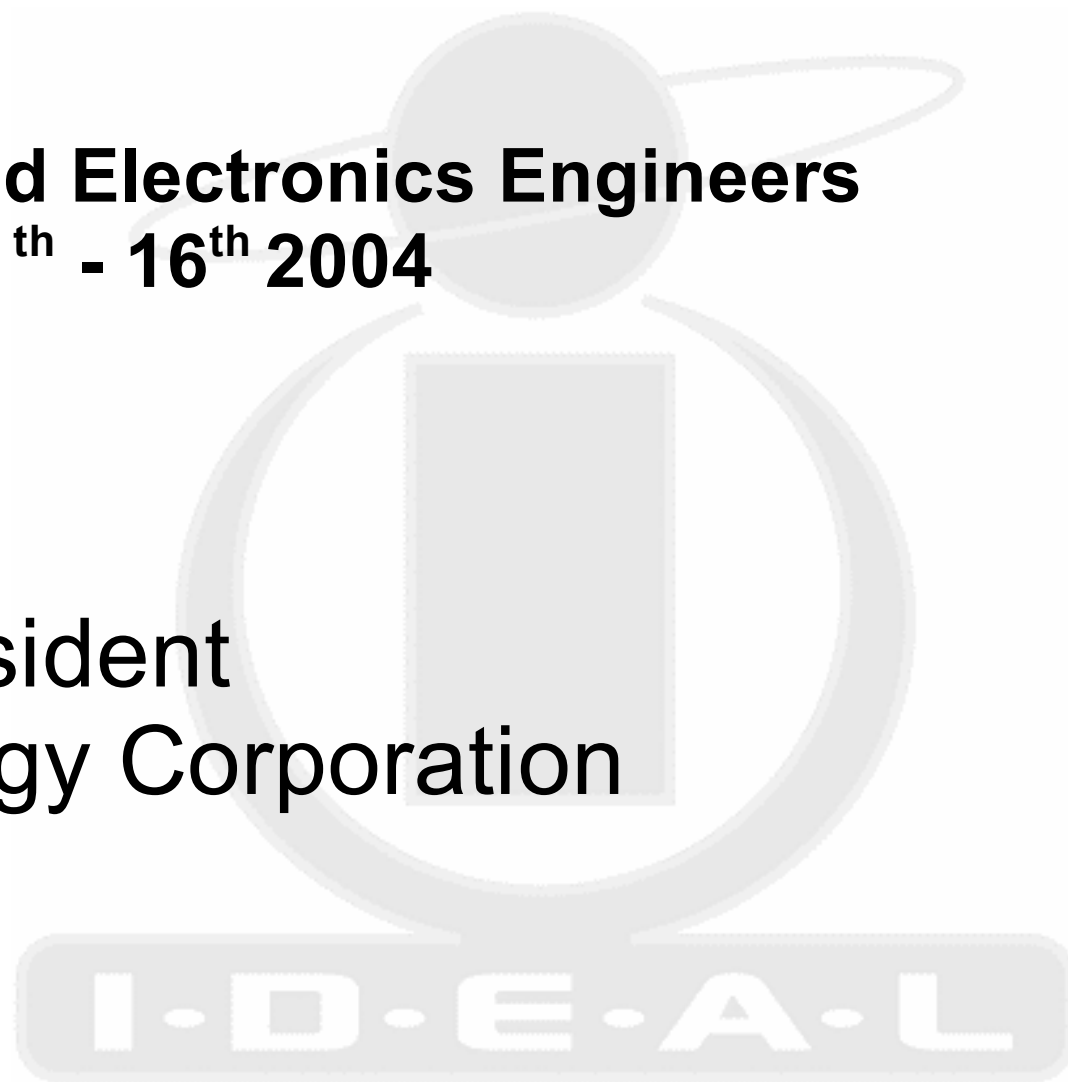# Overview of IEEE 802 LMSC Conference Network

Prepared for:
Institute of Electrical and Electronics Engineers
Vancouver – January 11th - 16th 2004

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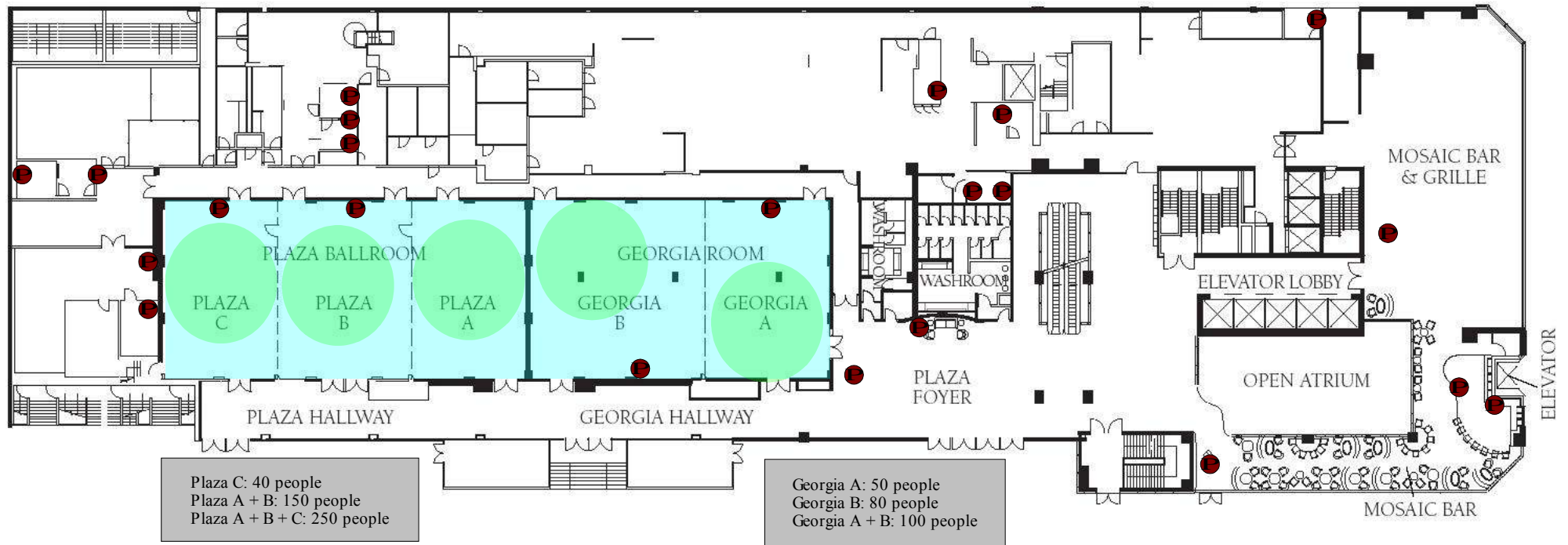I.D.E.A.L. TECHNOLOGY CORPORATION

Initial Goals

- Provide network support for conference
  - Network topology design and implementation
  - Management of network resources
  - Facilitate Internet access
  - File and print server access
- Provide end user support for conference
  - Wireless and wired client configuration
  - Diagnose and resolve VPN issues
- Communicate with all members any network disruptions or notable network issues

Service Availability

- Worked with Internet service providers and Hyatt staff to facilitate Internet access by 12:30pm Saturday

- Deployment of access points at Hyatt complete by 8:00pm Sunday

- Wireless link to Fairmont Hotel Vancouver made available at 9:00pm Sunday

- Deployment of access points at Fairmont for initial meetings by 3:00am Monday

- All services available on time for conference

Hyatt Regency Vancouver

PLAZA LEVEL (2nd FLOOR)

MOSAIC BAR & GRILLE

PLAZA BALLROOM

GEORGIA ROOM

PLAZA C

PLAZA B

PLAZA A

GEORGIA B

GEORGIA A

WASHROOM

WASHROOM

ELEVATOR LOBBY

PLAZA FOYER

OPEN ATRIUM

ELEVATOR

PLAZA HALLWAY

GEORGIA HALLWAY

MOSAIC BAR

Plaza C: 40 people
Plaza A + B: 150 people
Plaza A + B + C: 250 people

Georgia A: 50 people
Georgia B: 80 people
Georgia A + B: 100 people

Hyatt Regency Vancouver

CONVENTION LEVEL (3rd FLOOR)

Prince Of Wales: 50 people

QUEEN CHARLOTTE
B   A

CORRIDOR

REGENCY BALLROOM

REGENCY WEST FOYER

REGENCY F
REGENCY D
REGENCY C
REGENCY B
REGENCY A
REGENCY E

REGENCY FOYER

WASHROOMS

KING GEORGE

PRINCE OF WALES ROOM

Oxford: 40 people

OXFORD ROOM

ELEVATOR LOBBY

BALMORAL

WINDSOR

REGENCY HALLWAY

Cavendish Room: 20 people

Dover Room: 20 (40) people

Regency A: 40 people
Regency B: 80 people
Regency C: 140 people
Regency D: 120 people
Regency E: 120 people
Regency F: 100 people
Regency A + B: 120 people
Regency A + B + C + D: 600 people

Balmoral: 70 people

FOURTH FLOOR

Tennyson Room: 20 people

CAVENDISH ROOM
TENNYSON ROOM
DOVER ROOM
ACCOUNTING OFFICE

POOL

ELEVATORS
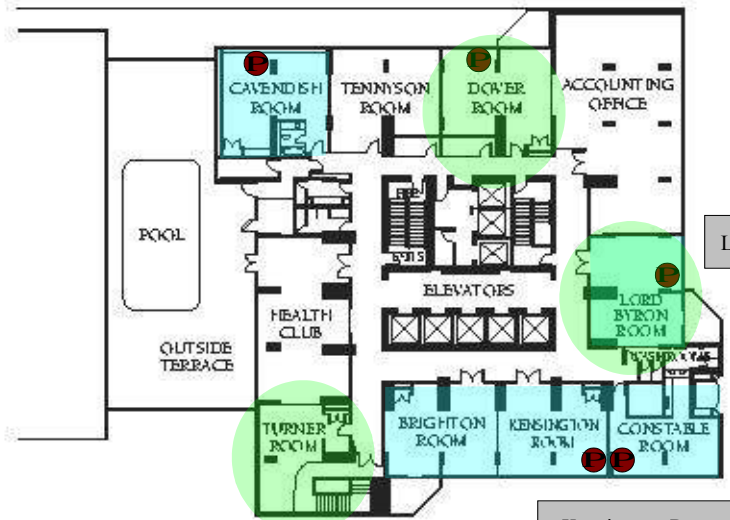
Lord Byron Room: 20 people

LORD BYRON ROOM

HEALTH CLUB

OUTSIDE TERRACE

TURNER ROOM
BRIGHTON ROOM
KENSINGTON ROOM
CONSTABLE ROOM

Constable Room: 20 people

Kensington Room: 20 people

Brighton Room: 20 people

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Fairmont Hotel
Vancouver

AUTO ELEVATOR

COLUMBIA ROOM

BRITISH COLUMBIA BALLROOM

BRITISH COLUMBIA FOYER

BANQUET SERVICE KITCHEN

BRITISH ROOM

Vancouver Island 100 people

LIONS ROOM

Garibaldi 20 people

GARABALDI ROOM

VANCOUVER ISLAND ROOM

ELEVATORS

ESCALATOR

COAT CHECK

STAIRS

Tweedsmuir 20 people

TWEEDSMUIR ROOM

PACIFIC FOYER

GRAND STAIRCASE

BURRARD STREET

OFFICE

Pacific Ballroom Meeting 150 People
Pacific Ballroom Reception 800 people

PACIFIC BALLROOM

STAGE

BOARDROOM

Waddington: 100 people

WADDINGTON ROOM

Boardroom 50 people

GEORGIA STREET

Fairmont Hotel
Vancouver
Discovery Level

Galiano Island 20 people

Cortes Island: 20 People

Saturna Island 100 people

SATURNA

GALIANO

GABRIOLA

CORTES

SERVICE PANTRY

FOYER

Gabriola Island 20 people

COAT CHECK

ELEVATORS

MORESBY

GEORGIA STREET

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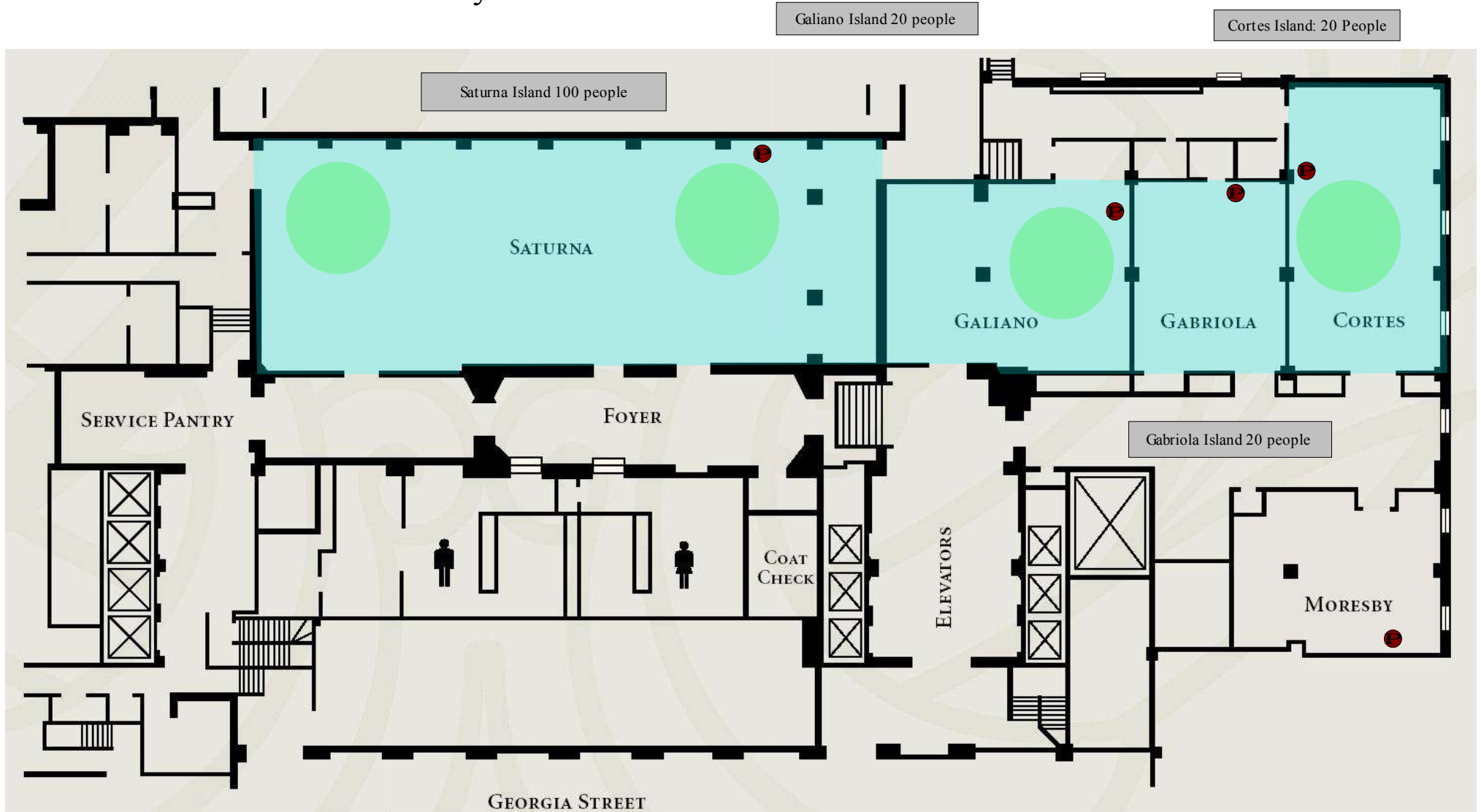
Network Statistics

(Statistics accurate as of 3:00pm 01-15-2003)

- Unique devices requesting IP address: 1362

- Total web requests served: 4,030,679

- Total bytes of data delivered: 29,012,680,402

- Max simultaneous Masq sessions: 9,615 (2,849 avg)

- Max simultaneous IPSEC tunnels: 194 (44 avg)

- Max simultaneous PPTP tunnels: 103 (50 avg)

- Max Internet access utilization: 628KB/s (5.02Mb/s)*

  - 4 x T1 = 6.176Mbps

* Could not sustain this maximum rate, true effective sustained throughput closer to 4Mb/s

CLIENT MAC VENDORS

Vendor	#	Vendor	#	Vendor	#
3Com Corporation	32	Dell Computer Corporation	28	Philips Components	15
Abocom Systems, Inc.	3	Delta Networks, Inc.	12	Planet Communications, Inc.	2
Accton Technology Corp.	1	Elecom Co., Ltd. (Laneed Div.)	1	Premax Electronics, Inc.	31
Acer Incorporated	2	Elitegroup Computer System Co. (Ecs)	1	Proxim, Inc.	19
Acrowave Systems Co., Ltd.	2	Enterasys Networks	3	Quanta Computer, Inc.	2
Agere Systems	201	Epigram, Inc.	14	Ralink Technology, Corp.	1
Airgo Networks, Inc.	1	Ericsson Group	2	Redcreek Communications, Inc.	1
Aironet Wireless Communication	46	Farallon Computing/Netopia	18	Samsung Electro-Mechanics Co., Ltd.	15
Airvast Technology Inc.	1	Fujitsu, Ltd	7	Samsung Electronics Co., Ltd.	3
Allied Telesis K.K.	1	Gemtek Technology Co., Ltd.	38	Sharp Corporation	4
Alps Electric Co., Ltd.	2	Giga Fast E. Ltd.	1	Smc Networks, Inc.	24
Ambicom, Inc.	1	Global Sun Technology, Inc.	6	Sony Corporation Ltd.	15
Ambit Microsystems Corp.	26	Hewlett Packard	18	Standard Microsystems Corp.	1
Ambit Microsystems Corporation	46	I-O Data Device, Inc.	2	Symbol Technologies, Inc.	7
Ani Communications Inc.	12	IBM Corporation	21	Texas Instruments	3
Apple Computer, Inc.	24	Inpro Comm	1	The Linksys Group, Inc.	104
Askey Computer Corp.	7	Intel Corporation	166	Toshiba Corporation	15
Asustek Computer Inc.	3	Intersil Corp.	4	Twinhead Corporation	1
Atheros Communications, Inc.	6	IP One, Inc.	1	Usi	3
Belkin Components	6	Lucent Technologies	17	Wistron Corp.	1
Broadcom Corporation	1	Matsushita Electric Ind. Co	2	Xircom	40
Bromax Communications, Ltd.	1	Megahertz Corporation	3	Z-Com, Inc.	4
Cabletron - Yago Systems, Inc.	1	Melco Inc.	6	Zinwell Corporation	1
Card Access, Inc.	1	Microsoft Corp.	6	00:11:22	1
CC&C Technologies, Inc.	1	Module Department	2	02:0B:CD	1
Cisco	116	NEC Corporation	5	22:FD:BC	1
Compal Electronics, Inc.	1	Netgear, Inc.	45	A2:D3:E6	1
Conexant Systems, Inc.	1	Nokia Wireless Business Commun	6	D2:8C:B5	1
Corega K.K.	1	Nortel Networks	15		
D-Link Corporation	45	Palm Inc.	2		

Total	592	**Total**	453	**Total**	317
				Grand Total	1362

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Conference Issues

- 802.11 and 802.15 attendance website had issues Tuesday morning

  - Data entry error by conference chair caused outage

- Network and worm abuse detection has proved very effective

  - Only 2 events detected due to clients running peer-to-peer clients that allow the sharing of files to the Internet

  - Future worms which take advantage of new vulnerabilities will likely create problems again, but the system will still be in place to respond to them

- Some minor issues with network equipment being unplugged

 - Active monitoring of network equipment reduced impact of outages

- Fairview Wireless Internet link was down Thursday afternoon at 3:42pm

  – Issue was related to the power supply for the radio

  – Temporarily brought up on an SDSL 2Mbps circuit at 5:45pm

  – Full service restored on Friday morning at 11:45am

  – Service outage lasted for 2 hours with degraded service for 20 hours

- Fairview Wireless Internet link did not perform very well

  – Maximum usable bandwidth available was 5Mbps, but it was not sustainable at that level

  – Congestion caused problems maintaining some VPN connections and other session-type connections to the Internet

  – Do not recommend this type of ISP connection at future conferences

Upcoming Conferences

- Harry Bims from AirFlow Networks still intends to donate an AirServer and up to 30 802.11b access points

    - Inventory issues prevented delivery in time for this conference

- Preparation for March plenary on schedule and initial contact has been made with Hyatt in Orlando

- Equipment deficit in the IEEE inventory remains a challenge to meeting conference network goals

    - Must either pursue donations vigorously or plan alternate plan for acquisition of equipment to provide adequate coverage
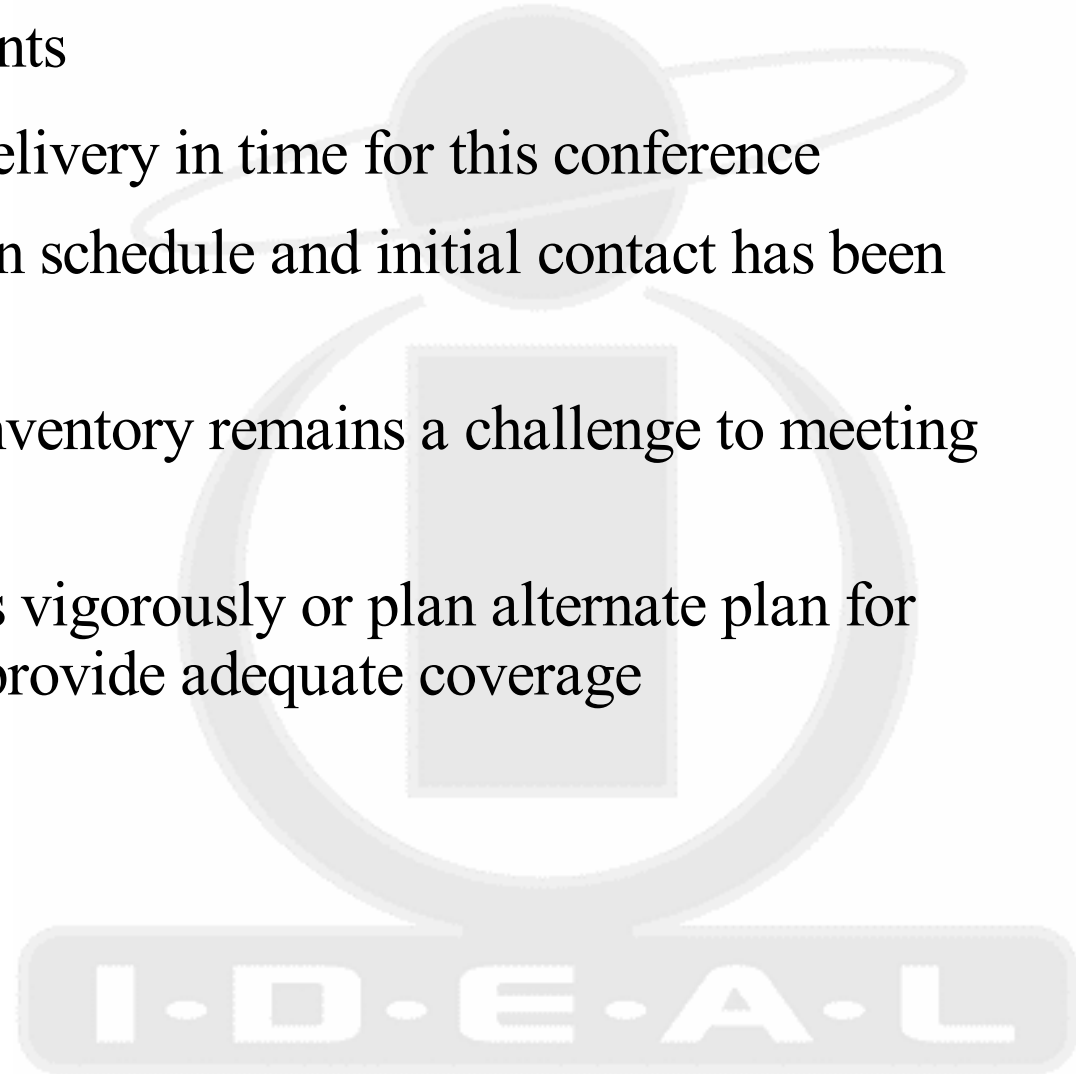
Any questions?
Any suggestions?

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