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Contact(s):
Louis Fox *| President & CEO | CENIC | lfox@cenic.org | 714-220-3455*
Steve Corbató *| Executive Director | corbato@linkoregon.org | 503-346-3575*

CENIC and **Link Oregon** Forge Unique Regional Partnership to Share Resources and Expertise in Delivering Enhanced High-Speed Network Connectivity to Benefit Research, Education, and other Public and Non-Profit Sector Service Organizations across California and Oregon

CENIC and Link Oregon establish a high-speed network connection via Internet2 transport.

La Mirada, Calif., Sept. 16, 2019 — An agreement forged between CENIC and Link Oregon will establish a unique regional partnership that will allow both organizations to share resources and expertise in providing extended fiber broadband network capabilities and services to research, education, and other public-service organizations across California and Oregon—and eventually beyond.

Established in 1997, CENIC is a non-profit organization that operates the California Research and Education Network (CalREN), a high-capacity network that includes more than 8,000 miles of optical fiber across California. It supports over 20 million users including the vast majority of K-20 students, together with educators, researchers, and individuals at other vital, public-serving institutions.

Link Oregon is the service name for the Oregon Fiber Partnership, the newly minted non-profit organization that is a consortium of Oregon's four research universities (Oregon State University, OHSU, Portland State University, and the University of Oregon) and the State of Oregon's Office of the Chief Information Officer. Link Oregon will serve the connectivity needs of Oregon's K-12 schools and public education institutions, libraries, public health facilities, Tribes, and state government offices statewide with high-speed, reliable, cost-effective fiber broadband.

"As an emerging state network, Link Oregon stands to benefit tremendously from working closely with our long-standing peer organization in California, CENIC. This agreement enables us to leverage CENIC's comprehensive expertise and capabilities in offering high-speed connectivity to the public sectors," said Steve Corbato, executive director of Link Oregon. "This partnership will serve as a powerful enabler for higher-level, data-driven collaboration between Oregon and California research universities as well as for working together to address connectivity challenges in the chronically underserved regions along our common state border." Link Oregon will extend

broadband network infrastructure and services to more than 600 non-profit and public service organizations in Oregon.

The new agreement establishes Link Oregon as a CENIC State Associate, which gives Link Oregon direct access to CENIC's networks, including CalREN and Pacific Wave, its US research and education backbone networks, its international research and education networks, and its supercomputing facilities. Link Oregon will now benefit from bundled peering; participation in experimental network activities, initiatives, and testbeds; technical support services, workshops, and conferences; and a host of other critical services. This agreement marks the initial phase of connectivity between the California and Oregon networks.

"This is a first step in the process towards Link Oregon becoming a fourth partner in our West Coast Fiber Partnership, which includes Pacific Northwest Gigapop, Internet2, and ESnet," said CENIC President and CEO Louis Fox. "As traffic continues to grow on R&E networks, it is essential that we partner with one another to keep pace with the research demands of global-scale instruments, multi-institution collaborations, and access to massive datasets."

For CENIC, this agreement extends the relationships and network affiliations from California into neighbor-state Oregon to create the benefits of closer collaboration in research, data-sharing, education support, and other service activities across a broader geography.

A second phase will establish a direct connection to CENIC's Pacific Wave infrastructure, which has a peering point for network connections in Sunnyvale, Calif. By establishing a connection with Pacific Wave, Link Oregon will have an extended reach across a distributed international network-peering facility for the Pacific Rim and beyond.

Pacific Wave currently supports some 29 networks representing more than 47 countries, with advanced services and connectivity to the Pacific Research Platform (PRP). The PRP integrates Science DMZs, an architecture developed by the U.S. Department of Energy's Energy Sciences Network (ESnet), into a high-capacity regional "freeway system." This system makes it possible for large amounts of scientific data to be moved between scientists' labs and their collaborators' sites, supercomputer centers, or data repositories, even in the cloud.

From biomedical data to particle physics, nearly all research and data analysis today involves remote collaboration. Researchers depend heavily on high-speed access to large datasets and computing resources to work effectively and efficiently on multi-institutional projects.

Many California-Oregon research projects, particularly in the geosciences, environmental sciences, oceanography, and medicine will benefit from the partnership and extended connectivity. For research organizations, access to a regional network, as well as to the PRP and international Pacific Wave network, establishes enhanced interconnectivity to support a broad range of data-intensive research activities with wide-reaching impact.

ShakeAlert®, for instance, an early earthquake warning system, was developed by a coalition that included the U.S. Geological Survey; California State environmental and geological agencies; and universities in California, Oregon, and Washington. ShakeAlert can detect significant earthquakes

and alert people before the shaking actually begins. Likewise, ALERTWildfire, was developed using research and resources of three universities: University of Nevada, Reno; University of California, San Diego; and the University of Oregon. This service provides access to state-of-the-art Pan-Tilt-Zoom fire cameras and associated tools to help firefighters and first responders locate fires, scale resources, assist with evacuations, and monitor fire behavior.

“Whether it’s disaster preparedness, machine learning, CRISPR gene editing, artificial intelligence, or the next new technology that lies around the corner, our researchers are increasingly employing cutting-edge techniques that require larger and larger data sets, and they are often doing so through collaborative projects that involve investigators from other institutions in the Northwest, in California, and beyond,” said David Conover, vice president for research and innovation at the University of Oregon. “As we look ahead to the launch of the $1 billion Phil and Penny Knight Campus for Accelerating Scientific Impact in 2020 and other programs such as our Data Sciences Initiative, this vitally important partnership will become even more critical to the future of our institution, and we are proud to be a part of the network.”

The agreement also builds on CENIC’s and Link Oregon’s existing relationships with other key entities such as the California Institute for Telecommunications and Information Technology (Calit2) at the University of California, San Diego (UCSD) and Internet2, a member-driven advanced technology community for higher education, which will provide the 100 gigabit- per-second transport to connect the Link Oregon presence in Eugene, Oregon to the CENIC Network at the CalREN Sunnyvale node in Silicon Valley.

“The PRP welcomes Oregon’s researchers and their institutions to participate in our extensive NSF-funded regional Science DMZ projects, through which they can access (and add to) several attached petabytes of high-speed shared storage connected to 400 GPUs and 4,000 CPUs,” said Larry Smarr, principal investigator of the PRP and director of Calit2 at UCSD. “High-performance network research connections via CENIC, Pacific Wave, ESnet, and Internet2 extend this Science DMZ capability to researchers nationwide and worldwide and seamlessly integrate with commercial clouds,” explained Smarr. “We look forward to engaging with Oregon’s research and education community as soon as possible.”

Howard Pfeffer, president and CEO of Internet2, added, “We are very excited to partner with Link Oregon and CENIC and to continue supporting the big data requirements of science and education communities along the West Coast. Collaboration among research and education networks is essential in meeting the needs of data-intensive research projects and accelerating research collaborations across institutions. Partnerships like these provide the secure and reliable high-speed connectivity and customized services that ultimately bolster scientific discovery.”

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About CENIC

CENIC connects California to the world — advancing education and research statewide by providing a world-class network essential for innovation, collaboration, and economic growth. This nonprofit organization operates the California Research and Education Network (CalREN), a high-capacity network designed to meet the unique requirements of over 20 million users, including the vast majority of K-20 students together with educators, researchers, and individuals at other vital public-serving institutions. CENIC's Charter Associates are part of the world's largest education system; they include the California K-12 system, California Community Colleges, the California State University system, California's public libraries, the University of California system, Stanford, Caltech, USC, and the Naval Postgraduate School. CENIC also provides connectivity to leading-edge institutions and industry research organizations around the world, serving the public as a catalyst for a vibrant California. For more information, see http://www.cenic.org.

About Link Oregon

Link Oregon, the service name of the Oregon Fiber Partnership, is a non-profit organization founded in 2019 to support the statewide networking missions of its five founding entities: Oregon's four research universities—Oregon State University, OHSU, Portland State University, and the University of Oregon (including the Network for Education and Research in Oregon (NERO) founded there--now part of Link Oregon)—and the State of Oregon through the Office of the Chief Information Officer. Link Oregon is developing a new statewide network and shared network services. These are being designed to meet the information-carrying capacity requirements of the expanded use of new technologies, which generate unprecedented amounts of data and offer the possibility of new insights into research and support for solutions that address public-sector challenges. For more information, see https://www.linkoregon.org.

About Internet2

Internet2® is a non-profit, member-driven advanced technology community founded by the nation's leading higher education institutions in 1996. Internet2 serves 320 U.S. universities, 60 government agencies, 43 regional and state education networks and through them supports more than 100,000 community anchor institutions, close to 1,000 InCommon participants, 58 leading corporations working with our community, and 70 national research and education network partners that represent more than 100 countries. Internet2 delivers a diverse portfolio of technology solutions that leverages, integrates, and amplifies the strengths of its members and helps support their educational, research, and community service missions. Internet2's core infrastructure components include the nation's largest and fastest research and education network that was built to deliver advanced, customized services that are accessed and secured by the community-developed trust and identity framework. Internet2 offices are located in Ann Arbor, Mich.; Denver, Colo.; Washington, D.C.; and West Hartford, Conn. For more information, visit http://www.internet2.edu or follow @Internet2 on Twitter.