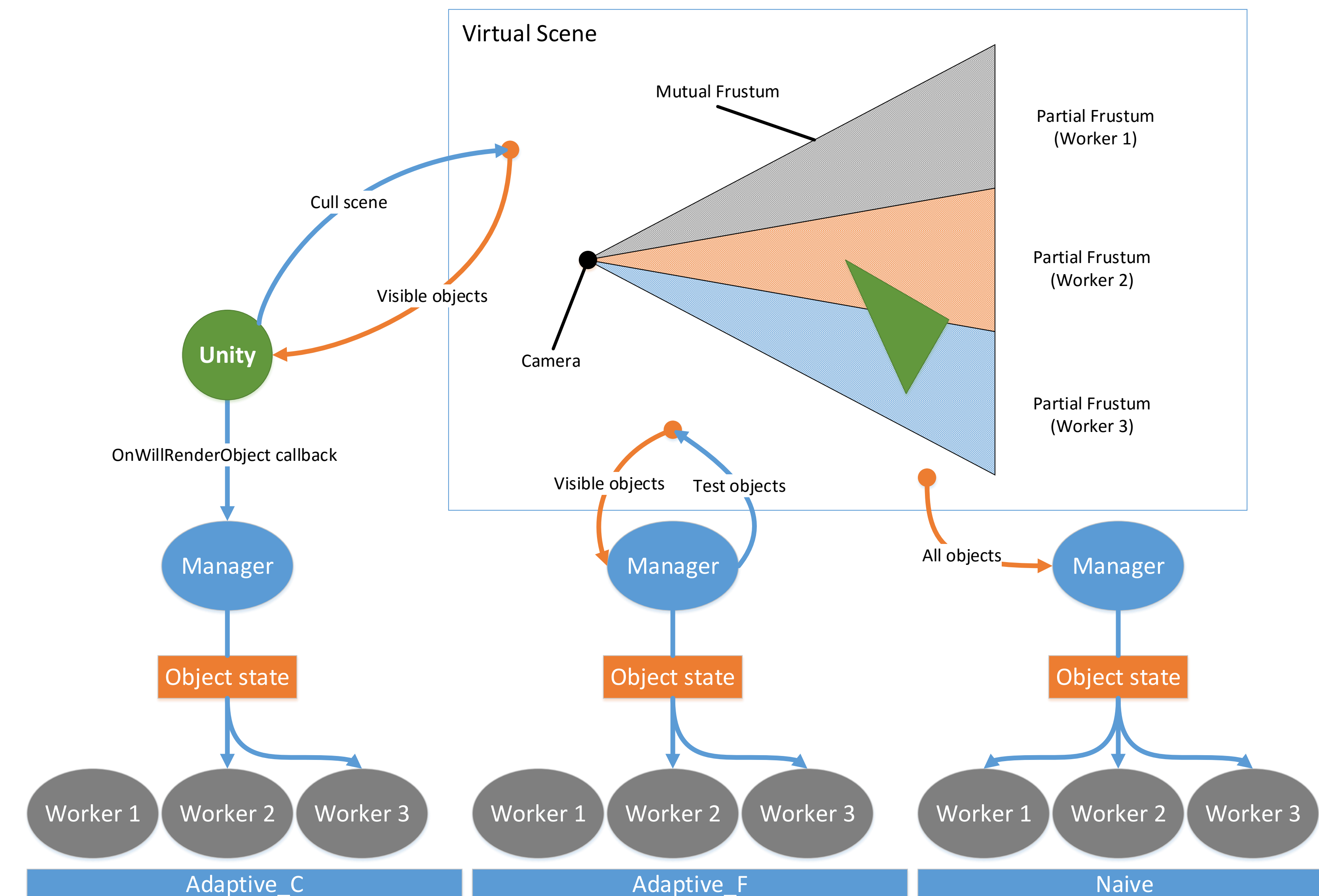


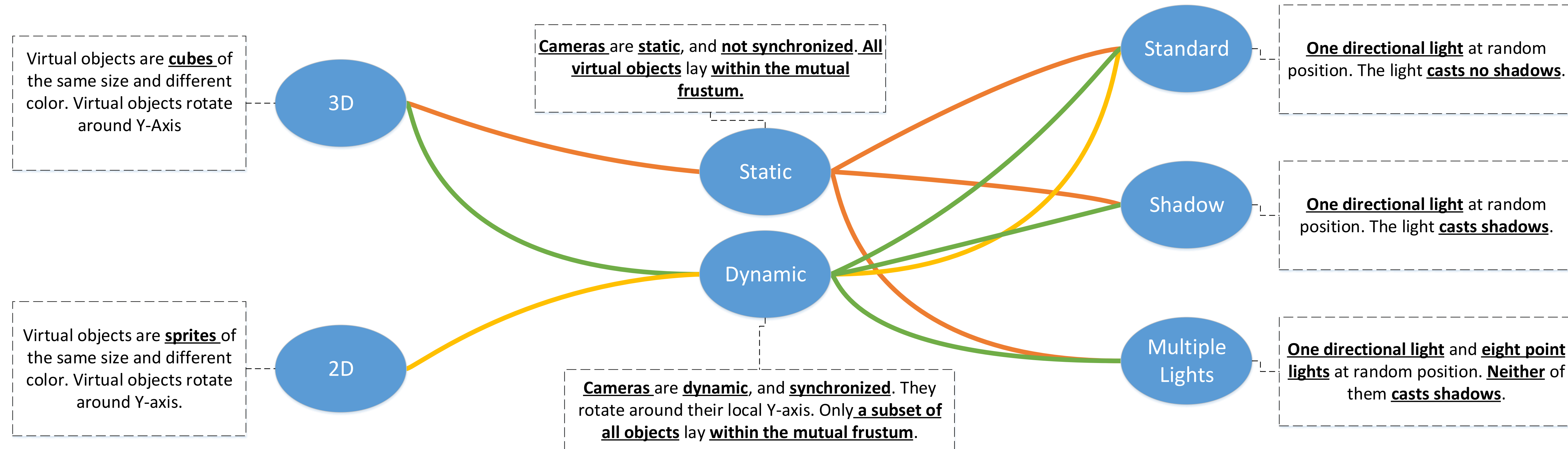
Distributed Unity Applications: Evaluation of Approaches

Approaches



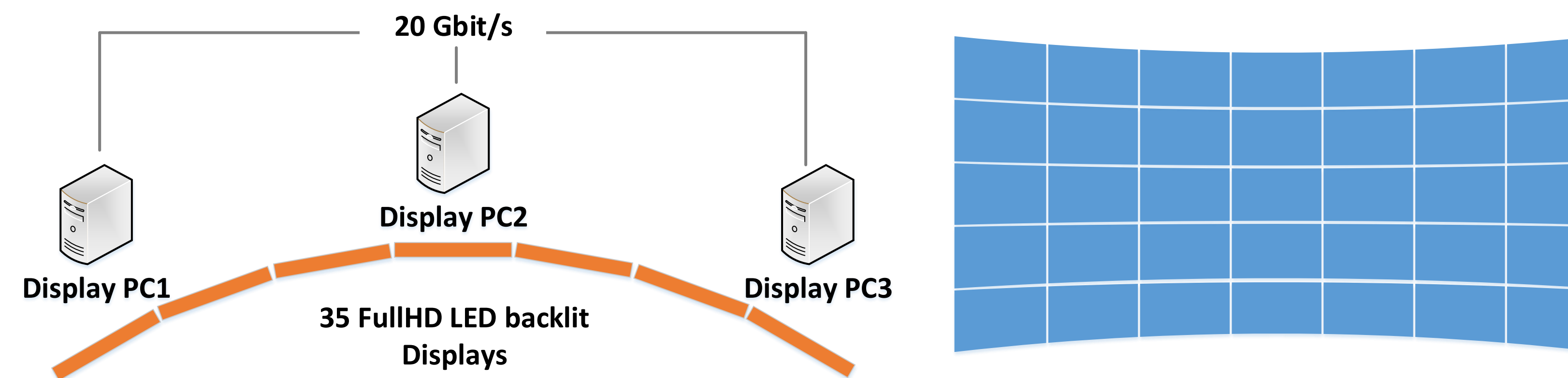
- | Adaptive_C | Adaptive_F | Naive |
|--|---|--|
| <ul style="list-style-type: none"> • Selective synchronization: uses Unity callback <i>OnWillRenderObject</i> to determine object's visibility for the worker instances • Low integrity level (e.g. shadows issues) • Low network overhead • High overhead on the manager instance • Depends on number of application instances | <ul style="list-style-type: none"> • Selective synchronization: tests objects against each frustum • Low integrity level (e.g. shadows issues) • Low network overhead • High overhead on the manager instance • Depends on number of virtual objects and number of application instances | <ul style="list-style-type: none"> • Broadcast: all states to all instances • Highest integrity level • High network overhead • Low overhead on the manager instance • Depends on number of virtual objects and number of application instances |

Evaluation Scenarios

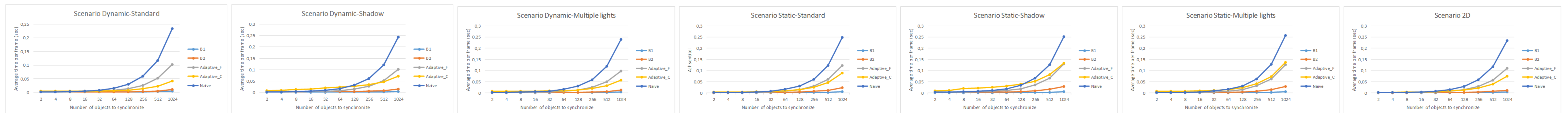


Evaluation Hardware Setup

The evaluation was performed using a large curved tiled display wall comprising 35 LCD displays, ordered through a seven (column) by five (row) grid. Each of the columns has a relative angle difference of 10 degrees along the Y-axis to adjacent columns, as such creating a slight curvature. The LCD displays are 46" panels with a 1080p resolution, resulting in a total of 72 megapixels. The installation is driven by a cluster of three PCs, each equipped with three GeForce GTX 780 Ti, providing a total of twelve outputs per PC.



Results



Institutions

Universität
Rostock



Traditio et Innovatio



Hochschule
Bonn-Rhein-Sieg
University of Applied Sciences

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