



IP SOLUTIONS

The emergence of data services in mobile networks stimulated the introduction of add-on elements and architectural overlays that would allow operators to easily manage the distinct variance in traffic patterns between data and traditional voice services. The prodigious growth of the Internet and IP technology continues to evoke a migration in the telecommunications industry to develop network platforms and architectures that universally support the transmission of data and conventional services. Many operators managing a public or private voice, data, or video network are now examining traditional business models and network architectures and migrating towards a converged network infrastructure based on IP technology.

There are many challenges associated with consolidating voice and data infrastructure, including the initial investments of Capital and Operational Expenses. Some of the other prominent areas of consideration are:

- > Determining what approach or strategies should be applied when migrating to IP-centric architectures
- > Assessing and evaluating the capabilities and flexibility of personnel to address new technologies
- > The continuing objective to Reduce Cost of Ownership

LCC has embraced IP Network Convergence challenges by providing solutions that are technology neutral and vendor independent. By offering end-to-end network solutions that encompass Planning, Design, Deployment, Network Integration, and Network Management services, LCC has supported a variety of customers pursuing convergence programs, including landline, mobile, and data service providers, as well as equipment vendors.

LCC'S KEY DIFFERENTIATORS

- > **Vast Knowledge and Experience** – For over 24 years, LCC has offered solutions to major wireless carriers and equipment vendors.
- > **Geographic Reach** – With offices throughout the U.S., LCC is poised to support any local, regional, and national assignment.
- > **Technology and Vendor Agnostic** – As an impartial contributor, LCC will ensure that the best solution is applied to meet cost and service objectives.
- > **Cost Effective Solutions** – LCC offers end-to-end engineering solutions, generating efficiencies in program execution and management.

SERVICES OFFERED

LCC's Fixed Network Engineering (FNE) solutions address your core requirements for IP convergence and network engineering services. LCC's engineers possess the skills and experience necessary for the effective design and engineering of a wide variety of technologies, including:

- > Data Core: 2G-4G (GSM/GPRS/EDGE/UMTS,CDMA/EVDO)
- > WAN Networking: IP, ATM, Frame Relay, MPLS
- > Next Generation Switching: Soft switch, VoIP, Protocols
- > IMS: Protocols, SIP Interoperability, OSS Integration
- > WiMAX: IP Networking, Protocols, Network Integration

AREAS OF EXPERTISE

Planning

- > Vendor Technology Assessment
- > Requirements Definition
- > Migration Plans and Network Enhancements
- > Expansion Plans

Design

- > Network Architecture
- > High & Low Level Design Specifications
- > Systems Engineering and Integration
- > OSS/Network Management Design

Testing

- > Lab Testing
- > Field Trials
- > Documentation

Migration

- > Dimensioning
- > Capacity Upgrades
- > Re-Homes

O&M

- > NOC/Tech Support
- > FCAPS

PREVIOUS EXPERIENCE

- > When a major wireless carrier had the objective to design and deploy GSM GPRS (SGSN, GGSN) network elements and offer services, they relied on LCC to provide project engineering and technical leadership. As a result, eight new Regional GPRS Data Centers and two new National Data Centers were deployed and put into operation.
- > A world leader NGN softswitch equipment vendor relied on LCC to provide flexible and technically savvy CIQ and Data Translations engineers to address national softswitch deployments. This project has thus far encompassed softswitch deployments in Austin, Dallas, Chicago, Houston, Boston, Santa Clara and San Diego.
- > In a recent project, a 4G mobile equipment vendor enlisted LCC to support its customers with IP Networking expertise. LCC's Engineers provided Tier 3 and 4 technical support to address multi-vendor WAN networking resolution (i.e. switching, routing, BGP, OSPF, MPLS, ATM).

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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