbawza (KBZ) gateway to extend mobile connectivity solutions throughout Myanmar. Do you anticipate JUPITER being adopted even further across Asia-Pacific (APAC)?

Dave Rehbehn: Absolutely. We've seen good take-up of the JUPITER system by a number of satellite operators. The KBZ announcement concerning Myanmar relates to backhauling mobile traffic, which we've been working hard on recently.

We had another announcement in June confirming that all five of the service providers who are providing capacity and services to the Indonesia Universal Service Obligation (USO) administrator BAKTI have selected the JUPITER system to be the platform they'll be using. BAKTI is looking to deploy 8,000 sites. About 2,000 of those are going to be mobile backhaul, and the other 6,000 will be used for Internet access.

Both KBZ in Myanmar, and our work with BAKTI's providers, are two fantastic recent examples of our work to deploy the JUPITER system to effectively bridge the digital divide.

Question: Comtech's Heights platform has been compared to JUPITER; how do you think the two platforms stack up?

Dave Rehbehn: I think Heights is a very good platform. We've had occasion to examine that technology and we think of it quite highly. A great difference I could name is that the JUPITER system is particularly strong on the return channel and especially the multi-frequency time-division multiple access (MF-TDMA). That technology allows us to multiplex many remote stations coming back into the gateway in an efficient and effective manner.

I think the efficiency of our MF-TDMA return channel is a key factor for all service providers, but we also have higher order modulation, up to 16 amplitude and phase-shift keying (APSK), so we get great bits per Hertz.

At our gateway we also have good scalability. In the case of BAKTI, owing to their requirements, we will deploy as many as 26 forward channels at the gateway. On top of its strengths, the JUPITER system also happens to be very well suited to scale to a large number of carriers at the gateway.

That's not even discussing our support for layer two, which lets you

Dave Rehbehn, VP Marketing, International Division

more easily integrate satellite backhaul with existing terrestrial implementation. There's plenty to talk about when it comes the JUPITER platform.

Question: Do these features lead you to anticipate JUPITER having a direct edge in particular markets or sectors?

Dave Rehbehn: Well, when you look at differentiators between VSAT systems, just about all of them look relatively similar. Perhaps you'll see a few numbers shift here and there, but at the end of the day, those models just don't tend to variate too significantly.

Of course, JUPITER has its strengths, as I've discussed, but I think most people choose Hughes beyond the value of the specs we can quote. I'm not sure specs alone should be the sole factor you're looking at when it comes to choosing long term collaborations like the ones we work with.

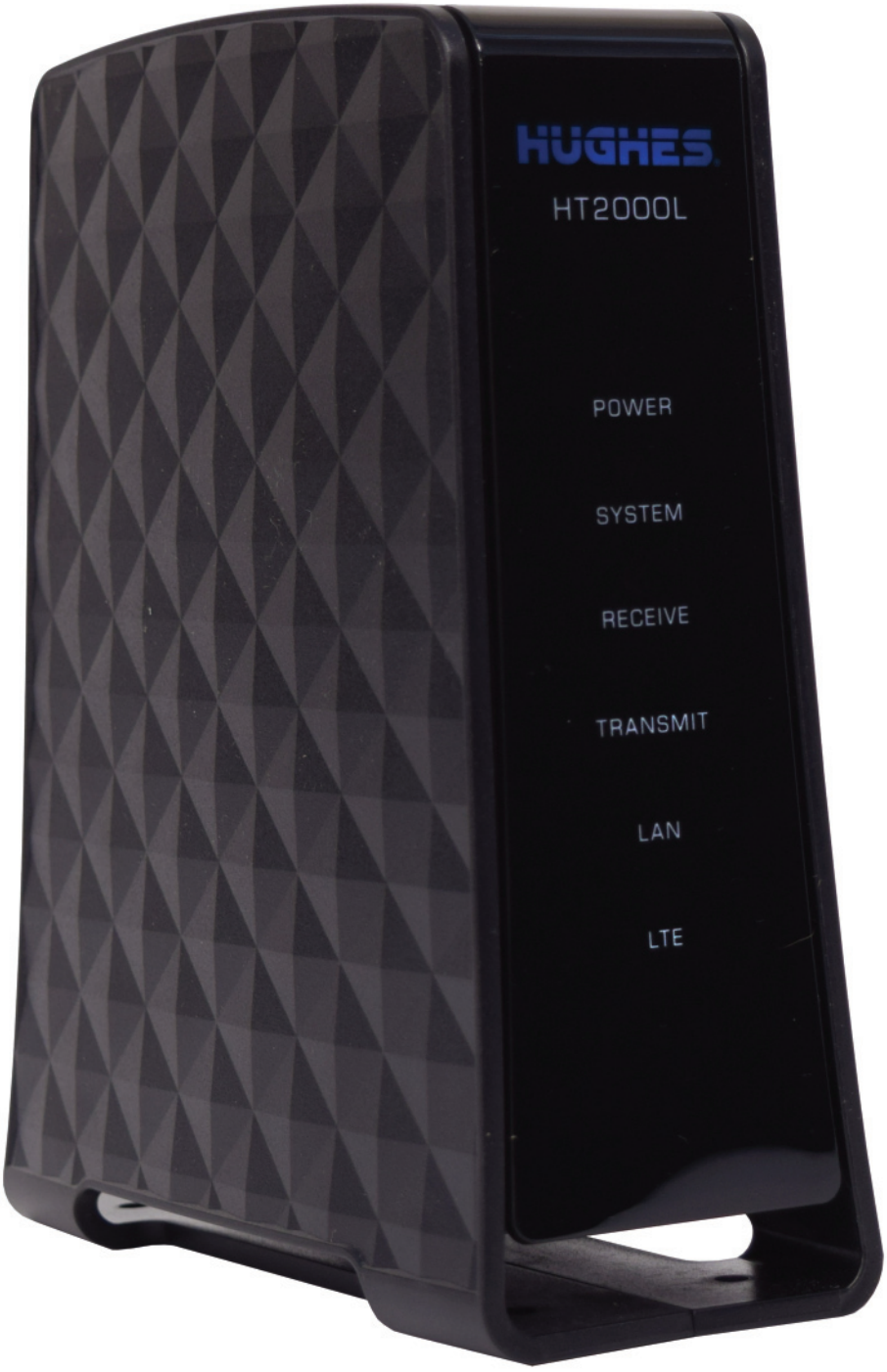
People partner with Hughes for a number of reasons, and one of them is simple reliability. When you partner with a company, you want to know they'll be here tomorrow. You want to know they'll be here five years from now, ten years from now, beyond. We've been in the business for a very long time. In fact, we started putting together reliable VSATs in 1985.

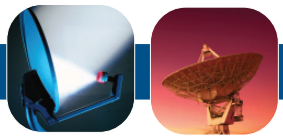
Another factor is that Hughes sits in a unique position in the industry against lots of hardware suppliers in the sense that we have a very significant service business. We get most of our revenue from services, not from selling our hardware as we did with BAKTI. That's not to diminish our accomplishments with hardware, but our revenue last year was just over US$1.7 billion, and much of that came straight from selling services. It's the strength of that business that allows us to continue to make large investments toward the development of the JUPITER platform.

Lastly, being a service provider, Hughes can help our customers who purchase hardware to run the best service operation. We have so much experience in that department that we can give people a unique source of expertise as well as a reliable business partner.

I could talk to you about how our waveform is 0.5db better than this other waveform, and that could be a valuable factor. Sure, it's important to have the right specs, but ultimately, selecting a business partner to work with on this scale is about a lot more than the numbers someone's quoting about their products.

Everyone has a product that more





or less does the job. When you're investing in technology that you expect to go the distance, you want to be working with reliable, experienced people at companies that can stand the test of time.

Question: In June, you made the number two spot among carrier managed software defined wide area network (SD-WAN) providers based on US market share. How have you managed to stay ahead of giants like Verizon?

Dave Rehbehn: We're really proud of our position in the SD-WAN market. I think the secret behind that success owes to the fact that we were working with SD-WAN before anyone else really understood its importance.

For many years now, particularly with our US services, we've been integrating multiple access media; digital subscriber line (DSL), cable, fibre, long term evolution (LTE), alongside satellite. We've been going to enterprises and offering them a managed service with any kind of hook-up. We've been using regular broadband lines to run managed services, particularly with DSL, that's quite challenging because plenty of broadbands vary their throughput rapidly.

Before SD-WAN really even started, we'd already developed a set of active technologies like Active Path and Active QOS. QOS is a technology that lets us measure the amount of available throughput on a given broadband line moment by moment, alongside traffic shaping to accommodate the amount of capacity on a given line. All that allows us to keep voice calls clear and uninterrupted.

Active Path is a technology that lets us use path selection for an enterprise with more than one path simultaneously. We can even discard duplicate packets at the far end. That translates into higher quality of service through solutions a lot of providers hadn't even considered.

These are technologies we've been offering for a long time, so as you might expect, we've been building on them; for instance, we've partnered with industry leaders such as Fortinet to bundle in security services on top of everything else we set up. We carved out a strong position on the SD-WAN market in its infancy, and like any good business, capitalised on that early success to cement our foothold, so it's no surprise we're staying so far ahead.

JUPITER™ System has been chosen as the ground network platform for a new satellite over Indonesia. The contract for construction and operation of the 150 Gbps "Multifunctional Satellite" has been awarded by the Government of Indonesia, through its Ministry of Communication and Informatics, to the PSN Consortium led by PT Pasifik Satelit Nusantara (PSN), the first private satellite telecommunication and information service provider in Indonesia.

Question: What can you tell us about your plans to actualise the dream of bringing 5G to the world?

Dave Rehbehn: Obviously, we are not aiming to deliver 5G all by ourselves, but we're looking forward to it bringing big opportunities for satellite. We're expecting the same sort of thing that happened after the introduction and growth of broadband throughout the world, including LTE.

5G is going to further stimulate the demand for connectivity everywhere, particularly 5G millimetre wave, that's 24GHz and above. Those will be technologies that will start out in urban areas and disseminate out. I don't anticipate it realistically going beyond the suburban areas, primarily because of the nature of such high frequency usage, it just doesn't propagate well.

There will be some 5G in the lower bands, but I don't think that'll be enough bandwidth and throughput. We think there'll be some great opportunities and as 5G increases the need for broadband, so too will the demand for satellite broadband expand, which we were anticipating without the help of 5G anyway.

In rural and hard to serve areas, where mobile network operators (MNOs) and telecommunications providers (telcos) are looking to deploy base stations, especially where you're running more than one microwave hop, satellite becomes a very compelling solution, particularly when we can use high throughput satellite (HTS) backhaul, because of strong cost effectiveness.

That's why we're confident there'll be opportunities for satellite to backhaul 5G traffic. On the other hand, we're also concerned about spectrum and well aware that there are threats to spectrum on the part of MNOs, but we're optimistic that can be worked out through the next World Radiocommunication Conference (WRC) and other appropriate forums.

I've been in the industry a long time, and I've been very pleased by how satellite broadband has grown. That's wonderful because it's made targeting the digital divide so much more economically realistic. With the kind of technologies and solutions we're working with, we're hoping to bring about a world more equitably connected than ever before, not just here in APAC, but everywhere there are people to connect with, and I think that's something to be excited about. ■