

Modality Architecture Cheat Sheet

Synchronous, store-and-forward, and RPM side by side - three products, three architectures.

SYNCHRONOUS - the conversation

clock: milliseconds

Pipeline & budget

Patient app <-> SFU + TURN <-> provider app; signaling as control plane. DTLS-SRTP on media. Budget: <=150 ms one-way audio (ITU-T G.114), <500 ms glass-to-glass. Cost center: bandwidth + reliability engineering.

Medicare & 2026 codes

Statutory telehealth - SSA 1834(m), 42 CFR 410.78. Two-way real-time audio-video required; audio-only at home needs modifier 93 and video capability. Flexibilities through 2027-12-31 (CAA 2026); behavioral at home permanent.

PHI hotspot & classic mistake

PHI in transit, plus recordings if you keep them. Classic mistake: shipping without TURN capacity and reconnection logic - a dropped consult is a clinical event, not an annoyance.

ASYNCHRONOUS (STORE-AND-FORWARD) - the queue

clock: hours to days

Pipeline & budget

Capture + validate -> encrypted store -> review queue -> clinician -> response. No real-time constraint; integrity and audit at every step. Cost center: clinician throughput (5 min/case = ~12 cases per clinician-hour).

Medicare & 2026 codes

Mostly NOT statutory telehealth (AK/HI demos only, 410.78(d)). CTBS codes: G2010 - reply within 24 business hours; 99421-23 - 5-10 / 11-20 / 21+ min over 7 days. 40 state Medicaid programs reimburse S&F (CCHP Fall 2025).

PHI hotspot & classic mistake

PHI at rest: a long-lived archive of diagnosable images. Classic mistakes: photos in a storage bucket no BAA covers; no blur/exposure validation at capture - bad images surface a day later.

REMOTE PATIENT MONITORING - the pipeline

clock: continuous

Pipeline & budget

Device (FDA 201(h)) -> BLE/cellular gateway -> ingest (IEEE 11073 -> FHIR Observation) -> time-series + day counter -> rules -> alerts. Cost center: the device fleet, ~\$10-20 per patient-month.

Medicare & 2026 codes

Care management, not telehealth. 99453 setup; 99454 supply 16-30 days; NEW from 2026-01-01: 99445 supply 2-15 days, 99470 first 10 min; 99457/99458 20-min tiers. Automatic transmission; established patient.

PHI hotspot & classic mistake

PHI across the device supply chain - every hop may need a BAA. Classic mistake: counting readings instead of distinct reading-days per 30-day window - it decides 99445 vs 99454.

Hybrid rule

Share identity, consent, the patient record, and the audit log - keep the three pipelines separate services. Escalation paths are explicit: async intake -> live visit on red flags; RPM anomaly -> scheduled consult; live visit -> async follow-up queue.