

# SC20 Network Research Exhibition: Abstract

## AutoGOLE/SENSE

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### Abstract

The Global Network Advancement Group (GNA-G) AutoGOLE is a worldwide collaboration of open exchange points and research and education networks to deliver end-to-end network services in a fully automated way, wherein connection requests are handled through the Network Service Interface Connection Service (NSI-CS). The AutoGOLE uses MEICAN as its graphical user interface for collaboration by NOCs that operate international lines and services.

An increasing number of networks across the globe is using NSI to provision and deprovision international network services, saving a considerable amount of time of NOC engineers to facilitate international network service requests. Provisioning of international circuits is done within minutes, instead of multiple days or even weeks, since manual human interaction is very limited or even zero.

The Software-defined network for End-to-end Networked Science at Exascale (SENSE) project researches the integration of resources beyond-the-network, such as compute and storage.

Data Transfer Nodes (DTNs) are nodes across the world that allow for fast and efficient transport of data over long distances, working as a caching mechanism. They support data intensive science such as the high energy physics (HEP) community.

We foresee a necessary composition of network and other resource types to facilitate groundbreaking science in the upcoming decades. The AutoGOLE/SENSE combined demonstration showcases the integration of the AutoGOLE, DTNs and SENSE. It shows multiple intercontinental services across the globe using DTNs and high-performance networks, with SENSE on top, controlling the experiment. Multiple DTNs running on several continents in production R&E networks and dedicated high-capacity international lines form the basis for this setup. We are expecting to build a common production framework from SC'20 onward.

### Goals

The SC'20 goal of this experiment is to showcase full integration of AutoGOLE and SENSE. However, this effort leads to a bigger goal: the realization of a global persistent multi-resource infrastructure.

### Resources

This NRE demonstration will be conducted using resources of the collaborating domains, see Involved Parties. Used resources will involve:

- Global high-bandwidth links
- Data Transfer Nodes
- MEICAN
- Network Service Interface
- SENSE: Orchestrator, DTN Manager, Resource Manager

Provisioning Methods:  
MEICAN  
SENSE

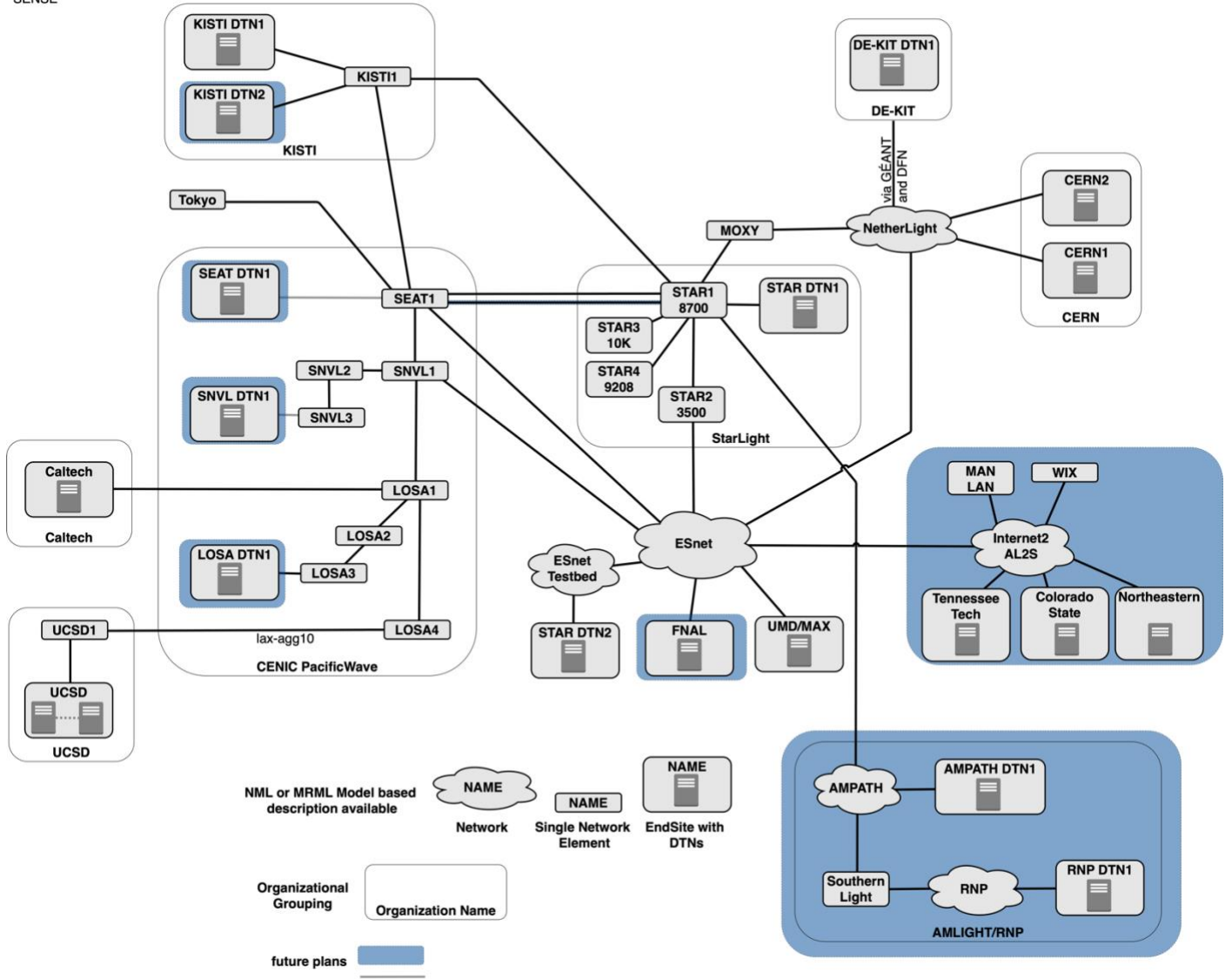


Figure 1: Map of the AutoGOLE topology as shown at SC'20 – November 2020

## Involved Parties

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