

Step	Description	Time	Messages
??,??	BFS convergecast	$O(D)$	$O(m)$
??, ??	BFS upcast of f messages	$O(D + f)$	$O(f \cdot D)$
??,??	Local computation	0	none
??	BFS downcast of f messages (each of size $\log^2 n$)	$O(D + f \cdot \log n)$	$O(f \cdot \log n \cdot D)$
??	Broadcast in each of the MST fragments	$O(k + \log n)$	$O(n \cdot \log n)$
??	Communication between neighbors	$O(\log n)$	$O(\log n \cdot m)$