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ENERGY SCIENCES NETWORK

# Motivation and Organization of the workshop

Inder Monga

Berkeley Lab,

July 2015

U.S. DEPARTMENT OF ENERGY

Office of Science

BERKELEY LAB

# December 2013

# The ‘SDN operational gap’

Identify gaps and propose approaches

**+R&E**
**+ Universities**
**+ Academia**
**+ Vendors**
**+_____?**

## Sponsors

Grant Miller

Vince Dattoria

Bryan Lyles

# Workshop Organizers

## Workshop PI

Inder Monga

## Organizing Committee

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**Steering Committee**

Vince Dattoria (DOE), Bryan Lyles (NSF), Robert Bonneau (AFRL), Matthew Goodman (DARPA), Kevin Thompson (NSF), Bob Walter (DARPA)

**NSF PIs**

Joe Evans and Sean Peisert

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Workshop
Attendance
Dec 17-18, 2013

## OPERATIONALIZATION OF SOFTWARE-DEFINED NETWORKS (SDN) PROGRAM REVIEW

Dec 16-17, 2013

*Conducted in Arlington, Virginia by*

National Science Foundation

Department of Energy

National Coordination Office

2. **An initial focus is needed on operational SDN deployments including Software-Defined Exchanges (SDXs)** to enable interoperability and use of these new approaches with the current Internet infrastructure. Initially, these efforts should be focused on defining the architectures/implementations that will support operational multi-domain SDNs; experimenting with these designs and iterating as necessary; encouraging the development and deployment of next-generation instruments and applications made possible by this infrastructure; growing the community of multi-SDN aware engineers, researchers, and students; and preparing for transition to an operational phase.

- SDN need to interoperate w/other networks, at least at IP layer
  - Deploy multiple SDX's and interoperate them
  - Vandervecken (NZ), Amlight, iCAIR, etc.
- Multi-domain SDN is key
  - We are off the starting line, experiments I2/ ESnet/others

ow,

- NBI for Network Management
  - Not even started
- Best Practices, network bootstrapping
- Application profiles (TTPs)

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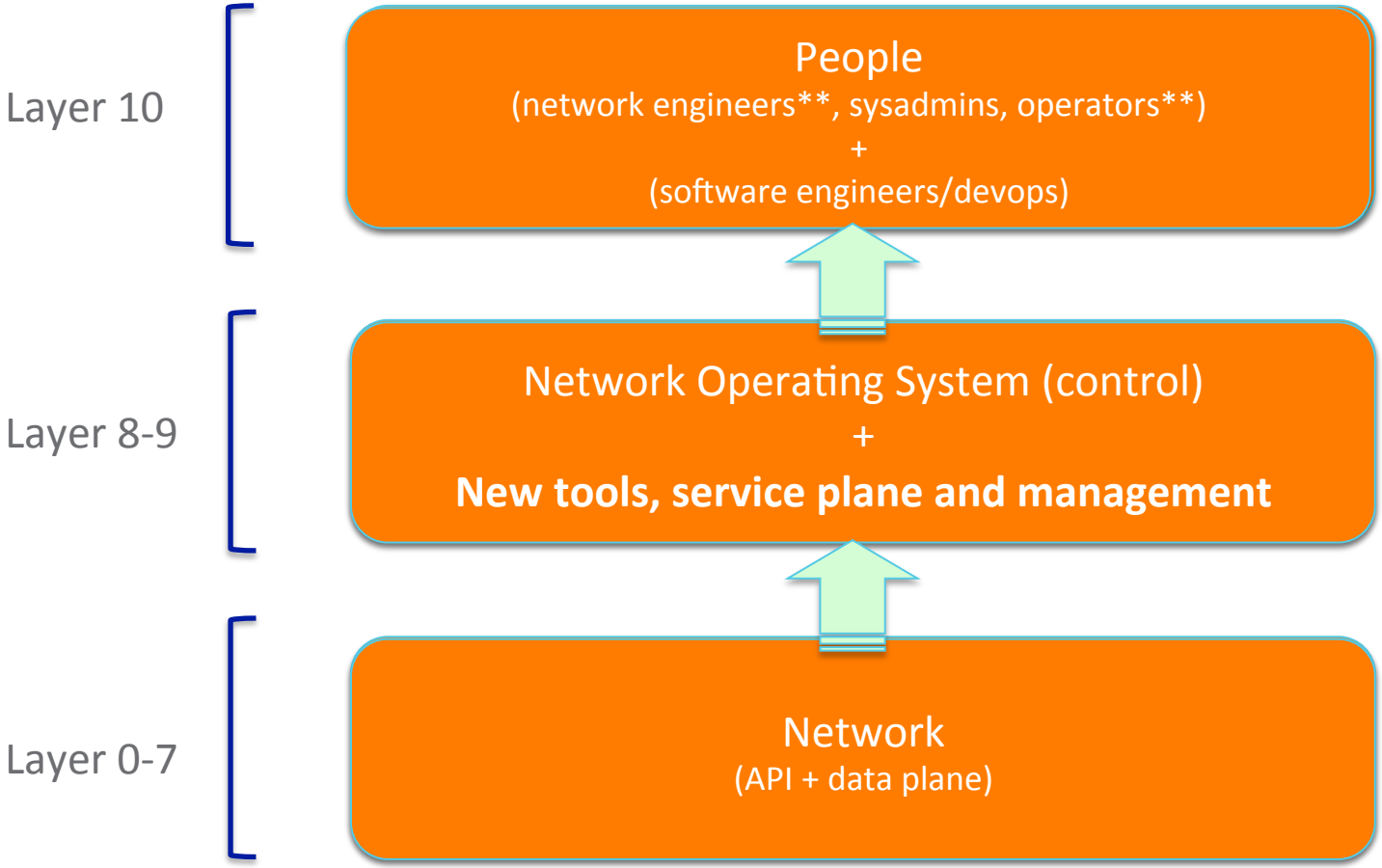
# Organizational challenge to deal with SDN




** need to develop new skills

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# July 2015

# Day 1: State of the SDN Union for R&E

- Listen
  - 3 years of CC-*IE funding
  - R&E commitment to next-generation networks
  - Strong engagement with network-aware applications
- Speak
  - Understand the gaps
  - Group them, find themes
  - Prioritize them
  - Prepare your wishlists

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# Day 2: State of Open Source, Products and Roadmap exercise

- Great speakers and projects represented from Open Source, initiatives, vendor, standards projects
- They may identify more gaps, and/or provide solutions, or different approaches
- Goals for second day
  - Identify principles of united voice from R&E to the larger community
  - Create a roadmap to address the gaps
    - Articulate a tools development plan
    - Open-source contributions
  - Create a community action plan for SDN deployments

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# Day 3:
# Security

- Discussion by NSF and other agencies
- SciPass – and maybe other similar projects in the community
- Open community discussion – what do we need to tackle? What opportunities that SDN provides is not becoming a product?

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# Day 3: Report Writing

- Volunteers gather at 1 pm on Thursday, after the workshop
- Structure and make writing assignments for the report

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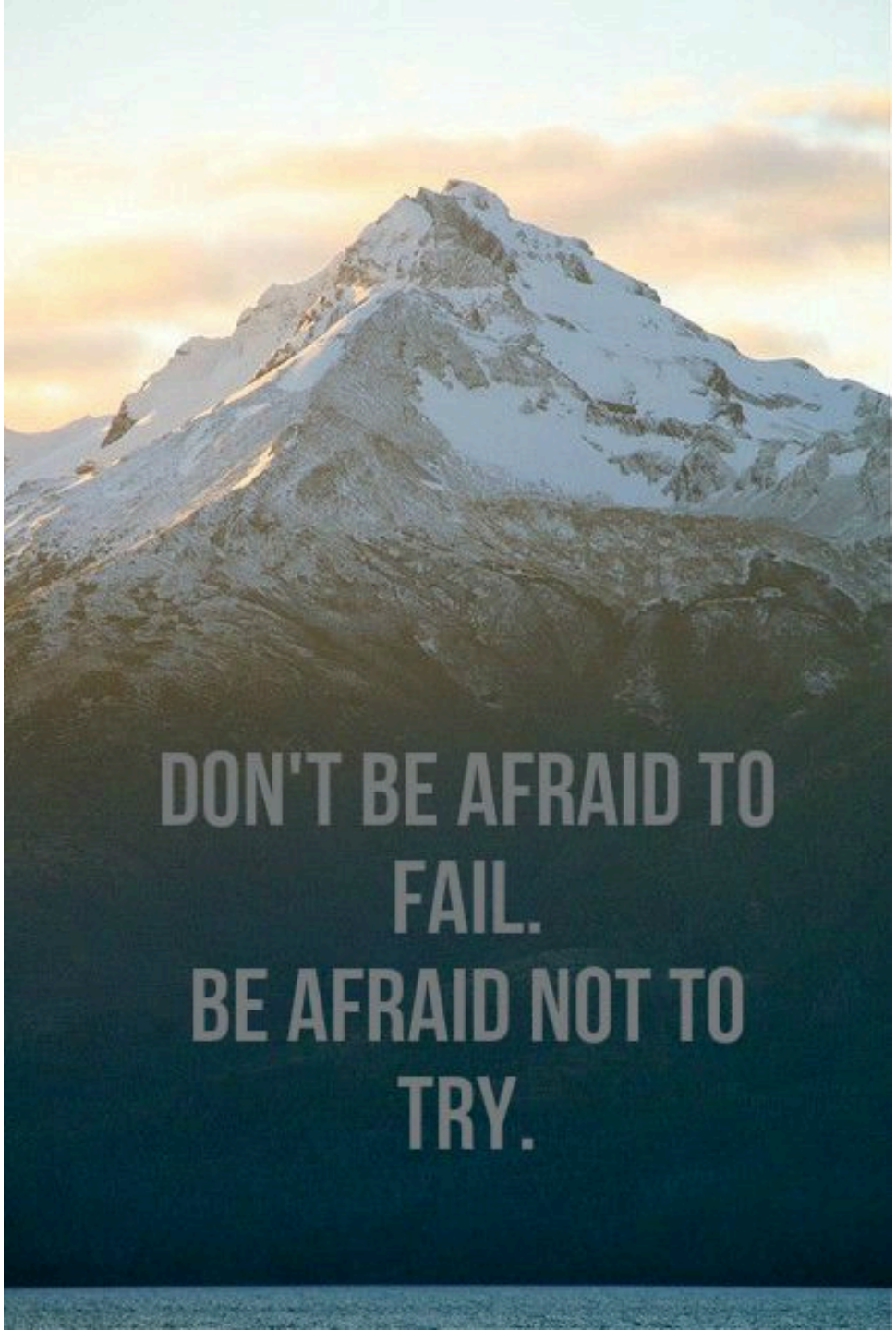




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