Size of the Category 7A Installed Base

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

Valerie Maguire, The Siemon Company
Supporters

- German Feyh, Broadcom
- Tom Souvignier, Broadcom
- Yong Kim, Broadcom
- Yakov Belopolisky, Bel Stewart
- Dave Hess, Cord Data
- Alan Flatman, LAN Technologies
- Yvan Engels, LEONI Kerpen
- 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 \((39.2 + 46.2 + 45.7 + 64.2 + 51.9 \times 5)\)
  - 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

• 4% of all data center cabling is category 7a
Copper: Categories Installed - Summary of Means

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

- TOTAL
- Enterprise
- Colocation

• However, 12% of colocation and 6% of enterprise data centers have some category 7A cabling installed in them.
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

By Helen Bedford

Report 58108/1 Edition 2 January 2015

A Published Market Report
Global Data Centres – End-User Survey Results

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Developed for: A published market report
Issued by: BSRIA Limited
Old Bracknell Lane West
Bracknell
Berkshire RG12 7AH
United Kingdom
Telephone: +44 (0)1344 465 600
Fax: +44 (0) 1344 465 626
Email: wmi@bsria.co.uk
Website: www.bsria.co.uk
No. of slides: 101
Compiled by: Helen Bedford
Approved by: Lone Hansen
Edition no. 2

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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 Cat 7A 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?

<table>
<thead>
<tr>
<th>Category</th>
<th>TOTAL</th>
<th>Enterprise</th>
<th>Colocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat 5 (U/UTP)</td>
<td>25%</td>
<td>34%</td>
<td>36%</td>
</tr>
<tr>
<td>Cat 5e (U/UTP)</td>
<td>34%</td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td>Cat 5e (F/UTP)</td>
<td>36%</td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td>Cat 6 (U/UTP)</td>
<td>34%</td>
<td>35%</td>
<td>33%</td>
</tr>
<tr>
<td>Cat 6 (F/UTP)</td>
<td>35%</td>
<td>36%</td>
<td>35%</td>
</tr>
<tr>
<td>Cat 6A (U/UTP)</td>
<td>38%</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Cat 6A (F/UTP)</td>
<td>13%</td>
<td>20%</td>
<td>6%</td>
</tr>
<tr>
<td>Cat 7 (S/FTP)</td>
<td>23%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Cat 7A (S/FTP)</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Cat 8</td>
<td>3%</td>
<td>2%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**Base:** All who have at least 1% of copper in DC

<table>
<thead>
<tr>
<th>Total</th>
<th>Enterprise</th>
<th>Colocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td>96</td>
<td>50</td>
</tr>
<tr>
<td>326</td>
<td>187</td>
<td>139</td>
</tr>
</tbody>
</table>

Source: BSRIA
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

<table>
<thead>
<tr>
<th>Copper Cable Category</th>
<th>Total</th>
<th>Enterprise</th>
<th>Colocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat 5 unshielded</td>
<td>24%</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>Cat 5e unshielded</td>
<td>30%</td>
<td>25%</td>
<td>37%</td>
</tr>
<tr>
<td>Cat 5e shielded</td>
<td>35%</td>
<td>41%</td>
<td>29%</td>
</tr>
<tr>
<td>Cat 6 unshielded</td>
<td>43%</td>
<td>50%</td>
<td>31%</td>
</tr>
<tr>
<td>Cat 6 shielded</td>
<td>44%</td>
<td>42%</td>
<td>48%</td>
</tr>
<tr>
<td>Cat 6A unshielded</td>
<td>32%</td>
<td>51%</td>
<td>0%</td>
</tr>
<tr>
<td>Cat 6A shielded</td>
<td>44%</td>
<td>42%</td>
<td>48%</td>
</tr>
<tr>
<td>Cat 7 (S/FTP)</td>
<td>22%</td>
<td>28%</td>
<td>10%</td>
</tr>
<tr>
<td>Cat 7A (S/FTP)</td>
<td>57%</td>
<td>65%</td>
<td>49%</td>
</tr>
<tr>
<td>Cat 8 (F/UTP)</td>
<td>10%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>Cat 8 (S/FTP)</td>
<td>7%</td>
<td>0%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**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.

Source: BSRIA

n=153, overall responses=326
BSRIA's Worldwide Market Intelligence division is a globally recognised source of strategic market intelligence and consultancy in the building services industry.

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