STARLIGHT℠
The Optical STAR TAP℠

# The Future of STAR TAP: Enabling e-Science Research

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# What is StarLight?

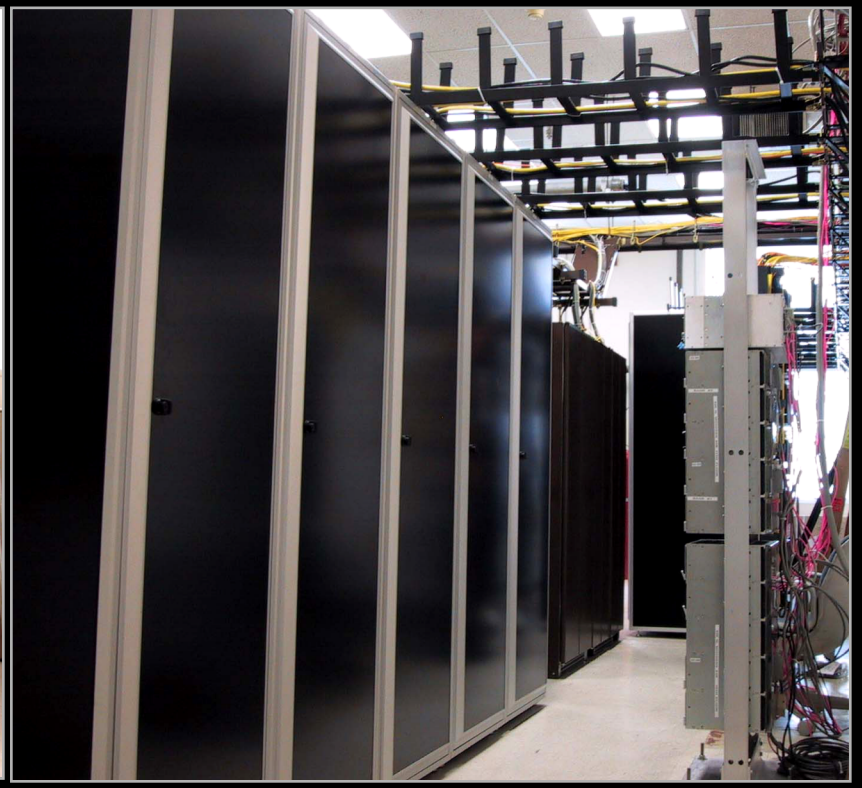
StarLight is an advanced optical infrastructure and proving ground for network services optimized for high-performance applications

Chicago view from 710

710 N. Lake Shore Drive, Chicago
Abbott Hall, Northwestern University

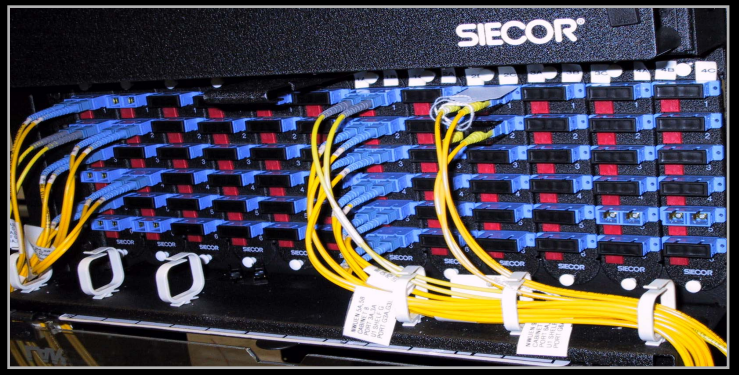
# StarLight Infrastructure

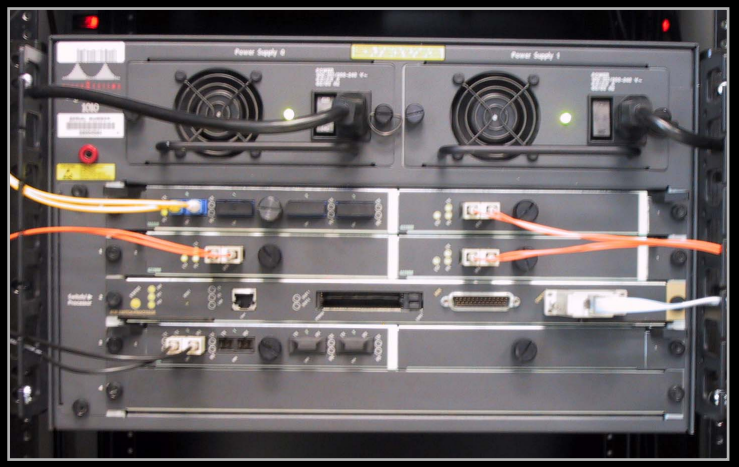
- StarLight is *a large research-friendly co-location facility* with space, power and fiber that is being made available to university and national/international network collaborators as a point of presence in Chicago



# StarLight Infrastructure

- StarLight is ***a 1GigE and 10GigE switch/router facility*** for high-performance access to participating networks



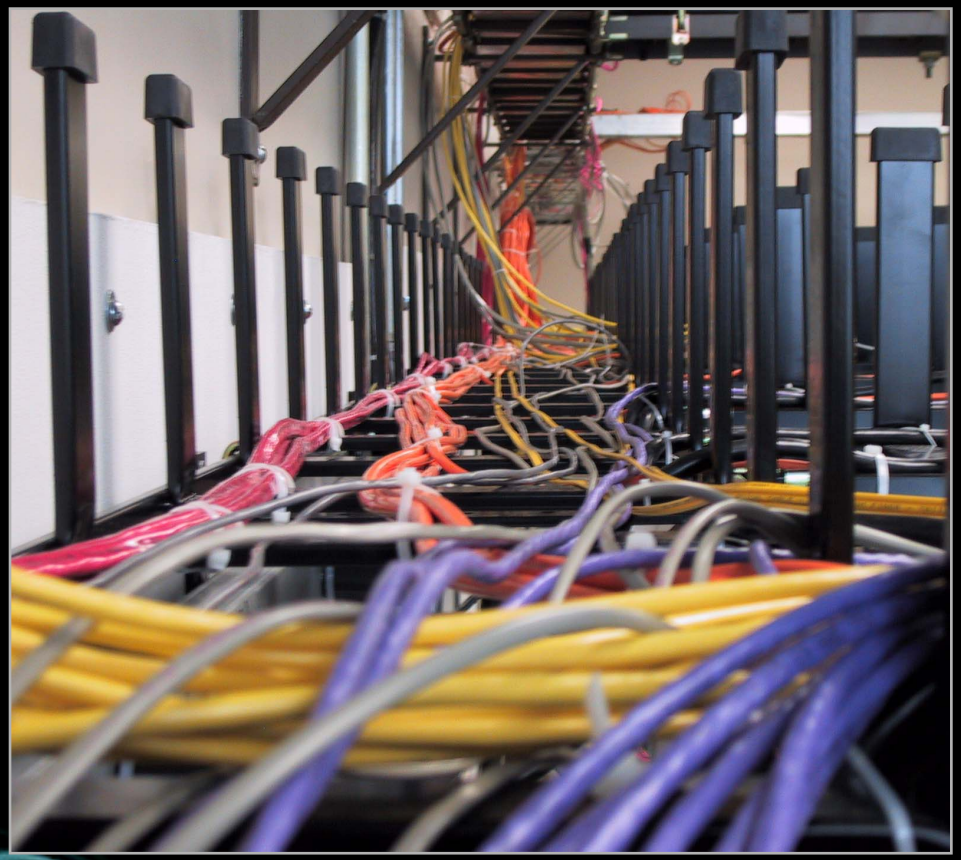
# StarLight Infrastructure

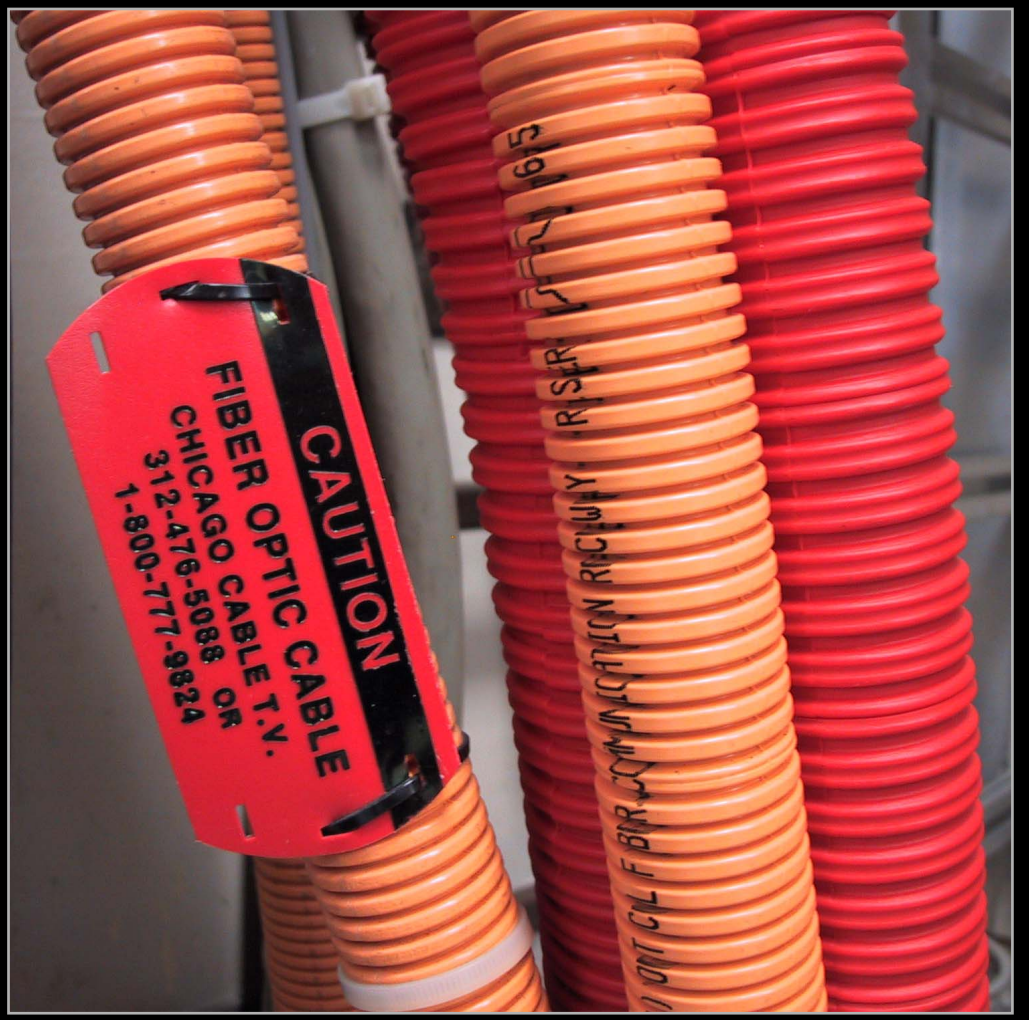
## Fiber/Equipment at StarLight (2001)

- Existing Fiber: Ameritech, AT&T, Qwest
- Soon to be installed: MFN, Global Crossing, Teleglobe, and others
- StarLight Equipment installed:
  - Cisco 6509 with GigE (plans for 10GigE)
  - IPv6 Router
  - Juniper M10 (GigE and OC-12 interfaces)
  - Cisco LS1010 with OC-12 interfaces
  - Data mining cluster with GigE NICs
  - Visualization/video server cluster with GigE NICs
- 40 racks initially reserved for co-location


# StarLight Infrastructure

- …Soon, Star Light will be ***an optical switching facility*** for wavelengths





# StarLight Connections

- **STAR TAP** (AADS NAP) is connected via two OC-12c ATM circuits now operational
- **The Netherlands** (SURFnet) is bringing two OC-12c POS from Amsterdam to StarLight on September 1, 2001 and a 2.5Gbps lambda to StarLight on September 15, 2001
- **Abilene** will soon connect via GigE
- **Canada** (CA*net3/4) is connected via GigE and 10GigE
- **I-WIRE**, a State-of-Illinois-funded dark-fiber multi-10GigE DWDM effort involving Illinois research institutions is being built. 18 strands to the Qwest Chicago PoP are in.
- **NSF Distributed Terascale Facility (DTF)** 4x10GigE network being engineered by PACI and Qwest.
- **NORDUnet** will be using StarLight's OC-12 ATM connection

# Evolving StarLight Optical Network Connections

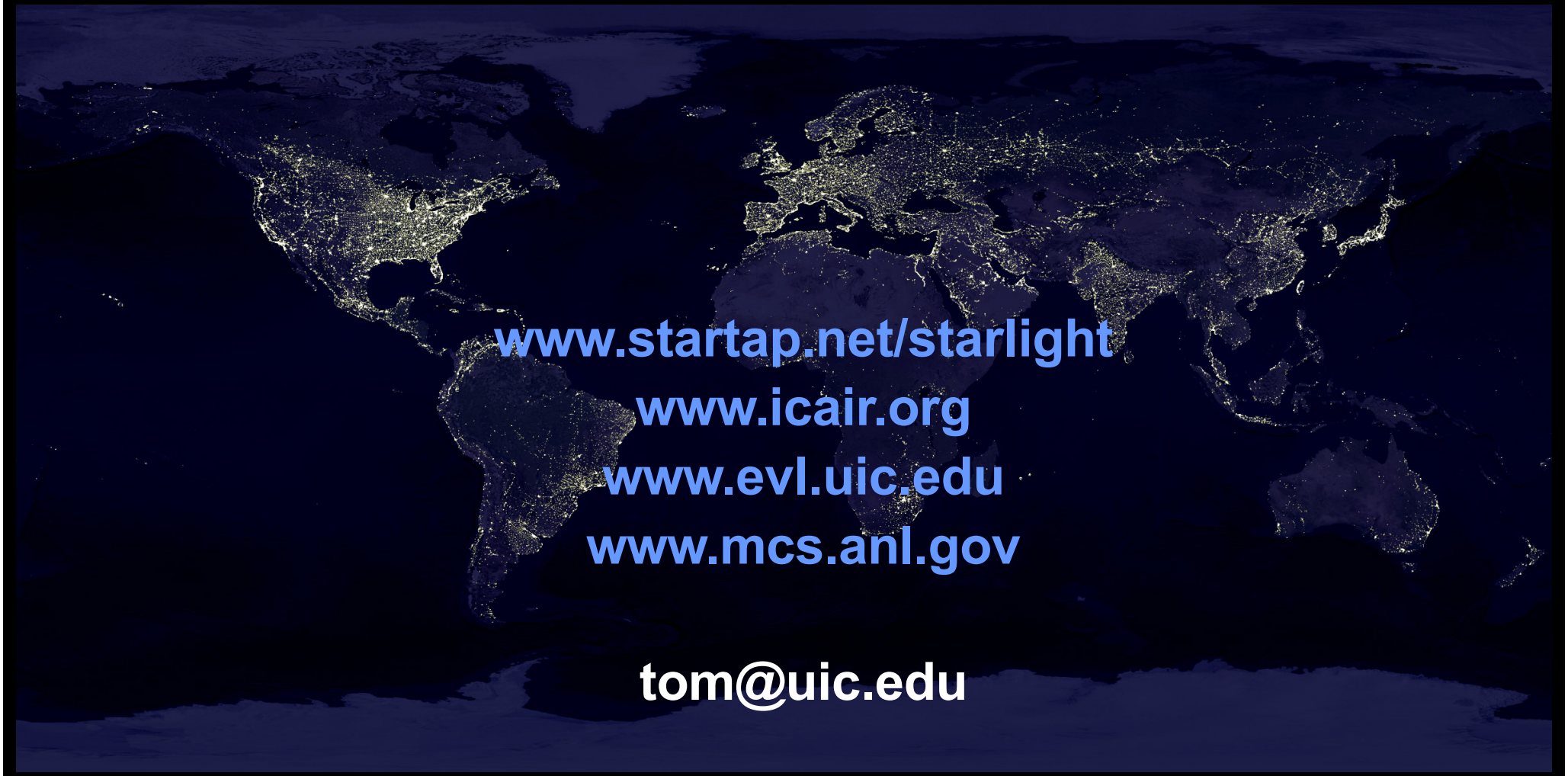
# StarLight Goals 2002-2005

- Metropolitan optical switching at 10Gb
- International wavelength switching hub, replicated in Amsterdam and other places, TBD
- Host advanced experiments like:
  - DWDM
  - Lambda conversion
  - Optical routing
  - Ultra high-definition video and VR
  - Terascale computing
  - Petabyte data mining

# StarLight Thanks


- StarLight planning, research, collaborations, and outreach efforts at the University of Illinois at Chicago are made possible, in part, by funding from:
  - **National Science Foundation (NSF) awards ANI-9980480, ANI-9730202, EIA-9802090, EIA-9871058, and EIA-0115809**
  - **NSF Partnerships for Advanced Computational Infrastructure (PACI) cooperative agreement ACI-9619019 to the National Computational Science Alliance**
  - **State of Illinois I-WIRE Program, and UIC cost sharing**
  - **Northwestern University for providing space, engineering and management**
- Argonne National Laboratory for StarLight and I-WIRE network engineering and planning leadership
- NSF/ANIR, Bill St. Arnaud of CANARIE, Olivier Martin of CERN, and Kees Neggers of SURFnet for global optical networking leadership
- NSF/ACIR and NCSA/SDSC for DTF opportunities
- Julio and Heidi for AMPATH enlightenment!


# *"Bring Us Your Lambdas!"*



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