## SDN Solution- or Problem-Based Research?

Bob Briscoe, BT IETF-84 SDN-RG Jul 2012

## IRTF is generally problem-focused

- Routing
- Congestion Control
- Network Complexity
- Delay-Tolerant Networking
- Network Management
- •

one recent exception

- HIP (host identity protocol)
- SDN another exception?
  - aimed at sufficiently many different problems
  - solution-based r-g could make sense, but...

# solution-focused or problem-focused?

#### solution-focused?

- assume SDN, then solve outstanding potential problems with it? e.g.
  - policy complexity
  - modelling scalability
  - inter-domain
  - validation of evolvability claims
  - ... see mailing list & other presentations (esp. Dave Ward's IAB plenary) for dozens more suggestions

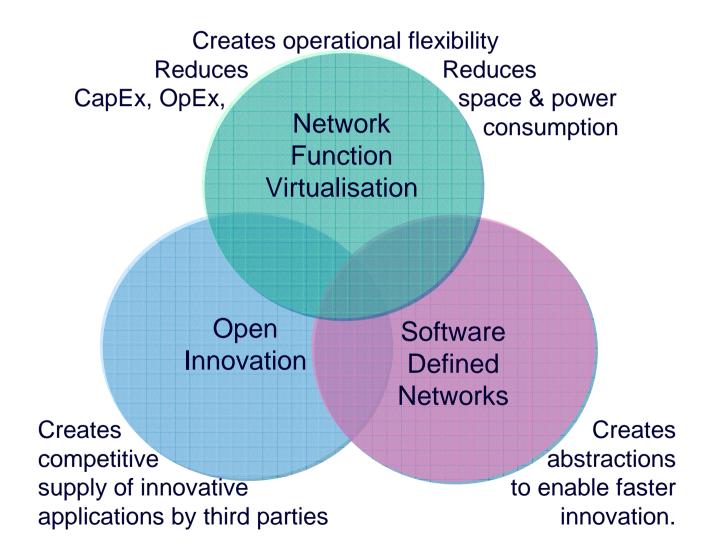
#### problem-focused?

- pre-standards convergence on best approach to solve a problem?
  - how does centralised FIB distribution compare vs decentralised vs hybrid?
  - is it best for forwarding isolation to be independent of performance isolation for virtual networks?
  - is it best to use the same architecture for FIB distribution and for config?
  - how best to do multipath & traffic engineering

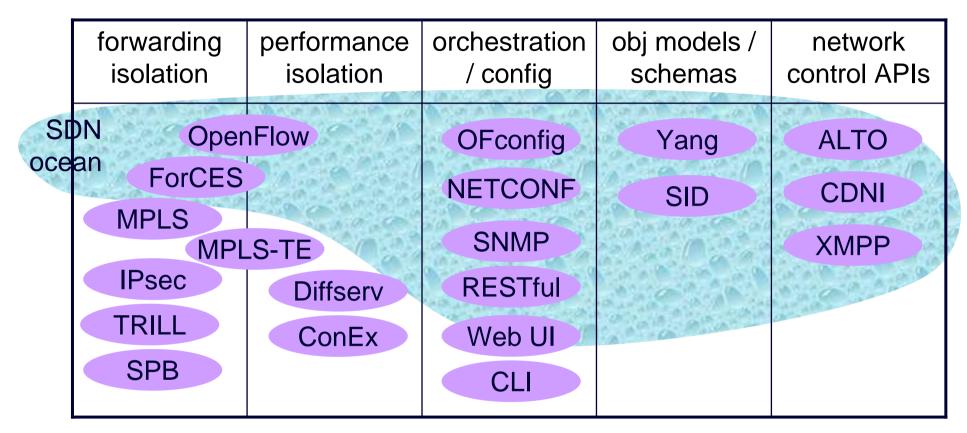
### boiling a small lake

- solution-focused
  - makes the work concrete
  - but answers will either be SDN OK or SDN not OK
  - not a good model of the real choices facing us
- problem-focused
  - preferred
  - but leads to ocean-boiling
- some thoughts on narrowing scope
  - for discussion...

#### 3 Strategic Networking Paradigms for Network Operators



## mapping of technologies to problems

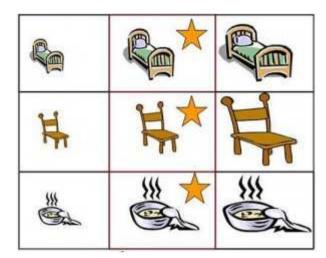


- we could focus on solving a particular problem (column)
- we could also ask
  - is an integrated solution (multi-column) good?
  - or "do one thing and do it well" so operators can pick & choose rather than lock-in to an über-solution?

## position

- solution-focused too narrow
- problem-focused too broad

- solution-prompted just right
  - prefer to use SDN as a prompt to re evaluate
  - provokes questioning of traditional approaches
  - doesn't require us to assume SDN is the answer



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Q&A