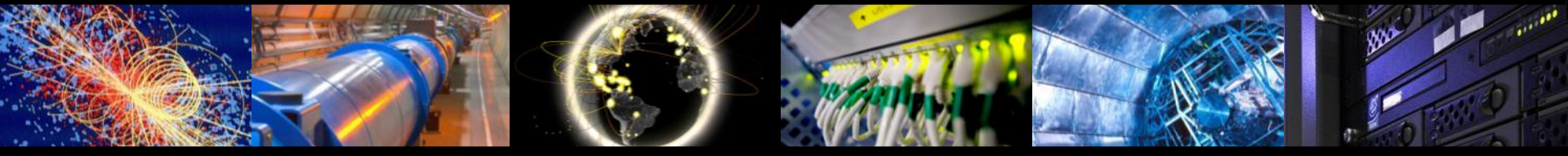


# Managing User Expectations in LHCONE – Quality Assurance and Interface between User Communities and Network Providers

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# Disclaimer

- This session is intended to be interactive. The few slides presented here are not intended to criticize anyone. They are meant to foster discussion.



# User/Provider Interface I

- Communication

- Issue: We had a good meeting at I2 offices in June but it is largely unclear to the experiments what happened between then and late September
  - Plans and schedules were presented at the meeting
  - Stakeholders understand that plans changed following discussions at the meeting, but there was no information provided as to the consequences and anticipated timelines
  - Independent LHCONE development in Asia, Europe, NA w/o much interaction & coordination between providers, according to my and other people's observation - looks rather disjoint!
  - Sites joining LHCONE whenever they want, no place for experiment coordinators to go to see who is on, who is planning to join when
    - Twiki shows address allocation (among other info), not actual status
  - Sufficient documentation for site configuration ?
- We understand the excitement but we need to develop and deploy LHCONE in a professional way to be successful and mitigate the risk of disruptions to the experiments' workflows



# User/Provider Interface II

- Operational Interface between Users and Providers
  - There is the Working Group on LHCONE Operations
    - Is it active? What is its agenda? Are the stakeholders involved?
  - Information and Coordination
    - Meetings
      - Maybe there are WG meetings (also cross-WGs?) but many people don't know/have not signed up?
      - LHCONE dynamically developing/evolving, one meeting per quarter at this point not enough?
    - Documentation
  - In case of Problems
    - Site & Network Service Status Board for quick overview
    - Unique Clearinghouse (either central, regional or provider the site is peering with)
      - Clearinghouse to identify (jointly w/ site) whether there is a site or a network problem



# Operational Interface - Summary

- Goals and Characteristics
  - Provide platform for efficient e-2-e network operation
    - Currently lacking policies, operational procedures and processes
    - Operational transparency for users, sites, computing operations of experiments, incl. up-to-date network status information, topology and associated performance characteristics relevant to e-2-e connectivity, ongoing and planned interventions, documentation (e.g. guidance on site configuration), etc
    - During the LHCONE “prototype” phase and beyond provide up-to-date information about region & site connection status and their schedule to connect to LHCONE
    - Communication
      - Forums including user and provider panel
    - Provide efficient and effective interface and mechanism for e-2-e problem diagnostic and problem resolution
      - Want providers to “own” the (network) problem along the entire path



# Additional Remarks

- Rather than the (ATLAS) Communities viewing the currently evolving deployment of “LHCONE” a Prototype they understand it as a first phase of a new network infrastructure to improve global T1  $\Leftrightarrow$  T2, T2  $\Leftrightarrow$  T2, T3  $\Leftrightarrow$  T2, ... communication



# Quality Assurance - Metrics

- Measure relative improvement in pairwise throughput and latency between T2s and T1s, and between T2s, T3s and T2s
- Latency important to determine packetloss
- ATLAS and CMS want as much data as possible before sites are switching to LHCONE
- Measure transfer quality and plot as function of time before and after sites transition to LHCONE
- Making sure no step backwards with existing  $T_n \Leftrightarrow T_n$  connectivity



# Quality Assurance - Measurements

- Idea
  - Measure disk  $\Leftrightarrow$  disk performance between two data servers
  - Record the results
  - Plot results over time to visualize performance
    - Allows to track performance
    - Augments perfSONAR network-only measurements to disentangle network vs end system issue
  - Use FTS driven transfers





# Measurement Details

- FTS requests using highest priority queue
  - Transfers start quasi simultaneously
  - Bidirectional tests between two sites start in general at the same time
  - For each test request ~2x more files than concurrently transferred according to FTS configuration
  - All files for test are the same (size=3600 MB)