SCinet Technical Challenge TC

Presented by Cees de Laat for
Organizers:
Ilya, Marc, Paola, Sarah, JP, Michelle, Christer, Troy, NRE team, others
Jury:
Jim Rogers, Kathy Yellick, Dan Stanzione,
Inder Monga, Rodney Wilson, Cees de Laat

AIM
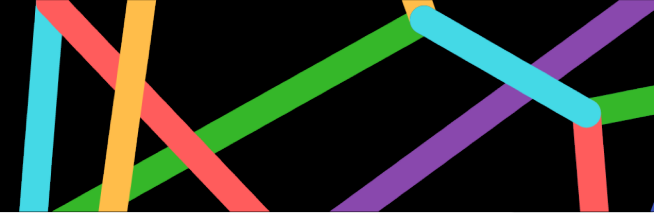
Bring Supercomputing and Networking together!

- **Networks** become **commodity**
- **SuperComputers dwarf** in the Clouds
- **Quantum around the corner** (very big corner ;-))
- **The art of doing Science is changing!**
- **Machine Learning** and **Artificial Intelligence** coming up
- Data poor to Data rich and **streaming**/near **real time** & **decision support**
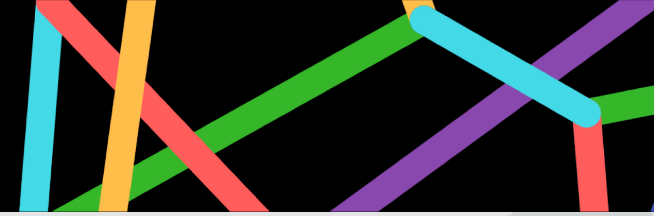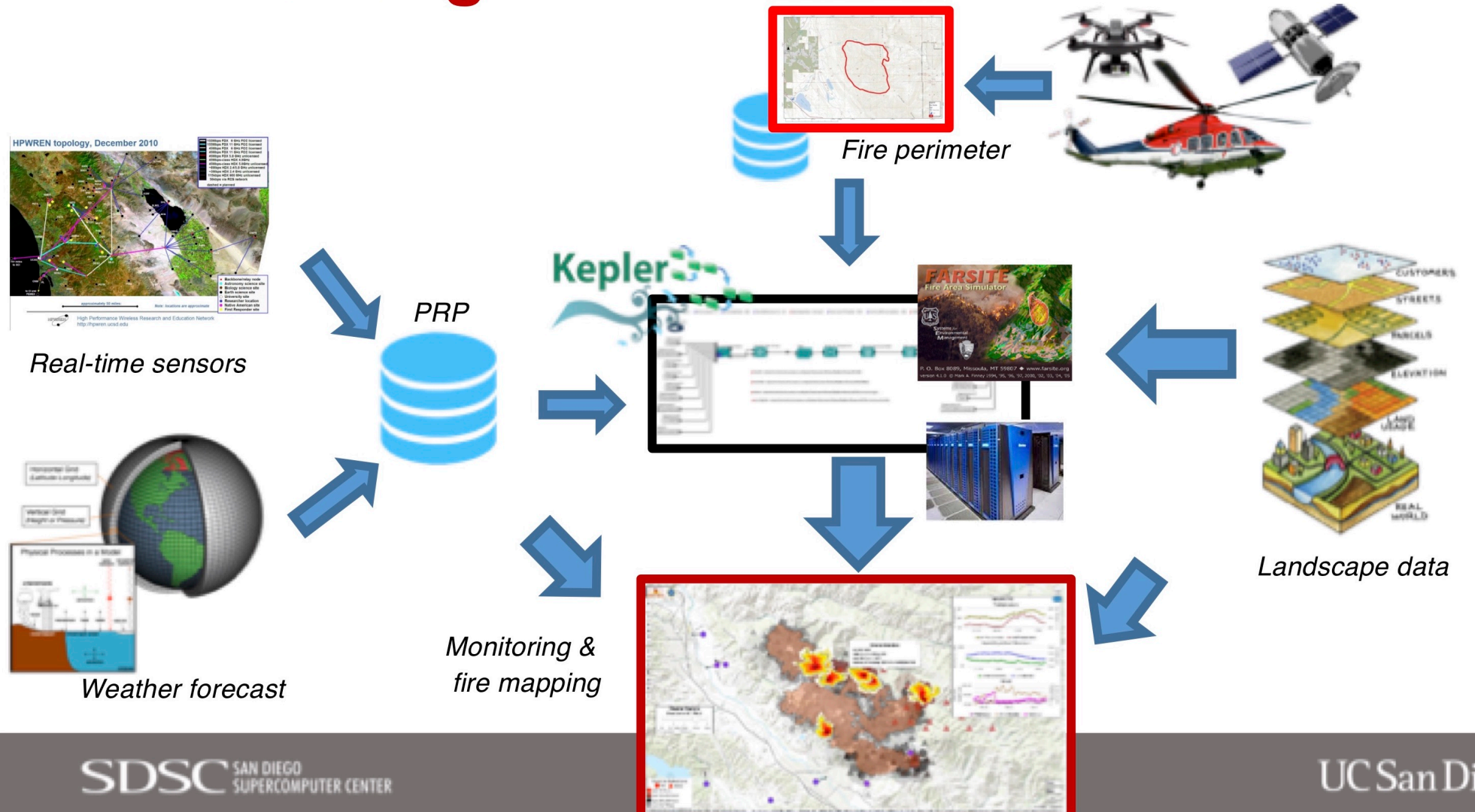
COMPETENCES:

The conversation ICT - Scientist is profoundly changing

- Discussion is on **data & method level**
- **Competences and methods** needed in **ICT & Data Science support** evolve.
- And that will change again if we get our own **SIRI 4 Science**
  - For example **The DoE AI townhalls** https://www.sciencemag.org/news/2019/10/department-energy-plans-major-ai-push-speed-scientific-discoveries
- Application **requirements** are **changing**
- **PRP-NRP-GRP** pave the way to **make data flow** to the AI absorbers
- We are well **beyond Bandwidth Challenges!**

EXAMPLE: Fire Modeling Workflows in WIFIRE

Fire perimeter

Real-time sensors

PRP

Kepler

Weather forecast

Monitoring & fire mapping

Landscape data

thanks Ilkay Altnitas

So:

The first annual SCinet Technology Challenge (TC) will feature scientific demonstrations and experiments that highlight **interdependent operations** of **sophisticated networking**, **computing** and **storage** infrastructures. The goal of the challenge is to demonstrate that **both networking and high-performance computing resources are essential** elements of the cyber infrastructure required to advance modern data-driven scientific applications.

What:

Teams of researchers will demonstrate their advanced **scientific applications**, while taking advantage of **distributed storage** and **compute** resources located on SC floor and elsewhere such as **university data centers**, **national labs**, **public clouds**, **all linked by the ultra-high-performance SCinet network**!

WHEN:

Tuesday, November 19, 10:30-12:00 and 13:15 - 14:00, SC Theatre next to NOC

- Technology Challenge Overview and Jury Introduction
- **5G Citizens Broadband Radio Service (CBRS) Proof-of-Concept for Scientific Applications**
  - University of Utah Center for High Performance Computing, Murray School District and the Utah Education and Telehealth Network
- **Dynamic Network-Centric Multi-Cloud Platform (DyNamo) for Real-Time Weather Forecasting Workflows**
  - RENCI/UNC Chapel Hill, USC/ISI, UMass Amherst and Rutgers University
- **Real-Time Analysis of Streaming Synchrotron Data**
  - Argonne National Laboratory, Northwestern University, Starlight, Northern Illinois University, University of Chicago
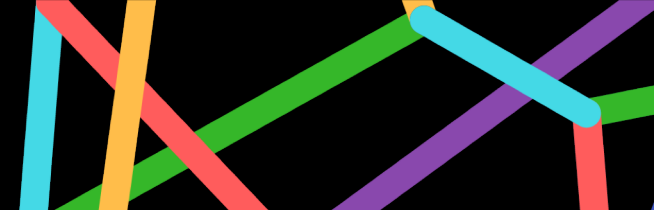
AND THEN:

Thursday, November 21, 10:30 am The SC Theatre in front of the NOC

- **Technology Challenge Recognition Ceremony**
  - **2019 SCinet Technical Challenge Most diverse resource set**
    - **For highest diversity of resource types and geographic distribution, their utilization and degree of orchestration/automation**
  - **2019 SCinet Technical Challenge Most original technical approach**
    - **For innovation and the originality of the technical approach**
  - **2019 SCinet Technical Challenge Best presentation and visualization**
    - **For best human interactivity and effectiveness of the presentation and best quality/originality of visualization**
  - **2019 SCinet Technical Challenge Winner**
    - **Brings networking, computing and storage together, top award**