

IRTF Open Meeting

Lars Eggert

IETF-81, Quebec City, Canada

July 27, 2011

Note Well

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Administrativa

- Today's slides
 - <https://datatracker.ietf.org/meeting/81/materials.html#wg-IRTF>
- Audio streaming
 - <http://www.ietf.org/audio/ietf81/>
- Jabber chat
 - <xmpp:irtf@jabber.ietf.org?join>
- Mailing lists
 - <http://irtf.org/mailman/listinfo/irtf-announce>
 - <http://irtf.org/mailman/listinfo/irtf-discuss>

Agenda

9:00 **State of the IRTF**

IRTF & RG Chairs

Applied Networking Prize (ANRP) awards

9:20 GreenTE: Power-Aware Traffic Engineering

Beichuan Zhang

9:50 A Technique for Reducing BGP Update Announcements through Path Exploration Damping

Mattia Rossi

New IRTF research group proposals

10:20 Network Complexity

Michael Behringer

10:40 Information-Centric Networking

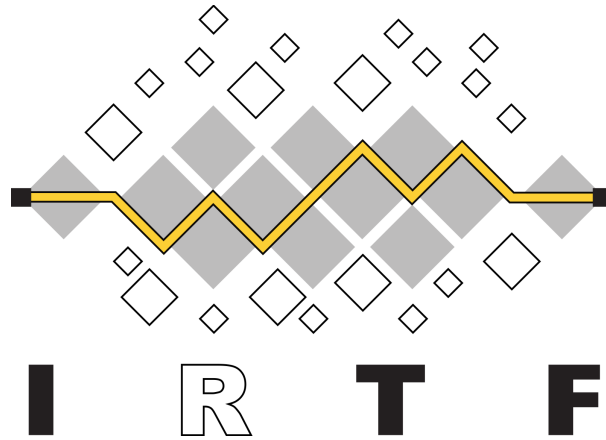
Dirk Kutscher

11:00 Learning-Capable Communication Networks

Dimitri Papadimitriou

(if time) Energy Efficient Communication

Rolf Winter



IRTF

State of the IRTF

IRTF Meetings this Week

Seven RGs are meeting this week

- Delay-Tolerant Networking
- Peer-to-Peer
- Network Management
- IP Mobility Optimizations
- Host Identity Protocol
- Scalable Adaptive Multicast
- Virtual Networks

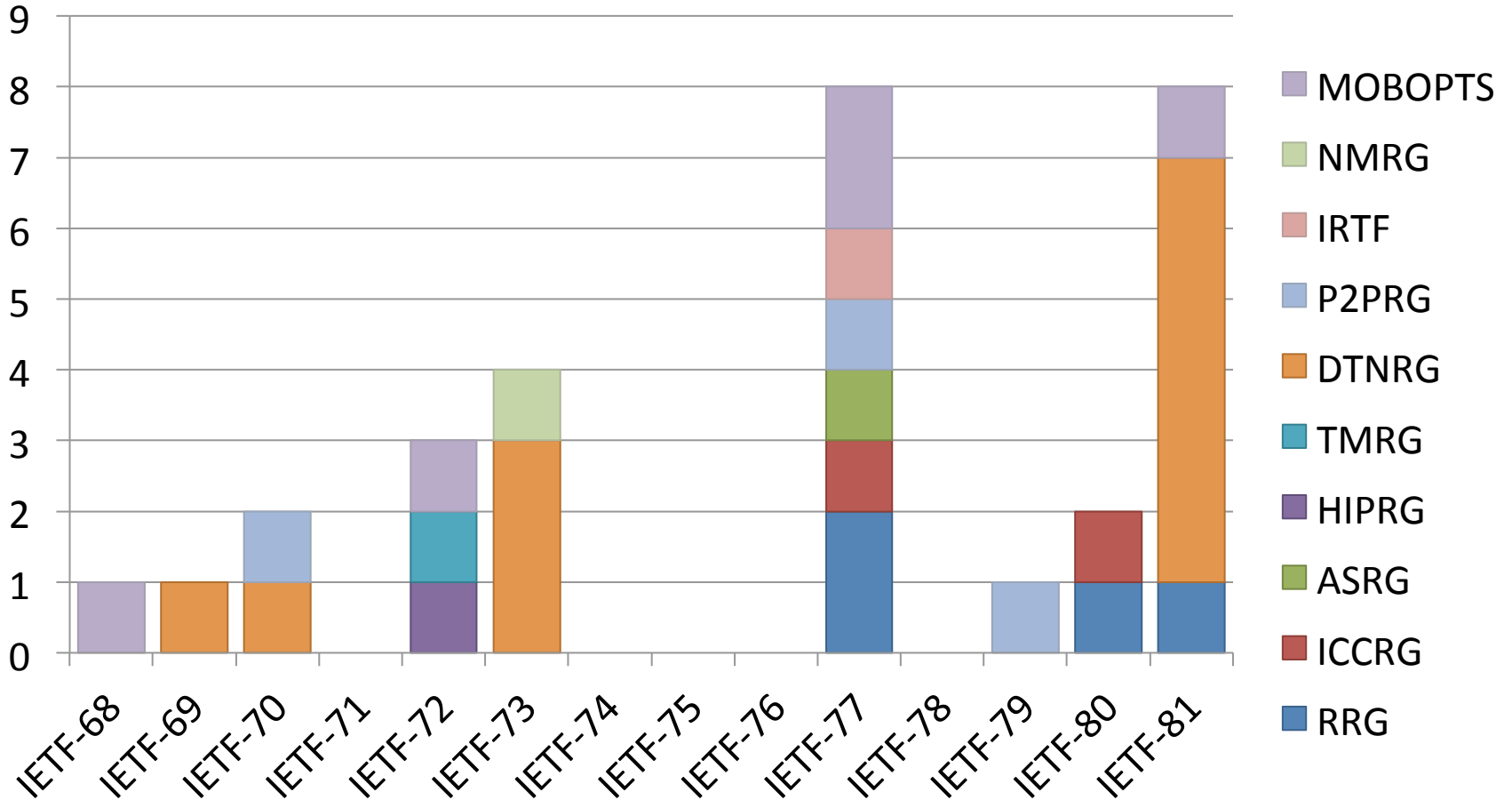
Other IRTF-related meetings

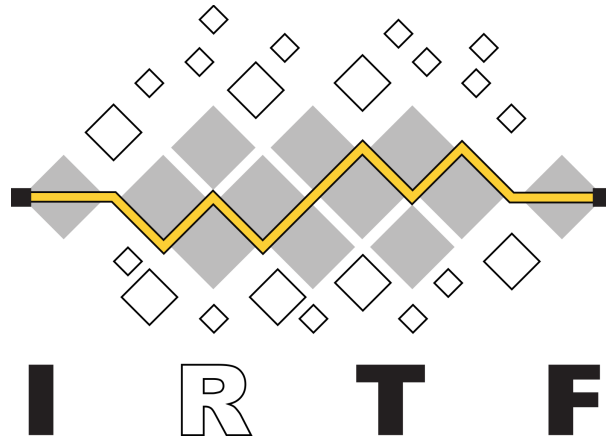
- **IRTF Open Meeting**
Wednesday, 9:00am
- reviewing the CFRG with the IAB on Thursday

IRTF RFC Publications since IETF-80

- **RRG**
 - RFC 6227: Design Goals for Scalable Internet Routing
- **MOBOPTS**
 - RFC 6252: A Framework of Media-Independent Pre-Authentication (MPA) for Inter-Domain Handover Optimization
- **DTNRG**
 - RFC 6258: Delay-Tolerant Networking Metadata Extension Block
 - RFC 6255: Delay-Tolerant Networking Bundle Protocol IANA Registries
 - RFC 6256: Using Self-Delimiting Numeric Values in Protocols
 - RFC 6260: Compressed Bundle Header Encoding (CBHE)
 - RFC 6259: Delay-Tolerant Networking Previous-Hop Insertion Block
 - RFC 6257: Bundle Security Protocol Specification

IRTF RFC Publications over Time





Research Group Status

Research Group Status

- **Active**
 - CFRG, DTNRG, ICCRG, NMRG, SAMRG
- **Closing**
 - TMRG (merging into ICCRG)
- **Re-charting (or closing)**
 - ASRG, HIPRG, MOBOPTS, RRG
- **Little activity**
 - VNRG, P2PRG

Anti-Spam (ASRG)

- What has it been doing lately?
 - Draft-irtf-asrg-bcp-blacklists-09, to be RFC
- What should it be doing?
 - IPv6 abuse management experiments, e.g., BL/WL design, transition strategies, character of mail sources
 - Taxonomies of abuse/anti-abuse techniques
 - Etc
- What is it doing? Precious little
- Why not?
 - Lack of vendor interest and support?
 - Trade secrets?
 - Difference in large and small scale mail systems?
 - Work happening at MAAWG and other places?
 - ???

Crypto Forum RG (CFRG)

- Bridge between Theory and Practice
- New Work
 - Reviewing new IETF uses of MD5
- Review
 - draft-krovetz-ocb-02
 - draft-mcgrew-iv-gen-00
 - draft-pornin-deterministic-dsa-00
- Interest in New Work
 - Group Encryption
 - Validation and Assurance

Delay-Tolerant Networking RG

- Kevin Fall, Stephen Farrell, Jörg Ott

- RFCs Published since Prague

- | | |
|---|----------|
| ■ IANA Registries (blk type, ver, proc. flags, BSR, cust) | RFC6255 |
| ■ Self-Delimiting Numeric Values in Protocols | RFC 6256 |
| ■ Bundle Security Specification | RFC 6257 |
| ■ Meta-data extension block | RFC 6258 |
| ■ Previous-hop Insertion Block | RFC 6259 |
| ■ Compressed Bundle Header Encoding | RFC 6260 |

- Close to finishing
 - draft-irtf-dtnrg-prophet-09



Host Identity Protocol (HIPRG)

- Scope:
 - Study possible impact of wide adoption of HIP architecture
 - Work on topics not yet ready for the HIP WG
- Current RG drafts
 - HIP Experiment Report (IRSG Poll)
 - HIP DHT Interface (IRSG Poll)
 - Host Identifier Revocation
 - HIP Proxies
 - RFID communications using (modified) HIP
- Thursday morning meeting topics
 - HIP and transport evolution
 - HIP implementation reports
 - HIP and femtocells
 - Rechartering discussion

Internet Congestion Control (ICCRG)

- Organizing the existing congestion control related RFCs (RFC 5783)
- Identifying open issues in Internet congestion control (RFC 6077)
- ICCRG design team to look beyond TCP for capacity sharing
- Charter recently expanded to look into transport layer architecture and general IP networks such as a multi-tenant, heterogeneous datacenter

IP Mobility Optimizations (MOBOPTS)

- There is not much **research** happening with MobileIPv6 optimizations
- There are other interesting areas of research
 - Alternative mobility mechanisms (MP-TCP, LISP, HIP, foo...)
 - Issues and solutions related to using IETF protocol in wireless networks
 - Investigate privacy issues in mobile networks
 - Investigate mobile device policy management for functions such as network discovery, congestion reporting and flow management
 - provide a general forum for discussing mobility studies in a larger sense such as vehicular networks, personal area networks, 4G performance studies, testbed evaluations etc
- We are trying to find if there is sufficient interest in the research community to sustain work in this RG
 - We will try to reach out to academic researchers at conferences
 - Try to bring them over to the IETF

Network Management (NMRG)

- Recent topics
 - Network visualization
 - SNMP trace analysis definitions
 - Using NetFlow/IPFIX data for understanding network and applications behavior
- Future topics
 - Network-wide configuration
 - Management in constrained networks
 - Internet-scale measurements
 - Impact of self-management practices over Internet management protocols
 - Autonomic management

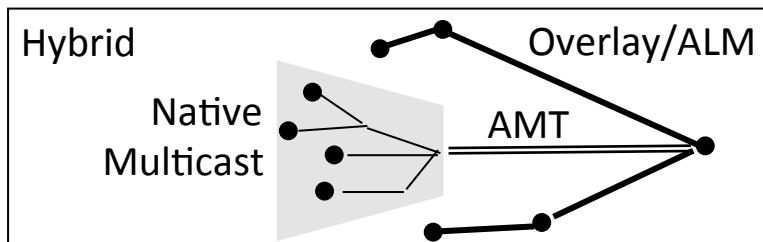
Peer-to-Peer RG (P2PRG)

- Publications since re-chartering
 - RFC 6029, RFC 5765
 - Three drafts getting ready to publish
 - Five meetings at IETF
- Current RG activities focused on P2P traffic localization
 - Surveys, experiment reports and research
- New activities on P2P streaming and P2P simulation tools
 - Two new drafts in preparation

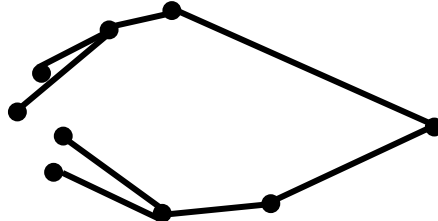
Routing (RRG)

Scalable Adaptive Multicast (SAMRG)

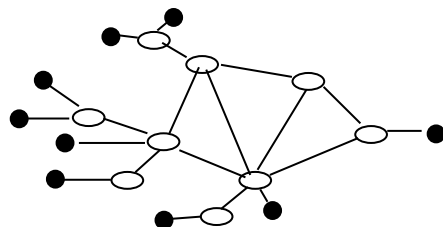
- Problem Space
 - Uniformly accessible group communication service
 - Heterogeneous instantiations: multicast over diverse networks
 - Transparent service interface



ALM



Network



- Chairs
 - John Buford and Thomas Schmidt
- Current activities & efforts in SAM RG
 - Common API for transparent hybrid multicast
 - ALM extensions to RELOAD
 - RELOAD-based group coordination
 - Streaming media delivery
 - Experimental implementations of hybrid multicast systems & tesbed
 - Currently considered: IP multicast, ALM in P2P overlays, XCAST, AMT
- Interim meetings to foster collaboration with research community
 - Co-located with IEEE CCNC 2011 Special Session on Scalable Adaptive Multicast in Peer-to-Peer Overlays (Jan 2011)
 - Co-located with IEEE Globecom 2010+11 WS on Pervasive Group Communication – PerGroup (Dec. 2010/11)

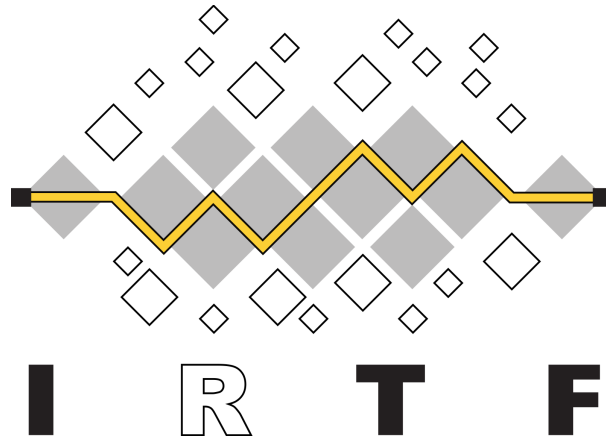
Transport Modeling RG (TMRG)

- Developing test suite to evaluate transport layer mechanisms
 - Initial draft test suite ~3 years old
 - ns2 implementation progressing
 - Refining draft as implementation raises issues

Virtual Networks (VNRG)

Proposals for New Research Groups

- the four topics on the agenda later, plus:
 - Datacenter Networking
 - Internet Economics
 - Cross Application/Network Optimization
 - Internet of Things
- please check the archives of the irtf-discuss list for pointers to these activities
 - <http://www.irtf.org/mail-archive/web/irtf-discuss/>



Applied Networking Research Prize Awards & Presentations

Applied Networking Research Prize

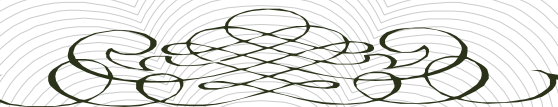
- First time for IETF-81
- Jointly with ISOC
- Two dozen nominations
- IETF/IRTF selection committee
- Two prize winners
 - attendance & more
- Planning a yearly cycle in 2012

“...awarded for recent results in applied networking research that are relevant for transitioning into shipping Internet products and related standardization efforts...”

Nomination period for IETF-82 starts August 1!

<http://irtf.org/anrp>

Applied Networking Research Prize



Presented to

Mattia Rossi



Geoff Huston, Mattia Rossi and Grenville Armitage. **A Technique for Reducing BGP Update Announcements through Path Exploration Damping.** *IEEE Journal on Selected Areas in Communications (JSAC)*, Vol. 28, No. 8, pp. 1271–1286, October 2010.

A handwritten signature in black ink, appearing to read "Matt Ford".

Mat Ford, Internet Society

A handwritten signature in black ink, appearing to read "Lars Eggert".

Lars Eggert, IRTF Chair

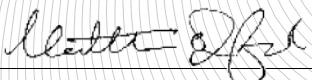
Applied Networking Research Prize



Presented to
Beichuan Zhang



Mingui Zhang, Cheng Yi, Bin Liu and Beichuan Zhang. **GreenTE: Power-Aware Traffic Engineering**. *Proc. IEEE International Conference on Network Protocols (ICNP)*, pp. 21–30, October 2010.



Mat Ford, Internet Society



Lars Eggert, IRTF Chair