SUTHERLAND®

Agent-to-AI: **Reinventing the Telco Network Operations Center**

The Changing Telecom Landscape

Telecom has always been about scale — the scale of infrastructure, the scale of users, the scale of connectivity. But recently, that scale is exploding in ways that traditional operational models can no longer keep pace with. Global mobile data traffic is forecast to grow at more than 26 % CAGR through 2030, driven by 5G adoption, IoT proliferation, cloud-native applications, and immersive consumer experiences. By 2028, the world will host five billion active 5G connections, along with billions of new devices at the network's edge. This massive expansion will create a deluge of new events—each one requiring constant monitoring, management, and security—fundamentally redefining network complexity[1]...

Time to Revitalize NOCs

The network operations center (NOC), the nerve center of the CSP, is now at breaking point. Instead of providing strategic oversight, NOCs are mired in alarms, incidents, and manual triage. Customers expect always-on connectivity and zero downtime, yet service providers are hamstrung by flat ARPU (average revenue per user), shrinking margins, and talent shortages. Adding more engineers or patching in more point solutions only raises costs and complexity.

The industry is at an inflection point. To survive and thrive, CSPs must reimagine the NOC — not as a control room of screens, but as an intelligent, adaptive ecosystem that learns, predicts, and acts autonomously.

Diagram 1: Traditional NOC vs Agentic NOC with Virtual Agents

1 Ericsson Mobility Report, November 2023; "Global 5G subscriptions remain on track for five billion by the end of 2028." (Ericsson Mobility Report 2023)

Why Traditional NOCs Fall Short

Despite incremental modernization, most NOCs remain reactive. Nearly 60% of their workload is tied up in repetitive Tier-1 activities like alarm triage, ticket assignment, and basic troubleshooting. Engineers spend more time firefighting than focusing on higher-value tasks such as root cause analysis, optimization, and innovation.

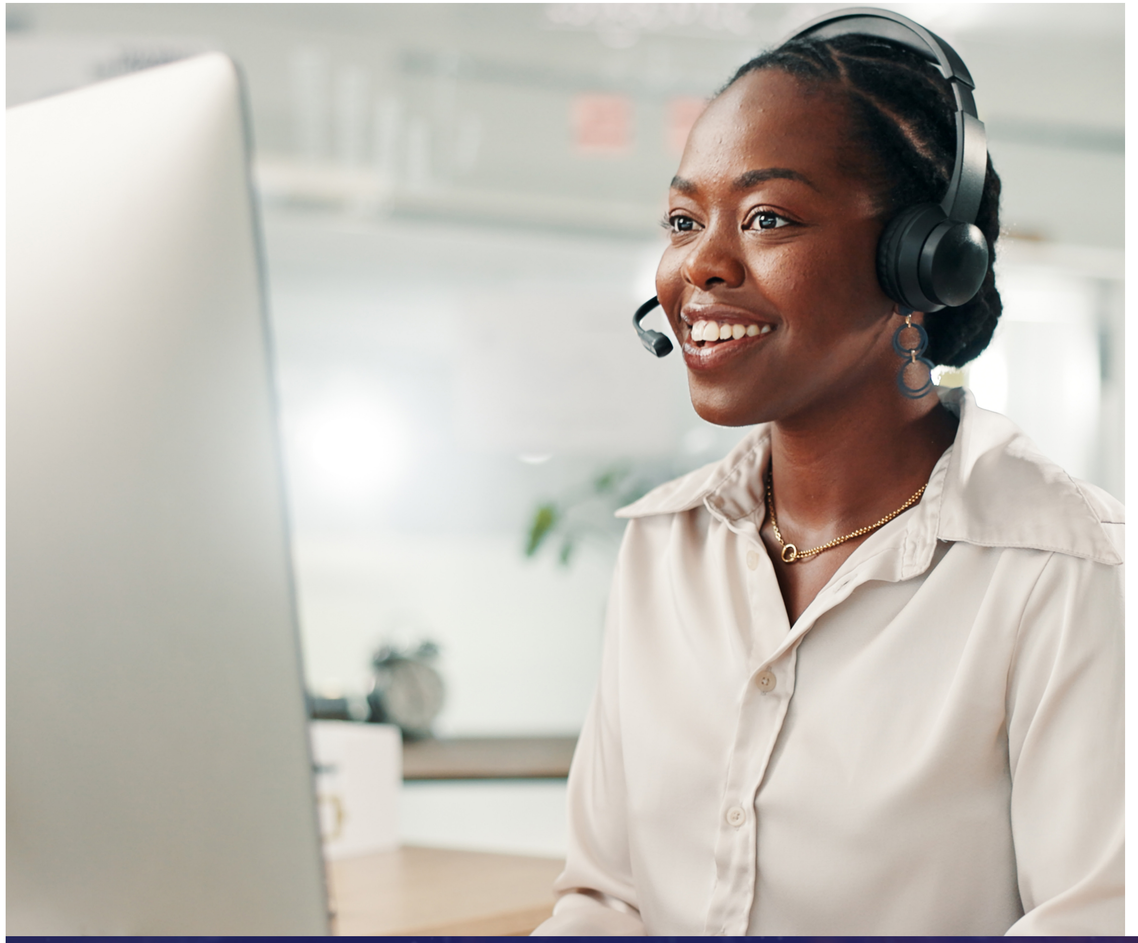
The challenges compound:

Tool sprawl
It's not unusual for a CSP to have several NOC tools, each serving a narrow function but none providing a holistic view. Instead of efficiency, complexity grows.

Talent shortages
Skilled engineers are expensive, hard to recruit, and even harder to retain in a competitive market.

Escalation bottlenecks
With limited staff, simple issues often escalate unnecessarily, leading to longer resolution times and frustrated customers.

Rising SLA risk
As networks become increasingly complex, the likelihood of breaches increases, posing a threat to both revenue and customer trust.



The paradox is stark: the more CSPs invest in isolated fixes, the more fragmented their NOC becomes. The result is longer Mean Time to Repair (MTTR), more SLA breaches, and a growing experience gap. What is needed is a step-change, not an incremental patch. That step-change is Agent-to-AI.

Enter Agent-to-AI

Agent-to-AI represents a fundamental rethink of how network operations are organized. Instead of treating AI as standalone tools or bolt-on automations, it reframes them as agents: discrete, intelligent capabilities that replicate the role of a human NOC engineer.

An agentic NOC fabric is then built by orchestrating these agents into a dynamic, collaborative ecosystem. For example, a fault predicted by one agent can immediately trigger diagnostics from another, which in turn initiates auto-remediation or dispatch via a Field Force Management agent. This orchestration is powered by the agentic fabric (Agent of Agents) — the conductor that ensures every agent works in harmony.

The result is a NOC that is not reactive but proactive, predictive, and ultimately autonomous. It continuously learns from data, optimizes itself, and scales across any domain of network operations. CSPs are no longer forced to choose which single AI use case to ‘bet’ on. Instead, they invest in a fabric that adapts to their priorities — today, predictive fault management, tomorrow, energy optimization, and next year, advanced site integration.

Agent-to-AI changes the narrative from ***“Which AI tool should we buy?”*** *to* ***“How do we orchestrate a digital workforce of AI agents that replicate and scale human expertise?”***

The Agentic NOC in Practice

The true power of the Agentic NOC lies in how its agents work together to replicate — and elevate — the role of a human NOC engineer. Each agent is designed to specialize in a particular aspect of operations, but the orchestration fabric ensures they operate as a team. This is not automation in silos. It is a digital workforce collaborating in real time.

Consider a few of the most transformative use cases:

Predictive Fault Management: Sutherland's NetSentinel.AI can anticipate failures up to 48 hours in advance, leveraging advanced analytics to identify anomalies invisible to the human eye. Once a fault is predicted, the agentic fabric triggers auto-remediation steps or escalates to other agents for resolution.

Optimized Dispatching: The Field Force Management Agent goes beyond basic ticketing. It identifies the closest available technician, verifies their skillset, checks that they have the right spare parts, and then dispatches them — reducing wasted truck rolls and improving first-time fix rates.

Guided Troubleshooting: NetAssist.AI from Sutherland acts as a virtual co-pilot for both NOC staff and field engineers. By automating diagnostics and recommending guided remediation steps, it resolves up to 30% of Tier-2 issues without human escalation.

Site Integration: Manual site provisioning and validation, which typically take hours per site and days to complete across a network cluster, can now be executed within minutes. The Site Integrator agent automates the build, configuration, and testing process, enabling new sites to go on-air faster and with greater precision.

Sustainability Optimization: The Network and Power Savings Advisor continuously monitors RF performance and energy use, dynamically adjusting power settings to reduce OPEX while also lowering carbon emissions.

Together, these use cases demonstrate how the Agentic NOC encompasses the entire lifecycle of network assurance, encompassing prediction, diagnosis, remediation, dispatching, building, and optimization — all within a single, orchestrated system.

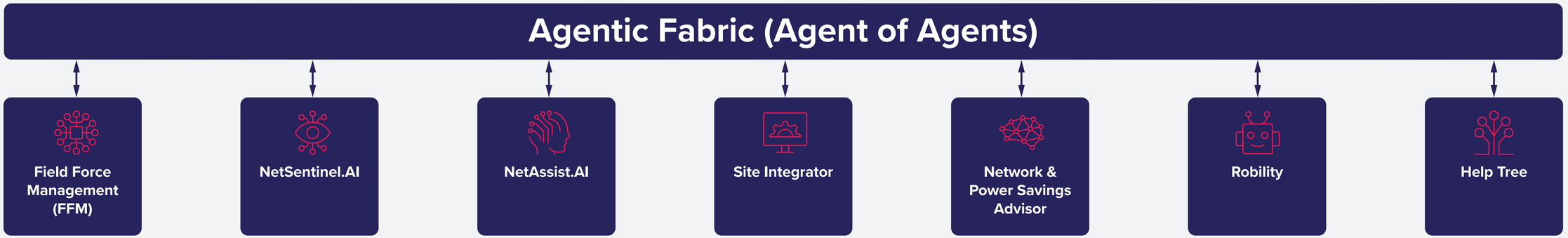


Diagram 2: Orchestrated Agentic Fabric enabled by SMO

The Virtual NOC Agent — Human + AI at the Edge

While the orchestrated agents form the backbone of the Agentic NOC, the Virtual NOC Agent is its voice and face. This virtual agent provides a human-like interface, accessible via voice or chat, that connects directly with field technicians and customers.

A technician on-site at a cell tower, for example, no longer needs to call a human NOC engineer and wait in a queue. Instead, they interact with the Virtual NOC Agent, which validates their identity, pulls up the work order, and guides them step by step through the troubleshooting process. Real-time transcription, contextual memory, and integration with enterprise systems ensure that the interaction is seamless and efficient.

The Virtual NOC Agent is capable of automating 50–70% of Tier-1 tasks and up to 30% of Tier-2 tasks.

This relieves human engineers of routine work while ensuring they are only engaged when genuinely complex issues arise. When escalation is necessary, the Virtual NOC Agent hands over the case to a human colleague with full context — eliminating frustrating repetition for technicians and customers alike.

What makes this so transformative is scalability. A virtual agent can be available 24/7, in any language, across any geography, without the overhead of staffing distributed teams around the globe. It delivers consistency, accuracy, and empathy at scale — something no traditional NOC could achieve.

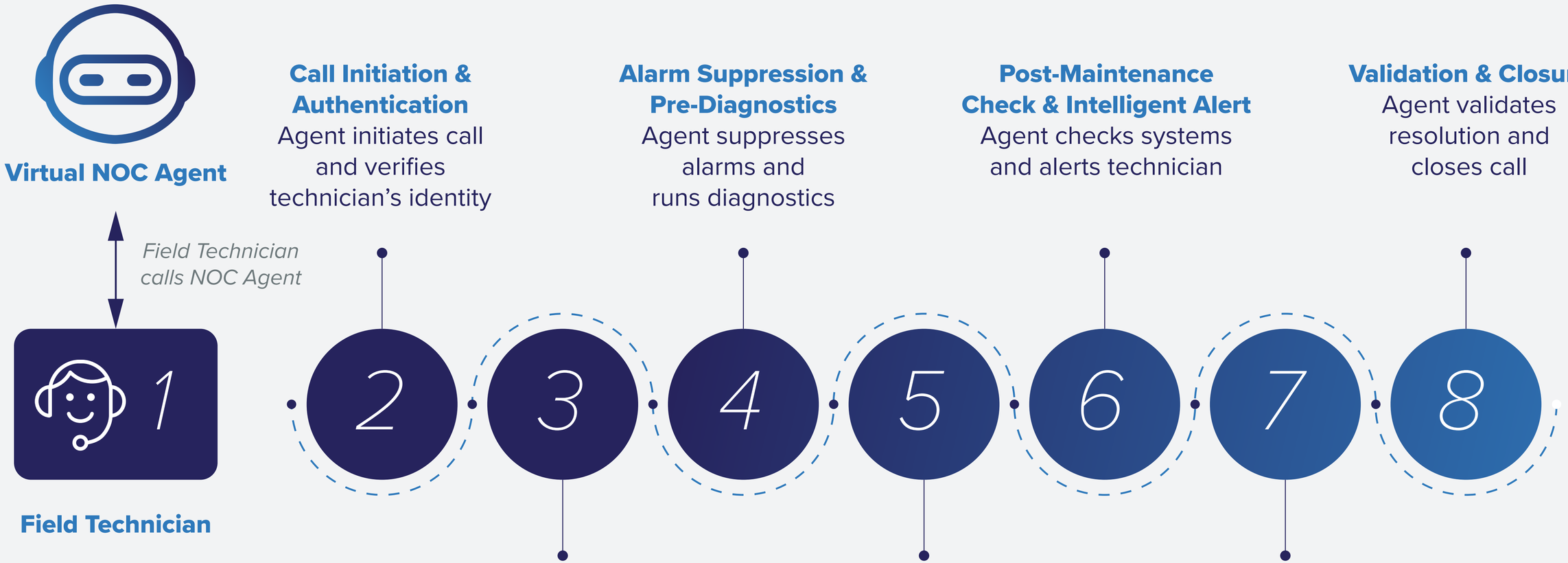


Diagram 3: Virtual NOC Agent supporting Field Technician at a Cell Site

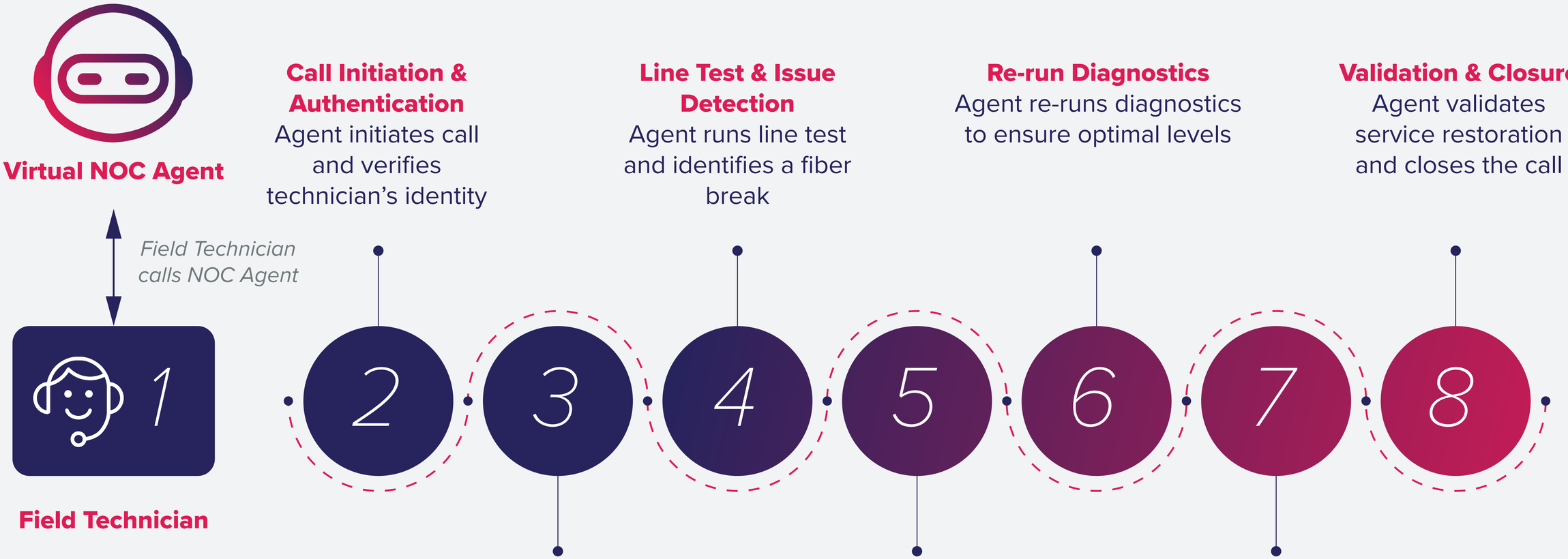
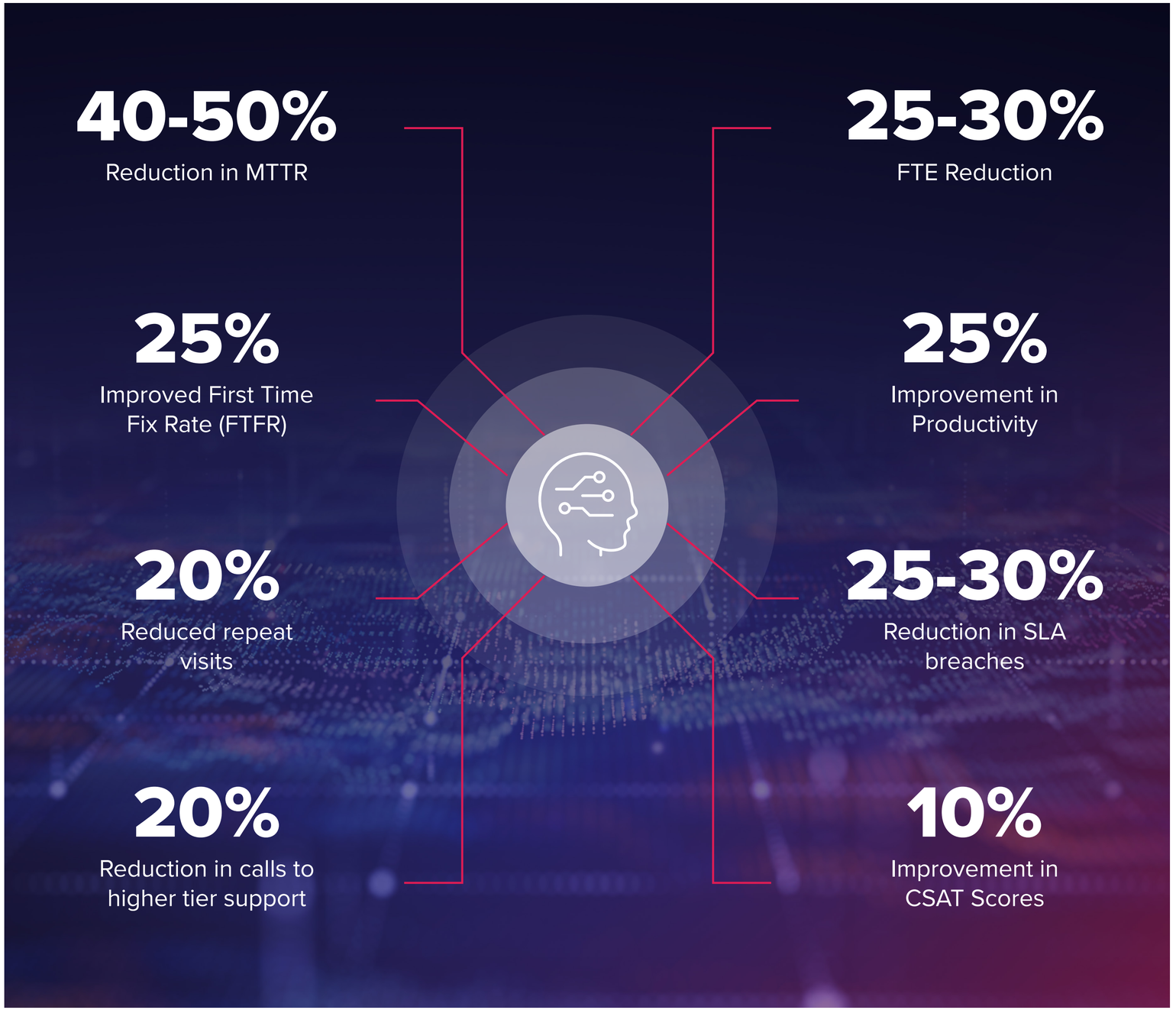


Diagram 4: Virtual NOC Agent assisting FTTH Technician at customer site

The Measurable Impact

The Agentic NOC is not just a conceptual leap forward — it produces tangible, quantifiable results that directly address the financial and operational pressures facing CSPs.

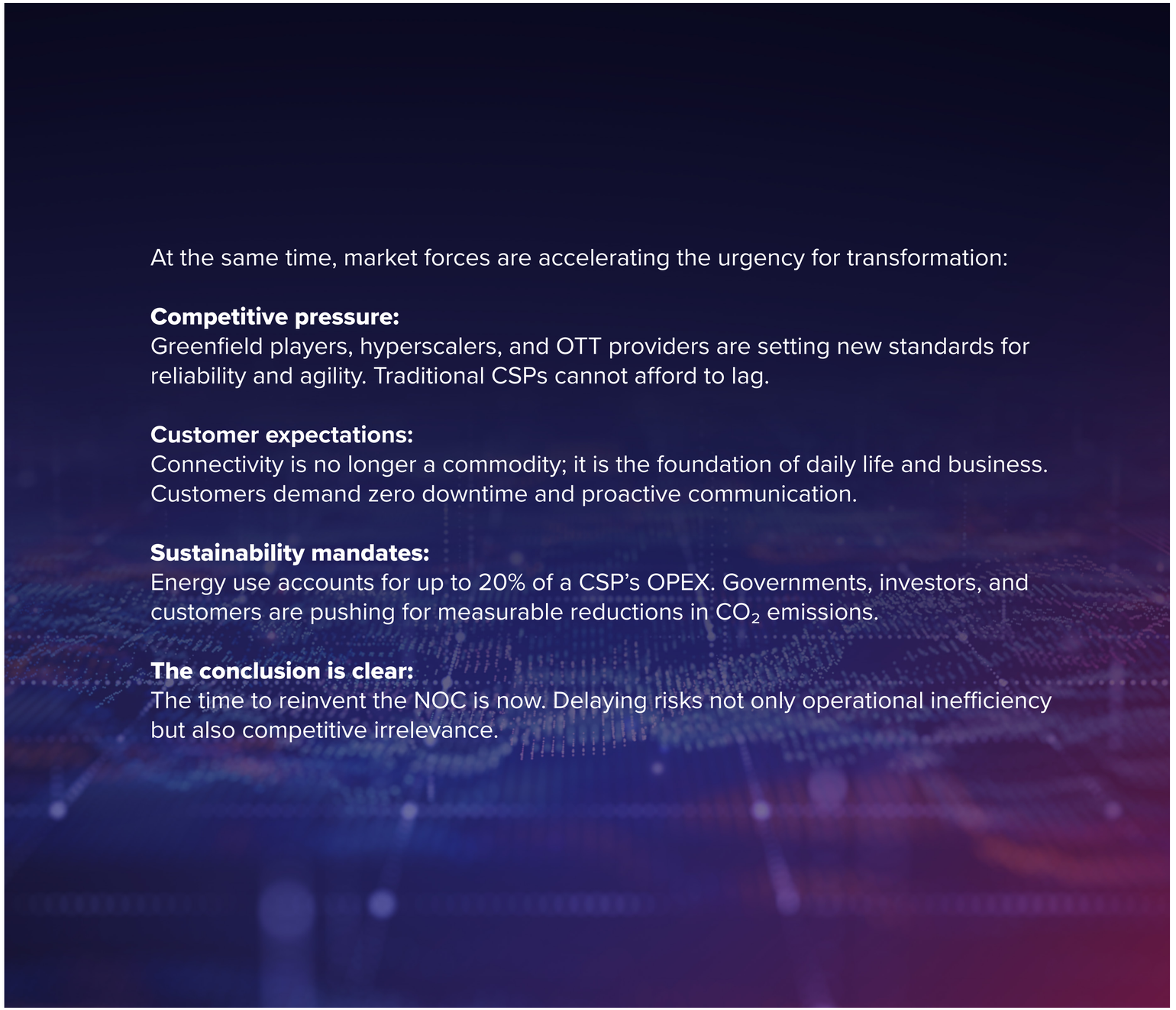


Beyond efficiency, the Agentic NOC supports sustainability goals by optimizing power consumption and reducing unnecessary field visits. In an era where ESG performance matters as much as financial performance, this is not a side benefit — it is a strategic imperative.

Why Now?
The Strategic Lens

For years, CSPs have talked about the promise of autonomous networks. But most initiatives have remained at the pilot stage — predictive analytics here, automation scripts there — never fully integrated, never fully scaled. The hesitation is understandable. With limited investment budgets, leaders fear betting on the wrong AI use case, only to find the industry's priorities shifting six months later.

The Agent-to-AI fabric de-risks those decisions. Instead of forcing a CSP to commit to one AI tool, it provides a modular foundation where multiple agents can be orchestrated, swapped, or scaled as needs evolve. Predictive fault management today, energy optimization tomorrow, advanced customer-facing capabilities next year — each builds on the same backbone.



At the same time, market forces are accelerating the urgency for transformation:

Competitive pressure:
Greenfield players, hyperscalers, and OTT providers are setting new standards for reliability and agility. Traditional CSPs cannot afford to lag.

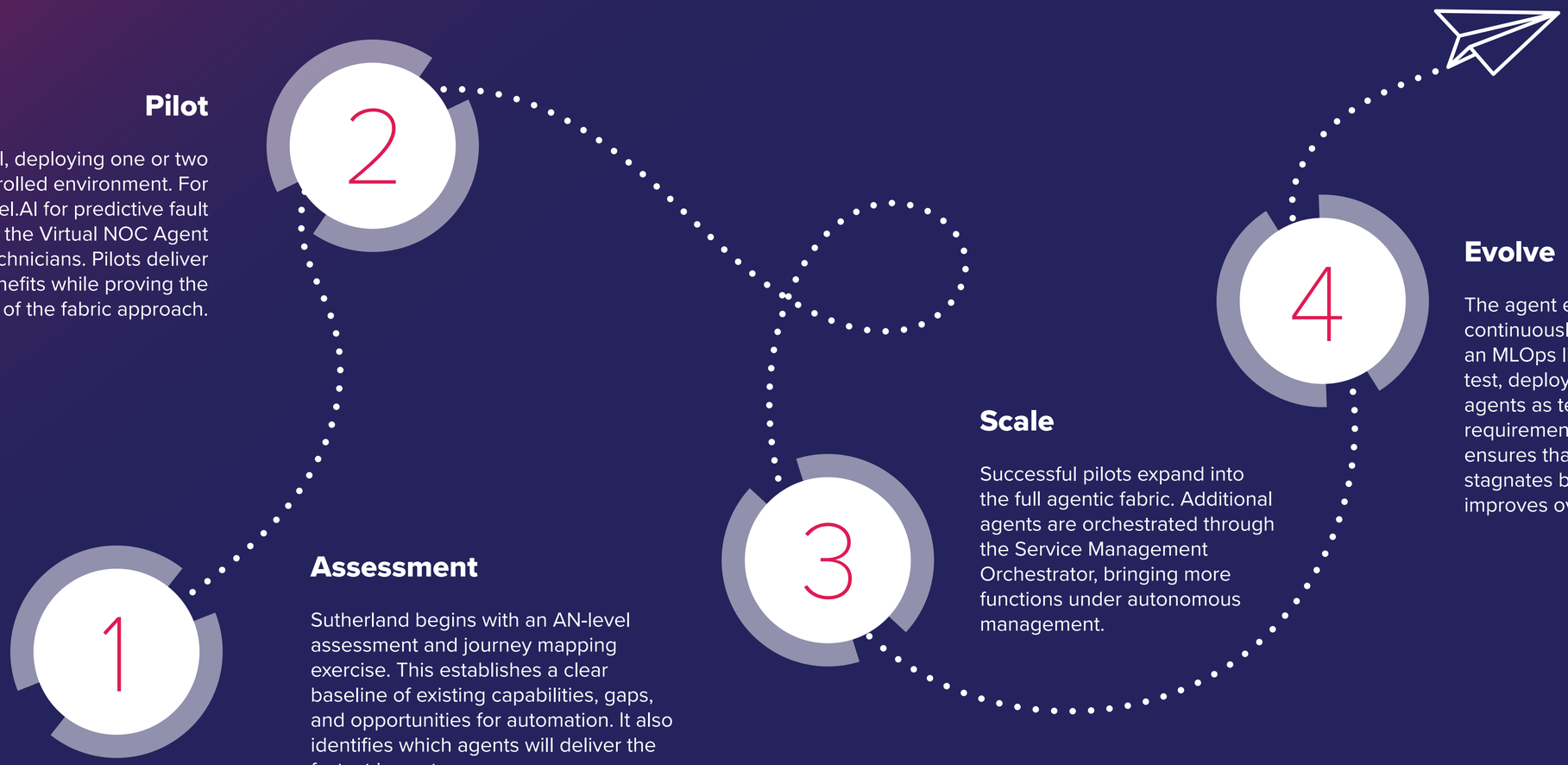
Customer expectations:
Connectivity is no longer a commodity; it is the foundation of daily life and business. Customers demand zero downtime and proactive communication.

Sustainability mandates:
Energy use accounts for up to 20% of a CSP's OPEX. Governments, investors, and customers are pushing for measurable reductions in CO_2 emissions.

The conclusion is clear:
The time to reinvent the NOC is now. Delaying risks not only operational inefficiency but also competitive irrelevance.

The Roadmap to the Agentic NOC

Reinvention does not mean rip-and-replace. The Agentic NOC is designed to be adopted pragmatically, in phases that deliver value at every step.



Assessment

Sutherland begins with an AN-level assessment and journey mapping exercise. This establishes a clear baseline of existing capabilities, gaps, and opportunities for automation. It also identifies which agents will deliver the fastest impact.

Pilot

CSPs can start small, deploying one or two agents in a controlled environment. For example, NetSentinel.AI for predictive fault management, or the Virtual NOC Agent to support field technicians. Pilots deliver measurable benefits while proving the scalability of the fabric approach.

Scale

Successful pilots expand into the full agentic fabric. Additional agents are orchestrated through the Service Management Orchestrator, bringing more functions under autonomous management.

Evolve

The agent ecosystem is continuously refined through an MLOps lifecycle: develop, test, deploy, monitor, and retire agents as technologies and requirements change. This ensures that the NOC never stagnates but continuously improves over time.

Reinventing the Beating Heart of the CSP

The NOC has always been the beating heart of a telecom provider. But in today's world, it can no longer survive on manual triage and siloed tools. Complexity, cost pressures, and customer expectations demand a new approach.

The shift from tools ➜ agents ➜ agent-to-AI fabric marks a profound evolution. It transforms the NOC from a reactive cost center into a proactive, predictive, and ultimately autonomous ecosystem. It frees human engineers from repetitive tasks, empowers field technicians with real-time intelligence, and delivers measurable gains in efficiency, sustainability, and customer experience.

Sutherland's Agentic NOC is not simply an incremental upgrade. It is a reinvention — the foundation for the autonomous CSP of the future. For providers ready to embrace the future, the message is clear: the time to act is now.

Artificial Intelligence. Automation. Cloud Engineering. Advanced Analytics.
For Enterprises, these are key factors of success. For us, they're our core expertise.

We work with global iconic brands. We bring them a unique value proposition through market-leading technologies and business process excellence. At the heart of it all is Digital Engineering Services – the foundation that powers rapid innovation and scalable business transformation.

We've created 363 unique and independent inventions, 250 of which are AI-based and rolled up under several patent grants in critical technologies. Leveraging our advanced products and platforms, we drive digital transformation at scale, optimize critical business operations, reinvent experiences, and pioneer new solutions, all provided through a seamless "as-a-service" model.

For each company, we provide new keys for their businesses, the people they work with, and the customers they serve. With proven strategies and agile execution, we don't just enable change — we engineer digital outcomes.

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