



ESnet

ENERGY SCIENCES NETWORK

Motivation and Organization of the workshop

Inder Monga

Berkeley Lab,

July 2015



U.S. DEPARTMENT OF
ENERGY
Office of Science



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

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Ron Hutchins



Roy Campbell



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Organizing Committee

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  ESnet

Workshop
Attendance
Dec 17-18, 2013



OPERATIONALIZATION OF SOFTWARE-DEFINED NETWORKS (SDN) PROGRAM REVIEW

Dec 16-17, 2013

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.

Conducted in Arlington, Virginia by

National Science Foundation

Department of Energy

National Coordination Office

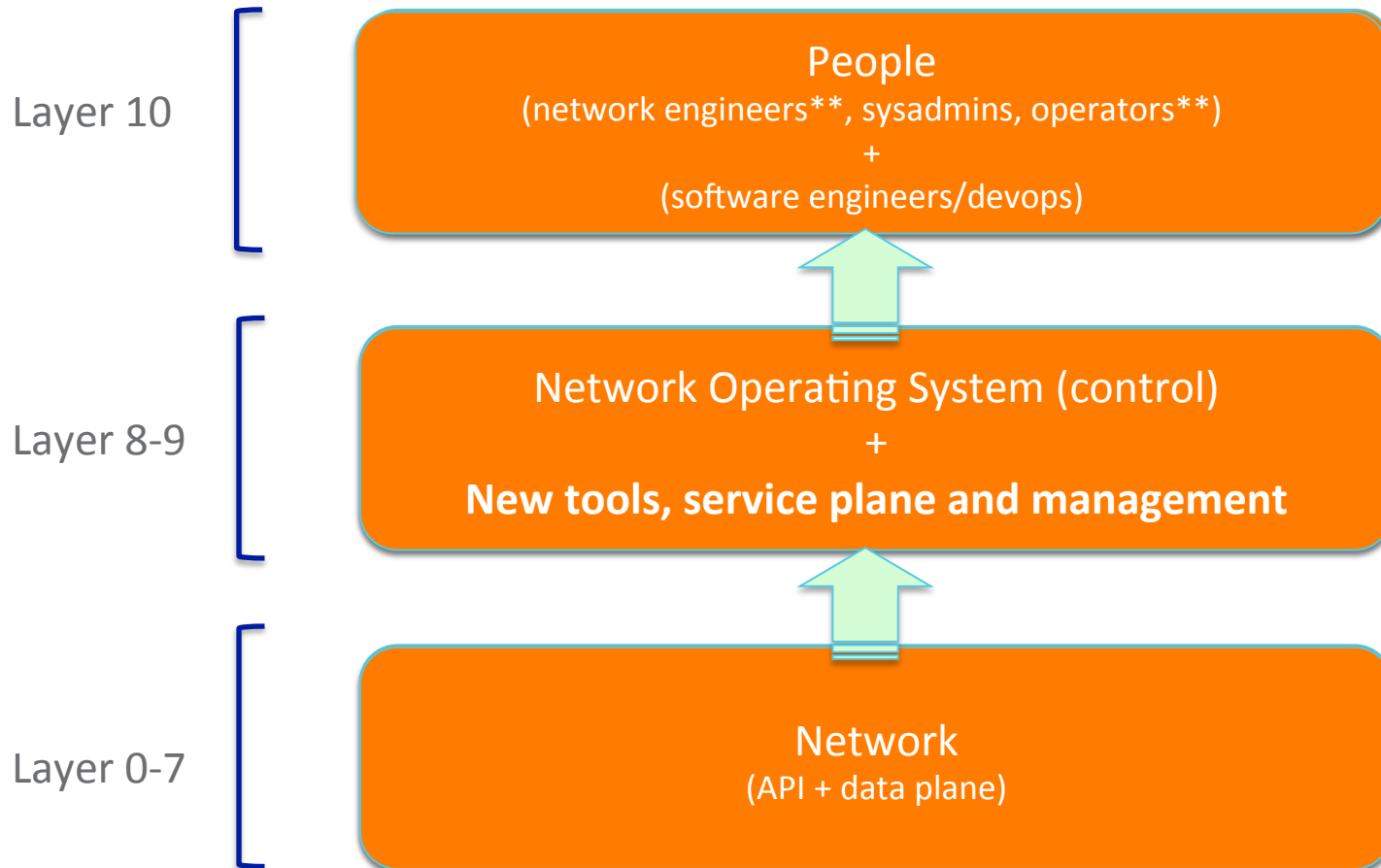


- SDN need to interoperate w/other networks, at least at IP layer
 - Deploy multiple SDX's and interoperate them
 - Vandervecken (NZ), Amlight, iCAIR, etc.
- Multi-domain SDN is key
 - We are off the starting line, experiments I2/ESnet/others

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



Organizational challenge to deal with SDN



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

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

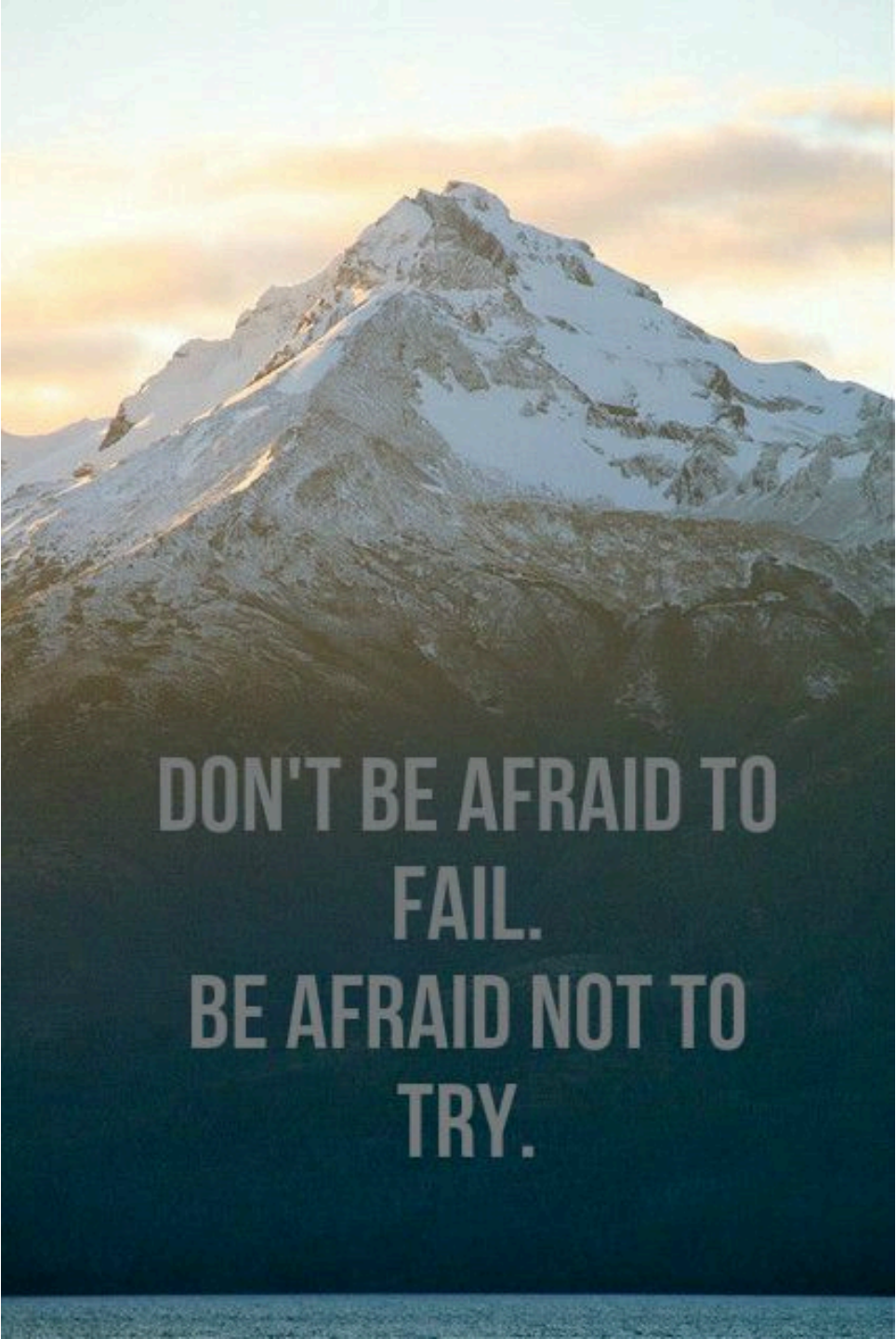
Day 3:

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?

Day 3: Report Writing

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



**DON'T BE AFRAID TO
FAIL.
BE AFRAID NOT TO
TRY.**