FIG. 4 - FEDERATED LEARNING FOR PROTOCOL OPTIMIZATION

MULTI-INSTITUTIONAL FEDERATED AI LEARNING

400 INSTITUTION A

402 Local AI Agent Protocol Selector

404 Transaction Data (Private/Local)

406 Model Parameters (Shareable)

408 INSTITUTION B

410 Local AI Agent Protocol Selector

412 Transaction Data (Private/Local)

414 Model Parameters (Shareable)

416 INSTITUTION C

418 Local AI Agent Protocol Selector

420 Transaction Data (Private/Local)

422 Model Parameters (Shareable)

424 **SECURE AGGREGATION**
Privacy-Preserving Parameter Sharing

Model Updates

Model Updates

426 **GLOBAL AI MODEL**
Optimized Protocol Selection Intelligence

428 **FEDERATED LEARNING BENEFITS**

• Privacy: No raw data sharing between institutions
• Collective Intelligence: Learn from all experiences
• Regulatory Compliance: Data stays local
• Improved Accuracy: Larger effective dataset