
AP Analytica

Access Point Analytics Glossary

Version 1.2

AP Analytica	Version: 1.2
Glossary	Date: 4/8/2020

Revision History

Date	Version	Description	Author
10/06/2019	1.0	Initial Draft	Hung Doan, Bradley Schoeneweis (reviewer)
10/16/2019	1.1	Added three KPIs: AP Utilization, Client Failed Authentication. Rogue AP	Hung Doan
4/8/2020	1.2	Formatting, editing, redo KPIs section	Bradley Schoeneweis

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Glossary

1. Introduction

This is the glossary for the Access Point Analytics project done by AP Analytica. This document will provide guidance, clarification, and definitions regarding all terms and jargon used in and around this project.

1.1 Purpose

The purpose of this Glossary is to define a standard meaning of technical terms and vocabulary within the project.

1.2 Scope

The scope of this document is to provide standard background information in the Access Point Analytics web application, and the data found within the web application.

1.3 Overview

This Glossary document will first define the technological terms associated with Wi-Fi networking, and then will provide definitions of expected Key Performance Indicators within the project.

2. Definitions

2.1 Networking Terminology

2.1.1 Access Point (AP)

A wireless Access Point is the device that allows wireless devices to connect to a wired network using Wi-Fi. There are more than 3,200 access points across the TCU campus.

2.1.2 Access Point Group

An Access Point Group is a group of APs with the same configuration and SSIDs. Groups are set up or defined by the usage of the clients. For example, “eduroam” (a wireless network on TCU’s campus) is set up for students and faculties all across campus; while “labwireless” only serves as the Wi-Fi channel in the labs, and will not be broadcasted in dorms or classrooms.

2.1.3 Mesh Access Point (MAP)

An Access Point that associates with its neighboring APs to form a connected network.

2.1.4 Root Access Point (RAP)

The Mesh Access Point that acts as an intermediary between the network (connected via ethernet) and the rest of the MAPs.

2.1.5 Simple Network Management Protocol (SNMP)

The protocol is based on community string (password) with Read (R) or Read & Write (RW) permissions. SolarWinds talks to the devices in real time and pulls in information. Information on Wi-Fi is polling the controllers.

2.1.6 Received Signal Strength Indicator (RSSI)

RSSI is the measurement of power present in a received radio/wifi signal

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2.2 Key Performance Indicators

2.2.1 *Key Performance Indicator (KPI)*

For the purposes of this project, a Key Performance Indicator refers to a specific and recurring metric observed over different aspects of the TCU wireless network operated by +3,200 Access Points.

2.2.2 *Anomaly Detection*

This is an implementation of a Machine Learning algorithm that weighs the levels of all the other KPI's and determines if an Access Point is presenting an issue.

2.2.3 *Access Point Utilization (AP Utilization)*

If an Access Point gets a very high level of traffic on a recurring basis, that area is due for another AP to spread the load or a high density AP. This would be something to alert by the program.

2.2.4 *Channel Utilization*

Similar to Access Point Utilization, this shows the various levels of usage per Access Point, but on a channel basis. This will help to determine if another AP is needed in the area.

2.2.5 *Client Count*

A measurement of the peak and average number of clients that were connected to each Access Point across campus within the past 24 hours.

2.2.6 *Coverage Holes*

When outages occur or an Access Point is down, this may cause an area to not offer Wi-Fi coverage. The nearby AP's will then need to cover those holes on the map (alter power levels to provide coverage).

2.2.7 *Power/Channel Fluctuation*

Access Points's needs to remain at a stable TX power level throughout the day. If the TX power level fluctuates frequently, that AP or area should be flagged over several days.

2.2.8 *Rogue Access Points (Rogue AP)*

A Rogue Access Point is an AP broadcasting on TCU property without permission.