



# The 10-Gbps Virginia Tech Research Network (VT-Rnet)

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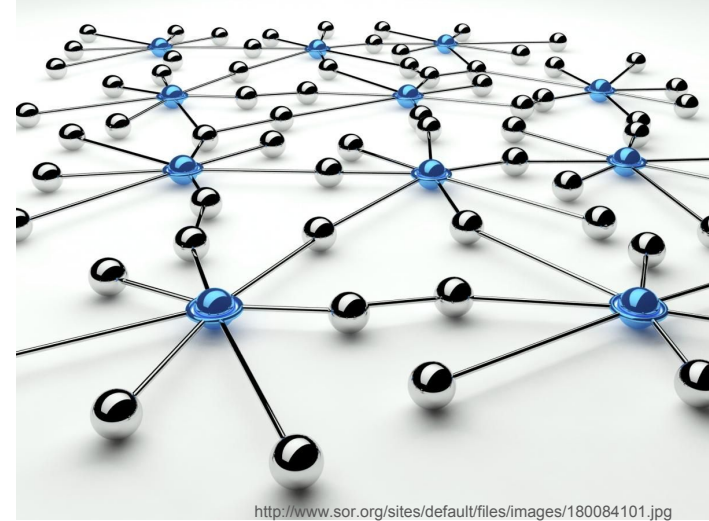


<http://www.priceperhead.com/wp-content/uploads/2016/01/bookie-tips-network-business.png>

# What is VT-Rnet?

## VT-Rnet: 10 Gbps research network

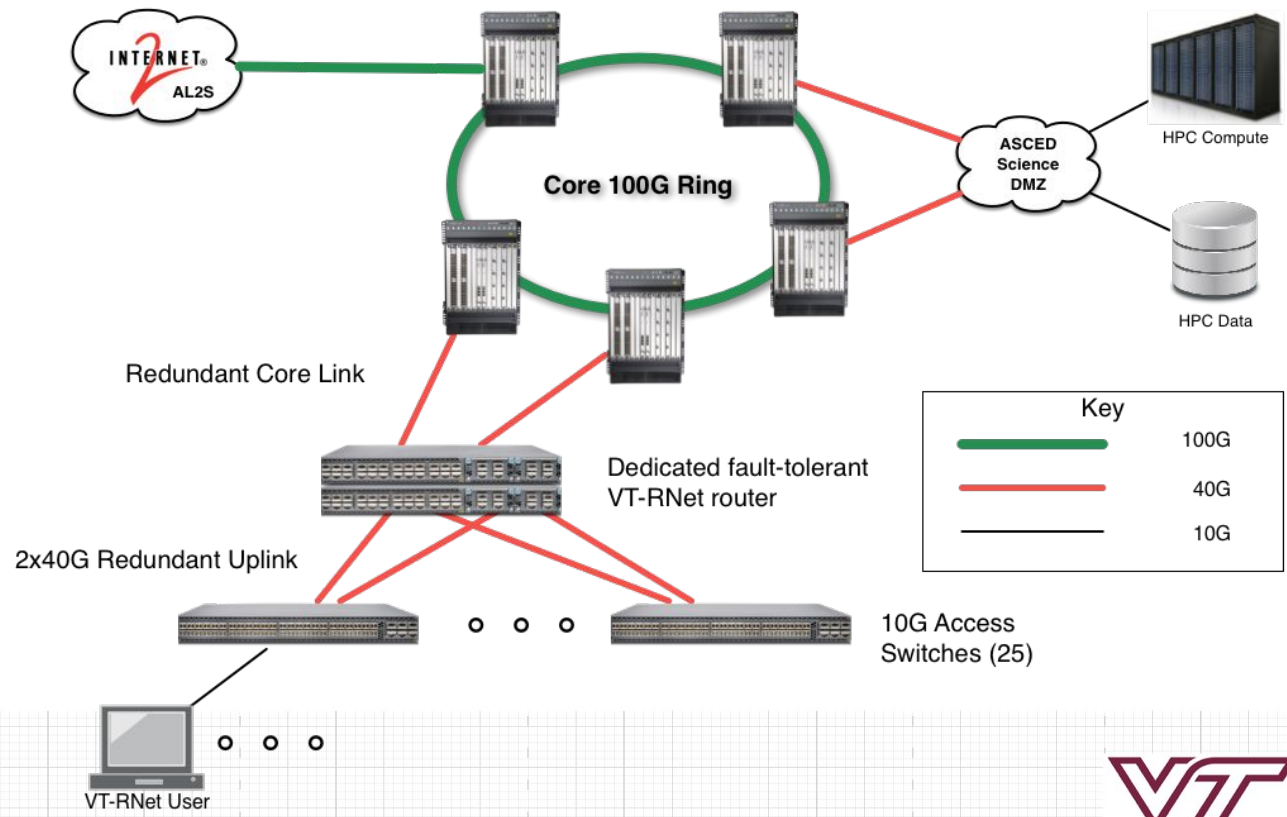
- Funding from NSF CC-DNI grant and Division of IT
- Subsidized connections until October 22, 2021
- Grant ends in January but new connections can still be delivered



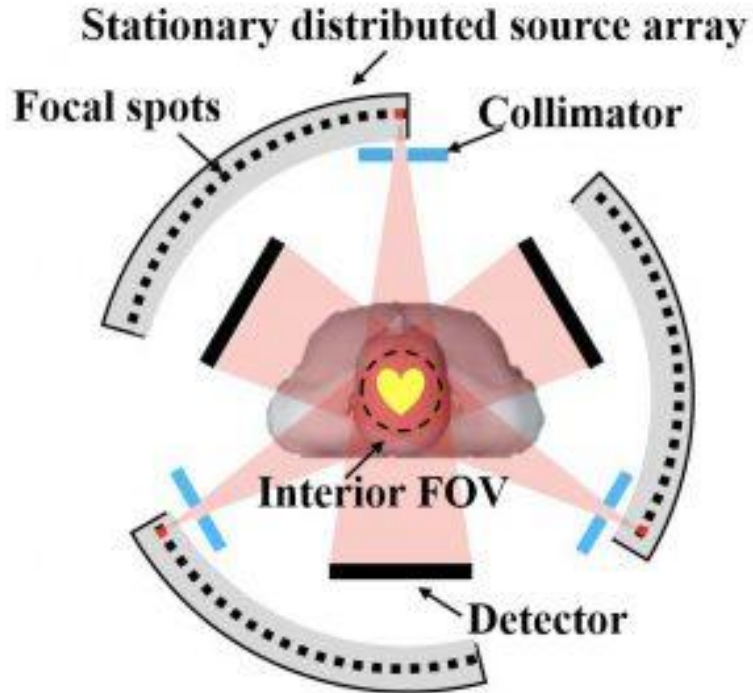
## Goals

- Improve competitiveness (especially grants and scholarship)
- Facilitate instruction (especially data intensive instruction)
- Gain experience with high-speed networks on campus

# Architecture



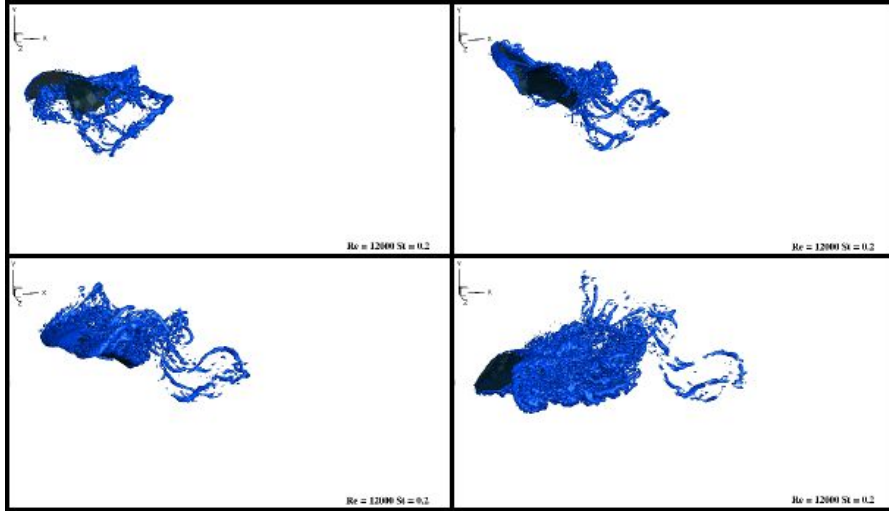
# Research Highlight: Biomedical Imaging



## X-Ray Systems Lab (Dr. Cao)

- Take a series of x-ray high resolution images around object
- Use high-performance computing to create 3-D reconstruction of image
- <https://www.arc.vt.edu/vt-rnet/cao/>

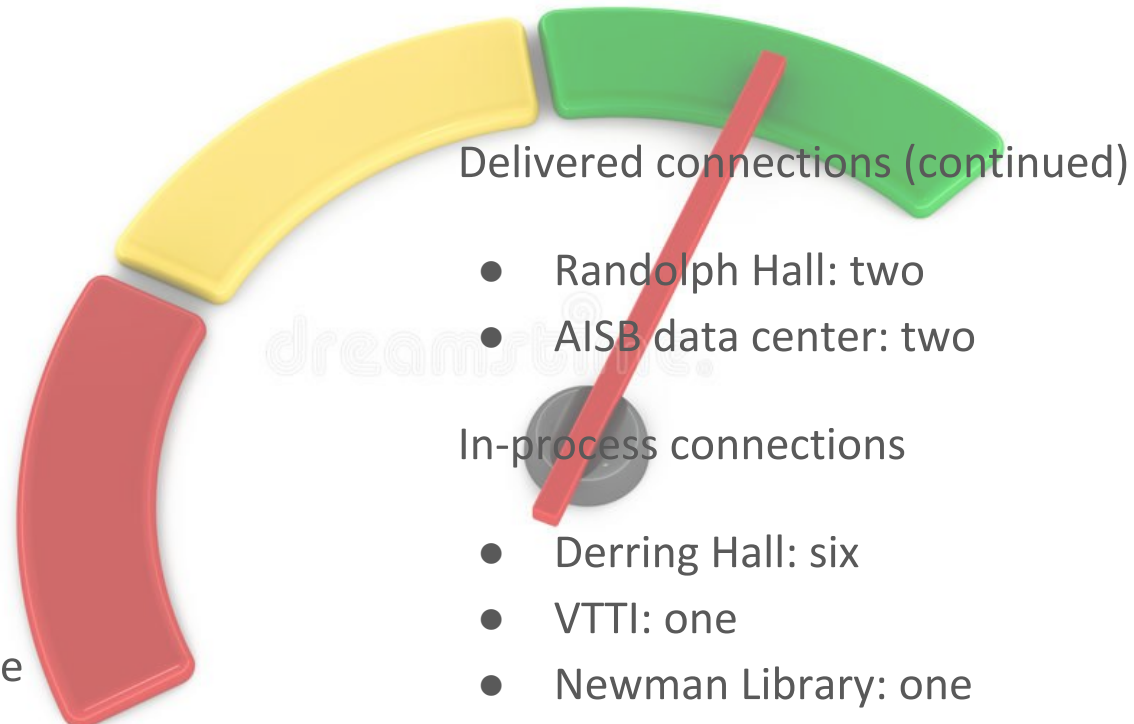
# Research Highlight: Computational Fluid Dynamics



## HPCFD Lab (Dr. Tafti)

- Simulate the unsteady air flow around a beating bat wing
- 8 GB per frame \* 200 frames = 1.6 TB per simulation of single trajectory
- <http://www.arc.vt.edu/vt-rnet/hpcfd/>

# Status



## Delivered connections

- Torgersen: six
- Kelly Hall: two
- Latham Hall: one
- Cheatham Hall: one
- Goodwin Hall: two
- Derring Hall: two
- Newman Library: one

## Delivered connections (continued)

- Randolph Hall: two
- AISB data center: two

## In-process connections

- Derring Hall: six
- VTTI: one
- Newman Library: one



**Although installation subsidy is ending soon, connections can continue to be installed until hardware is fully utilized. (Non-subsidized installation cost is about \$400.)**



# Getting a connection



[https://www.tno.nl/media/4104/network\\_technology1.jpg](https://www.tno.nl/media/4104/network_technology1.jpg)

# Applications Process

1. Faculty: discuss their needs with us (optional)
2. Faculty submit short proposal per RFC
3. Review committee: evaluate proposal
4. Faculty: fill out MOU, sign, and get head's signature
5. **Network liaison: submit MOU and ICR to NI&S**
6. NI&S: obtain remaining signatures, return final MOU
7. NI&S: deliver 10G connection
8. Faculty: report problems to 4Help
9. NI&S/ARC: work with faculty to solve problems



<http://www.highschoolcounselormarketing.com/wp-content/uploads/2015/04/how-to-apply.jpg>



**VIRGINIA  
TECH**<sup>TM</sup>



# Proposal and Review Process

<http://www.arc.vt.edu/vt-rnet/rfp/>

- Submit a **short** proposal (typically 1-2 pages)
  - Summary of the kind of research you do
  - Why 1 Gbps is too slow and how a faster network will help
- Review criteria
  - Is connection feasible in requested location?
  - Will scholarship/instruction benefit? (sanity check)



# MOU

<http://www.arc.vt.edu/vt-rnet/mou/>

- ARC / NI&S will:
  - 10 Gbps connection for price of 1 Gbps (\$15/mo)
  - Until 2021-10-22
  - Service level: best effort during business hours
- Faculty will:
  - Use it for scholarship and instruction
  - Tell us how it helped them
  - Work with us as we learn how to run fast networks



# Questions?

- URLs
  - Main page: <http://www.arc.vt.edu/vt-rnet>
  - RFP: <http://www.arc.vt.edu/vt-rnet/rfp/>
  - MOU: <http://www.arc.vt.edu/vt-rnet/mou/>
- User group: [vt-rnet-user-g@vt.edu](mailto:vt-rnet-user-g@vt.edu)
- Email: [mkg@vt.edu](mailto:mkg@vt.edu)



<https://en.hdyo.org/assets/ask-question-3-2-d87064cddb5d5eb6f24d40d6b8ba02.jpg>