

Sorrento Wireless Backhaul Applications

FEATURES AND BENEFITS

- GigaEdge 232/600 TDM/CWDM access multiplexers for non air conditioned wireless cell sites
- Legacy PDH/OC-3 supported with a migration path to new high speed Fast Ethernet and Gigabit Ethernet backhaul
- Remotely configurable 232 Mux and SFP ports using in-band DCC from Hub CO to wireless cell site
- Low footprint, low power and low cost 232/600 solutions optimised for the edge of the access network
- Seamless TDM/DWDM multiplexing of traffic from cell site access rings into inter-office access rings using the GigaMux 3200 product
- The GigaMux 3200 inter-office access rings can grow to up to 40 x 10 Gbit/s wavelengths in support of future wireless network growth
- The Sorrento GigaEdge 232 and GigaMux 3200 products offered for the wireless backhaul solutions are NEBS Level 3 certified

Sorrento's GigaMux 3200 and GigaEdge 232/600 TDM/xWDM multiplexers provide an end-end solution for service providers wanting to upgrade their wireless cell sites from legacy PDH backhaul to new high capacity Ethernet backhaul protocols.

Narrowband wireless networks often employ legacy PDH protocols such as T1 and DS3 to backhaul telephony and data over a Last Mile network back to the nearest Central Office (CO). Where an optical feeder is available to a remote cell site, the T1 and DS3 streams are often multiplexed into a SONET OC-3 backhaul. The multiplexing equipment installed at remote cell sites will often need to be environmentally hardened where the cell site is not temperature controlled.

At a remote CO, the telephony and data traffic within the T1, DS3 or OC-3 stream from the cell site is then switched or routed as applicable and aggregated with other fixed line telephony and data traffic into an OC-48 or OC-192 based metro-access backhaul network for transport to a larger CO or Hub at the edge of the metro-core network. There is thus a hierarchy of inter-office backhaul networks of increasing capacity from cell sites through remote COs to a metro-core CO.

With the evolution of new broadband wireless networks, including WiFi hot-spots and 3G Mobile, there has grown a need for higher capacity backhaul networks at all levels in the last mile and metro-access hierarchy. Such backhaul networks are becoming increasingly packet based with an emphasis on Fast Ethernet and Gigabit Ethernet backhaul channels as a broadband overlay to existing ATM switched and narrowband circuit-switched network channels.

To meet the needs of current and future wireless backhaul networks from the metro-core to remote cell sites, Sorrento offer a full spectrum of carrier-class DWDM, CWDM, TDM and Ethernet aggregation products. These include the GigaMux 3200, GigaEdge 600 and GigaEdge 232.









Cell Site Access Ring

To cater for the migration of wireless cell site backhaul from T1/DS3 and OC-3 to Fast Ethernet (FE) and Gigabit Ethernet (GE), one or more GigaEdge 232 access multiplexers can be installed. Each 232 Mux supports 4 x SFP tributary ports and 1+1 protected SFP line ports. The tributary ports can be a mix of legacy OC-3 plus new FE and GE interface protocols. The line ports can be either OC-12 or OC-48.

For cell sites where the fiber is new and no PDH/OC-3 Mux exists, the GigaEdge 232 can be fitted with the latest PDH/FE pseudo-wire SFPs as shown in the following photograph.



GigaEdge 232 fitted with T1 pseudo-wire SFP

The line ports of each 232 access multiplexer can be fitted with CWDM SFPs for non air-conditioned cell sites or DWDM SFPs for air conditioned cell sites. For non air conditioned cell sites, a range of environmentally hardened GigaEdge 600 CWDM filter options are also available. Cell site access rings which are large or comprise old lossy fiber, Sorrento can alternatively provide its extended temperature range GigaEdge 820 regenerative CWDM optical add/drop multiplexers.

Inter-Office Access Ring

Each cell site access ring terminates at a remote CO using GigaEdge 600 filters and a GigaMux 3200 fitted with xWDM SFPs on its tributary ports. This multiplexes the OC-12/OC-48 TDM channels from four GigaEdge 232s into OC-48/OC-192 DWDM channels for an additional 4x increase in wavelength efficiency.

GigaMux 3200s at remote COs in the inter-office access ring progressively aggregate all the cell site voice and data traffic and transport this traffic to a Hub CO at the edge of the metro-core network.



Sorrento Networks 9137 East Mineral Circle Suite 340 Centennial, CO 80112 www.sorrentonet.com