HPSR panel

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Question

- Is SDN becoming the Linux of networking in Data Center Networks and Core WANs?
  - Should these SDNs be based on standard APIs?
What is SDN?

- Depends who you ask
  - Vendors differ on what SDN should provide
    - Want to offer more than OpenFlow
  - Customer expectations vary
    - Software controlled forwarding
      - QoS, traffic differentiation, security
    - Software controlled provisioning
      - Hypervisor moving VMs
        - Doesn’t care how packets are forwarded
Question

○ Is SDN becoming the Linux of networking in Data Center Networks and Core WANs?
  ● Yes, but will it solve the user’s problems?
    ○ Linux is not the answer for everyone
  ● Should these SDNs be based on standard APIs?
    ○ That would be good
      ● But can it be done?
Question

- Impacts of SDN and Virtualization on
  - Network hardware design
  - Data center protocols and stacks
  - On performance
Impacts of SDN on

- Network hardware design
  - In theory it becomes commodity
    - But flow classification is still costly
    - It might constrain the solution space

- Data center protocols and stacks
  - Beware ‘The curse of optional features’
    - v1.0, v1.1, v1.2, v2.0

- Performance
  - Centralized control
    - Security, resilience
  - Flow start costs
Impacts of Virtualization on

- Network hardware design
  - Number of active flows at the edge
- Data center protocols and stacks
  - VM provisioning and migration
    - 802.1Qbg
- On performance
  - Congestion control
  - Mixed use
Question

- Applications and services, and their impact on the DCN.
  - The network has converged......
    - Parallel distributed storage
    - Database queries
  - DCN properties
    - Isotropic forwarding
      - Multipath mechanisms
    - Fairness
    - Seamless removal and addition of chunks
    - Lossless
    - Responsive to congestion