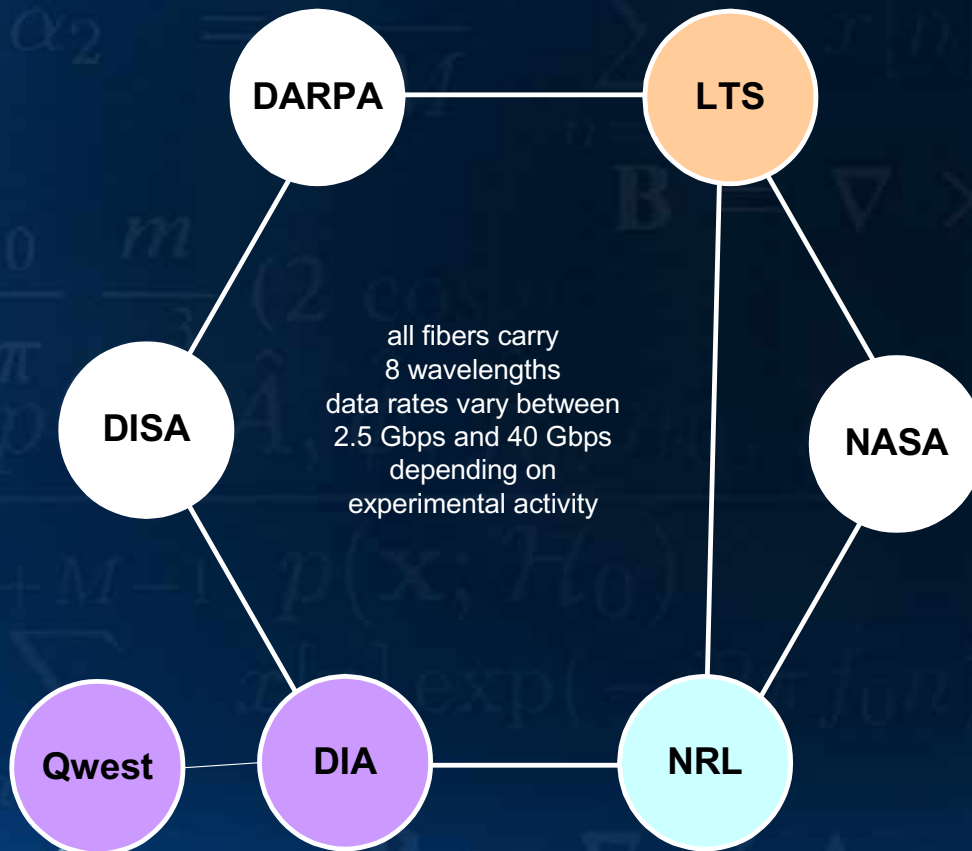


# ATDnet Testbed

Adelphi, MD



- DC metro area
- 8 channels
- ATM overlay
- OBS overlay
  - DIA node goes to Eckington
  - Will link to BossNet, NLR

<http://www.atd.net/>

Boling AFB Washington, DC



## What we will Show

- We will demonstrate ultra fast switching between three different HDTV sources connected to one HDTV display unit - all using the same wavelength.
- We will use a GUI application, Starfish to choose which source will get cross connected to the display port.
- Demo Configuration
  - NRL
    - Source 1 and HDTV display
    - Lambda Optical System OXC
    - JITPAC control card
    - 2 Client emulators
  - LTS
    - Sources 2 and 3 – LTS site
    - Lambda Optical System OXC
    - JITPAC control card
    - 2 Client emulators

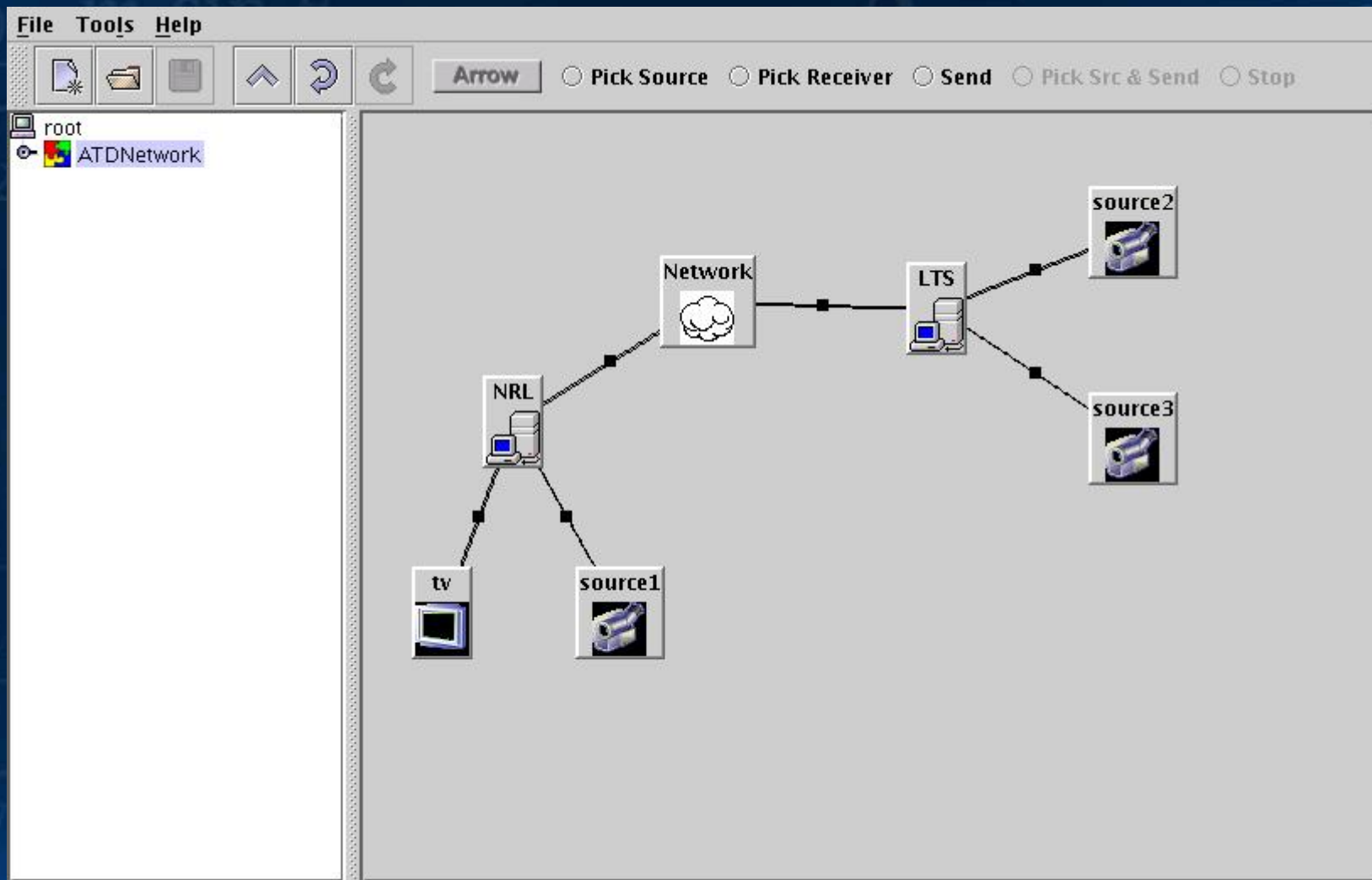


## How

- Using Starfish, we will choose the source to display
  - This will send messages to the client emulators to :
    - 1) if lightpath connection exist – then delete existing connection
    - 2) create new lightpath connection connecting the new source to the display
  - The client emulators will use JIT signaling over ATM (emulating the out of band control channel) to communicate to and between JITPACs
  - The JITPAC control card upon receiving the JIT signaling message, configures the Switch based on JIT message information and forwarding table via RPC

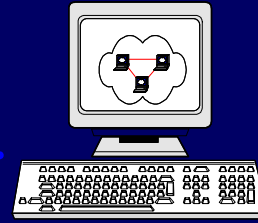


# JIT Demonstration



# FCC DEMO

SOURCE 1 to Display



GUI Starfish

Create/delete JIT connection

Create/delete JIT connection

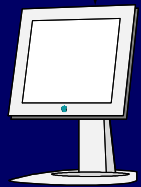
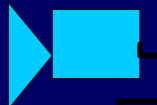
JIT signaling/ATM

JIT signaling/ATM

Source 1 Client  
Display client

Source 2 & Source 3  
Clients

Source 1



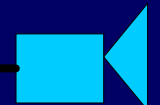
Display

JITPAC

JIT signaling/ATM

JITPAC

Source 2



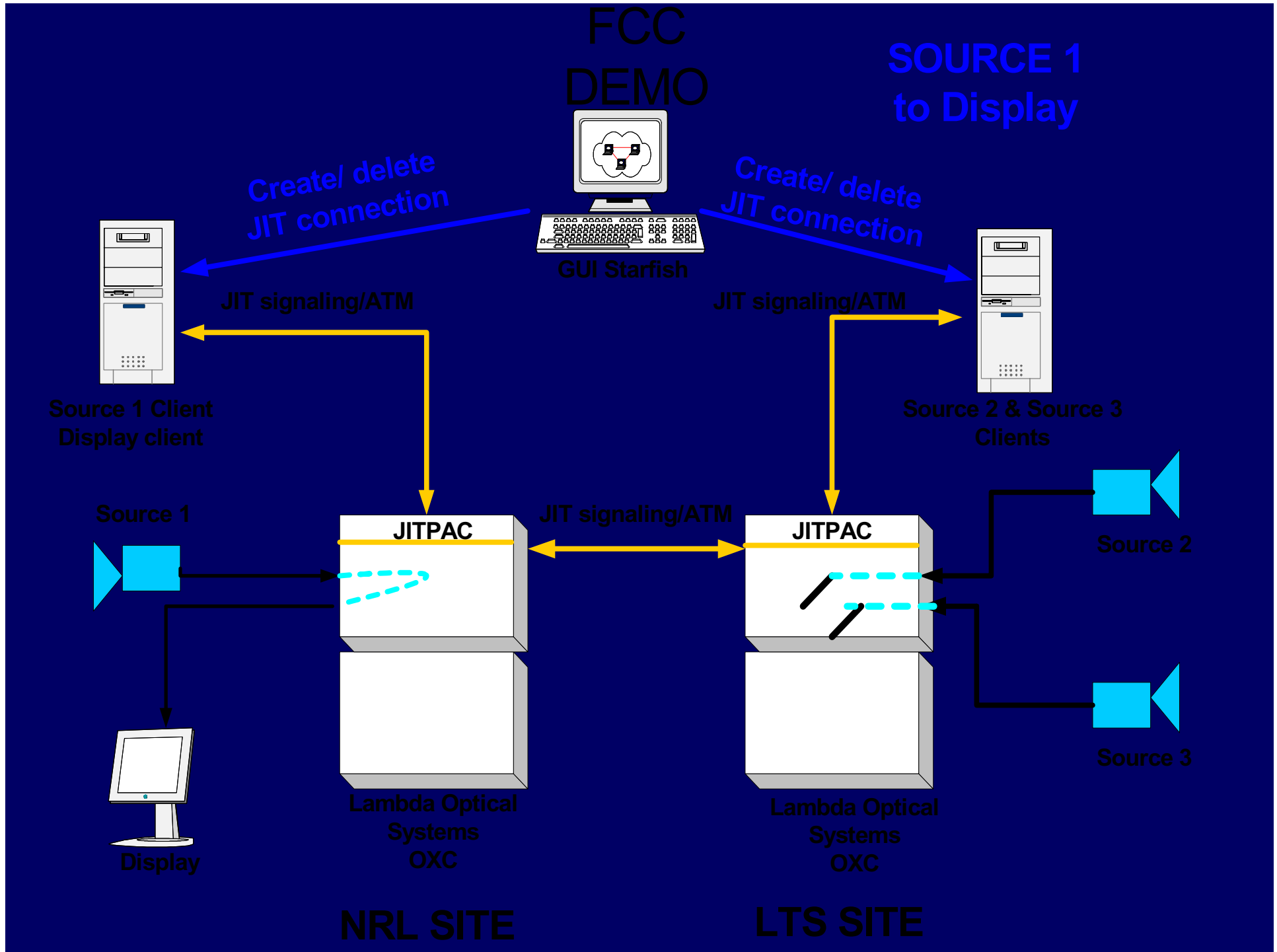
Source 3

Lambda Optical  
Systems  
OXC

Lambda Optical  
Systems  
OXC

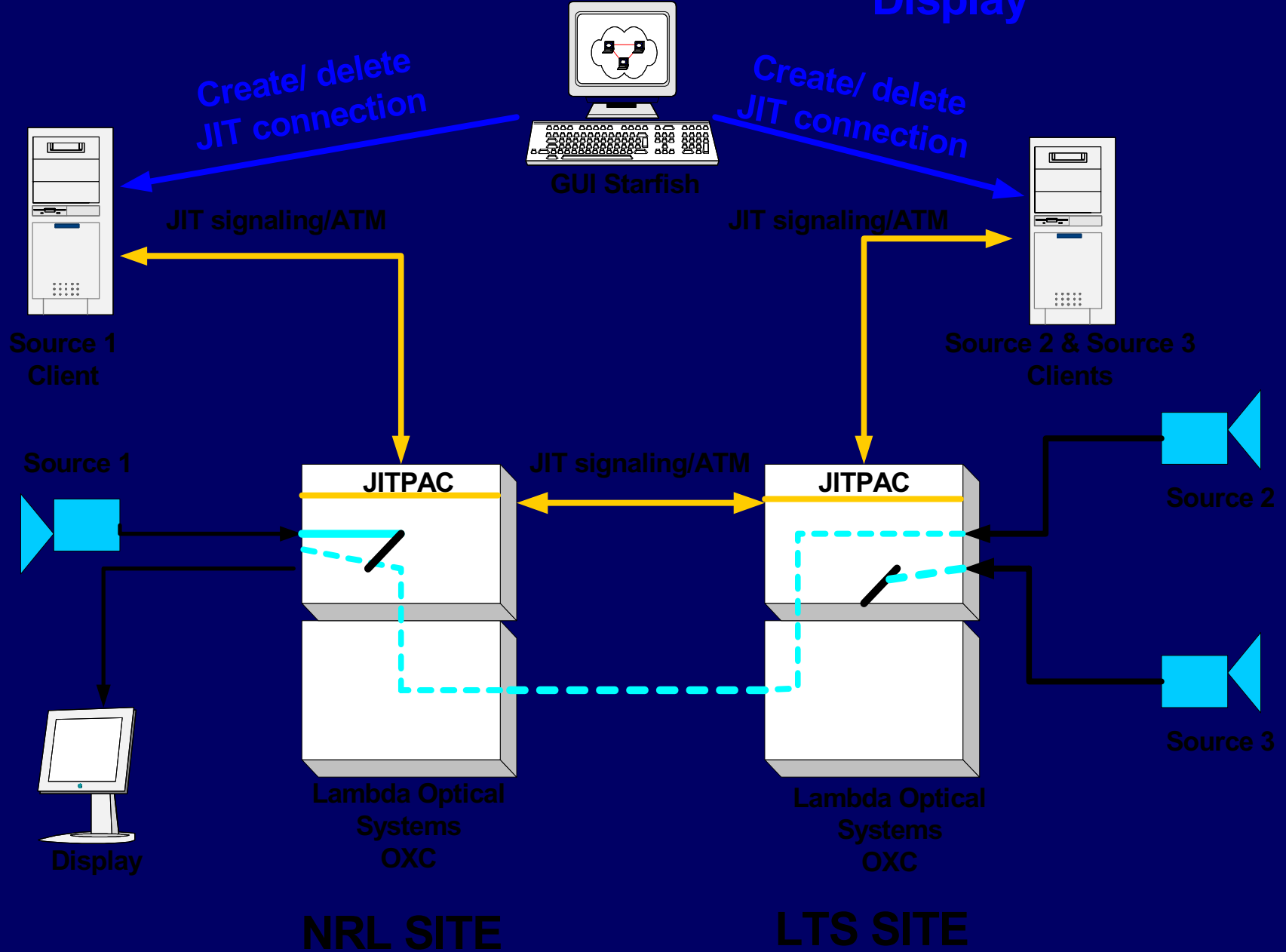
NRL SITE

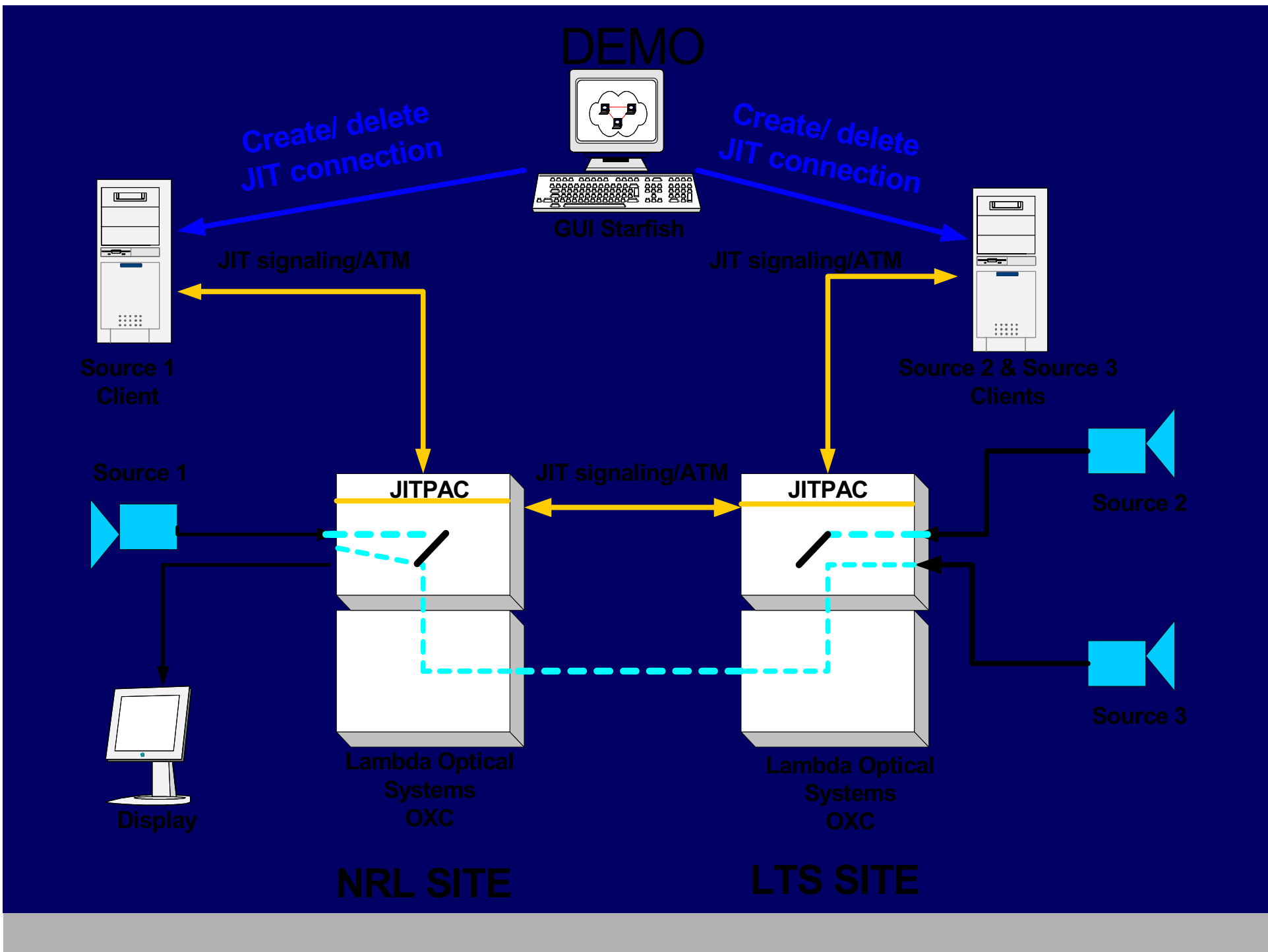
LTS SITE



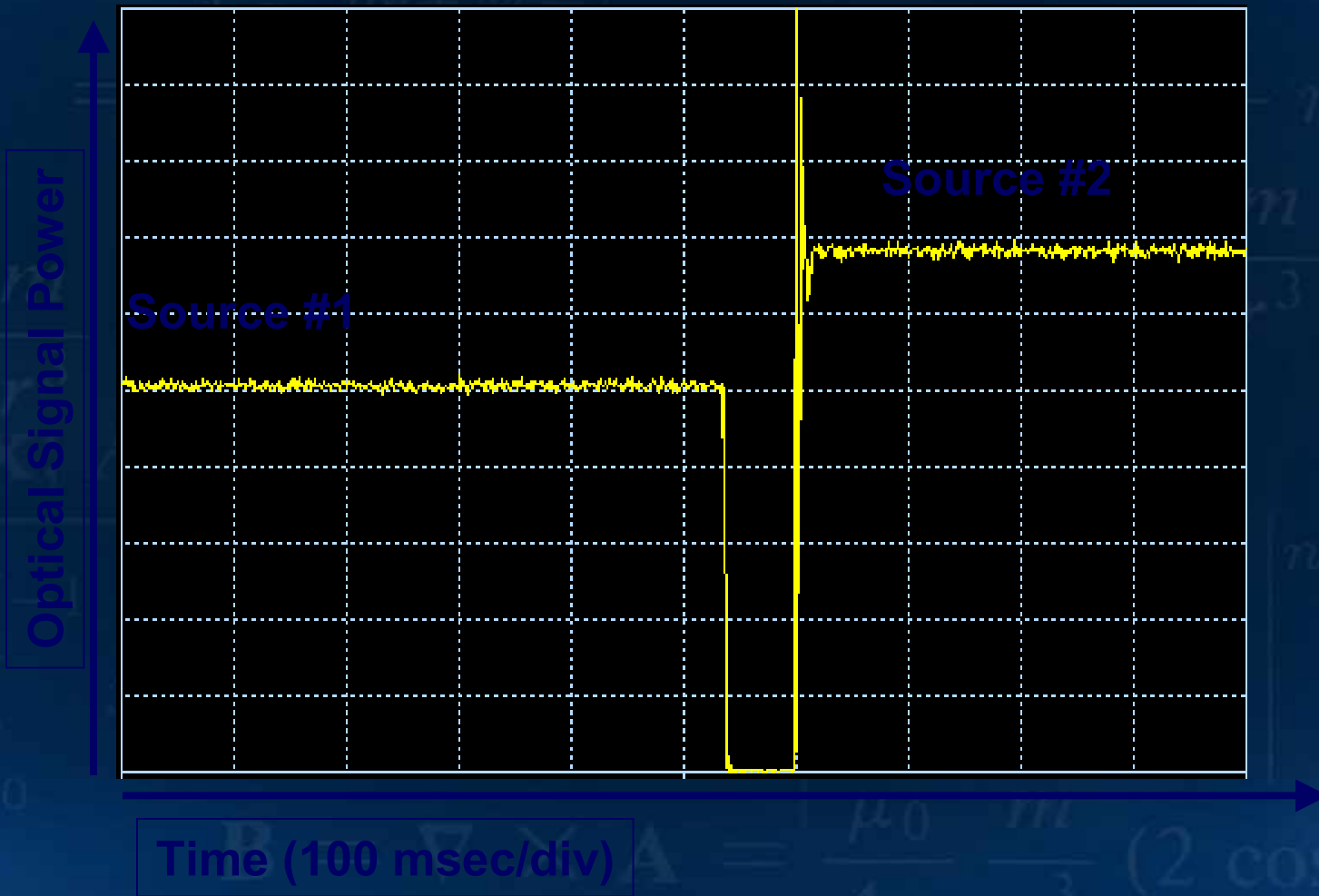
# FCC DEMO

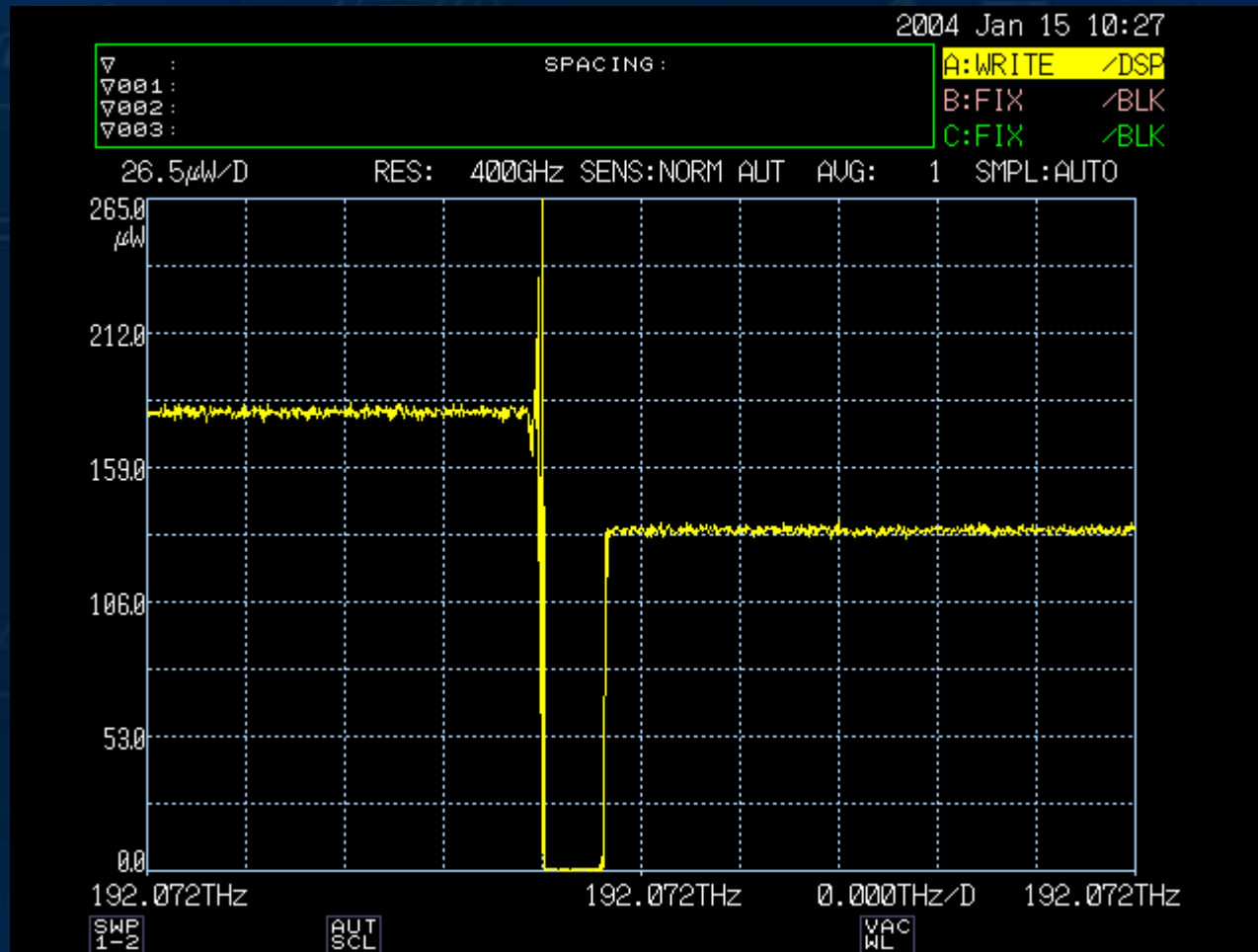
Source 2 to Display





# JIT FCC Demo Results





## Other Experimental Agendas

- Tie to Grid and big science applications
- Add OBS overlay to other networks
  - NCNI
  - Ultra Science Network
  - National Lambda Rail
- Solid state optical switch elements
  - Six orders of magnitude faster switch speed
- SC'04 demo
  - 50 Gbps application to application NRL to PSC

