DAYBLINK CONSULTING

Real-Time Network Visibility Intelligence

How DayBlink Consulting supported the transformation from static data snapshots to real time intelligence for a major telecom provider

Introduction

Modern telecommunications carriers operate sprawling fiber networks that serve as the digital backbone for everything from mobile data to enterprise connectivity. Maintaining uptime and visibility across such complex infrastructure requires continuous situational awareness — not periodic snapshots. Yet, one of the largest U.S. telecom providers was doing just that.

Despite managing thousands of miles of fiber and hundreds of network nodes, its operations teams relied on static, manually created network maps. Each map represented a moment in time with no easy way to update the information or distribute to team members. This reactive, document-driven process, made it challenging to keep pace with the real-time nature of network events.

Problem

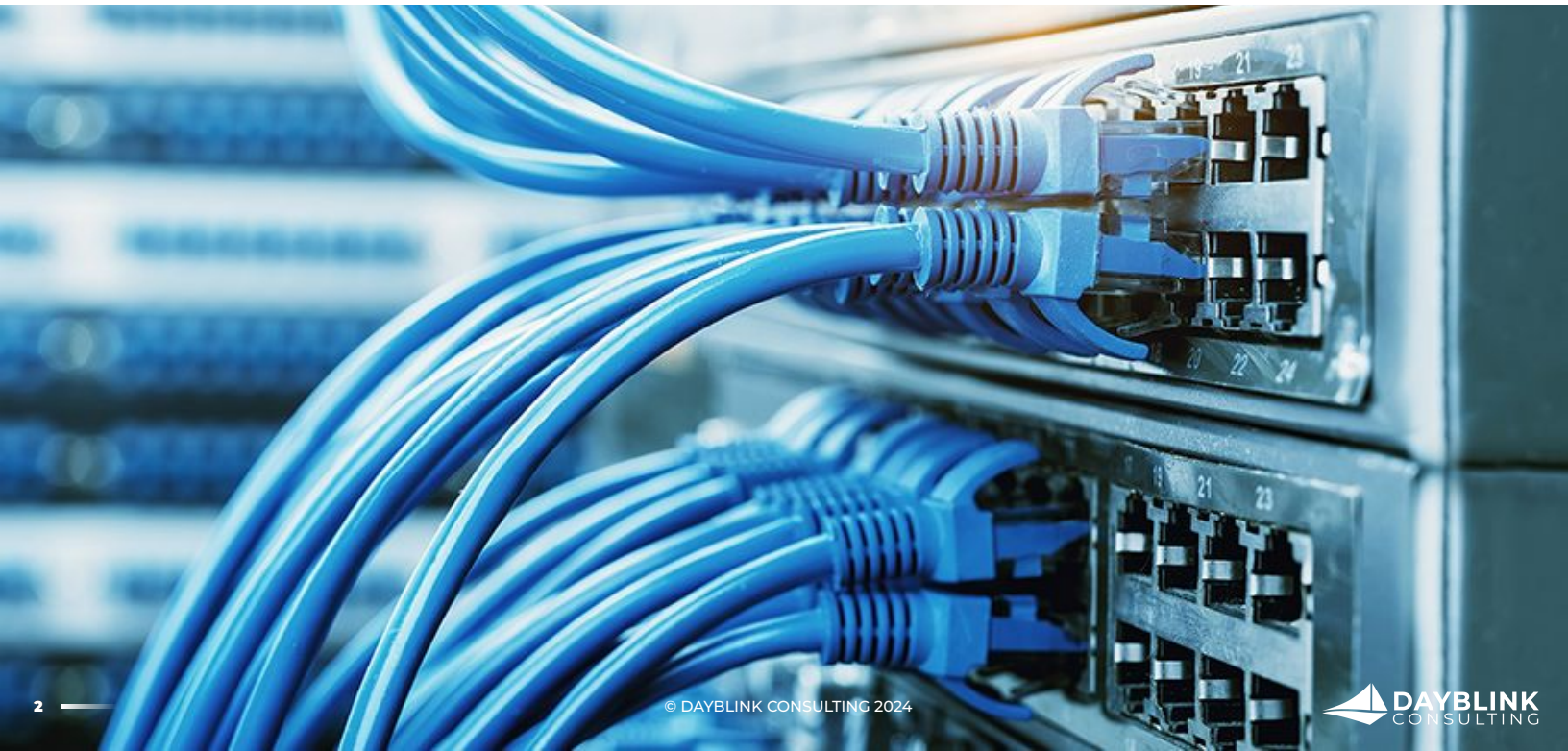
Reliance on static data began as a technical inconvenience but had grown into a systemic bottleneck

The client deployed fiber network health equipment to notify engineers about network issues in real-time; however the mapping solution created several critical operational challenges. Engineers could not trust the maps for troubleshooting during active outages due to potential outdated information. Furthermore, there was no central source of truth, leading to conflicting information and wasted time during troubleshooting.

The manual, decentralized update process introduced opportunities for human error and made it difficult to maintain consistent data integrity. This issue was further compounded by constant changes in the network due to expansion and new builds. Planning future improvements was challenging since leadership relied on engineer expertise in the region instead of a single source of truth.

Leadership lacked the ability to visualize real-time network health across regions. The absence of trend analysis or historical data meant decisions about capacity planning, maintenance, and investment were made reactively — guided more by intuition than by data.

Ultimately, expectations for real-time insight grew, forcing leadership to recognize that maintaining the status quo was unsustainable. They needed a dynamic, automated platform capable of transforming raw network telemetry into live, actionable intelligence.



Solution

Our team developed and deployed a unified, interactive view of the entire network

We structured the project in two distinct phases: a rapid prototype to prove the concept and a full-scale implementation to build an enterprise-grade solution.

First, we developed a fully functional proof-of-concept to validate the vision. This prototype established direct data pipelines from the client's fiber network sources, ingesting live network data to immediately eliminate manual updates. We then developed an automated subway style map and a dynamic, interactive map of the United States to display the live health of the entire network. We incorporated business intelligence features, such as a down detector and a interface for users to edit nodes, proving the viability of a real-time platform to leadership.

With the concept validated, we moved to the full-scale implementation. The solution was built as a highly scalable, full-stack application within the client's private cloud, utilizing a MongoDB backend and a D3-powered Vue.js front-end.

This robust architecture allowed us to introduce sophisticated new features. One such addition included an advanced alerting system to notify engineers of network issues, such as critical fiber cuts or service-impacting speed degradation. We also integrated role-based access control with the client's existing LDAP to ensure security. The user experience was greatly enhanced by fully realizing the subway map and complementing it with a toggle feature to the geospatial view. To manage data integrity and future planning, we built new features allowing users to create planned nodes and devices. We also developed a reconciliation portal for administrators to fix discrepancies between live and planned network data.

We rolled out the platform in phases, beginning with a small subset of users to gather feedback and ensure stability. This deliberate rollout was supported by comprehensive training workshops, detailed user guides, and live demos to ensure seamless adoption and organizational buy-in.

Accelerated Incident Response

Empowers engineers to pinpoint fault locations in seconds, not hours, dramatically reducing MTTR

Real-Time Operational Visibility

Replaces static, outdated documents with a living, dynamic view of the entire network's health in real time.

Proactive Network Management

Enables a strategic shift from reactive troubleshooting to proactive management via automated alerts on fiber cuts and service degradation.

Outcome

The new solution enabled intelligent, collaborative and predictive network operations

The launch of the platform fundamentally transformed the client's operational capabilities. By delivering a single, reliable source of truth for the entire organization, it is broke down information silos and dramatically improved collaboration between engineering, operations and leadership teams. Engineers who once had to search potentially outdated documents can now to pinpoint the exact location and probable cause of an outage in seconds, all while working from the same data as their colleagues.

This transformation delivered clear, measurable business value across four key pillars:

1. **Operational Efficiency:** The platform is reclaimed thousands of engineering hours per year by eliminating manual, error-prone tasks related to updating and troubleshooting static maps.
2. **Data Accuracy:** By providing a single, reconciled source of truth, the platform eliminated critical operational errors caused by outdated or conflicting network data, directly improved service reliability.
3. **User Adoption:** The intuitive interface, comprehensive training, and mission-critical features drove rapid and high user adoption, making the platform the new standard for all network operations.
4. **Strategic Value:** The platform provided leadership with a real-time, bird's-eye view of network health, enabling data-driven strategic planning, optimizing future capital investments, and moving the organization from a reactive to a predictive operational model.

What began as a prototype to replace static snapshots became a mission-critical, scalable foundation for driving operational intelligence and long-term infrastructure transformation.

100%
Automation of live network data ingestion

50+
Engineers trained on the new platform

>90%
Projected reduction in time spent finding network data

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Single, unified source of truth for network data maps

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