Driving down OPEX and CAPEX

The team at Comtech EF Data have one main priority, and that is to help their customers by giving them maximum Return on Investment with as little initial outlay as possible. The introduction of their new Advanced VSAT Series, and their highly popular VersaFEC technology are just two of the ways in which the company is driving down expenditure. Helen Jameson spoke to Daniel Enns, Senior Vice President Strategic Marketing & Business Development, about how they achieve optimisation for their customers.

Question: High capacity pricing and capacity shortages are having their impact in some regions. Are there technologies to help address these issues?

Daniel Enns: Definitely. We base our entire foundation on helping to reduce CAPEX and OPEX. We focus on what can be done at the physical layer to drive prices down, such as Forward Error Correction, mitigating power, Doubletalk Carrier-in-Carrier, and Advanced Coding and Modulation. Today, we are really coming very close to our ultimate Nirvana - the Shannon limit. This is the boundary of what is theoretically and practically feasible to transmit on a channel. Today, we are within half a dB or a quarter of a dB of this, so we're nearly there. The question is, now we have achieved this, is Comtech finished? The answer is - of course not!

In addition to optimisation we can achieve on the physical layer, there is also much work still to do on link layer optimisation, and there is application layer optimisation. We are working on all of that.

In essence, we are driving radio access network optimisation. This is voice optimisation for cellular backhaul and can help mobile operators to deliver greater capacity and support bandwidth-intensive applications. We are also actively involved in WAN optimisation, meaning that we focus on acceleration and compression at application levels. You can see more and more modems incorporating these types of technologies. I believe that we still have a long way to go to the finish line of what is plausible in terms of efficiency.

We also take advantage of multiplexing gain. If I aggregate the number of users, I will need fewer lines, statistically speaking. That will reduce the amount of capacity required to fulfil a Service Obligation. So, multiplex solutions also become efficiency drivers.

Our satellite market will probably always remain the most costly in terms of OPEX, compared to microwave and fibre. We must push the envelope on optimisation. If you look historically at Forward Error Correction, I think we are nearly as far as we can go. VersaFEC, which was specifically designed to provide maximum coding gain at the lowest possible latency for Constant Coding and Modulation (CCM) and ACM modes of operation, gives us one more type of latency reduction.

Question: What are the latest advancements in FEC/modulation in the satellite industry?

Daniel Enns: The real advancements being made today are in the field of how to obtain equal efficiency in respect of DVB-S2. That is the ultimate goal. However, we don't have an eternity to wait.

In broadcast - at high speed - that really is a non issue. However, in TCP/IP or interactive IP traffic, latency is an eternity, and there really is a problem. So the frontier now is how to get that same gain without the penalisation of latency. VersaFEC is the tool for this.

FEC is about latency containment without sacrificing power. This is the next effort - to minimise latency but get the same value. This takes a lot of technology and this is why we have our own sister division, Comtech AHA, that focuses entirely on this type of technology.

We still believe we have the best FEC, especially with VersaFEC. It takes a lot of R&D to get to this stage.

Question: Could you tell me about the new Advanced VSAT series of products that Comtech EF Data previewed at Satellite 2010 earlier this year?

Daniel Enns: Comtech EF Data's Advanced VSAT Series products offer industry-leading solutions for cellular backhaul, Universal Service Obligation networks, corporate networks, Internet Service Providers and other applications requiring high-performance IP transport in a hub-spoke network environment. Incorporating advanced technologies developed by Comtech EF Data, Comtech AHA and Memotec, these products are specifically designed to provide unmatched performance at an attractive price for a wide range of applications in a hub-spoke environment. We have basically placed all the technology that our customers demand in one place.

Question: Given the economy, capital expenditures are certainly a consideration for many companies. Does CEFD have any solutions that help to reduce CAPEX and yet still enable service expansion?

Daniel Enns: Our customers applaud us for our modem FECs that reduce CAPEX and our other technologies that eliminate the need to purchase expensive equipment.

With that in mind today we are seeing a tremendous reduction of watts and antenna sizes that are part of the embodiment, not just of OPEX savings, but as a total solution. We believe that we can do most things with just one or two watts with VersaFEC. Others need eight watts but the same link. The total

cost of ownership is coming down, and antennas are shrinking because of the kind of terminals that are coming onto the market.

It is a constant battle to lead the way on bringing CAPEX down. People are much more conscious of what they are paying. They are looking for a product that will replace what they have but will provide a return on investment in just six months.

Question: CEFD recently introduced a new modem for high-speed trunking. Can you tell us more about the unique functionality this modem offers?
Daniel Enns: The CDM-750 is the first modem to combine DVB-S2, Adaptive Coding and Modulation (ACM) and DoubleTalk Carrier-in-Carrier technologies. This new trunking modem provides efficiencies and throughput that will benefit even the most demanding point-to-point and backhaul links.

The CDM-750 was designed with the needs of telco operators and Internet Service Providers (ISPs) in mind. The innovative, high-performance architecture allows efficient networking and transport over satellite links for a variety of applications, such as IP trunking, G.703 trunking, high speed content delivery, disaster recovery and emergency communications.

Question: CEFD is a recognised leader in the cellular backhaul market. Are there any other key markets for the company?
Daniel Enns: Beyond cellular backhaul, government, broadcast, disaster recovery, oil and gas and mining are key components of our business. The government and broadcast segments will be permanently of interest to us but there are other segments that come into focus at different times.

A large part of our business is government and military, including the US armed forces, NATO and just about every other European MoD. Bandwidth-efficient and mobility solutions are key considerations for this segment.

As long as the barrel of oil is over a certain threshold, the oil and gas sector will be a considerable market for us. Disaster recovery in Asia, specifically China, is huge for us, as demand for disaster recovery communications is taken extremely seriously. They are extremely prepared. We have well over 600 mobile platforms in China alone for disaster recovery.

That is a unique market, because the government has dictated that they want this disaster recovery provision to happen through the mobile operators. The mining sector is also strong for us in Latin America, Russia and Africa.

Question: What will the main areas of focus be for CEFD over the coming year?
Daniel Enns: Next year, we will look forward to seeing our Advanced VSAT Series being recognised as a true pioneer. We took the best, we distilled it and we hope that the market will have accepted it by then. We also look forward to a successful 2010 World Cup with no broadcast outages, as Comtech EF Data broadcast modems will facilitate the satellite-based communications between the 10 stadiums where a total of 64 soccer matches will be held and the International Broadcast Centre. ■