Brookhaven National Laboratory

U.S. DEPARTMENT OF ENERGY

# BNL and ePIC Network Overview

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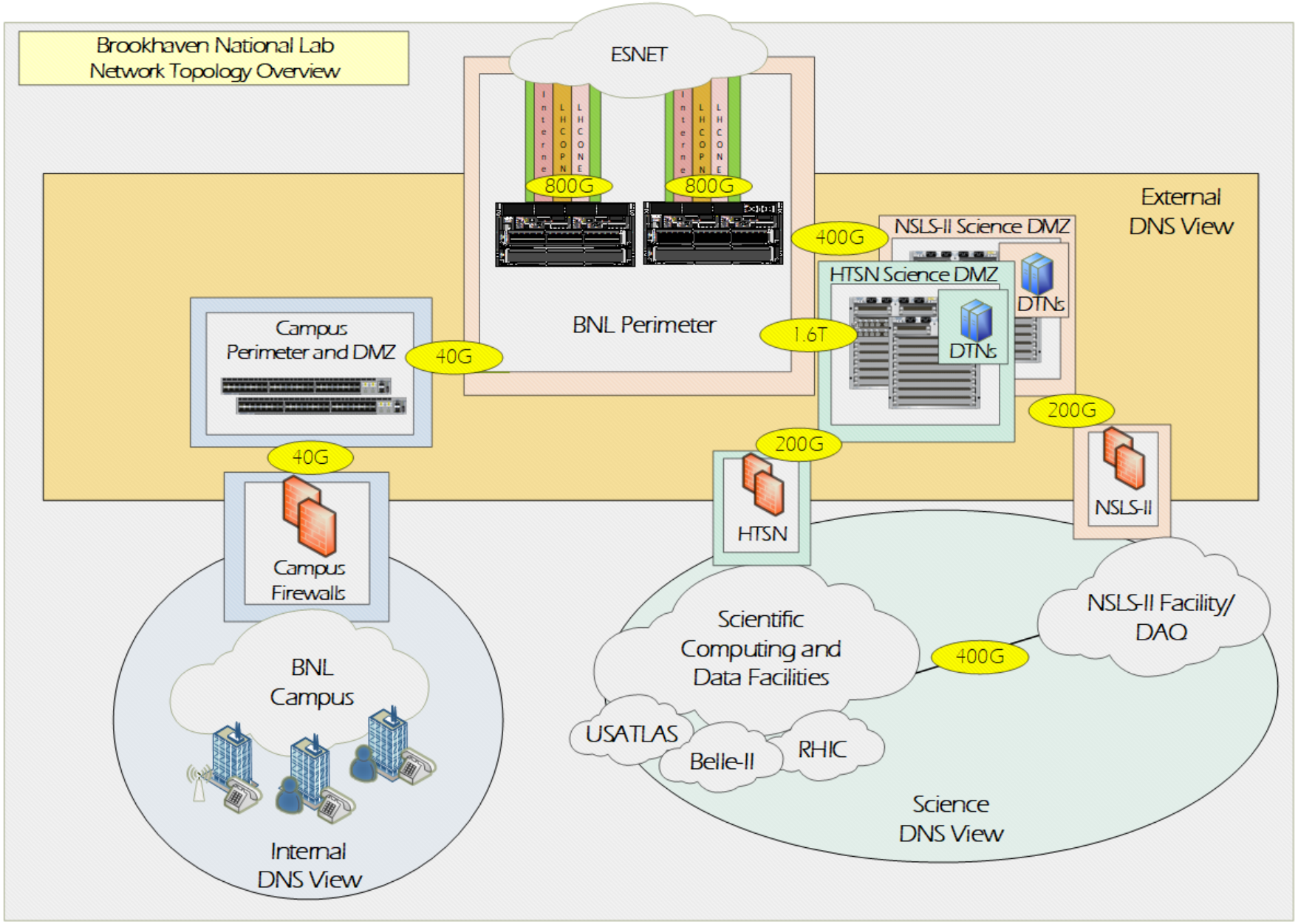
# BNL High Throughput Science Network (HTSN)

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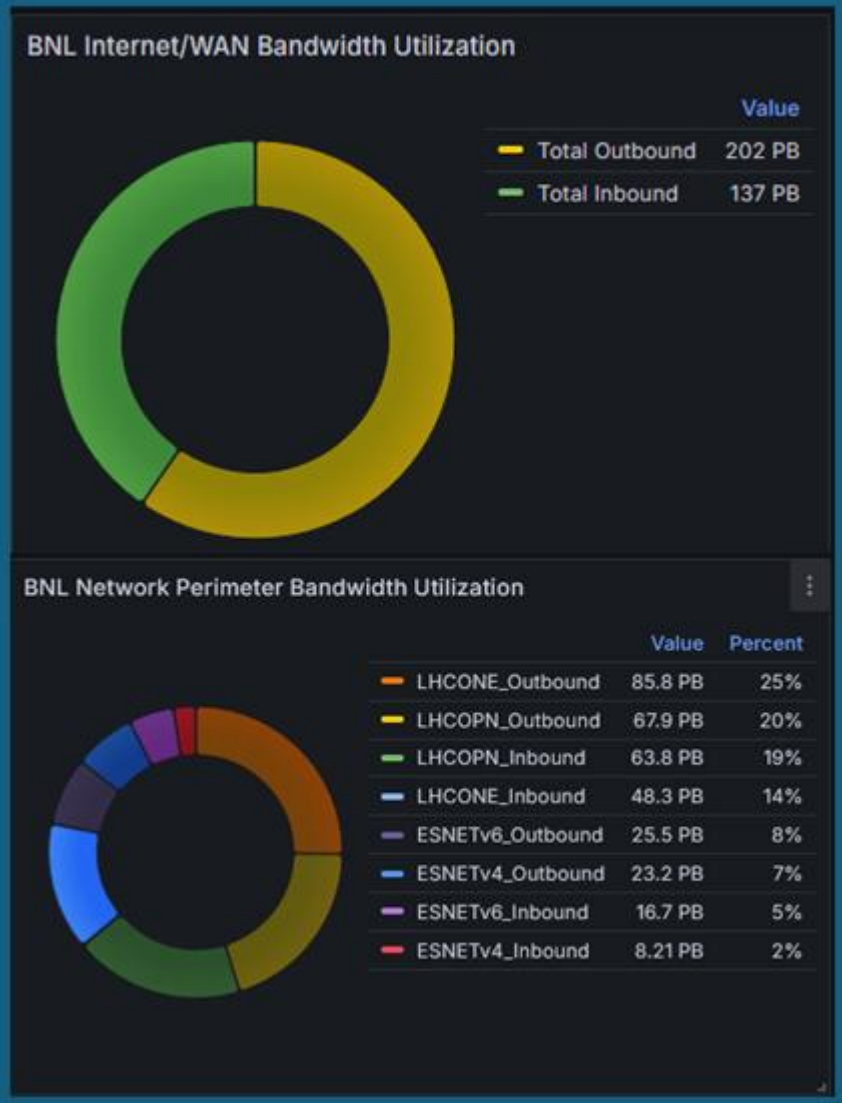
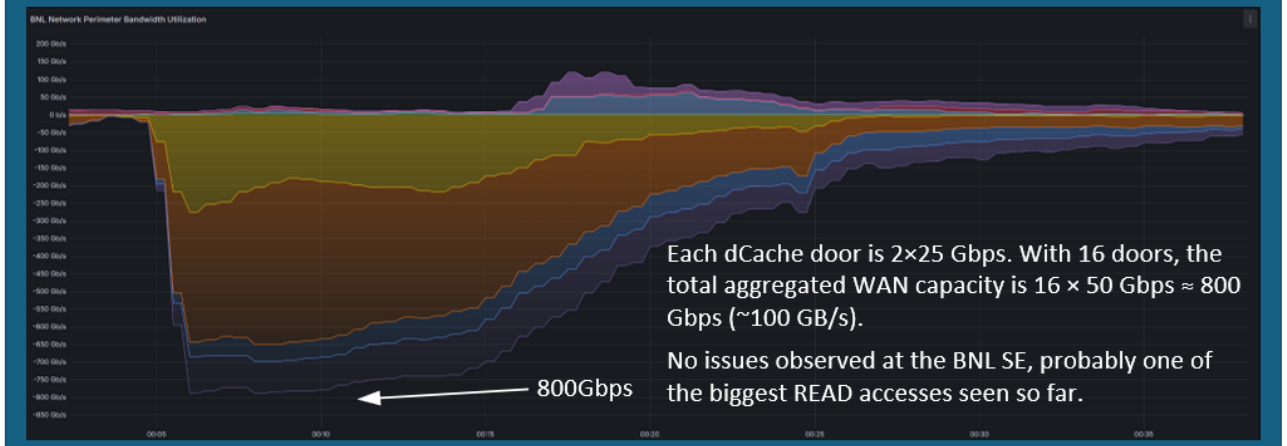
# Total Traffic – Past Year



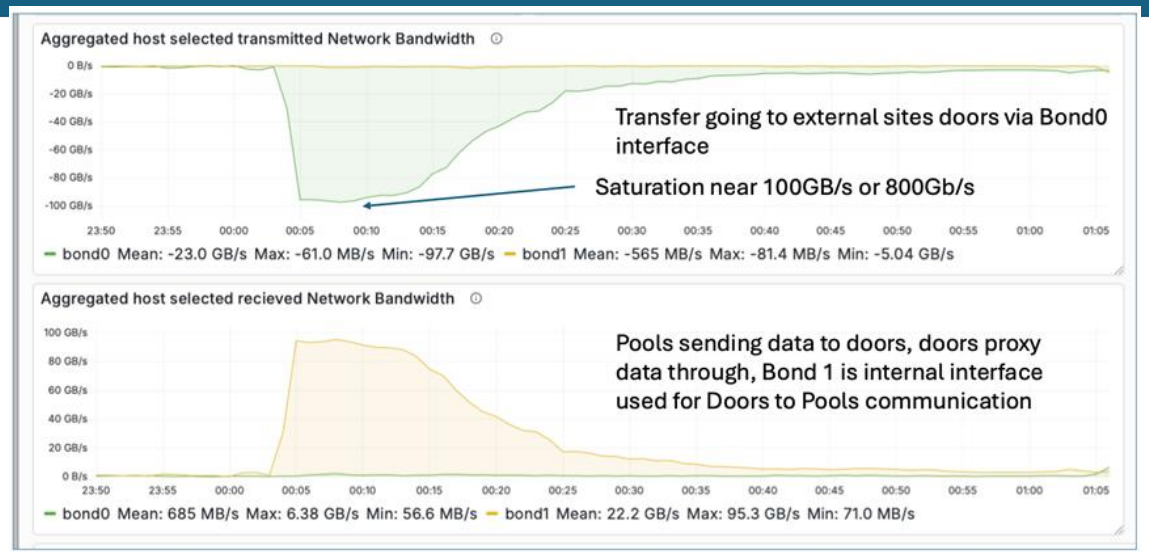

## READ operations from the dCache Storage Elements over the WAN reach nearly 800 Gb/s




Each dCache door is 2×25 Gbps. With 16 doors, the total aggregated WAN capacity is 16 × 50 Gbps ≈ 800 Gbps (~100 GB/s).

No issues observed at the BNL SE, probably one of the biggest READ accesses seen so far.

| Name | Mean | Min | Max | Last |
|---|---|---|---|---|
| LHCOPN_Inbound | 1.17 Gb/s | 45.8 Mb/s | 5.51 Gb/s | 417 Mb/s |
| LHCOPN_Outbound | 80.2 Gb/s | 760 Mb/s | 275 Gb/s | 2.00 Gb/s |
| LHCONE_Inbound | 14.3 Gb/s | 278 Mb/s | 63.5 Gb/s | 1.14 Gb/s |
| LHCONE_Outbound | 176 Gb/s | 1.61 Gb/s | 463 Gb/s | 27.6 Gb/s |
| ESNETv4_Inbound | 6.10 Gb/s | 2.10 Gb/s | 12.6 Gb/s | 4.35 Gb/s |
| ESNETv4_Outbound | 42.7 Gb/s | 905 Mb/s | 69.8 Gb/s | 10.1 Gb/s |
| ESNETv6_Inbound | 12.7 Gb/s | 229 Mb/s | 66.8 Gb/s | 339 Mb/s |
| ESNETv6_Outbound | 64.0 Gb/s | 205 Mb/s | 123 Gb/s | 14.9 Gb/s |

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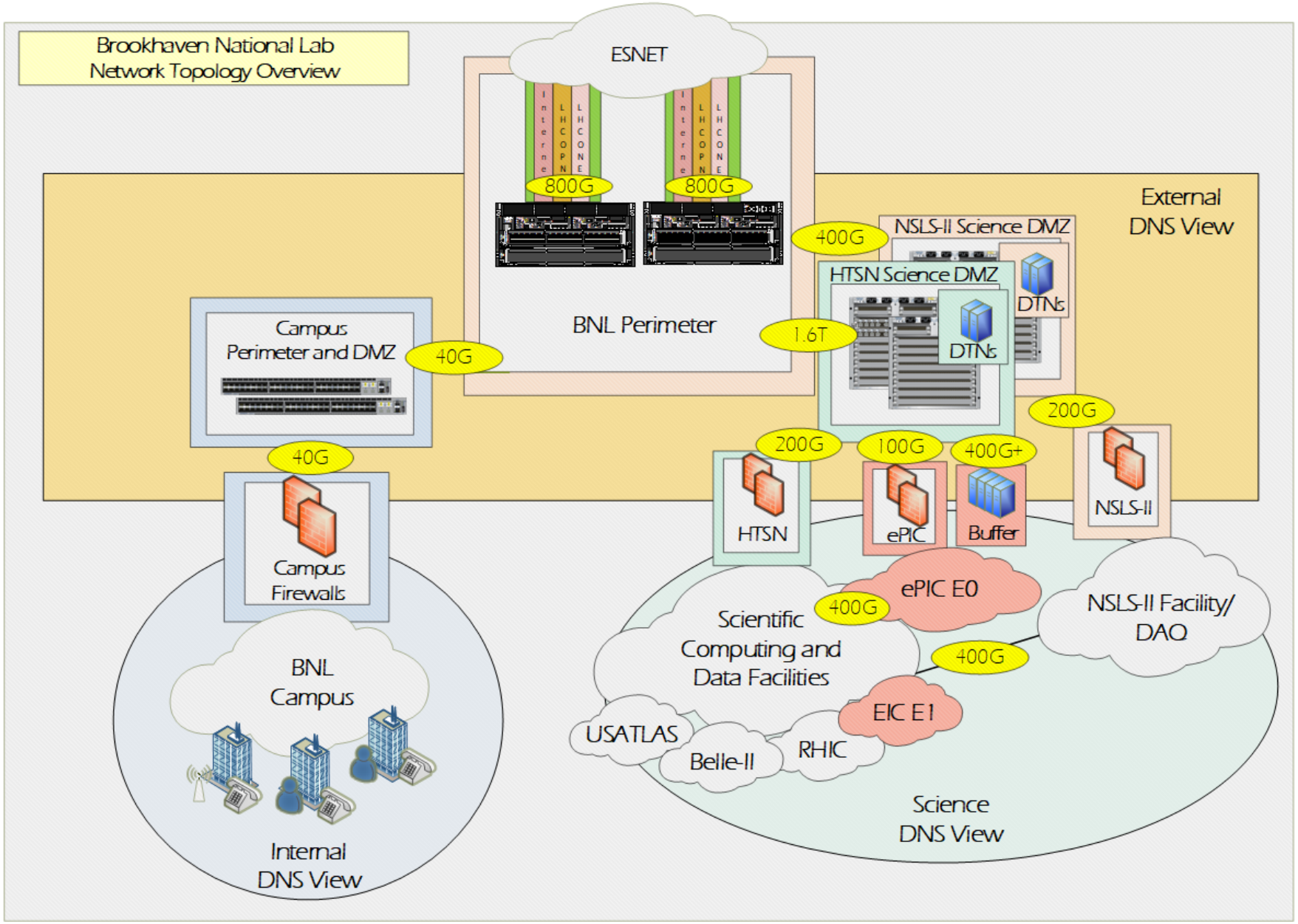
# BNL High Throughput Science Network (HTSN) with ePIC

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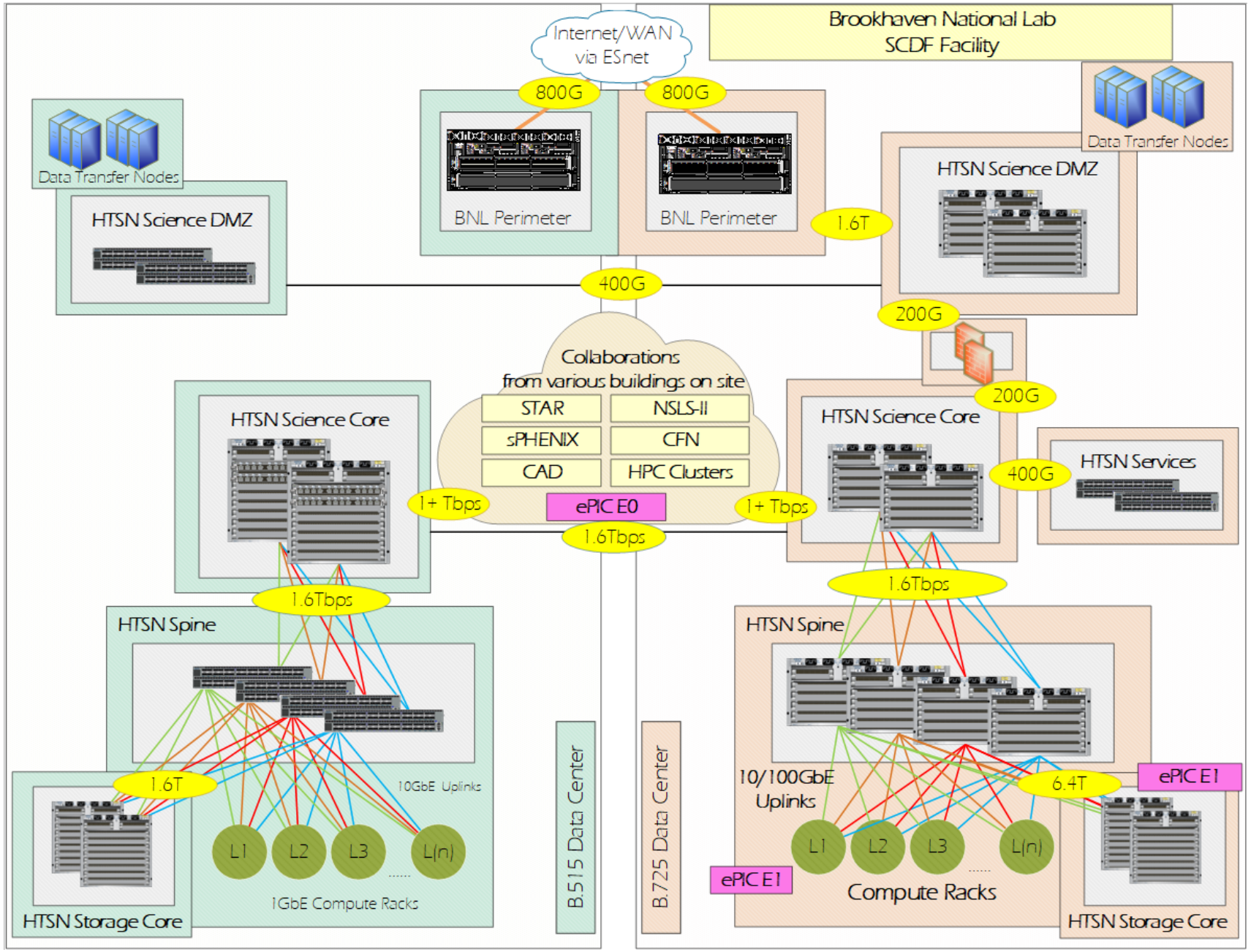
# HTSN/SDCC Network Infrastructure

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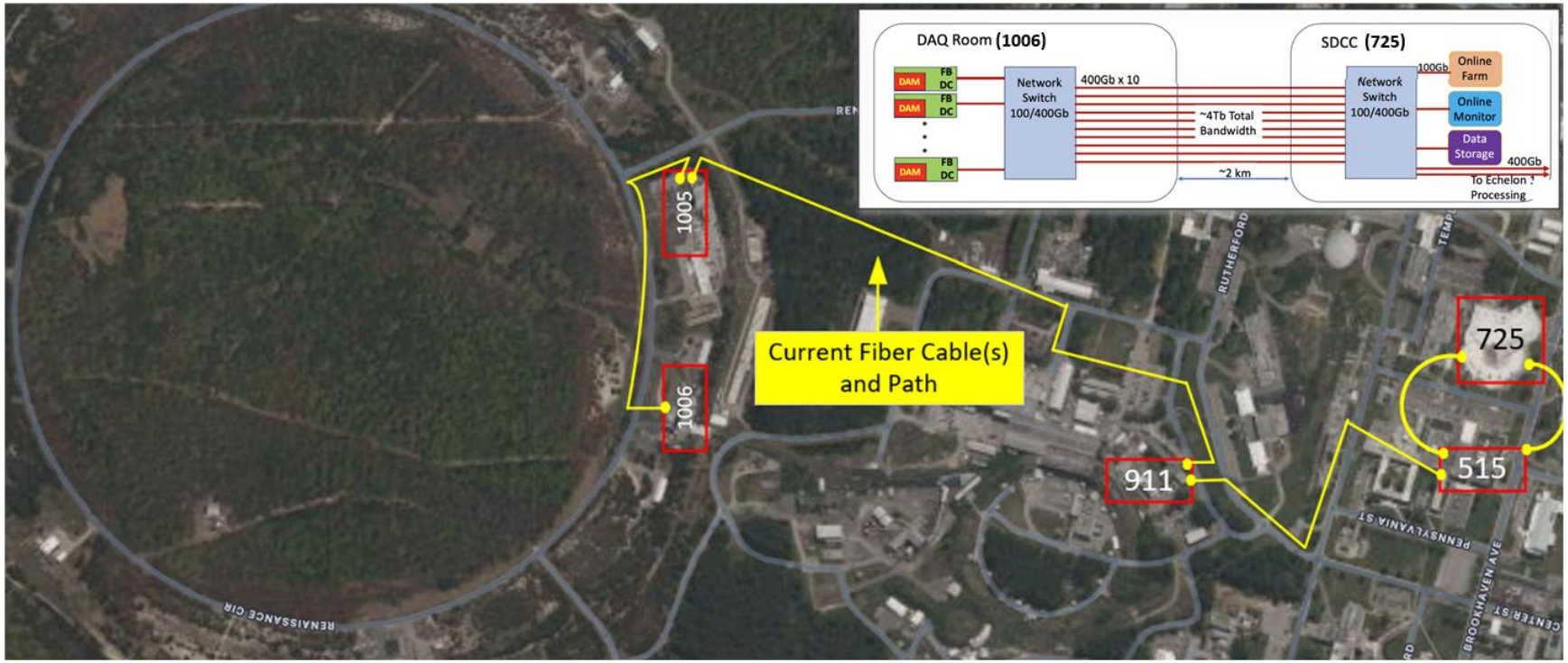
# Fiber Path Between IP6 (1006) and SCDF (725)




- Consists of a series of single multi-fiber cable runs, shown in yellow, connecting buildings 515, 911, 1005, 1006.
- The cables are terminated in patch panels in each of the buildings, and patch cables are used to connect the fibers between the cables.
- A break in any one of these cables would result in loss of connectivity from ePIC to the data center.
- Currently, approximately two-thirds of the fiber capacity between buildings 515 and 1005 has been utilized in support of RHIC.

# Questions