Rentit's Maintenance Plan

An equipment Maintenance Plan is an important management instrument that keeps track of the operational state of the equipment (aka plants), all the performed/scheduled maintenance tasks, the maintenance expenses, among other information. In the end, the goal of this plan is to ensure that maintenance is consistently done in all the plants of the fleet.

In Rentit, planning of maintenance tasks happens in the beginning of the year. For every plant in the fleet, Rentit's engineers design a maintenance plan by analyzing the current equipment's condition and the recommendations provided by the constructors of the equipment. The equipment's condition can be one of the following: Serviceable (i.e. the plant if fully operational), Unserviceable Repairable (i.e. the plant is failing and needs repairs), Unserviceable Incomplete (i.e. the plant is failing and the maintenance team is waiting for supplies to complete the repair), Unserviceable Condemned (i.e. the plant suffered a major damage such that it can no longer be used). With this information, the engineers schedule a series of preventive maintenance tasks. The list of scheduled preventive tasks represent the initial maintenance plan for the year of action. It is worth noting that the equipment's condition is updated at the end of every maintenance task.

In addition to preventive maintenance tasks, the plan keeps track of corrective and operational maintenance. Preventive maintenance tasks are regularly performed, on serviceable plants, to reduce the likelihood of a plant to fail. Corrective maintenance tasks are performed to identify, isolate and repair the the cause of any failure in a failing plant. Finally, operational maintenance tasks refer to routine inspection, cleaning, servicing, lubricating and adjusting of plants as required. This type of maintenance is usually performed by nonspecialized technicians.

Overall, the expected benefits of integrating maintenance plans into Rentit's information system are:

* Reduced equipment downtime
* Increased life expectancy
* Circumvention of costly, large-scale repairs by timely routine tasks
* Improved safety and quality-of-service for customers
* Improved planning of acquisition/replacement of equipment

In our simplified scenario, every physical plant is associated with a record in the information system that we will refer to as Plant Inventory Item. This record contains at least the serial number of the equipment. Somehow this record is independent of the plant description that one usually shares with customers for consult, in the form of the plant catalog. We will refer to that information as the Plant Inventory Entry.

Finally, we need to take into account that Rentit's information system requires a reservation module. The latter is a subsystem that keeps track of dates for both rentals and scheduled maintenance tasks of a given plant, as a way to avoid any clash.