INTERNATIONAL NETWORKS
At Indiana University

Globus Transfer Tool User Feedback: A Modest Proposal

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About our group

- **Based at Indiana University, within UITS**
- **Director – Dr. Jennifer Schopf**
- **Projects funded by NSF's IRNC program**
  - **NetSage**
  - **TransPAC**
  - **NEAAR (and ACE)**

- **The NetSage system is designed to collect a wide variety of network measurement data**
    - **SNMP interface statistics**
    - **Flow data**
        - **Anonymization pipeline**
    - **perfSONAR data**
        - **Throughput**
        - **Loss**
        - **Latency**
- **Data stored in a Time Series Data Service (TSDS)**
- **Advanced Visualizations**

TransPAC

AMERICA CONNECTS TO ASIA

- **TransPAC project was started in 1998, funded through 2020**

- **Cooperative partnership among Indiana University, APAN, TEIN/Asi@Connect, JGN/NICT-Japan, NII-Japan, CERNET, and others**

- **Includes funding for circuits, exchange points, application support/engagement, research**

- **Most recent project - funded Sept '16**

- **Partners: Indiana University, GEANT, UbuntuNet Alliance, WACREN, ASREN, SANREN/TENET, others**

- **100G circuit US to Europe, in part to support R&E traffic from Africa**

- **Exchange point and data transfer node (DTN) in Western Africa, in coordination with AfricaConnect 2 circuits**

- **Follow on to the ACE project**

TransPAC

Starlight

NEAAR & ACE

PacificWave

NOC
NetSage

AMPath

PIREN

AmLight Exp

SXTransport
(AARNet)

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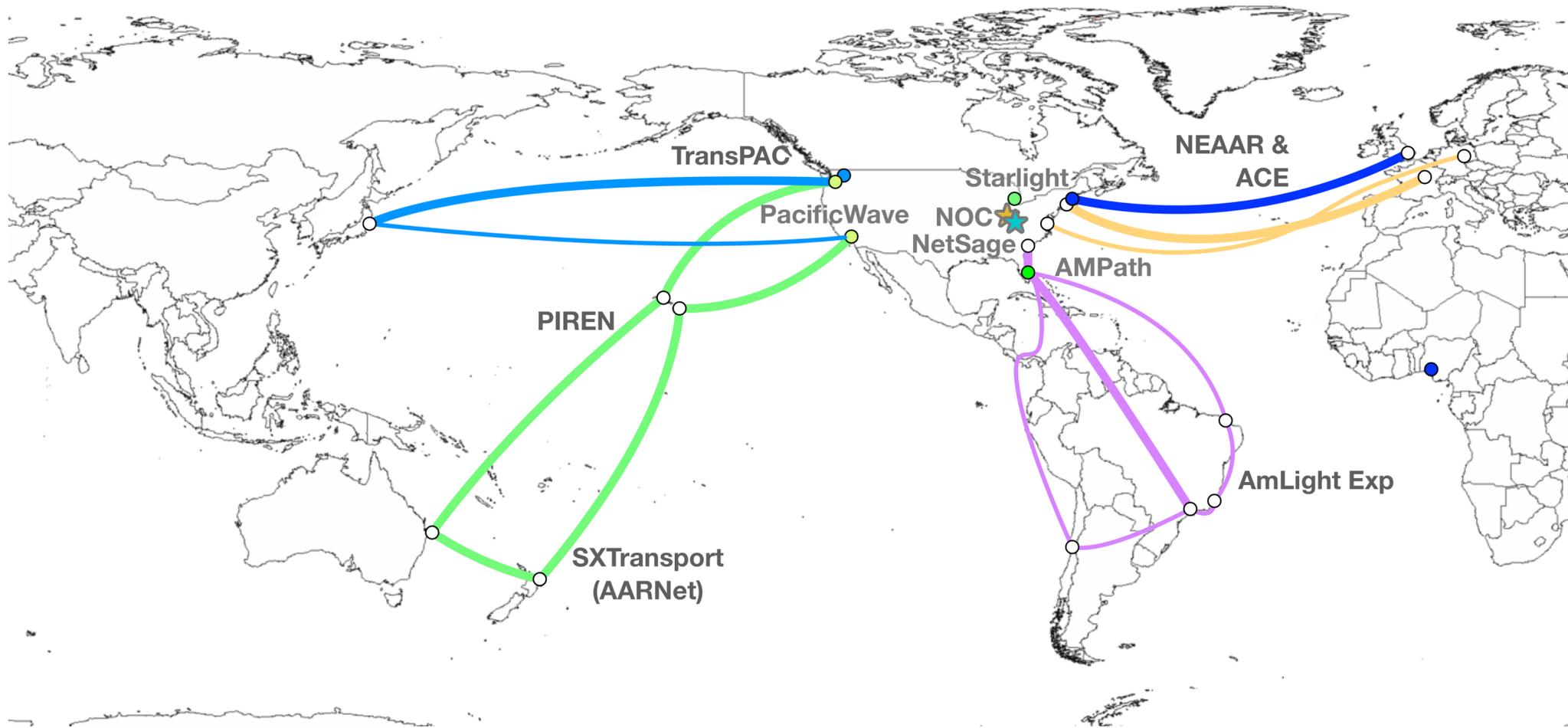
If you build it…

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A small amount of packet loss makes a huge difference in TCP performance
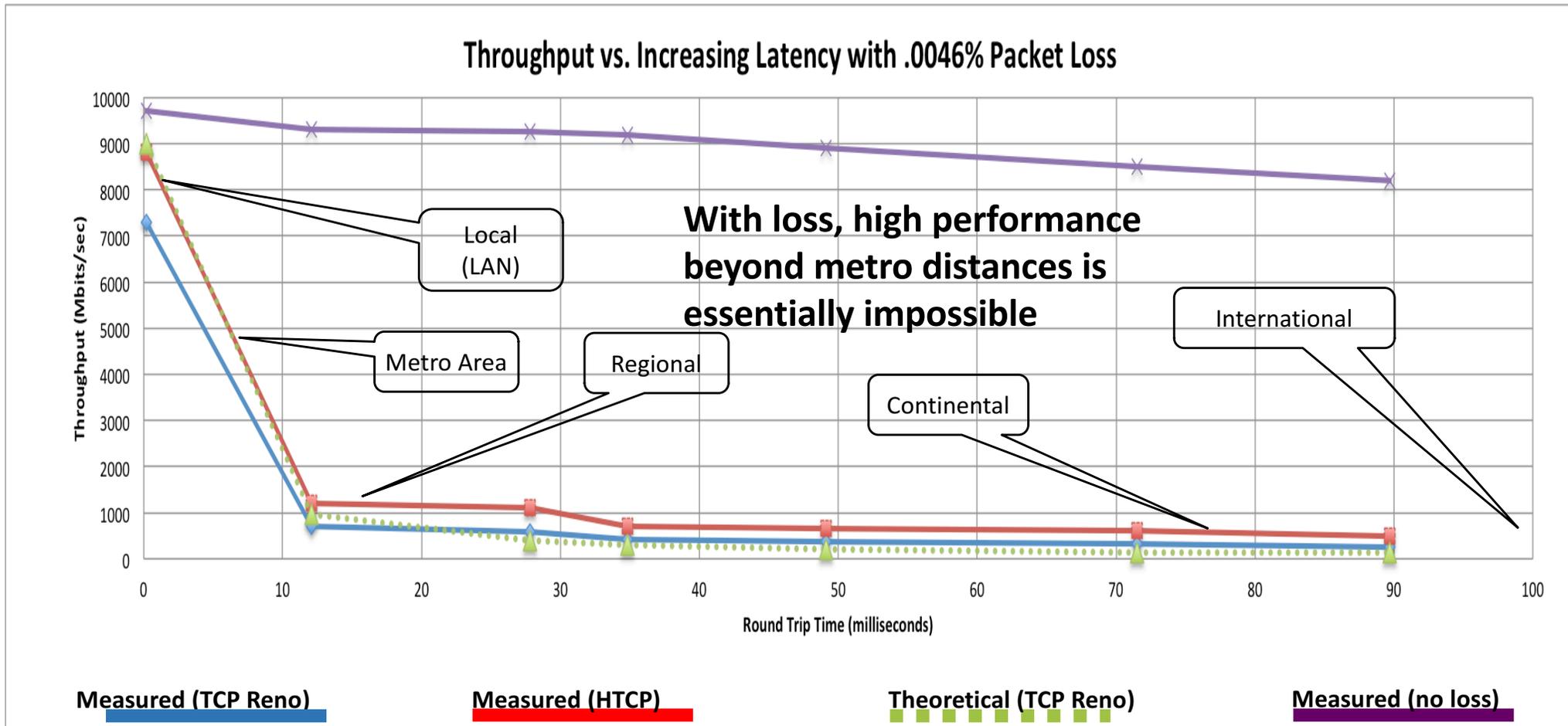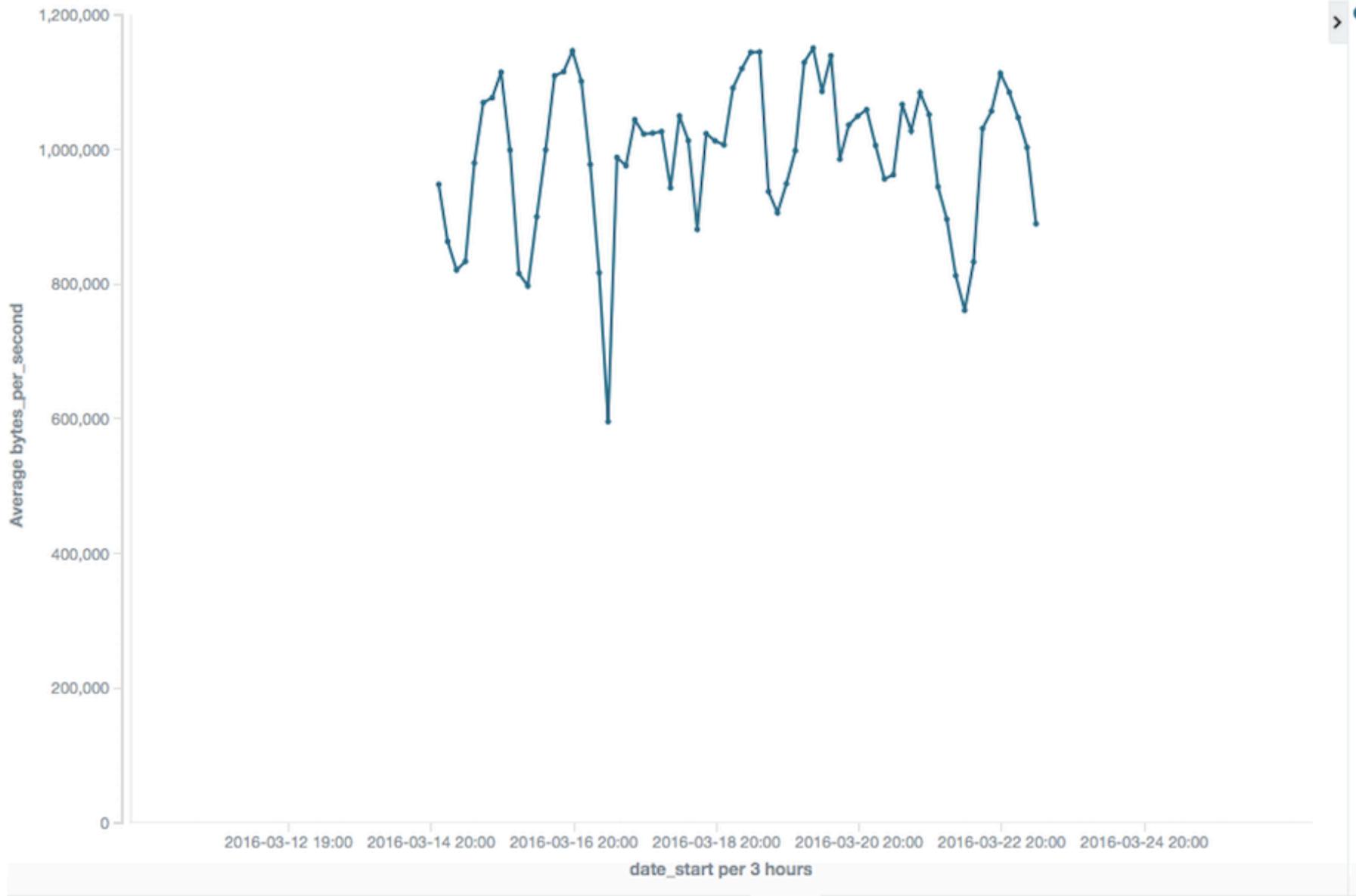
Throughput vs. Increasing Latency with .0046% Packet Loss

With loss, high performance beyond metro distances is essentially impossible

Local (LAN)
Metro Area
Regional
Continental
International

Measured (TCP Reno)   Measured (HTCP)   Theoretical (TCP Reno)   Measured (no loss)

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We try to fix things…

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Transfer Settings

- ☐ sync - only transfer new or changed files ❓
- ☐ delete files on destination that do not exist on source ❓
- ☐ preserve source file modification times ❓
- ☑ verify file integrity after transfer ❓
- ☐ encrypt transfer ❓
- ☑ provide feedback after transfer ❓

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  - **US NSF award #1540933 for NetSage**
  - **US NSF award #1638863 for NEAAR**
- **The TransPAC PacificWave 100gb/s network fabric is provided by Pacific Northwest GigaPop**

Thank you

- **Group Website:**

    http://www.in.iu.edu/

- **Facebook:**
  https://www.facebook.com/InternationalNetworksatIU/

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