

Dynamic Optical Networking (DON) and IDVRN for HPC



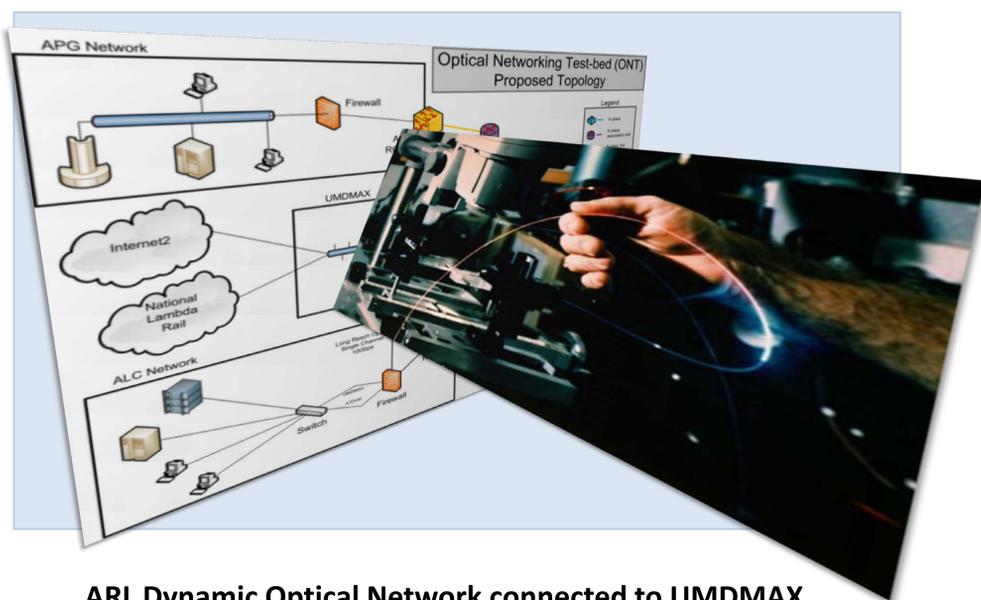
S&T Campaign: Computational Sciences

Advanced Computing Architectures

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Research Objective

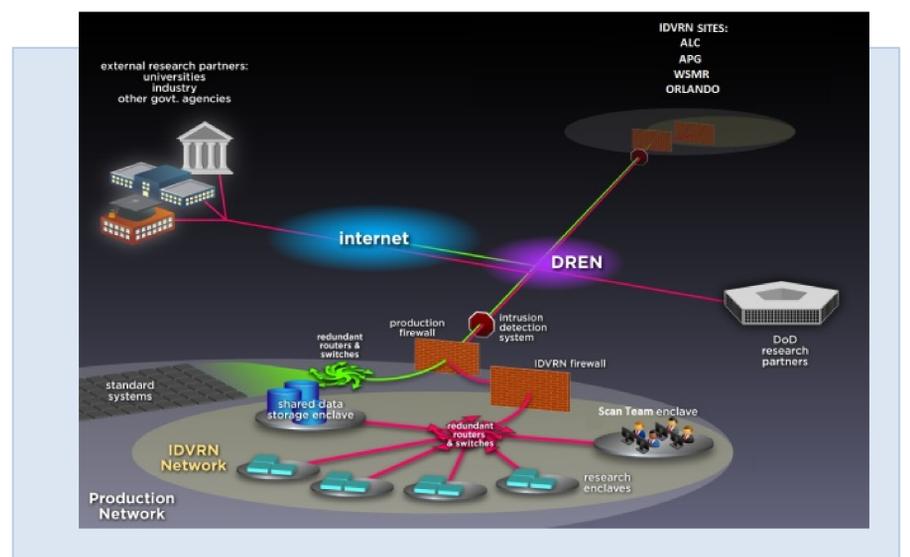
- Investigate and innovate to integrate the optical-transport layer Software Defined Networking (Transport-SDN) with DARPA CORONET protocols
- Transform IDVRN/RDEnet into a fast high speed optical network based research tool using SDN approach



ARL Dynamic Optical Network connected to UMDMAX

ARL Facilities and Capabilities Available to Support Collaborative Research

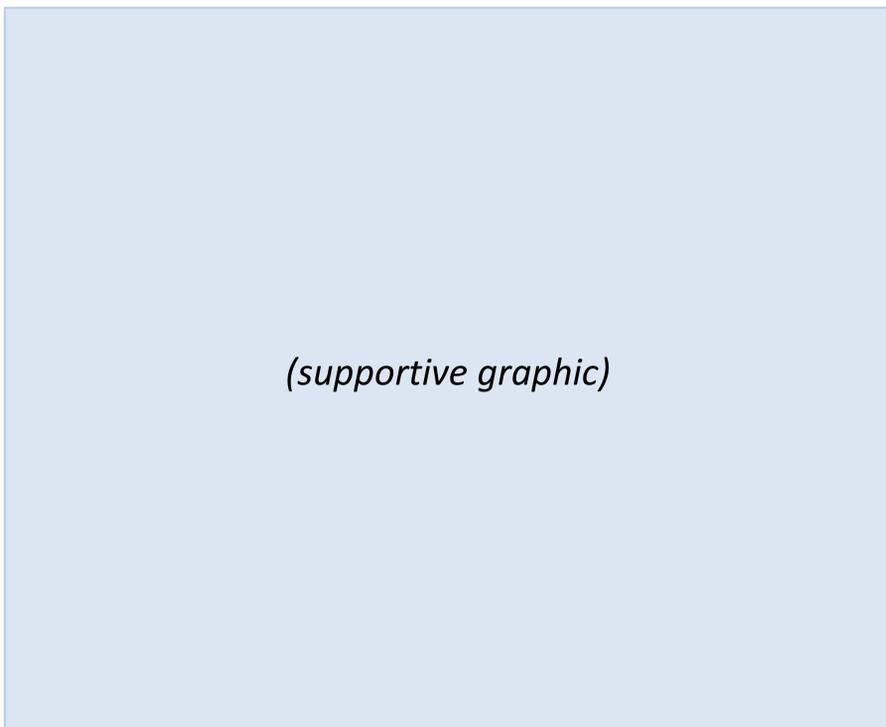
- Dark Fiber connecting ARL to UMDMAX testbed
- ARL Research Development and Engineering Network (RDEnet), providing access to the ARL research enclaves
- DRAGON/VLSR software for element management of optical network components
- Availability of 100+ node CORONET emulation lab to evaluate effect of DON capabilities on DoD networks



Research, Development and Engineering Network (RDEnet, earlier version known as IDVRN)

Challenges

- Extending transport-SDN to vendor-proprietary optical network components
- Enabling optical fiber connection between ALC and APG
- Developing a DON testbed for evaluating CORONET protocols



(supportive graphic)

CORONET Simulation Topology

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Collaboration sought with academic and government (NRL, DARPA, etc) researchers to test novel DON protocols like 3-Way Hand Shake (3WHS)
- Experience with new DON devices, protocols, and topologies preferred