

## **ElevatorSpecificScheduler – State specific calculation for the Next floor to visit**

The following tables show how the next floor that an particular elevator will be determined based on the current ElevatorSpecificSchedulerState, the current floor, and remaining floors to visit in both directions.

### **NOTE ABOUT LOAD BALANCING**

Currently, the plan is to make the system such that every incoming floor request shall be permanently allocated to a particular instance of ElevatorSpecificScheduler. The distribution of the requests will be done in by algorithms in ElevatorSpecificSchedulerManager, and there are currently no plans to implement systems to move requests from a very busy ElevatorSpecificScheduler to a less busy ElevatorSpecificScheduler.

### **State Accronyms – From ElevatorSpecificSchedulerState (Enumeration)**

[ANER] – AWAITING\_NEXT\_ELEVATOR\_REQUEST

[SD] – SERVICING\_DOWNWARDS\_FLOORS\_TO\_VISIT

[SU] – SERVICING\_UPWARDS\_FLOORS\_TO\_VISIT

[MDSU] – MOVING\_DOWN\_TO\_LOWEST\_UPWARDS\_FLOOR\_TO\_VISIT

[MUSD] – MOVING\_UP\_TO\_HIGHEST\_DOWNWARDS\_FLOOR\_TO\_VISIT

### **Arriving at floor in [SD] State**

Next Floor Number and State	Has more down stops below or at current floor	Has more down stops above current floor	Has more up stops below current floor	Has more up stops above or at current floor
-1, Elevator Idle [ANER]	F	F	F	F
Highest down floor above current. [MUSD]	F	T	F	F
Lowest up floor above current [SU]	F	Don't care	F	T
Lowest up floor below current. [MDSU]	F	Don't care	T	Don't care
Highest down stop below current floor [SD]	T	Don't care	Don't care	Don't care

**Arriving at floor in [SU] State**

Next Floor Number and State	Has more down stops below or at current floor	Has more down stops above current floor	Has more up stops below current floor	Has more up stops above or at current floor
-1, Elevator Idle [ANER]	F	F	F	F
Lowest up floor above current [SU]	Don't care	Don't care	Don't care	T
Lowest up floor below current [MDSU]	F	F	T	F
Highest down floor above current [MUSD]	Don't care	T	Don't care	F
Highest down floor below current [SD]	T	F	Don't care	F

**Arriving at floor in [MDSU] State**

Next Floor Number and State	Has more down stops below or at current floor	Has more down stops above current floor	Has more up stops below current floor	Has more up stops above or at current floor
-1, Elevator Idle [ANER]	F	F	F	F
Highest down floor above current [MUSD]	F	T	F	F
Lowest up floor above current [SU]	F	Don't care	F	T
Lowest up floor below current [MDSU]	F	Don't care	T	Don't care
Highest down floor below current [SD]	T	Don't care	Don't care	Don't care

**Arriving at floor in [MUSD] State**

Next Floor Number and state	Has more down stops below current floor	Has more down stops above current floor	Has more up stops below current floor	Has more up stops above current floor
-1, Elevator Idle [ANER]	F	F	F	F
Lowest up floor above current [SU]	Don't care	Don't care	Don't care	T
Lowest up floor below current [MDSU]	F	F	T	F
Highest down floor above current [MUSD]	Don't care	T	Don't care	F
Highest down floor below current [SD]	T	F	Don't care	F

**Arriving at floor in [ANER] state**

Next floor number and state	Has more down stops below current floor	Has more down stops above current floor	Has more up stops below current floor	Has more up stops above current floor
-1, elevator idle [ANER]	F	F	F	F
Lowest up floor below current [MDSU]	F	F	T	F
Highest down floor above current [MUSD]	F	T	Don't care	F
Lowest up floor above current [SU]	F	Don't care	Don't care	T
Highest down floor below current [SD]	T	Don't care	Don't care	Don't care

\*\*When elevator is idle, prioritize going down over going up. Down requests are more likely to lead to people leaving the building, and prioritizing upwards requests may lead to overcrowding