Data Centers - “Conceptos”

Rogelio Ferreira Escutia

Estándares

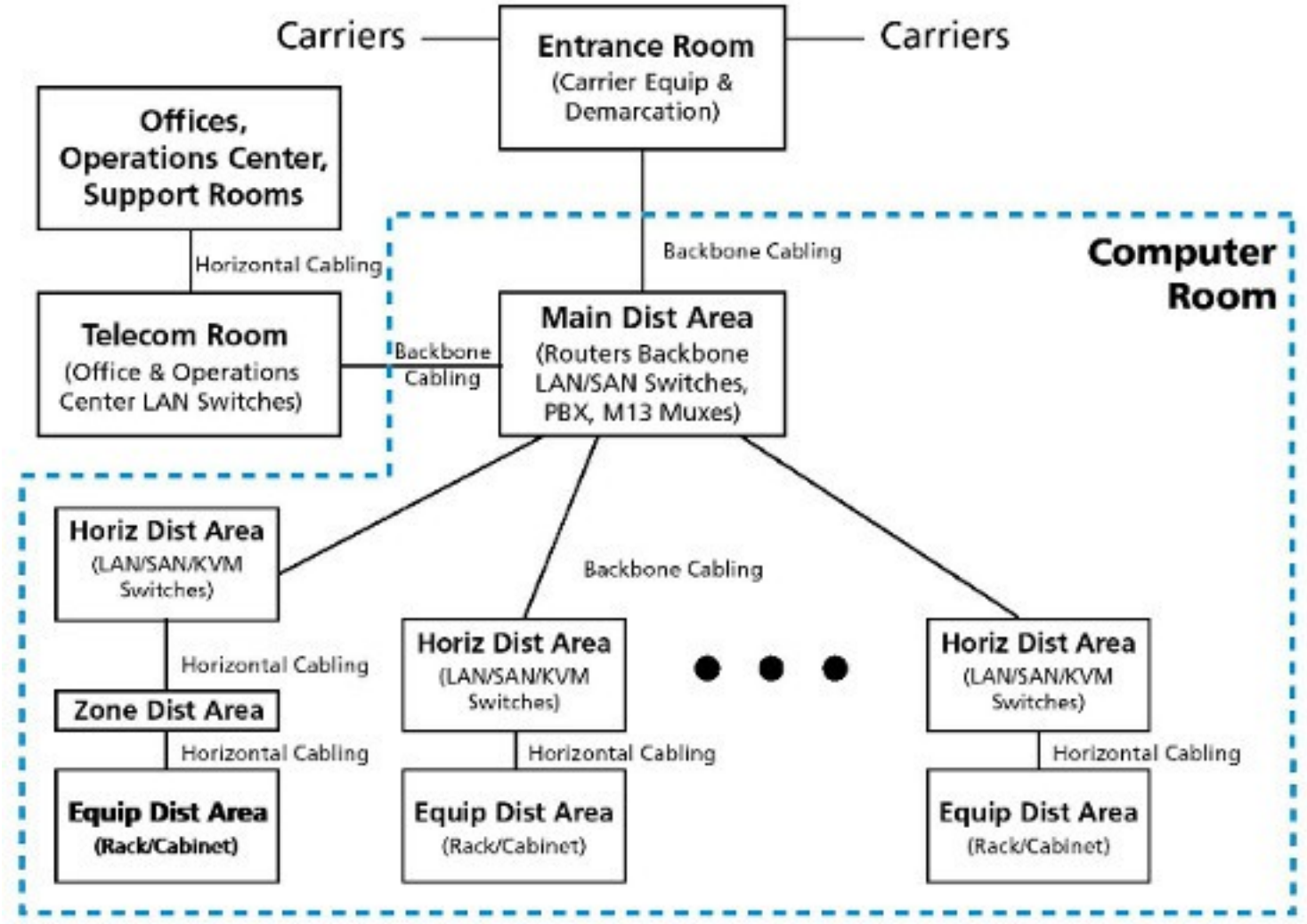
Estándares

- **Algunos estándares que aplican a Data Centers:**

"Standards Informant", http://blog.siemon.com/standards/tia-942-a-telecommunications-infrastructure-standard-for-data-centers, noviembre 2018

Estándares

- **Designación de áreas en un Data Center:**



"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Estándares

- **Estándar de acuerdo a la Disponibilidad (Tier 1):**

Tier I – Basic: 99.671% Availability

- Susceptible to disruptions from both planned and unplanned activity
- Single path for power and cooling distribution, no redundant components (N)
- May or may not have a raised floor, UPS, or generator
- Takes 3 months to implement
- Annual downtime of 28.8 hours
- Must be shut down completely for perform preventive maintenance

"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Estándares

- **Estándar de acuerdo a la Disponibilidad (Tier 2):**

Tier 2 – Redundant Components:
99.741% Availability

- Less susceptible to disruption from both planned and unplanned activity
- Single path for power and cooling disruption, includes redundant components (N+1)
- Includes raised floor, UPS, and generator
- Takes 3 to 6 months to implement
- Annual downtime of 22.0 hours
- Maintenance of power path and other parts of the infrastructure require a processing shutdown

"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Estándares

- **Estándar de acuerdo a la Disponibilidad (Tier 3):**

Tier 3 – Concurrently Maintainable:
99.982% Availability

- Enables planned activity without disrupting computer hardware operation, but unplanned events will still cause disruption
- Multiple power and cooling distribution paths but with only one path active, includes redundant components (N+1)
- Takes 15 to 20 months to implement
- Annual downtime of 1.6 hours
- Includes raised floor and sufficient capacity and distribution to carry load on one path while performing maintenance on the other.

"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Estándares

- **Estándar de acuerdo a la Disponibilidad (Tier 4):**

Tier 4 – Fault Tolerant: 99.995% Availability

- Planned activity does not disrupt critical load and data center can sustain at least one worst-case unplanned event with no critical load impact
- Multiple active power and cooling distribution paths, includes redundant components (2 (N+1), i.e. 2 UPS each with N+1 redundancy)
- Takes 15 to 20 months to implement
- Annual downtime of 0.4 hours

"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Edificio

Edificio

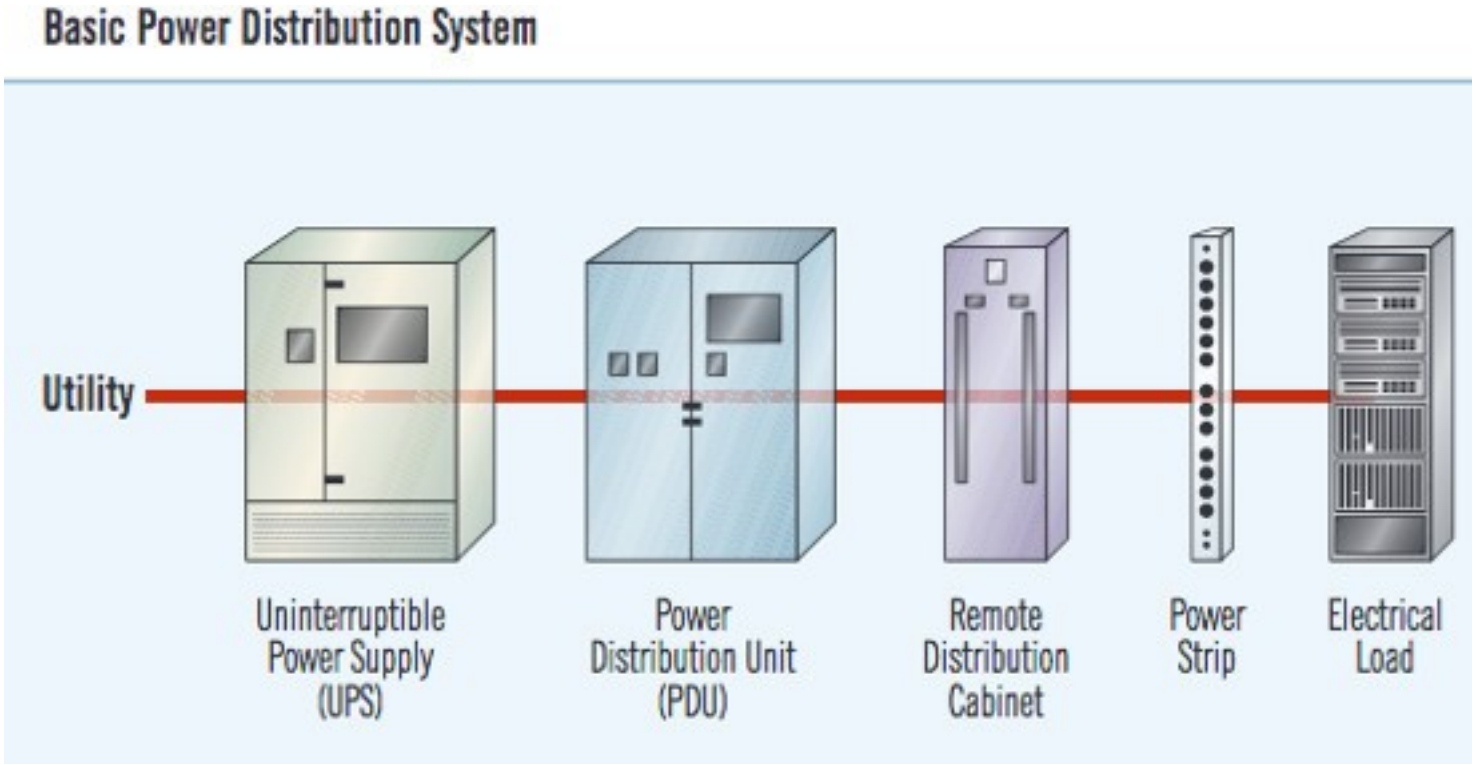
- **Piso falso:**

"Anixter Data Center Infrastructure Resource Guide",
https://www.anixter.com/content/dam/Anixter/Guide/12H0013X00-Data-Center-Resource-Guide-EN-US.pdf, noviembre 2018

Sistema Eléctrico

Sistema Eléctrico

- **Sistema de Distribución:**



"Anixter Data Center Infrastructure Resource Guide", https://www.anixter.com/content/dam/Anixter/Guide/12H0013X00-Data-Center-Resource-Guide-EN-US.pdf, noviembre 2018

Equipos

Gabinetes

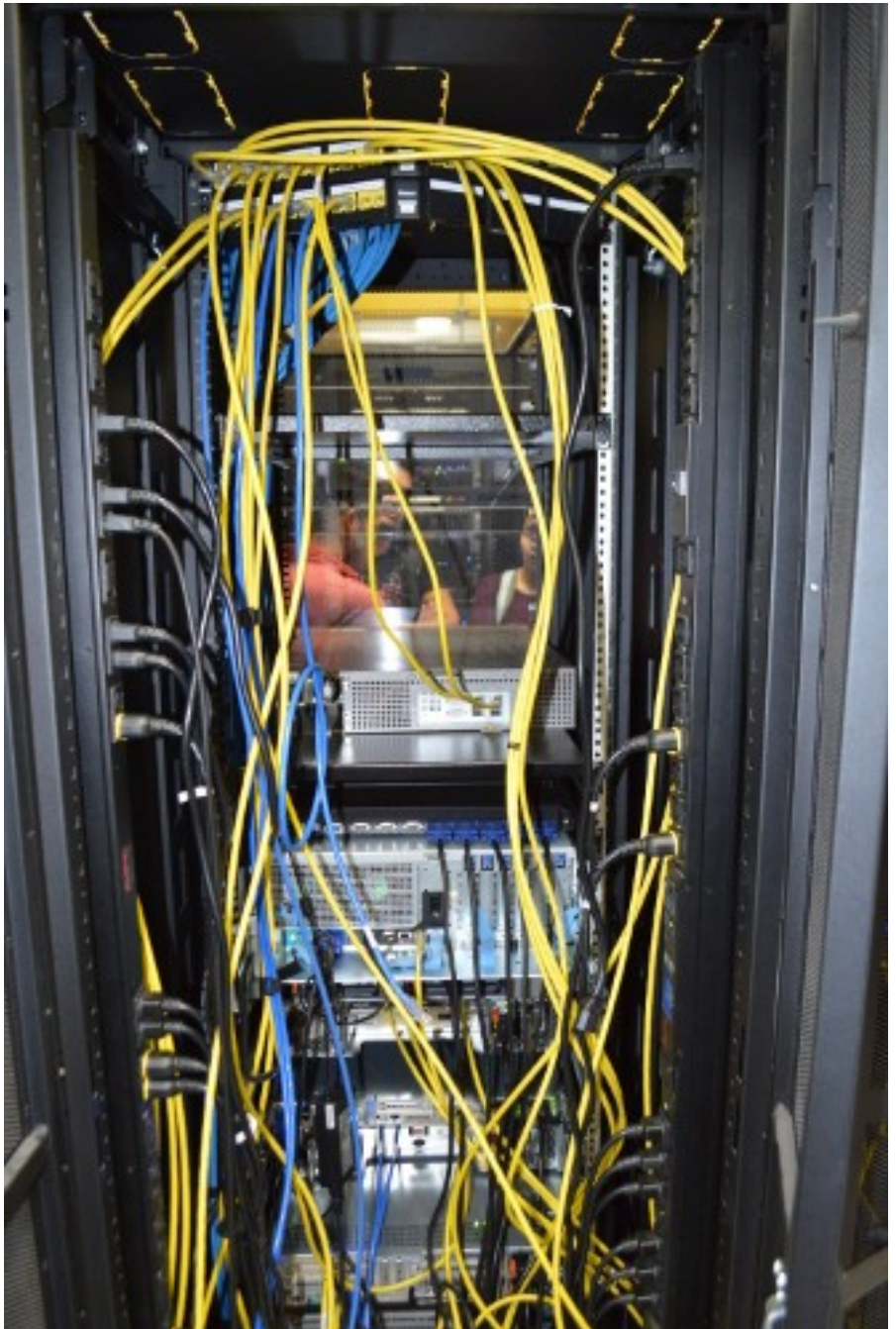
- **Gabinetes para almacenar servidores:**

Rack de servidores

- **Vista frontal:**

Rack de servidores

- **Vista trasera:**



Patch Panel

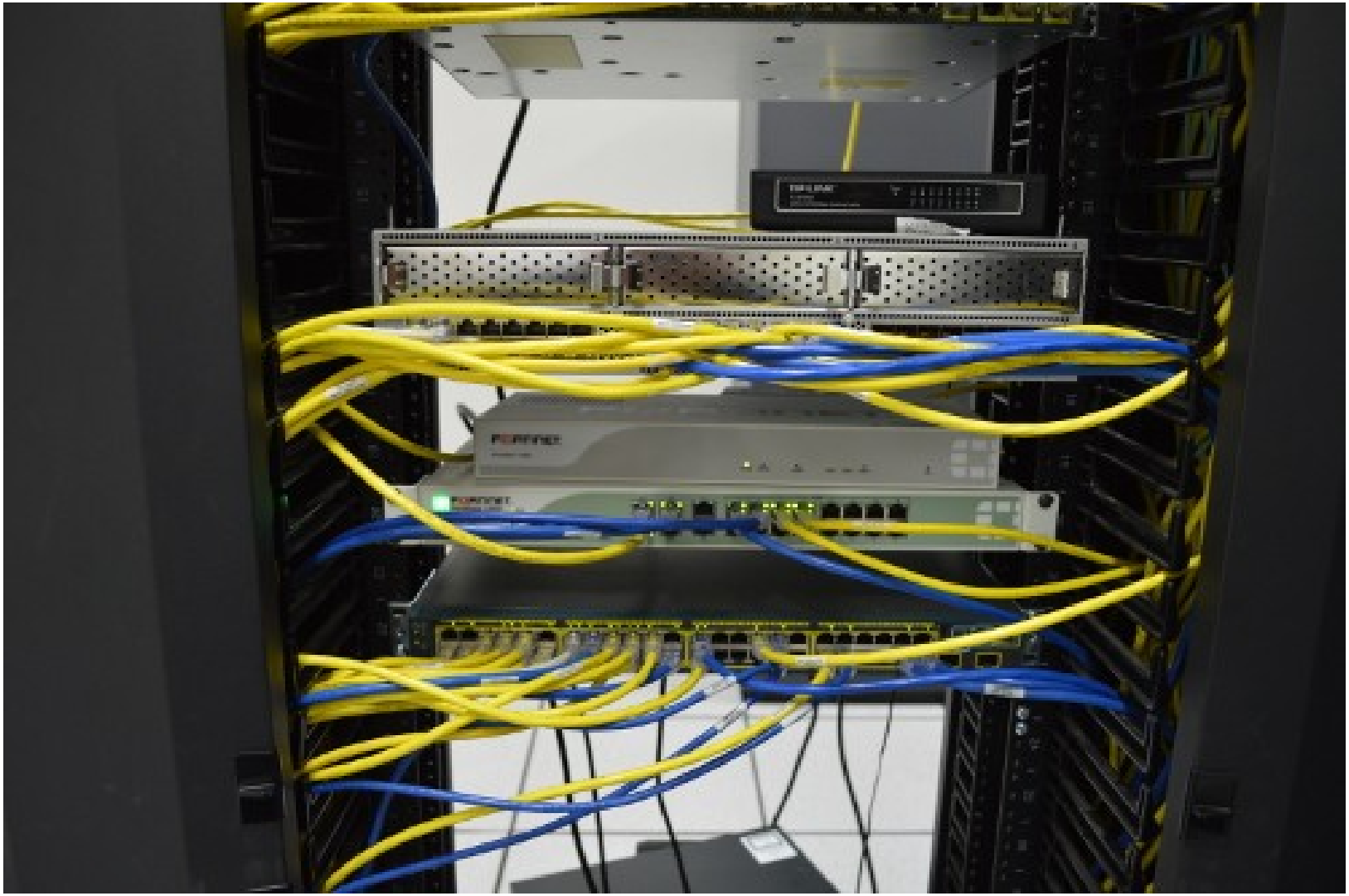
- **Cableado de la red:**

Patch Panel

- **Cableado de la red:**

Interconexión de dispositivos

- **Switch y Firewall:**



PDU

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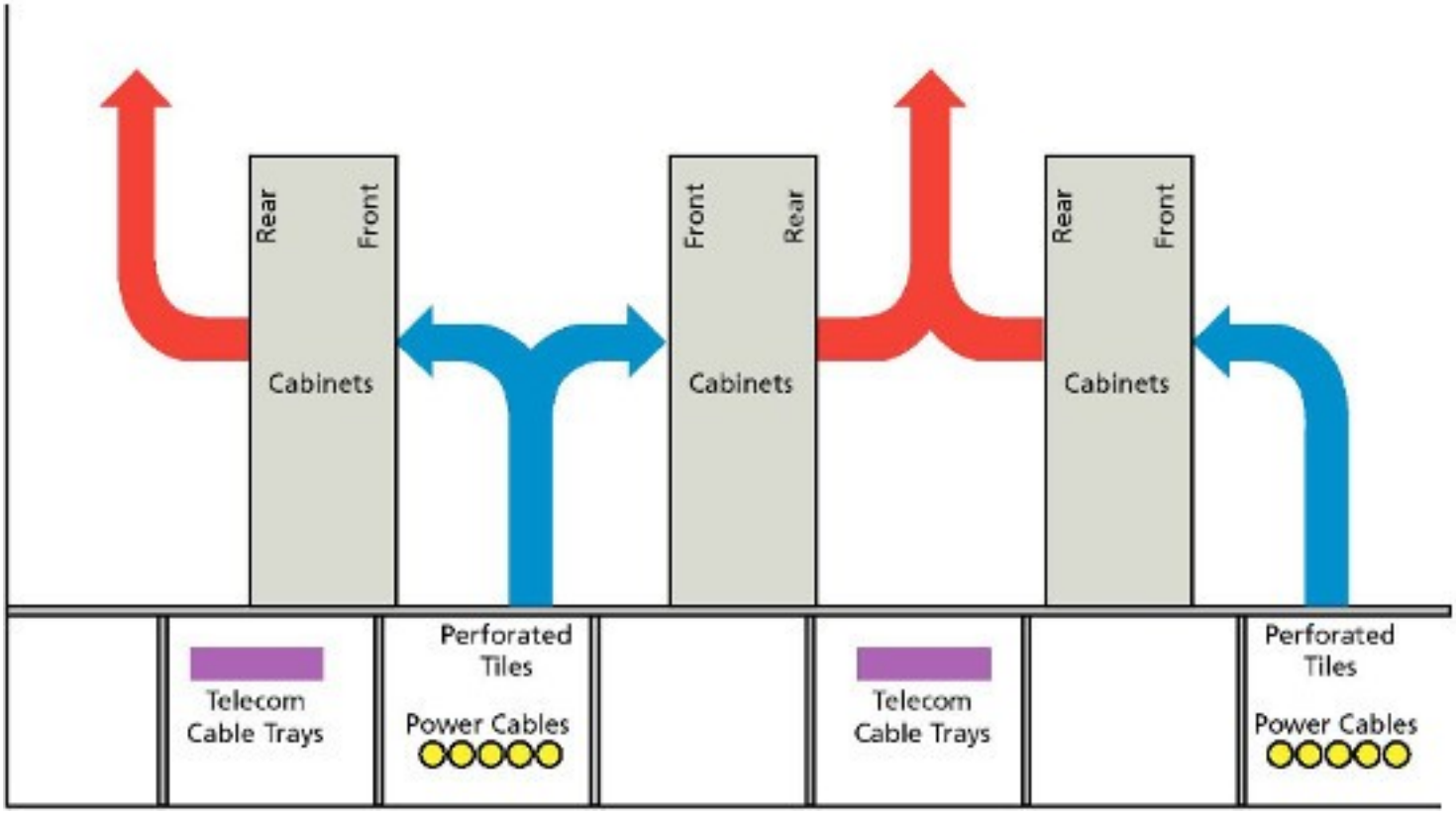
Refrigeración

Control de temperatura

- **Modelo de circulación de aire:**



"TIA-942 Data Center Standards Overview ", http://eblackcu.net/portal/archive/files/uc2btia-942-dc-standards-overview_5479f8dc0d.pdf, noviembre 2018

Control de temperatura

- **Pared de vidrio:**

Control de temperatura

- **Refrigeración con piso falso:**

Control de temperatura

- **Techo falso de vidrio:**

Control de temperatura

- **Pasillo central frío:**

Control de temperatura

- **Pasillo lateral caliente (parte trasera de servidores):**

Alimentación Auxiliar

Generación eléctrica

- **No-Break:**

Generación eléctrica

- **Planta diesel en caso de emergencia:**

Generación eléctrica

- **Tanque de diesel para alimentar el motor:**

Generación eléctrica

- **Subestación eléctrica y switcheo:**

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