

Transport Network Optimization Services

/// FIXED NETWORK ENGINEERING SERVICES PORTFOLIO ///



TRANSPORT NETWORK OPTIMIZATION SERVICES

Throughout the years, LCC has successfully designed and optimized various mobile operators' transport networks through the introduction of new technologies or transport strategies, development of improved economies of scale, and more efficient grooming and dimensioning processes. LCC's engineering teams have evaluated and incorporated a variety of technologies and solutions into their transport designs, and each engagement ultimately endeavored to significantly reduce OPEX while maintaining or even improving network performance and reliability. In many cases, LCC's optimization services have also helped to defer CAPEX investments through improved efficiencies in equipment utilization and provisioning processes.

SERVICES OFFERED

LCC has an established, four-phase process for performing transport optimization assignments. Customers may engage LCC in any or all phases to achieve their individual program objectives.

- > **Phase 1 – Fact Finding and Preliminary System Audit.** The objective of this phase is to determine the general potential for cost-savings that will result from a full transport network optimization of the assigned market. LCC will collect and organize data for the associated transport facilities that are currently available.
- > **Phase 2 – Database Development and Definition of Optimized Transport Design.** The goal of this phase is to [1] develop a very accurate database of the existing transport network facilities and cell site information, and [2] develop a modified transport network design which results in OPEX savings for the operator using improved infrastructure and/or any alternative transport media applicable to the given market, including leased services and owned infrastructure, i.e. dark fiber, and wireless solutions.
- > **Phase 3 – Implementation Plan Development.** In this phase, LCC will develop a detailed plan to implement the optimized transport network design specified in Phase 2. LCC will detail resource requirements, facility and/or service procurement plans, responsibility assignments, and cutover schedules.
- > **Phase 4 – Implementation of Transport Optimization.** In this phase, the implementation plan developed in Phase 3 will be executed. Implementation requires significant coordination between the operator's engineering and operations team, as well as all participating facility and service providers. LCC has trained professionals in project management, circuit design and provisioning, microwave design, procurement and database management, and installation and commissioning.

PROJECT EXAMPLES

- > **Dark Fiber Analysis and MAN Design Reducing Operator's OPEX.** LCC performed a dark fiber study in New York City and developed a design for an operator owned Metropolitan Area Network (MAN). The design was based on multiple physical rings and incorporated the placement and per-node dimensioning of equipment to support both Wave Division Multiplexing (WDM) and SONET technologies. LCC also developed an implementation plan to migrate backhaul traffic from the existing leased line circuits to the MAN infrastructure, which resulted in a potential savings of more than \$10 Million and a breakeven period of 2 years.
- > **Optimal Switch Location and Transport Design.** LCC performed an analysis to determine the optimum distribution of switch (MSO) locations and backhaul topology to support a mobile operator's rollout of three new markets. LCC first developed a plausible distribution of cell sites for each of the three markets and then designed the local backhaul infrastructure that would be required to support the network loads. Through this process, LCC defined the total traffic capacity that would need to be long-hauled from each market to a remote MSC. Through correspondence with local carriers, LCC calculated budgetary transport costs and compared switch location options. A single, centralized MSO strategy was determined to be most cost effective, and an optimal location was defined based on the available options.
- > **Switch Consolidation Project.** For a national mobile operator, LCC recently audited network MSOs throughout California and Nevada and developed a detailed plan to consolidate core network elements into a more cost effective and efficient distribution. The consolidation plan streamlined the network from 46 equipment facilities down to 12 and included a transport optimization strategy and cutover schedule. Some of the major objectives that were achieved by the consolidation plan included: the reduction of reliance on the ILEC by eliminating ILEC owned collocation facilities from the network; gains in operational efficiencies by consolidating traffic on re-dimensioned, newer equipment and eliminating older models; and reduction of transport costs through least cost routing analysis and by establishing higher economies of scale. Based on the analyses performed, the new network design represented an estimated savings of \$37 Million in annual operating expenses, an NPV of over \$200 Million in savings over the course of 10 years, and an implementation breakeven point of less than 3 years.
- > **National Network Growth Evaluation.** For a national mobile operator, LCC analyzed forecasted growth plans and equipment dimensioning plans for core network assets, including MSCs, BSCs, and SGSNs. The analyses were intended to compare planned capacity augments against current and targeted growth, considering voice and data traffic trending. The results of these analyses were recommendations for accelerating some and deferring other equipment capacity augments, thus helping to ensure acceptable network performance and positively impacting both OPEX and CAPEX budgets.

Transport Network Optimization Services

LCC has the expertise and experience to address all of your Fixed Network Engineering needs.

Service Offerings Include:

- > Transport Design
- > Turnkey Microwave Services
- > Network Optimization Services
- > Circuit Provisioning & Testing Services
- > Switch Support Services
- > Network Database Services
- > Network Inventory Services
- > RF Testing & Measurement Services
- > BSS Expansion & Integration Services
- > Broadband Wireless Services
- > IP Solutions

For more information on LCC and our Fixed Network Engineering services, please contact us at (703) 873.2000 or visit us on line at www.lcc.com.



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