SCNDO
Importance of Campus and Enterprise Networks
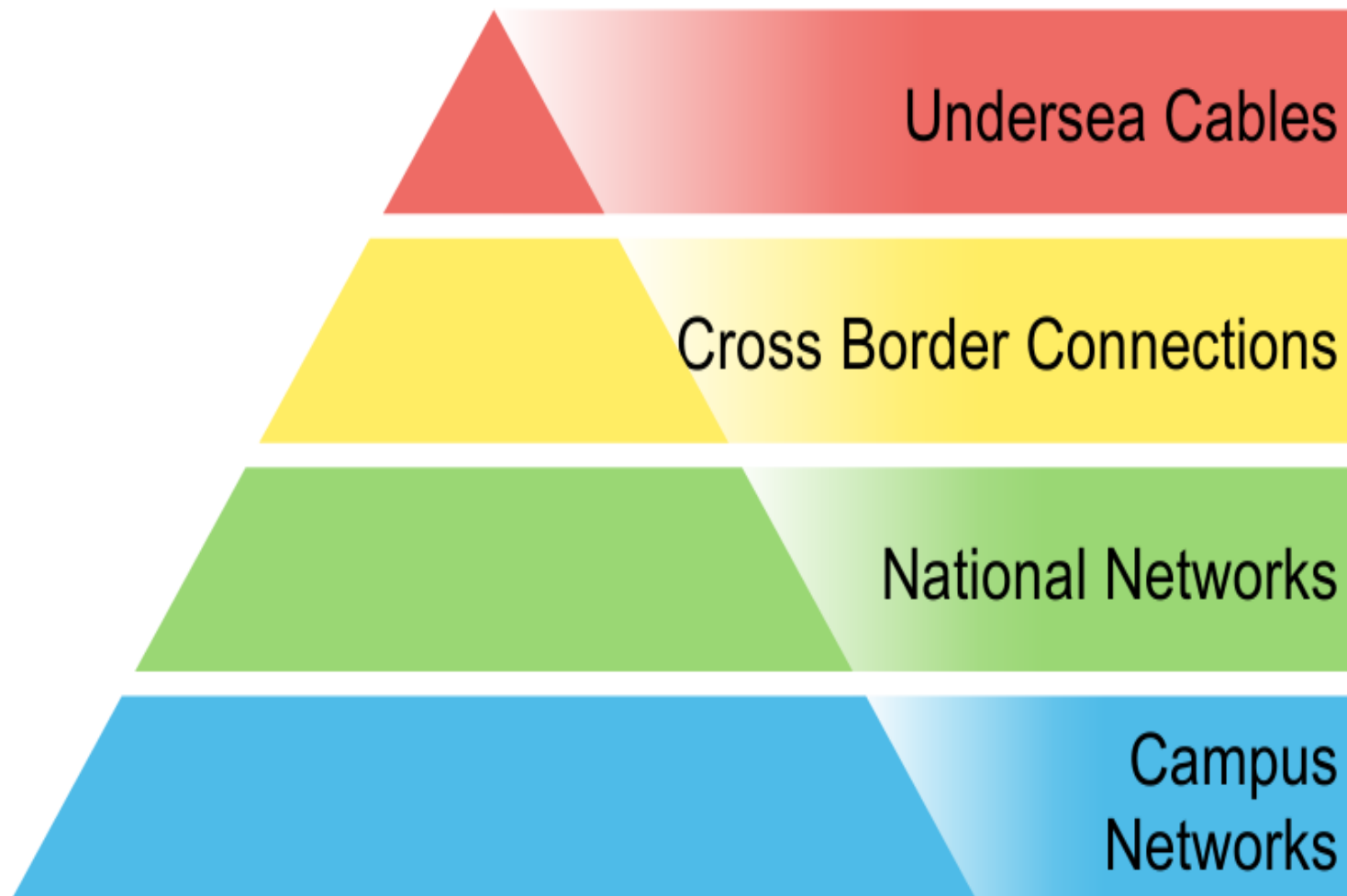# *-the weak link*

UNIVERSITY OF OREGON

NSRC
Network Startup Resource Center

Internet Ecosystem

Undersea Cables

- Very expensive and long connections
- Ownership varies
  - Content Providers (Facebook, Google, Amazon)
  - Consortium of carriers
  - Undersea cable investors
  - Tier 1 Internet Service Providers
- Major benefit to countries with cable landing stations
  - There is only some benefit to land locked countries

Cross Border Connections

- Cross border connections are not well documented and are hard to characterize
- Some are government owned/controlled
- Many are owned by Internet Service Providers, including Tier 1 ISPs
- Some ISPs are multi-national, so they own and operate their own

National Networks

- Some national networks are government owned
- Many are owned and operated by local ISPs
- Some countries have Tier 1 ISPs with national footprint
- Fiber optic footprints of national networks are not well documented with publicly available maps

Campus Network Role

- No end user is connected directly to a Undersea Cable, Cross Border Fiber, or a National Network.
  - They are all connected to a campus network
- Without a good campus network, the entire ecosystem is affected
  - You can have a situation where an Internet Service Provider has multiple 100-gigabit cross border connections to multiple undersea cable landings and 400-gigabit backbone in the ISP network, but if the users on the campus/enterprise who use that ISP has a poor connection on their network, they get poor service and the entire investment is wasted
- The campus or enterprise network is the foundation that the entire Internet ecosystem is built upon

Foundation failures

Campus Network Challenges

- Many campus or enterprise networks are not structured properly and can't effectively utilize high bandwidth connections
- Many make heavy use firewalls that limit performance
- Many networks are built with unmanaged network equipment that provide no ability for monitoring or tuning the network•This usually results in the end user or customer blaming the ISP for poor performance"

Summary

- The Internet ecosystem is large, complex, and is a result of trillions of dollars of investments over many decades
- The campus/enterprise network is the foundation that all that investment relies upon.

- Campus/enterprise networks are often not properly built and need to be improved

- The need for improvement is the motivation for this course

Q & A

Acknowledgments & Partners

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