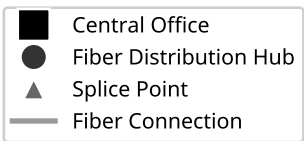
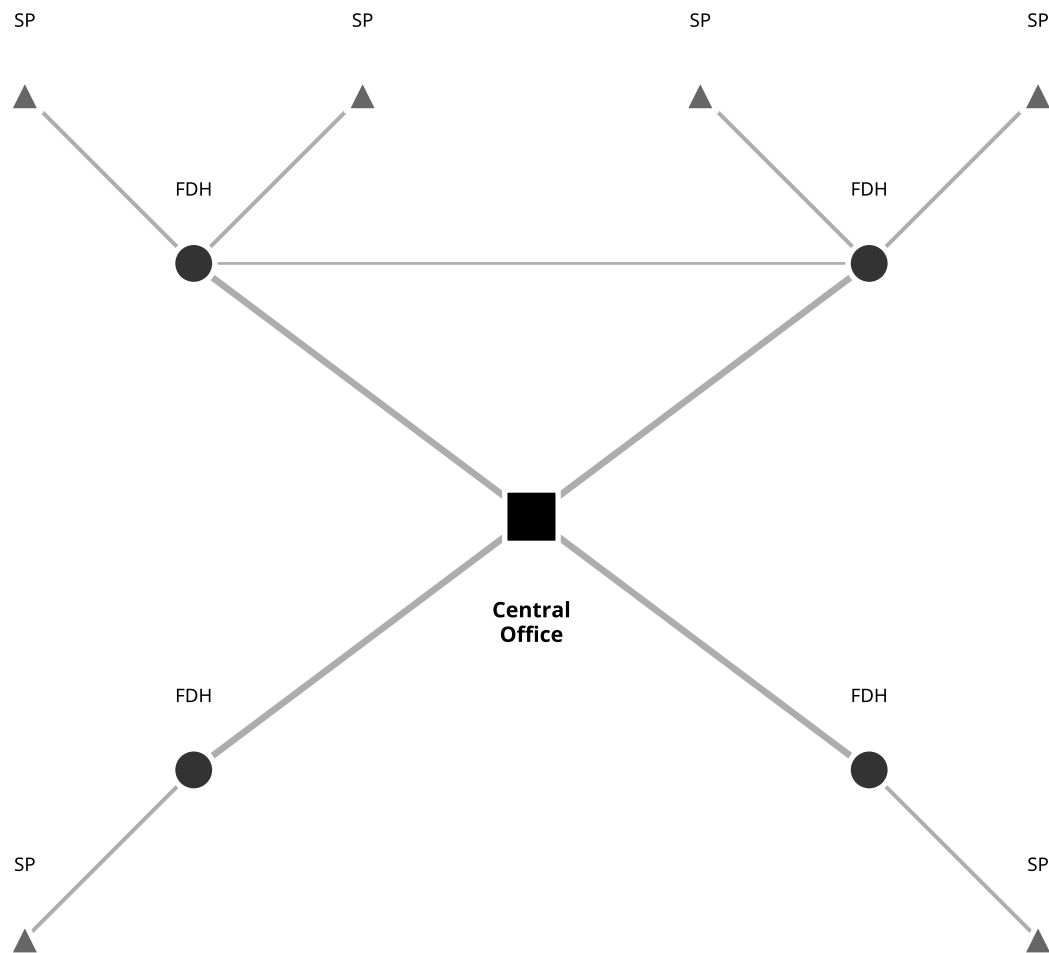


Fiber Optic Network as Graph

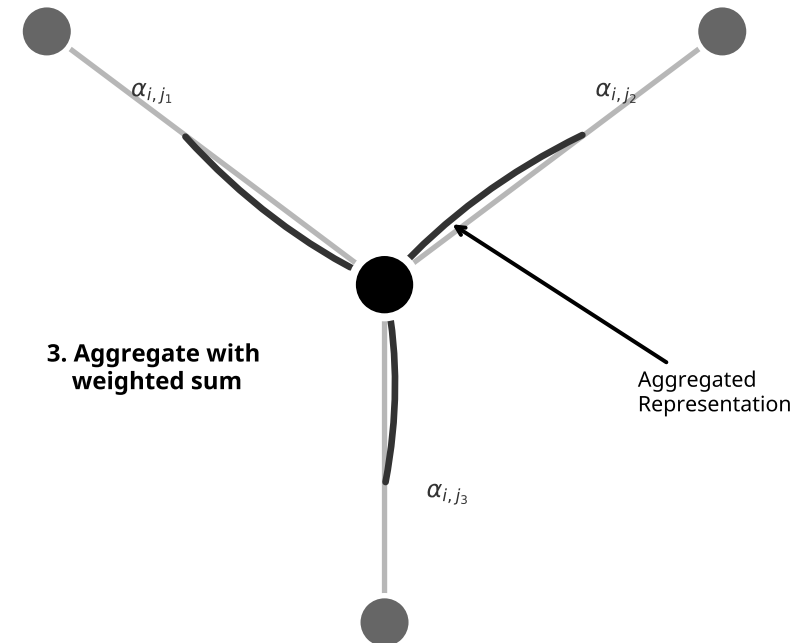


GNN Message Passing Mechanism

1. Collect neighbor features

2. Compute attention weights

3. Aggregate with weighted sum



$$h_i^{(l+1)} = \sigma \left(\sum_{j \in \mathcal{N}(i)} \alpha_{ij} W h_j^{(l)} \right)$$