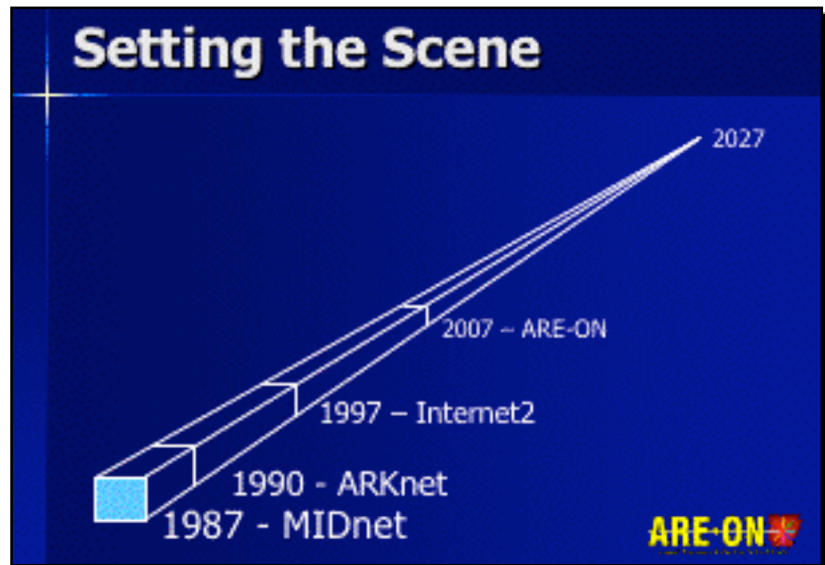


## THE ARKANSAS RESEARCH AND EDUCATION OPTICAL NETWORK (ARE-ON)

The initial network that connected all colleges in Arkansas, ARKnet, began services in 1987 and with funding from the National Science Foundation (NSF). By 1997, research universities across the nation found that the adoption of the Internet by the public was so pervasive that they could not effectively use it for some applications and they formed Internet2 as a private network of about 200 universities. Internet2 was partially funded by NSF and was fully compatible with the Next Generation network that was formed simultaneously by agencies of the federal government. Internet2 provided a higher performance network for members and research capabilities that were shared with private sector partners to develop and test new network hardware and software technologies.

The National LambdaRail (NLR) was formed by 15 Internet2 members in 2003 to create a fiber optic based network that would address the Internet2 limitations that resulted from use of managed services from telecommunications companies. The NLR network motivated Internet2 to move its network services to a fiber optic network infrastructure in 2007.

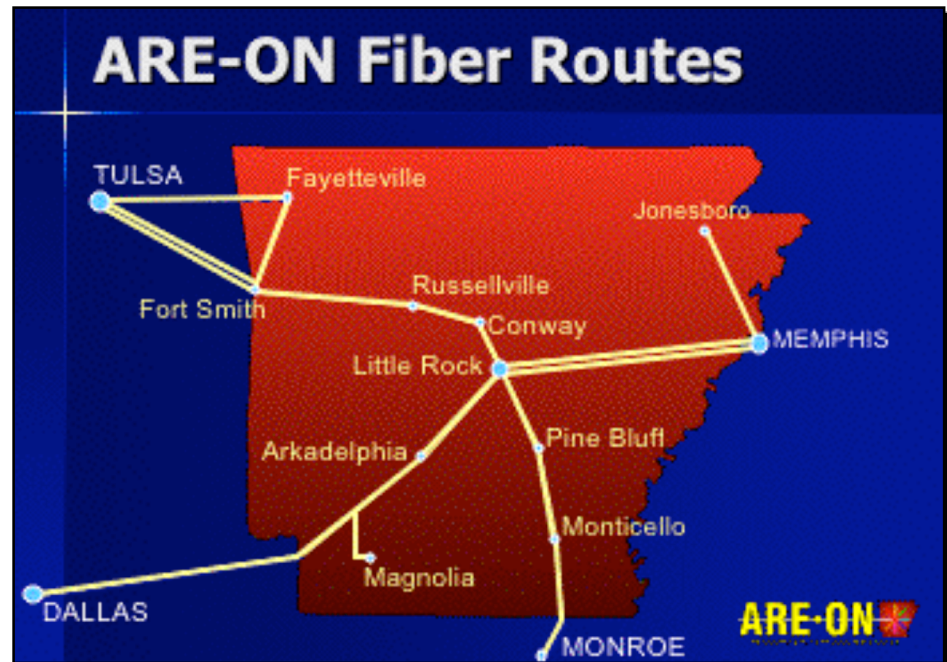


Arkansas State University, University of Arkansas for Medical Sciences, University of Arkansas at Little Rock and the University of Arkansas, Fayetteville, as members of Internet2 followed the development of the NLR and began planning for a fiber optic network for Arkansas universities. The Arkansas Higher Education Technology and Facility Improvement Act (Act 1282 of 2005) provided general obligation bond funds to build the network. The measure was initially turned down by Arkansas voters, but later approved when placed before the voters a second time.

ARE-ON's funding includes \$6.4M in General Improvement Funds and \$9.5M from the general obligation bonds in 2006. These funds were intended to



build ARE-ON and connect the 11 four-year public universities. Operational funds were provided by joint agreement through the Arkansas Department of Higher Education by the presidents and chancellors of those universities by allocating about \$1M a year from mineral rights leases on federal lands for fiscal years 2007, 2008, and 2009. The funds noted above with some supplement from membership service fees are expected to meet the financial requirements of ARE-ON for those three years. ARE-ON anticipates the need for an operational budget of \$2.5M per year thereafter.



The mission of ARE-ON is to promote, develop and apply advanced telecommunications technologies to support and enhance education, research, public service and economic development. ARE-ON follows the national model for regional optical networks through its initial focus in supporting its research and education members. Secondary emphasis will include research collaborations from the private sector, state agencies, libraries, museums, public sector partnerships and health care organizations.

Initial applications for ARE-ON have focused on cyberinfrastructure, high definition television instructional systems and geographic information systems at the University of Arkansas, Fayetteville. ARE-ON's partnership with high performance computing will empower computational science and engineering and increase the level of university research to become a more effective economic development engine for Arkansas.

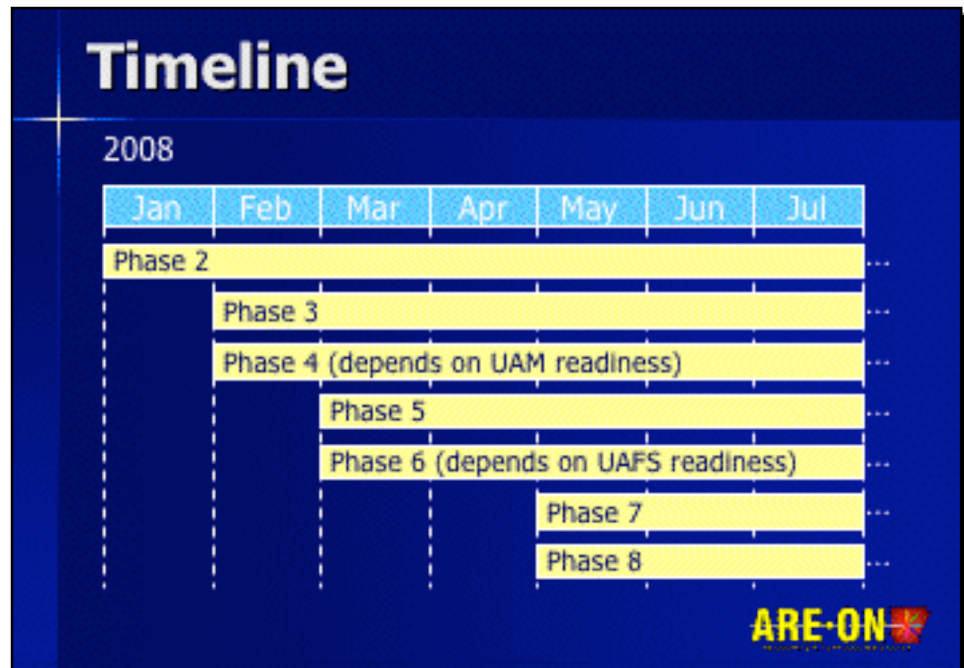
## Implementation Phases

- 1 Connect Fayetteville campus to NLR and Internet2 via OneNet (completed)
- 2 Acquire/build Little Rock infrastructure and connect UALR & UAMS
- 3 Acquire/build infrastructure for ASU connection
- 4 Acquire/build infrastructure for UAPB and UAM connections
- 5 Acquire/build infrastructure for UCA and ATU connections
- 6 Acquire/build infrastructure for UAFS connection
- 7 Acquire/build infrastructure for SAUM and HSU connections
- 8 Complete Dallas to Tulsa connection





Secondary emphasis of ARE-ON with public and private sector partners are on the horizon in all of the areas noted above. Collaborations with health care organizations have great potential. The Rural Health Care Pilot Project (RHCPP) will expand as a result of the recent funding provided by the Federal Communications Commission. As the network applications for health care expand, the need for high performance network services becomes apparent. Large volumes of data from diagnostic procedures and other computerized systems will need a high performance network system to effectively and efficiently transfer data in a timely manner. ARE-ON as a partner of RHCPP will be able to provide secure high performance network services for the communities in the proximity of its network backbone. Expansion of the ARE-ON network to serve a larger footprint in Arkansas may be assisted by the Connect Arkansas identification of fiber resources across the state.



There are many application areas that will be defined for the primary and secondary emphasis areas of ARE-ON. The capacity of ARE-ON can address the bandwidth needs of network users in a cost effective manner. ARE-ON can electronically create additional networks within its present fiber infrastructure with dense wave division multiplexing (DWDM) which allows the creation of a separate network when needed for security or capacity purposes.

