H_m	**Service Provider**	**User** i
Input: ϕ_m such that $\sum_{m=1}^{M} \phi_m = 0$	**Input**: C_k , $k \in \{1, \dots K\}$ Receives $[\![\psi_{(m,r)}]\!]_H$ for $r \in \{1, \dots, R\}$ and $m \in \{1, \dots, M\}$	**Input**: P_i
	$\xleftarrow{[\![\psi_{(m,r)}]\!]_H \text{ for } r \in \{1, \dots, R\}}$	
		$\xrightarrow{[\![\widetilde{C}^2]\!]_H \, , [\![\widetilde{C}_r]\!]_H \text{ for } r \in \{1, \dots, R\}}$
		Computes: $[\![\widetilde{D}_i^2]\!]_H$
		$\xleftarrow{[\![\widetilde{D}_i^2]\!]_H}$
	$\xleftarrow{[\![\widetilde{D}_i^2]\!]_H \text{ for } i \in G_m}$	
Decrypts: $[\![\widetilde{D}_i^2]\!]_H$ Encrypts: $\gamma_{(i,j)}$ for $j \in \{1, \dots, K\}$		
	$\xrightarrow{[\![\gamma_{(i,j)}]\!]_H \text{ for } j \in \{1, \dots, K\}}$	
	Computes: $[\![\widetilde{\Gamma}_i]\!]_H$	$\xrightarrow{[\![\widetilde{\Gamma}_i]\!]_H}$
		Computes: $[\![\widetilde{S}_{(i,r)}]\!]_H$
		$\xleftarrow{[\![\widetilde{S}_{(i,r)}]\!]_H \text{ for } r \in \{1, \dots, R\}}$
	Computes: $[\![\widetilde{\Gamma}_{\Sigma_m}]\!]_H$ and $[\![\widetilde{P}_{\Sigma_{(m,r)}}]\!]_H$ Generates: α_m and $\beta_{(m,r)}$	
	$\xleftarrow{[\![\widetilde{\Gamma}_{\Sigma_m} + \alpha_m]\!]_H, \, [\![\widetilde{P}_{\Sigma_{(m,r)}} + \beta_{(m,r)}]\!]_H}$	
Decrypts: $[\![\widetilde{\Gamma}_{\Sigma_m} + \alpha_m]\!]_H$ and $[\![\widetilde{P}_{\Sigma_{(m,r)}} + \beta_{(m,r)}]\!]_H$		
	$\xrightarrow{\widetilde{\Gamma}_{\Sigma_m} + \alpha_m + \phi_m, \, \widetilde{P}_{\Sigma_{(m,r)}} + \beta_{(m,r)} + \psi_{(m,r)}}$	
	Computes: $\widetilde{P}_{\Sigma_r}$ and $\widetilde{\Gamma}_{\Sigma}$	