

Experimental Validation

This section demonstrates the practical viability of CIF’s formal mechanisms through empirical evaluation across production multiagent architectures. We present experimental setup (sec:exp-setup) and key findings (sec:key-findings). Detailed statistical analysis, ablation studies, and scalability metrics are provided in

sec:statistical-validation, sec:sensitivity, sec:extended-ablation.

Reproducibility: Evaluation data generated by `scripts/run_full_evaluation.py` → `output/data/full_evaluation_results.json`. All results use deterministic seed=42.

Experimental Setup

Target Architectures

We evaluated CIF across six production multiagent systems representing diverse architectural patterns:

Table 1: Multiagent system architectures evaluated.

System	Architecture	Communication
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