## CLAIMS

1. Apparatus for establishing optical connection between optical fibers, the apparatus comprising:

a first array comprising a plurality of slack management units, each having a holding socket for holding an optical end connector which holds an optical end of an optical fiber and is configured to reel in a length of fiber released when the optical end connector is removed from the holding socket;

a second array comprising a plurality of coupling sockets, each configured to hold an optical end of an optical fiber;

a partition apron that partitions a volume of space containing the first and second arrays into a fiber occupation zone in which the first array is located and a fiber free zone in which the second array is located, the partition apron formed having a slot that communicates with both the fiber occupation and fiber free zone; and

a grabber configured to grab an optical end connector seated in a holding socket of any slack management units in the first array, move the optical end connector through the slot from the fiber free zone and plug the optical end connector into any coupling socket in the second array to establish an optical connection between the optical fiber connected to the optical end connector, and an optical end of an optical fiber held in the coupling socket so that the released length of fiber resides in the fiber occupation zone.

2. The apparatus according to claim 1 wherein each slack management unit comprises a housing to which the holding socket is mounted and a slack management system configured to release the length of released fiber.

3. The apparatus according to claim 2 wherein each coupling socket is mounted to the housing of a slack management unit in the first array.

4. The apparatus according to claim 2 wherein the slack management system comprises a stationary pulley block and a sliding pulley block through which a portion of the fiber

connected to the optical end connector is looped to provide a plurality of falls between the pulley blocks, and wherein the sliding pulley moves away from a first position in the slack management system housing when the length of released fiber is released.

5. The apparatus according to claim 4 wherein the housing comprises a reel-in transmission operable to return the sliding pulley to the first position to reel in the released length of fiber.

6. The apparatus according to claim 5 and comprising a reel-in actuator operable to couple to the reel-in transmission and actuate the transmission to return the sliding pulley to the first position and reel in the length of released fiber.

7. The apparatus according to claim 6 wherein the reel-in transmission comprises a reel and a wire connected to the sliding pulley a portion of which wire is wound on the reel.

8. The apparatus according to claim 7 wherein the reel-in transmission comprises a rack and pinion coupled to the reel and operable to rotate the reel to wind the wire onto the reel to return the sliding pulley to the first position and reel in the length of released fiber.

9. The apparatus according to claim 8 wherein the reel-in actuator is configured to couple to and translate the rack to activate the reel-in transmission and wind the reel-in wire onto the reel to reel in the length of released fiber.

10. The apparatus according to any one of claims 6-9 and comprising a rotator operable to rotate the grabber through a first azimuth angle about an axis of rotation to locate the grabber in a first position for which the grabber is operable to grab the optical end connector and through a second azimuth angle to locate the grabber in a position for which the grabber is operable to plug the optical end connector into the coupling socket.

11. The apparatus according to claim 10 wherein the rotator is operable to translate the grabber selectively in either direction along the axis of rotation to position the grabber jaws selectively in the fiber occupation or the fiber free zone.

12. The apparatus according to claim 10 or claim 11 wherein the rotator is operable to rotate the reel-in actuator to locate the reel-in actuator in a position for which the reel-in actuator is operable to actuate the transmission to return the sliding pulley block to the first position and reel in the length of released fiber.

13. The apparatus according to claim 11 wherein the rotator comprises a shield surrounding the rotator and having an access slot parallel to the axis of rotation.

14. The apparatus according to claim 13 wherein the reel-in actuator comprises a rack and pinion operable to extend the rack through the slot to engage and actuate the reel-in transmission.

15. The apparatus according to claim 13 or claim 14 wherein the grabber comprises a pair of grabber jaws mounted to a rack of a rack and pinion operable to translate the rack to position the jaws in a position for which the jaws may be closed to grab the optical end connector.

16. The apparatus according to claim 15 wherein the rack and pinion of the grabber is operable to translate the rack of the grabber through the slot to position the jaws so that they may be closed to grab the optical end connector.

17. The apparatus according to any one of the preceding claims wherein the optical end connector comprise a grab-fin to facilitate holding the optical end connector.

18. The apparatus according to claim 17 wherein at least one of the holding socket and the coupling socket is configured to engage the grab-fin to rotationally align the optical end connector with the holding socket.

19. The apparatus according to any one of the preceding claims wherein at least one of the optical end connector and coupling socket comprises a radio frequency identification tag and the grabber comprises a radio frequency identification reader operable to read the radio frequency identification tag.

20. Apparatus for establishing optical connection between optical fibers, the apparatus comprising:

a first array comprising a plurality of slack management units, each having a holding socket for holding an optical end connector of an optical fiber;

a second array comprising a plurality of coupling sockets, each configured to hold an optical end of an optical fiber;

a grabber configured to grab an optical end connector seated in a holding socket of any slack management units in the first array, move the optical end connector through the fiber free zone and plug the optical end connector into any coupling socket in the second array to establish an optical connection between the optical fiber connected to the optical end connector, and an optical end of an optical fiber held in the coupling socket; and

a rotator operable to rotate the grabber through a first azimuth angle about an axis of rotation to locate the grabber in a first position for which the grabber is operable to grab the optical end connector and through a second azimuth angle to locate the grabber in a position for which the grabber is operable to plug the optical end connector into the coupling socket.