

## IntelloT component available for OC #2 integration - Details

<b>Name</b>	Resource-Aware Training and Inference
<b>Responsible partner(s)</b>	University of Oulu (UOULU)
<b>Brief description</b>	<p>This component offers resource-aware federated learning for Agriculture and Manufacturing scenarios as a future extension when multiple tractors and multiple manufacturing plant edges are to be collaborated. At any given time, the coordinator xApp schedules workers based on the reported computation and communication capabilities. Once the worker receives the scheduling decision along the global AI model, the worker xApp carryout local model training and uploads the local AI model. This training is repeated until the learning period ends. During inference, worker offloads the computation task to the coordinator based on the tradeoff between the available local computing resources and delay of offloading.</p>
<b>Interfacing (I/O)</b>	API interaction with coordinator and worker are to exchange computing and communication resource availability as well as local/global AI models.
<b>Main interactions</b>	<p>Coordinator receives local AI models and resource availability from workers.</p> <p>Worker receives scheduling decisions and global AI model.</p>
<b>Deployment</b>	Can be deployed as an edge service.
<b>Licensing</b>	Proprietary
<b>Deliverable references</b>	Please refer to deliverable D2.6 - <b>“High level architecture (final version)”</b> , Section 2.2.1 “Collaborative IoT Enablers” for more details regarding interfacing with the coordinator and worker & deliverable D3.2 - <b>“Distributed AI algorithms &amp; methods (first version)”</b> , section 2.1 “Federated Learning Framework”, for more details on the design and development of the component.

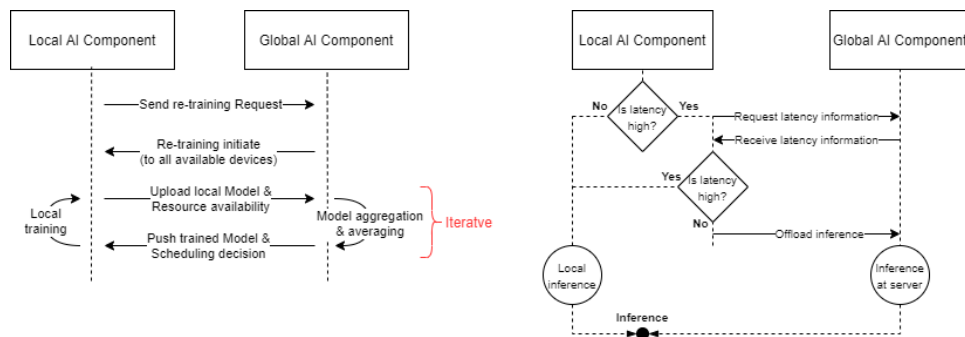


Figure 1. Processes and interactions of training (left) and inference (right)

