

Grid High-Performance Networking Research Group Meeting GGF-5

- Agenda Bashing
 - Consensus
- Brief Charter Review
 - Forum for communication between Grid and Networking community
 - Why is this effort part of the Data Area?
 - First Focus: Establishment of two documents:
 - Top ten things network engineers wish grid programmers knew
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 - Consensus on charter and milestones
- How to get involved
 - No Comments

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- Presentation on “Top Ten Things Network Engineers wish Grid Programmers knew” by Jon Crowcroft
 - Intention: Initiate a Discussion
 - Two things to add
 - Topic Zero: Firewalls
 - OS: Enrichment of protocol APIs (better fit to protocol parameters)
 - We need the other document!
 - Port use scenarios (frequency of updates, security,...)
 - There is a data grid document describing the ports they use

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- Topic 1: Congestion Control vs. QoS
 - Is about sharing capacity (Fairness)
 - IETF view is presented
 - If you break these features, some ISPs might disconnect you
 - New features are coming up within TCP (ECN)
 - Reliable Multicast transport protocols for data replication follow the idea
 - Is there a difference between commercial ISPs and NRNs?
 - There is some, but link sharing problem remains
 - Will multiplexing of optical links help?
 - Is is unrealistic to assume to get more than 120 Lambdas in the next 5 years

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- Topic 2: Routing

- Fast forwarding
 - Firewalls can do better than currently deployed systems
- Faster convergence
- Does MPLS help?
- Policies are hard

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- Topic 3: Packet sizes
 - MSS is that of the weakest link
 - Multicast MSS is a real problem
- Topic 4: Overlays
 - Routing overlay du jour is RON from MIT
 - Basically build VPNs
 - P2P are slightly different. Problems with locality and metrics
- Topic 5: QoS
 - Would be a nice thing, even with 64 Lambdas in the core (10 GigE at cluster/farmer sites)
 - QoS is not just Policing, Scheduling, ... : it is AAA!
 - QBSS is a good idea

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- Topic 6: Multicast
- Topic 7: Operating Systems
 - Semantical gap between protocol and API capabilities
 - API s have to be improved!
- Topic 8: Layer 2 Considerations
- Topic 9: Light vs. Heavyweight Protocols
- Topic 10: Macroscopic Traffic and System Considerations
 - Phase effect in multi-stream environment do matter!

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- Questions and Comments:

- Conclusion out of those points?
 - Intention was to list ongoing efforts within the networking community
 - Engage people to join them
 - Accounting problem for QoS could be addressed by Grid technique
- Is it fair that application developers can treat the network as a black box?
 - The network is not transparent
 - QoS could be a potential solution for this problem. The network would become a “normal” Grid resource
- Why is routing important to Grid developers?
 - It is important if you want high availability
 - Networking people are working on this
- When you ask Grid developers about their networking needs, they often do not know it
 - This is RG is a process with addresses this issue
 - We want to minimize the required knowledge about network capabilities

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- Questions and Comments

- What do the users when it goes wrong?
 - Better feedback mechanisms are needed (difference between ISI and NRNs) -> Diagnostic API
 - Latency vs. Bandwidth Bottlenecks: terminological clarification
- We need a conclusion of the document which is understood by the Grid developers
- Network aware people have to work with the application developers
- Better control for modifying the behavior is needed
- We should describe improved TCP behaviors including what NOT to do (e.g. overprovision buffers).

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Volunteers for the “Top ten things grid programmers wish network engineers knew” document

- Volker Sander (Research Centre Jülich)
- Thilo Kielman (Vrije Universiteit Amsterdam)
- Mario Lauria (Ohio State University)
- George Brett (Internet 2)
- Igor Mandrichenko (Fermi Lab)

Topics which should be in the document:

- Demand for an improved socket API (more flexibility)
- Demand for a better API for diagnostics
- latency v. bandwidth - terminological clarification (should be in both)