

Las Nuevas Normas para el Datacenter de la Era Digital

Nelson Farfán

Bicsi CALA Vice-Chair

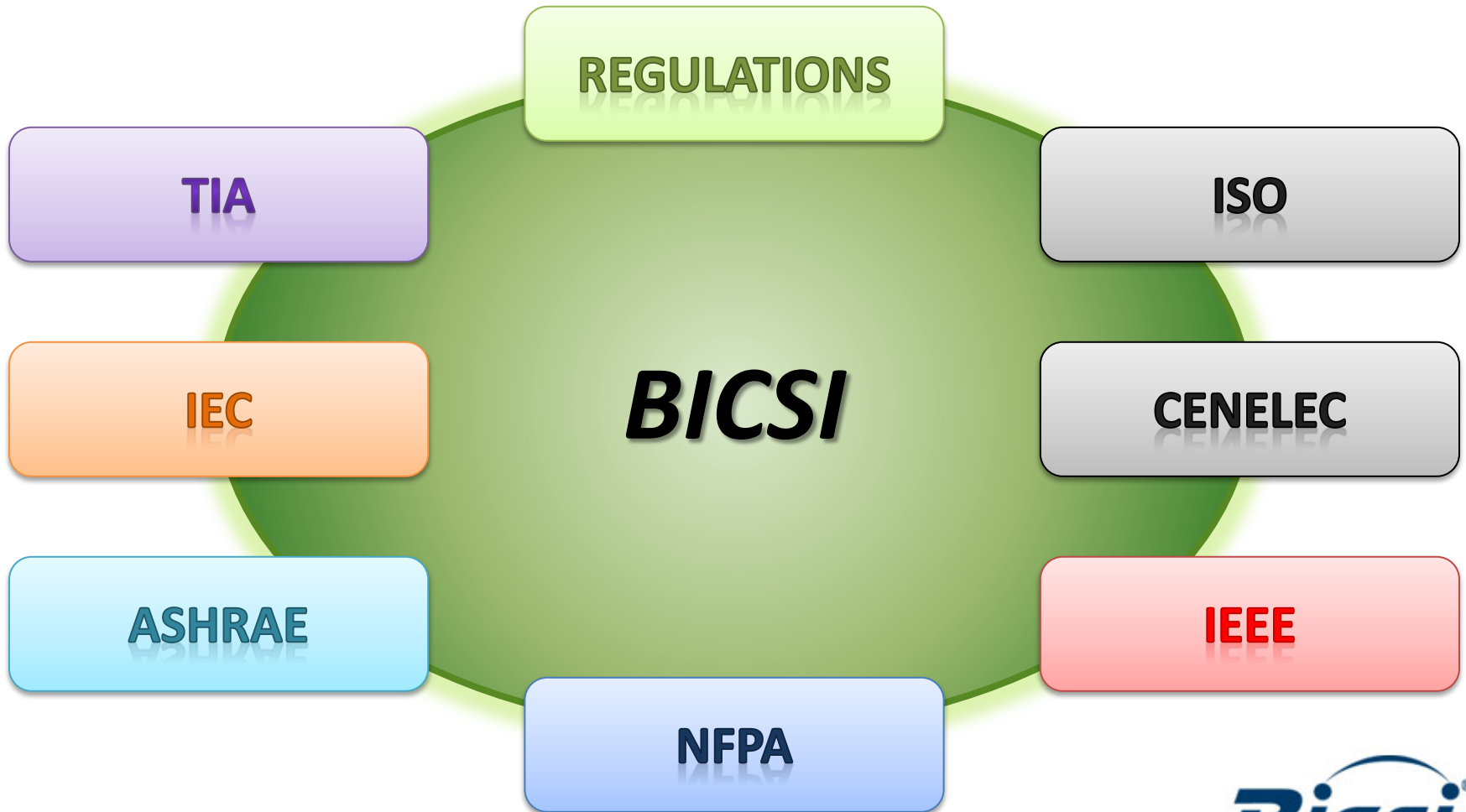
RCDD Bicsi CCRE Icrea DCSD

TIA TR 42 & ISO SC25 WG3 Member

Uptime Certified



Standards

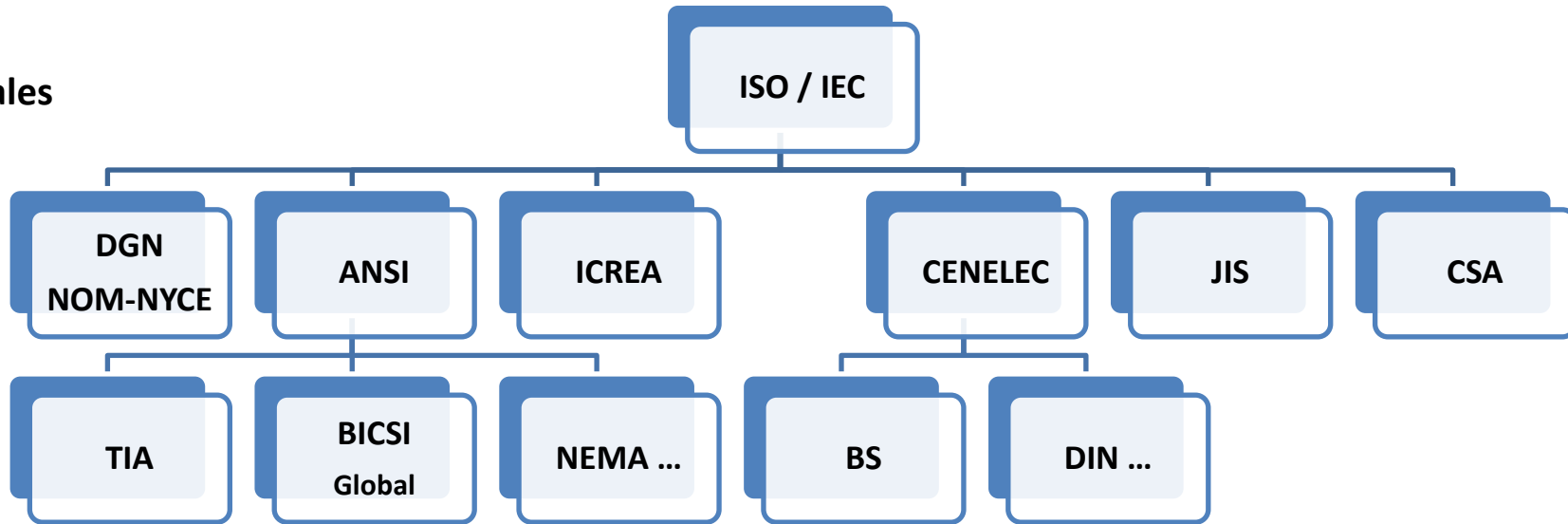


Estándares

Internacionales

ISO / IEC

Regional /
País



OMC exige ISO
a países dentro
de TLCs

ISO 11801 version 3... 2017

ISO/IEC Standard	Title	Replaces	Description
ISO/IEC 11801-1	Part 1: Generic cabling	ISO/IEC 11801	Generic cabling requirements for twisted-pair and optical fiber cables
ISO/IEC 11801-2	Part 2: Commercial premises	ISO/IEC 11801	Cabling for commercial (enterprise) buildings
ISO/IEC 11801-3	Part 3: Industrial premises	ISO/IEC 24702	Cabling for industrial buildings, with applications including automation, process control, and monitoring
ISO/IEC 11801-4	Part 4: Homes	ISO/IEC 15018	Cabling for residential buildings, including 1.2 GHz links for CATV/SATV applications
ISO/IEC 11801-5	Part 5: Data centers	ISO/IEC 24764	Cabling for high-performance networks used by data centers
ISO/IEC 11801-6	Part 6: Distributed buildings	N/A	Cabling for distributed campus networks

IOS in English, OIN in French for *Organisation internationale de normalisation*), our founders decided to give it the short form ISO. ISO is derived from the Greek isos, meaning equal.

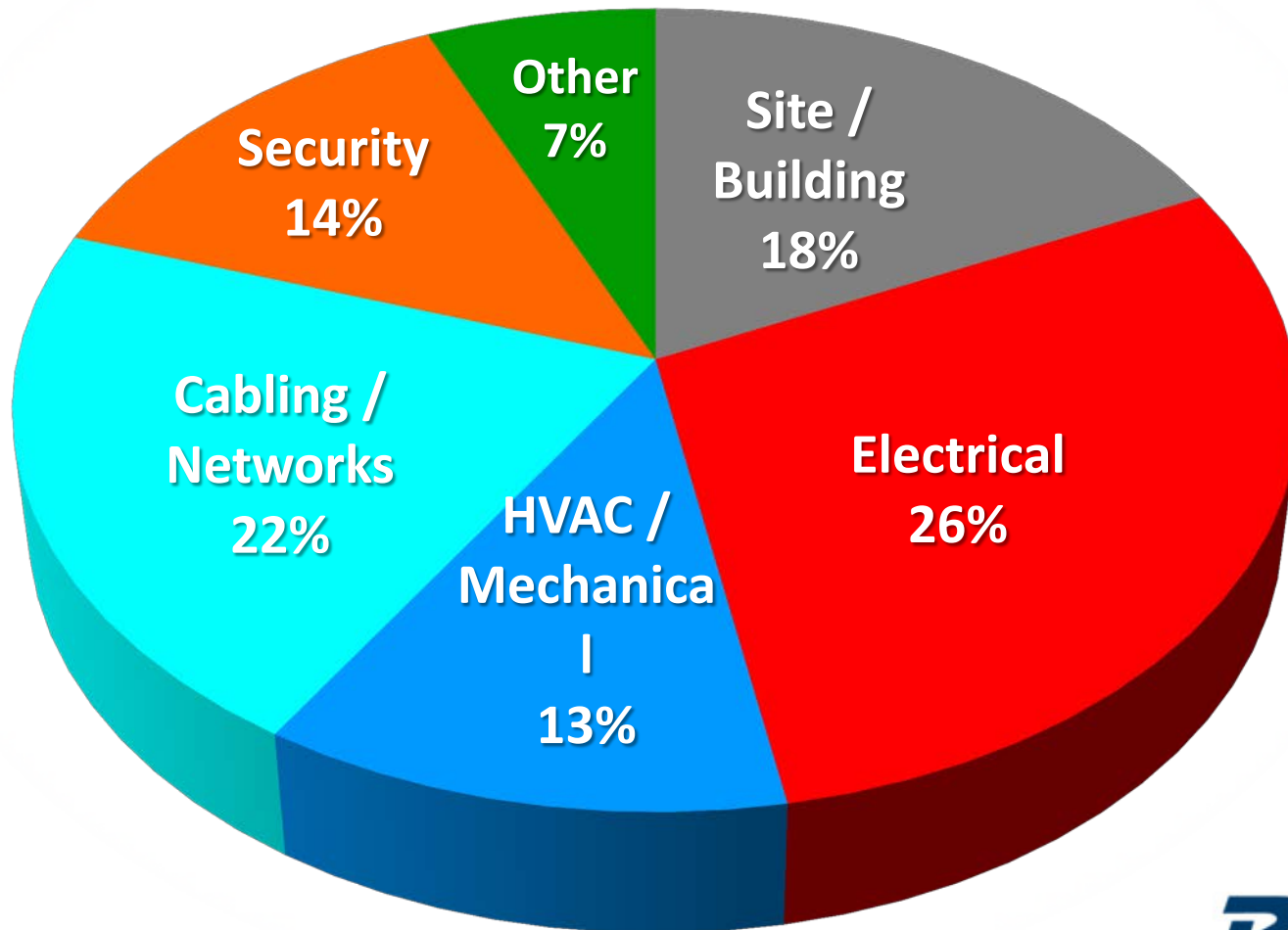


Data Center Telecom Standards

- ANSI/TIA-942 A-1 Telecommunications Infrastructure Standard for Data Centers (2014 – update “B”-1 in progress – US & Canada) 2017 Actual Void TIER word replaced by “Rating”, Container Construction
- ISO/IEC 24764 Information Technology – Generic Cabling for Data Centre Premises (approved 2/2010 Intl) . Actual ISO-11801-5 2017
- CENELEC EN 50173-5 Information Technology – Generic Cabling Systems Part 5: Data Centres . NEW 50600
- ICREA-131-2015 Norma Internacional para la construcción de centros de procesamiento de datos, Modificar a V-2017
- NYCE -J-C-I-489 2013-Centros de Datos de alto desempeño- sustentable y energetico
- ANSI/BICSI-002 Data Center Design and Implementation Best Practices (Published March 2014 - Intl) Español !!

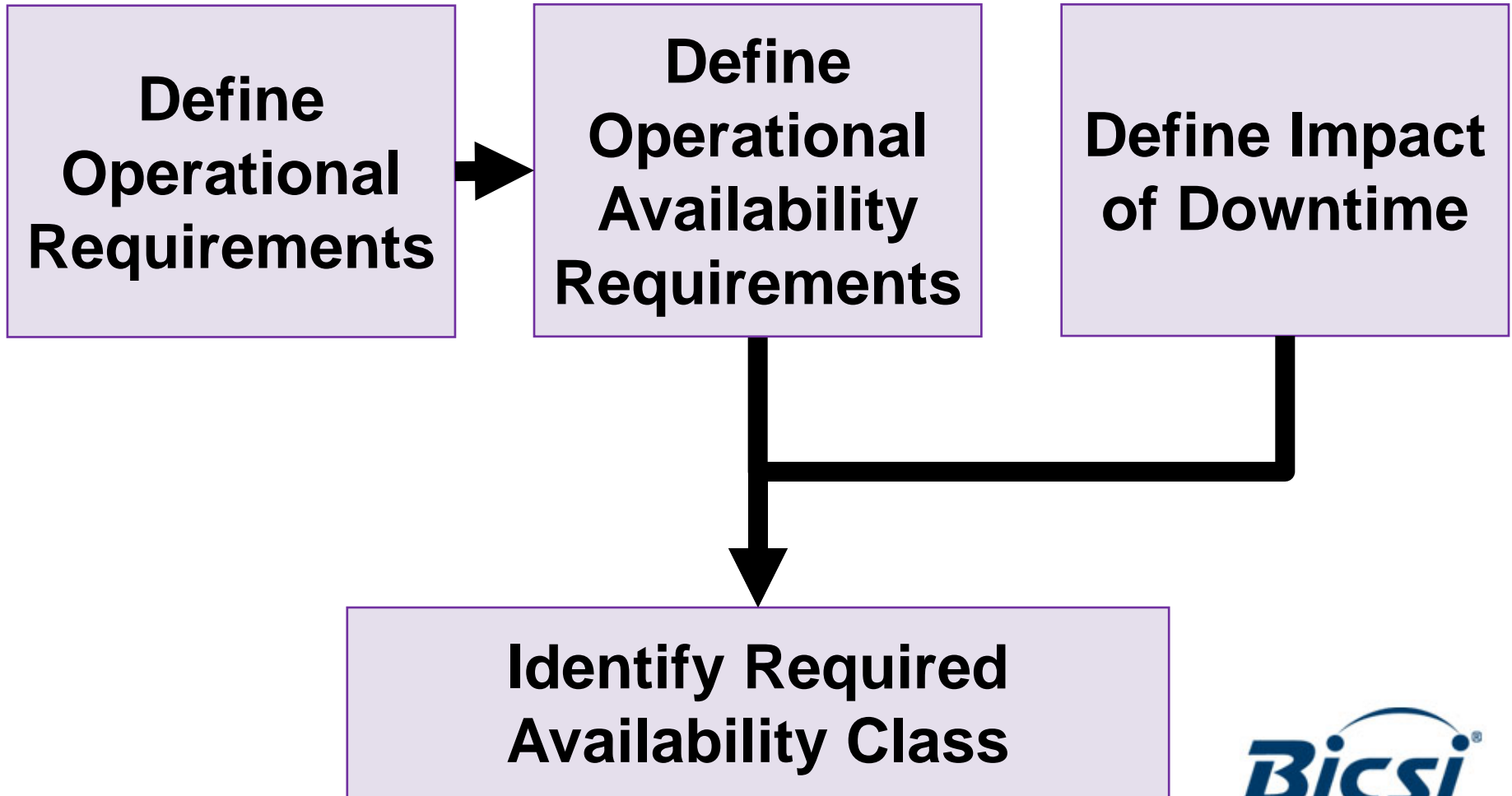


BICSI 002-2014 Breakdown

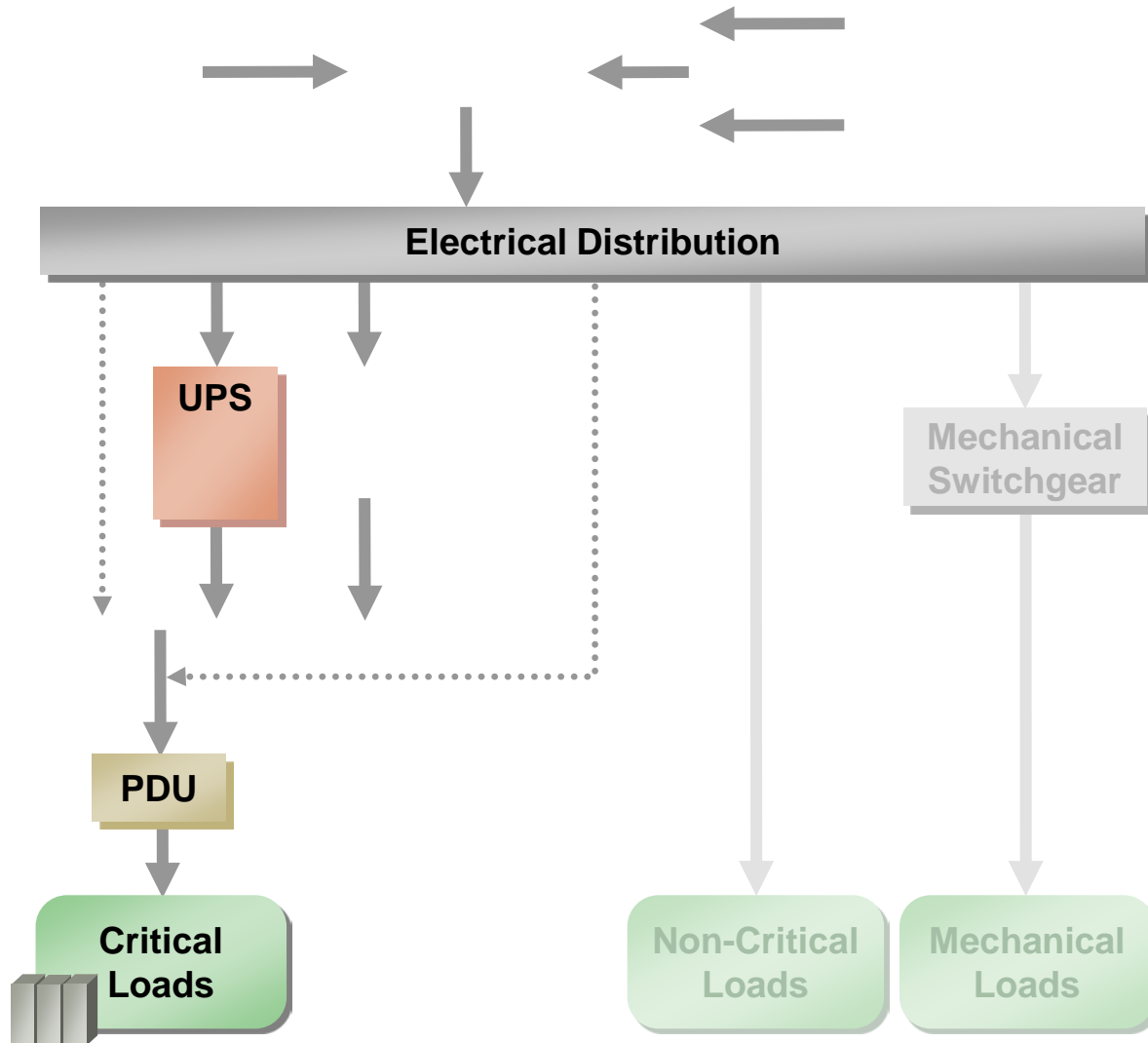


Represents 520 pages of normative content across 13 sections

Método para definir Clase de disponibilidad del DC

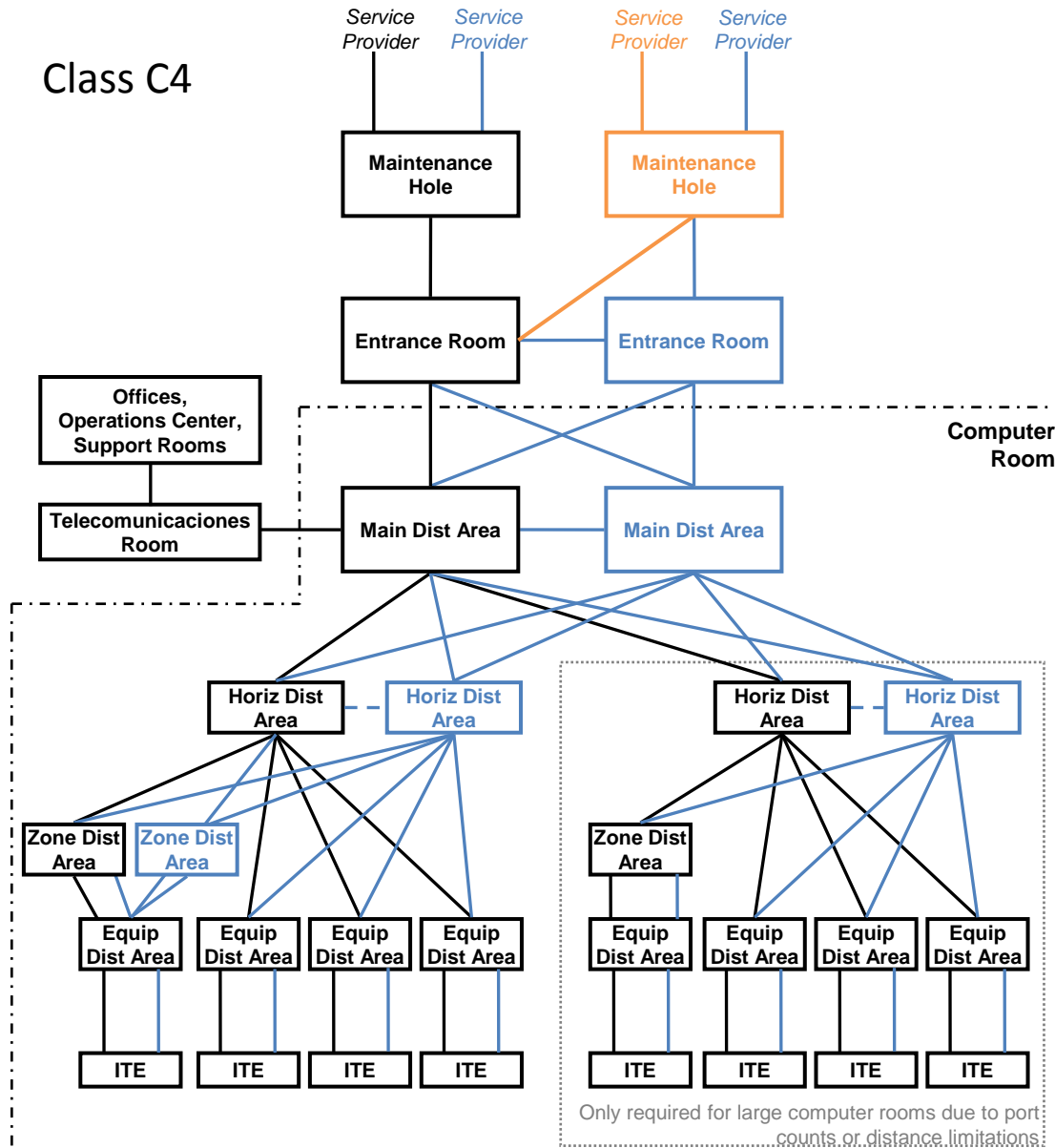


Class F2 Electrical Example

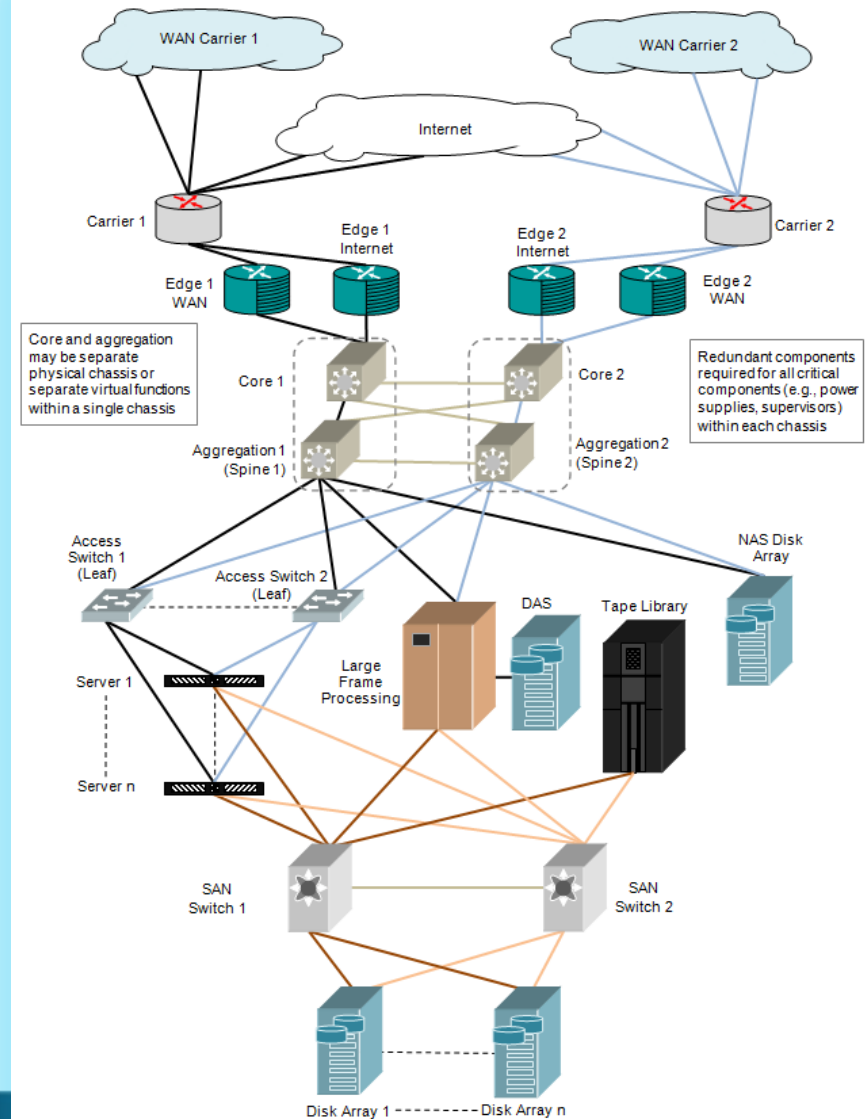
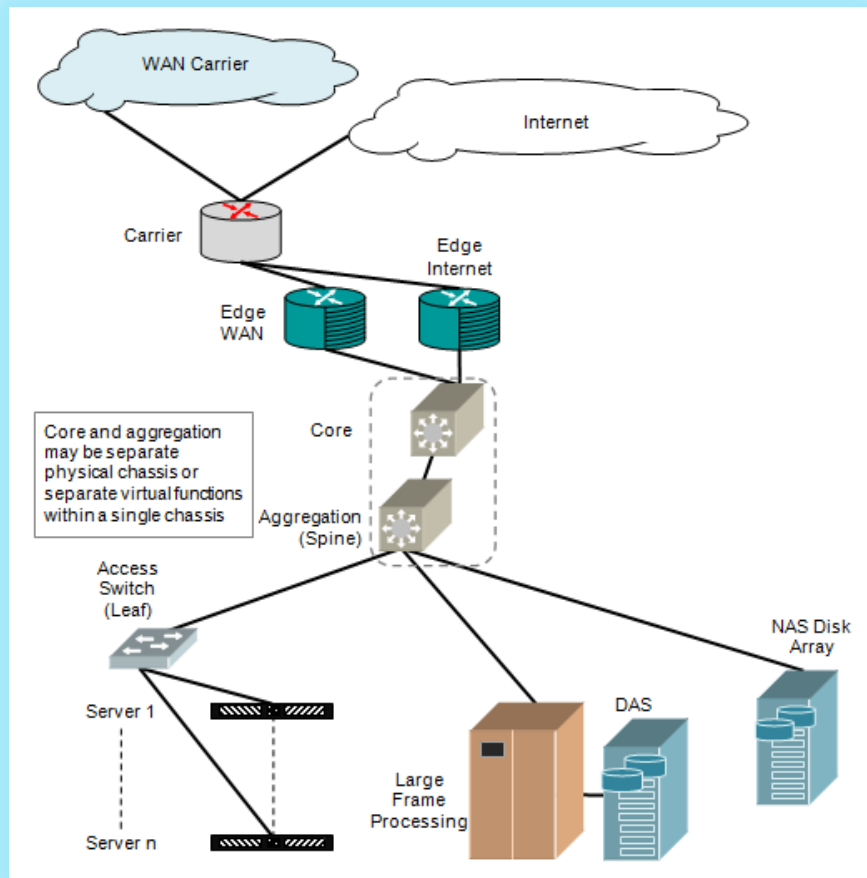


Telecommunication Classes

Class C4



Class N0/N1 and N4 Network



Actualizaciones en la TIA942-B

- Numerous changes to the rating tables in Annex F including those that specify concurrent maintainability for **Rating-3 (formerly Tier 3) and fault tolerance for Rating-4 (formerly Tier 4)**
- Adds normative reference to ANSI/TIA-5017 regarding physical security for the data center telecommunications infrastructure.
- • Adds normative reference to ANSI/TIA-862-B regarding requirements for cabling for intelligent building systems including networked data center electrical, mechanical, and security equipment.
- • Added reference to TIA TSB 162-A for guidelines regarding cabling for wireless access points in data centers
- • Added reference to TIA TSB-5018 for guidelines regarding cabling for distributed antenna systems in data centers.
- • Added reference to TIA TSB-184-A for guidelines regarding power delivery over balanced twisted-pair cabling.



Actualizaciones en la TIA942-B

- **Cambios en tablas del anexo F principalmente donde especifica Rating 3 para mantenimiento concurrente y Rating 4 para Tolerante a fallas.**
- Se remueve separación de estacionamientos a 9.1 mts. Se cambia por instalación de barreras físicas.
- Se permite instalación de baterías fabricadas para 5 años de vida antes exigía 15 años.
- Se pide 10 minutos de soporte en baterías para todos los Ratings.
- TIA942-B prefiere baterías en salón separado pero es permitida en el mismo salón si los códigos locales lo aceptan.
- Se pide 72 horas de soporte de combustible para generador , Se limitará si los códigos locales exigen menor almacenamiento.
- Para enfriamiento el cambio de N a +1 se puede hacer manual en Rating 3 y debe ser automático en Rating 4.



Actualizacion en la TIA942-B

- **ANSI/TIA-5017: Physical Network Security (2015)**
- Risk assessment, system design, and installation guidelines with three levels of security.



4	SECURITY PLANNING AND RISK ASSESSMENT	4
4.1	Physical infrastructure security levels	4
4.2	General security concepts	5
4.3	Risk assessment process	5
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4.5	Role of the telecommunications infrastructure	9

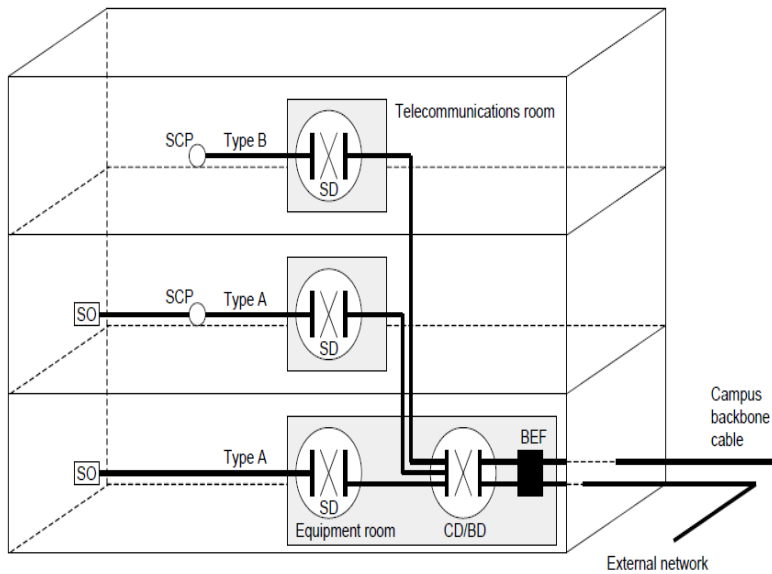


Figure 6— Accommodation of functional elements

- 1) service distributor (SD);
- 2) service distribution cable;
- 3) service concentration point (SCP);
- 4) service concentration point cable (SCP cable)
- 5) service outlet (SO).

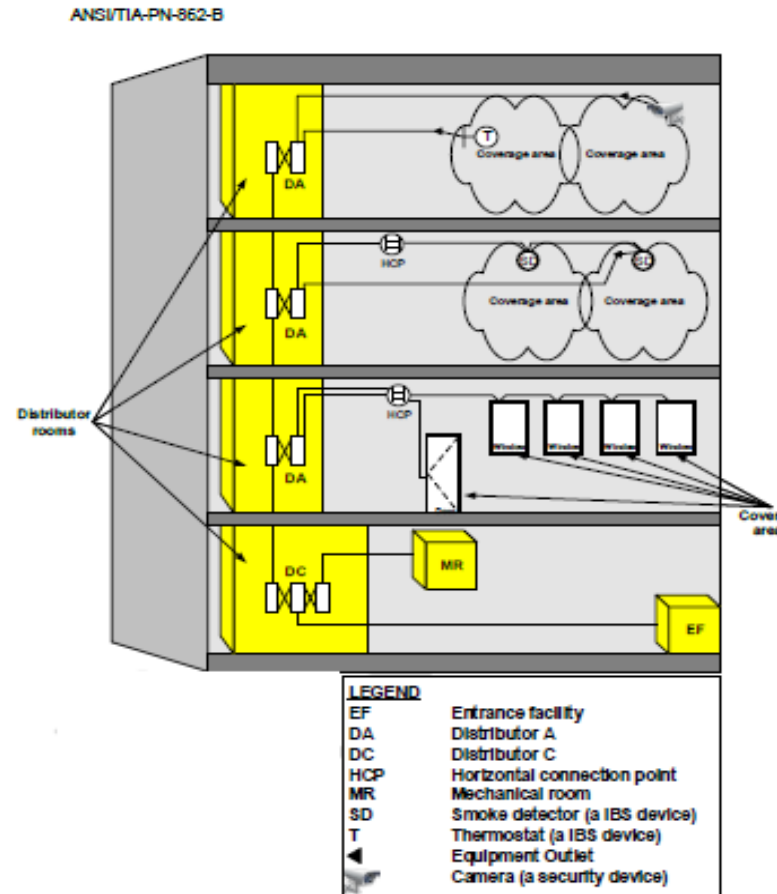


Figure 2: Example of cabling infrastructure to support intelligent building systems

ISO 24704 -TIA 162 Cabling for wireless AP

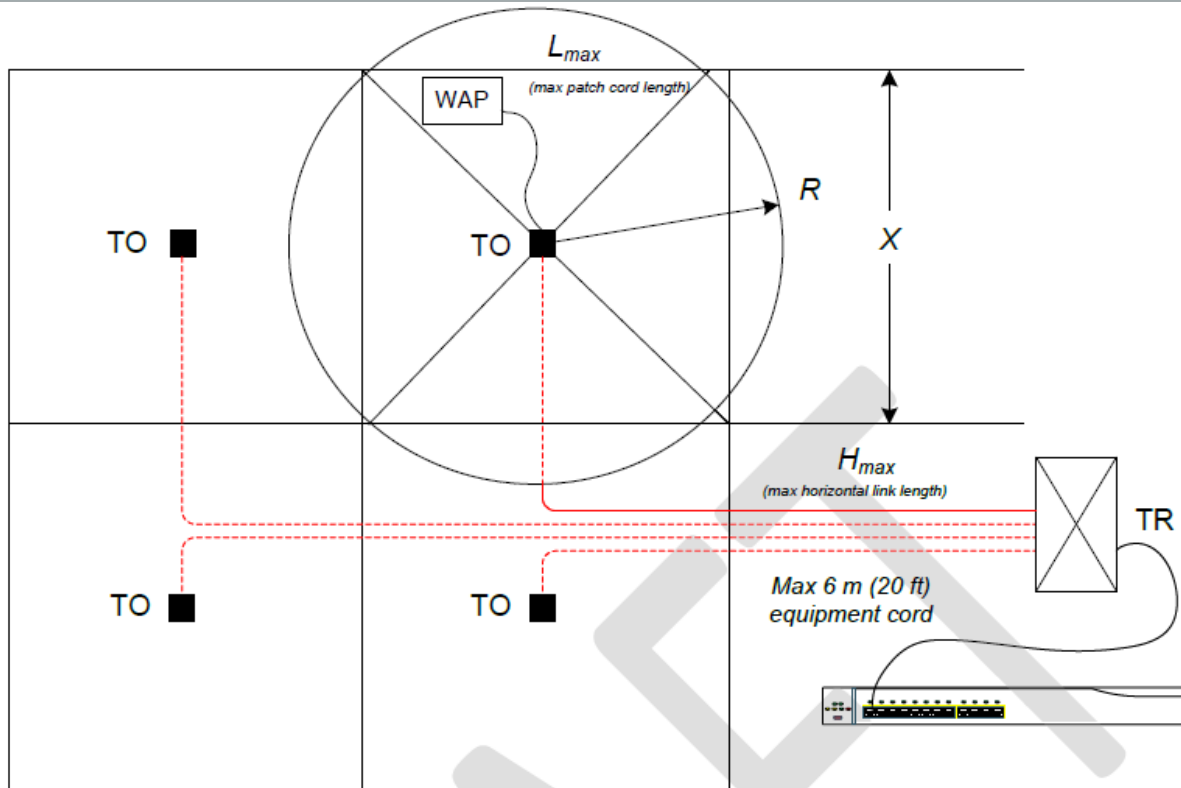


Figure 1 – Cell sizing (wireless access point placed anywhere inside the cell)

7 CABLING TO WIRELESS ACCESS POINT

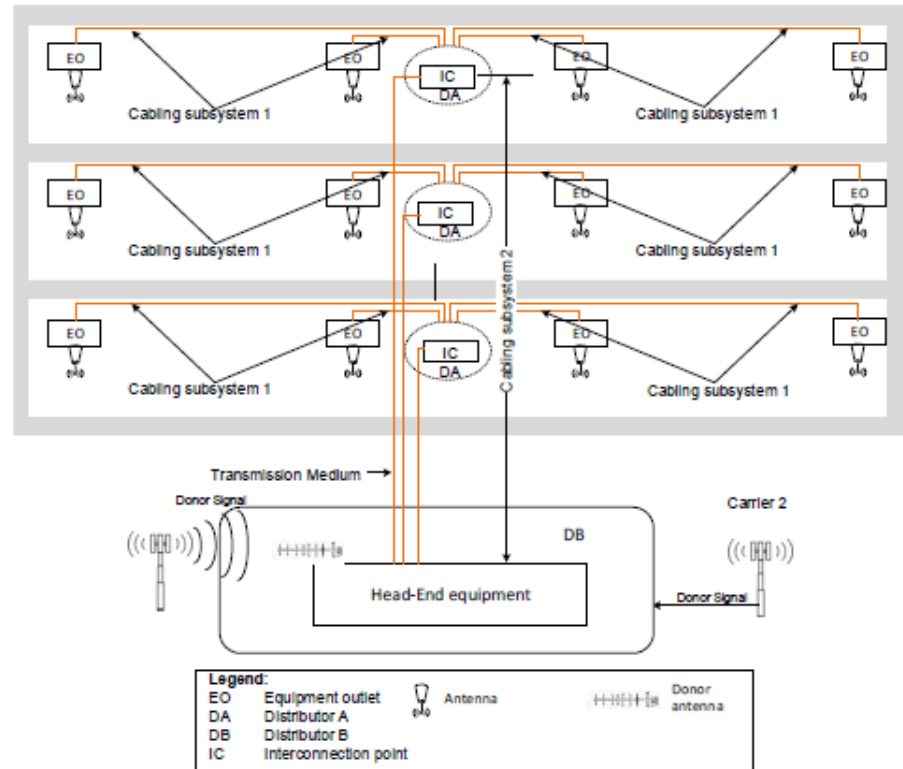
Cabling for wireless access points should be balanced twisted=pair, category 6A or higher,



TSB 5018 en TIA942-B

- Recomendado incluir diseño de sistemas DAS (Distributed Antenna Systems) por cableado estructurado utilizando Fibra o cobre de categoría 6A o superior

TIA TSB-5018 (to be published as ANSI/TSB-5018)



Note: In multi-story building a transition from higher to lower count fiber may be present in the Distributor

Figure 6 - Active DAS with horizontal fiber

PoE en TIA 942-B

- TIA 184-A-
- Se debe tener en cuenta para numero de cables de las diferentes categorías en un manajo según energía manejada.

Power over Ethernet is a growing Ethernet application that delivers power and data over Category cabling that has 4 twisted pairs cabling recommended. 4-Pair PoE is being standardized to deliver over 70W of power over all 4 twisted pairs instead of the two pairs in PoE and PoE+.

PoE Types and Classes	PoE+ – Type 2					4-Pair PoE in Standardization			
	PoE – Type 1								
Class	0	1	2	3	4	5	6	7	8
PSE Power (W)	15.4	4	7	15.4	30	45	60	75	90
PD Power (W)	13	3.84	6.49	13	25.5	40	51	62	71

4 – Pair PoE–Type 3
4 – Pair PoE–Type 4

Actualizaciones en la TIA942-B

- Recommended maximum cable lengths for direct attach cabling in EDAs has been reduced from 10 m (33 ft) to 7 m (23ft). Direct attach cabling between rows is not recommended.
- Added recommendation that cabinets be at 1200 mm (48") deep and to consider cabinets wider than 600 mm (24") .
- Recommendation to consider preterminated cabling to reduce installation time and improve consistency and quality of terminations.
- Added recommendation to consider needs for proper labeling, cable routing, cable management.
- Ability to insert and remove cords without disrupting existing or adjacent connections.



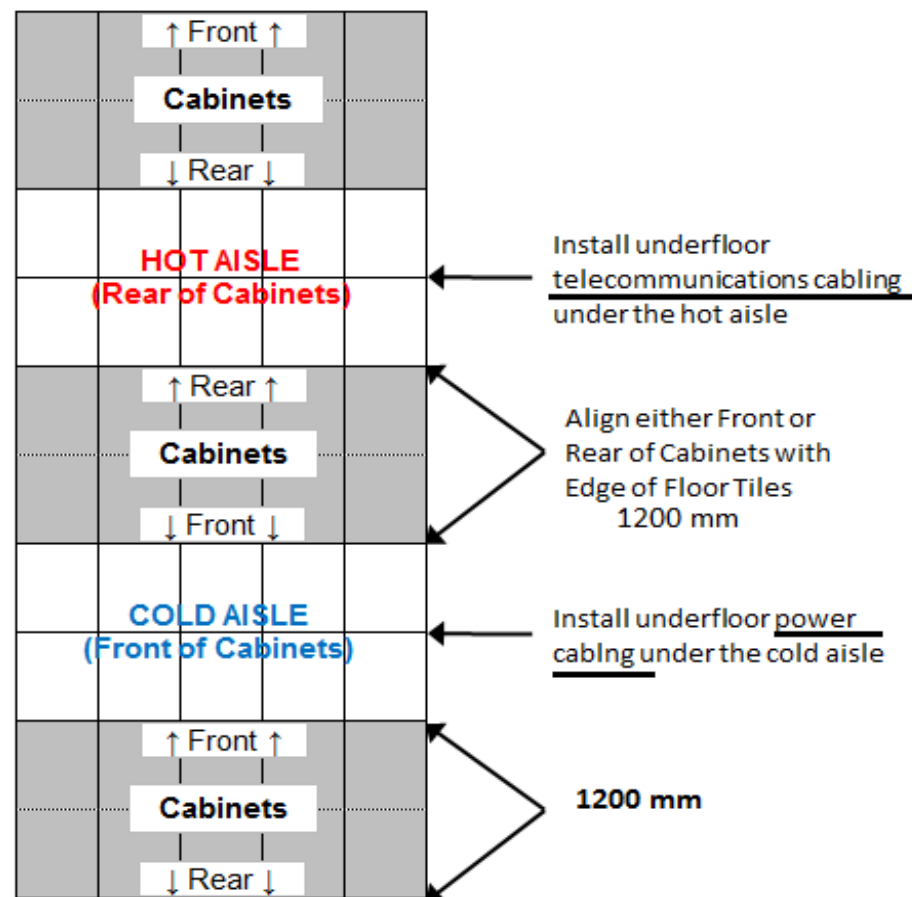
DAC Cables en TIA942-B

- **Recomendado maxima longitud para DAC cables 7Mts. Elimina 10 mts**
- **No se recomienda cruce entre filas**
- **Small Form Pluggable**
 - SFP Passive DAC 1Gbs
 - SFP+ Passive DAC SFP+ 10Gbs
 - **40 Gb/s Quad Small Form Pluggable**
 - QSFP+ Passive DAC
 - QSFP+ to 4 SFP+ DAC Breakout
- **56 Gb/s FDR Quad Small Form Pluggable**
 - QSFP+ AOC
- **120 Gb/s QDR Common Small Form Pluggable**
 - CXP Passive DAC
 - CXP to 3 QSFP+ DAC Breakout



Actualización en la TIA942-B

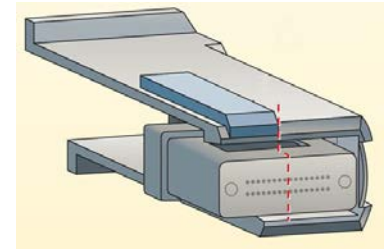
- Recomendación de gabinetes de 1200 mm de profundidad
- Conformar modulación de 8 tabletas
- Considerar instalación de gabinetes con frente superior a 60 cm de ancho para facilitar cableado y administración.
- Gabinetes y racks deben ser organizados en patrón alternativo para crear corredores fríos y calientes.



IEEE 802.3bs 200 Gb/s and 400 Gb/s

Offset Key

- TIA 942-B considera conector MPO16/32 para 400 Gbs
- -Cable de cobre a utilizar 6Ao superior
- Recomendada utilización de cables de fibra preterminados
- Needed in core networking
- 400GBASE-SR16 (no 200 Gb/s)
 - 100m over OM4 (32-fiber)
- 200/400GBASE-DR4
 - 500m over SMF (8-fiber)
- 200/400GBASE-FR8
 - 2km over SMF (2-fiber)



32-fiber MPO-16 (2 row)



8-fiber MPO/MTP®



2-fiber LC

Bicsi

Gracias!....Preguntas?

Nelson Farfán , RCDD, CCRE, DCSD.

CALA District Vice-Chair - BICSI

NFarfan@Bicsi.org

