



OPEN NETWORKING  
FOUNDATION

# ONF Standards (A personal view)

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# SDN Standards



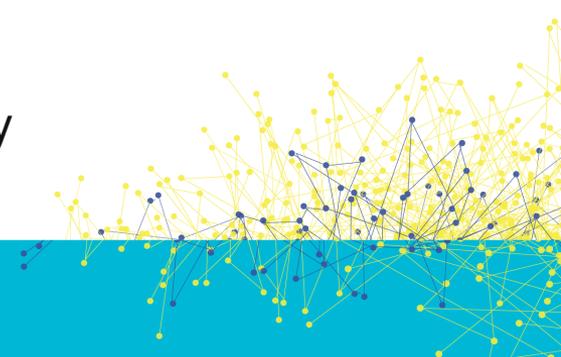
- Standards can be developed when
  - there is a community of interest
  - with sufficient experience
  - capable of reaching consensus
- The ONF
  - has a mission to support Open SDN
  - is a forum for developing SDN standards and open source SW
- The NREN community
  - has developed valuable experience in SDN network design, deployment and operation
- Are we ready to write standards?  
Is more practical experience needed?



# ONF Projects



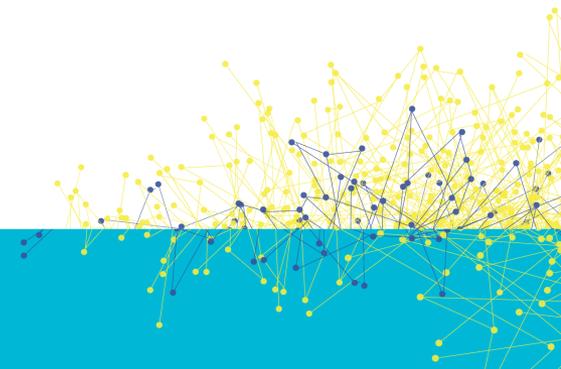
- The ONF has active projects addressing
  - application area datapath models
  - platform datapath models and programming
  - run-time control (OpenFlow)
  - intent APIs (northbound interfaces)
  - management and configuration
  - testing and interoperability
  - an open source framework for operational SDN solutions (Atrium)
  - (and more I am forgetting)
- The ONF is not actively addressing
  - SDN network planning
  - traffic engineering
  - technology specific fault detection/isolation/recovery
  - (and more I am forgetting)



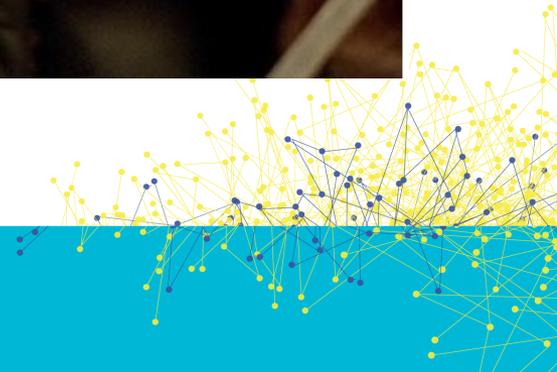
# "Squishy Standard"



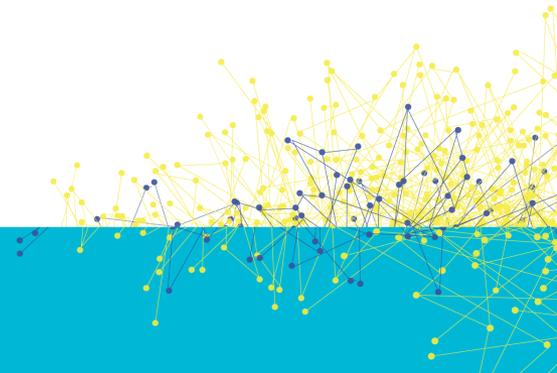
- OpenFlow as it stands is a result of
  - Research prototype to get the ball rolling
  - Extensions to support a broad array of application areas
- The (natural) result is
  - All features are not required for all applications
  - A "squishy" standard – lots of optional features, varied support
- Where do we go from here?
  - Move toward communities of interest (application areas) supported by a common substrate (MAT/GT)



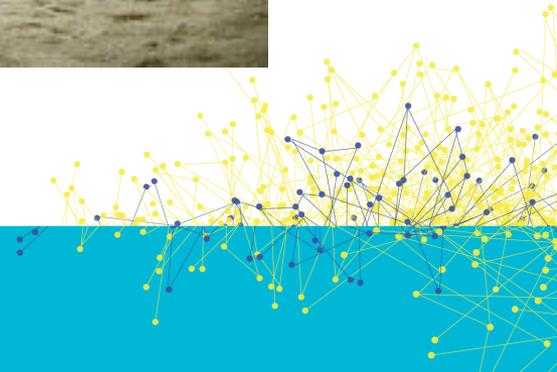
# OpenFlow is rife with optional features



# Clear out the chaff...



and focus on your problem area





# When you can be flexible



Cooking



Eating



Camping

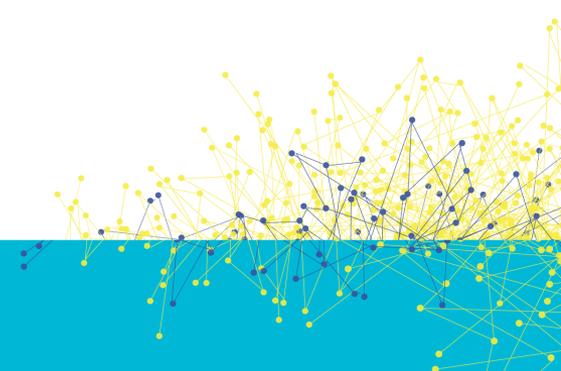


Fixing the bicycle



Fixing the universe (OK, that's handy)

Choose something suited to the purpose



# SDN Enables Simplicity (eventually)



- Software defined networking admits the possibility of using just what is needed (and blissfully ignoring everything else)
- Build a framework (ecosystem) and open source within which there is room for innovation in the creation of SDN products
- Build examples that demonstrate how interest groups can create standards and open source supporting a particular application area
- OpenFlow evolution – initially flow control, now working on delegation (autonomous functions), languages and tool chains...

Still need flow control, but that is just one aspect of an operational solution.



# A Solid Foundation (i.e., not squishy)



- How do we move forward?
  - Develop an example "application area" TTP (TTP = Table Type Pattern – an OpenFlow pipeline/profile)
  - Develop controller & switch support (e.g., in the Atrium framework)
  - Write a conformance test suite for the application area
- The application area should be broad enough to support a community of interest
  - But not so broad as to have too many optional features
- Provide a template for other application areas to follow
- Can the NREN community provide this first example?



# Discussion