Open Overlay Lab

SOFTWARE DEFINED NETWORKING VIA PROGRAMMABLE OVERLAYS

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http://openoverlayrouter.org
http://lisp4.net
Why overlays?

- Enable SDN on legacy networks
- Incremental deployment
- Bypass underlay constrains
- Transparent DC-to-DC networks
Experimental Overlay Network

- World-wide
  - ~20 countries
  - ~200 nodes
- Maintained by UPC
- Overlay identifiers allocated from public IP space
  - AS: AS3943
  - IPv4: 153.16.0.0/16
  - IPv6: 2610:00D0::/32
- Overlay instantiated by 4 different implementations
OpenOverlayRouter

- Open-source overlay implementation
- Since 2011 – Active community
- Multiplatform (Linux, Android, OpenWrt)

- IETF standards (LISP, VxLAN)
- DPDK fast data-plane
- OpenDayLight interoperable
  - Part of ODL’s LISPFlowMappings module
SDN via Overlays – Use Cases

- Remote interface management
  - Traffic offload (e.g. 3G to WiFi)
  - Bandwidth aggregation
- Dynamic traffic steering
  - Efficient CDNs
  - Flexible VPNs
- Path control over transit networks
  - Service Function Chaining
  - Network Function Virtualization