NRIC

Network Reliability and Interoperability Council *VII*

NRIC Council Meeting
Focus Group 3 Final Report

Focus Group 3A

Best Practices

for the Reliability

of Wireless Networks

Focus Group 3B

Best Practices

for the Reliability

of Public Data Networks

October 19, 2005

3A

"By September 29, 2005, the Council shall provide a report recommending the Best Practices for the wireless industry including the new Best Practices that particularly apply uniquely to wireless networks."

3B

"By September 25, 2005, the Council shall provide a report recommending the Best Practices for Internet data services providers including the new Best Practices that particularly apply to public data network service providers."

Wireless Network Reliability
Focus Group Mission

Building on the work of the previous Councils, as appropriate, this Council (1) shall continue to develop Best Practices and (2) refine or modify, as appropriate, Best Practices developed by previous Councils aimed at improving the reliability of wireless networks. In addition, the Council (3) shall address the following topics in detail.

The Council (4) shall evaluate the efficacy of all Best Practices that have been developed for the wireless industry. The Council (5) shall perform a gap analysis to determine areas where new wireless Best Practices are needed. The Council (6) shall survey the wireless industry concerning the effectiveness of the Best Practices. The Council (7) shall focus on the special needs of the wireless industry and (8) refine existing Best Practices to focus their applicability to the wireless industry.

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Public Data Networks
Focus Group Mission

✓ Building on the work of the previous Councils, as appropriate, this Council ✓ (1) shall continue to develop Best Practices and (2) refine or modify, as appropriate, Best Practices developed by previous Councils aimed at improving the reliability of public data networks. In addition, the Council (3) ✓ shall address the following topics in detail.

✓ The Council (4) shall evaluate the applicability of all Best Practices that have been developed for public data network providers. The Council (5) ✓ shall perform a gap analysis to determine areas where new Best Practices for these providers are needed. The Council (6) shall survey providers of ✓ public data network services, including Internet data services providers, concerning the efficacy of existing Best Practices. The Council (7) shall ✓ focus on the special needs of public data services providers and (8) refine ✓ existing Best Practices to improve their applicability to Internet data services and other public data network services.

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Focus Group 3 Expertise and Diversity of Perspectives

WIRELESS NETWORK RELIABILITY - FOCUS GROUP 3A
Co-Chair: John Quigley*, Sprint
Co-Chair: Karl F. Rauscher, Lucent Technologies Bell Labs

SERVICE PROVIDERS, NETWORK OPERATORS

ALLTEL	Steven Paton	Qwest Wireless	Sherman W Phillips
			Stacy Hartman
AT&T	Victor DeVito*	SBC	John Chapa
Cingular	Jim Smith	Sprint	Bill Hitchcock*
	Rich Moczygemba		Brad McManus*
Cox Communications	Mark Adams	T-Mobile	Tom Ellefson
Dobson	Scott Jones		John Mardula*
Intelsat	Mark Neibert	US Cellular	Mike Hussey
MCI	Mike Sheffield	Verizon Wireless	Chris Oberg
Nextel	David Proffer		

EQUIPMENT SUPPLIERS

Battery Corp	Harold Washer	Lucent Technologies	Richard Krock*
			James P. Runyon*
Cisco Systems	Robin Roberts	Motorola	Lester Buczek*
			John Bassett*
Ericsson	Bentley Alexander*	Nortel Networks	Srini Anam

OTHERS

American Tower	Ted Abrams	NCS	Perry Fergus
ATIS	Bill Klein (A)	NYC DOITT	Mitchel Ahlbaum
CTIA	Rick Kemper	SAIC	Hank Kluepfel (A)
FCC	Jeff Goldthorp (A)	Telcordia Technologies	Spilios Makris
	Kent Nilsson (A)		

PUBLIC DATA NETWORK RELIABILITY - FOCUS GROUP 3B
Co-Chair   David Frigeri*, Internap
Co-Chair: Karl F. Rauscher*, Lucent Technologies Bell Labs

SERVICE PROVIDERS, NETWORK OPERATORS

ALLTEL	Scott Binns	Nextel	KC Kim*
	Tim Hall*	Qwest	Brian Rooks
AT&T	Rick Canaday	RCN	Joe Provo
BellSouth	Jim L. Johnson	SBC	John Chapa
CenturyTel	Brent Austin		Ren Provo
	Brian White		
Comcast Cable	Dean Brewster*	Sprint	Chase Cotton*
Cox Communications	Mark Adams*	Telefonica	Dennis Di Toro
Equinix	William Norton	Time Warner Cable	Ron da Silva
Internap	Duke McMillin*		
	Jon Vestal	Verizon	Robin Howard
Intelsat	Mark Neibert		
MCI	Barry Briggs		
	Mike Diorio		

EQUIPMENT SUPPLIERS

Cisco Systems	Robin Roberts	Lucent Technologies	Richard Krock*
			James P. Runyon*
Juniper Networks	Fred Stringer*		

OTHERS

ATIS	Bill Klein (A)	Harvard University	Scott Bradner
CTIA	Rick Kemper	Quality & Reliability Solutions, LLC	Brad Nelson*
FCC	Jeff Goldthorp (A)	SAIC	Hank Kluepfel (A)
	Kent Nilsson (A)	Telcordia Technologies	Spilios Makris

FG 3A and 3B - Participation

	Wireless Network Reliability	Public Data Networks
Meeting Type	Participant Hours	Participant Hours
Conference Call	~500 (13)	~650 (12)
Workshops	~2200 (20)	~1550 (39)
Total	~2700	~2200

In addition, each of the eight Task Groups had numerous meetings that would account for **hundreds of additional hours** of meetings.

Interest waned at the end. Concerns of regulation were voiced.
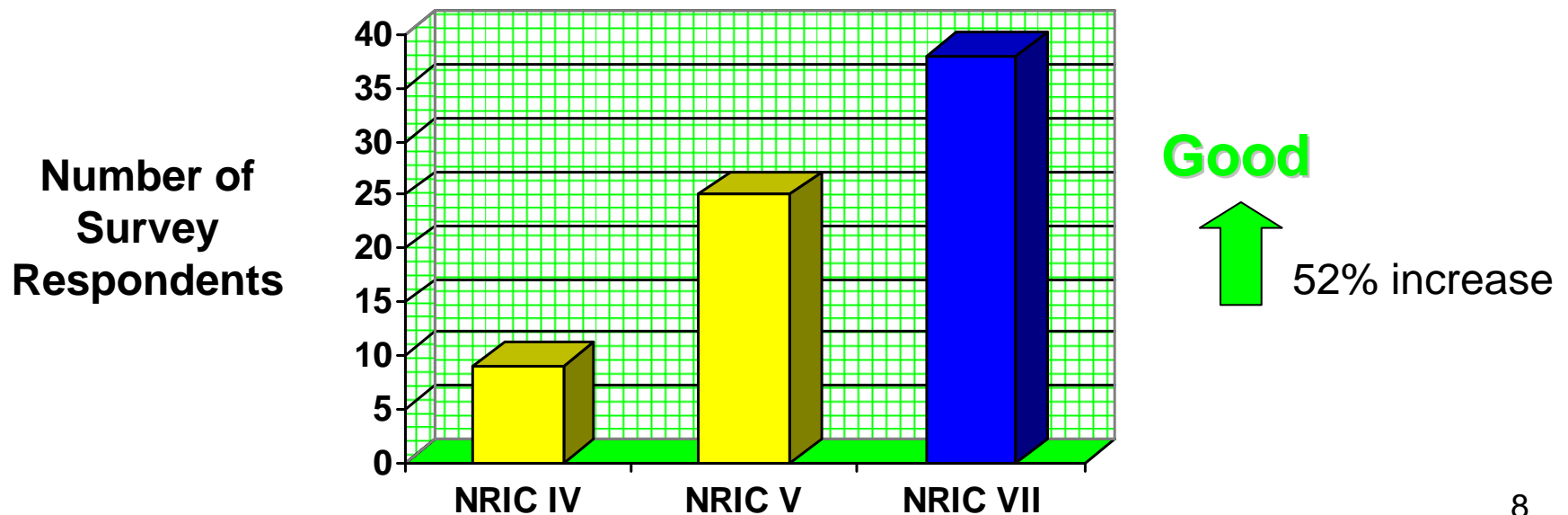
Methodology
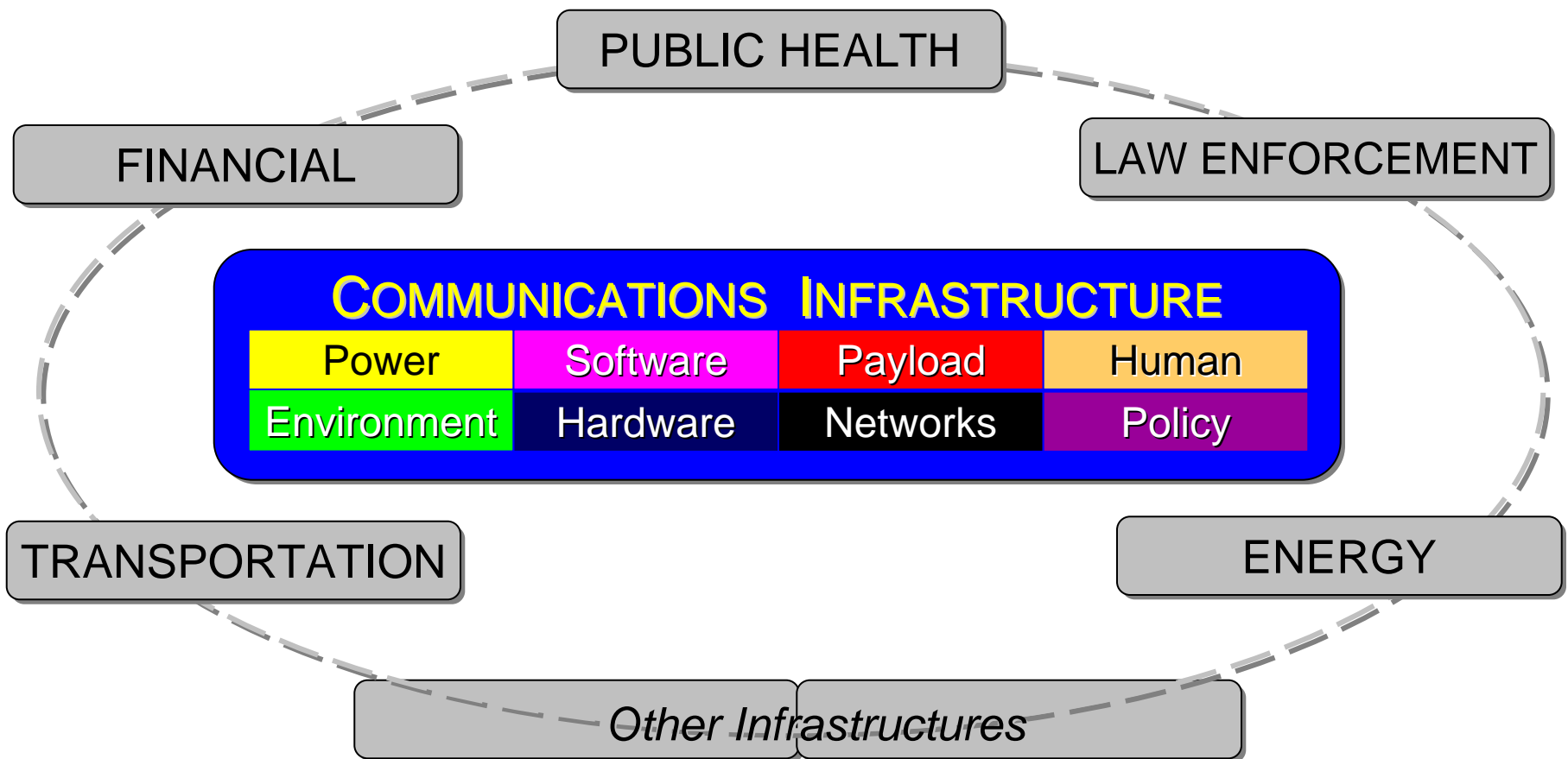
- ## Gap Closure Process
- ## Wireless Services Applicability Improvement Process
- ## Effectiveness Survey Process

Number of Survey Respondents

Good

52% increase

NRIC IV   NRIC V   NRIC VII

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NRIC Council Meeting

Focus Group 3A
Wireless Networks
September 21st, 2005

John Quigley
Co-Chair
Wireless Network Reliability Focus Group

Director, Network Integrity
Network Operations
Sprint

Karl Rauscher
Co-Chair
Wireless Network Reliability Focus Group

Executive Director
Bell Labs Network Reliability & Security Office,
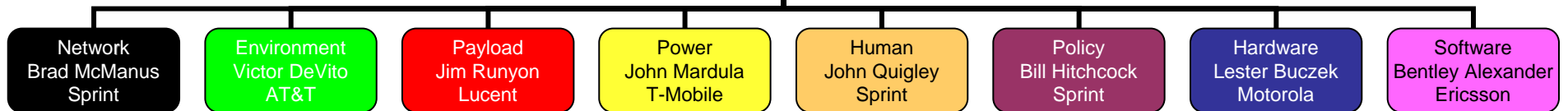Lucent Technologies

Wireless Networks - Deliverables

The Council shall evaluate the efficacy of all Best Practices that have been developed for the wireless industry. The Council shall:

1. perform a gap analysis

2. survey the wireless industry concerning the effectiveness of the Best Practices

3. focus on the special needs of the wireless industry and refine existing Best Practices to focus their applicability to the wireless industry

The full Focus Group 3A Charter can be found at www.NRIC.org

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Focus Group 3A Structure and Report Processes

**Focus Group 3A
Wireless Networks**

Network Brad McManus Sprint	Environment Victor DeVito AT&T	Payload Jim Runyon Lucent	Power John Mardula T-Mobile	Human John Quigley Sprint	Policy Bill Hitchcock Sprint	Hardware Lester Buczek Motorola	Software Bentley Alexander Ericsson

- engaged over 50 industry subject matter experts
- articulated over 138 attributes of Wireless Networks
- considered 285 concerns regarding Wireless Networks
- formed 8 Task Groups that provided systematic coverage of communications infrastructure elements

Wireless Network Reliability Focus Group Structure and Findings

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Focus Group 3A
Wireless Networks

	Network	Environment	Payload	Power	Human	Policy	Hardware	Software
Gap	3	2	1	2	2	2	0	1
New	32	4	1	8	1	4	1	0
Mod	4	6	2	1	0	1	0	8
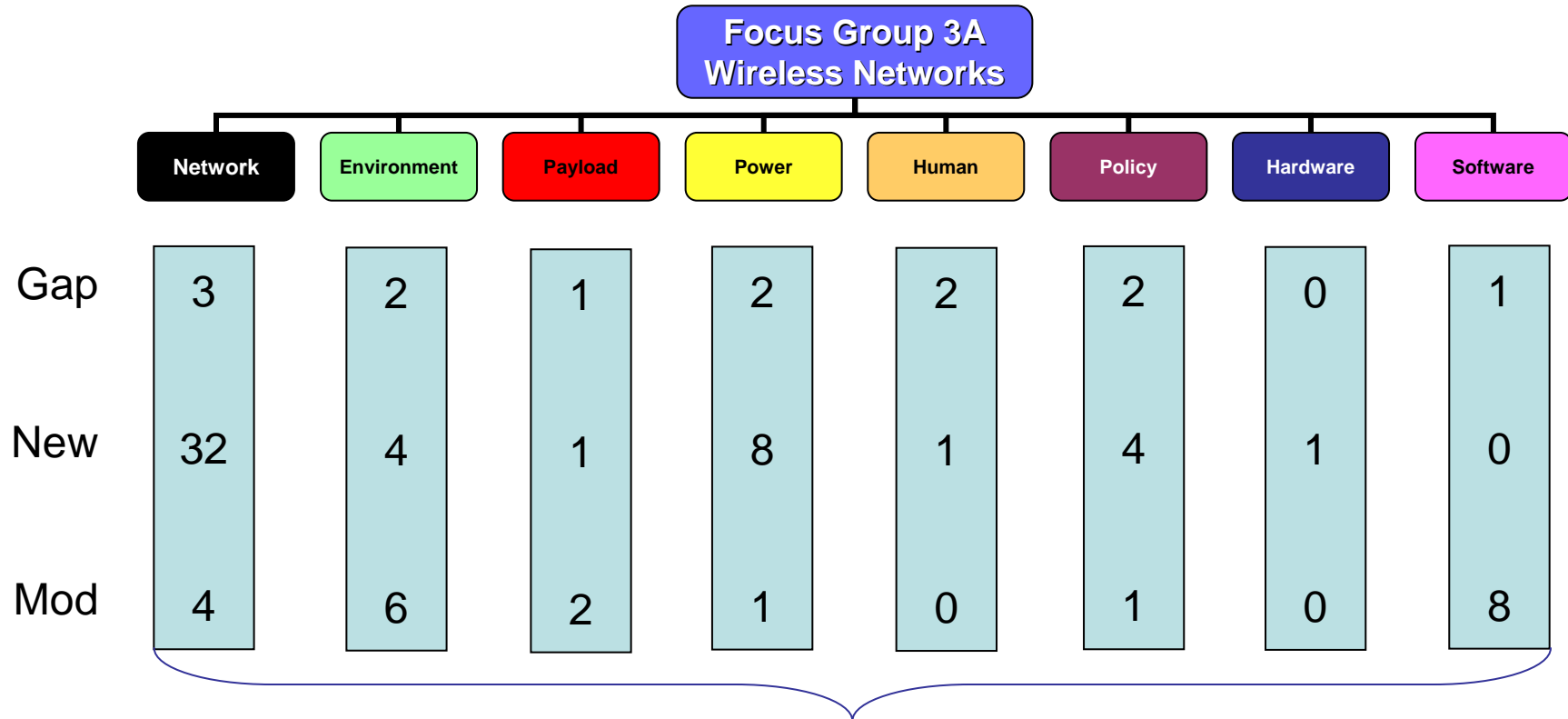
51 New Best Practices
22 Modifications

Special Sessions

- Power Workshop – November 22, 2004
  - 46 experts from telecom, electric utilities, government and academia
  - Special emphasis on providing power for wireless infrastructure

- RF Air Interface Workshop – May 17-18, 2005
  - 21 wireless industry experts in attendance
  - Workshop focused very narrowly on the 'over the air' interface aspects of a wireless network

- Public Service Workshop – June 13-15, 2005
  - 26 experts from the wireless industry, city government, and various other industries
  - Focus was on the impacts of wireless and wireless needs of municipalities and key public interests

Sample Best Practices

- Network Operators and Property Managers should consider pre-arranging contact information and access to restoral information with local power companies.

- Equipment Suppliers should design outdoor equipment (e.g., base station) to operate in expected environmental conditions (e.g., weather, earthquakes).

- Network Operators and local municipalities should cooperate on zoning issues that affect reliability of communication networks serving the public good (e.g., noise from emergency backup power generators, aesthetics of tower placement, public safety and health concerns).

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- Adoption by the council of the new Best Practices and modifications to existing Best Practices contained within the Final Report

- Ongoing focus by future councils on wireless reliability

- Continued guidance that the Best Practices need to be evaluated for applicability by subject matter experts prior to implementation

NRIC Council Meeting

Focus Group 3B
Public Data Networks
December 6, 2004

David Frigeri
Co-Chair
Public Data Network Reliability Focus Group

Director
Technical Services
Internap

Karl Rauscher
Co-Chair
Public Data Network Reliability Focus Group

Executive Director
Bell Labs Network Reliability & Security Office,
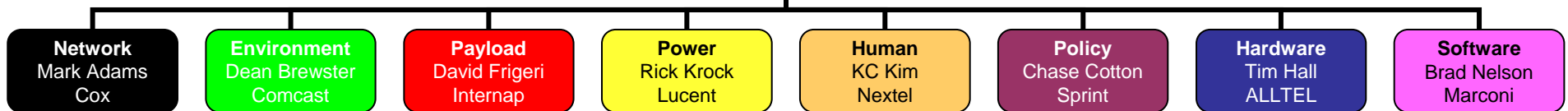Lucent Technologies

Public Data Networks - Deliverables

The Council shall evaluate the applicability of all Best Practices that have been developed for public data network providers. The Council shall:

1. perform a gap analysis

2. survey the public data network industry concerning the effectiveness of the Best Practices

3. focus on the special needs of the public data network industry and refine existing Best Practices to focus their applicability to the Internet data services industry
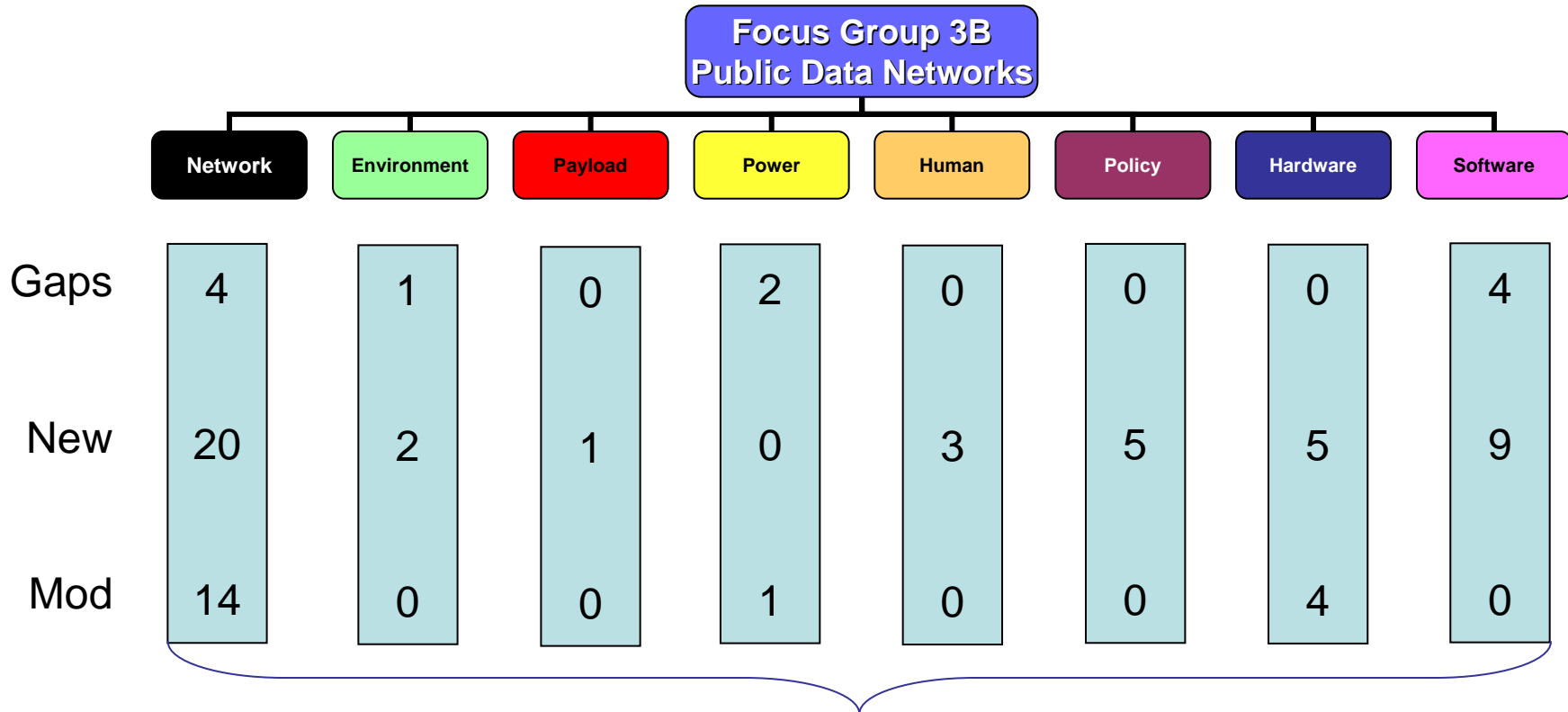
The full Focus Group 3B Charter can be found at www.NRIC.org

Focus Group 3B Structure and Report Processes

**Focus Group 3B
Public Data Networks**

| **Network** Mark Adams Cox | **Environment** Dean Brewster Comcast | **Payload** David Frigeri Internap | **Power** Rick Krock Lucent | **Human** KC Kim Nextel | **Policy** Chase Cotton Sprint | **Hardware** Tim Hall ALLTEL | **Software** Brad Nelson Marconi |

- engaged over 60 industry subject matter experts

- articulated over 70 attributes of Public Data Networks

- considered over 200 concerns regarding Public Data Networks

- formed 8 Task Groups that provided systematic coverage of communications infrastructure elements

Public Data Networks
Focus Group Structure and Findings

Focus Group 3B
Public Data Networks

	Network	Environment	Payload	Power	Human	Policy	Hardware	Software
Gaps	4	1	0	2	0	0	0	4
New	20	2	1	0	3	5	5	9
Mod	14	0	0	1	0	0	4	0

45 New Best Practices
19 Modifications

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PDN Recommendations

- Adoption by the council of the new Best Practices and modifications to existing Best Practices contained within the Final Report

- Area of Concern: Customer Premises Powering

    Power for residential and business premises equipment should be considered in future work, primarily as it relates to access to essential services during commercial power outages.

A Few Words on Best Practices

- Information sharing and learning

- Industry's real experts directly engaged

- Guidance is "overflowing" . . . Always understood that not all Best Practices are applicable in every situation

- Rigorous process

- Guidance for 10,000s

- Model process for other sectors

- "Safe" place for companies to send experts to openly discuss approaches

- Hope for Best Practices will continue; will require diligent nurturing and care