connectivity@MC
a transformational approach to fixing field bandwidth

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Your assumptions are your windows on the world. Scrub them off once in a while, or the light won’t come in.

- Isaac Asimov
A PATH TO SUCCESS

- Where we started
- Approach
- Results
- DIY
2018 – Problems and Opportunities

- Adopting global technology solutions
- Unmanaged bandwidth
- Poor infrastructure
- Coping strategy/limited vision
Bright Spots

- Improved global connectivity
- Cisco Tech For Impact Meraki Rollout
- Expanded regional team
- Ready for change
The Old Way
A Better Way
A Better Message

In order to fulfill our mission, every Mercy Corps team member needs fast, reliable and secure internet access
People First

• Identify stakeholders and their motivations
• Identify who to work with
• Send a strong message
  • Multiple channels
  • Consistent messaging
• Partnership not policy
Next, Process

1. Standards and Methodology
2. Baselining and Reporting
4. Deep Dives to address unacceptable sites
5. Involve executive team for final push
6. Operationalize
Measurement

- Connectivity is complicated
- Detailed *and* Simple
- User Point of View
- Base Score with modifications
- Good/OK/Unacceptable categories
- Stakeholder feedback
- Validation: Test and calibrate assumptions
<table>
<thead>
<tr>
<th>Health Status</th>
<th>Points Range</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>&gt;80</td>
<td><strong>Good.</strong> Sufficient, reliable, managed internet connectivity. Users can access all line-of-business with good response times, multi-party web video conferences are possible, and PCs can be kept up to date.</td>
</tr>
<tr>
<td>Acceptable</td>
<td>60-80</td>
<td><strong>Acceptable.</strong> At this level, users will be able to access all line-of-business applications (Navigator, Google G-Suite, Ultipro, Tola, etc.) but they may respond slowly. Web-based text and audio conversations will generally be reliable, but users will not have a good experience with web video conversations. Moderately restrictive bandwidth management with some blocking of non-business traffic categories may be in place to improve performance.</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>&lt;60</td>
<td><strong>Unacceptable.</strong> Timeouts and very slow response when using line-of-business applications. Audio and video conferencing unreliable during business hours. Traffic from a single user can saturate the entire link. PCs cannot be updated without disrupting service for other users. Service may be subject to lengthy interruptions due to poor infrastructure or lack of support.</td>
</tr>
</tbody>
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Data Gathering and Reporting

- Crowdsources Data Gathering!
- Share Results
  - Online Dashboard
  - Quarterly Status Reports
- Keep it fresh
- Interpret results with infographics
Connectivity@MC - At a Glance

Internet Status By Office

<table>
<thead>
<tr>
<th></th>
<th>Q2 2018</th>
<th>Q3 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptable</td>
<td>48%</td>
<td>31%</td>
</tr>
<tr>
<td>Acceptable</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>Good</td>
<td>13%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Deep Dives Completed
Detailed office connectivity assessments with recommendations

51%
Cisco Meraki Upgrades Complete
Meraki network upgrades improve internet access, visibility, and security
Baseline Results

45 of 144 sites listed as “unacceptable”
- 31% of sites
- 17% of user population

Per-megabit cost difference between cheapest and most expensive location: **1:918**
Next Go Deep!

**Deep Dive Process**
- Deep dive - planning and questioner notes
- Deep Dive Report and Analysis
- Deep Dive Report Discussed with SMT
- Site Upgraded?
- Yes: Deep Dive
- No: Site Upgraded?
- Yes: Deep Dive Report and Analysis
- No: Deep Dive - planning and questioner notes

**Connectivity@MC Dashboard**
- https://officebandwidth.mercycorps.org
- % of offices by health
- % of users by health
- Office Connectivity Map
- Office Connectivity Table
Mercy Corps DRC Connectivity Improvement Project
Kiwanja and Kayumu Offices
FY19 Q3

As part of the Mercy Corps internet connectivity improvement project, we have identified poor or slow internet connectivity that led to the two offices falling under the “Red” or “Unacceptable” category. We further investigated with an assessment and found the Kayumu Connectivity infrastructure has been upgraded from a single WWAN link to three WWAN links dedicated to 1 Mbps downlink/512 Kbps uplink. The VSAT link subscribed to 1 Mbps downlink/512 Kbps for 49 users is sufficient for the number of staff.

The Kiwanja office is using Ku-band VSAT internet connection with 1 Mbps dedicated for the LTE users. Although the existing internet connection in Kiwanja office is considered acceptable by the DRC IT team, it is falling below the minimum standard, and we feel that the performance should be improved. We recommend the following solutions:

- The internet connection in Kiwanja is expensive since we are using VSAT internet link.
- The connectivity and service if viable and affordable.
- The solution must be acceptable by the DRC IT team.

The estimated upgrade cost for Ku-band VSAT subscription to 1 Mbps dedicated can reach up to USD $15,000. However, if we are lucky to upgrade to WWAN link as what we did in Kayumu, then our cost will go down to USD $500 or less.
Mitigation Tool Kit

- Cisco Meraki FastTrack
- ISP Interventions
- Infrastructure Improvements
- Upgrade, add, or replace connections
How Did We Do?

135
Offices worldwide

% of offices by health

100%
50%
0%

Green: Good
Blue: Unacceptable

4925
Total Users

% of users by health

100%
50%
0%

Green: Good
Blue: Unacceptable
What’s Next?

- Involve Executive Leadership
- Operationalize Process
- Expand
- Spread the Knowledge
Questions?