5G-WIFI OFFLOADING / OPERATOR CONVERGENCE

Expand the experience. Connect beyond cellular.

A flexible WiFi access layer for indoor capacity, subscriber onboarding and operator service integration.



Bring WiFi into your operator service strategy.

TELCOSIS develops a controllable, multi-vendor WiFi access and management layer. Work with operator identity, policy and gateway systems to evaluate the right offload model for each deployment.

01

Indoor experience

Complement mobile access in busy venues with planned WiFi coverage and capacity.

02

Subscriber access

Explore profile-based authentication and repeat-visit onboarding for eligible devices.

03

Service visibility

Correlate access, identity and traffic records to measure experience and offload value.

Integration & PoC workstream. Access model, supported devices and operator responsibilities are agreed per pilot.

ARCHITECTURE & INTEGRATION

Three access models. One clear integration boundary.

TELCOSIS Controller | WiFi configuration, telemetry & APIs

Management plane across compatible APs; external identity and gateway functions remain distinct.

A / WIFI INTERNET BREAKOUT

USER TRAFFIC

Client + WiFi access → **Local / operator gateway** → **Internet / applications**

Start with indoor coverage and capacity. Operator identity may govern access; user traffic does not need to enter the 5G Core.

B / FEDERATED ONBOARDING

AUTHENTICATION

WiFi access provider → **Federation / AAA routing** → **Identity provider**

Evaluate Passpoint-based onboarding with WBA OpenRoaming participants. This is an identity path, not a 5G user-plane route.

C / NON-3GPP ACCESS TO 5GC

USER TRAFFIC

Compatible UE + WiFi → **N3IWF or TNGF** → **Operator 5G Core**

Select N3IWF for untrusted access or TNGF for trusted access. UE, interworking gateway and core functions must support the chosen model.

Assign ownership before integration.

TELCOSIS: compatible WiFi AP management, firmware integration and operational visibility.
Operator / partners: identity, entitlement, interworking gateways, 5GC and service policy.

Logical alternatives for PoC design. TELCOSIS Controller is not assumed to provide N3IWF / TNGF. WBA membership does not imply an implemented OpenRoaming service.

TECHNICAL CAPABILITIES & POC SCOPE

Engineer the access. Validate the subscriber journey.

Combine a configurable WiFi foundation with a defined client, identity and operator-network integration plan. Advanced functions are selected and validated in the agreed PoC.

WiFi access layer	TIP OpenWiFi / OpenWrt foundation; TELCOSIS controller; compatible multi-vendor APs; cloud or on-premise management.
Radio & site design*	WiFi 6 / 6E / 7 options by hardware; band, channel, power and capacity planning for the venue and client population.
Subscriber onboarding*	Passpoint profiles and discovery; external AAA / RADIUS; EAP methods matched to operator credentials and device support.
Federation option*	WBA OpenRoaming integration evaluation: access-provider / identity-provider roles, trust, identity routing and onboarding.
5GC interworking*	External N3IWF or TNGF, compatible UE and operator core. N2 / N3 integration belongs to the interworking function.
Policy & service quality*	Eligibility, traffic separation, VLAN / QoS mapping and access preference. Policy behavior must be verified end to end.
Continuity & steering*	Session continuity or ATSSS only if explicitly scoped, with compatible UE, gateway and 5GC capabilities; not implied by WiFi 7.
Operations & accounting	AP / client telemetry, authentication events, session correlation and accounting integration; define counting points and retention.
Resilience & security*	Validate credential lifecycle, certificate trust, identity-service outage, gateway failure and WiFi degradation behavior.

* Subject to selected hardware, firmware, client OS / profiles, regulatory rules and operator integration. No automatic core interoperability, seamless handover or quantified capacity-saving claim is made.

MEASURE THE OUTCOME, NOT ONLY THE WIFI CONNECTION

Onboarding
Success rate, time to service and authentication failure causes

Experience
Goodput, delay, loss and application interruption

Offload value
Eligible traffic, adoption and service cost against a baseline

Start with one venue, one access model and a representative device set.

TELCOSIS Networks | Wireless Broadband Alliance Member
BUDOTEK, Dudullu Organized Industrial Zone, Istanbul, Türkiye

References: 3GPP TS 23.501 / ETSI V16.15.0, clause 4.2.8 / WBA OpenRoaming: How it works.
Architecture references do not imply TELCOSIS certification or native implementation. October 2026.