CYIENT | Nothing Less

Accelerate Your Autonomous Network Journey



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The urgency of now in the autonomous era

Around the world, telecom executives are confronting the same set of questions:

- How do we keep up with exploding network complexity while reducing operational costs?
- How do we deliver services faster, at scale, and with consistent quality?
- How do we leverage AI and automation without disrupting live operations?

The answer lies in our intelligent network modernization playbook underpinning the evolution toward autonomous networks, one that is capable of sensing, analyzing, deciding, and acting with minimal human involvement. Anchored in TM forum's AN maturity model (L0–L5), this progression leads to end to end autonomy.

For many **tier-1 communication service providers (CSPs),** the near-term transformation goal is to reach **level 4 (L4)** autonomy in selected high-value scenarios by 2025/26. At this stage, networks go beyond simply executing predefined tasks, they interpret business intent, resolve issues proactively, and apply continuous, AI-driven optimization across domains to improve performance, reduce costs, and enhance energy efficiency.

With **150+ TM forum–certified AN experts,** Cyient understands that reaching L4 autonomy requires more than deploying advanced tools. It demands a holistic intelligent network modernization strategy and a coordinated transformation across people, processes, and platforms. We help CSPs:



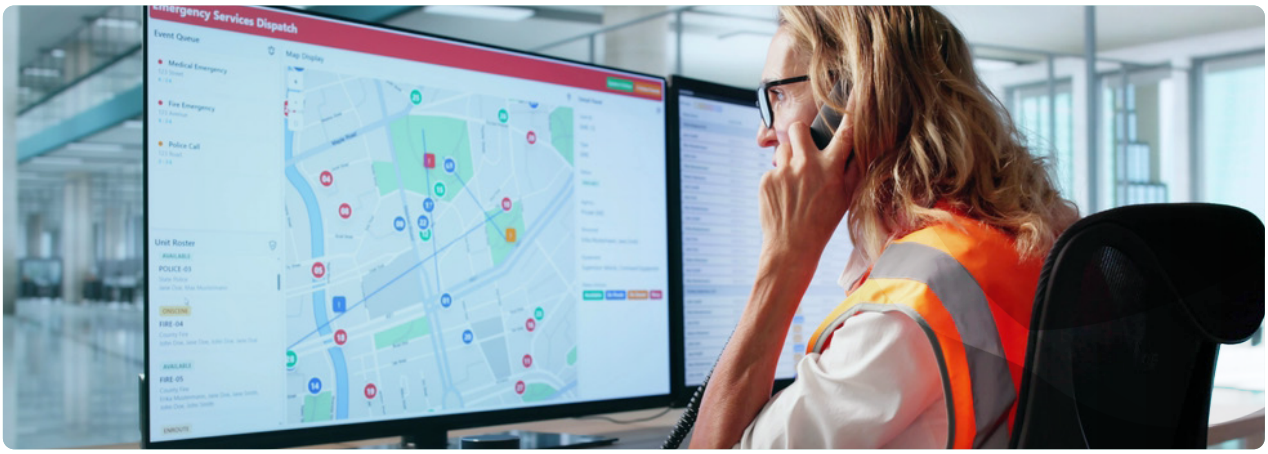
Benchmark their current maturity

Identify high-value, technically feasible, automation opportunities

Build a phased roadmap toward L4

Accelerate deployment using our AI and automation platforms.

Our work is grounded in TM forum's four pillars for L4, ensuring a standardised yet highly practical approach.



Pillar 1 - A clear definition of AN level 4

In TM forum terms, L4 high autonomy is when the network is capable of:

- **Self-coordination across network domains —** RAN, core, fixed access, transport and IP network work in concert to meet a service-level objective.
- **Closed-loop assurance —** The system detects a problem, diagnoses it, and fixes it automatically.
- **Intent-based execution —** Operators describe what they need, and the system decides how to deliver it.

Imagine a CSP's network operations center (NOC) during a major sporting event: traffic surges as thousands of fans livestream in real-time. Instead of engineers manually adjusting parameters, the network predicts the load hours in advance, allocates additional RAN and transport capacity, and reroutes traffic around congested nodes all without a single ticket raised.

That is L4 in action.

From human-led to intent-driven operations

Before	Manual ticket handling	›	Static rules	›	Reactive fault fixing	
After	Intent definition	›	AI analysis	›	Closed-loop execution	› Proactive optimization

Cyient's value propositions:

- Equip engineers with **AI copilots** that provide predictive diagnostics and recommend (or execute) optimal actions.
- Shift from firefighting to **continuous optimization.**
- Use AI-powered service design so that new offerings are **ready for automation from day one.**



Pillar 2 - High-value scenarios: where to start

Tier-1 operators know that you don't reach L4 in a single leap, it's achieved by delivering incremental value through carefully chosen high-value scenarios (HVS). These are targeted operational areas with strong ROI potential and a clear technical execution path.

Cyient's focus for AN L4 HVS spans the full network lifecycle:

Service-oriented:
Operations service assurance to ensure end-to-end service quality and proactive resolution of issues.

Network-oriented:

- **Maintenance:** Fault management and network change automation to minimize downtime and human intervention.
- **Optimization:** Quality optimization and energy optimization to enhance performance while reducing operational costs and environmental impact.

AN L4 high-value scenarios in 2025-2027

Network lifecycle

Service-oriented		Individual services	Home services	Enterprise services		
		4G/5G	Home broadband	Private line	5G2B	IoT
Operation	Service delivery			✓	✓	
	Service assurance	✓	✓	✓	✓	✓
	Complaint handling	✓	✓		✓	✓

Network-oriented		Wireless network	Core network	Transport network	IP network
Maintenance	Fault management	✓	✓	✓	✓
	Network change	✓	✓	✓	✓
Optimization	Quality optimization	✓		✓	✓
	Energy efficiency optimization	✓			

✓ ANL evaluation ✓ AN L4 high-value scenarios 2025-2027

By structuring our priorities around these lifecycle dimensions, we ensure CSPs address both **service quality outcomes and network health** in a balanced, measurable way.

Example: A Tier-1 CSP in Asia introduced AI-driven **RAN fault management and energy optimization** in a single pilot cluster.

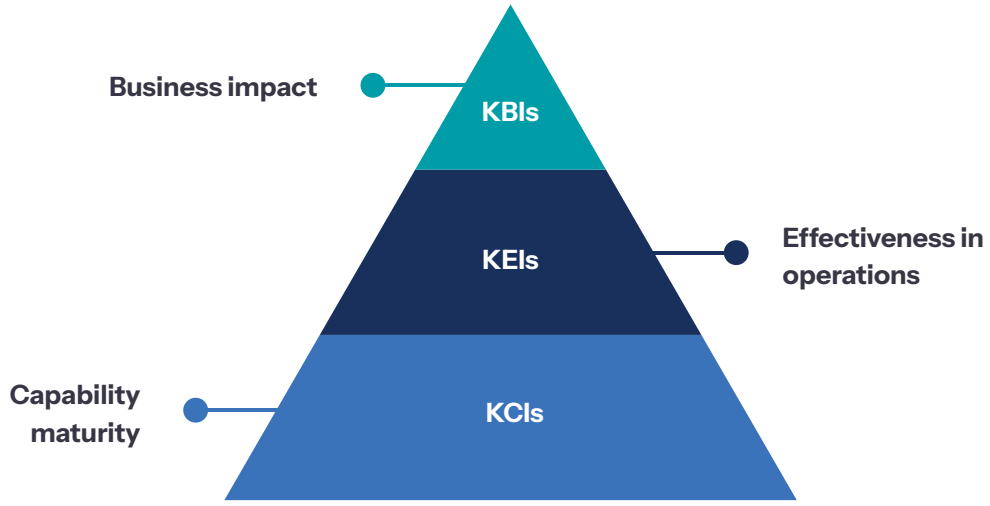
The result:
40% reduction in critical alarms,
15% drop in energy consumption, and service KPIs that outperformed their baseline by over **12%,** providing a strong business case for rapid scale-out.

Pillar 3 – A clear value measurement system

Transformation without measurement is guesswork. Tm forum's **value indicator framework** ensures every L4 initiative is tied to measurable outcomes:

- **KBIs (key business indicators):** revenue uplift, churn reduction, net promoter score (nps).
- **KEIs (key effectiveness indicators):** automation coverage, MTTR, SLA adherence.
- **KCIs (key capability indicators):** AI integration maturity, closed-loop readiness.

From KPIs to business impact



What Cyient does:

- Establish baseline metrics before automation is deployed.
- Measure improvement at each milestone.
- Benchmark results against **TM forum's reference models.**

Example: In a European CSP engagement, closed-loop fault management reduced **MTTR from 3 hours to under 15 minutes** for high-priority incidents, directly improving enterprise SLA compliance and securing major contract renewals.



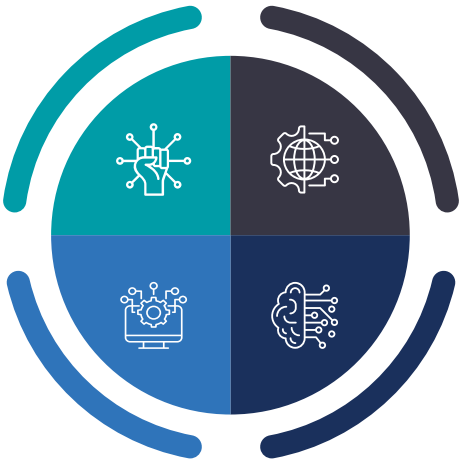


Pillar 4 – A robust overarching architecture

A resilient L4 architecture must be **open, modular, and AI-embedded.**

Our architectural principles

Layered autonomy
Network, service, and business layers each with their own closed-loop controls.



Multi-domain orchestration
Seamless coordination across RAN, Core, Fixed Access, Transport and IP Network.

Interoperability by design
Using TM forum Open APIs to integrate with OSS/BSS and multi-vendor systems.

Edge intelligence
AI inference running close to where data is generated, for faster decision-making.

In practice, this means:

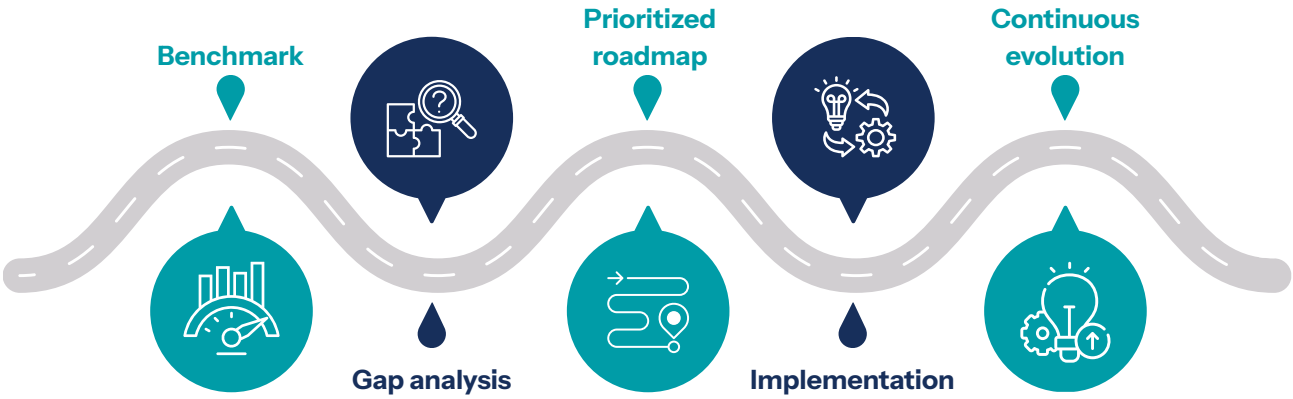
- An alarm in the RAN triggers not just local self-healing but a coordinated response in transport routing and core capacity allocation.
- AI algorithms at the edge handle real-time load balancing, while cloud-based AI platforms perform longer-term optimization.

Our methodology

AN level assessment– driven transformation

Bringing the **four pillars** to life requires an execution model that CSPs can trust. Cyient's methodology is built around the **TM forum AN level evaluation system,** guiding clients from their current state to L4 with minimal disruption.

Cyient AN level assessment journey





Steps

1 Benchmark and discover

- Conduct a **comprehensive AN level assessment** for RAN, core, fixed access, transport and IP network.
- Evaluate each network domain's automation maturity, AI readiness, and interoperability.
- Use the **IAA(D)E model** to identify capability strengths and weaknesses.

2 Gap analysis

- Spot **process inefficiencies** such as siloed fault management or manual service provisioning.
- Identify **technology gaps** like missing orchestration, fragmented data, or absence of intent interfaces.
- Assess **skills gaps** and organizational readiness for AI-led operations.

3 Prioritized roadmap

- Select **high-value scenarios** aligned with CSP strategy and technical feasibility.
- Sequence initiatives for progressive value delivery, starting with **quick wins** (e.g., RAN closed-loop assurance).
- Plan for **scalability** from single-domain autonomy to multi-domain orchestration.

4 Implementation and scaling

- Deploy Cyient's **AI & automation platforms** to enable closed-loop control.
- Integrate seamlessly with OSS/BSS using TM forum Open APIs.
- Measure progress using KBIs, KEIs, and KCIs at each phase.

5 Continuous evolution

- Periodically re-assess maturity to track upward movement toward L5.
- Introduce new automation use cases as technology and organizational readiness grow.

This ensures every step of the journey delivers visible business value, strengthens operational capability, and builds the confidence to scale autonomy further.

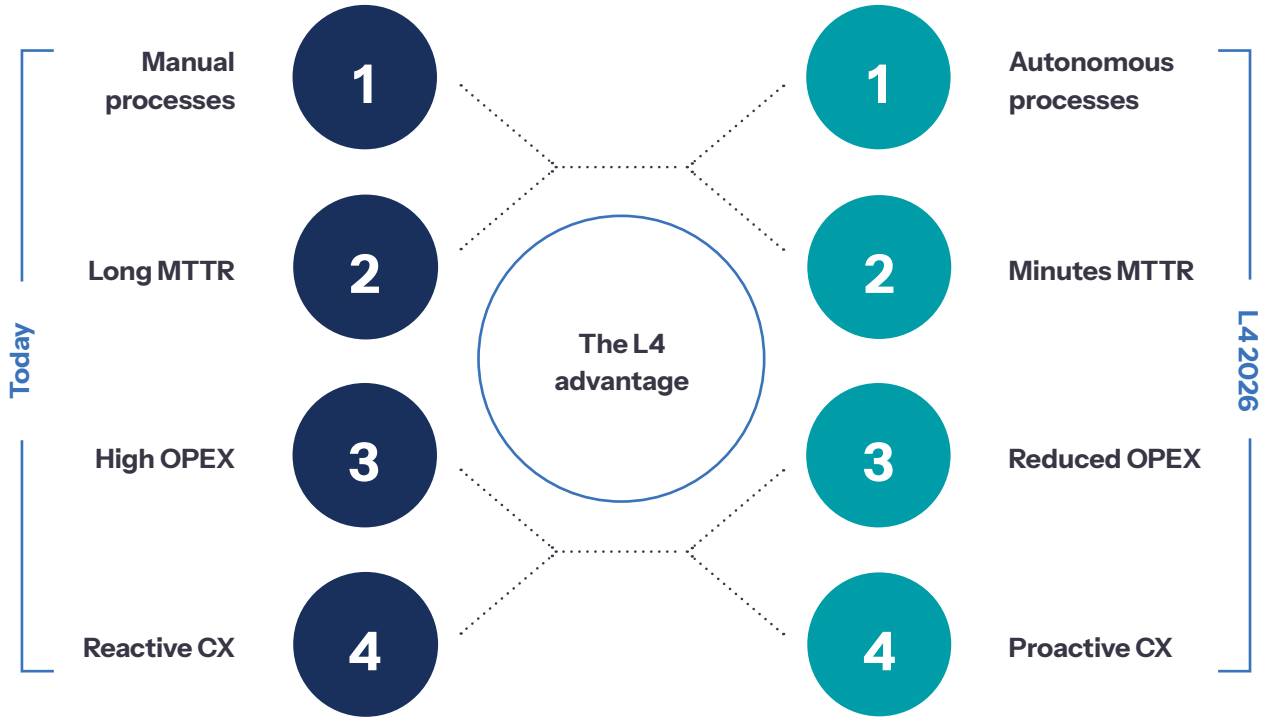
Conclusion

From vision to execution

The journey to **AN level 4** is not simply a technical upgrade, it is a redefinition of how networks are run, services are delivered, and customers are delighted.

By combining **TM Forum's L4 blueprint, our AN level assessment–driven methodology, and proven AI platforms, Cyient** empowers CSPs to:

- Cut operational costs without compromising quality.
- Deliver services with speed and precision.
- Build a foundation for L5 and 6G-era innovations.





About Cyient

Cyient is a global lifecycle engineering services company powering mission-critical industries from design to aftermarket across products, plants, and networks. With 300+ customers and 15,000+ associates across 30+ countries, we combine human expertise, deep domain knowledge, and AI to deliver intelligent engineering for every lifecycle across Aerospace and Rail, Automotive and Mobility, Connectivity, Energy, Healthcare, Mining, Utilities, and beyond.

To learn how we deliver outcomes that matter, and nothing less, visit www.cyient.com

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