### **GLIF** futures

- The XP-LP model is an extreme example of SDN. Is there anything to be gained by thinking of it that way?
- What are the implications of OF being extended to the optical control plane?
- Does the roadmap contemplate \*100 demand within three years? E.g.,
  - Traffic engineering
  - Network management
  - Troubleshooting (Does NSI have an icmp?)



# GLIF futures (cont'd)

- The XP-LP model represents a deconstructed network, in which each node and each link is (potentially) under separate administrative control
- Conventional network management tools aren't designed for that
- Perhaps we need to replace the conventional model of an R&E network with a trust federation...
- ...so that networks have arbitrary overlap
- Hmmm...



## **Light Paths**

- Associated with every Light Path P is a set of properties or constraints C<sub>P</sub> which may be
  - Technical
  - Administrative
    - Policy (e.g., AUP, QoS)
    - Pricing
    - ...
- C<sub>P</sub> is never empty
  - Interfaces
  - Impairments
  - **—** ...



### **Exchange Points**

- Associated with every Exchange Point X is a set of properties or constraints C<sub>X</sub> which may be
  - Technical
  - Administrative
    - Policy (e.g., AUP, QoS)
    - Pricing
    - ...
- C<sub>x</sub> is never empty
- If  $C_X$  is empty except for technical constraints, we call X an "Open Exchange"
- GOLEs are a proper subset of Open Exchanges
- Now can we please get on with substance?



#### NSI

- From 10,000m, it appears that XP and LP constraints can be handled by the NSI Service Definition
- Syntax and semantics TBD -- but there is prior art

