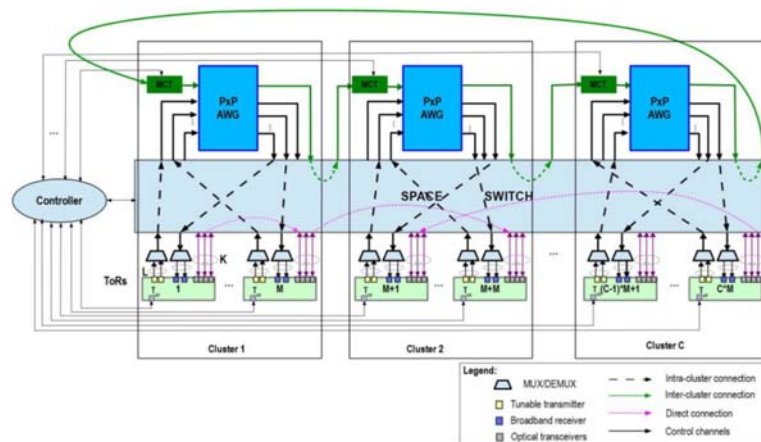


### Collaboration with Irish Research Centers Leads to New Architectures and Controls

**Outcome/accomplishment:** Investigation of new network topologies and architectures for fast-wavelength switching has progressed through collaboration between several Irish research centers and the Center for Integrated Access Networks (CIAN), an NSF-funded Engineering Research Center (ERC) with headquarters at the University of Arizona.

**Impact/benefits:** CIAN researchers are continuing their work with two centers funded by the Science Foundation Ireland—CONNECT, Ireland’s national research center for networks and communications, and the Irish Photonic Integration Centre (IPIC)—along with the Computer Science Research Institute (CSRI) in Northern Ireland. The collaboration’s value lies in complementary and synergistic activities, with technical projects ranging from optical subsystems and packaging to network architectures and the use of SDN principles to manage and control those architectures.

**Explanation/ background:** International cooperation is drawn to the growing bottlenecks of network switching in data centers, where bandwidth demands between servers are exploding with the rise in cloud computing, mobile devices, and other internet applications. The research has explored, at the physical layer, how to build and package modules that can be effectively controlled in these new architectures. The work has also been exploring the control and management of these new optically switched data-center networks.



The collaborative research has included work with Agile DC, a novel optical data center network architecture that leverages already-available as well as novel proposed photonics components. (Credit: CIAN)