Q&A

CMTS and Wideband Questions and Answers

Q. What are the advantages of the Cisco Systems® Wideband offering?

A. **a.** There are major advantages with the existing Cisco® uBR10012 Universal Broadband Router and 5 x 20 line card. The Cisco uBR10012 Universal Broadband Router has extremely high density and a rich software feature set and is a proven platform for both voice and data deployments.

b. New wideband capabilities add to the Cisco uBR10012 Universal Broadband Router leadership position by enabling very high-speed broadband through channel bonding technology. But wideband is about more than just faster broadband. It also provides the following important benefits:

a. Cisco Wideband utilizes field-proven, low-cost edge quadrature amplitude modulation (QAM). This has two advantages. First, it significantly reduces cost; RF ports on an edge QAM are typically one-third to one-fourth the cost of RF ports on a cable modem termination system (CMTS). Second, it enables cable operators to add downstream capacity without being forced to add upstream capacity at the same time.

b. Second, the new Wideband Shared Port Adapter (SPA) and SPA Interface Processor (SIP) use a network interface slot and *do not* take up valuable RF card slots. As a result, the downstream capacity of the Cisco uBR10012 Universal Broadband Router has more than doubled. A fully configured uBR10012 can now have up to 88 downstreams: 40 downstreams provided by 8 5x20U card, and 48 downstreams provided via two Wideband SPA modules.

Q. What are the components of the Cisco wideband solution?

A. **a.** There is a new SPA Interface Processor (SIP) module (UBR10-2XWB-SIP) in the Cisco uBR10012 Universal Broadband Router CMTS; each SIP can take two new Shared Port Adapter (SPA) modules (SPA-24XWB-SFP); each SPA connects over Gigabit Ethernet to an edge QAM device.

b. Edge QAMs from multiple vendors are supported, including the eXtra Dense QAM Array (XDQA) edge QAM from Scientific Atlanta. This allows cable operators to deploy field-proven edge QAMs, rather than being forced to qualify a new edge QAM product. Cisco offers full modularity and compatibility with existing edge QAMs from multiple vendors.

c. Wideband-capable cable modems can receive the traffic; Scientific Atlanta offers a three-channel wideband cable modem called the DPC2505. For premium customers, Linksys offers an 8-channel modem called the WCM300.

Q. How is wideband load sharing accomplished?

A. Cisco wideband uses the “packet bonding” technique that is described in the DOCSIS® 3.0 specification. Packets are transmitted out the various channels in round robin fashion. Sequence numbers are applied, and the wideband cable modem reorders the packets if they arrive out of order.

Q. How will wideband affect my wiring?

A. Wideband has minimal effect on wiring. Rather than connecting RF ports out of the CMTS to a combiner, edge QAM RF ports will be connected to a combiner instead. Wideband requires additional carrier frequencies (one per channel in the Wideband channel group), but no additional fiber will be required to the node.

Q. Do my Wideband channel frequencies have to be consecutive?

A. No they do not – as long as the cable modem supports non-sequential channels. Scientific Atlanta's DPC2505 and Linksys' WCM300 both support non-sequential channels in a channel bonding group.

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