Mark H. Goldberg & Associates Inc.
Telecommunications Consulting
91 Forest Lane Drive
Thornhill, Ontario, Canada L4J 3P2

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Mark Goldberg is head of Mark H. Goldberg & Associates Inc., a telecommunications industry consulting practice that specializes in assisting its clients to understand the implications of changes in competitive markets. Drawing on more than 35 years of global industry experience, for 20 years the firm has assisted clients in Canada and around the world in all sectors of the industry: new entrants and incumbents, end users, manufacturers and software suppliers, government regulators and industry associations. In the course of his corporate careers, he gained the perspective and led changes from many perspectives of telecommunications: communications service providers, regulation, research and development, equipment architectures and large customer networks.

Mr. Goldberg was Vice President Network Services for Sprint Canada, responsible for the planning, engineering, administration and operations of its national network. At Unitel Communications, he developed the network interconnection architectures for the introduction of telecommunications competition in Canada and testified on competitive network architectures before the CRTC in proceedings that led to its landmark decisions related to long distance and local competition. He has advised governments in Canada and overseas on a variety of issues.

Mr. Goldberg has lectured at the University of Western Ontario and he was co-chair of the Advisory Board for the Masters of Engineering in Telecommunications at the University of Toronto. He is a member of the Board of Directors for Lakeland Holding Ltd. He also serves on the advisory board for Skysurf Canada Communications. He had previously been an advisor to Xplornet Communications. Mr. Goldberg was a member of the nominating committee for Canada's Telecom Hall of Fame.

He is the co-founder of GST Conferences, a telecommunications industry training and conference company and the producer of the annual Canadian Telecom Summit held in June of each year. GST Conferences has produced training courses used by companies and regulators for new employees.

He is quoted often in such newspapers as the National Post and Globe and Mail and he is a regular commentator on telecom issues for Canada's Business News Network. His OpEds have appeared in the National Post and Hill Times.

When naming him as one of Canada's top 10 technology bloggers, itWorld Canada wrote: "No one does a better job of exploring, interpreting or criticizing telecommunications policy in Canada. Period." You can read his views and commentaries on telecommunications trends and issues on his blog: *www.mhgoldberg.com/blog* or follow him on Twitter: *@mark_goldberg*.

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Partial Client List

International Carriers/Service Providers

AT&T Canada Long Distance Services
Cable & Wireless Communications
Destia Communications (Econophone)
LDI - Long Distance International Inc.
Level 3 Communications, Inc.
Mobilexchange Ltd.
North American Gateway Inc.
Qwest Communications
RSL Communications
SkySurf
Teleglobe Inc.
Teleglobe Canada Inc.
Telehop Communications
TerraRoute Ltd.
UniLink Communications Inc.

Enhanced & Local Service Providers

Bell Intrigna
Burlington Hydro
Conexys Corp.
Edmonton Power Corporation (EPCOR)
Fax Forward Limited
Kayote Networks
Minto Enhanced Services
Optel Communications Inc. (Axxent)
Xplornet CommunicationsDirector

Real Estate and Corporate Clients

Brascan Group of Companies
Canadian National Railway Properties
Canadian Residential Consortium
Greenwin Property Management Inc.
Minto Development Corporation
Minto Management Limited
Royal Lepage Commercial Inc.
TelecomHotels.com
University of Waterloo
Yonge Eglinton Centre

Telecommunications Outsourcing Firms

Bechtel Enterprises, Inc.
Contour Telecom Management Inc.
Pacer International Inc.
RACO Remote Access Company

Integrated Carriers

Bell Canada
Cogeco
Manitoba Telecom (MTS)
Rogers Communications Inc.
SaskTel
Shaw Communications
TELUS

Manufacturers

BATM / Telco Systems
ECI Telecom Inc.
Ericsson Communications Canada
Ericsson Inc.
Ericsson Telecom AB
Lightscape Networks Inc.
Nokia Siemens Networks
Paradigm Advanced Technologies, Inc.
Sun Microsystems of Canada Inc.
Telco Systems Inc.

Advisory, Research and Financial

CDP Capital
CPP Investment Board
Guggenheim Corporate Funding
NBI/Michael Sone Associates
PriceWaterhouseCoopers
Yankee Group of Canada

Government Bodies and Regulators

Canadian Radio-television and
  Telecommunications Commission
Environment Canada
Intelligent Transportation Systems Canada
Government of Israel:
  Ministry of Communications

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MARK H. GOLDBERG
SUMMARY

Executive consultant in telecommunications industry with international experience in strategic planning, network technology, business planning, regulatory and governmental affairs. Recognized for developing and articulating technology direction, and successfully building and operating cost-effective advanced communications networks. Strong leadership, entrepreneurial, team building and inter-personal skills. Dual citizen (U.S. and Canada).

CORPORATE EXPERIENCE

SPRINT CANADA INC., Toronto, ON *1994 - 1996*
Major Canadian Long Distance Company
Vice President - Network Optimization and Carrier Relations (1996)
Managed network costs, provisioning and all aspects of domestic and global interconnection arrangements.

- Reduced annual carrier costs by $100 million by conceiving, negotiating and implementing innovative leases and interconnection agreements.
- Negotiated national and international agreements to preserve quality while reducing costs.
- Improved operating efficiencies and customer service by consolidating national voice and data networks, and operating staff, more than doubling corporate gross margins to 35%.

Vice President - Network Services (1994-1995)
Managed network planning, engineering, operations and administration for Sprint Canada's public voice and data network.

- Recruited/supervised team of 100 to accommodate 165% growth in network traffic.
- Built a $35 million fibre optic network linking Toronto, Montreal and Ottawa - on-time and under budget.
- Negotiated fibre swaps to extend the network to other major Canadian centres.
- Built and launched operation of two $10 million switching centres in Vancouver and Calgary.
- Planned and directed the integration of an acquired competitor's network enabling the elimination of redundant facilities.

TELROUTE COMMUNICATIONS INC., Toronto, ON *1994*
Regional Long Distance Provider
Vice President - Network Services
Managed all aspects of network technology for this start-up regional voice and data carrier.

- Implemented regional digital microwave system.
- Recruited and built team to operate network.
- Managed regulatory and governmental affairs during period of initial implementation of Equal Access in Canada.

UNITEL COMMUNICATIONS INC., Toronto, ON *1989 - 1994*
Major Canadian Telecommunication Company (now Allstream)
Executive Director - Regulatory
Held positions of increasing responsibility, culminating in creating plans for Unitel's Information Highway initiatives and strategic Research and Development.

- Created network interconnection architecture and developed technology plans to permit long distance competition in Canada.
- Authored and defended (including oral testimony) technology and R&D evidence in the landmark CRTC long distance proceedings.
- Acted as primary press and public affairs liaison for technology issues related to the long distance project.
- Recruited and headed technology review team for the RFI and RFP process leading to the partnering between Unitel and AT&T.
- Created the Canadian Interconnection Liaison Committee, a national forum to resolve issues affecting long distance competition.
- Conceived and introduced 800 number portability in Canada.

BNR INC., Denver, CO and Raleigh, NC *1987 - 1989*
The Research and Development Arm of Northern Telecom (Nortel Networks)
Western Regional Manager
R&D liaison between BNR and its primary western customer - US WEST.

- Researched market and technology requirements for new services in order to support Northern Telecom's sales efforts.
- Established Fast Feature development project to enable BNR to improve delivery of new services to Bell South and Eastern Airlines, reducing software delivery from cycle from more than 24 months to 6 months.

AT&T BELL LABORATORIES, Holmdel, NJ *1986 - 1987*
The Research and Development Arm of AT&T
Member of Technical Staff
Led systems engineering team and created custom solutions for unique telecom needs of all branches of the U.S. Government, including national security requirements.

- Authored Switch Voice Services proposal for AT&T's bid to replace the US federal government network.
- Produced specifications for many of the initial Intelligent Network (advanced toll-free and virtual network) products for the AT&T public communications network.

BELL CANADA and BELL CANADA INTERNATIONAL, London, ON, Southfield, MI1980 - 1986
Major Telephone Company and Affiliated International Consulting Practice
Held a variety of network services positions leading to a consulting position assisting General Motors and EDS during the planning and construction of their world-wide communications network.

- Planned and developed software requirements for data collection, billing, trouble-tracking and reporting systems.
- Introduced telecommunications capital budget processes and system of accounting.

UNIVERSITY OF WESTERN ONTARIO, London, ON *1983 - 1984*
University Lecturer

- Lectured evening course session in Statistics. Concurrent to employment with Bell Canada.

EDUCATION

Master of Science (Applied Statistics) - Carleton University, Ottawa, ON, 1980
Awarded Graduate Scholarship

Bachelor of Science (Mathematical Statistics) - University of Western Ontario, London, ON, 1979
Awarded Dean of Science Award for Contribution to Life at Western (1979)

Continuing Industry and Professional Training including:
Hill & Knowlton Press and Media Training

INDUSTRY ACTIVITIES

President, Member of the Board of Directors, Canadian Committee for The Haifa Foundation, 2017 -

Director – Board of Directors, Lakeland Holding Ltd., 2016 -

Co-chair – Advisory Board and Lecturer – M. Engineering in Telecom, University of Toronto, 2003 - 2011

Advisory Board Member – KINSA – Kids Internet Safety Alliance, 2005 - 2011

CANARIE - Canadian Network for Advancement of Research, Industry and Education - A joint federal government/industry initiative, 1992-1994
- Co-Chair, Program Advisory Committee, 1993-1994
- Experimental Test Network Committee, 1993-1994
- Business Plan Chair, Procurement Policy Committee, 1992

Extern Career Counseling Host, University of Toronto, 1993-1994

PUBLICATIONS

From Intelligent to Irrelevant Networks, July 2002.

Guerilla Telecom versus Gorilla Telecom, September 2003.

Regulating Voice over IP, a solution for the CRTC, March 2005.

Lagging or Leading: The state of Canada's broadband infrastructure, October 2009.

SPEECHES and CONFERENCES

Co-chair and Sponsor – The 2016 Canadian Telecom Summit
- GST Conferences, Toronto, June 2016
Panel Moderator – The 2015 ISP Summit
- CNOC, Toronto, November 2015
Co-chair and Sponsor – The 2015 Canadian Telecom Summit
- GST Conferences, Toronto, June 2015
Panel Moderator – The 2014 ISP Summit
- CNOC, Toronto, November 2014
Co-chair and Sponsor – The 2014 Canadian Telecom Summit
- GST Conferences, Toronto, June 2014
Panel Moderator – The 2013 ISP Summit
- CNOC, Toronto, November 2013
Co-chair and Sponsor – The 2013 Canadian Telecom Summit
- GST Conferences, Toronto, June 2013
Panel Moderator – The 2012 ISP Summit
- CNOC, Toronto, November 2012
Co-chair and Sponsor – The 2012 Canadian Telecom Summit
- GST Conferences, Toronto, June 2012
Co-chair and Sponsor – The 2011 Canadian Telecom Summit
- GST Conferences, Toronto, May - June 2011
Co-chair and Sponsor – The 2010 Canadian Telecom Summit
- GST Conferences, Toronto, June 2010
Co-chair and Sponsor – The 2009 Canadian Telecom Summit
- GST Conferences, Toronto, June 2009
Co-chair and Sponsor – The 2008 Canadian Telecom Summit
- GST Conferences, Toronto, June 2008
Co-chair and Sponsor – The 2007 Canadian Telecom Summit
- GST Conferences, Toronto, June 2007
Co-chair and Sponsor – The 2006 Canadian Telecom Summit
- GST Conferences, Toronto, June 2006
Co-chair and Sponsor – The 2005 Canadian Telecom Summit
- GST Conferences, Toronto, May 2005
Co-chair and Sponsor – The 2004 Canadian Telecom Summit
- GST Conferences, Toronto, June 2004
Co-chair and Sponsor – The 2003 Canadian Telecom Summit
- GST Conferences, Toronto, June 2003
Keynote - Canadian Wireless Industry Landscape
- 2002 Messaging Forum, Toronto, October 2002
Co-chair and Sponsor – Celebrating 10 Years of Telecom Competition in Canada
- GST Conferences, Toronto, June 2002
Co-chair – Competition and Access in the Local Loop Conference
- The Canadian Institute, Toronto, January 2002
Co-chair – Optical Metropolitan Area Networks
- The Canadian Institute, Toronto, May 2001
Keynote Address: High Tech & Telecom Turmoil
- IBC Congress for Latin America, Orlando, May 2001
Moderator – Real Estate & Technology
- Institute for International Research, Toronto, May 2001
Moderator – Real Estate & Technology
- Institute for International Research, Toronto, May 2001
Co-chair – Competition in Local Services Conference
- The Canadian Institute, Toronto, January 2001
Keynote Address – Wireless Internet Conference: Mobile Virtual Network Operators
- The Canadian Institute, Toronto, September 2000
Co-chair – Access Technologies Conference
- The Canadian Institute, Toronto, June 2000
Moderator – Competition in Local Services
- The Canadian Institute, Toronto, January 2000
Co-chair – Competition in International Services Conference
- The Canadian Institute, Toronto, November 1998
Keynote Address – The 1998 Telecom, Cable, Broadcasting and Wireless Summit: Global Developments in Communications
- Insight Information, Toronto, April 1998
Alliances in Local Services Competition
- The Canadian Institute, Toronto, Feb. 1996
Unitel's Views on Information Highways
- From Information Superhighways to Your Desktop, Toronto, March 1994
Canadian Information Highways: Collaboration Between Unitel and Stentor
- Internet '93, San Francisco, Aug. 1993
Implementing Long Distance Competition
- Canadian Independent Telephone Association, Toronto, Feb. 1993
Unitel's Long Distance Application
- Canadian Independent Telephone Association, Toronto, Feb. 1991