

CASE STUDY

Strategic Infrastructure Planning to Support Transportation Firm Growth

451 Planning Advisors helps a railway giant develop an integrated Digital Infrastructure Roadmap™ and a long-term data center strategic plan to support growth and enhance the efficiency and reliability of the company's mission-critical control, scheduling, safety, and logistics systems.

AT-A-GLANCE

CLIENT	National rail freight carrier
LOCATION	United States
DATA CENTER TYPE	Enterprise
INDUSTRY	Transportation
PROFILE	The Client is a leading North American transportation company, one of just seven Class 1 line haul freight railroads in the nation. It has tens of thousands of miles of track stretching across much of the United States connecting to Canadian and Mexican rail lines. It carries millions of tons of consumer, industrial, and agricultural goods each year, providing a critical link in the global supply chain.
SCENARIO	The Client's operation control center runs advanced scheduling, monitoring, distribution, and safety systems. Current data centers were near capacity, and the Client was facing a critical decision point: how to best support ongoing business growth and technology innovation while balancing risk, reliability, efficiency, and regulatory considerations. They turned to The 451 Group for guidance.
SOLUTION SET	451 Planning Advisors: <ul style="list-style-type: none">▪ Digital Infrastructure Roadmap▪ Datacenter Planning
RESULTS	<p>451 Advisors performed an in-depth system, facility, and operations analysis benchmarked against industry-specific best practices. They identified gaps and provided specific, actionable recommendations that will allow the customer to eliminate critical risk factors.</p> <p>Seven possible scenarios were developed; 451 analysts identified the two that offered the optimal solutions, balancing the company's business, facility, and IT needs.</p> <p>The Client is now positioned to make a capital investment in new data center infrastructure that will yield the greatest reliability, security, and efficiency in the most cost effective way, ensuring the long-term stability of its IT environment.</p>



SCENARIO

As one of North America's leading rail carriers, the Client has thousands of trains in motion 24x7x365, with constant activity at vast traffic distribution yards and intermodal terminals (where freight is transferred from rail to truck). It operates using complex control, monitoring, scheduling, security, and logistics systems.

With such a substantial geophysical and energy footprint, the company is keenly focused on delivering products in a safe, reliable, fuel-efficient, and environmentally responsible manner. For example, scheduling system improvements at distribution terminals have allowed trucks to avoid long wait times with their engines idling. Fuel-efficient locomotives and cranes are now in use, and the company improved air flow management systems at its data centers to lower energy usage.

The Client's data center infrastructure comprised two enterprise and two leased centers. Data centers were aging and running at or near capacity, and lease terms were set to expire over the next several years. To support ongoing strategic growth of the business and maintain its leadership in technology innovation and efficiency, the Client determined it was time to address digital infrastructure needs for both the near and long term. The company needed a comprehensive assessment of risks and benefits of different data center options to improve efficiency and reliability.

The Client selected 451 Planning Advisors to help develop a 10-year strategic plan for its data center infrastructure. The Client felt 451 Planning Advisors was the only organization with an equal grasp of both facility and IT considerations, providing a holistic approach to developing a robust, integrated infrastructure plan.

451 Planning Advisors helped the client develop answers to the following questions:

What mix of colocation/wholesale and enterprise data centers will provide the best reliability and continuity to meet the business needs?

What is the best strategy to manage a multi-site IT environment without sacrificing processing speed and efficiency?

What unseen risks and gaps exist in the current infrastructure, and how can those risks be mitigated?

Will it be better to build or outsource additional capacity?

IS YOUR ENTERPRISE FACING THESE OR SIMILAR QUESTIONS?

451 PLANNING ADVISORS CAN HELP.

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SOLUTION

The first step in developing a Digital Infrastructure Roadmap™ is a detailed discovery and analysis process. 451 Advisors interviewed stakeholders; assessed systems, facilities and equipment; reviewed documentation; and examined the operating environment. Among many factors considered, the 451 team looked at: application requirements, current loads and future growth projections, electrical and cooling equipment and systems, data storage and backup facilities, disaster recovery, regulatory business imperatives, telecommunications requirements, and vendor contracts.

The deliverable provided to the Client was a thorough assessment incorporating:

Review of existing IT infrastructure and recommendations for adoption of best practices

Scorecard analysis of current infrastructure including:

- Base infrastructure capabilities
 - Network connectivity (latency, availability of bandwidth)
 - Regulatory and data privacy compliance
 - Physical data center topology
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Rough Order of Magnitude (ROM) cost of services

Market availability of third-party services (capabilities in place vs. future planned)

Colocation vendor comparison

Comparative analysis of space, power, and cooling of current digital infrastructure versus alternative future scenarios

The 451 Planning Advisors team determined that the Client was well positioned to achieve an active/active, dual primary metropolitan infrastructure solution. It could create concurrently maintainable infrastructure topologies, eliminating its risk of capacity constraints. With a phased implementation over time, this would provide an innovative solution for availability and reliability across IT and facilities.

To execute this strategy, however, the Client had to resolve several key questions: build vs. lease (short- or long-term planning), hybrid vs. traditional, how much capital investment to make, how to achieve an “acceptable risk” profile, and how to address application latency restrictions that placed limits on the distance between data centers.

With these questions in mind, the 451 Planning Advisors team proceeded with a data center strategic planning process, developing and analyzing multiple potential infrastructure scenarios and variables to help the Client identify the optimal pathway to meet its facility, IT and business needs. For each scenario, 451 Advisors analyzed a range of key factors, using a proprietary risk analysis scorecard tool, industry-specific best practice benchmarks based on The 451 Group’s decades of data center expertise, and proprietary IT infrastructure capacity planning models.

Together with the Client, the 451 Planning Advisors team compiled a list of critical decision criteria and rankings. The analysis incorporated everything from IT architecture needs to the natural disaster potential of possible data center sites. The team performed a “SWOT” analysis and developed multiple business growth models. Out of seven initial scenarios developed, two rose to the top, offering the strongest solutions to meet the company’s near and long-term objectives..

RESULTS

The comprehensive assessment provided by 451 Planning Advisors provided the Client with the confidence to build a new data center near the company’s existing headquarters. A detailed analysis completed by 451 Advisors provided the Client with concrete data metrics for each scenario and resulted in a decision to make a significant capital investment in the new facility. The Client was able to proceed knowing that the plan would meet the business continuity, risk, financial, security, and IT needs of the company significantly better than any other scenario. Company management could rest easy knowing that there were no gaps or oversights, and the plan was optimized to enable the company to maintain its mission-critical life safety systems, achieve real-time operating efficiencies, and enhance its status as a world-class transportation innovator.

The assessment and planning undertaken by 451 Planning Advisors provided detailed guidance to help the Client make decisions about each execution component of its infrastructure strategy. It can rest easy knowing that there are no gaps or oversights, and the plan is optimized to enable the company to maintain its mission-critical life safety systems, achieve real-time operating efficiencies, and enhance its status as a world-class transportation innovator.



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