



The Next Generation KanREN Backbone

CHECK Conference
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Changes are Coming!

- The new backbone is targeted for deployment during July of 2007.
- All regents' universities will be connected as hub nodes.
- New networking methodologies will change how universities connect.
- Once initial transition is completed, planning will immediately begin to include Kan-ed

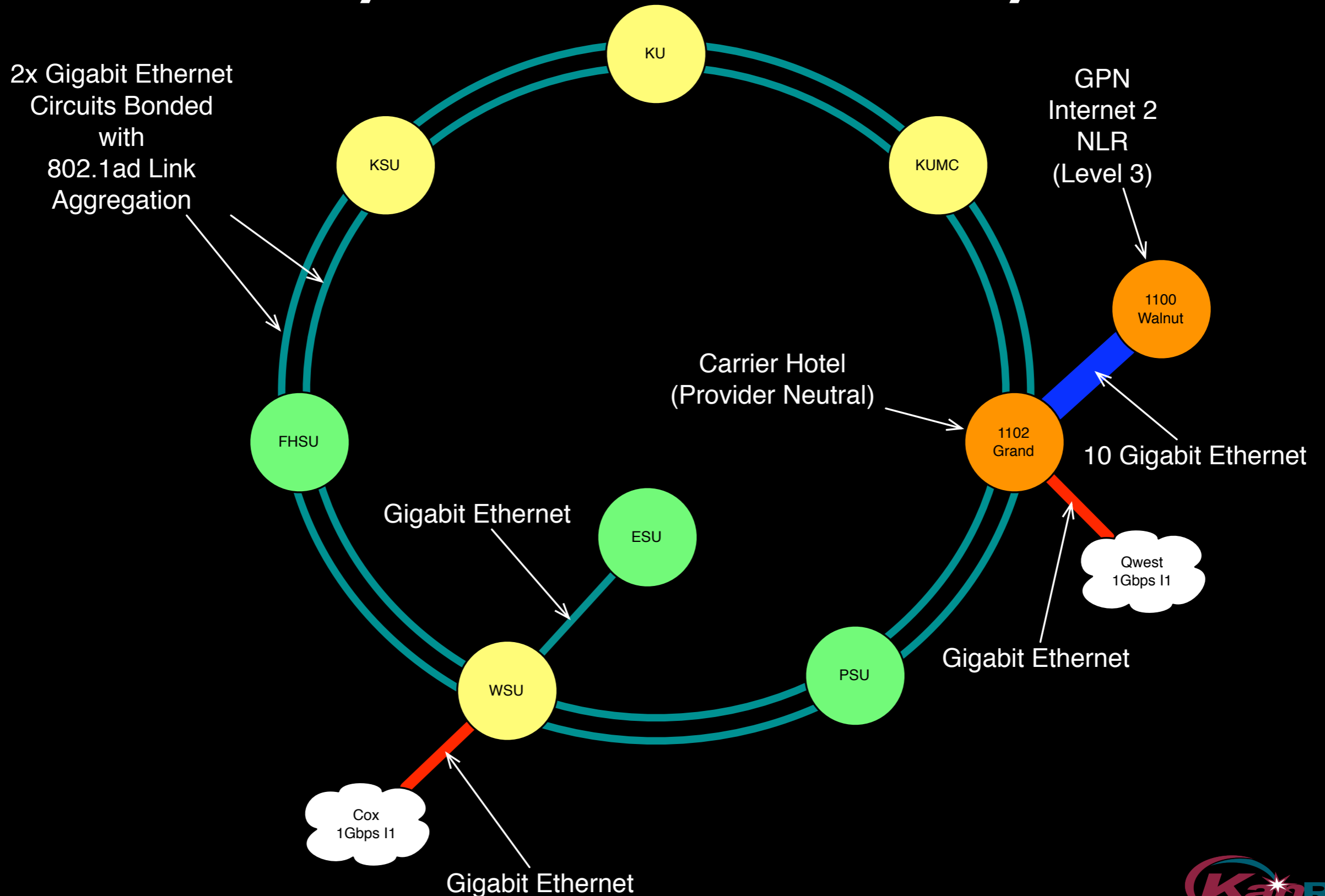
Economies of Scale

- Such an extreme increase in capacity brings with it drastic decreases in unit price.
- Backbone service will no longer be billed at a per Mbps rate to members hosting backbone nodes. All will pay a flat fee for unlimited access (Internet service at a per Mbps still applies).
- Due to increased backbone usage for transport, non-node hosting KanREN members will likely begin financially supporting backbone (increases more than offset by decreasing Internet I costs)
- By node-hosting members agreeing to continue spending the same amount on Internet service, we are able to drive the cost down to almost 1/4 of what it was a year ago, thus providing HUGE increases in connectivity levels.

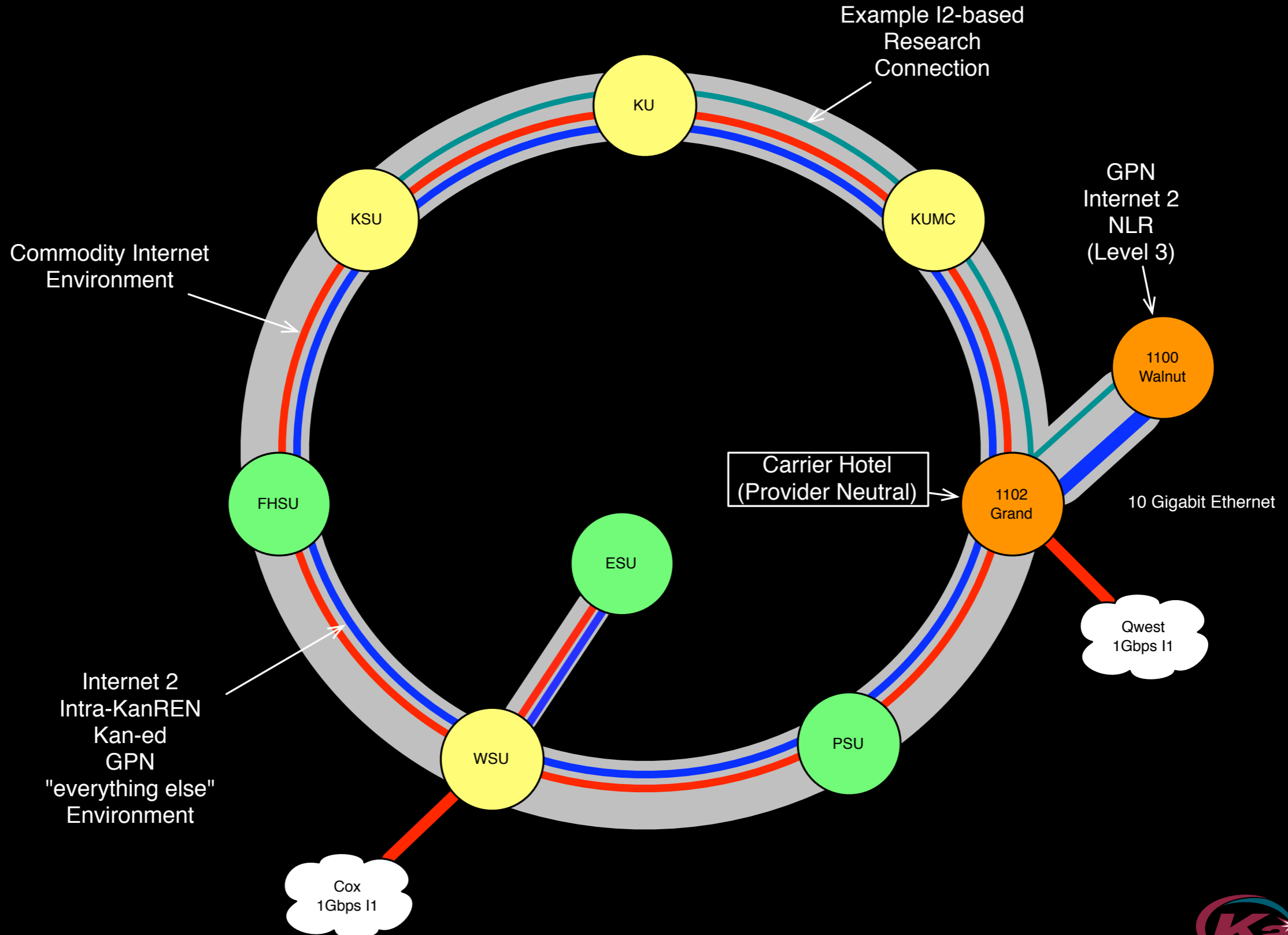
Focus on Changing Architecture

- Backbone migrating to “full-service” data-link layer provisioning.
- Multiple network layer and data-link layer networks deployed for different purposes.
- University nodes will connect to two IP networks: One for commodity Internet and one for “everything else” (intra-KanREN, Internet 2, Kan-ed, KanWIN, etc.)
- Universities become Autonomous Systems since multiple connections imply multi-homing.
- Backbone changes from hub and spoke to a shared ring.

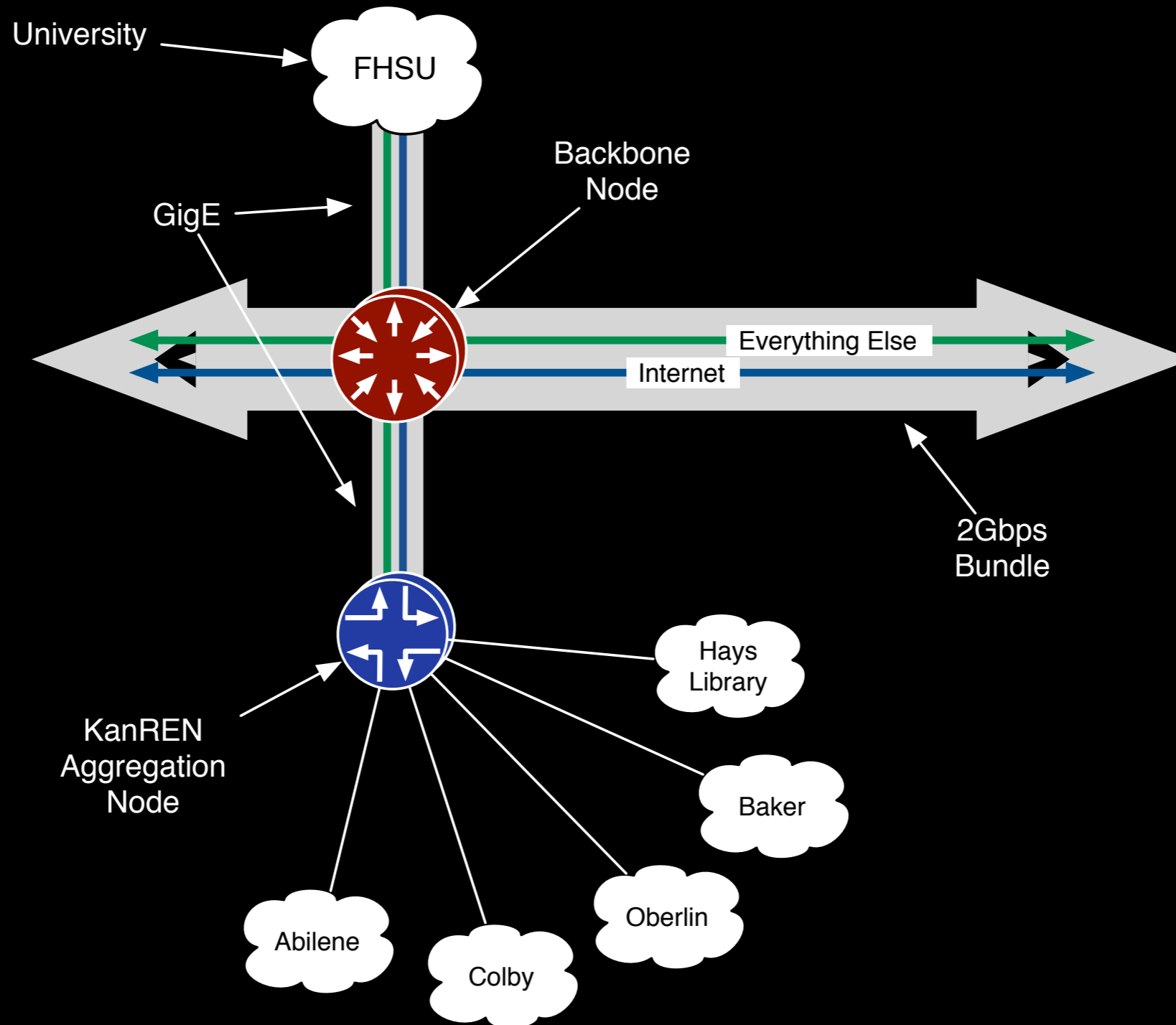
Physical Connectivity



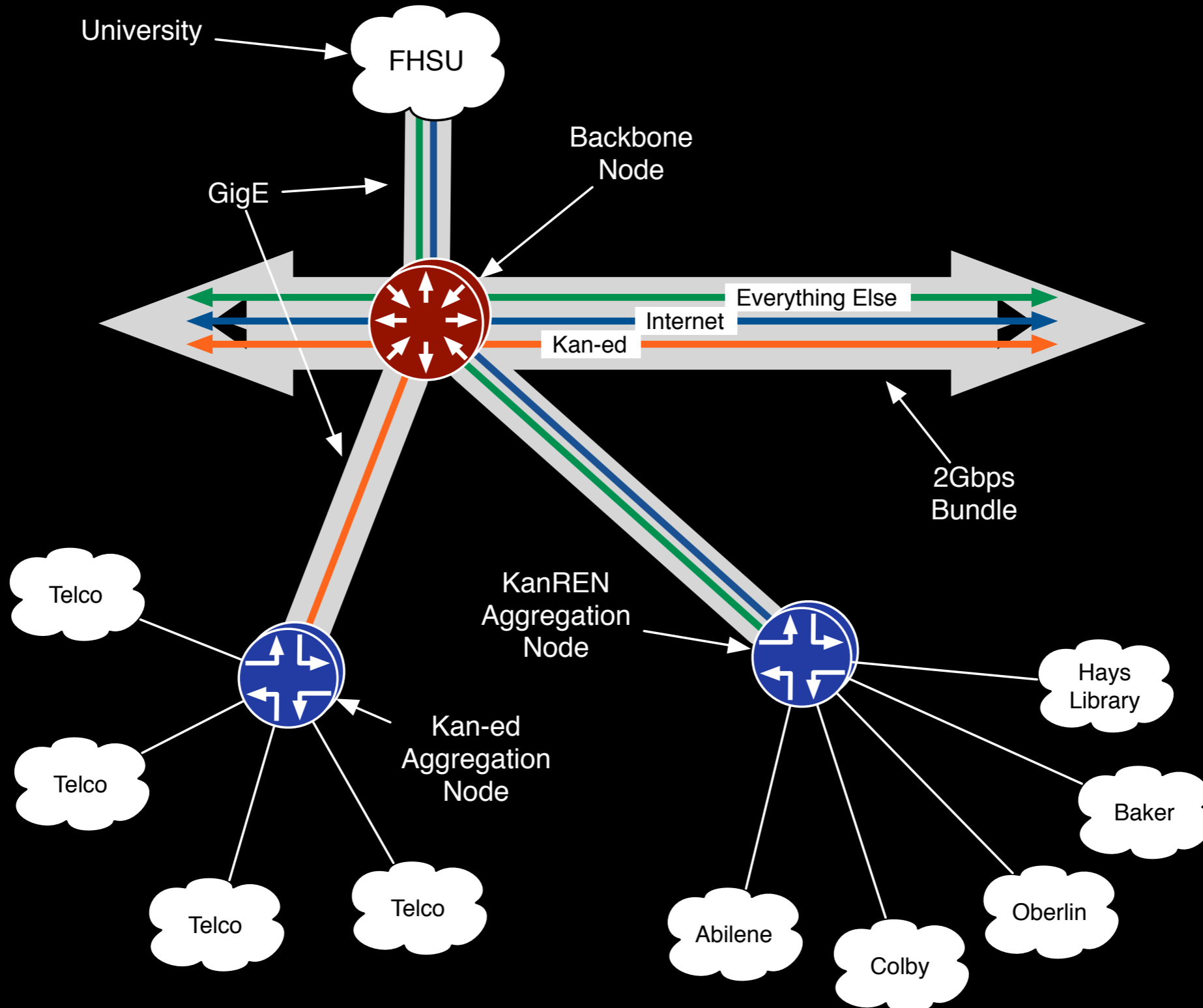
Logical Provisioning



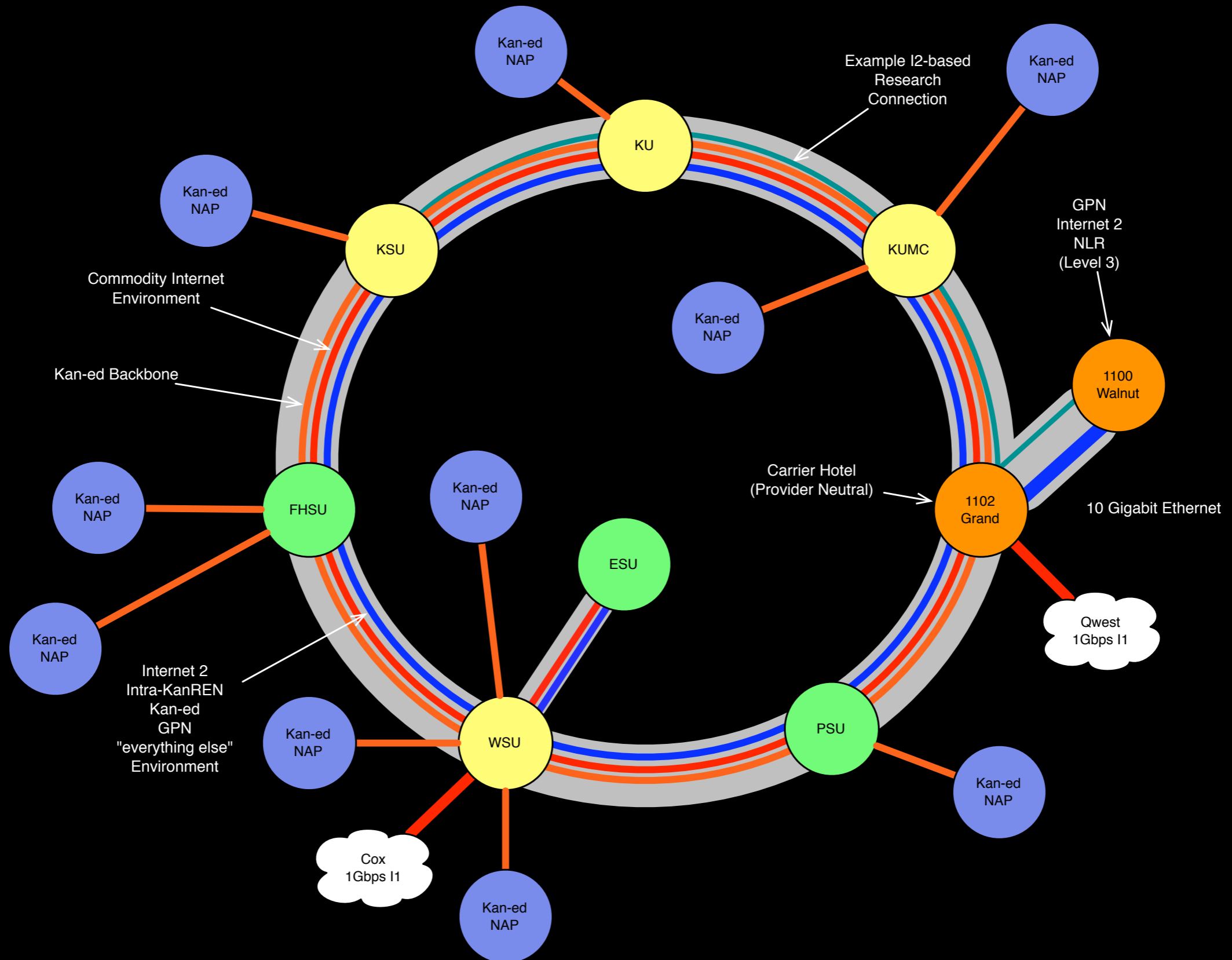
Modular Construction



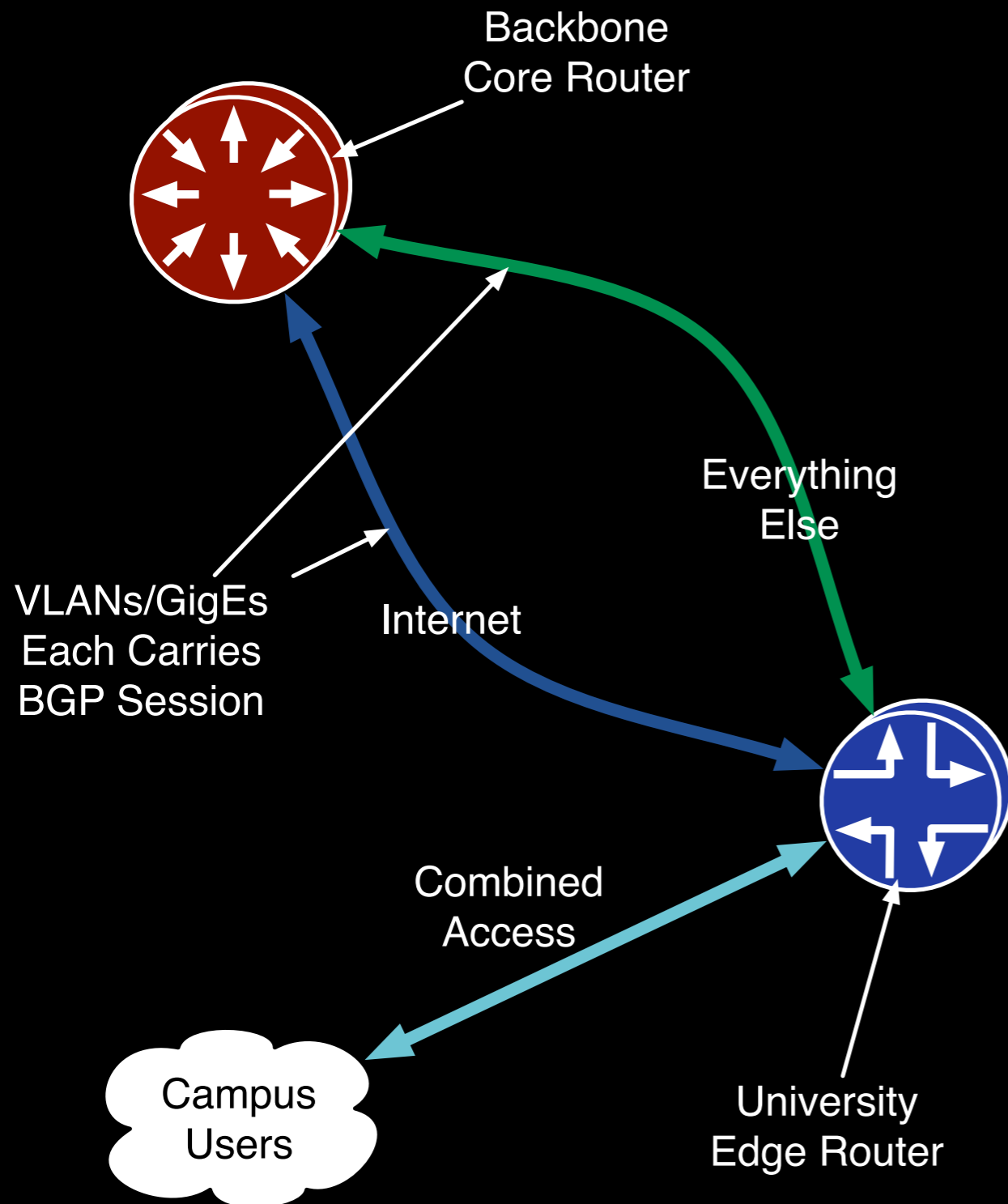
Incorporating Kan-ed



Incorporating Kan-ed



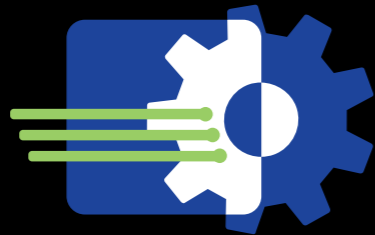
Universities Multi-Homed



- KanREN core routers carry the Internet I and “everything else” networks that are not interconnected.
- Each network has a connection and BGP session with university edge routers.
- The university edge router has the appropriate information to make routing decisions about which network to use.
- Universities poised to accept additional connections for special purposes.
- KanREN aggregation nodes work exactly as university edge routers, making a fully modular network.



The new backbone would not be possible without the support and investment of our strategic partners



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NETWORKS



Kan-ed