

Multipath Communication Gateway for Optimized Automotive Data Offloading

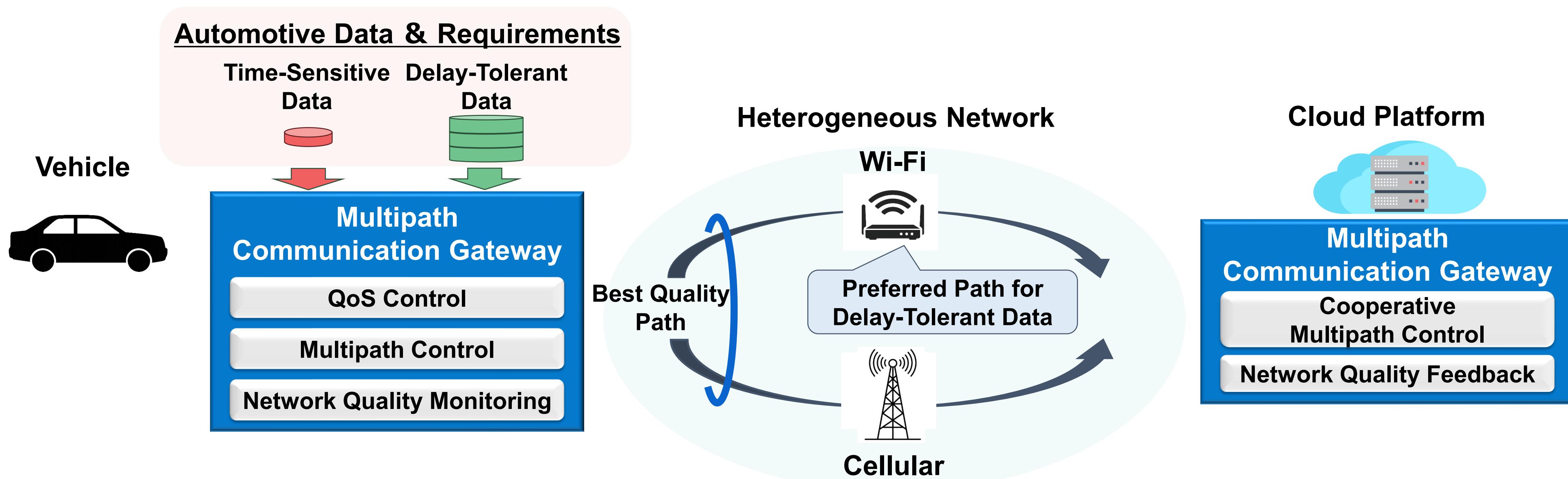


NTT

Goal

Enable efficient offloading of data with diverse requirements across heterogeneous wireless networks through **intelligent multipath communication and QoS control based on network quality and data characteristics.**

Concept & Architecture

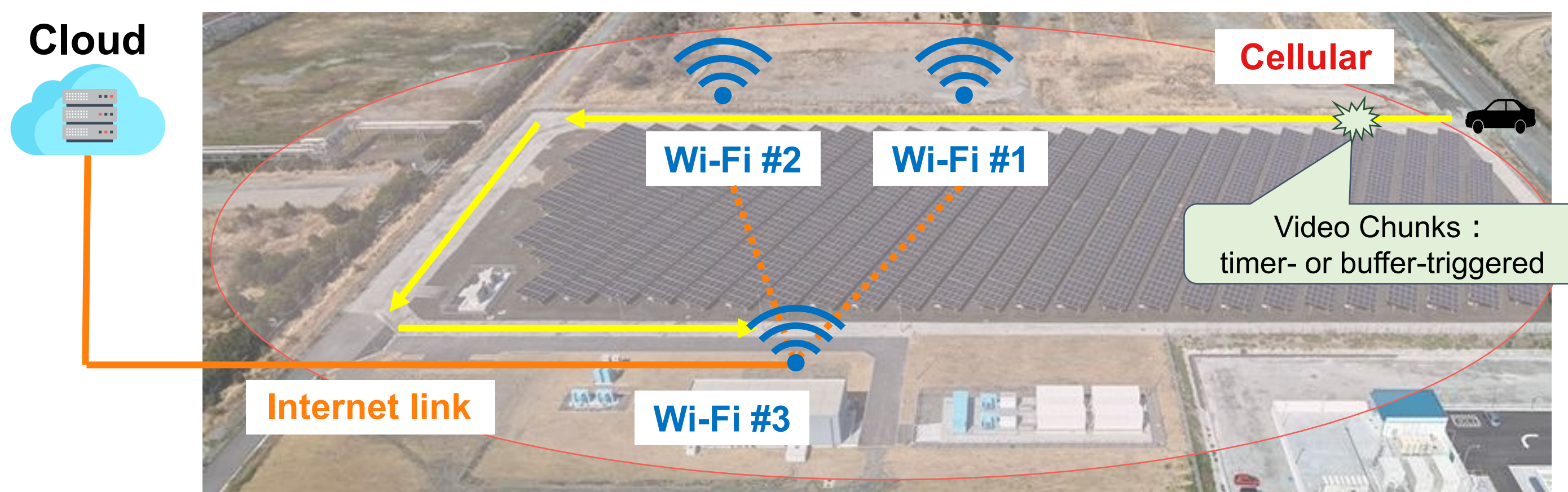


PoC Trials

PoC Test Environment

Time-Sensitive Data : Vehicle Data (CAN bus), 6 kB every 3 s

Delay-Tolerant Data : Video Chunks, 5 MB every 5 s



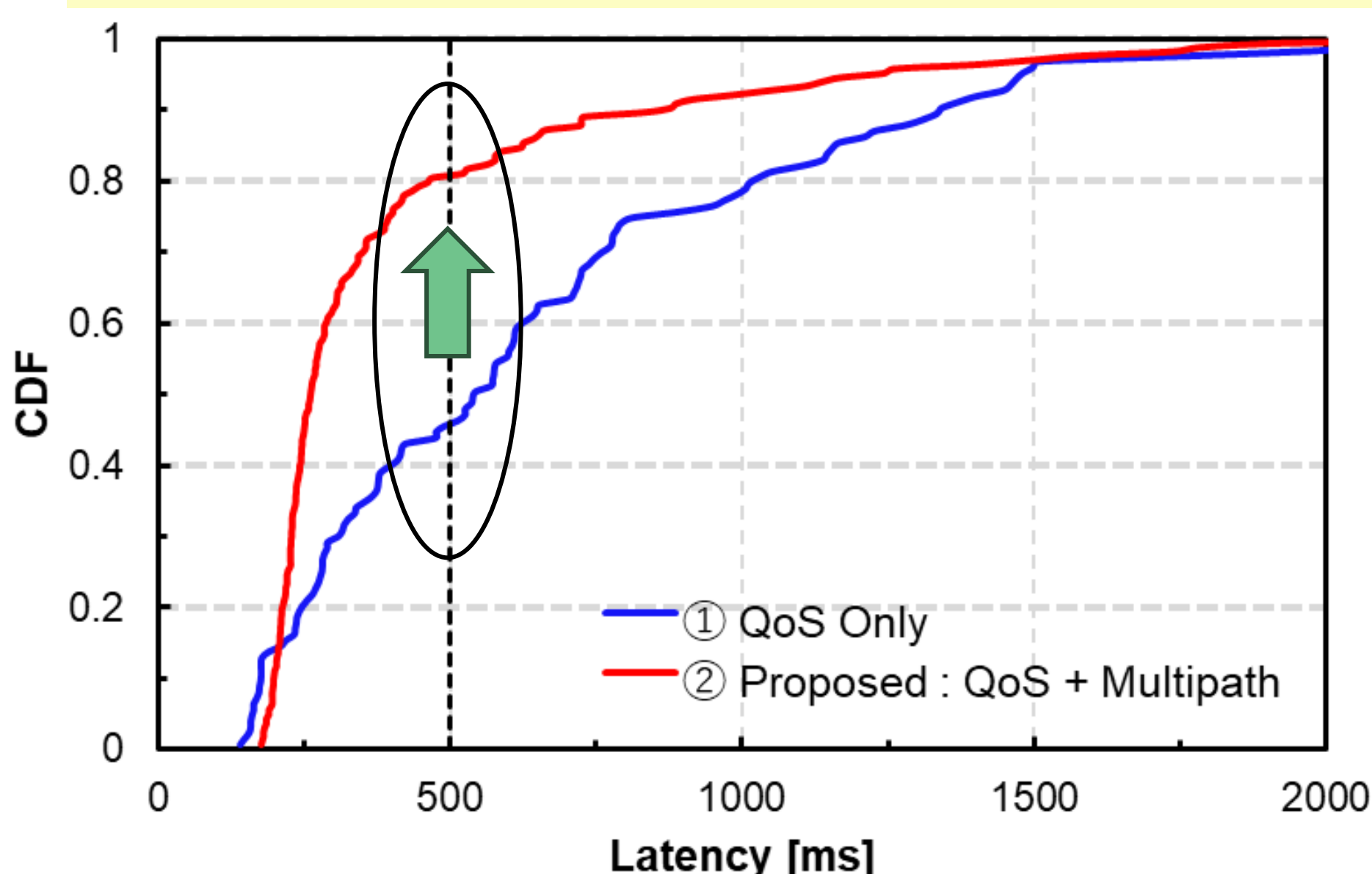
Test Environment



Test vehicle

Latency comparison

- ✓ QoS enables transmission of Time-Sensitive Data.
- ✓ Multipath further improves <500 ms compliance through Wi-Fi offloading (76.2%), enhancing resource efficiency.



CDF of Time-Sensitive Data Latency

- ① [QoS Only] Cellular Only (QoS Enabled)
- ② [Proposed : QoS + Multipath] Cellular + Wi-Fi Offloading (QoS Enabled)

		Latency Metrics			
		condition	<500ms (%)	p50 (ms)	p95 (ms)
Time-Sensitive data	①		45.5	545.0	1495.4
	②		79.9	263.0	1256.6
Delay-Tolerant Data*	①		—	11281.5	15945.8
	②		—	16979.0	30156.1

*Latency is not a primary metric