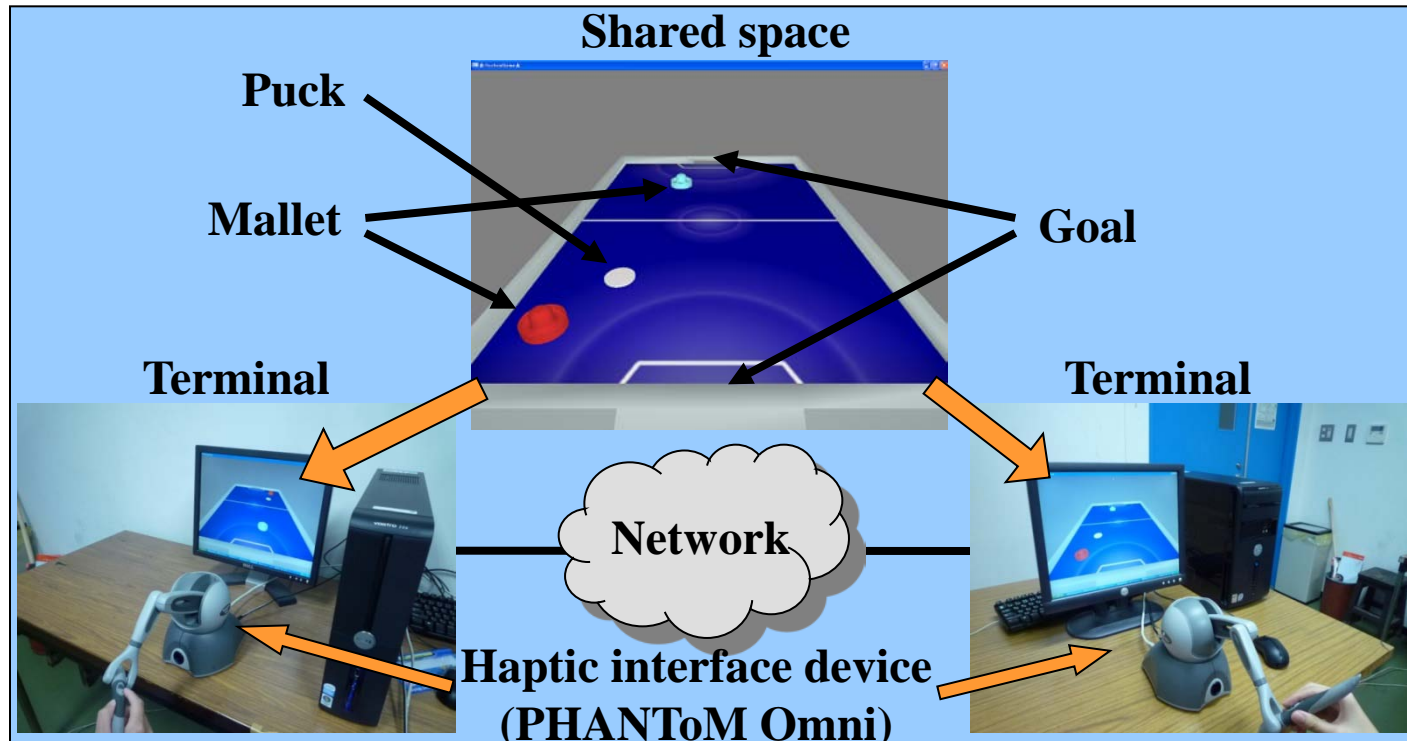


QoE Assessment in Networked Air Hockey Game with Haptic Media

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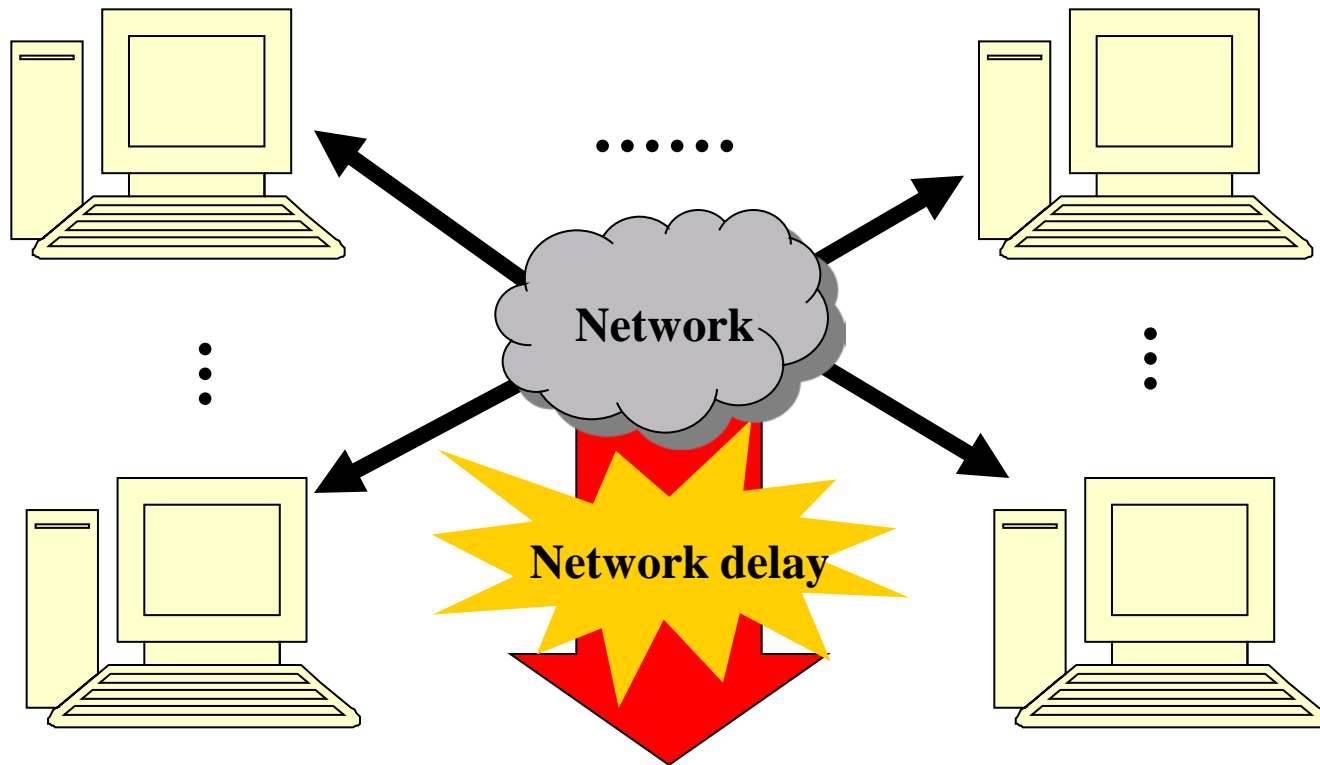
We investigate the influence of network delay on QoE (Quality of Experience). Assessment results show that warps of the puck occur more frequently as the network delay increases.



Configuration of system of networked air hockey game with haptic media

Background

It is expected that using haptic media in networked real-time games gives players a higher sense of immersion.



The consistency and causality may be disturbed.



Purpose

referred to as
Adaptive DR + Adaptive Δ

Previous work

Adaptive Δ -causality control scheme with adaptive dead-reckoning is superior to eight other schemes in terms of consistency among players for a networked racing game.

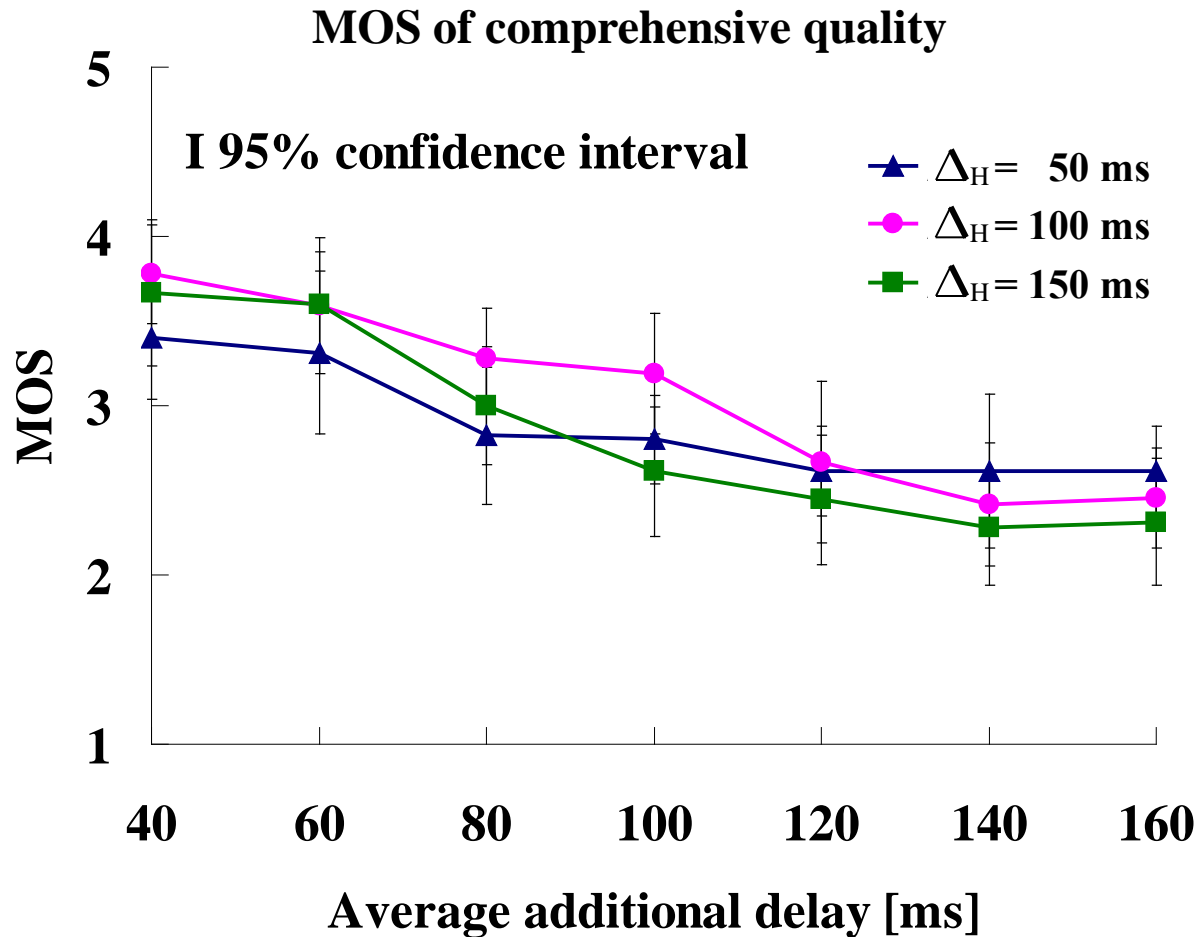
Problem

The scheme is not employed in networked real-time games with haptic media, and QoE assessment for the scheme is not carried out.

This study

We employ Adaptive DR + Adaptive Δ in a networked air hockey game with haptic media, and clarify the influence of network delay on QoE.

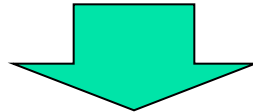
Assessment Results



As the average additional delay becomes larger, the owner of the puck may be more frequently different between the terminals. By eliminating the difference, a warp of the puck occurs.

Conclusions

We investigated the influence of network delay on QoE in a networked air hockey game with haptic media.



- As the network delay becomes larger, QoE deteriorates.**
- We should set $\Delta_H = 100$ ms when the network delay is smaller than about 120 ms.**

Future Work

- We will carry out the experiment with large-scale networks.**
- We will also study a strict decision method of the owner of the puck.**

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