



Revisiting Ensembling in One-Shot Federated Learning

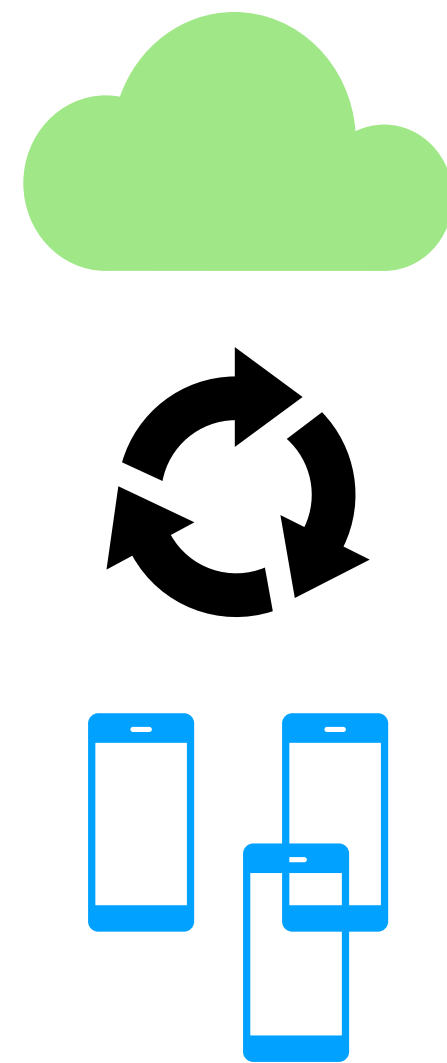
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Introduction

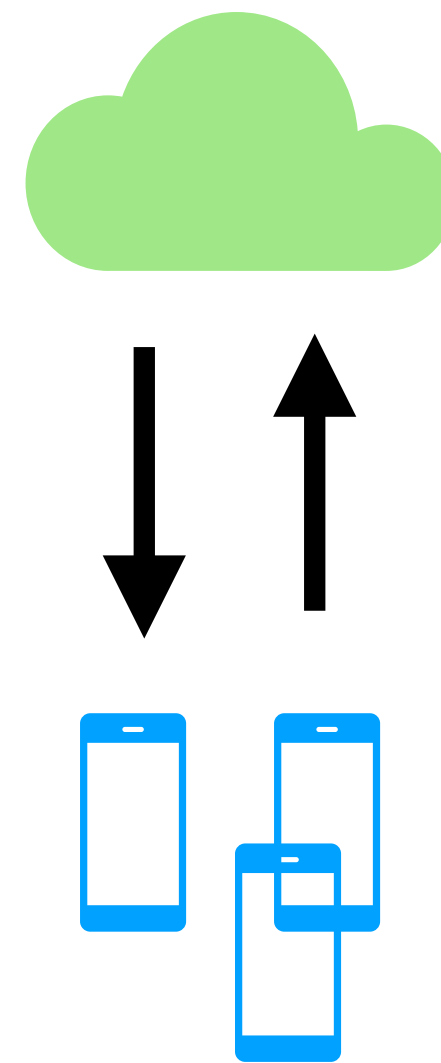
(Iterative) Federated Learning (FL)



Huge communication costs

Good accuracy

One-Shot Federated Learning (OFL)



Low communication costs

Not so good accuracy

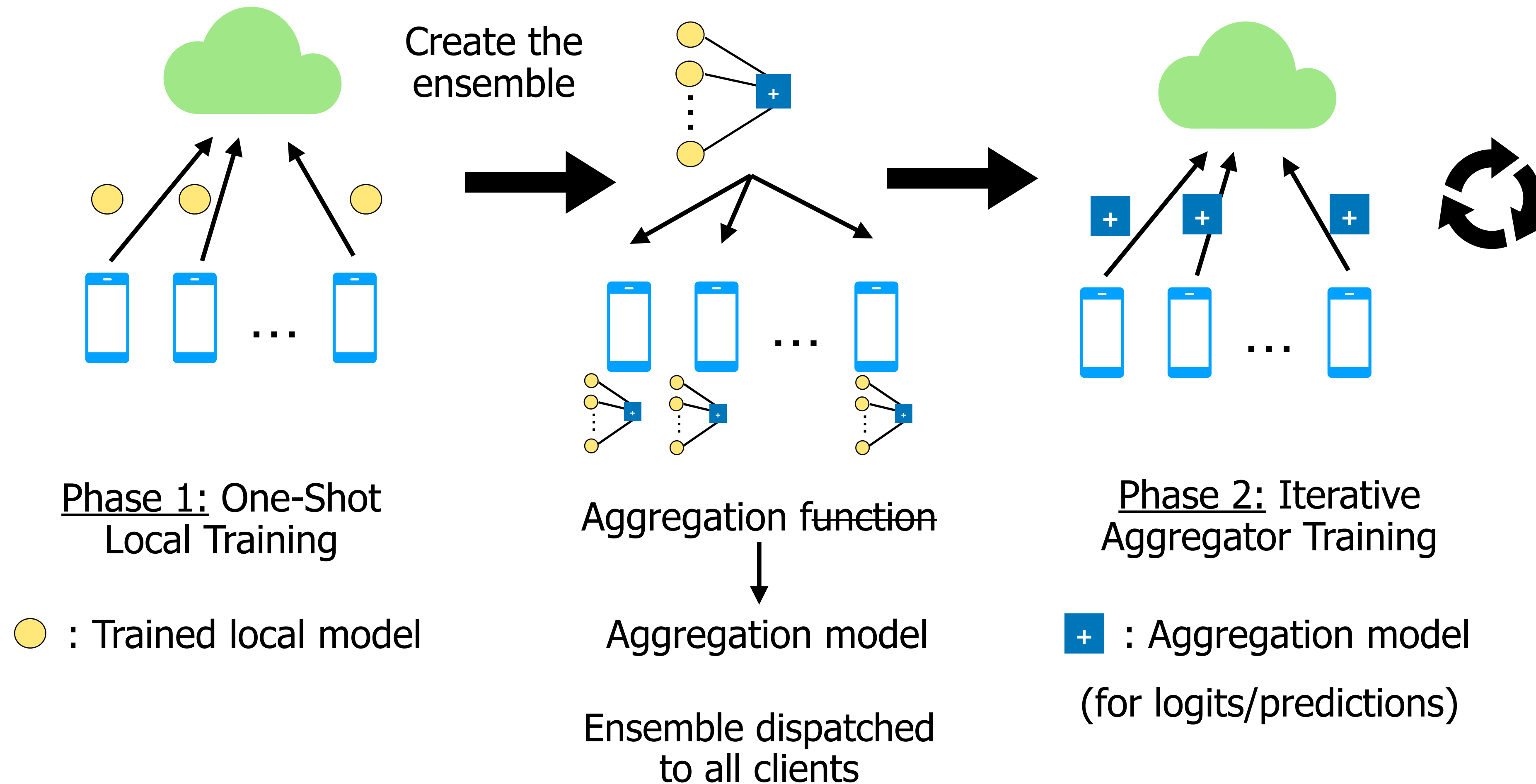
Fens: Hybrid of FL and OFL



Low communication costs

Good accuracy

Fens: Two Phase Learning



Fens: Important Characteristics

1

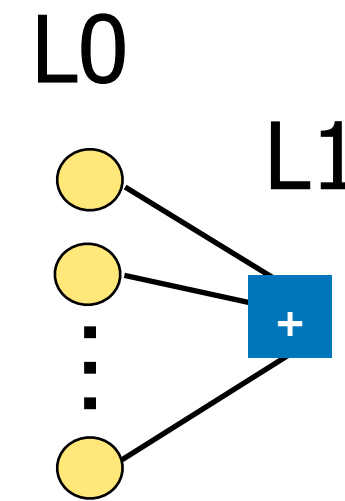
Key observation: a MLP suffices as the aggregator model

Size of Aggregator \ll Size of local model

Iterative training induces very low additional comm. cost

Low communication costs

2



D_1, D_2, \dots, D_M

90% $D_1^{lt}, D_2^{lt}, \dots, D_M^{lt}$

10% $D_1^{at}, D_2^{at}, \dots, D_M^{at}$

Stacked Generalization [Wolpert, 1992]

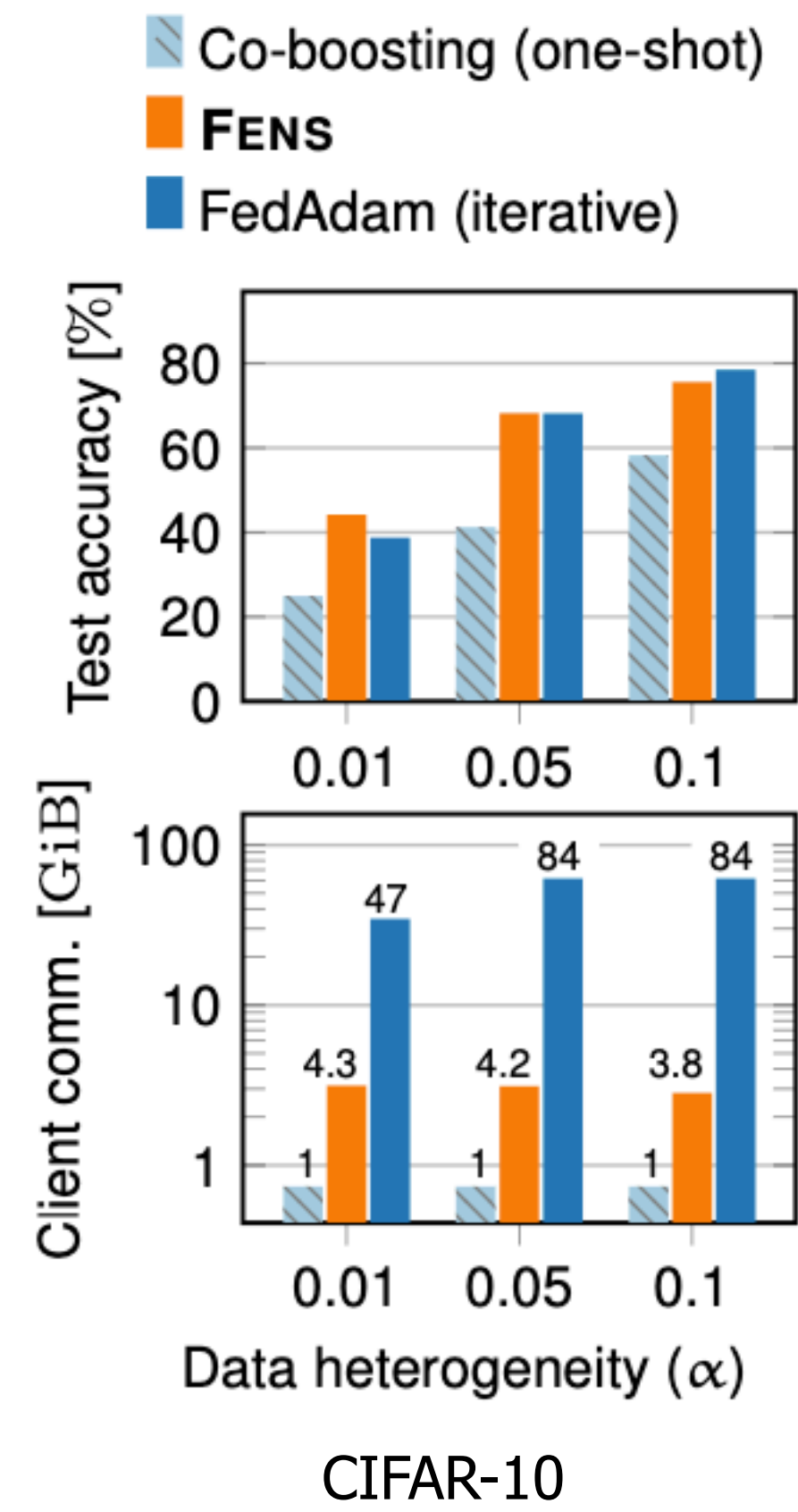
Level 1 (L1) generalizers correct the biases of Level 0 (L0) generalizers

Higher accuracy than standard OFL

Results

Fens vs OFL and FL

Accuracy properties of FL
with communication
properties of OFL



Please checkout our paper for more experiments and results!

THANK YOU !