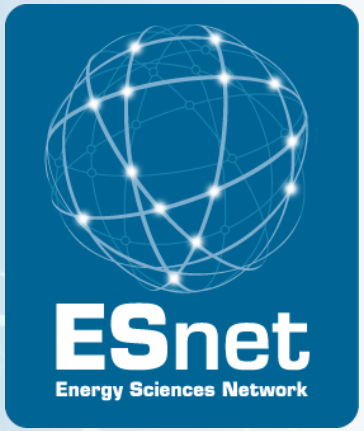



# The MyESnet Portal

Jon Dugan, Network Engineer

ESnet Tools Team

GN3 Workshop

Copenhagen, Denmark

October 11, 2011


# What's a Portal?


**Data aggregation and presentation**

- ESnet collects a huge amount of data
- Much of it is publically available
- Historically presentation is ad-hoc
- Portal provides a coherent view of a broad range of data

**Community**

- Our mission is to serve DOE Office of science community
- To do this effectively we need to reach scientists and collaborators around the world
- Policy makers, journalists and the public

# Current Implementation (Oct 2011)


Initial focus on ESnet sites, specifically ESnet Site Coordinators

**Features**

- Traffic from SNMP data
- Netflow information from Arbor
  - Protocol
  - Application
  - Peer AS
  - Origin AS
  - Top Talkers
- Outage
- Availability

# Near Term Features


**General Features**

- Ideation / Suggestion Box
- Topology visualizations
  - BGP peerings
  - latency and congestion along paths of interest
- performance monitoring
- Troubleshooting
- Monthly volume reports
- perfSONAR statistics
- Initiate and see results for active measurements

**Interfaces to major ESnet services**

- incident management / ticketing
- OSCARS
- ECS

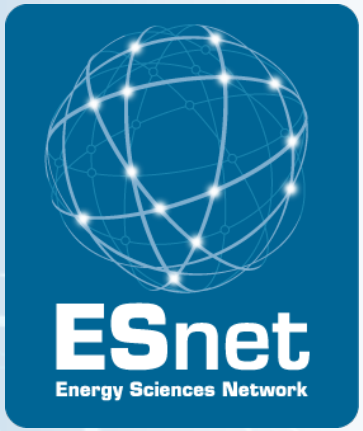
**What would you like to see?**

# Demonstration


## LIVE DEMO

https://my.es.net/

(This might be risky on a transatlantic video conference…)

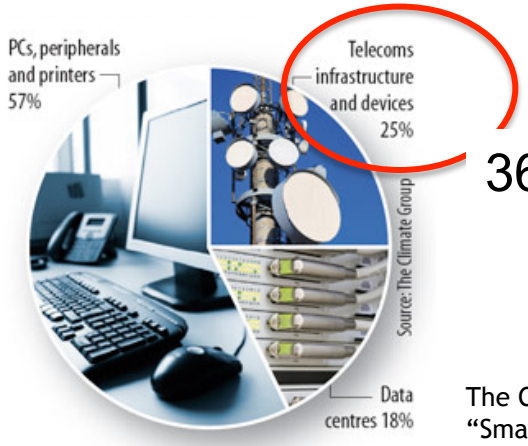



# “You Can't Manage What You Don't Measure”

Inder Monga

Imonga [at] es.net

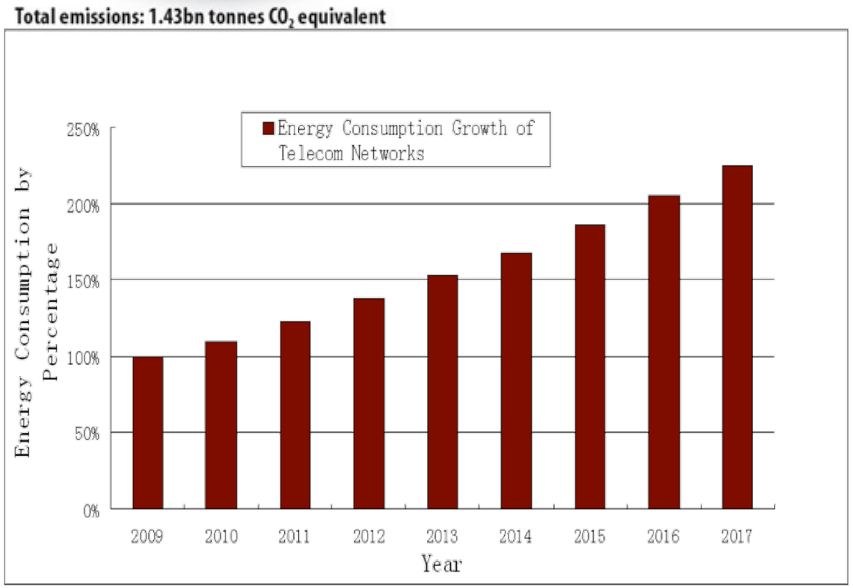
# What is your network's energy consumption?




360m tons $CO_2$

The Climate Group, GeSI report "Smart 2020", 2008

- No incentive to track energy consumption of network
  - Focused on meeting demand
  - Pay for near-max power the day network is commissioned
- No good way to track 'real' network energy consumption
  - Breaker vs. metered power
  - Lack of visibility into equipment
- What is the energy curve of new 100 Gbps network?




Percentage increase of energy consumption in Telecom networks – double by 2017 of existing 2009 levels

** http://www.whitehouse.gov/assets/documents/2009fedleader_eo_rel.pdf
'The Executive Order requires Federal agencies to set a 2020 greenhouse gas emissions reduction target within 90 days; increase energy efficiency; ...relative to a fiscal year 2008 baseline…'

# Building power baseline for 100G network


Goals:

- Instrument the 100G ANI for real-time power measurement
  - Power Distribution Units, temperature/humidity sensors
- Build **tools** to collect and visualize live network energy consumption
  - Flexible meta-data to create customized views.
  - Power consumed per path, per POP, per layer

Maven Project

Joint-sponsored all-day workshop with GreenTouch at SC11

- Network and data center efficiency

# Monitoring and Visualization of Energy Consumed by Networks (MAVEN)


Measures real-time usage of network and network-support elements

- Layer 1 to Layer 7

Stores historical power data for research and troubleshooting purposes

- Correlating power consumption with network utilization
- Hardware maintenance
- Automated system control

Flexible views of measurements, for example

- All elements in a specific location
- All elements of a specific layer
- A single element
- All elements on a certain path can be plotted

# Questions?


We welcome your ideas and input

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