Size of the Category 7$_A$ Installed Base

IEEE 802.3bq Next Generation BASE-T Task Force
(Topic: 25GBASE-T)
July, 2015
Waikoloa, HI

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- Alan Flatman, LAN Technologies

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- Martin Rossbach, Nexans

Objectives

- Use third party data to make an assessment of the installed base of category 7_A cabling in the data center

- Use third party data to make an assessment of the percentage of end-users that have some category 7_A cabling installed in their data center

- Remind the group of the multiple technical contributions demonstrating that 30m of category 7_A cabling should support 25GBASE-T

- Move that 30m of category 7_A cabling be incorporated into clause 113.7 of the next IEEE P802.3bq draft for support of 25GBASE-T

Background reference data

- This contribution updates maguire_1_0513_40GBT.pdf, which used data from the BSRIA World Structured Cabling Study (Nov, 2011)

- Volume and number of drops through the end of 2015 can be conservatively extrapolated from this report (assuming volume for 2012 , 2013, 2014, and 2015 is equivalent to 2011) as follows:

  – 450 million meters of cable shipped (39.2 + 46.2 + 45.7 + 64.2 + 51.9 x 5)

  – If the average channel length is 30m (20m solid and 10m stranded), then 22.5 million drops will be installed

  – If the average channel length is 40m (30m solid and 10m stranded), then 15 million drops will be installed

  – If the average channel length is 50m (40m solid and 10m stranded), then 11.3 million drops will be installed

New BSRIA data available (see Annex A)
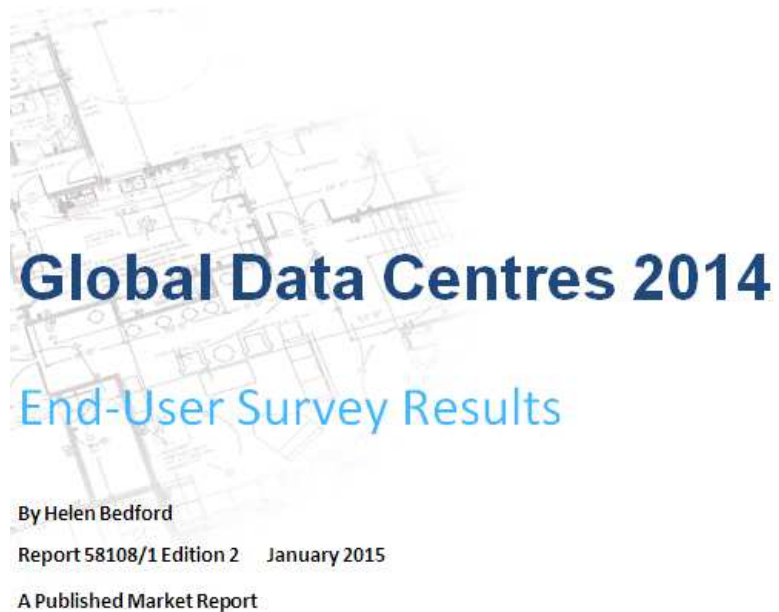
Global Data Centres 2014

End-User Survey Results

By Helen Bedford

Report 58108/1 Edition 2   January 2015

A Published Market Report

- BSRIA "Global Data Centres 2014, End-User Survey Results, Report 58108/1, Edition 2, January 2015

- Survey of 326 respondents

  - 187 representing enterprise data centers

  - 139 representing colocation data centers

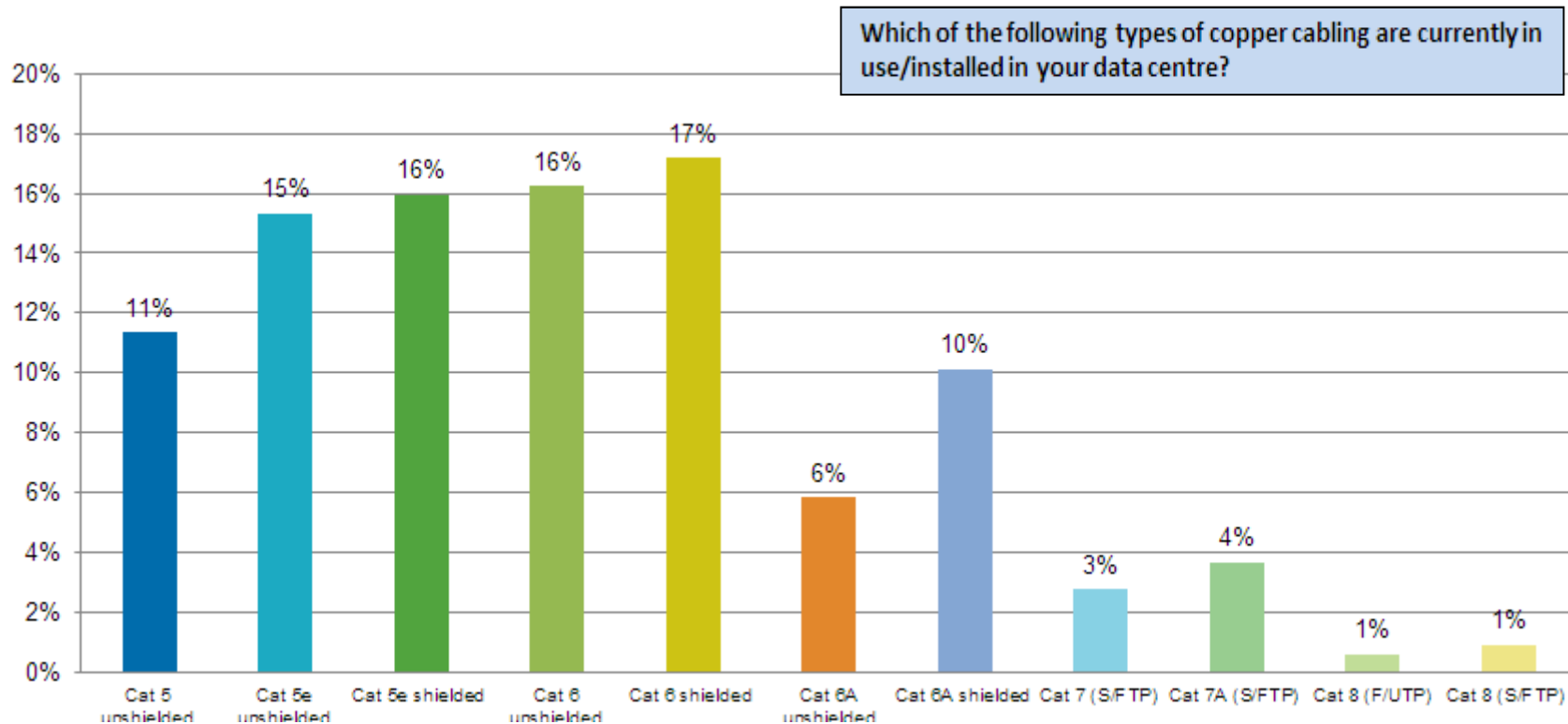- Extracts provided with the kind permission of BSRIA

Copper: Categories Installed

Which of the following types of copper cabling are currently in use/installed in your data centre?

- 4% of all data center cabling is category 7_A

Copper: Categories Installed - Summary of Means

Which of the following types of copper cabling are currently in use/installed in your data centre?

	Cat 5	Cat 5e (U/UTP)	Cat 5e sh (F/UTP)	Cat 6 (U/UTP)	Cat 6 sh (F/UTP)	Cat 6A (U/UTP)	Cat 6A sh(F/UTP)	Cat 7 (S/FTP)	Cat 7A (S/FTP)	Cat 8
■ TOTAL	25%	34%	36%	36%	38%	13%	23%	6%	8%	3%
■ Enterprise	20%	30%	29%	35%	33%	13%	20%	6%	6%	2%
■ Colocation	36%	42%	48%	38%	48%	14%	28%	6%	12%	6%
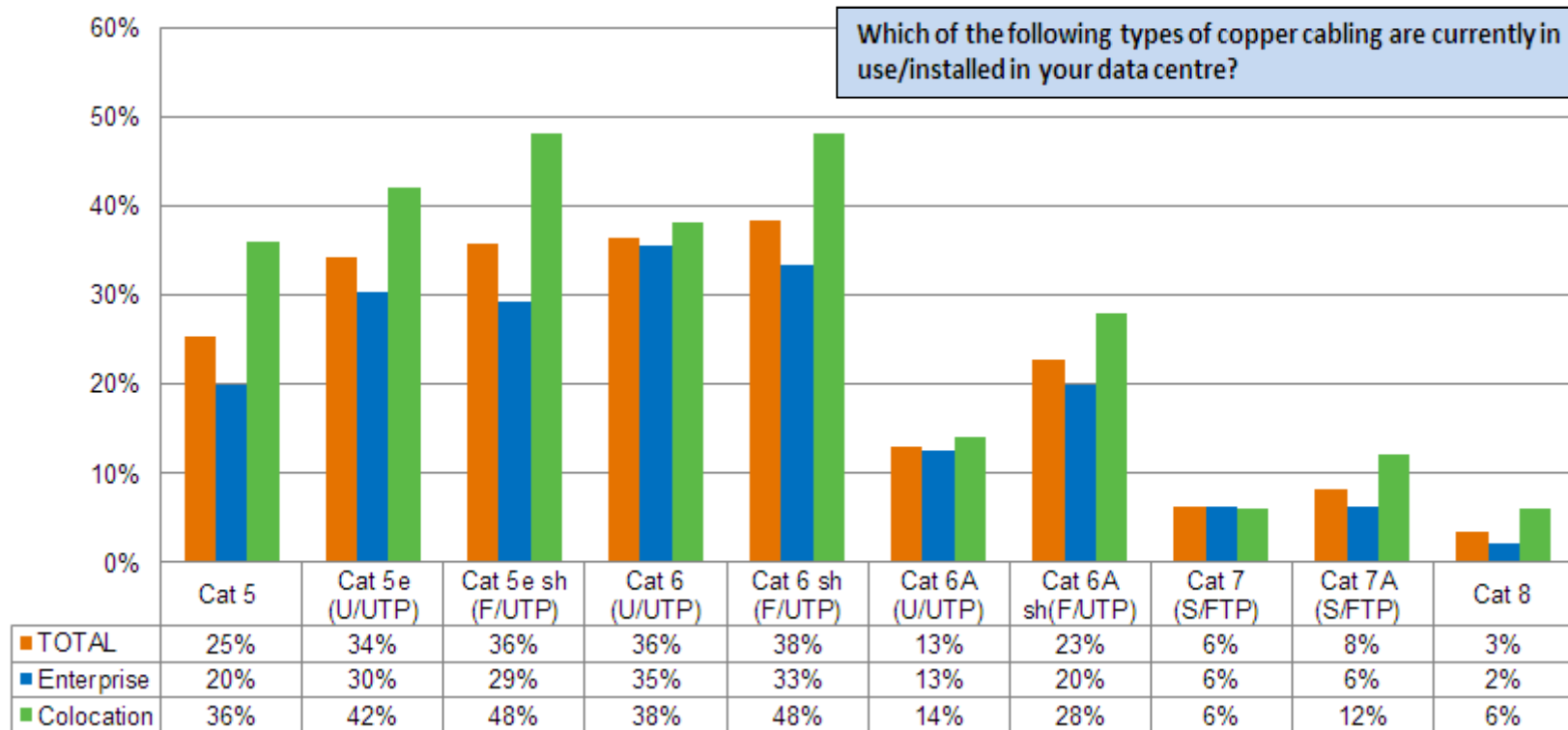
- However, 12% of colocation and 6% of enterprise data centers have some category 7_A cabling installed in them

Copper: Categories Installed Last 12months

What percentage of the total volume of each type of copper cable was bought in the last twelve months?

	Total	Enterprise	Colocation
■ Cat 5 unshielded	24%	21%	28%
■ Cat 5e unshielded	30%	25%	37%
■ Cat 5e shielded	35%	41%	29%
■ Cat 6 unshielded	43%	50%	31%
■ Cat 6 shielded	44%	42%	48%
■ Cat 6A unshielded	32%	51%	0%
■ Cat 6A shielded	44%	42%	48%
■ Cat 7 (S/FTP)	22%	28%	10%
■ Cat 7A (S/FTP)	57%	65%	49%
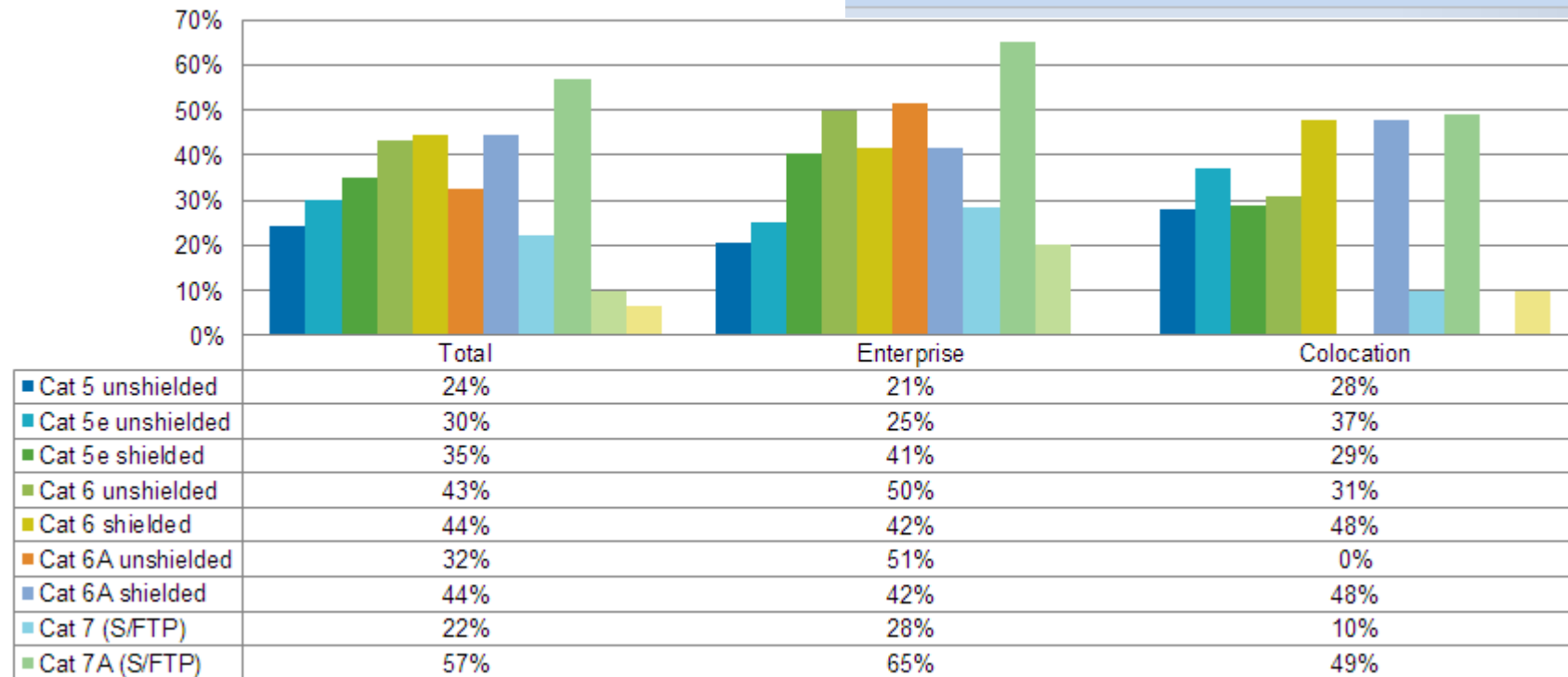
- And, in the last 12 months, 57% of data center end users have purchased category 7_A cable - these are potentially 25GBASE-T ready drops!

Conclusions

- Multiple technical contributions exist demonstrating that up to 30m of the installed base of class F_A cabling can support 25GBASE-T

  - "Cat 7A Channel Analysis", Stephen Bates

  - "Class FA Cabling for 25GBASE-T", Yakov Belopolsky

  - "ISO/IEC 11801-1 Cabling Characteristics", Dave Hess

  - "Comparison of Cat7A Channel and 802.3bq Link Segment Specification", Martin Rossbach

- 10 to over 20 million installed class F_A cabling drops will potentially be available to support 25GBASE-T by the end of the year

- 30m of category 7_A should be recognized for support of 25GBASE-T media and explicitly incorporated into clause 113.7 of the next IEEE P802.3bq draft

Annex A – Reference BSRIA market information

- The following extracts from BSRIA "Global Data Centres 2014, End-User Survey Results, Report 58108/1, Edition 2, January 2015 in this Annex have been provided with the kind permission of BSRIA

Global Data Centres 2014

End-User Survey Results

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A Published Market Report

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Global Data Centres – End-User Survey Results

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Edition no.	2

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Which of the following types of copper cabling are currently in use/installed in your data centre?

Breakdown of Copper by Category
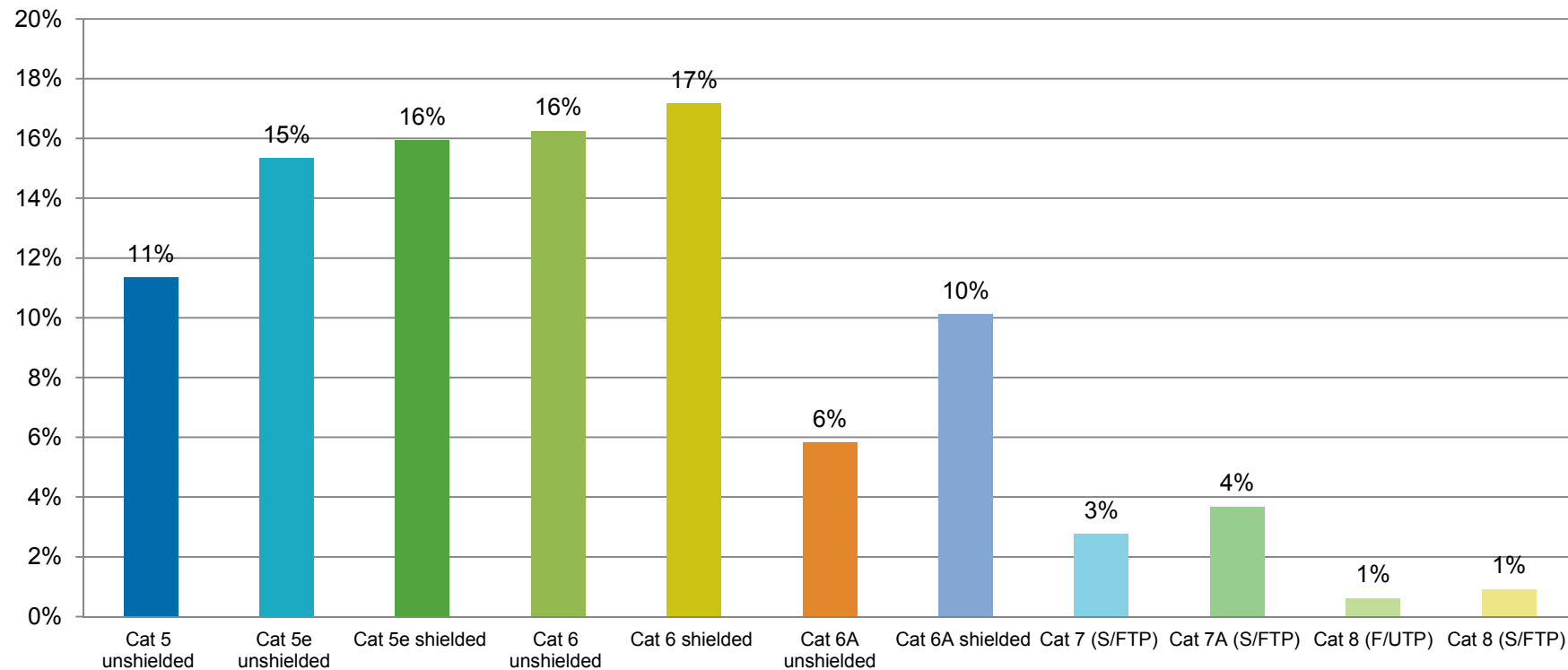
Overall, the biggest share in the installed base is taken by Cat6 (both shielded and unshielded) – 33%.

Cat5e is still holding its place in the Data Centres that participated in the Survey.

Cat6A accounts for 16%, while Cat 7 and Cat7A have a smaller percentage of the installed base.

Source: BSRIA

n=326

Copper: Categories Installed – Summary of Means

Which of the following types of copper cabling are currently in use/installed in your data centre?

	Cat 5	Cat 5e (U/UTP)	Cat 5e sh (F/UTP)	Cat 6 (U/UTP)	Cat 6 sh (F/UTP)	Cat 6A (U/UTP)	Cat 6A sh(F/UTP)	Cat 7 (S/FTP)	Cat 7A (S/FTP)	Cat 8
TOTAL	25%	34%	36%	36%	38%	13%	23%	6%	8%	3%
Enterprise	20%	30%	29%	35%	33%	13%	20%	6%	6%	2%
Colocation	36%	42%	48%	38%	48%	14%	28%	6%	12%	6%
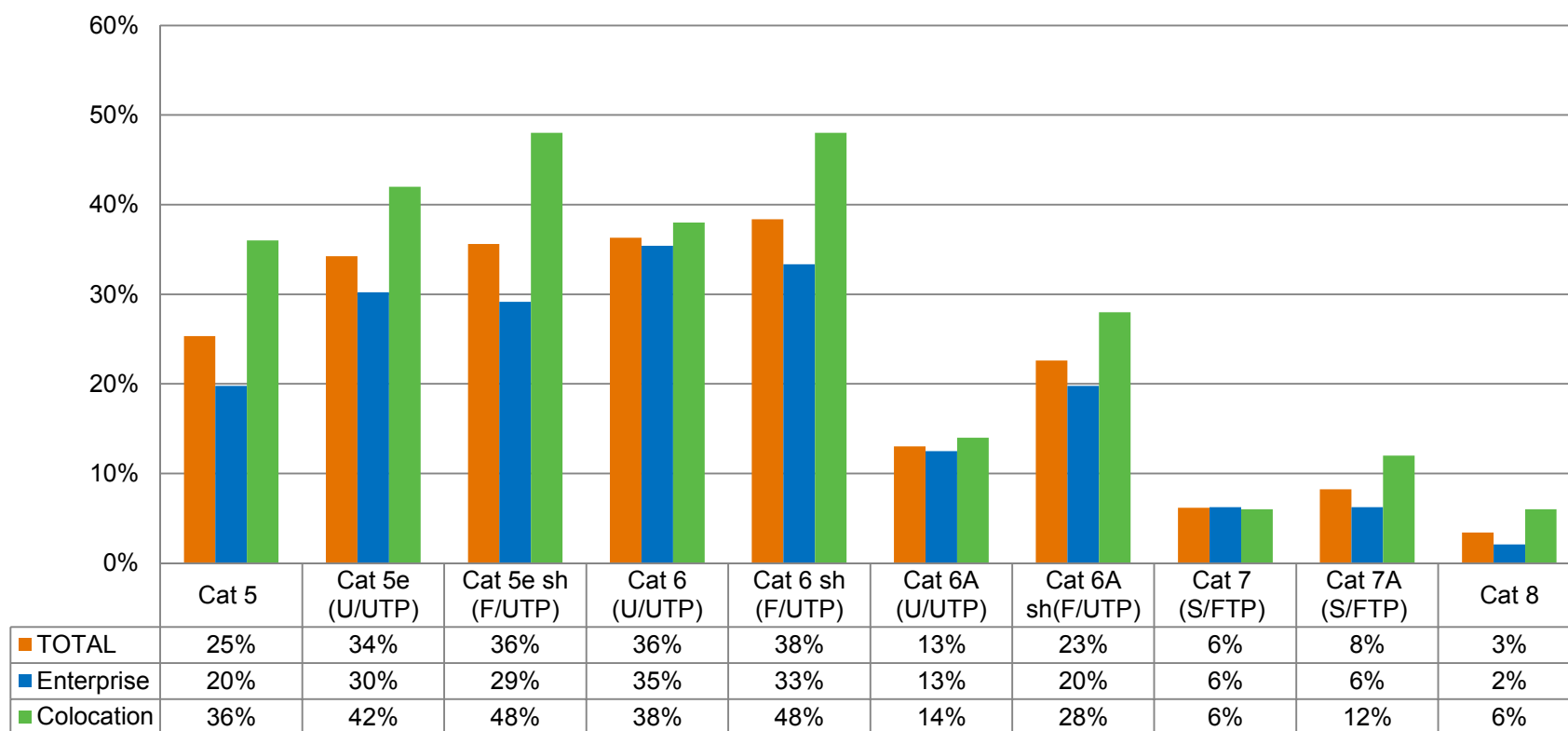
	Total	Enterprise	Colocation
Base: All who have at least 1% of copper in DC	146	96	50
Responses	326	187	139

Source: BSRIA

Copper: Categories Installed Last 12months

> **What percentage of the total volume of each type of copper cable was bought in the last twelve months?**

Copper Cable by Category: Bought Last 12 Months – Summary of Means

	Total	Enterprise	Colocation
■ Cat 5 unshielded	24%	21%	28%
■ Cat 5e unshielded	30%	25%	37%
■ Cat 5e shielded	35%	41%	29%
■ Cat 6 unshielded	43%	50%	31%
■ Cat 6 shielded	44%	42%	48%
■ Cat 6A unshielded	32%	51%	0%
■ Cat 6A shielded	44%	42%	48%
■ Cat 7 (S/FTP)	22%	28%	10%
■ Cat 7A (S/FTP)	57%	65%	49%
■ Cat 8 (F/UTP)	10%	20%	0%
■ Cat 8 (S/FTP)	7%	0%	10%
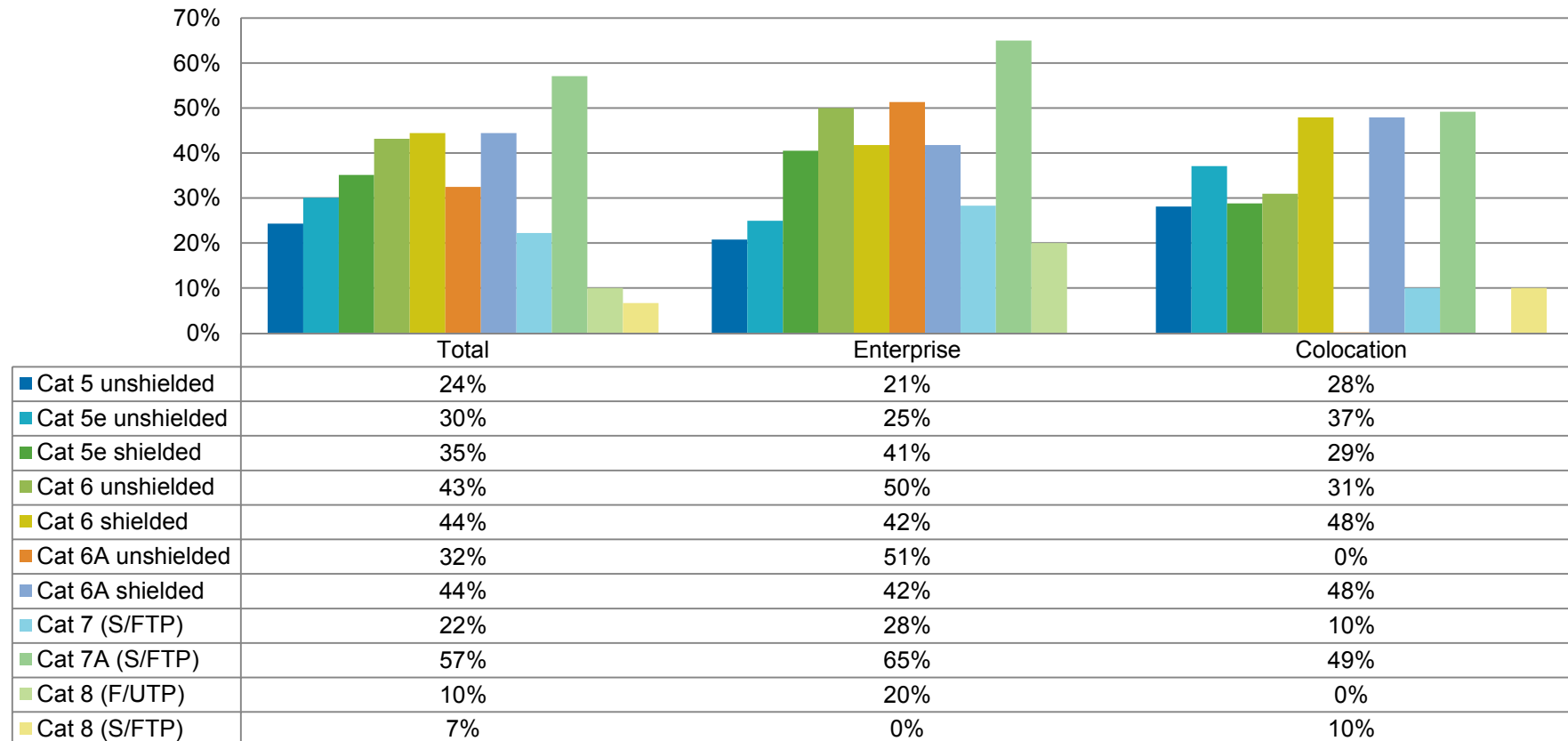
Note: The Cat5 cabling installed in the last 12 months has been in China and Brazil.
We believe that the end-users mix Cat5 and Cat5e in their responses

n=153, overall responses=326   *Source: BSRIA*

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