Best Practices and Policy

Change Control

- Changes are categorized into two categories: minor and major. Minor changes are non-service affecting such as adding an OOB modem or modifying logical software configurations. Major changes are potentially service affecting, such as adding equipment into a operational chassis, modifying operating systems or modifying cabling on existing connections.
- The networking engineer performing the maintenance is responsible for opening a NOC ticket, assuring via the NOC that all affected parties have been notified, calling the NOC before and after the work and closing the NOC ticket.
- All major changes should be documented to include the deadline for completion, description of work, impact to the network, expected down time and contact information. This information should be submitted to the NOC when opening the ticket associated with the change request. The request must be submitted to the NOC by 5 PM (CT) three days prior to the desired maintenance window. The NOC will forward the maintenance notification to connected networks.
- The standard maintenance (major change) window requires a three-day notice to be issued to the affected user community.
- Major changes should only be made during the hours of 3 AM to 6 AM (CT)

Intra-Cabinet Cabling

- Whenever possible, cable management guides should be used for cabling between any two non-adjacent devices or from a device to a patch panel.
- Cables should never be wired in such a manner that they block equipment removal or additions to the cabinet.
- Slack in copper (CAT 5) cables should be tucked into cable management guides. Slack in fiber cables should be neatly coiled (with attention to minimum bend radius) and fastened to cabinet or equipment.
- Velcro cable ties should be used to secure fiber.

Inter-Cabinet Cabling

- All inter-cabinet cabling is the responsibility of Northwestern University IT staff.
- The cabinet lessees should not run cabling outside of a cabinet.
- Cables going out of the cabinet should be tagged to indicate the endpoint. This could be another cabinet (cabinet number, device, and maybe device slots/port, i.e., “Cisco LS1010 port 1/3 RR 101.01 shelf 3”) or a fiber patch panel (show panel location and position numbers).
- Cable tags should be updated as cables are moved.

Equipment Requirements, Specifications, and installation

- All equipment should be 19” rack mounted and must be no deeper than the standard cabinet.
- Stacking equipment within a cabinet (on other equipment) is prohibited.
- Equipment with dual power supply capacity should be plugged into separate circuits for redundancy. Both power supplies should be functional.

- Engineering must prevent situations where one piece of equipment is blowing hot exhaust air into the intake of another.
- No boxes should be stored within a cabinet.
- Inventory will be kept on installed equipment by rack including:
    - Size and weight
    - Power consumption
    - IP address (one used for management, in case you need to talk to a NOC)
    - Responsible organization with 7x24 contact information
    - Brief description of functionality
    - Equipment tracking numbers (i.e., serial, property tag)

Cabinet / Rack Numbering and Labeling

- Each row of racks or cabinets is assigned a three-digit number, beginning with floor number x 100. After the decimal, begin with "00" and increase by increments of 1 for each cabinet or space for a cabinet. For example, the first cabinet is 100.00, then 100.01, 100.02, etc. The first cabinet of the second row is 101.00, and so on.
- Equipment within a cabinet should be assigned a shelf number starting with 0 from the bottom.
- Cabinets and racks should be labeled top, bottom, front and back. The "end" of each row of cabinets can be labeled with the row number (100, 101, etc.).
- Equipment should be labeled with its DNS name and the name of the organization with administrative responsibility.

Circuit Inventory

- Records should be kept for each circuit entering the facility including circuits that come in either directly or by terminating on a premise telco MUX. In order to help with troubleshooting or move/add/change activity, the following information is collected:
    - Telco/carrier circuit ID – there may be multiple CKID's if there are carrier meets for the circuit.
    - Type of circuit (DS-1, OC-3c, etc.)
    - Precise termination information for both ends of the circuit. Include remote device terminating the circuit (address, floor/room number, device slot/port info, etc.) and contact information (7x24 contact/NOC) for party responsible at remote end.
    - Organization that "owns" the circuit from the telco's perspective. 7x24 contact information for this organization. The telco will only accept trouble calls from whoever owns the circuit.
    - NOC (i.e., HICAP) trouble reporting telephone numbers for each telco involved with each circuit.
    - Carrier meet point details, to help with troubleshooting.