How to Slice a Fillet

Context

E-GENI and the Vision

Researcher's Perspective

- Give me nodes X, Y, Z with flowspace A and QoS Q
- Connect X to Y using flowspace A
- Find largest number of connected nodes using flowspace A
- Find largest flowspace between X and Y
- Connect X to Y in 5 hops
- I want topology X (with flowspace A)
  - Else Y, Z
- I want largest Internet-like/mesh/tree topology
- I want topology X in US/Stanford but not Berekeley
- I want net that
  - allows Stanford opt-in
  - is expandable to 100 nodes
  - is connectable to this other net/Internet
- I want a net that start as 20 nodes and expands over 1 month to 1000 nodes

Feature Categories

1. Topology specification
2. Flowspace specification
3. QoS specification
4. Connectivity specification
    a. Users
    b. Other nets (including Internet)/Gateways
    c. Other Experiments
5. Resource Policy
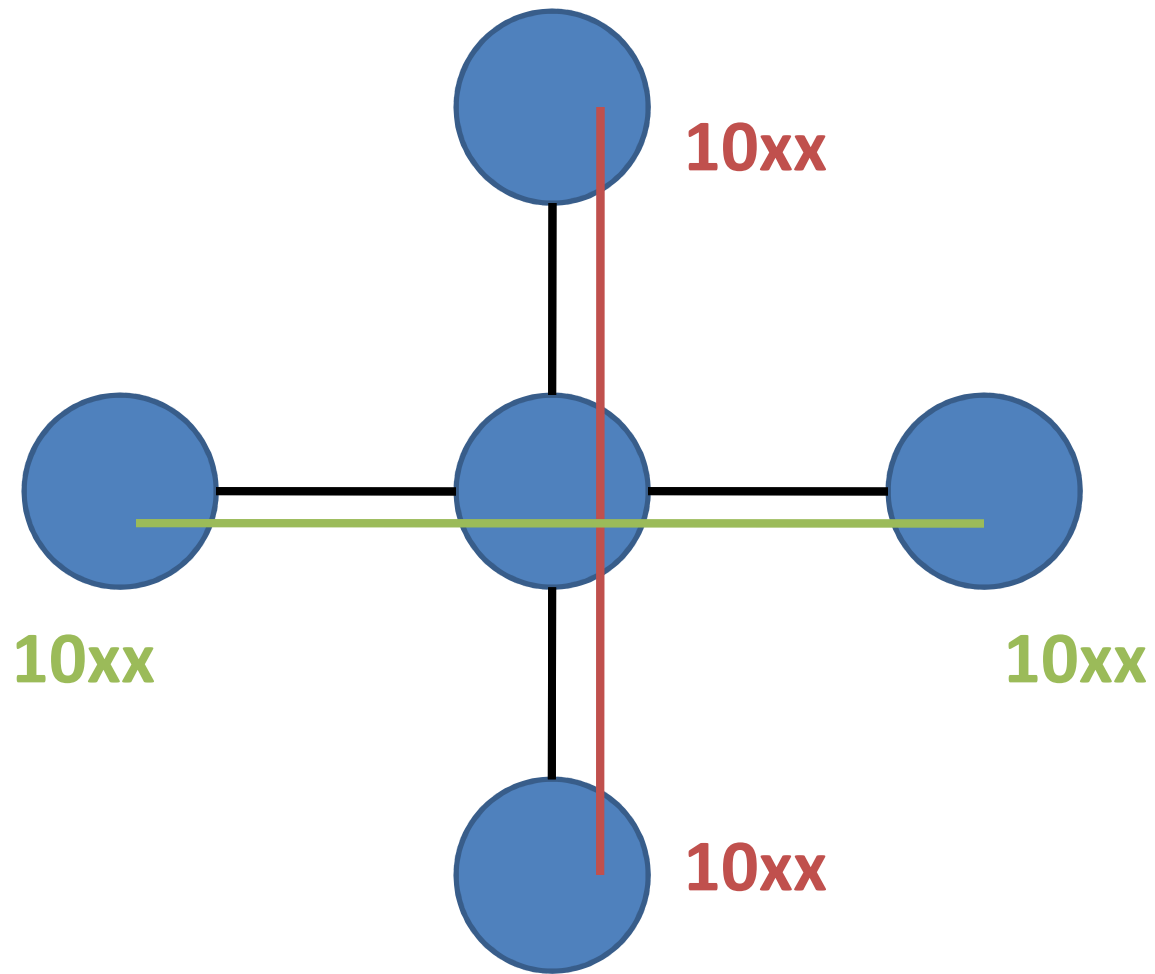   a. Locations
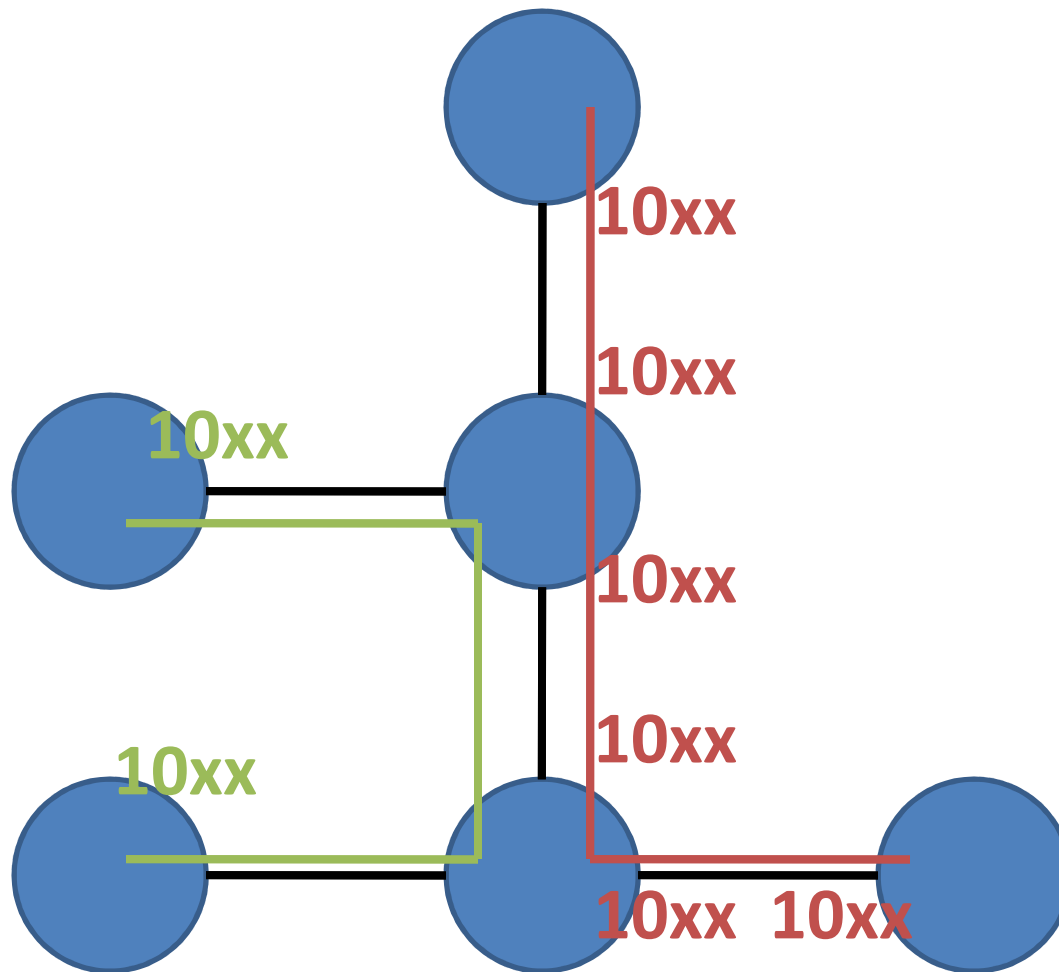   b. Time
    c. Size
    d. Dynamism?

Connectivity
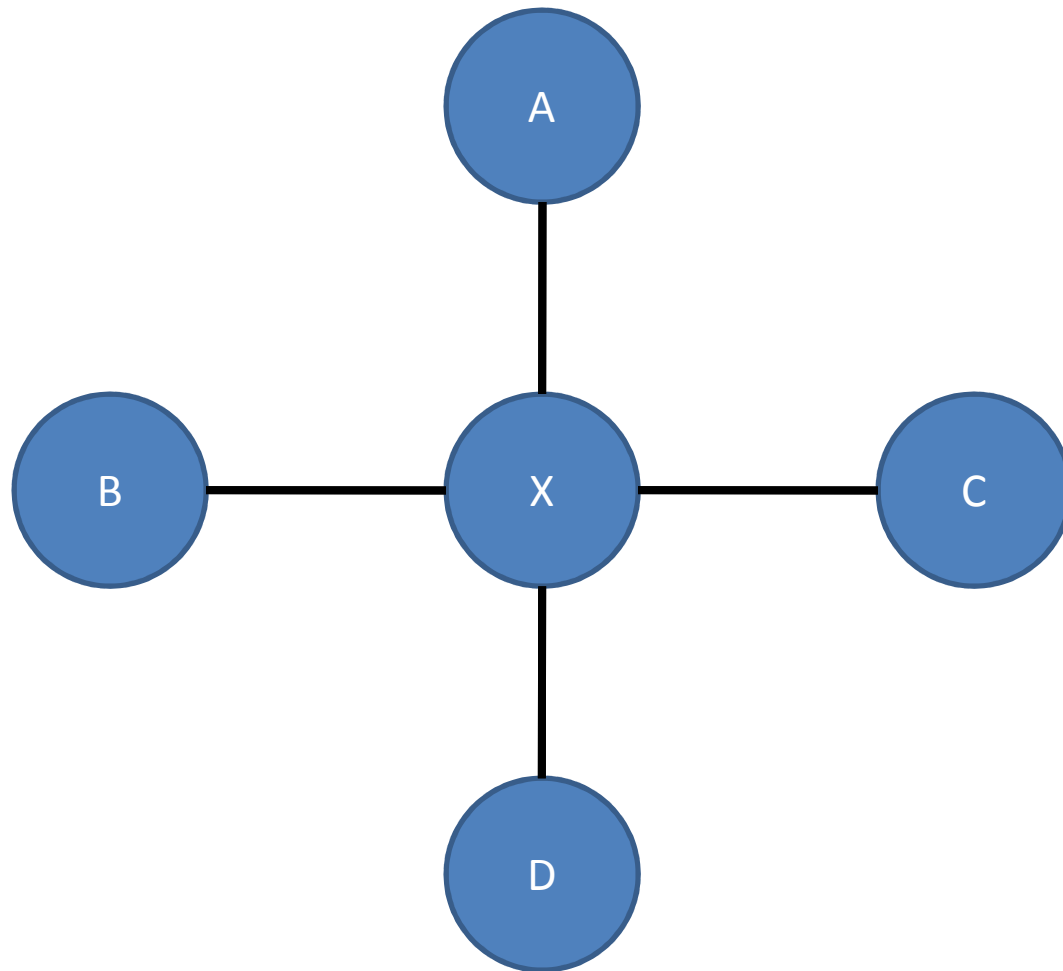
Adjacency Matrix

	X	A	B	C	D
X	2	1	1	1	1
A	1	2	0	0	0
B	1	0	2	0	0
C	1	0	0	2	0
D	1	0	0	0	2

Connectivity

10xx

10xx

10xx

10xx

Connectivity with flow space
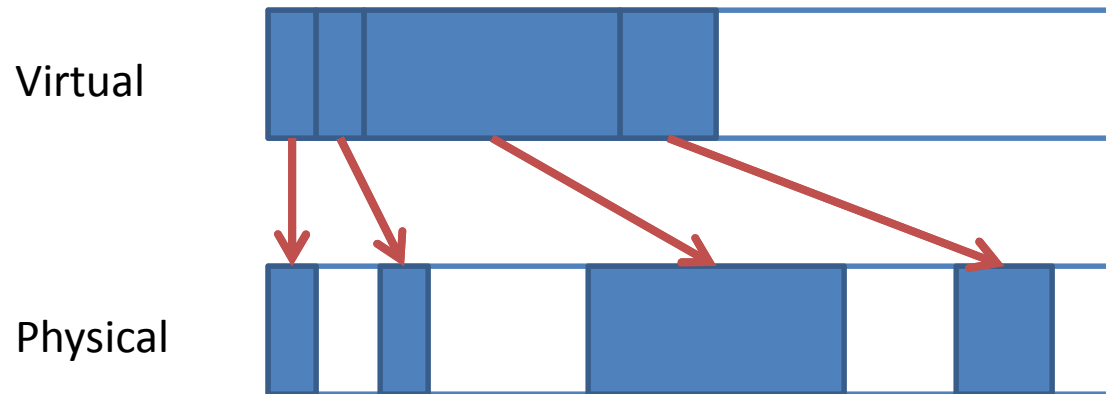
Connectivity Matrix?
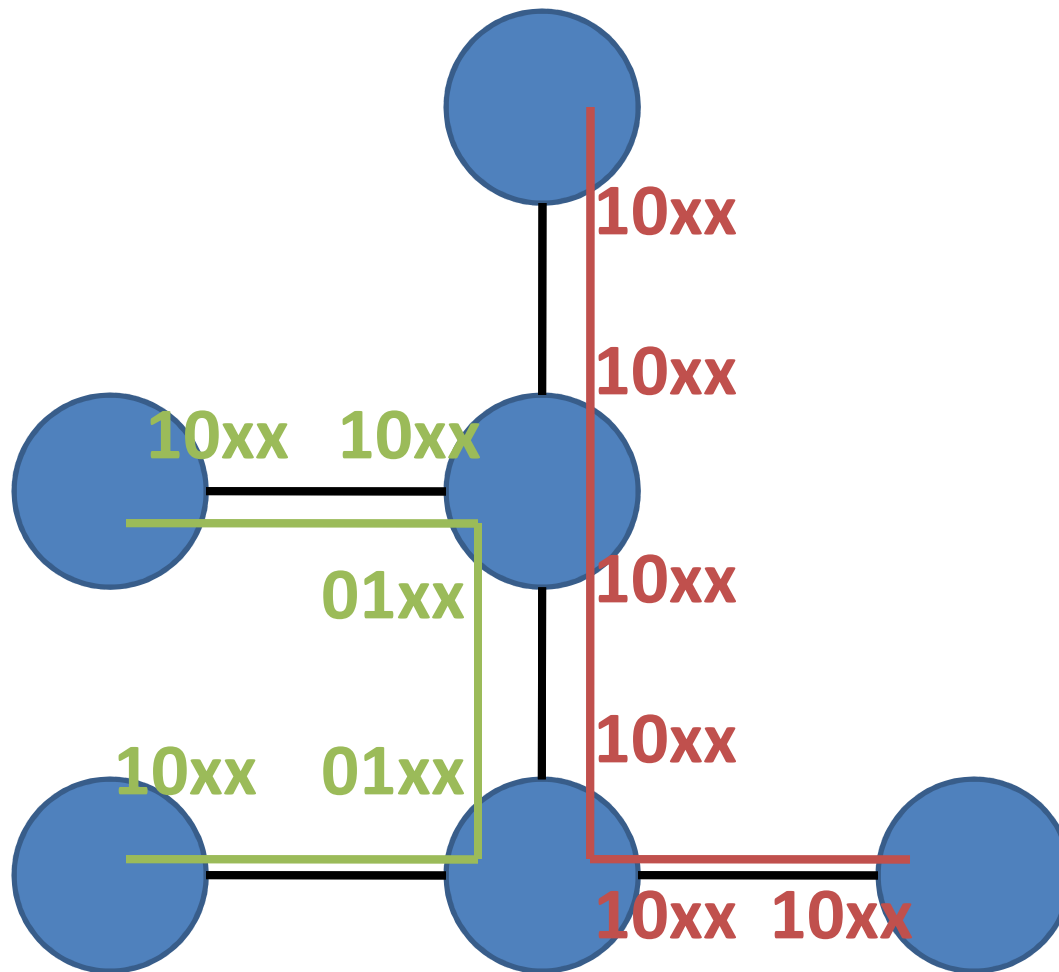
Analogy – Virtual Memory

Physical

Analogy – Virtual Memory

Virtual

Physical

Connectivity

Flowspace connectivity

Flow space is simply the space of available flow addresses/names.

End-host and app in the controller use virtual addresses/names.

For connectivity:

free input names = # free output names

Connectivity Matrix

- Each 1 bit corresponds to:
  - There is a physical connection
  - There is a sufficient number of free flow names
  - There is available QoS

What about shared access

End-host participates in two experiments?