

Software-Defined Network Exchanges

Emerging Innovations In SDN

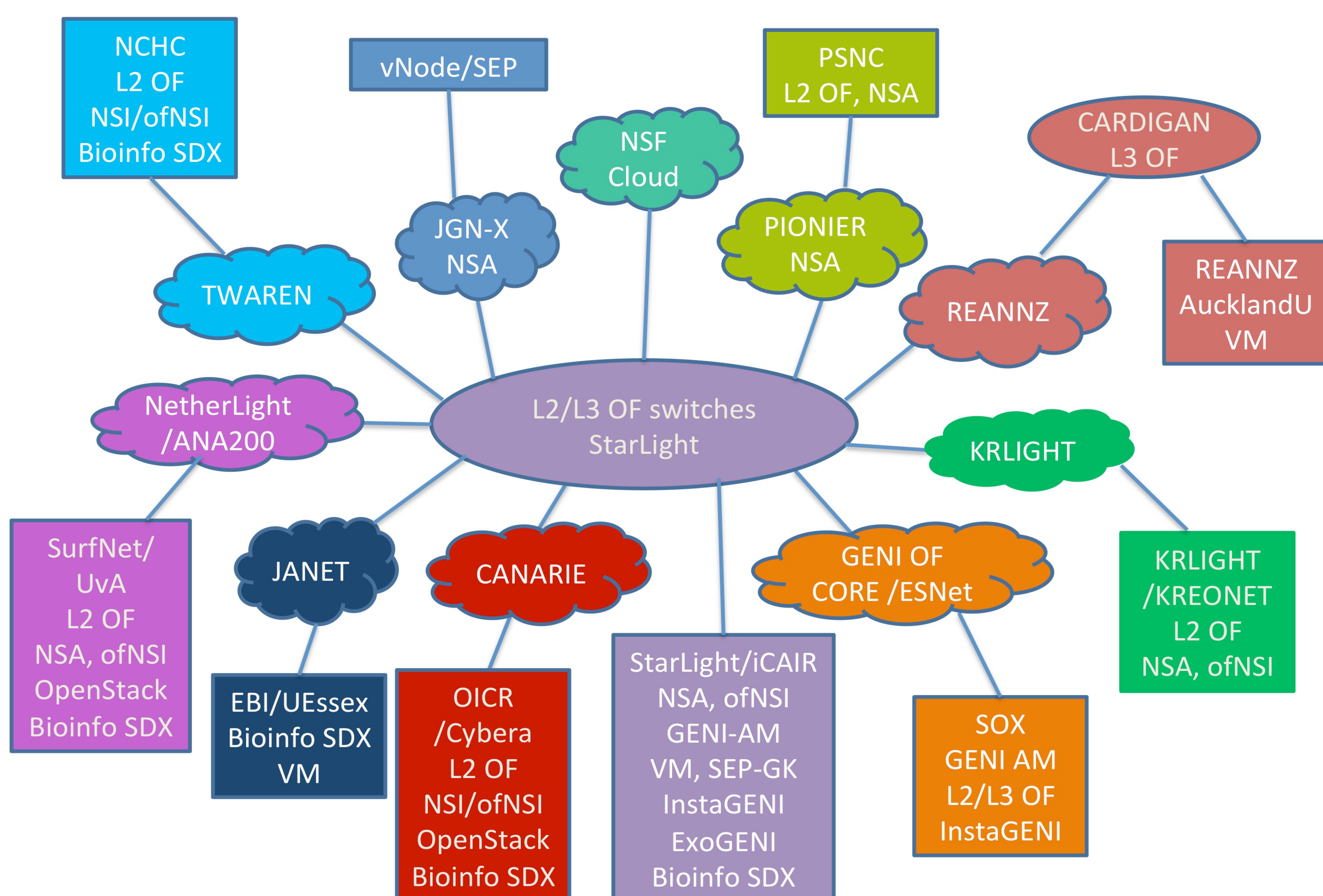
Interdomain Services and Capabilities

Global Advanced Programmable Networks

Abstract

The Software-Defined-Networking (SDN) has quickly transformed the networking landscape. Programmable networking using SDN and related virtualization techniques are enabling the implementation of significantly higher levels of abstraction for network control and management functions at all layers and across all underlying technologies. With the increasing deployment of SDN in production networks, the need for a SDN exchange has been recognized (SDX). Consequently, the International Center for Advanced Internet Research (iCAIR) and its research partners are designing and implementing a prototype of the world's first SDX at the StarLight International/National Communications Exchange Facility, in partnership with the Global Environment for Network Innovations (GENI) program. This SDX will be a multidomain service enabling interoperability among multiple federated programmable networks.

International SDXs Logical Diagram 2015



Opportunity: Optimal Data Matching To Enable Personalized Precision Medicine - Developing Innovative Techniques for Extremely Close Integration of Bioinformatics Research WorkFlows and Dynamic Programmable Network Resources Based on SDX Technologies.

Network Foundation Architecture: GENI + Customized Software Defined Network Exchange (SDX) - A Key Step Toward Algorithm-Assisted Personalized Medicine: Data Commons/Cloud Analytics and Programmable Networks and Exchanges For High Performance Real Time Data Transport and Analytics.

Bioinformatics SDXs Prototype Network

