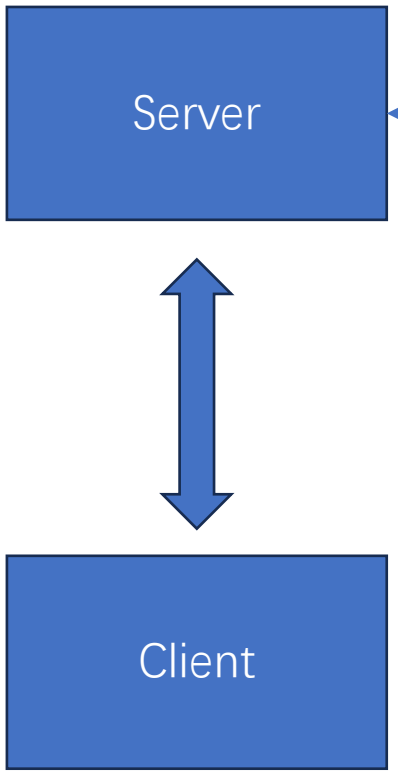

（1）聚合全局模型
（2）计算sigma
（3）更新bias

$$bias \mathrel{+}= lr * \frac{client\_model - global\_model}{sigma}$$

（4）下传client_model

$$client\_model = global\_model + bias * sigma$$

在Cifar100上表现：

FedBS	0.5696
FedAvg	0.3189
FedALA	0.5592

问题：是否收敛？
Bias更新方法正确性？

采用动量方法更新bias

$$bias = (1 - lr) * bias + lr * \frac{client\_model - global\_model}{sigma}$$

其他更新方法：$bias -= client\_model.grad * sigma$

结果：与FedAvg无明显区别

进一步考虑：分层，只对顶层采样

```
------------Round number: 2000------------

Evaluate global model
Averaged Train Loss: 0.0019
Averaged Test Accurancy: 0.5463
Averaged Test AUC: 0.9562
Std Test Accurancy: 0.0402
Std Test AUC: 0.0063
```