Management of wireless MAN

- New wireless MAN technologies (e.g., WiMAX) enables new public services
  - Cheaper voice calls in specific areas
  - Assisted tourism
  - …
- SNMP MIB modules for WiMAX have been already defined
- Few (if any) WiMAX equipments supports these SNMP modules, although they do support SNMP

Management of wireless MAN

- Management in a different scale
  - Monitoring wireless connectivity for user mobile devices in a metropolitan area
  - Configuration of intermittent devices (PBNM?)
  - Availability may be much more critical (pro-active mgmt., redundancy, …)
- How to integrate the wireless management with public services?

Web services(WS)-based management

- It is easier to use than traditional mgmt. solutions
- Its development/deployment is faster
  - Less skilled personal is required, lots of tools
- It is investigated by a larger community
  - More people involved
- BUT it won't replace other protocols (e.g., SNMP) at the device level
  - Web Services Management (DMTF)
  - Management Using Web Services (OASIS)
  - NETCONF over SOAP

Web services(WS)-based management

- In the end, is it useful for network mgmt.?
  - "Above" the device, probably
- Questions
  - How to take advantage of WS standards (e.g., WS-Security, WS-Notification, WS-BPEL) to increase the quality of network management?
    - Access control, filtering, workflow
  - How to use WS to integrate the network management with other IT solutions?
    - Are my border router congested due to the cheaper price I've been practicing for the current 5 hot products in my virtual store? Or is it a "simple" DoS attach?

Cooperative management

- Human operator cooperation
  - Human operators from different administrative domains (e.g., VOs) cooperate to solve a common problem
  - In this context, management policies cannot be imposed, but agreed. How to do that?
- Customer/operator/system cooperation
  - How to involve customers in the management process?
    - E.g., the final user activates the services he/she wants to use
- Cooperation between components from the management system
  - Which components will cooperate? Under which conditions?

Cooperative management

- P2P technologies seem to be an interesting tool in this context
  - Network operator use local peer to cooperate with remote operators, using their remote peers
  - Peers deployed on the managed network operating as distributed and cooperating mid-level managers
  - Peers at the customer device helps the user to activate and monitor his/her services
- Questions
  - Are current P2P algorithms sufficient?
  - What's the price in terms of performance and resource consumption?