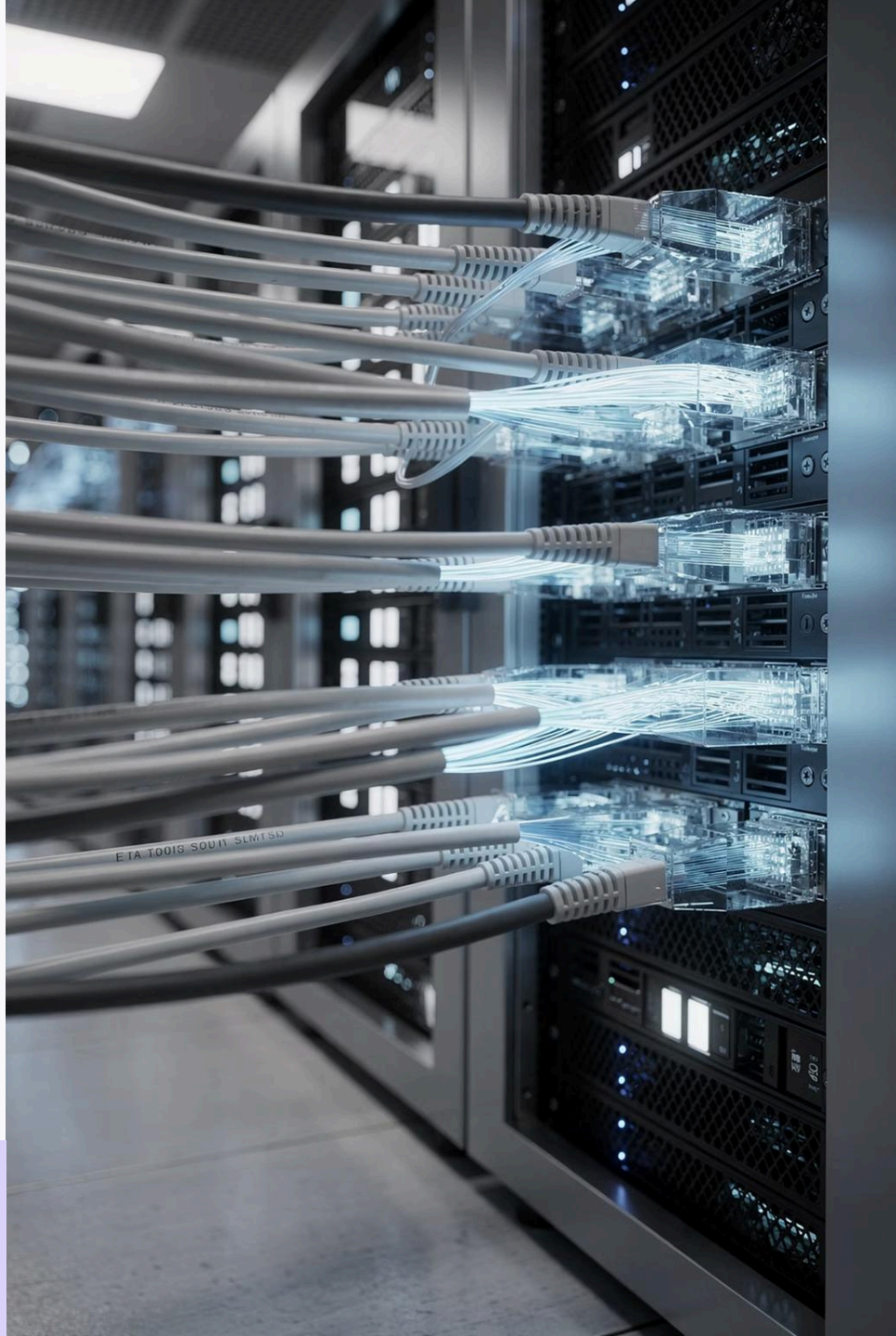
wavelo™
a tucows company

From Powerful Networks to Trusted Experiences

The OSS/BSS Imperative — bridging the gap between what networks can do and what customers actually feel.



Bob Dietrich | Katherine Nagel — Wavelo

The Capability-Experience Disconnect

Networks have never been more powerful. 5G, edge computing, and fiber-to-the-premise deliver gigabit speeds and millisecond latency at scale.

Yet customers still receive duplicate invoices, experience unexplained service disruptions, and navigate siloed support queues that don't share context.

What Networks Can Do

- Sub-10ms latency across metro
- Dynamic network slicing
- 99.999% availability SLAs
- Multi-access convergence (fixed + mobile)

What Customers Actually Experience

- Billing errors across bundled services
- Siloed identity & entitlement systems
- Agents lacking unified account context
- Manual provisioning delays on new services

The gap is not a network problem - It's an OSS/BSS problem

Fixing it demands architectural urgency

This isn't a network problem.

These are data and lifecycle governance failures.

1

Fragmented Lifecycle State

A subscriber upgrading to a converged bundle crosses multiple lifecycle boundaries. Without a governed control layer, each system holds a different version of truth — requiring manual recovery.

2

Billing Correctness Breaks Under Change

Plan changes, suspensions, and multi-service activations create billing state that diverges from lifecycle state — resulting in incorrect charges and compounding support costs.

3

Activation Failures at System Boundaries

Service activations touch provisioning, billing, and network systems in sequence. Without idempotency and recovery guarantees, partial failures go undetected until a customer calls.

4

Reactive Resolution, No Observability

Without governed lifecycle state and transition history, operators cannot detect problems before customers report them. Root cause is unclear because no single system owns what happened.

Data Integrity:
The Non-Negotiable Prerequisite

No AI model, however sophisticated, can deliver reliable outcomes on corrupted or inconsistent data. Before automation and personalization can scale, operators must establish data integrity across the full OSS/BSS stack — from network inventory and subscriber records to real-time event streams and billing master data.

Golden Record Architecture

Establish a single authoritative source of truth for each customer, service, and network asset. Reconcile legacy BSS silos through canonical data models aligned to TM Forum standards (e.g. SID, eTOM).

Real-Time Data Pipelines

Event-driven architectures — message brokers, streaming OSS mediation — ensure that network state changes propagate instantly to billing, entitlement, and CRM systems, eliminating stale data dependencies.

Data Governance at Scale

Automated lineage tracking, schema enforcement, and anomaly detection pipelines are essential guardrails. Data quality is not a one-time cleanse — it is a continuous operational discipline.

Data integrity failures don't just break automation

They erode customer trust in ways that take years to recover from.

AI as the Orchestrator

Artificial intelligence transforms unified data into **proactive, personalized, cross-service customer journeys** — at a scale no human team can match.

1. **Agentic AI**
   Autonomous agents from platforms like Optiva and Covalen Digital proactively manage complex multi-service workflows without manual intervention.

2. **Data Integrity First**
   Accurate, unified data is the non-negotiable bedrock. Without clean data, AI-driven automation produces noise, not insight.

3. **Hyper-Personalization**
   AI analyzes real-time behavior to deliver tailored offers, proactive support, and next-best-action recommendations at scale.

4. **Predictive Resolution**
   AI detects service degradations before they surface — automatically triggering remediation so customers never know there was a problem.

What Is Wavelo's Approach?

Lifecycle Management Layer

Governs how telecom entities move through long-lived states safely.

Enforces ordering, idempotency, and invariants across systems.

Coordinates retries, compensation, and recovery at every boundary.

Wavelo Connect

The lifecycle-safe integration surface of the Wavelo control layer.

Preserves ordering, recovery, and accountability as work crosses system boundaries.

Enables incremental brownfield adoption without increasing operational risk.

Billing Engine & Billing Assurance

Telecom-grade billing designed to remain correct through change and failure.

ML-driven bill shock detection constrained by auditable lifecycle context, not raw log data.

Lifecycle-aligned rating, invoicing, and reversals.

Agentic Assurance

Agent-powered integration capability reduces deployment time and cost

Governed lifecycle state and transition history enable proactive problem detection before customers report them.

Network & subscriber data allows real-time AI agent and customer interaction.

AI cannot orchestrate what it cannot trust.

Lifecycle governance makes data trustworthy.

Building Trust Through Transparent AI

1

Accountability

Every AI decision comes with a clear rationale — auditable by teams and understandable by regulators.

2

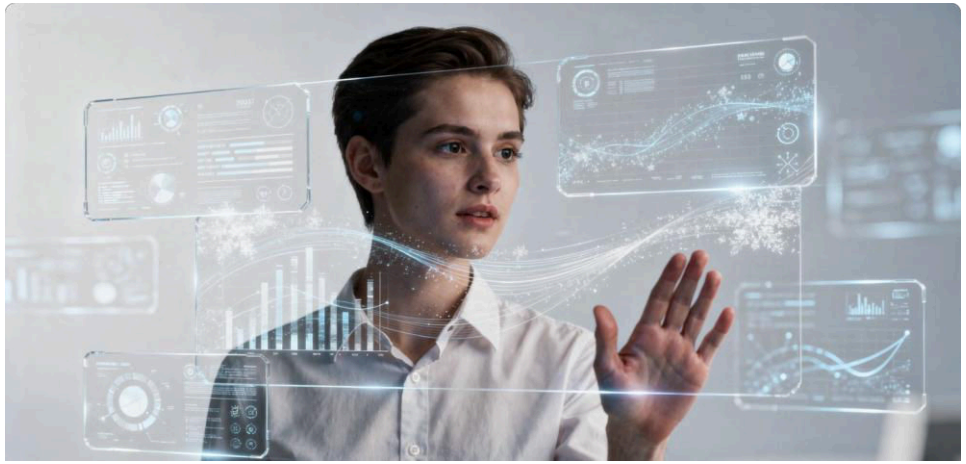
Fairness

Continuous bias monitoring ensures automated systems treat all customers equitably, protecting brand reputation.

3

Customer Confidence

When customers understand why an offer was made or a decision taken, trust — and lifetime value — grows.



McKinsey identifies **AI-native telcos** as the next competitive frontier — those who lead with transparency will define the category.

Black-box AI decisions erode customer confidence.

Explainable AI (XAI) is the foundation of a telco customers can rely on.