**Algorithm 6 NN**(Position $q$)

```
$nn \leftarrow$ null; $dist_{nn} \leftarrow \infty$
$v \leftarrow$ getHostPartition($q$)
$(nn, dist_{nn}) \leftarrow$ nnSearch($v$'s bucket, $q, dist_{nn}$)
for each door $d_i \in P2D_{\sqsubset}(v)$ do
    $r_1 \leftarrow dist_V(q, d_i)$
    for $j$ from 1 to $|\mathcal{S}_{door}|$ do
        $d_j \leftarrow M_{idx}[d_i, j]$
        if $r_1 + M_{d2d}[d_i, d_j] > dist_{nn}$ then
            break
        else
            $r_2 \leftarrow r_1 + M_{d2d}[d_i, d_j]$
            if DPT$[d_j].vPtr_1 \neq null$ then
                $(obj, dist) \leftarrow$ nnSearch(DPT$[d_j].vPtr_1, d_j, dist_{nn} - r_2$)
                if $dist + r_2 < dist_{nn}$ then
                    $(nn, dist_{nn}) \leftarrow (obj, dist + r_2)$
            if DPT$[d_j].vPtr_2 \neq null$ then
                $(obj, dist) \leftarrow$ nnSearch(DPT$[d_j].vPtr_2, d_j, dist_{nn} - r_2$)
                if $dist + r_2 < dist_{nn}$ then
                    $(nn, dist_{nn}) \leftarrow (obj, dist + r_2)$
return $R$
```