IBRC: given r_{budget}, query all senders and find the final allocation that will maximize the profit from selling the resource

for $i=1$ to I_{max},

$\Re^i = [0,0,....0]$; //initialize $\Re$

$asked\_RS = [0,0,....0]$; $served\_SS = [0,0,....0]$; $D = [1,0,0,...,0]$

$r_{available} = r_{budget}$;

    do

      $include\_node \leftarrow 0$;

        for (pick a random $m = [0,M]$ such that D[m]==1 and asked_RS[m]==0),

             $(q_m^i, served\_SS\_new, D_{new}) \leftarrow query(m, p_{stream}, p_i, served\_SS, D)$;

             $asked\_RS[m] \leftarrow 1$;

          if ($q_m^i \leq r_{available}$) then

        $include\_node \leftarrow 1$; $r_m^i \leftarrow q_m^i$; $r_{available} \leftarrow r_{available} - q_m^i$;

        $served\_SS \leftarrow served\_SS\_new$;

        $D \leftarrow D_{new}$;

        end if;

      exit the for loop;

        end for;

    loop until($include\_node == 0$);

end for;

$i_{set} \leftarrow \arg\max_i (p_i \sum_{m=1}^{M} r_m^i)$;

return $\Re^{i_{set}}$;