

Organizational Feedback

- More follow-up for enhanced technology transfer needed, e.g., status emails 1-2 months after retreat
- Two poster sessions, more time for interaction and for students to see each other's posters
- Diversify research experiences if you hope to get a job in tough times ahead (Chris)
- Crisper talks, better overviews, more inter-project connections made clear (Microsoft)
- Short presentation format good, but some presentations had difficulty explaining the work in the short period of time; could explain the lack of Q&A for some talks (NTTDoCoMo)
- Almost universal approval for the Santa Cruz venue

Technical Feedback

- Overlays
 - Still unhappy with compelling applications for p2p; think in terms of p2p techniques and apply to aspects of network services: interdomain policy routing (BGP), domain naming, ad hoc routing, etc. (Microsoft)
 - p2p is a problem for existing operators—networks not designed to support this efficiently; looking for good ideas on how to mitigate the performance implications of this shift in network traffic (NTT MCL)
 - Operators are not incentivized to achieve efficient BGP convergence—they want to keep the packets inside their own clouds—does this provide a compelling argument for overlays? (Gianluca)
 - Be explicit about the problems solved by overlays (Bryan & Gianluca) Address the following issues: app domain/requirements? Required knowledge of the underlying network? capabilities given to the Overlay nodes? Number of overlay nodes/complexity of embedded function in overlay node?
 - Applications and requirements document much needed (Bryan)
- Programmable Network Elements
 - Skepticism on their effectiveness (Cisco); must be more convincing of how they can make a difference in performance or functionality (e.g., security)
 - Consider user-centric applications as well as network-centric functionality (HP); audio conferencing suggested as an application of PNEs; low latency/fast real time response
 - Network-centric applications at the network edge is actually of interest to some operators (NTT MCL); but difficult to program in a reliable fashion—understand the run time execution and debug environment (NTT MCL)
 - Another important network-centric application: IPv4 to IPv6 interoperation (KDD Japan)
 - Business models as well as applications need to be considered (Nortel)

- In-line control versus explicit set-up; passive observation of flows vs. explicit flow measurements
- Improving iSCSI performance is very important, but implementing storage functions in the network is questionable (IBM—though CISCO disagrees)
- Load balancing done in the storage director, not in the network; concentrate on things that are hard for the Storage Director to do, like application-aware security (IBM)
- Find the killer functionality for PNEs by thinking big; e.g., could you solve congestion control through PNE mechanisms (Bryan)
- Applications and requirements document much needed (Bryan)
- Authenticated Roaming
 - Consider routers that roam too (Cisco)
- Programming methodology for network-aware/network-embedded software (Chris)
- Experimental and Mathematical Methods
 - Emerging theme of project (Cisco); trace collection and real-time analysis, statistical measurements, tomography inferences, model formation, etc.—common framework of sampling techniques and methodology? Shift the field from intuition to quantitative and analytical. Perhaps more important than new architectures (architectures difficult to transfer, new methodologies could have greater impact—Chris)
 - Perform user studies (Chris); go beyond measurements to understand how the measurements will be used (Microsoft)
 - Statistical Learning Theory will take effort to learn and apply correctly in this environment (Chris); understand multi-variable regression methods if you want to be serious
 - Incremental deployments needed—research group should use the technology first themselves (Microsoft)
- ROC SAHARA Convergence
 - Common themes: fast detection, fast repair for failures and security attacks (HP)