# Telecommunications Curriculum

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## Certification Process

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TopTalks

Below are the Top-10 Talks presented as one-hour speeches for sales or technical presentations. For details on each TopTalk, please call or email These are available for Sales Meetings, Staff Functions, Executive Retreats, Strategic Planning Sessions or a follow-up to a motivational speech to give your staff something to really walk away with!

• Top-10 TeraTrends for 2013 and beyond
• Top-10 - Good To The Last Drop Or How Session Initiation Protocol SIP kills the taste of the PBX
• Top-10 - ASP Technologies
  — What kind of venom do ASPs have
• Top-10 - ASP Opportunities
  — ASPs take a byte out of the internet
• Top-10 - The SANDs of Time - Storage Area Network Devices
  — If you put your head in the sand, guess what’s for lunch
• Top-10 - “Are You Being Served” - Hosts-R-Us
  — ASPs Offer Telecom Services
• Top-10 - Insights Into Integrated Intelligent Communications
  — New tools for unified messaging and more
• Top-10 Steps From Legacy To Lunacy
  — From the Bell System to No System
• Top-10 Will DSL Be The Broadband “Fountain Of Youth” For Copper
  — There's a lot of gold in copper wire
Telecommunications Course Objectives

Fundamentals of Voice Telecommunications
- Discover the vast telecommunications industry and opportunities ahead
- Study what a telephone central office switch does and how telephone call processing occurs
- Understand basic and advanced telephone features
- Review all the critical elements in high speed telecommunications “pipes”
- Discover how voice switching works and the five key feature sets in PBX systems
- Probe the issues behind outside and inside telephone cable plant
- Understand the functions of a telecommunications manager
- Assess the Top-10 issues for selling telecommunication services

Advanced Voice Telecommunications
- Review what’s ahead in the telecommunications industry - voice over internet protocol
- Understand how number portability works with advanced information networks (AIN)
- Grasp new emerging telecommunications services such as ADSL, cable modems
- Review advanced telecommunications systems such as automatic call distributors, computer telephony integration and internet telephony
- Review key telecommunications system management issues including Poisson/Erlang
- Critique ten large business case studies
Fundamentals of Data Communications - LANs, WANs, Packets, Cells, and more . . .

- Understand the function and purpose of the open systems interconnections (OSI) model - understand the purpose and function of each 7-Layers - explore new protocols such as MPLS - (Multi-Protocol Label Switching) and RSVP (ReSerVation Protocol)
- Review all the relevant telephone network services - POTS, ISDN, T-1
- Review the differences between switched and private line services
- Explore why private line services are moving to packet services
- Probe the critical success issues for LANs, WANs, routers, bridges and routing protocols
- Understand all the critical wiring, design and management issues
- Review "thin" and "fat" LAN client issues
- Look into the light - SONET and all of its light speed
- Review emerging satellite and fixed wireless technologies
- Dig into xDSL and its cousins ADSL/HDSL/VADSL/DSL-lite
- Compare xDSL against cable modems
- Understand WANs not just wide area but wide “array” of networks
- Explore RAS - remote access services
- Probe into why VPNs - virtual private networks are so popular
- Understand “routers and routing” protocols - made easy
LAN-LAB Course Objectives

LAN Switch/Bridge Lab - “Hands-On” plus reference guide

- Learn strategic Physical layer LAN hub-switch issues
- Build and test Ethernet cables for in depth understanding
- Review NIC card MAC and IP addressing and configuration
- Understand the strategic issues surrounding LAN design
- Probe major LAN hub-switch features including spanning tree, crosspoint, cut through and fast forward switching
- Learn key decision factors for shared and switched ethernet
- Design and configure a switched LAN
- Learn and practice hands on Troubleshooting techniques

VLAN Lab - “Hands-On” plus reference guide

- Build on LAN Lab hub-switch knowledge
- Expand LAN technology potential with Virtual LANs
- Understand the strategic application of VLANs
- Review trends in LAN technology with 802.1P-Q options
- Explore VLAN hub-switch configurations
- Examine VLAN forwarding-filtering learning features
- Configure and test a VLAN using the 802.1Q protocol
- Expand practice with hands on Troubleshooting experience
WAN-LAB Course Objectives

WAN Router Lab - “Hands-On” plus reference guide

- Explore internet routing protocols and options including dynamic versus static routing issues
- Understand consensus, convergence and route flapping
- Navigate through a router to learn strategic key information and operational statistics
- Probe routing tables for bandwidth, delay, priority and metrics
- Understand strategic applications for interior routing protocols such as RIP and OSPF
- Configure a router and review key features and options
- Practice strategic network design techniques to configure a successful WAN implementation
- Install and test a firewall
- Utilize advanced troubleshooting techniques for WAN environments
Advanced Data Communications - LAN-MAN-WAN-LAN services, and IP

- Explore what is and why frame relay has taken the world by storm
- Review more than a dozen customer case studies - understand why frame relay is so compelling but IP VPNs are growing rapidly
- Learn about Ethernet Transparent LAN Service - the new name for MAN - metropolitan area network fast ethernet (100 MBPS) and (1 & 10 gigabit) LAN interconnection services
- Study the technical issues behind MPLS
  - You will understand all the terms mentioned above and how they are critical to customers today for QoS, security, caching
- Review what network management is and what tools required - SMNP, MIB, etc.
- Put all the knowledge to work in understanding the internet - backbones, autonomous systems, transits, public and private peering, transparent and reverse proxy caching
Advanced Data Communications - LAN-MAN-WAN-LAN services, and IP

- Understand what internet protocol (IP) is and what is inside IPv4, IPv6
- Learn the language - techno-babble - WWW, HTTP, HTML, DNS, subnet masking, NATs, cookies, caching, proxy servers, etc.
- Review all the underlying IP technologies - addresses, routing, NAPs, ISPs, ISTPs
- Explore reverse proxy servers and distributed web page architecture
- Discuss the emerging ASP - Applications Services Provider marketspace and why it is "leveling" the playing field for international providers
Advanced Internet – 1 day

- Understand the Top-10 issues behind designing a network with QoS – quality of service
- Understand how DiffServ uses IPv4 packets to provide different kinds of service
- Understand the Top-10 reasons for MPLS - multi-protocol label switching
- Review the Top-10 benefits of MPLS from simplified routing to reduced network management issues
- Explore the difference between data packet routing and data packet signaling – LDP – label distribution protocol
- Review the Top-10 forces behind SIP and its potential to replace or enhance legacy SS7 – signaling system 7 networks and what it will take for TRIP to be a force in the marketplace
- Examine the relationship between SIP – session initiation protocol and H.32x multi-media protocols
- Provide an exploratory discussion as to the future of voice, data and other emerging internet protocols
Accelerated Course Objectives

Accelerated Level - Advanced Solutions & Scenarios for Integrated Communications Sales
- Review the QUEST theory - questions, understanding, evaluation, systems and training
- Evaluate solution scenarios - case studies
- Learn the Top-10 Issues for planning and executing a data sales call
- Understand the Top-10 Customer business needs
- Discover the Top-10 Customer technical needs
- Probe the Top-10 Issues for managing a network
- Evaluate Top-10 Proposal guidelines
- Participate in a real-life case study role-play session

Accelerated Level - Next Generation Networks - NGN
- Discover the ultra-fast and ultra-vast opportunity for NGN systems and technologies
- Explore the driving forces behind NGN and the many options for NGN
- Scan all the technologies such as hardware, software, networks, and other NGN trends such as Session Initiation Protocol - SIP and other "digital dashboard" technologies
- Review all the potential NGN calling options for unified messaging - the technological “holy grail” of communications networks

Accelerated Level - Strategic Marketing
- Evaluate current and emerging marketing strategies for new technologies
- Review current and WEB-based distribution options
- Review changing business customer needs and “applications” solutions
- Explore new marketing options - B2B, B2C, B2thee, matrix exchanges, global applications service providers - GASPing for air
- Bring together a directive rather than a reactive marketing strategy
- Review competitive intelligence options and understand its value
- Analyze what customers are saying versus what they want
**Fundamentals of Voice Telecommunications - 2-3 Days**

For staff new to the telecommunications industry.

**DAY ONE**

**Session 1 - The Industry**
- Market size and direction
- Being a telecommunications company
- The ten major components to a telecommunications company
- Today’s competitive environment - CAPS, CLECs, IXCs, PCS, Power, and 23 others
- Understanding the incumbent LEC - case study
- Issues for the “last mile” - POPs, LATAs,
- Exchange, exchange rate areas, trends in calling areas
- Winning in the marketplace

**Session 2 - Central Office Exchange Services**
- Central Office (CO) switching - 5ESS
- Making a telephone call - AM, CM, SM
- Digital Access Cross Connect Systems
- What are they? - trunks, lines, rate options,
- Switching system functions - local, toll, operator
- Switched versus private line
- Custom calling and voice mail
- CLASS - caller ID, trace, return, block, etc.
- Operator services

**Session 3 - Bandwidth**
- PBX/CENTREX - POTS, T1
- Analog services
- Digital multiplexing - TDM, FDM, CDMA
- Trunks DID/DOD/Two Way, OPX, ring down
- ISDN - Integrated Services Digital Network
  - BRI - Basic Rate Interface
  - PRI - Primary Rate Interface
- SONET - line, path, section overhead, WDM
- Introduction to SS7 - Signaling System 7
Fundamentals of Voice Telecommunications - 2-3 Days
For staff new to the telecommunications industry.

DAY - TWO
Session 4 - Hardware Systems
• Key telephone systems
• PBX/CENTREX - major system features - attendant, station, system, enhancements
• Automatic route selection, call detail recording, accounting
• Introduction to computer telephony integration
• Introduction to internet telephony

DAY - THREE
Session 5 - Plant
• Subscriber line carriers - SLICs, MSDTs
• Outside plant, conduit and inside wire
• Category 1-7 wiring systems
• Understanding wire planning
• Jacks, twisted pair cabling, wire management

Session 6 - Customer Case Studies - Small Business
• What telecommunications means to a small business
• Letter of agency, building access agreements
• Top-10 questions to ask a customer?
• Customers profiles:
  – Internet service provider
  – Branch offices - Mortgage company
  – Travel agency - Retailer
  – Law firm
• The Top-10 things to do to win
• Price is not the issue - customer control is
• Selling against LECs, RBOCS, IXCs, etc.
• Planning for success

Session X - Optional Role Playing - Small Business
• Roles: Rep, Manager, Facilitator
• Mortgage company - Real Estate company - Travel Agency
Advanced Voice Telecommunications - 2-4 Days

At the completion of this and Fundamentals of Telecommunications, the student is prepared for the NACSE - NTSC Sales Consultant Certification

**DAY ONE**

**Session 1 - The NEW Industry**
- What/where are the new opportunities
- Convergence & divergence
- Winning in the new telecom marketplace - why the internet will change all of it?
- International issues and outlook

**Session 2 - Signaling, Multiplexing and Modulation**
- Inband signaling - POTS
- Out-of-band signaling - ISDN
- Trunk signaling - loop start, ground start
- Modulation - pulse code modulation
- Voice compression
- Framing and coding bits - B8ZS, AMI
- Compression
- ISDN & T-1 - key features and benefits
- FAS - Facility Associated Signaling and NFAS - Non-FAS

**Session 3 - Signaling System 7**
- Local number portability - RCF & AIN SS7
- AIN enhancements - SSP - Signal-Service Switching Points, STP - Signal Transfer Points, SCP - Service Control Points, IP - Intelligent Peripheral, SN - Service Node
- AIN - Advanced Intelligent Network services
Advanced Voice Telecommunications - 2-4 Days

At the completion of this and Fundamentals of Telecommunications, the student is prepared for the NACSE - NTSC Sales Consultant Certification

DAY TWO

Session 4 - Bandwidth - "Got the need for speed"
- New services, ADSL, HDSL, RADSL, VDSL
- SONET
- Circuit versus packet switching
- Private line services
- Cable modems
- Frame Relay, SMDS, ATM
- Wireless - PCS, pagers, wireless local loop, wireless fiber, wired versus wireless
- Satellites

Session 5 - Advanced Voice Systems
- Automatic Number Identification - ANI
- Dialed Number Identification Service - DNIS
- Automatic Call Distributors - ACDs - Call centers
- Internet Call Centers
- Computer-telephony Integration
- First party - third party call processing
- Integrated voice response
- Teleconferencing - desktop, audio, H.323

Session 6 - Introduction to the Internet and IP Telephony
- Internet Protocol - what's inside the packet - IPv4
- Legacy to Lunacy - SS7 to IP networks
- The emerging "digital dashboard"
- International standards for voice over packet networks
- Top-10 options for internet telephony
DAY THREE

Session 7 - Telecommunications Management
- Overview of management issues
- Billing, fraud, directories, users, vendors
- System analysis, selection, implementation
- What is Poisson and Erlang?
- Disaster planning, recovery, cable routes

Session 8 - Case Studies - Large Business
- Top-10 questions to ask a customer?

Customer profiles:
- Mid-west company
- Fortune 500 - Bank - Office park
- Conglomerate - Newspaper
- Wholesaler - Call centers
- Internet telephony provider
- Transportation - Steel company
- Shared tenant services provider
- Health care - University
- Facility management company
- Convention center - outsourcing
- Fortune 500 case study

Session X - Optional Role Playing - Large Business
- Roles: Rep, Manager, Facilitator
- Newspaper - Manufacturing Company
DAY FOUR - Optional

Applications Seminars (half-day each)

Topics include:

- Sales/Support Force Automation
- Computer-Telephony Integration
- Desktop Video
- Telecommuting and the Virtual Office
- Mobile Office Solutions
- Intranets
- ISDN
- Internetworking
- Small Office Home Office Technologies
- Digital Money - Electronic Commerce

Each of these topics is also available in a one-hour video format useful to help inform customers and staff unable to attend. These sessions are designed to introduce sales/support staff and/or customers on assisting/implementing these new technologies.

NOTE: Outline subject to change without notice.
DAY ONE

• **OSI - Open Systems Interconnection Model** - key to understanding the world of data standards and internet operations
  - Understand the role of standards and standards organizations
  - Understand the function of TCP-IP
  - Layer 1 - Physical - jacks, wires, xDSL - Digital Subscriber Line, SONET, wireless, satellite
  - Layer 2 - Data Link - ISDN, ATM, Frame Relay, PPP - Point-to-Point Protocol, Ethernet (LAN)
  - Layer 3 - IP - Internet Protocol
  - See how email and other applications are sent

• **Local Area Networking - LANs**
  - LANs - peer-to-peer, client-server configurations
    • Three things to know about - systems, software, management
    • Three things to know about hardware - cards, protocols, servers
    • Three things to know about cabling - type, topologies, conduit
  - Switched versus shared LAN systems
  - LAN quality of service (QoS) services
  - Virtual LANs and Virtual Private Networks - VLANs and VPNs
DAY TWO

Bits, Bytes & Bandwidth
- What is analog and digital
- Digital speeds explained - ISDN - Integrated Services Digital Network, T1, T3-DS3, E1-3, OC3 - Optical Carrier, OC12, OCx, kilobit, megabit, gigabit, and emerging petabit speeds
- POTS - plain old telephone service to DOTS - digital online telecommunications service - from switched to packet services, from low speed to high speed services such as frame relay, SMDS - Switched Multimegabit Data Services, ATM - Asynchronous Transfer Mode,
- Modulation techniques made easy including compression
- Framing bits
- Channelized and Unchannelized services
- Connection-oriented (telephones, ATM, Frame Relay) and connection-less services (IP - internet protocol and LANs - local area networks)
- Network components - media, LANs, WANs, routers, bridges, hubs, switches
- Key issues in circuit versus packet switching

Transmission Access Technologies
- Synchronous Optical NETworking - (SONET) - ATM/IP over SONET including optical switching
- Powerline systems
- Wireless and wireless local loop
- Asymmetrical digital subscriber loops - ADSL/HDSL/DSL/RADSL/VDSL
- Cable modems - the cable guy brings you phones
DAY THREE

• **Network Applications, Multiplexing and Virtual Circuits**
  – Multiplexing - slicing and dicing - even inversing
  – Applications driving the “need for speed”
  – Private lines and virtual circuits

• **Wide Area or Wide “Array” of Networks - WANs**
  – LAN-to-LAN services - "transparent" LAN-MAN services
  – Ethernet goes city-nationwide
  – Remote access services - RAS
  – Virtual Private Networks - IP VPNs are in vogue but who do you call when the internet breaks?
  – Parts is parts - CSU/DSU, more about bridges, FRADs, (frame relay access devices) routers,
  – Three things to know about routers - forwarding, filtering, figuring - firewalls, mantraps and other security issues
  – Integration of SS7 (signaling system 7) links with routers
  – Key points in routing protocols - distant vector and link state - review BGP4, RIP, and OSPFv3
"Hands-On"
LAN LAB & WAN LABs
Add-on Sessions To
Fundamentals of Data Communications

- **LAN Switch/Bridge Lab**
  - Physical infrastructure – build and test cables
  - NIC card MAC addresses, IP addressing configuration
  - Examine shared versus switched Ethernet
  - Navigate LAN hub/switch interfaces – CLI - Command Line Interface & GUI - Graphical User Interface
  - Configure LAN hub/switch
  - Troubleshoot LAN networking issues

- **Virtual LAN Lab**
  - Expand LAN technology understanding with VLANs
  - Configure a VLAN and demonstrate operation
  - Design and configure advanced LAN topology
  - Implement 802.1Q tagging options for advanced switching
  - Troubleshoot VLAN networking issues

- **WAN Router Lab**
  - Examine Level 3 Internet routing protocols and options
  - Review options for dynamic versus static route set up
  - Learn to use routing tables for strategic network analysis
  - Observe RIP and OSPF protocol parameters
  - View router constraints of bandwidth, delay, priority and metrics
  - Navigate a router using CLI and GUI interfaces
  - Configure a router for multipath routing and other key features
  - Configure a router firewall and test it
  - Use PING and Traceroute for advanced troubleshooting
Advanced Data Communications - 2 Days

DAY ONE

Session 1 – Packet Basics

– Packet switching basics - good for data, will it be good enough for voice or video or . . .

– What is frame relay - X.25 and fast packets

– What are the parts - FRADs, routers, CSU/DSU, T-1, etc.

– IP-Internet Protocol indepth

– Management Interface

– Top-10 network engineering issues

– Advantages of frame over private lines - mesh over mess - no more N[n-1]/2 links

– Typical IP applications - 12 customer case studies

– Critical success factors for voice over frame - jitter, buffers, etc.
DAY ONE

Session 2 – Packet Advanced

– IP jargon
– IP over SONET - which packet/cell wins
– Customer network management - why all the bother
– Simple network management protocol (SNMP) - get, set, trap
– RMON - Remote MONitoring, MIB - Management Information Base and other tips for network management
– Top-5 network management functions
– Summary - getting ready for virtual reality?
**DAY TWO**

**Day 2 - Internet - Part A - Backbones**


- Top-10 on Internet Content-Caching Issues - From SS7 to ICAP, transparent, reverse and trends in caching

- ISPs - Internet service providers - how they work

- What are ASPs - Applications Service Providers, global ASPs - GAsPs and ESPs - Entertainment Service Providers

- Internet - where networks connect to one another

- What are Autonomous Systems, Confederations, Clusters, Reflectors and other technical terms explained in animated graphics

- What are public and private peering arrangements - “need a ride or a pipe”

- Explore reverse proxy servers and distributed WEB caching concepts

- Understand homing and multi-homing
Day 2 - Internet - Part B - Technologies

- Who runs the internet - what are internet addresses
- What are the ABCs classes of internet addresses
- What are subnet masks, NATs - Network Address Translation, DNS - Domain Name Service and other tech-terms such as subnet masking
- What is IP - internet protocol - IPv4 and IPv6
- Layer 7 applications HTML, HTTPS and cookies
- Understand "visually" how HTTP - Hyper Text Transfer Protocol works today and in a distributed web content situation.
- Internet security and tunnels - hackers have their way - "there is just no such thing as security or DOS - denial of service"
- Digital certificates - moving information with security
- Key internet applications with a focus on FAX, email, video mail, video teleconferencing
- Mobile Apps and where’s the “digital wallet” on the internet?
- Intranets, extranets, shoppingnets, anynets
- In-depth section on electronic commerce - ebusiness
- Review Application Service Providers - ASPs "in search of" a marketspace
Advanced Internet - 1 Day

DAY ONE - AM

- QoS – Quality of Service Network Design – Quality is Job 1
  - Top-10 Issues in QoS network design
    - 1 - Application zone
    - 2 - User-anytop zone
    - 3 - Building zone
    - 4 - Edge zone
    - 5 - Access zone
    - 6 - Carrier zone
    - 7 - Protocol zone
    - 8 - Carrier-to-carrier zone
    - 9 - Technology performance zone
    - 10 - Standards zone

- DiffServ – differentiated services
  - DSCP – differentiated services code points
  - Behavior aggregates for TCB – traffic control blocks
  - Classifier, meter, marker, market dropper, scheduler

- MPLS – multi-protocol label switching
  - Top-10 Issues for MPLS
    - 1 - Why MPLS
    - 2 – What is a label
    - 3 – MPLS hardware parts – LER – label edge routers and LSRs label switch routers
    - 4 – How label routers talk to each other
    - 5 – How labels change during their journey
    - 6 – What is a label switch path
    - 7 – What is a label switch trunk
    - 8 – What are FECs – forwarding equivalence classes
    - 9 – MPLS and BGP
    - 10 – Key features in traffic shaping, charging and policing
Advanced Internet - 1 Day

Day One – AM-PM

MPLS – multi-protocol label switching
- Top-10 Technical Benefits of MPLS
  - 1 – Support source and shared trees
  - 2 – Support uni and directional trees
  - 3 – Provide unicast flooding and pruning
  - 4 – Provide control for ending or forward loops
  - 5 – Support split horizon multicasting
  - 6 – Simplified label route discover
  - 7 – Provide reduced convergence or route flapping
  - 8 – Provide load balancing on different parameters
  - 9 – Change weights and priorities on the run – dynamically
  - 10 – Change bandwidth on the run
  - in traffic shaping, charging and policing

Signaling and Control
- Top-10 Technical Issues for Signaling and Control
  - 1 – Signaling basics
  - 2 – POTS – inband signaling
  - 3 – T-1 – inband signaling
  - 4 – ISDN – integrated services digital network – out-of-band
  - 5 – SS7 – signaling system 7 – separate band signaling
  - 6 – TCP – transmission control protocol – connection-oriented
  - 7 – UDP – user datagram protocol – connection-less
  - 8 – CR-LDP – constraint-based label distribution protocol
  - 9 – SIP – session initiation protocol
  - 10 – Other – to many to mention – real-time protocol, etc.
D AY O N E - PM

SIP and VoIP

- Top-10 Issues for Voice over IP
- 1 – Legacy SS7 to SIP
- 2 – SIP – session initiation protocol
- 3 – Applications making it hip to SIP
- 4 – E.614 – enum international telephone number
- 5 – SIP parts – ITAD – internet telephony administrative domains
- 6 – SIP gateway providers
- 7 – SIP protocols – message, open, keepalive, update, route
- 8 – SIP processes
- 9 – SIPing apps
- 10 – Does SIP trip up H.32x and other protocols
Fundamentals

Technology Sales Training 101 Outline - 1 Day

This is an introductory course for non-sales people to learn to sell telecommunications and data communications products and services.

• Sales Tools for the New Sales Professional
• Session 1 - Personal Sales Management
  – 1) Social selling
  – 2) Financial selling
  – 3) Ratio selling
  – 4) Organizational selling
  – 5) Pain-gain selling
  – 6) Hollywood selling
  – 7) Keyword selling
  – 8) Planner selling
  – 9) Emotional selling
  – 10) Saga selling
  – Internal-External-Personal
  – Systems - Sales Force Automation
  – Strategic selling

• Session 2 - Contact Management - “Where’s the sunset?”
  – The four “cons” in sales
  – Planning versus prospecting
  – Building a valuable database
  – Cold calling gets hot!
  – Getting in the door - phone, FAX, email, etc.
  – Networking:"drilling your well before your thirsty"
  – Pre-sale preparation
  – Doing your homework
  – Funnel management
  – Thank you notes
  – Follow-up and follow-through
Fundamentals of Technology Sales Training 101 Outline 1 - Day

This is an introductory course for non-sales people to learn to sell telecommunications and data communications products and services

- **Session 3 - Customer Management**
  - I’m here to help - Top-10
  - Meeting with the customer
  - Customer presentations
  - Painting the benefits
  - Words that win
  - Listening with both ears and one mouth
  - Objections as opportunities
  - Customer buying habits
  - Customers within customers

- **Session 4 - Competitive Management**
  - Identifying strengths and weaknesses
  - Understanding players and strategy
  - Leveraging your strengths

- **Session 5 - Proposals**
  - Sales letters
  - Proposals

- **Session 6 - Role Playing**
  - Small business case studies
Advanced Solution Selling for the Integrated Communications Sales Professional
Accelerated Course - 1 Day
This course is to be taken ONLY after successful completion of Advanced Data Communications

DAY ONE

Solutions & Scenarios for the Integrated Communications Sales Professional - Selling Local, Long Distance, Data and Internet services

– Solution Scenarios - 15 case studies
– Understanding the competition
– Understanding the virtual office in a virtual economy
– Understanding next generation network-internet call centers
– Understand
  • B2B - business-to-business,
  • B2C - business-to-consumer and
  • MTX - matrix transaction exchanges
– Top-10 - Issues for planning and executing an ICP sales call
  • ICP - Integrated Communications Professional
– Top-10 - Customer business needs
– More - see next page
Advanced Solution Selling for the Integrated Communications Sales Professional

Continued from previous page

DAY ONE

- Top-10 - Customer technical needs
- Top-10 - Customer network management needs
- Creating an account strategy
- Top-down selling
- Account team positioning/leveraging - consultants, VARs - Value-Added Resellers, etc.
- Strategic analysis - mapping the sales process using QUEST
- QUEST - Questions, Understanding, Evaluation, Systems & Training
- Top-10 - Proposal guidelines

• Role Play Session(s) and case studies - optional
DAY ONE
Session 1 - The Next Gen Network Market
• Market drivers - is NGN a market or another technology IN search of a user
• Market growth projections - $100+ billion by 2010 - “you’ve got to be kidding”
• Technology, market & player convergence
• Market opportunity - “look, no ma bell”
  - ILECs, CLECs, CAPs, ISPs, ITPs, CATV and 18 others
• Market players - “winners and losers”
• Future outlook - implosion or explosion - “prices and profits plummet unless...”
• International game plan
• Network versus desktop centric
• SS7 Calling Routing
  - LAN-to-LAN - Etherphone - Tokenphone
  - PC-to-PC - PBX-to-PBX/CENTREX
  - PC-to-Phone/PBX - Unified Messaging Finally Kills the PBX
  - Phone-to-Phone/Payphone
  - Pager - Voice mail
  - Email mail - Video Mail
  - FAX-to-FAX - Machine-to-machine
  - Gateways - new POPs and IHOPs
• What does NGN cost and what will you pay

Session 2 - Advanced OSI IT Options
Review of all seven layers in the OSI Model
• Review of H.323 unified messaging and SIP
• Review of SS7 and the OSI model

Session 3 - Next Generation Technologies
• Internet technologies and NGN networks - hybrid nets
• Internet protocols meet QoS needs
• Internet service providers - Telecom Hosting Trends
• Internet routing, addressing and domain name servers
• IPv6, Layers & Domains
DAY TWO
Session 4 - NGN Technical issues - “doing it”
Standards to make it work - “alphabet soup” - G.729, G.723, H.323, T.120, Q.93x, C.100, S.100, H.100, T.100, VPIM, TCP/IP, DHTML, DOM, SIP, LME, RTMP, SFTP, IMAP, X.500, LDAP, POP, SMTP, SNMP, SCTP, IPMI, PPTP, L2F, DHCP and more to come!
- Internet-PSTN trunk “poisson” analysis
- Routing protocols - OSPF, BGP, RSVP, RIP1 plus DVP, LSP, PVP, ADR, CIDR
- Trouble shooting & disaster planning - “are you online or on the line”
- IT featureset - software, network, management
- Digital Signal Processing - DSP chips do all of IT

Session 5 - Planning for NGN
- Internet - new apps, old needs
  - “Click-to-call” - “Click-to-buy”
  - “Click-to-see” - “Click-for-help
- Internet call centers - ECTI - E800/900
- Internet video and online meetings
- Internet call bartering
- Machine-to-machine solutions - pumps & kiosks
- INTRA.net telephony comes calling
  - Internal business - B2Me
  - Business-to-suppliers - B2S
  - Business-to-customers - B2C
- Hardware issues - “what’s inside the box”
  - Voice over internet protocol - VoIP
  - IT and IT - “friends or foes” - TSAPI, TAPI, Java
  - One box - “where did my phone go?”
    - Consumer outlook
    - CENTREX and PBX technical issues
    - IT servers - “all in one box”
  - One UI - “you’ve got to be kidding”
  - One wire - “in your dreams”
  - One platform - “legacy’s are legendary”
- NGN-Trends - “NGN coming to an anything near you”
Session 1 - Changing strategic market values - seminar topics include:
- Virtual organizations - changing worlds, changing paradigms
- Emerging technologies - what will succeed, what will fail
- Product concepts - form, function, fashion
- Changing channels of distribution - seller’s view, buyer’s view for mail order, super stores, dealers, online
- Positioning products before they become “road kill”

Session 2 - Marketing value technologies - review of technologies and their marketing value “in” products and value to consumers - HOT NEWS - surfing, sailing, and sinking on the INTERNET, online services, CATV, FAX, telemarketing, kiosks, multi-media, direct broadcast, audio/video tape, expert systems, virtual reality, personal digital assistants, personal communications systems, voice mail, email, video teleconferencing, video on demand, emerging technologies.

Session 3 - Market value versus product values
- Marketing value strategy - the value of marketing in products
- Marketing value places - at home, mall, car, roving, plane, train

Session 4 - Consumer marketing of high-tech products
- Transmitter-driven - mass markets
- Receiver-driven - peer markets
- Feedback-driven - customized markets
Session 5 - Product development and innovation - consumer and marketing intelligence
- Competitive intelligence - directive rather than reactive
- Customer intelligence - “dossier model” - “What customers really want”

Session 6 - Changing channels of distribution
- Selling channels - preventing your product from gathering dust
- Selling through distributors, dealers, mail order, superstores, electronic commerce and INTERNET, etc

Session 7 - Future marketing and organizational strategies - emergence of the “chief technology officer”
- Changing and creating product/market value proposition
- Global competitors - they’re bigger, more aggressive than you ever imagined
- Global fears - spies, terrorism, intellectual property theft and other market horrors
- New management structures - the Chief Technology Officer (CTO) emerges along with IMC - integrated market-value communications
- New breed of customers - Strategic concerns
- Migration strategy - New kinds of products
Corporate Background Information
Learning Systems Delivery

- Deloitte Consulting - Fundamentals and Advanced Data
- Qwest - Fundamentals and Advanced Data Communications & Solution Selling
- Cox Cable - Fundamentals of Telecommunications
- NewSouth Communications – Telecommunications
- ICG - Voice/Data/Internet
- US Border Patrol - Telecommunications, Datacom, Internet
- Teligent - Data Systems and Sales Solutions Strategy
- GST - Data Communications and Solutions Selling
- Lucent - LAN/WAN, Frame Relay, ATM and Call Centers
- AT&T - Data Networks, Local Telecommunications
- e.spire - Voice, Data, LAN/WAN, Frame Relay, ATM
- Time Warner - CLEC - Competitive Market - Voice, Data
- TRA - Emerging Technologies, Communications Services
- BCR – Teleconferencing
- Permagon Infotech – Intelligent Buildings, Artificial Intelligence
- City of Virginia Beach - Virtual Office, Desktop Video
- GE Medical Systems - Sales Force Automation
- Dale Carnegie - Advanced Sales Force Automation
- ATT-Local Services TCG - Voice and Data Communications
- USWest – LAN/WAN
Strategy, Solutions & Research Projects

• Time Warner Communications - Telecommunications Strategy
• GE Medical Systems - Sales Force Automation Strategy
• Bellcore (Telcordia) - Sales & marketing and business plan development
• City of Virginia Beach - Economic Development
• Cap Gemini - Telecommunications and Virtual Office Research
• Bellcore - Teleconferencing market strategy
• USWest - Asset management
• BellSouth - “FirstPark” intelligent office park market strategy
• BellSouth - Higher education market strategy
• BellSouth - Geographic information forecasting study
• Cable Television Laboratories - Telecommuting market strategy
• ATC - CATV bypass business case development
• City of Shrewsbury - Telco/CATV business plan
• Storage Technology - Teleconferencing business case
• State of Colorado - Telecommuting implementation plan
• United Technologies - PBX strategic plan
• CONTEL - CENTREX strategic plan
• Numerous client confidential studies in telecommuting, online services, electronic yellow pages, CATV, telecommunications strategy, PBX/Key/CENTREX products, and new venture plans
• Knowledge Engineering - Applications for Artificial Intelligence
• The Softside of Software
• Teleconferencing: Linking People Together Electronically
• Communicating Electronically - An Electronic Mail Handbook
• Telecommuting: The Future Technology of Work
• Intelligent Buildings
• Networking Personal Computers in Organizations
• Teleconferencing State-of-the-Art Report
• Chief Technology Officer
• Split Second Society
• LAN$ELL-Desktop Guide for the Connectivity Sales Professional
• LANCOM-LAN Communications Solutions
• in progress - CROSS+FIRE - groupware for groupies
• in progress - AppPower - mobile office technology
Awards, Publications, Speaking

• Outstanding Information Technology Award from the Associated Information Managers - for MATRIX computer tele/conferencing and online groupware system
• Overall Greatest Contribution from Teleconference Magazine
• Distinguished Author Award from the International Facility Managers Association
• Technology Resources Recognition Award from Bellcore
• Honor Society Achievement Award from the Association of Information Systems Professionals
• Authored over 100 magazine articles which appeared in such publications as Communications News, Business Communications Review, The Office, Online, LAN Times, Selling Red, and others
• Delivered hundreds of speeches in the U.S., Europe and Australia on topics from teleconferencing, intelligent buildings, future technologies, artificial intelligence and others
Products Developed

- CROSS+POINT - groupware electronic mail system
- LAN+MODEM - LAN modem sharing software
- CROSS+CONNECT - inbound/outbound LAN software
- CROSS+DIAL - terminal emulation software
- COMSCAN - LAN management software
- NETTALK - real-time LAN communications software
- CENTRIX - CENTREX telephone system
- FlyBy - LAN bulletin board & screen saver
- NETPAGE – LAN paging system
- Intelligent voice networking system for GTE
- Tandem central office for Storage Technology
- Office communications system for Lanier & United Technologies
- CENTREX telecommunications system for startup
- MATRIX – groupware networking system
Faculty Member - Thomas B. Cross

• B.S. & M.S. - Telecommunications - University of Colorado
• Doctoral studies in Philosophy – University of Colorado
• Former Professor - University of Colorado M.S
  Telecommunications Program taught Telecommunications Strategy Planning
• Developed new strategy course offered via the internet
• Former Professor - University of Denver - M.S.
  Telecommunications Program taught Trends in Information Technology
• Member International Internet Telecommunications Association
• Co-Founder of the International Tele/conferencing Association
• Systems VoIP Certification – Nuera Communications
• Copper Mountain Certification - Advanced Provisioning
• NACSE Certified Instructor
Half-Day “Quick Study” Seminars
And One-Hour Videos

• Understanding Desktop Video - “Being There Without Going There”
• Opportunities in Computer-Telephony Integration
• Understanding Telecommuting and the Virtual Office
• Understanding ISDN - Making it Work for You
• Understanding Strategic Marketing of Telecommunications and Emerging Technologies
• Understanding Internetworking
• “On the Road Again” Understanding Mobile Solutions and Technology
• Digital Money - Building and Expanding an Online Business Internationally
• Home Office Technologies
• Intranets - Growing Online Virtual Corporations
• Introduction to Call Centers
• Introduction to Sales/Field Force Automation (SFA)
• Gigatrends 2013
• Introduction to Telecommunications
• Introduction to Cable Management Systems
• Business Opportunities for Internet Telecommunications
• Winning in the Competitive Local Exchange Business