



Open Source Telecom Signaling

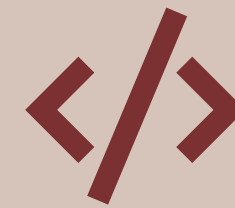
PAiCore GMMLC

Reigniting telecom innovation and sustainable profitability via open source signaling solutions

Who We Are

PAiCore Technology builds open-source telecom products (SMSC, DRA, USSD Gateway, RCS Application Server, Entitlement Configuration Server, Network API Gateway, and **GMLC**) and backs them with carrier-grade technical support.

A GSMA Member, PAiCore's products are deployed by mobile network operators, MVNOs, and system integrators worldwide, reducing telco infrastructure cost while keeping operators in full control of their network assets.



Open Source

Free, publicly available signaling products



GSMA Member

Standards-based, spec-compliant platforms



Global Deployments

LatAm, Africa, Asia, Europe



24/7 Technical Support

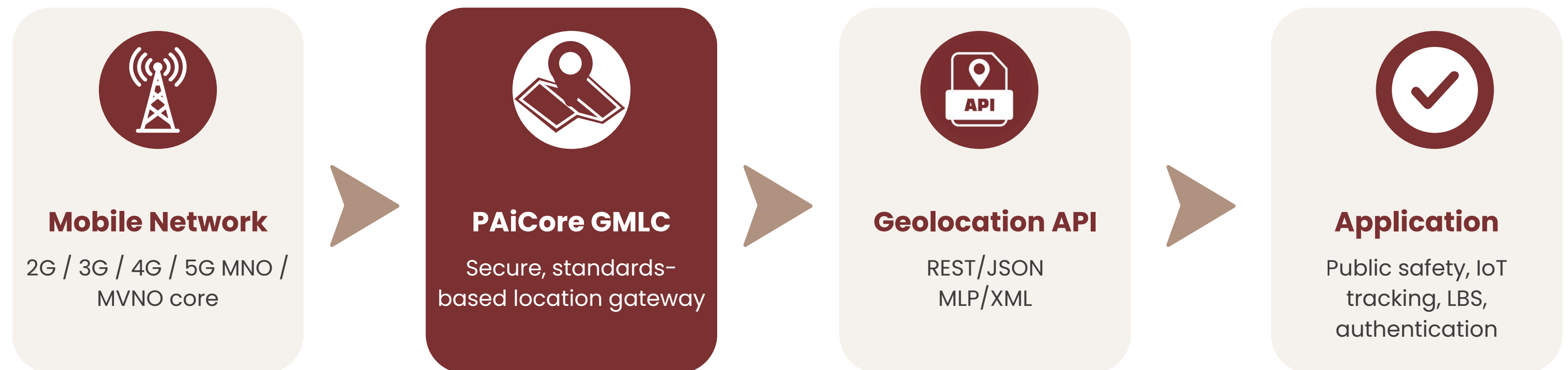
OPEX & CAPEX support plans



PAiCore GMLC

The Gateway Mobile Location Center (GMLC) provides secure, anonymous and standards-based access to subscriber location, using network-based positioning methods, without relying on smartphone apps or GPS tracking, and fully respecting user privacy.

Mobile operators hold one of the most powerful assets in digital services (location data), yet often struggle to monetize it safely. PAiCore's GMLC keeps operators in full control of how geolocation data is used and shared, enabling public safety alerts, IoT asset tracking, and location-based services (LBS).



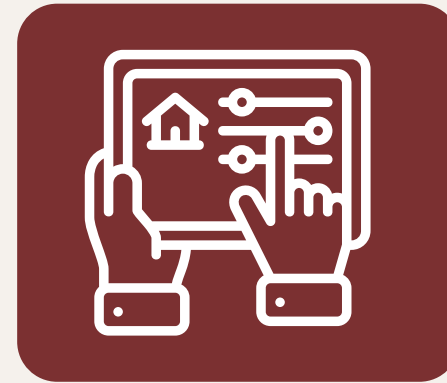
Full technical architecture, positioning-method support, and connectivity requirements are detailed in the Technical Appendix.

Key Features



Supports all 2G/3G/4G/5G positioning methods

Cell-ID, TA, OTDOA, A-GNSS, and every method in between — one platform for every network generation.



Enables network-based location data with full operator control

No reliance on smartphone apps or GPS tracking. Operators decide how geolocation data is used and shared.



Geofencing capabilities for alerts and reports

Trigger alerts at the Radio Access Network when a subscriber enters, stays in, or leaves a defined area.



Geolocation API: Supports REST/JSON and MLP/XML

Secure, anonymous access for third-party applications, ideal for emergency alerts and IoT tracking.

Recent Success Stories



Landasan Teknologi uses **PAiCore's GMLC** to deliver reliable and accurate location services, supporting security-focused location-based use cases with consistent performance.



MTN (via IPLook) deployed **PAiCore's GMLC** for a mission-critical national security service in one of their toughest to manage operations in Asia.

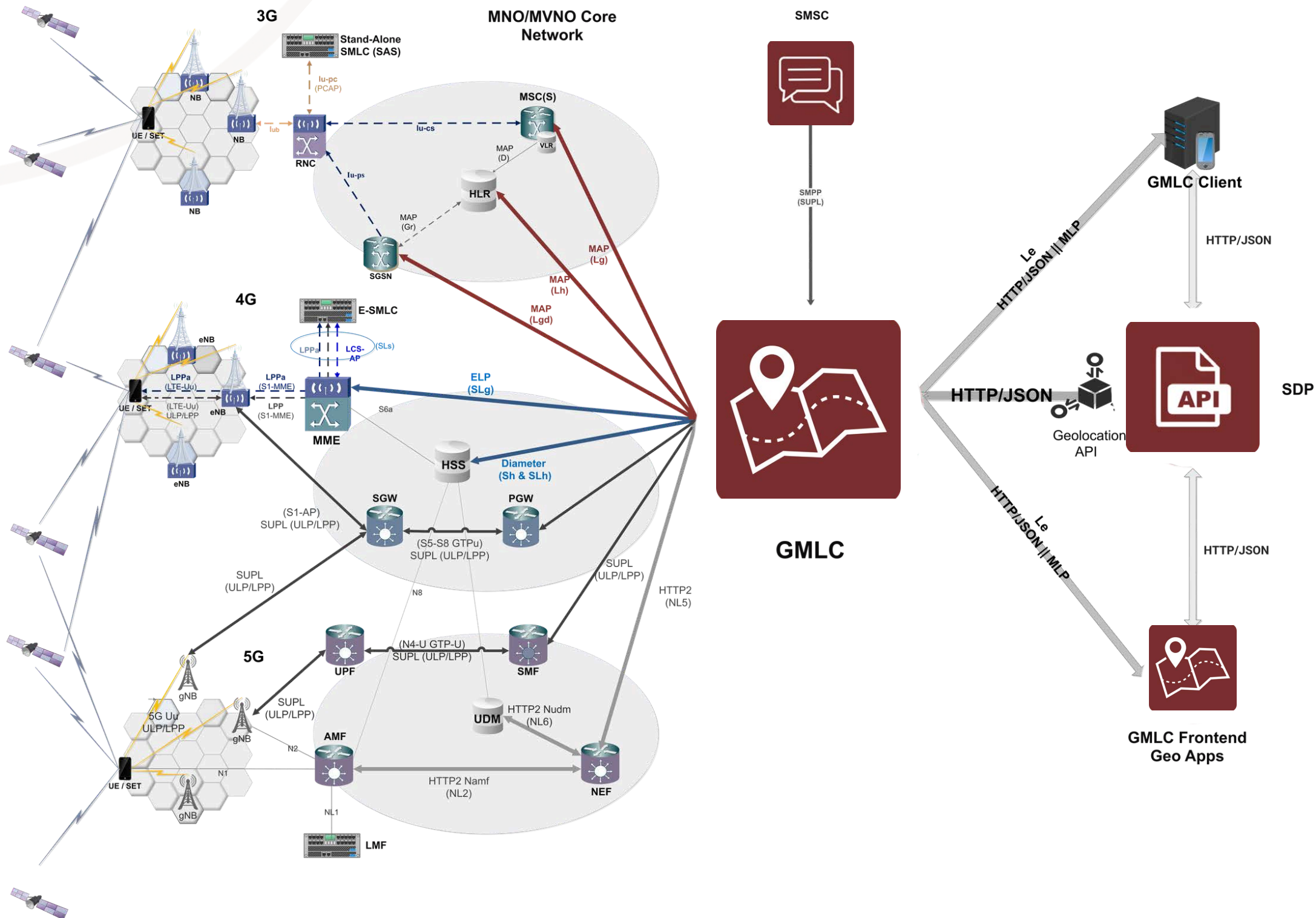


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Appendix – Technical Information

Architecture

Interconnection Points



Positioning Methods

POSITIONING METHOD	REQUIRES SMLC	TYPICAL ACCURACY
Basic Cell-ID	 No	100 – 1,500 m
Enhanced Cell-ID (ECID)	 Partially	100 – 1,500 m
Observed Time Difference of Arrival (OTDOA)	 Yes	50 – 150 m
Assisted GNSS (A-GNSS)	 Partially	< 50m
Uplink Time Difference of Arrival (U-TDOA)	 Yes	50 – 200 m
Enhanced Observed Time Difference (E-OTD)	 Yes	50 – 100m
Time Difference Of Arrival (TDOA)	 Yes	50 – 150m

POSITIONING METHOD	CHARACTERISTICS	COVERAGE
GMLC Alone	 < 5s	Basic location queries and responses with minimal processing.
GMLC + SMLC	 < 10s	Additional processing time for enhanced methods requiring SMLC calculations.
GMLC + SMLC + Enabled UE Features	 < 10s (outdoors) < 10s (indoors)	Time required for both network-assisted and UE-based calculations, including A-GNSS fixes and assistance data exchange.

Note: SMLC (Serving Mobile Location Centre) adds precision positioning support alongside the GMLC.

Connectivity & Deployment

TPS & Recommended HW

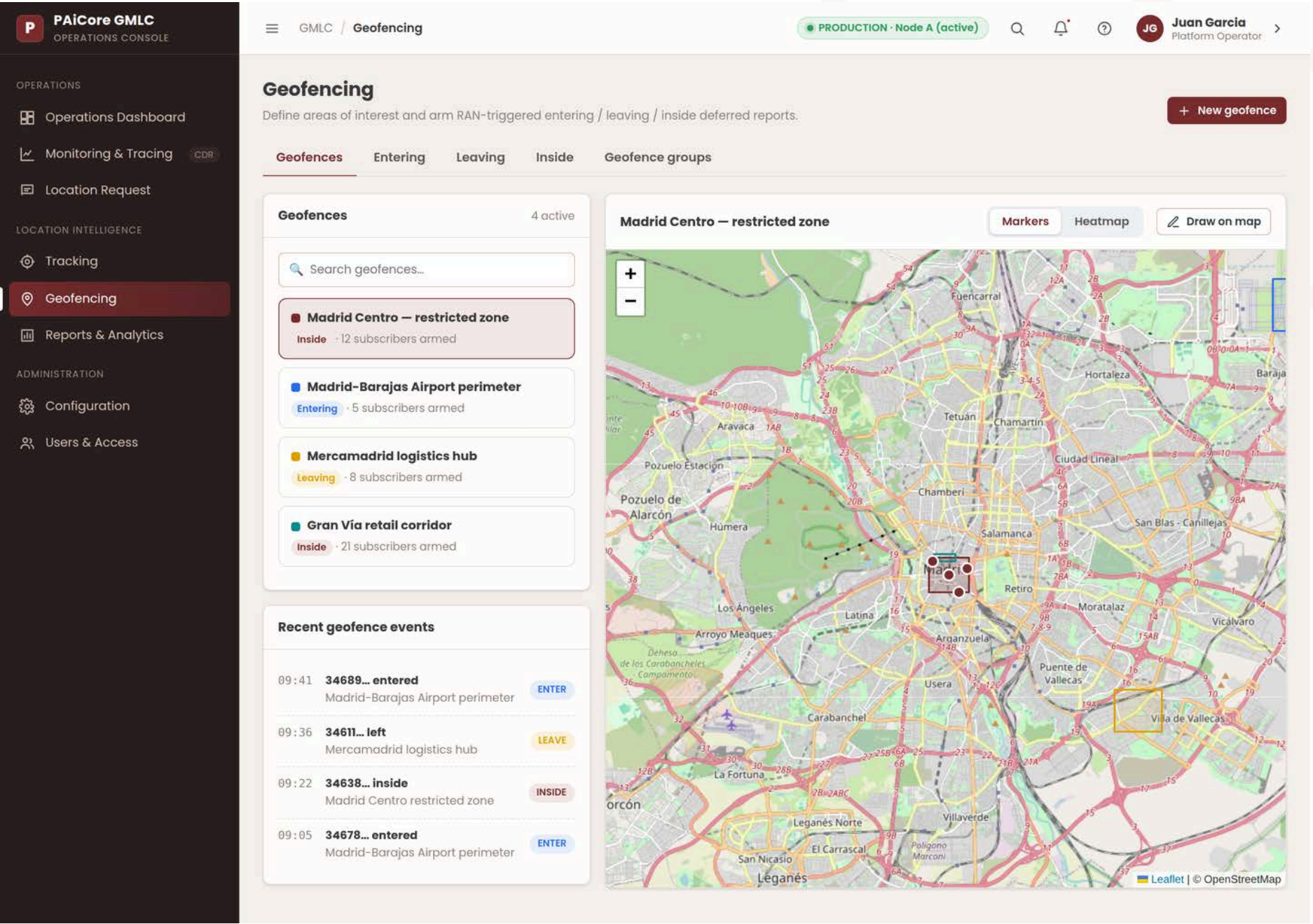
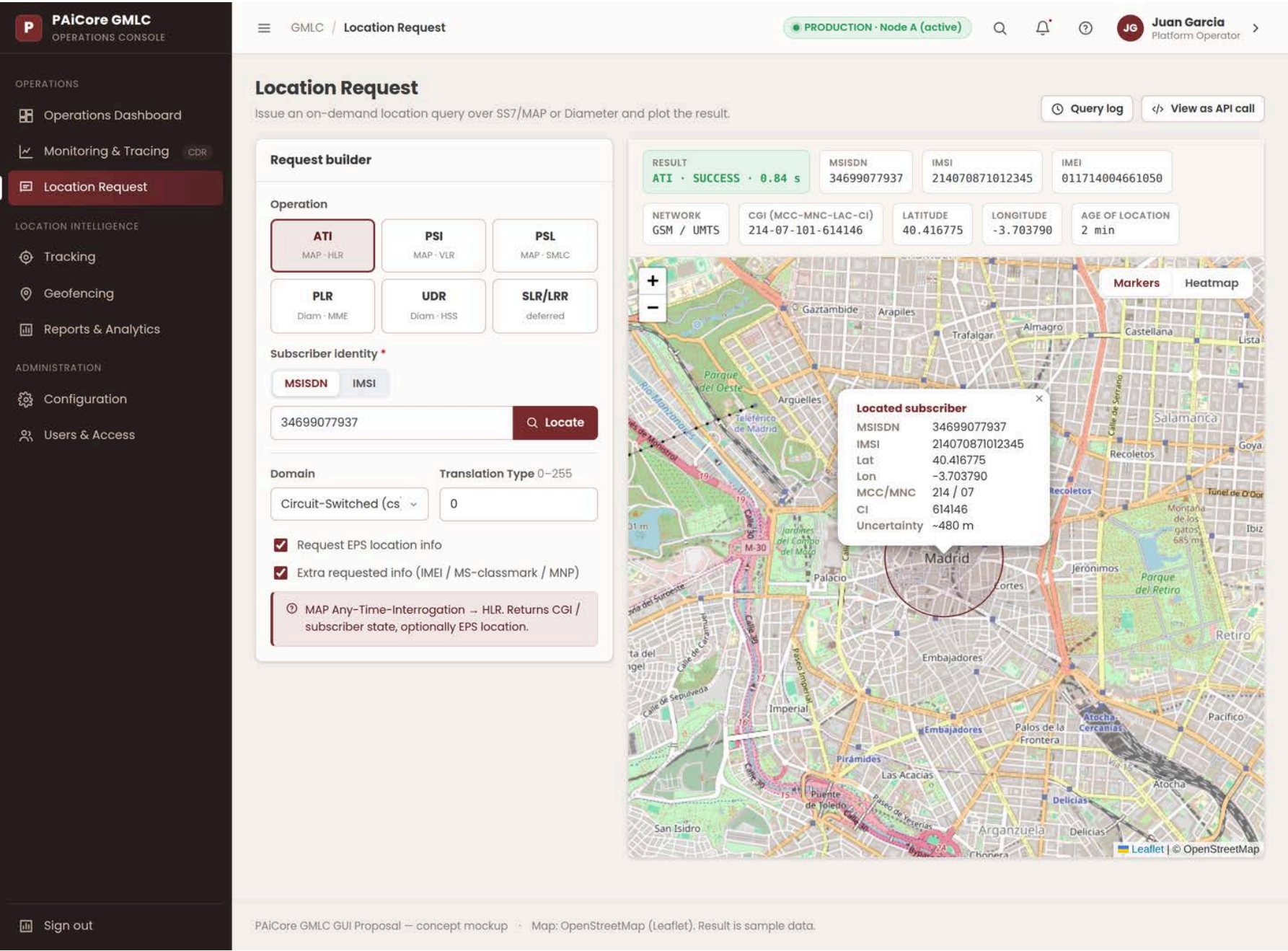
TPS Range	RAM	CORE	DISK	NETWORK	SAMPLE AWS INSTANCE
Up to 700 TPS	32 GB	8 (2.1 Ghz)	250 GB SSD	1 Gbps	m5.2xlarge

Supported Interconnection

- Diameter (SLh / SLg)
- SS7 / MAP
- SIGTRAN (SCTP/M3UA)
- SUPL
- HTTP/1.1 & HTTP/2

PAiCore's software products are fully tested and optimized for AWS EC2 deployment, and compatible with any Linux-based virtual environment. Detailed interconnection parameters (Host/Peer IPs, realms, ports, SIGTRAN routing context, and TLS/SUPL certificates) are provided during technical onboarding.

PAiCore GMLC GUI



PAiCore GMLC

OPERATIONS CONSOLE

OPERATIONS

Operations Dashboard

Monitoring & Tracing

Location Request

LOCATION INTELLIGENCE

Tracking

Geofencing

Reports & Analytics

ADMINISTRATION

Configuration

Users & Access

Sign out

GMLC / Operations Dashboard

PRODUCTION - Node A (active)

Juan GarciaPlatform Operator

Operations Dashboard

Live healthy, throughput and request outcomes across the GMLC location platform.

1h24h7d30d

Refresh

REQUESTS - 24H

48,217

+6.2% vs prev. period

SUCCESS RATE

98.4%

+0.3 pts vs prev. period

AVG RESPONSE

1.21s

-80 ms vs prev. period

ACTIVE DEFERRED

342

18 new vs prev. period

Location request throughput

by signaling protocol - last 24h

SS7 / MAPDiameter

Request mix

by operation

ATI

38%

PSI

14%

PSL

11%

PLR

22%

UDR

9%

SLR/LRR

6%

Signaling & peer health

Configure

SS7 / SIGTRAN — M3UA AS

OPC 1001 - 2 associations - loadshare

Up - 2/2

SCCP routing

GT 34609800123 - SSN 6/7/8/149

Healthy

Diameter peer — DRA

dra.simulator - Slg/Slh

Connected

Diameter peer — HSS

hss.simulator - Sh

Reconnecting

CDR sink — MongoDB

gmlc @ localhost:27017

Writing

Recent location requests

Open trace view

TIME	OPERATION	MSISDN	NETWORK	RESULT
09:41:07	ATI	34 699 077 937	GSM/UMTS	SUCCESS
09:41:02	PLR	34 678 102 345	LTE	SUCCESS
09:40:58	PSL	34 696 295 149	UMTS	SUCCESS
09:40:51	UDR	34 638 035 391	IMS	ABSENT_SUBSCRIBER
09:40:44	ATI	34 611 987 654	GSM	SUCCESS
09:40:39	PSI	34 622 345 678	UMTS	SUCCESS
09:40:31	PLR	34 678 200 211	LTE	POS_METHOD_FAILURE

Active alerts & events

2 warnings

09:38

Diameter Sh peer hss.simulator watchdog timeout — auto-reconnecting

09:12

Max activity count reached 78% (3,905 / 5,000 TCAP dialogs)

08:50

Configuration change applied: SCCP rule #14 updated by admin

08:31

Failover test completed — Node B standby verified

07:05

Nightly CDR export to GLaaS endpoint completed (48,102 records)

Active deferred reporting

armed triggers

Geofence (area event)

148

Periodic LDR

96

Motion event

61

UE available

37

PAiCore GMLC GUI Proposal — concept mockup

Sample data for stakeholder review

PAiCore GMLC

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Tracking

Follow subjects of interest over time, plot movement and schedule automated location runs.

Telegram alerts

Add subject

Tracking

Find meeting locations

Asset

Fleet

Family

Workforce

Live positions & movement

Markers

Trails

Heatmap

Tracked subjects

5

Po

Person of interest

34689123456 - seen 1 day ago

✓

TT

Asset - Truck T-04

34638035391 - seen 4 min ago

✓

VV

Fleet - Van V-12

34640040127 - seen 9 min ago

✓

AP

Family - A. Pérez

34699123400 - seen 2 min ago

✓

Fu

Workforce - Field unit

34601234567 - seen 21 days ago

✓

Automated tracking

From

07/28/2025

To

08/04/2025

Sampling interval

Every 5 minutes

Notify via Telegram on new position

✓

Clear

Schedule run

PAiCore GMLC GUI Proposal — concept mockup

Automated tracking = scheduled immediate/periodic location runs. Sample data.



Open Source Telecom Signaling

Offering reliable open source signaling solutions with high quality 24/7 technical support, delivering ownership of the technology & the freedom to innovate while eliminating unnecessary license fees.

