



Internet2 Next Generation Network Design Ideas

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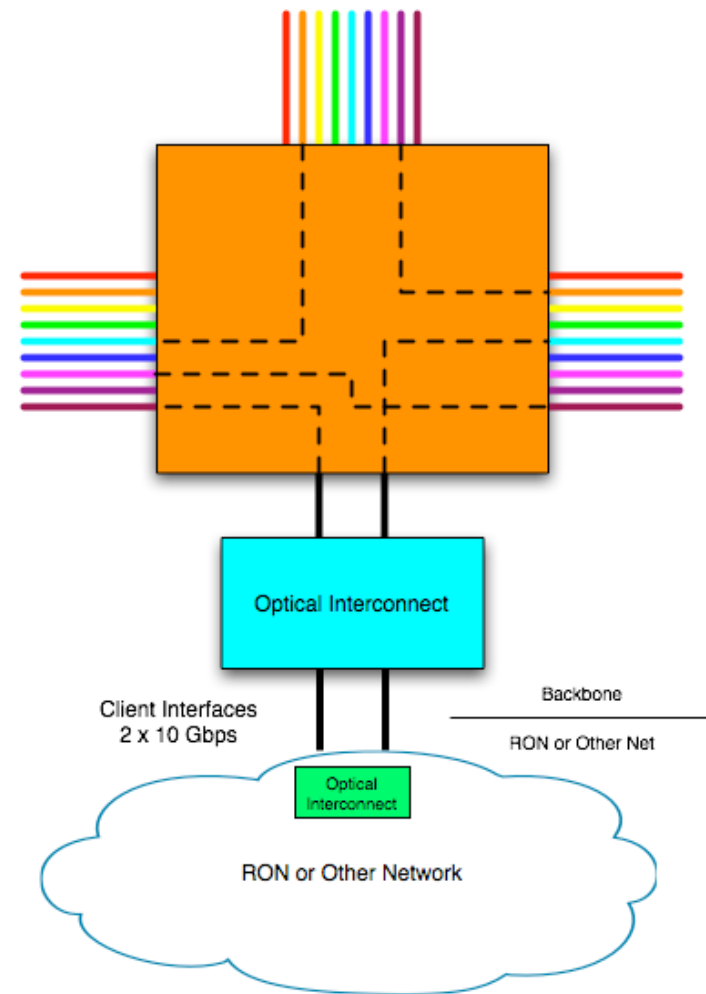
LHC Network Meeting

CERN, CH

- October 2007 - End of recent 1-year Abilene transport MoU extension
 - Sets next-generation network planning timeline
 - Architecture definition: 1/1/2006
 - Transport selection: 4/1/2006
 - Equipment selection: 7/1/2006
 - Backbone deployed: 1/1/2007
 - Connector transition: 2007
 - Concurrently, review overall business plan and management model
 - Network design time frame: 2007-2012
- HOPI testbed is expected to be in place for 2-3 years, to experiment with future protocols
 - Refine and evolve next generation architecture

Switching Capabilities

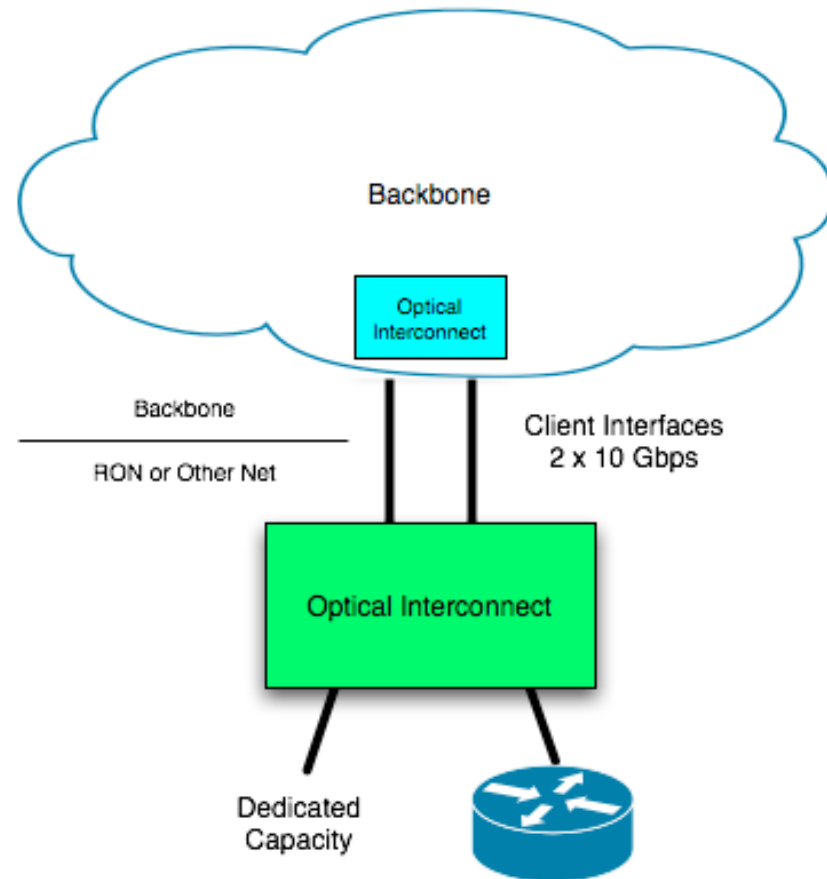
- Through an optical interconnecting device that serves 3 purposes:
 - Provides a client interface to connecting network
 - Provides access to waves on the network
 - Provides support for sub channels on a wave
 - i.e. Ethernet VLANs, SONET paths, or other suitably framed capacity.



Connector Interface

The interface to the backbone:

- Two or more client interfaces between optical interconnects (analogous to router-to-router connections today)
- Requirements:
 - Support connectivity to IP Network
 - Support multiple sub channels through backbone to other RONS up to capacity of interface



Further Investigation

- **Requirements**
 - Group A report?
 - Abilene TAC report?
- **Backbone**
 - What is the national footprint?
 - Is 100 Gbps the right number?
 - Where are the switching nodes located?
 - What provides the switching capabilities?
 - What is the backhaul availability?
 - What is the framing on the waves?
 - Is it possible to provide support for alien waves?

Further Investigation

- **Interconnects**
 - Where are the optical interconnects located?
 - What are the optical interconnects?
 - What are the interfaces?
 - What is the framing on the client interfaces?
 - What is the service offering?
- **Dynamics**
 - What degree of dynamic provisioning is required?
 - What control plane properties are needed?
 - What availability is required day one?
 - When are carrier class waves needed?
- **IP**
 - Does the IP service require carrier class waves?
 - What is the topology of the IP backbone?

The logo for Internet 2 features the word "INTERNET" in a white, bold, sans-serif font. A large, stylized number "2" in a vibrant red color is superimposed over the word, with its top curve arching over the "E" and "R" and its bottom curve extending under the "T". A registered trademark symbol (®) is located to the right of the word "INTERNET".

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