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Your reference
Subject DYNESTAR

Dear Harvey,

On behalf of SURFnet I am pleased to express my support for the DYNESTAR proposal you are preparing in response to the NSF 09-564 IRNC:ProNet Solicitation. I have noted with pleasure how your proposal builds on pioneering work in which SURFnet played a major role and the prominent place you have reserved for SURFnet and NetherLight in the implementation of your plans. We will be glad to work with you and your colleagues in the US and in CERN to further innovate the global research networking infrastructure.

SURFnet has realized the SURFnet6 network infrastructure that became operational at the end of 2005 as the first large-scale hybrid research network. The current network SURFnet6 is based on a nationwide 9000+ km dark fiber footprint reaching out directly to all connected institutions. The fibers are lit with carrier class Nortel DWDM, providing the users with lightpath connectivity as well as uncongested IPv4 and IPv6 services, unicast and multicast. All supported by a 24 by 7 professional Network Operations Centre. The new hybrid SURFnet approach to networking, pioneered directly with highly demanding user communities like eVLBI and CERN/LHC proved to be an appealing solution for many others and is now implemented in research networks all over the world, including GEANT2 and Internet2. As such SURFnet has proven to be an engine for innovation for the science community, ICT suppliers and advanced (corporate) users.

As top science is internationally oriented, an island of advanced connections in the Netherlands alone would be worthless. Building on the successful partnership with the US research community SURFnet decided to implement the first international lambda between Amsterdam and Chicago and to start in 2001 a yearly round of LambdaGrid Workshops to work on lambda networking in a truly global context. In January 2002 the first lambda connection between NetherLight in Amsterdam and StarLight in Chicago became operational and indeed formed the start of a global international lambda networking community facilitating the development of international e-science. In less than 2 years both StarLight and NetherLight evolved into key open lightpath exchange hubs in what is now called the Global Lambda Integrated Facility (GLIF). Today NetherLight is by far the largest lambda exchange in Europe, connecting 80 Gb/s trans-Atlantic connectivity to over 200 Gb/s of other lambda connections to destinations in Europe, both via GEANT2 and directly, to Russia via NORDUnet, to India and soon also KAUST in Saudi Arabia. Connections to Africa are planned for later this year. NetherLight is the European hub in the GLORIAD network. In September 2009 a direct dark fiber connection from NetherLight to CERN will become operational, which will support three 40G channels initially. On the dark fiber connection to NORDUnet recently a successful test was performed with Nortel 100 Gb/s optics over 1244 km without a need to regenerate the signal. We plan to introduce 100Gb/s links to CERN in the 2010/2011 timeframe.

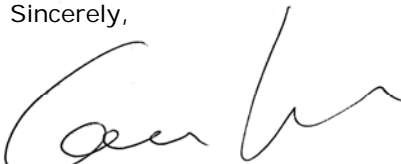
SURFnet recently started the GigaPort3 project to build the SURFnet7 network by enhancing the existing SURFnet6 network. SURFnet7 will be more agile and scalable and even more green by the introduction of Next Generation Ethernet services, replacement of electrical couplers between the photonic rings by all-optical switches and introduction of 40Gb/s and 100Gb/s optics. At the same time the network will become more user-friendly by facilitating multi-domain, on-demand composable services, which integrate virtualization and management of services and resources in a distributed, heterogeneous environment. NetherLight will undergo a major upgrade to keep track with the growing demand and the desired new functionality caused by the evolution of technology and demand.

In our view networks will no longer be distinct from the rest of the ICT infrastructure: resources within the network and within the rest of the infrastructure will have to be controlled through an integrated middleware layer, to ensure an optimal allocation of resources. A global research network infrastructure is not a big monolithic facility, centrally designed, built and operated, but is a system of interconnected entities characterized by organic growth, each at their own pace, where innovation takes place at several places more or less autonomously and then propagates via best practices and international cooperation to the rest of the system.

I understand the DYNESTAR proposal to work towards these same goals and given the track record of you and your team I am confident that the DYNESTAR project when funded will be an excellent vehicle to bring these developments to the next phase.

SURFnet looks forward to be part of these important developments and to continue the partnership with you and your team in the IRNC DYNESTAR project working together to interconnect the GLIF open lightpath exchanges with a resilient mesh of enhanced inter-domain dynamic circuits.

Sincerely,

A handwritten signature in black ink, appearing to read "Kees Neggers".

Kees Neggers
Managing Director SURFnet