Procedure: ENG-010-Access Point Performance Evaluation

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Purpose

Identify symptoms of under-performance of one or more Access Points.

Summary

Related Templates: Access Point Performance Evaluation Summary ("Summary")
Primary audience: Network Operations
Other involved teams: Field Operations, Technical Support

An Access Point Performance Evaluation is an assessment of how one or more Access Points (APs) are performing, and includes reviewing traffic data, customer premise equipment (CPE) signals, customer reports, and any other relevant data.

It is important to perform Access Point Performance Evaluations regularly to proactively address service issues, and identify service issues that may be network related but not identified during normal troubleshooting. In addition, regularly recorded data can make troubleshooting easier in the future.

For brevity, the Access Point Performance Evaluation Summary will be referred to within this document as "Summary."

Steps

1. Create a new document from the Summary template for each of the APs under evaluation. Use the following syntax to name the files:

   ```
   {site code}_AP_{direction of AP}_EVAL_{YEAR-MM-DD}.doc
   ```

   For example:

   ```
   WAI34_AP_NW_EVAL_2019-05-30.doc
   ```

2. Fill in identification details about each AP to make it easier to keep track of the documents.

3. Review the most recent Summary files, if any are available.

4. Log in to the historical traffic graph software, each of the APs, the router that serves DHCP to the APs, and the customer management system (CMS).

5. Record the information discovered from each system and device in the matching Summary file, including screenshots of graphs as needed. Use the Identifying poor performance section within this document as a reference to ensure any symptoms of problems are identified and recorded.

6. If issues are present, follow the appropriate troubleshooting procedure to ensure resolution.

Identifying poor performance

Historical traffic graph software

Locate the site within the historical traffic analysis software, and view the following graphs:

- All traffic going back to when the site was first installed
- All traffic approximately since the last site evaluation
- Ping data for each AP
- Ping data for the serving router
- Traffic for each AP
- A similar site for comparison

When viewing each graph, look for the following evidence of poor performance:

- Large usage spikes
- Sudden drops in traffic
- Missing data
- Normal traffic patterns over time, compared to a similar site
- Packet loss
- Latency
- Relationship between any packet loss or latency and high usage times
- Discrepancy between the number of customers on an AP and the amount of traffic

DHCP-serving router

Within the DHCP-serving router, look for the following evidence of poor performance:

- Unusually long DHCP leases.
- DHCP leases continuously renewing in an unusually short time period.
- An excessive number of connections active, especially from the same origin or destination IP.

CMS

In the CMS, search for the history of calls/emails from customers on the AP. The history of calls and support tickets may indicate an issue, and speed test results in the notes from Tech Support may be relevant to the health of the AP or upstream network.

APs

Inside an AP, look for the following evidence of poor performance:

- The number of clients registered, which should be the same number in CMS.
- The re-registration count for each CPE, if one or more is excessive.
- The signal levels for each client, if one or more is weak or excessively strong.
- Errors such as forward error corrections (FECs).
- Log messages that suggest unusual behavior or errors due to low signal.
- Modulation rates for each CPE.