

Cloud, Edge, Telecom, Hardware, Media, and Web Research Annex

Evidence-bounded research posture for browser-local compute, accelerated edge inference, photonics, confidential compute, decentralized infrastructure, RAN automation, and network slicing.



Research adoption map

RES-006	Browser-Local WebLLM: Architecture, Constraints, and WebGPU PILOT	A-
RES-018	NPU Integration and Local Inference Acceleration ADOPT HARDWARE-ABSTRACTION STRATEGY	A-
RES-020	Silicon Photonics and Chip-to-Chip Optical Interconnects MONITOR AND PARTNER PILOT	A-
RES-023	Trusted Execution Environments: TDX, SEV-SNP, and Remote CONDITIONAL ADOPTION	A-
RES-025	Decentralized Physical Infrastructure Networks (DePIN) Compute MONITOR - DO NOT USE FOR SENSITIVE WORKLOADS	B-
RES-027	AI-Driven Radio Access Networks (RAN) and vRAN Orchestration MONITOR AND TELECOM PILOT	B+
RES-028	5G/6G Network Slicing and QoS Enforcement ADOPT 5G CONTROLS; MONITOR 6G	A-

Claim -> authority -> experiment -> evidence -> decision



No research result becomes a production guarantee. Every adoption decision remains bounded by the tested implementation, source freshness, environment, evidence period, and stated limitations.

REVALIDATION

90-180d

Review faster when specifications, hardware support, threat models, browser/runtime behavior, or telecom releases change.

FAIL-CLOSED RULE

NO INFERENCE

Unknown maturity, stale evidence, or unsupported deployment context blocks stronger readiness claims.

Where the research changes engineering decisions

WEB

WebGPU/WebLLM constraints determine browser-local model size, storage, isolation, and fallback.

HW

NPU, photonics, and TEE evidence shape accelerator placement, trust, memory, and interconnect design.

CLD

Confidential compute and DePIN findings constrain cloud sovereignty and sensitive-workload placement.

TEL

RAN automation and slicing research govern what can be automated, isolated, measured, and safely piloted.

EDGE

Local inference and remote-site constraints define degraded modes, sync, update, and resource budgets.

Boundaries on interpretation

- Research reports are not certifications, procurement approvals, legal opinions, or vendor guarantees.
- Hardware and browser behavior must be reproduced on the deployed platform and version.
- Telecom standards and 6G work remain release- and implementation-dependent; speculative capability is labeled as such.
- Performance results require workload, hardware, model, runtime, topology, and configuration disclosure.
- Security claims require threat-model alignment and direct evidence of enforcement, not feature presence alone.