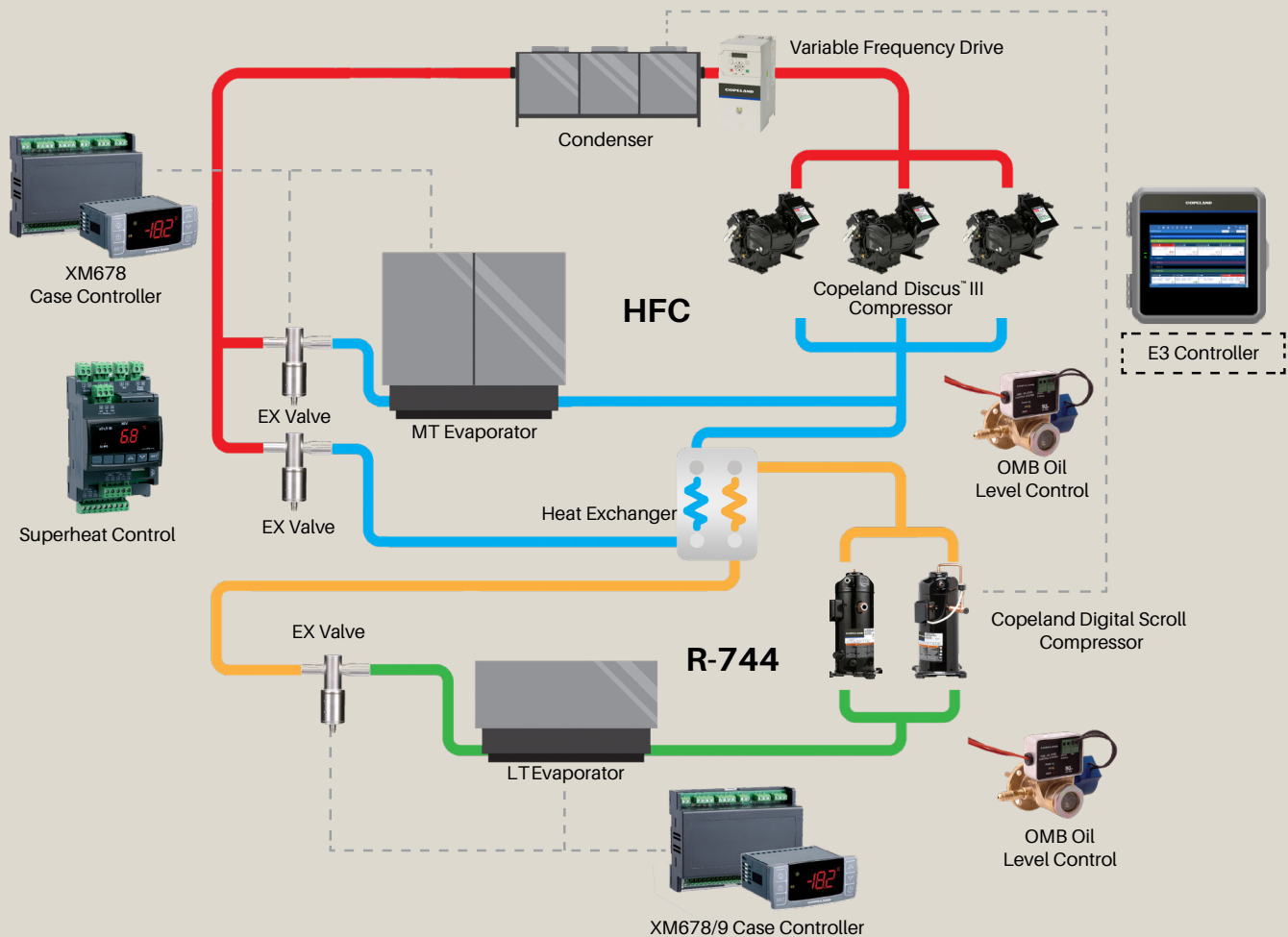


Subcritical CO₂ Cascade refrigeration system

With this technology, an HFC centralized DX system is used for MT loads and the LT system has a separate circuit that passes through a heat exchanger from the MT circuit. The LT circuit has a low condensing temperature so R-744 (CO₂) can be applied in subcritical mode without excessive pressures. The challenges are not fundamentally different from systems with conventional refrigerants. The discharge pressure (at around 450 to 500 psig) is still within the normal design limits for refrigeration pipe work and components (typically 650 psig). The temperature difference required to drive the heat transfer across this extra heat exchanger represents a slight loss in energy efficiency compared to a DX system.

Typical CO₂ Hybrid Cascade System



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