OSHEAN

A Research and Education Network Perspective

Internet 2 Collaboration SIG
April 29, 2015

www.oshean.org

@osheanri #strongertogether
www.facebook.com/osheanri

OSHEAN

- OSHEAN, founded in 1999, is a 501C3 non profit collaborative consisting of members from K12, Libraries, Higher Ed, Healthcare, State/local Govt. and other non-profits
- OSHEAN is classified as a Research and Education Network (REN) and is part of a national collaboration called the Quilt who works very closely with Internet 2.
- The mission of the company is to provide its members with top quality, low cost, high speed telecommunications, Internet and Cloud services
  - Collaboration is in our DNA!

OSHEAN

OSHEAN Highlights

- **500+ miles of new fiber**
    - Network operates at 1 and 10 Gbps; first 100Gbps circuit just installed from our regional partnership with NEREN
    - 150+ nodes with DWDM, Layer 2 and 3 routing
        - Cisco 15454; Cisco CPT, ASRs, ASA, iBoss filtering, VMware on UCS
    - $32+M Federal Grant
    - 125 Anchor Institutions
- OSHEAN connects all institutions of Higher Ed in RI and 13 in MA
- OSHEAN just installed Gigabit fiber to 46 head-end K-12 schools and 14 libraries
- OSHEAN connects all major hospital consortiums in the state
    - Lifespan, CharterCare, CareNE
- OSHEAN connects most of RI's govt.
    - DoIT, State Data Center, SoS, RIEMA, Legislative Data Systems, AG's Office, DoT, RIDE, DEM
- Beginning services to family services non-profits (CCA, FSRI)
- On-net Cloud services for Virtual Infrastructure for Compute, Desk and Storage.
- On-net Video capture, storage and streaming services
- Regional Fiber connections to Internet2, Northern Crossroad GigaPop and NEREN

OSHEAN

Collaboration Practice - Social

- Membership Best Practice
  - First Friday forums each month on the use and implementation of technical products, tools and procedures
  - Yearly member forums
  - Published Use Case models shared amongst the Member base
  - User groups for vertical markets and technology areas (i.e. Security, Cloud)
  - Web tools – Your Membership, social tools blogs/forums, virtual user groups
- Regional
  - The Northeast works very closely to build network integrations between OSHEAN, CEN, NYSERNet, NEREN and the Northern Crossroads (NoX).
  - Built physical peering architecture and meshed performance tools (PerfSonar)
  - Allows regional collaboration and access to assets such as Cloud and High Performance Compute
- National – The Quilt
  - Forums/SIG
  - CEO Roundtable
  - National meetups
  - Buying

OSHEAN

Collaboration Practice - Physical

- ‣ Resource sharing
  - ‣ Fiber infrastructure sharing
  - ‣ Co-Location and hub location sharing
  - ‣ Network allows disparate entities to co-locate with partitioned control and access
    - ‣ State Police Academy collocated in Community College
  - ‣ Virtual Private Cloud – common member IaaS service model
- ‣ Consortium buying practice
  - ‣ Collaboration surfaces common needs which lends to buying opportunities
    - ‣ VMware ELA, Ability Healthcare, Blackboard Connect
- ‣ Peering
  - ‣ Regionals work together to optimize performance of their networks (Route optimization, BGP, popular content caches)
  - ‣ Asset access – provide access to HPC and Data Centers
- ‣ Shared Tools
  - ‣ Members and OSHEAN staff collaborate on the use of tools for performance measurement (PerfSonar), bandwidth planning (Solarwinds)

OSHEAN

Use Case Examples

- RI's two largest Healthcare consortia collaborating for research on a shared cloud infrastructure platform with OSHEAN.
  - First implementation is a shared REDCap database environment on a virtual machine environment in OSHEAN's IaaS VPC infrastructure.
  - Shared, redundant gigabit transport
  - University collaboration on the platform is next.
- URI Oceanograhic Institute collaborates with OSHEAN to transmit real time video to K12 schools in RI
  - Connectivity, routing, multicast
- Public Health Grand Rounds
  - RI DoH, Brown University Medical Office of Continuing Medical Education, LifeSpan and Care New England hospitals
  - Shared Video platform for capture, storage and streaming of Medical Education content
  - Live and on-demand access

OSHEAN