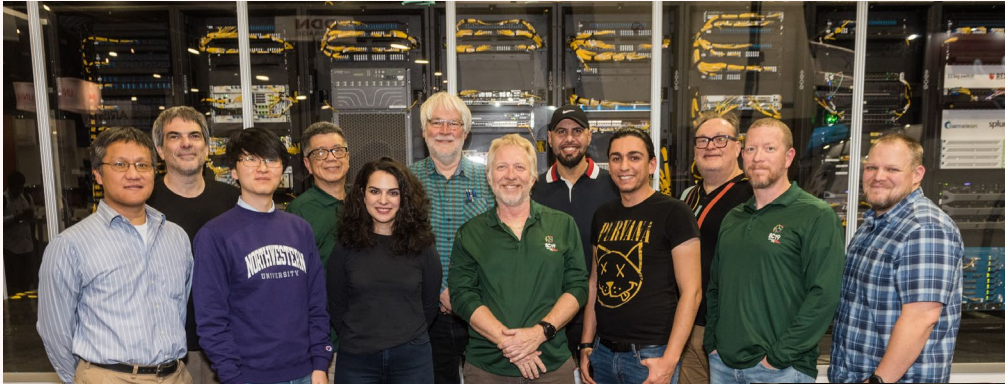# SC20

Atlanta, GA | more than hpc.

Introduction to the SCinet
Experimental Networks Team

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November 13th, 2020 • XNet

The XNet team, past and present

SC19 XNet team

...and the faces of some current and past members.

Who are we?

The activities around XNet attract individuals across industry, laboratories, and academia with an interest in exploring new networking ideas in a truly unique environment. While the size and scope of the teams have varied over the years, one overarching theme has been a desire to push the boundaries of what is possible within SCinet.

The role of XNet

The Experimental Networks Team engages partners in research, education, and industry to facilitate high-performance networking experiments during the SC Conference. These experiments often span multiple years, and the results serve to push the boundaries of network technologies and set the stage for SCinet's continuous evolution to meet the network-intensive needs of the HPC community during SC. The team has historically worked closely with the annual Innovating the Network for Data-Intensive Science (INDIS) workshop, which facilitates discussion of network-intensive demonstrations and advancements related to high-performance networking.

A Brief History

- Founded during SC99 in Portland, OR

- Known for a time as eXtreme Networks!

- A venue to showcase emerging, often pre-commercial or pre-competitive, developmental networking technologies
  - Protocols, applications, services

- Recent successes include adoption of Faucet SDN controller and maturation of a DTN service for SCinet

DWDM

OC-48 SONET

10G Ethernet

Infiniband

GMPLS

Encryption

RDMA

SuperJumboFrames

Migration

DTNs

Optical Switching

SDN

400G Ethernet

- Involvement can be daunting for XNet participants
  - Short time frames
  - Lots of content to parse and learn
  - SCinet has certain fixed patterns

- Communication of deadlines and processes has become increasingly important

- SCinet Communications and DevOps teams have taken a lead in developing a Communications Portal for bridging some of these gaps

- What is XNet without a physical playground?

- Pivoting to virtual content
  - Engaging with previous XNet teams
  - Organizing an INDIS Workshop panel
  - Gathering deep dive content for SCinet tracks

- Requiring teams to work more independently on their own demonstrations
  - Keeping applications for SCinet in mind

SC20/SCinet High Level Architecture Strawman v0.1
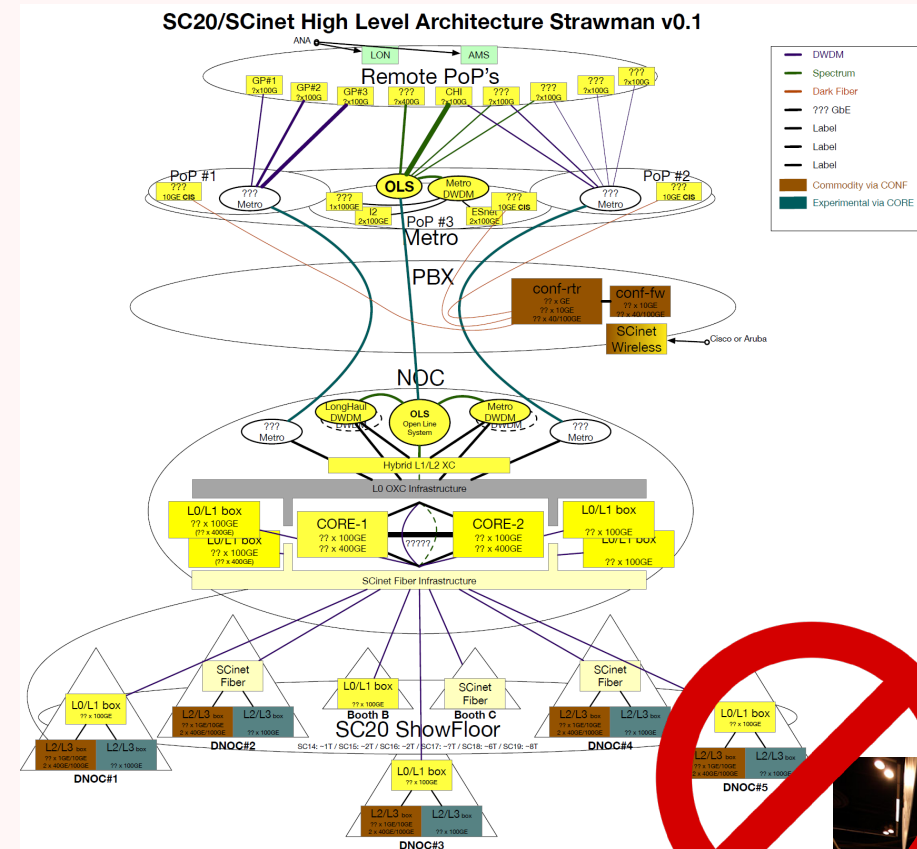
- Continue tradition of experimentation within SCinet

- Nurture remote collaboration and research
  - Not just those than can bring equipment to SC/SCinet

- Further engage the world of experimental testbeds

- Explore defining the scope and role of a more dynamic and distributed SCinet presence

In closing

- Thank you to all those who have contributed and worked with us on short notice

- We hope you enjoy the virtual content and discussion

- Contact XNet about future involvement: xnet-leads@scinet.supercomputing.org