Regional Optical Networks
and
The Quilt

What is The Quilt?

- Established in 2001
- A collaboration of 30 leading advanced regional networking organizations in the U.S. with 7 U.S. and international affiliate participants
- Aim is to promote consistent, reliable, interoperable and efficient advanced networking services that extends to the broadest possible community
- Projects are volunteer led and self-supporting
- Starting in 2008, funding provided by member participation fees

THE QUILT

Why The Quilt

- The Quilt provides a forum for members and affiliates to cooperate and collaborate on matters of common interest.
  - technology
  - services
  - vendors
  - business models
  - relationships with national and international R&E networking community

- Quilt members identify and support projects which;
  - assist participants in providing a broad range of networking services to constituents
  - facilitate innovative and successful technical projects
  - promote end-to-end continuity and delivery of advanced network services

Quilt Membership

At the sole discretion of the Board of Directors and Executive Committee, participation in The Quilt is open to:

- (i) Non-profit regional network aggregators providing advanced network services in support of research and education, and/or
- (ii) Organizations invited by The Quilt that demonstrate leadership and collaboration in advanced networking.

Current Participants

2009 Quilt Executive Committee

Executive Committee

- – Jacqueline Brown, PNWGP, Treasurer
- – James Deaton, OneNet
- – Wendy Huntoon, 3ROX
- – Ron Hutchins – SoX, Secretary
- – Mark Johnson – NCREN
- – Tim Lance – NYSERNet
- – Myron Lowe, Northern Lights
- – Dave Reese, CENIC
- – Paul Schopis – OARnet

The Quilt, Inc.

Guiding Principles

- Maintain a member driven organization. All Quilt projects undertaken are identified and led by member-affiliated volunteers
- Focus on human networking and encourage the fostering of collaborative relationships.
- Voice the interests of the regional R&E networks to network providers, industry partners, and government agencies
- Promote a results-driven organization by focusing on topics and projects with timely interest to the Quilt members.
- Evolve and advance networking technology through independent evaluation of technology trends, the education of regional R&E network members on these trends, and the delivery of innovative network technology and services to Quilt member constituents
- Maintain The Quilt's independence of thought and priorities.
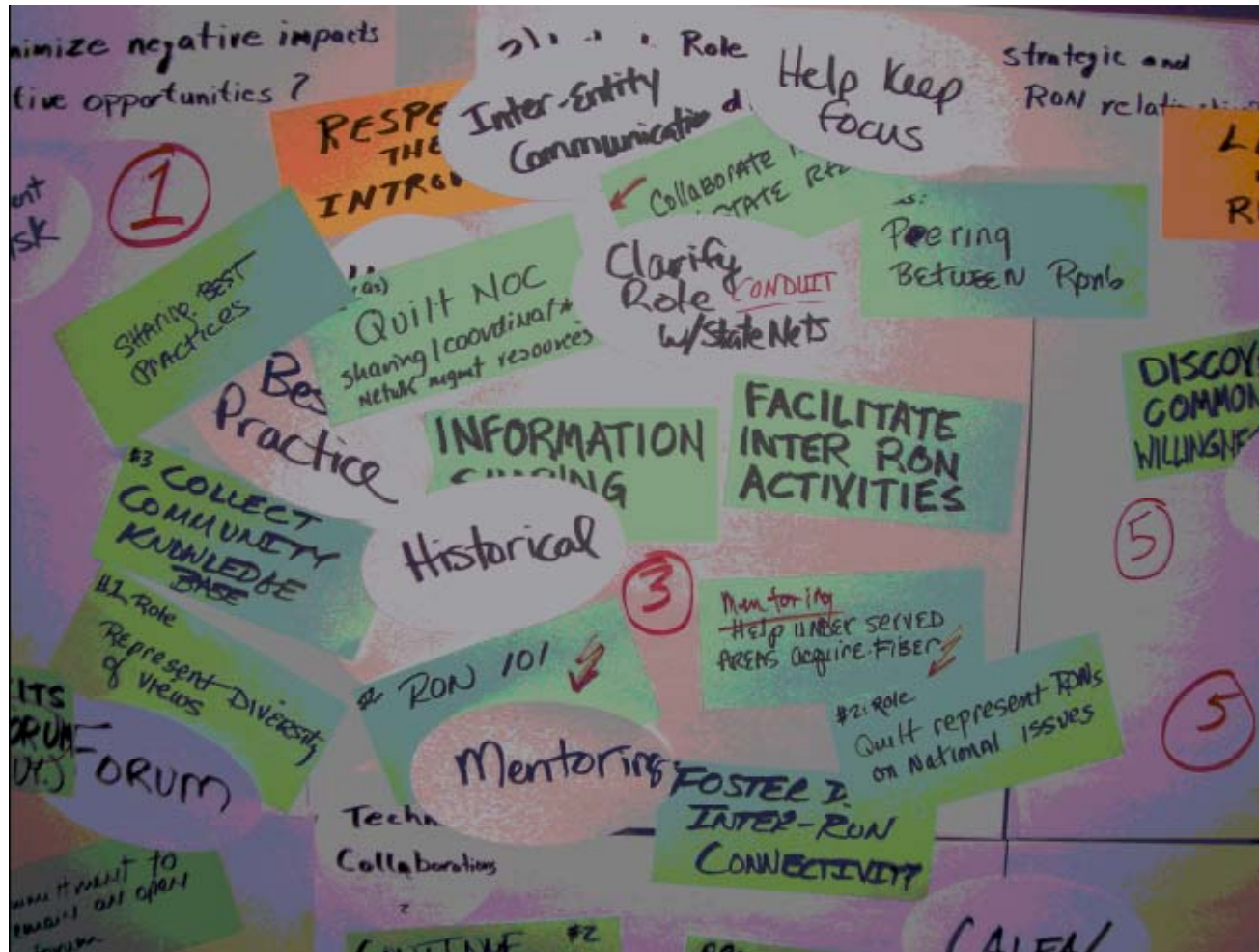- Communicate openly, fully, and transparently.

2008 Organizational Activities

- Addition of 3 new members
- Updating of organizational documents and business filings to support new business structure
- Phase I of annual strategic planning process underway
- Staff refresh

Identifying Projects and Priorities

2008 Quilt Projects

- Completed fifth CIS RFP in Spring 2008
- Increased Quilt member case study collection by six
- Sponsored Business Model Workshop in March
- Sponsored NOC Tools Workshop held in September 2008
- First instance of peer review service
- Established GENI working group
- Supported Quilt-StateNets Financial Focus Group

2009 Priorities

- Provide Forum for Exchange of Regional R&E Network Business Model Information
- Identify and Support Areas of Common Interest for Members
- Perform Governance Review
- Further Develop Quilt-StateNets Relationship
- Formulate CIS Strategy
- Taking a Stand and Process

Quilt Projects
and
Working Groups

Project List

- **Commodity Internet Services**

  - **Project Members: 9   Chair: Steve Petko, 3ROX**

- **Workshop Committee**

  - **Project Members: 4   Chair: Committee led**

- **Quilt Member Case Study Collection**

  - **Co-Chairs: Jen Leasure, The Quilt & Carol Farnham, representing MIDnet**

- **Network Facilities Project**

  - **Project Members: 5   Chair: Marla Meehl, FRGP**

- **GENI Work Group**

  - **Project Members: 10   Chair: Committee led**
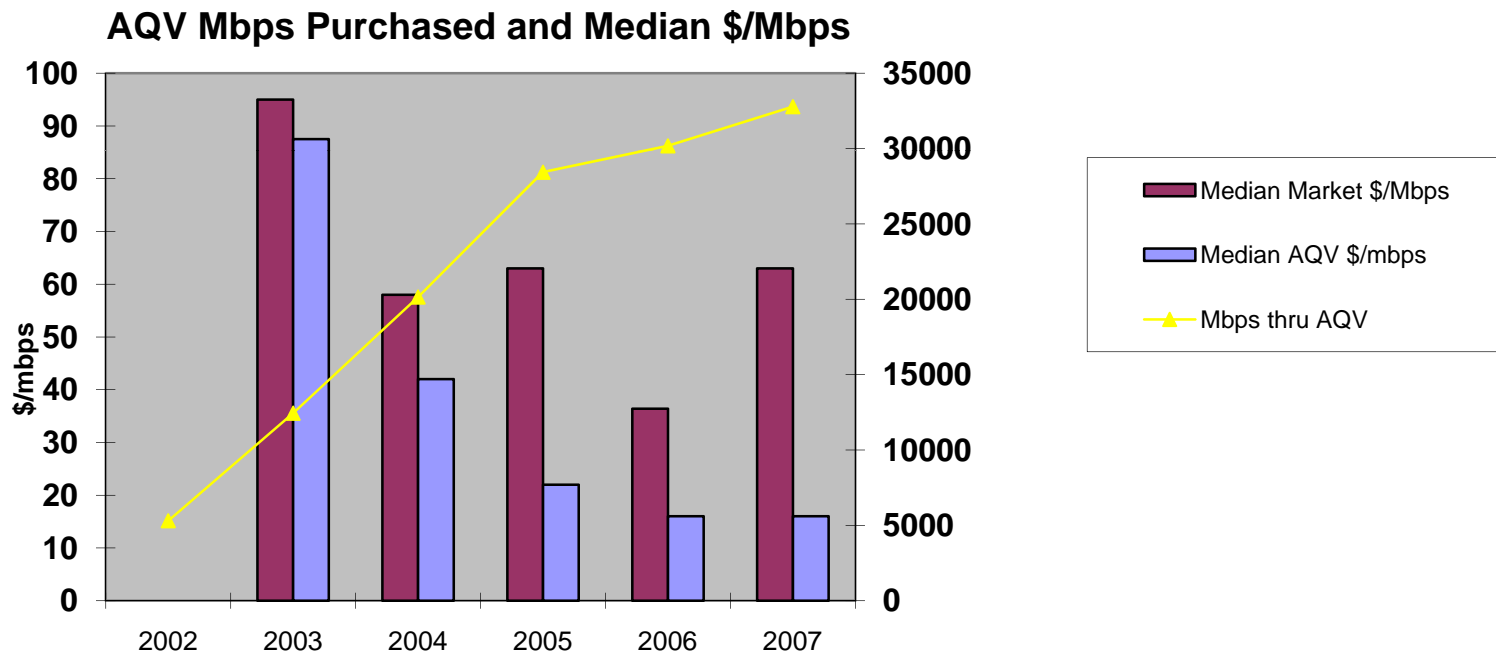
Commodity Internet Services

Objective: Aggregate the buying power of the Quilt members and authorized buyers to get the best value and lowest pricing commodity internet services.

- Distributing fifth RFP in December 2009

- Vendors are chosen on merit

- Currently six vendors participate in the program

Historical Estimated Savings

Since the project's inception in 2002, Quilt Authorized Buyers have saved a cumulative total of $54M.

AQV Mbps Purchased and Median $/Mbps

confidential and propriety

Network Facilities Project

Objective: In support of Quilt members, developing business agreements with vendors who have a comprehensive network delivery infrastructure and are able partner with The Quilt in the delivery and development of our research and education networks throughout the United States.

- Two different programs differentiated by types of business agreements:

- Vendor partners meet Quilt member requirements for discounted purchasing, RFP process requirements and account support.

RON Case Study Collection

Objective: To enrich and deepen the content of the original Quilt business model review, to update the case studies of the 'SURA Optical Cookbook', and to share the history, knowledge and experience of R&E optical network organizations with the broader R&E community.

- Joint project supported by The Quilt and MIDnet

- Completed 22 interviews and finalized 15 case studies

- Posted pubic and private (community) pages

    - http://www.thequilt.net/business_case_project.html

    - http://www.thequilt.net/Business%20Case%20Archive/index.html

- Created Quilt-StateNets Financial Focus Group

GENI Working Group

Objective: Establish a forum for RON's to exchange information on the GENI project and provide a point of contact for RON communications with the GPO and other GENI participations

- Includes participants from Quilt, StateNets, NLR and Internet2

- Regular communication with GPO and exchange of information regarding Regionals in support of the Spiral 1 connections

Quilt Services

Community Workshops

Objective: In striving to serve The Quilt's member and community needs, The Quilt has offered a series of workshops for members of the research and education community.

- Target audiences for workshops vary

- Nine workshops to date (2002-2008)

Quilt Workshop Summary

- 5 Optical Workshops (6/2004-10/2006)
  - "So You Want to Buy Some Fiber…"
  - "So You Got Some Fiber, Now What?"
  - "So You Have Lit Your Fiber, Now What?"
  - "So You and Your Neighbor Both Have Lit Fiber, Now What?
  - "How Are Others Doing It…?"

- Peering Workshop – October 2006

- Network Operations Center Workshop – October 2007

- RON Business Model Workshop – March 2008

- 2nd Network Operations Center Workshop – September 2008

Peer Review Service

Objective**:** Through its peer review service, The Quilt wishes to tap into its member resources to benefit peer organizations in the sharing of knowledge and experience managing advanced R&E networks.

- The Quilt's role is to coordinate review requests, convene a panel of peer reviewers and provide project management support for the review process

- Completed first peer review project in September 2008

Research & Education Network Business Models

Participants

- 3ROX
- FLR
- FRGP
- Great Plains Network
- Indiana GigaPoP
- KanREN
- KyRON
- LEARN
- LONI
- MAX
- MCNC
- Merit
- MOREnet
- NEREN
- Northern Lights
- NTNC
- NYSERNet
- OARNet
- OneNet
- SoX/SLR
- WiscNet

Case Collection Topics

- Organizational History
- Organizational Structure
- Financial Plan
- Management and Operations
- Services and Pricing

- Community Building and Outreach
- Customer Base
- Growth Expectations
- Lessons Learned
- Future Plans

Summary Findings

- No single business model, no single recipe for success
- Mission statements are unique, but they all have similar elements:
  - Supporting research and education
  - Enabling research and education
  - Providing advanced network technologies and applications
- Commonalities in the following program areas:
  - Outreach and community building
  - Lessons learned
  - Future directions

Summary Findings

- Of the 30 member organizations, the majority are university-based organizations
  - 13 are 501c3's
  - 4 are governed by the state board of regents and managed by a university

Operations and Management

- Of the 21 operational networks interviewed
  - Staffing levels ranged from 1 to 110
  - 43% Staff a 24 x 7 NOC
  - 38% outsource some or all of NOC services
  - 62% outsource some or all of remote hands
  - Majority own rather than lease network equipment

Services and Pricing

- Of the 21 operational networks interviewed
  - 92% offer services beyond Layer 1
  - Six charge an annual membership fee to cover operational costs with additional fee for service structure for transport costs
  - 13 price transport services based on bandwidth
  - Slightly more than half include access to national backbones in transport fee

Outreach & Community Building

- Community workshops
- Dedicated staff
- Word of mouth
- Showcase special projects to promote network capabilities

Lessons Learned

- Outreach and community building are important
- Bringing people together provides great value
- Add value by providing leading-edge services that no one else can or will provide
- Be an enabler for research and education
- Do what is in the best interest of your members
- Leverage opportunities

Future Directions

- Expand fiber footprint - Focus on 'last mile'
- Evaluate existing services
- Develop new services
- Investigate peering relationships that provide cost effective solutions
- Expand beyond the realm of the physical network
- Research new 'market': K-12, libraries, health care, etc.

Quilt Contact Information

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