



LAN Standards, News & Trends

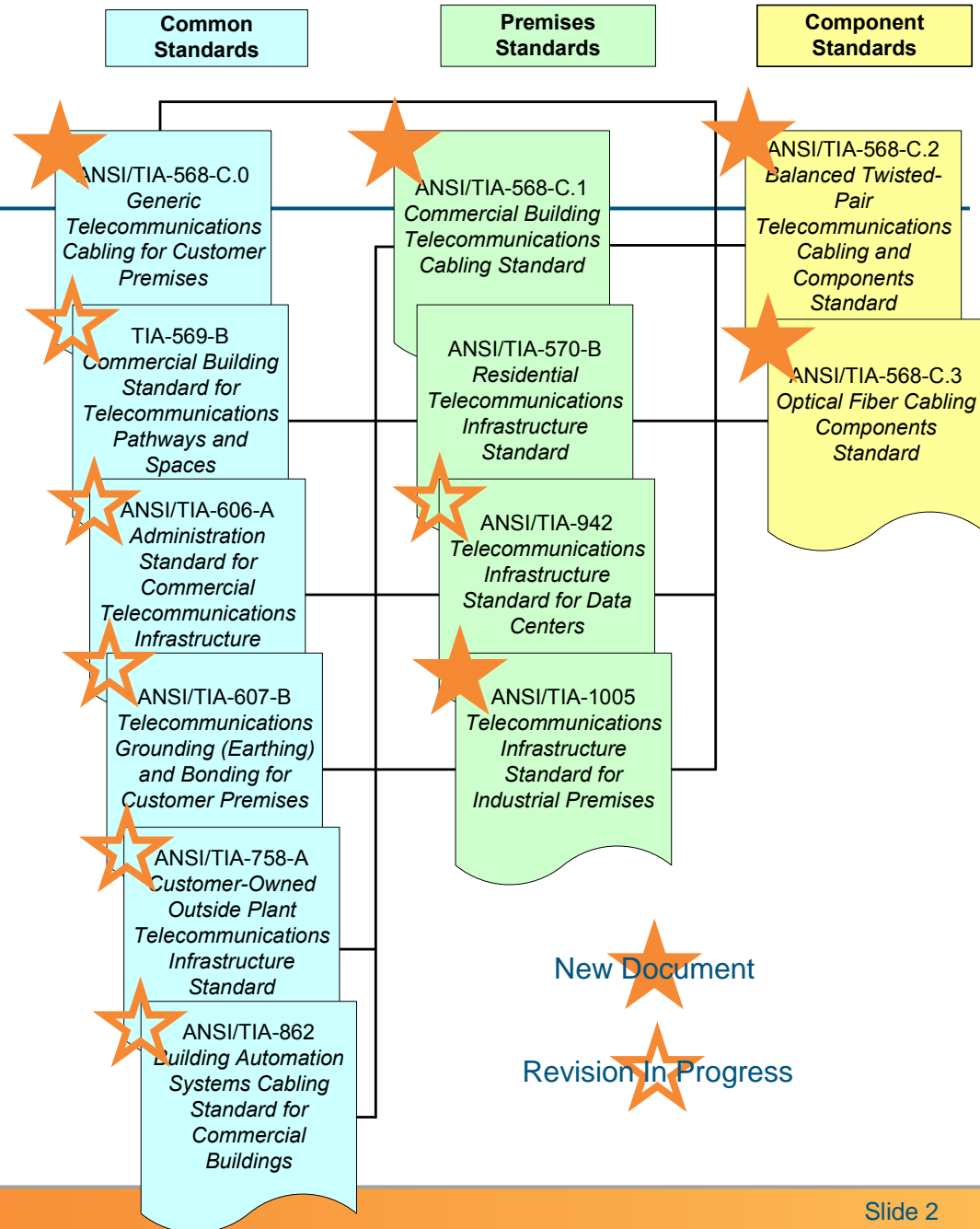
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Updated: November 2009

November 7, 2009

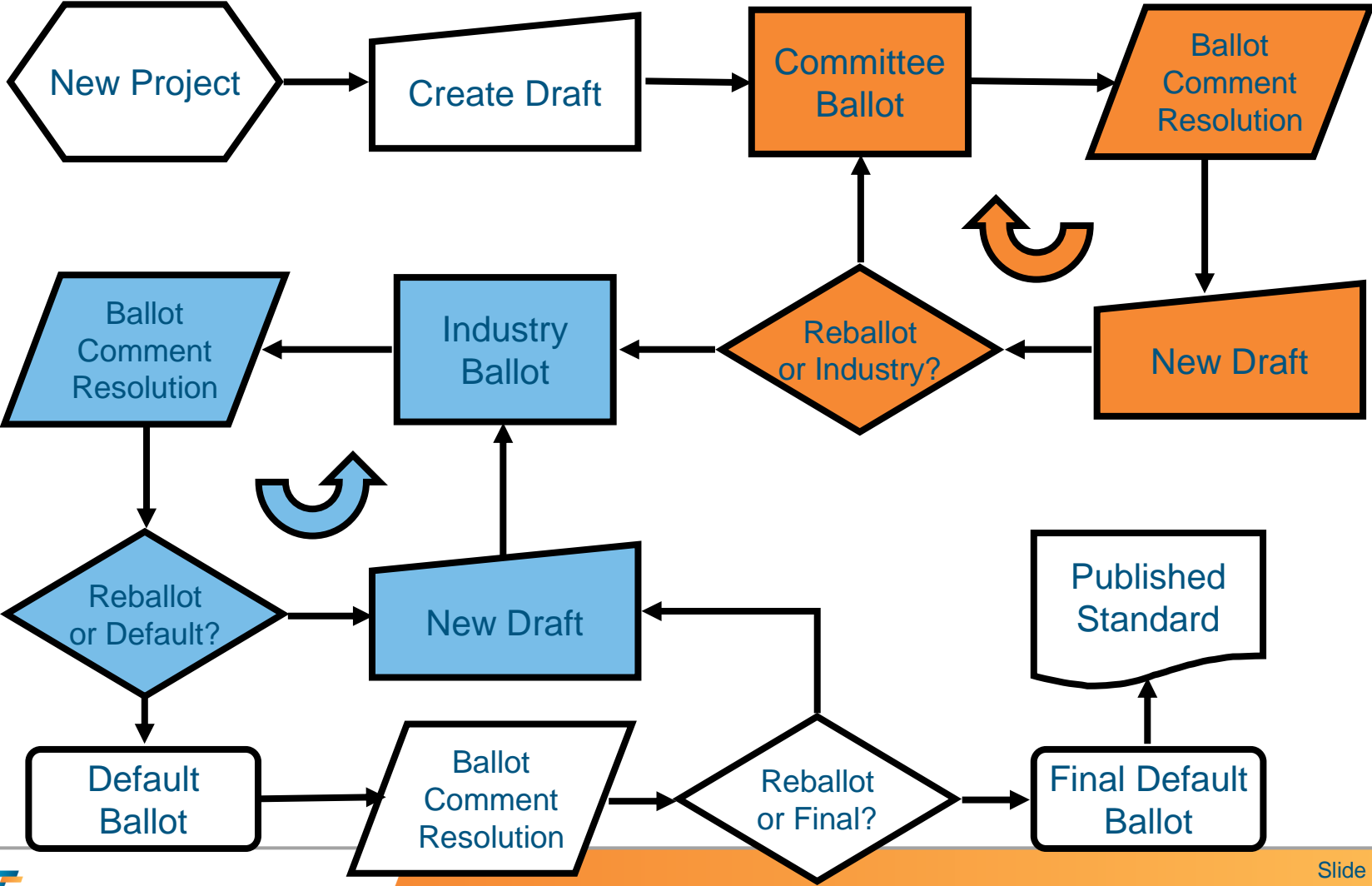


TR-42 Suite

- Common Standards
 - End-users
 - Broadly Applicable
- Premises Standards
 - End-users
 - Narrow Focus
 - Exceptions/Allowances to Common Standards
- Component Standards
 - Manufacturers



Ballot Process





Subcommittee Review

TR-42.1 - Generic and Commercial Building Cabling

November 7, 2009

TR-42.1: TIA-942 (Data Centers)

- First Revision Project Initiated
 - 568-C.0 Harmonization
 - Incorporate the two addenda
- New Contributions Reviewed
 - Energy Efficiency Considerations (among others)
 - Selection of cables with smaller diameters to minimize the volume of under floor cabling
 - Content on pathway considerations and effects on airflow
 - Content on spaces – enclosure selection/design to improve cooling efficiency
- Result: Issue for “mock” ballot

TR-42.1: Healthcare Facility Cabling Draft

- Healthcare Facility Cabling Standard
 - Committee Ballot
 - 19 Approve and 4 Disapprove with Comments
 - 568-C.0 Foundation
 - Content modeled on 568-C.1
 - Content specific to healthcare facility cabling
 - Larger spaces to support more services
 - More guidance on types of work areas and work area cabling
 - No CPs; use of MUTOAs for renovation, not initial design
 - New agreements
 - Centralized optical fiber pull-through to 300 meters
 - BTP media: Category 6 or higher recommended
 - Result: Modify document and issue for Industry Ballot

TR-42.1: Other Documents

- Building Automation Systems (BAS) – TIA-862
 - Industry Ballot
 - 13 Approve and 2 Disapprove with Comments
 - Revise and harmonize with the 568-C series
 - Result: Reballot

- MICE Tutorial TSB (Environmental Conditions & References)
 - Third committee ballot
 - 24 Approve and 1 Disapprove with Comments
 - Result: Modify document and publish



TR-42.1: New Subjects

- Passive Optical Networks (PON)
 - Traditionally deployed in FTTx architectures
 - Proposals for LAN deployment
 - Can be done in a 568-C.1-compliant manner
 - Still under study

- 568-C.0 and 568-C.1 Cleanup
 - Punch list of minor edits
 - 568-C.2 references to be addressed in 568-C.0 addenda
 - Punch list of additions/modifications
 - In study group



**New
Addendum
Project!**



Subcommittee Review

TR-42.3 – Pathways and Spaces

November 7, 2009

TR-42.3: Pathways and Spaces

- Third Revision Project (to be ANSI/TIA-569-C)
 - Third Committee Ballot
 - 8 Approve and 6 disapprove votes
 - Task Group still investigating power separation and RF noise effects of 10GBASE-T on UTP cabling
 - Content on airflow and ventilation improved
 - Result: Modify and issue fourth committee ballot
- First Addendum Project to ANSI/TIA-568-C.1 on P&S
 - Third Committee Ballot
 - 23 Approve and 3 disapprove
 - Cleaned content to remove duplication
 - Result – Issued for 4th committee ballot



Subcommittee Review

TR-42.4 – Outside Plant

November 7, 2009

TR-42.4 Outside Plant

- 758-B Revision Project
 - Second “mock” ballot closed
 - Recognize the existence of 568-C.0
 - Pertinent content from 590-A added to draft
 - Result: Modify and issue for committee ballot



Subcommittee Review

TR-42.7 – Copper Cabling Components

November 7, 2009

TR-42.7

- Revision of TSB-155 (10G on Category 6)
 - Committee ballot closed
 - C.2 References
 - ACRF instead of ELFEXT
 - PSACRF instead of PSELFEXT
 - Result – Default Ballot
- Addendum 1 of 568-C.2 on Balance
 - Task Group uncovered so many issues to address with balance it was felt the addendum project scope may no longer be sufficient
 - Addendum project is now inactive

TR-42.7

- Broadband Coaxial Cabling and Components (to be 568-C.4)
 - Mostly content from 570-A and 942 on coax
 - Result - Draft released for committee ballot

- A TSB project for shared pathways and shared sheath was approved
 - Scope specifically addressed mixing UTP cables, applications and manufacturers in pathways
 - Shielded cabling will not be addressed as no one felt there would be any issues with shielded cables





Subcommittee Review

TR-42.9 - Industrial

November 7, 2009

TR-42.9

- ANSI/TIA-1005 Revision
 - Second mock ballot closed
 - Align with 568-C.0 and include new technologies
 - Bonding and grounding content
 - Plastic optical fiber
 - Although industrial Ethernet is only starting to look at Gigabit Ethernet, the SC agreed to insert Cat 6A in the recognized media
 - Result – issue for committee ballot



TR-42.16 – Bonding & Grounding

November 7, 2009

TR-42.16

- Several task groups (finally) brought in content
- Most of the content was quickly reviewed and incorporated into the draft
- Some other content was either deemed incomplete or inaccurate and was dropped or sent back to the task groups
- The document will be going out for its first ballot



Application Standards Activity

November 7, 2009

IEEE 802.3at – Power over Ethernet Plus

- Objectives changed in March
 - “shall support a minimum of 24W of power at the PD PI”
 - Formerly 30W
 - 802.3at argued that 30W is not practically feasible, so they will go with "the highest we can".
 - The current draft is 25.5W
 - Category 5 (or better) systems with a DC loop resistance no greater than 25 ohms
- Released for publication and approved for publication
 - Will be available for free six months after publication



IEEE 802.3ba – 40G/100G

- Provide Physical Layer specifications which support 40 Gb/s over:
 - at least 10km on SMF
 - at least 100m on OM3 MMF
 - at least ~~10m~~ 7m over a copper cable assembly
 - at least 1m over a backplane
- Provide Physical Layer specifications which support 100 Gb/s over:
 - at least 40km on SMF
 - at least 10km on SMF (note: will be CWDM)
 - at least 100m on OM3 MMF
 - at least ~~10m~~ 7m over a copper cable assembly

IEEE 802.3ba – 40G/100G

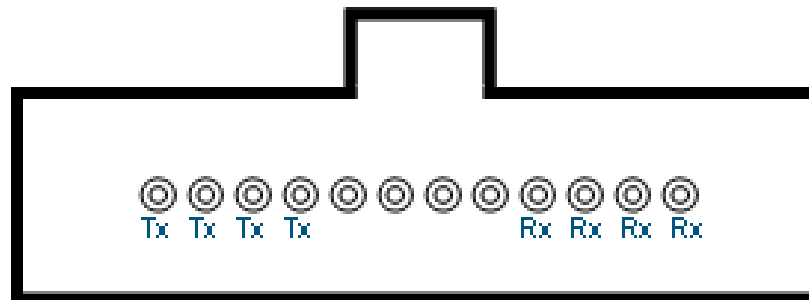
- Use of OM4
 - No objective for OM4, but content in latest draft addresses use
 - Discussions about tighter transceiver specifications for greater distance have received limited support

Table 86–9—40GBASE–SR4 and 40GBASE–SR10 illustrative link power budget

Parameter	OM3	OM4	Unit
Effective modal bandwidth at 850 nm	2000 ^a	4700 ^b	MHz·km
Power budget (for maximum TDP)		8.3	dB
Operating distance	0.5 to 100	0.5 to 125	m
Channel insertion loss ^c		1.9	dB
Allocation for penalties (for maximum TDP) ^d		6.4	dB
Additional insertion loss allowed		0	dB

IEEE 802.3ba – 40Gb/s

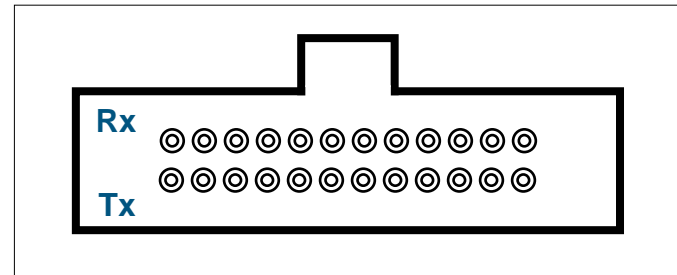
- Multimode solutions will be parallel
 - 4 TX and 4 RX for 40G
- 1 Option for 40 Gb/s
 - 1 MPO



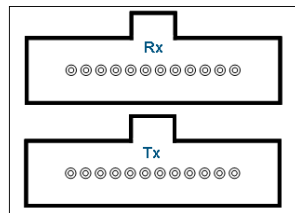
NOTE: all views are looking into transceiver

IEEE 802.3ba – 100 Gb/s

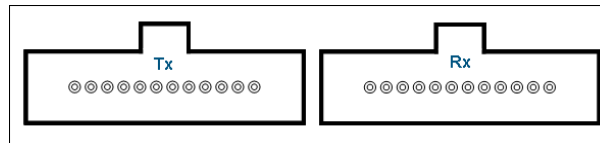
- Multimode solutions will be parallel
 - 10 TX and 10 RX for 100G
- 3 Options - all use the 10 center fibers
 - One 24-fiber MPO (preferred)
 - 2 MPO top and bottom



NOTE: all views are looking into transceiver



- 2 MPO side by side



IEEE 802.3ba

- No lane assignments (1-4 or 1-10)
 - Protocol will self-detect
 - Reduces importance of polarity for these applications
- Skew budget very generous
 - Not likely to be a concern unless building with duplex links with a length differential more than 15 meters
- Timeline shows publication in June 2010

IEEE 802.3az – Energy Efficient Ethernet

- Task Group IEEE 802.3az
 - Define a mechanism to reduce power consumption during periods of low link utilization for the following PHYs
 - 100BASE-TX (Full Duplex), 1000BASE-T (Full Duplex), 10GBASE-T
 - 10GBASE-KR, 10GBASE-KX4
 - Define a protocol to coordinate transitions to or from a lower level of power consumption
 - Proposals may provide 50-95% power reductions in idle periods
 - Timeline shows publication in early 2010, but already 3 months behind timeline



Purchasing Standards

November 7, 2009

Purchasing Standards

- TIA releases published documents to IHS
- IHS acts as a clearing house for order processing for multiple Standards Developing Organizations (SDOs)
 - www.ihs.com
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