

# HPDMnet

## High Performance Digital Media Network

### The High Performance Digital Media Network (HPDMnet)

A network research initiative that is designing, developing, and implementing the world's first international high performance service for high quality, large-scale digital media that is required by bandwidth intensive applications.

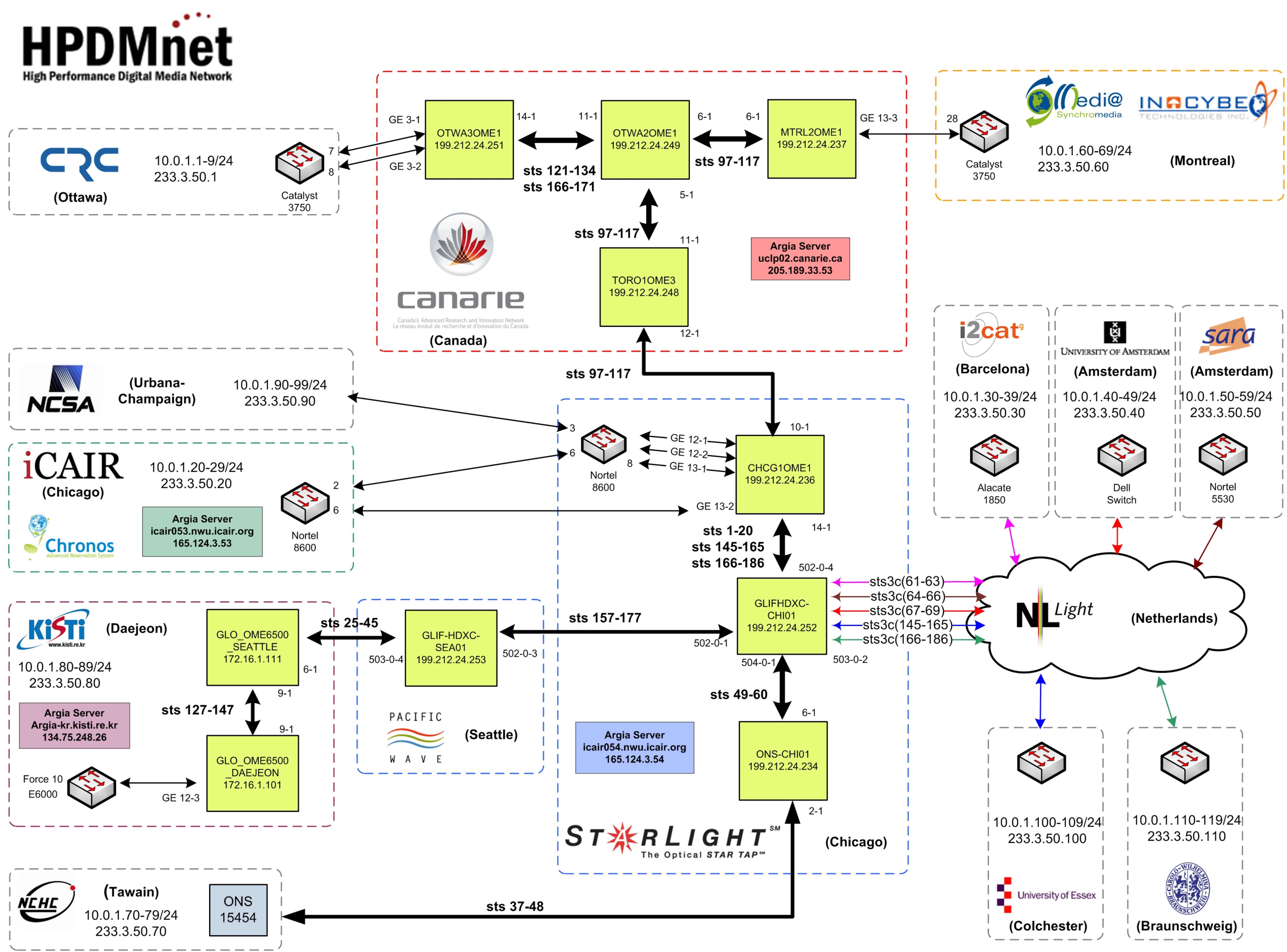
HPDMnet is related to a set of activities, including basic research and development, design and analysis of investigative experiments, the management of an international testbed, provision of prototype services, demonstrations at public national and international venues, and publication of information about activities.

### Key Concept and Design Considerations

- Virtualization
- Close Integration of Services and Support Capabilities
- Infrastructure as a Service (IaaS)
- Programmable Networks
- Multi-Layer Services
- Multi-Domain Service Provisioning
- Experimental Testbed Investigations

### HPDMnet International Experimental Research Testbed

The HPDMnet research testbed has multiple sites within the GLIF (Global Lambda Integrated Facility) infrastructure in North America and Europe. It will soon be extended to Asia. The network is dynamically provisioned by **Argia** and **Chronos**.



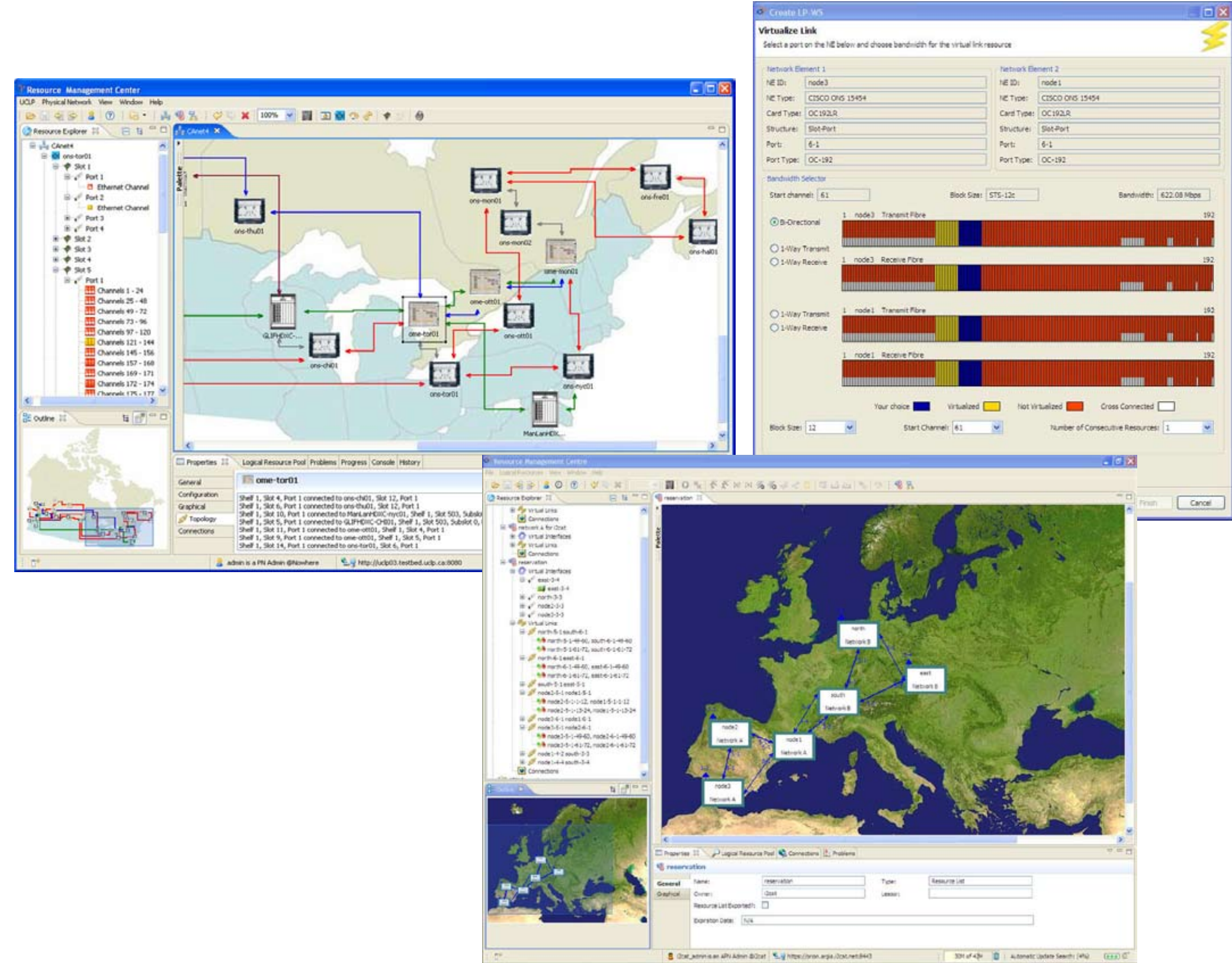
## Application Oriented Optical Networking

### USER CONTROL AND MANAGEMENT OF OPTICAL NETWORKS

**Argia** enables end-users, either people or sophisticated applications, to treat network resources as software objects and provision and reconfigure lightpaths within a single domain or across multiple, independently managed domains.

Users can join or divide lightpaths and hand off the control and management of these private sub-networks to other users to create their own application-specific IP networks without the need for interaction from an optical network manager.

The network resources can be managed using the Resource Management Center – a rich client application – or any other application capable of calling remote services.



**Chronos** - An Advanced Reservation System for Argia

- Allows users to reserve network resources in advance
- Handles routing so you don't have to know the inner topology
- Users just select the end points to connect, the start and end times, and the bandwidth needed and Chronos will find the correct path and reserve the resources for that time
- Dynamically sets up complete mesh networks with a finite time to live